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The Hohokam Archaeology of the Tucson Basin

William H. Doelle, Center for Desert Archaeology

NEARLY A CENTURY AGO, Ellsworth Huntington, a geographer from Yale University, carried out scientific archaeology in the Tucson Basin and farther west onto what is now the Tohono O'odham Reservation. Huntington formulated a theory about the strong role that environment played on human behavior based in part on the evidence from ancient sites that he observed around Tucson.

When Harold Gladwin established the Gila Pueblo Foundation and began his studies of the Red-on-Buff Culture—now generally known as the Hohokam—Tucson received some attention during the foundation's early surface surveys. In addition, soon after he had completed major excavations on the Gila River at the site of Snaketown, Gladwin hired Isabel Kelly to excavate at Tucson's Hodges Ruin in 1937–1938. Gladwin tended to see the Tucson material from a Gila River perspective, whereas Kelly saw both parallels and contrasts. Their failure to forge a single perspective hastened Kelly's departure from Gila Pueblo, and the manuscript describing her excavations was not published until 1978.

In the mid-1970s, Hohokam archaeology emerged from a long period of near-dormancy. The year 1975 saw publication of a report on the 1965 excavations on the San Xavier District of the Tohono O'odham Nation at the site of Punta de Agua before Interstate 19 was extended south from Tucson. And early in 1976, Emil Haury, of the University of Arizona, published his major work on the re-excavation of Snaketown. Then, in 1981, Paul and Suzanne Fish, of the Arizona State Museum, initiated the Northern Tucson Basin Survey, which ultimately covered more than 100 square miles. Their work ignited a new interest in Tucson Basin archaeology. The pace of contract-funded research increased rapidly in the 1980s and continues to be the primary source of new research to the present.

Although many of Kelly's observations about Tucson Basin archaeology were very perceptive for the time, archaeologists have learned much more about the region since then. The chronology of key developments between A.D. 50 and 1450 has been refined, and the patterns of major village location, subsistence practices, and overall population growth are reasonably well sketched. For some time periods, there is a rich database from large numbers of excavations.

Haury's work at Snaketown led him to see the Hohokam as immigrants from Mexico who, around 300 B.C., brought with them a complex of crops, irrigation, crafts, and ideology that made settled village life possible. Evidence for maize is now documented at 4,000 years ago and canals date back at least 3,500 years based on recent work in the Tucson Basin



Henry D. Wallace

Major construction projects in Tucson over the past several decades have led to new insights into Hohokam archaeology. At the Interstate 10/Interstate 19 interchange pictured here, and in other locations as well, sites were also preserved for the future.

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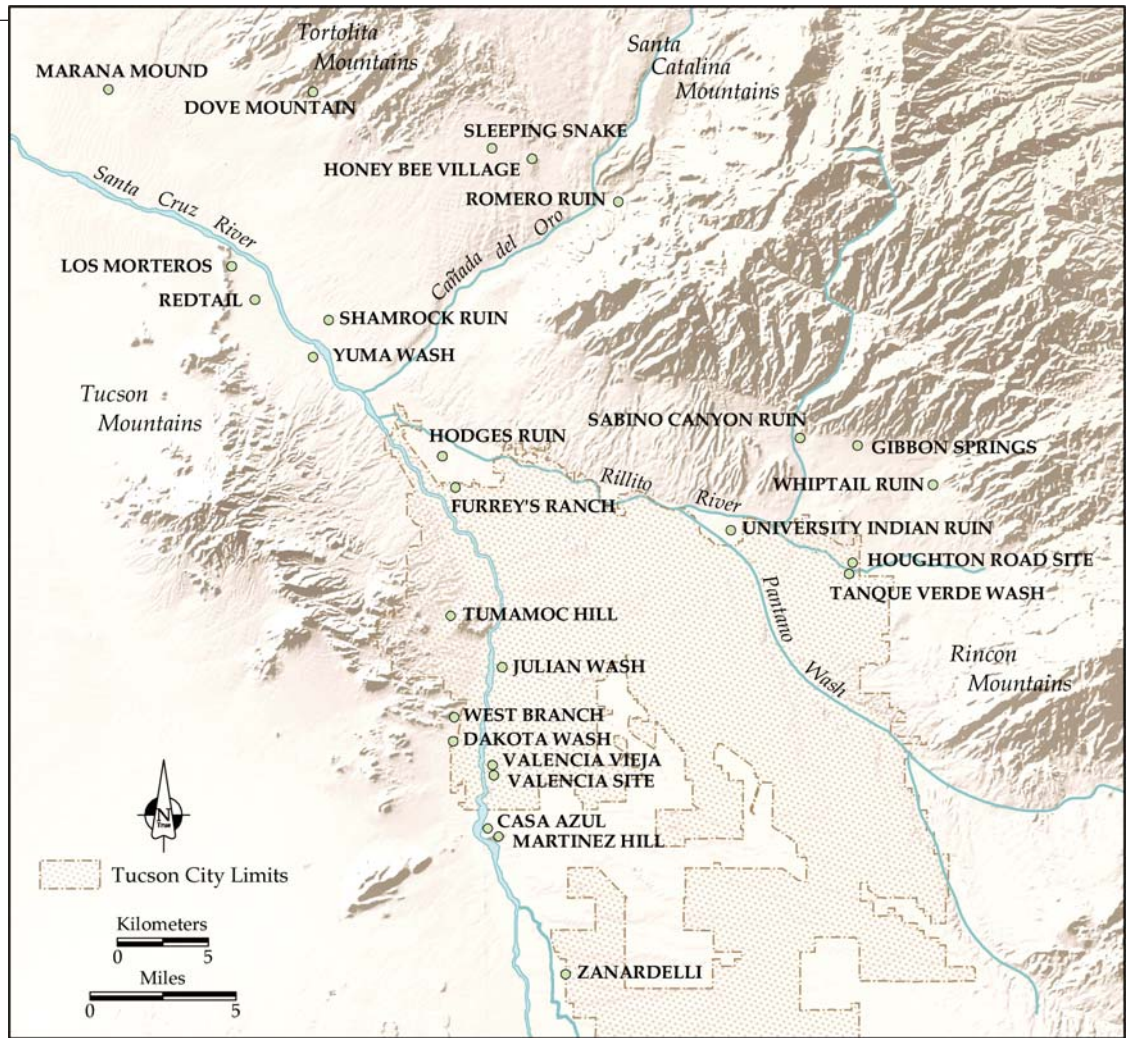
and elsewhere, facts that have altered current views of the origins of the Hohokam. Henry Wallace and his colleagues have argued that true sedentism emerged when plaza-oriented villages developed soon after A.D. 400.

This issue begins its generally chronological sequence with articles about two early village sites that were contemporaneous but located in very different settings. Wallace reports on excavations at the site of Valencia Vieja, and Suzanne and Paul Fish and Gary Christopher-son discuss the settlement that was located on Tumamoc Hill.

Sedentism and population growth proceeded at an even greater pace along the Salt River and the Gila River, and it was probably in the context of those early villages and their extensive irrigated farmlands that the ideology and economy that were quite distinctively Hohokam emerged. By 800, ballcourts, red-on-buff painted pottery, and other craft products were widely distributed across the riverine areas of what is now southern Arizona.

A brief review of three southern Tucson Basin ballcourt communities is provided by Wallace, and then two articles—one by Eric Klucas, and another by Mike Lindeman and Homer Thiel—address the site of Redtail. Recent extensive excavations at Honey Bee Village have yielded a detailed view of a moderately sized ballcourt village on the north side of the basin.

An exceptional number of Middle Rincon phase (1000–1100) settlements have been excavated in the Tucson area, which allowed Lindeman to take a sophisticated look at variation between households during this time. Not all areas in the Tucson Basin showed the same high intensity of Hohokam development. Mark Elson and Patricia Cook review the eastern Tucson Basin, an area where many sites are known, but ballcourt villages have yet to be documented, and Deborah Swartz considers issues of seasonal



Hohokam sites of the Tucson Basin mentioned in this issue of Archaeology Southwest.

versus permanent settlement in the foothills of the Tortolita Mountains on Tucson’s far north side.

Less work has been done at sites dating to the Classic period (1150–1450). The best-known work—conducted at the Marana Mound community, an early Classic period platform mound community—is examined in a sidebar that compares it to the Zanardelli site of the southern Tucson Basin. Jeff Jones and Ellen Ruble discuss recent work at the Zanardelli site, a platform mound community that shows strong evidence of specialized production of agave, similar to Marana. Unlike Marana however, Zanardelli shows continuity through the late Classic period. Courtney Rose describes recent work at the early Classic village of Yuma Wash, and Robert Heckman and Jeff Altschul report on an intriguing late Classic occupation just across the Santa Cruz River from Yuma Wash. Then Wallace and I present some new data on late Classic period platform mound sites.

Tucson’s growth has set the pace of archaeological research for more than a quarter-century. While much new knowledge has been gained, many sites have been lost. Fortunately, Tucson has seen many creative approaches to site preservation, the topic addressed in Back Sight.

Valencia Vieja: An Early Hohokam Village

Henry D. Wallace, *Desert Archaeology, Inc.*

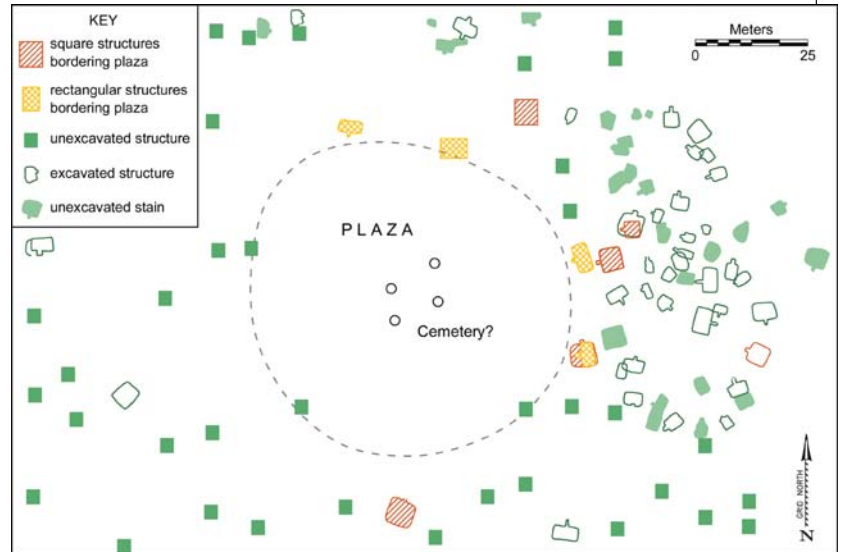
TOWN SQUARES OR CENTRAL PLAZAS are the focal points of communities of all sizes throughout the world. They are public domains where secular and religious leaders conduct ceremonies and communicate with the public. In a small community, the plaza is often the site of periodic markets, which play an important role in local and regional commerce. Plazas are typically bordered by ritual and political monuments or structures such as churches and leaders' residences or governing offices.

Archaeologists were not aware that Hohokam villages had plazas until the late 1970s, when David Wilcox and his colleagues reexamined data from the site of Snaketown on the Gila River. Prior to the excavations at Valencia Vieja, plazas had been confidently identified at only two sites in the Tucson area. In 1987–1988, Desert Archaeology, Inc., personnel conducted excavations at this well-preserved settlement, which was inhabited between A.D. 425 and 700, the time when the first Hohokam villages were founded. At Valencia Vieja, we had the opportunity to look at the whole village, including its plaza and the surrounding facilities. Our excavations revealed that the site was settled by a small group, perhaps a clan or a lineage, living in 5 to 10 houses along what was to become the northern and the northeastern part of the settlement. Sometime between 450 and 525, an influx of people doubled the population and a village was formed.

The process by which Valencia Vieja was formed is similar to that found elsewhere in the world. The new village surrounded a common space that became the plaza. Soon a cemetery for the ancestors was created within the plaza.

Small clay figurines found in residential trash at Valencia Vieja and in other sites of similar age suggest a practice of

ancestor worship, which was conducive to village formation and the legitimization of leadership roles. Each clan or lineage built an oversized square house bordering the



The exploration of the entire village of Valencia Vieja revealed a large central plaza with relatively few features. Extra-large houses were found to border and open onto the plaza. They are thought to be houses of lineage leaders.

central plaza where the lineage leader and his/her family resided. These large structures at Valencia Vieja were staging areas for public ceremonies in the plaza and may have served to host private political and ritual events. Other

members of the lineages or clans lived in houses of varied sizes behind those of the leaders' houses and away from the plaza.

Village leadership was communal among the lineages or clans present. At least three or four such lineages were represented by oversized houses on the plaza, and there may have been up to six or seven at a time. In essence, the village was an amalgamation of small settlements that banded

together. The incentive for village formation was most likely the need for cooperative canal construction and lay-



This very large, well-made, square house that opened onto the plaza is an example of a lineage leader's house.

Henry D. Wallace

ing claim to agricultural lands that had not previously been farmed. Village formation in the Tucson Basin occurred at the same time that population was growing rapidly in the Salt and Gila River valleys. Those developments to the north were likely a stimulus to village formation in the Tucson area.

In the end, what we found at Valencia Vieja revealed one of the most momentous changes in human society: the establishment of a long-occupied village focused on a central plaza. The rich cultural tradition we know today as the Hohokam can be traced to this critical juncture, when it became advantageous for people to come together and establish roots rather than remain separate and mobile.

Early Hohokam Pottery

THROUGHOUT THE EARLY AGRICULTURAL PERIOD (2100 B.C.–A.D. 50), pottery vessels were extremely rare, and food was most commonly stored in large underground pits beneath house floors. Soil moisture, rodents, and other vermin likely led to food loss from these underground pits. During the Agua Caliente phase (A.D. 50–500), the production of seed jars (see photograph at left) helped people avoid these problems. These large ceramic containers were waterproof, and their small openings could be effectively sealed to provide much more reliable storage of seeds for food and for the following year's planting.



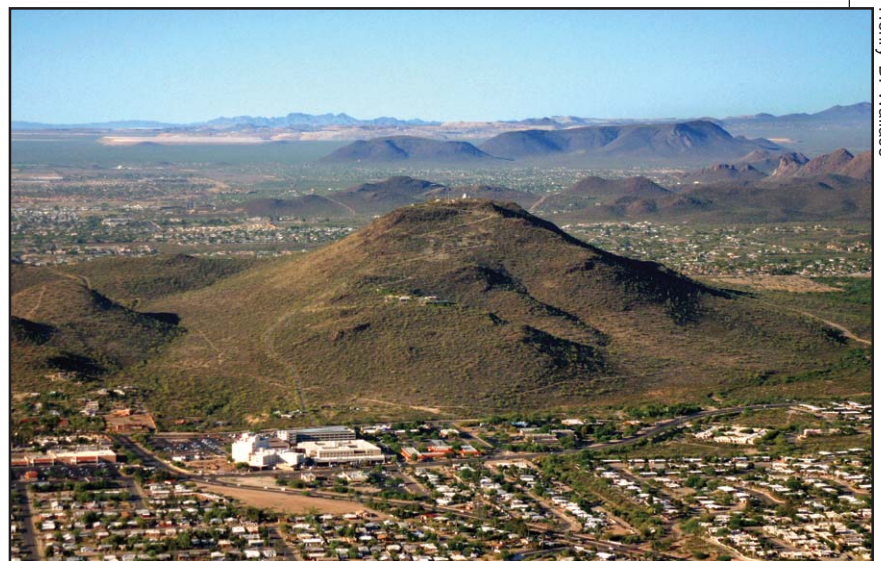
This seed jar had a volume of 5 gallons. The inset photograph shows a shaped sherd that likely served to seal the vessel and protect its contents. (Photographs by Helga Teiwes.)

Early Occupations on Tumamoc Hill

Suzanne K. Fish, Paul R. Fish, and Gary Christopherson
University of Arizona

TUMAMOC HILL is a *trinchera* site, a term applied to sites on hills that have terraces, walls, and other features built of stone. Rising 700 feet on the western edge of the Santa Cruz River floodplain, Tumamoc is adjacent to both irrigable land and upland resources such as the saguaros covering its slopes. Tumamoc's huge upper walls and terraces represent Tucson's first public architecture in the sense that they are the earliest structures, other than canals, requiring a construction effort on a communal scale. The most notable aspect of this peak is its unparalleled view of the entire Tucson Basin and beyond, as far as Picacho Peak and the Baboquiviri Mountains.

Stone outlines identify the houses of a Tortolita phase (A.D. 500–700) village atop the hill. Still older massive walls and terraces of volcanic rock encircle the summit and extend partway down the sides. Long-term reuse of this site has also left behind extensive rock art, bedrock mortars and cupules, trails, quarries, and historic O'odham burial areas.



Aerial view of Tumamoc Hill, facing south.

Henry D. Wallace

Although the upper walls and terraces are continuous for long stretches, they seldom stand more than knee high. Radiocarbon dates, projectile points (San Pedro and Cienega styles), and the absence of pottery in a house cut into one of the terraces indicate their construction and some residential use of the site during the Early Agricultural period (pre-A.D. 50). The dates overlap the upper range of Cerro Juanaqueña and other northwest Chihuahua *trincheras* sites that have similarly massive terraces and walls (see *Archaeology Southwest*, Vol. 13, No. 1).

Remnants of lower walls made of stone mark the pithouses of a subsequent occupation when pottery had become common. Six excavated structures distributed across the 75,000-square-foot residential area produced small amounts of red ware, indicating a predominantly Tortolita phase village. The houses yielded pottery, ground stone, flaked stone, and shell jewelry. Surface collections contained specialized artifacts such as a figurine, stone cruciforms, stone bowls, ceramic and stone “trays,” and a quadruped effigy.

Based on surface measurements, about 150 Tortolita phase houses ranged in floor area from just over 20 square feet to nearly 115 square feet. Many structures were rounded and had external entries. A small proportion of houses, particularly the larger ones, were more rectangular. Several smaller excavated pithouses had bent-pole superstructures covered with hardened mud above low basal walls of stone. Although the floors of the relatively shallow pithouses were not well preserved, identified features in one large structure included a bowl-shaped hearth and large postholes.

Basal walls connected groups of up to 10 structures, strongly suggesting that they were occupied at the same time by extended families. In contrast to later Hohokam arrangements, however, doorways did not generally face onto shared outdoor areas. As at Valencia Vieja (see pages 3-4), houses were arrayed around a central open area or plaza. A few large structures were located near the plaza margins, but others were dispersed among outlying dwellings, perhaps serving special purposes.

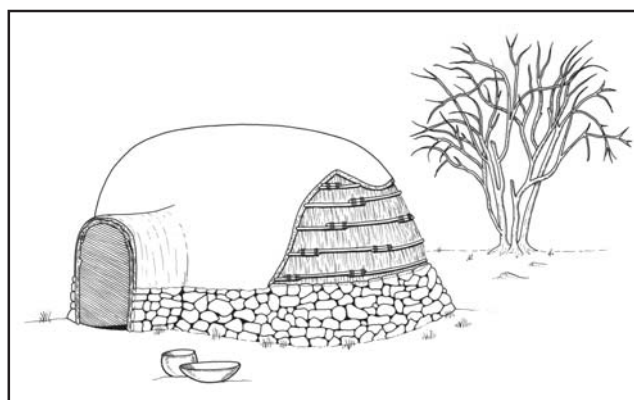
The Tumamoc village, which was among the largest of its time, was unique because of its prominent hilltop setting. Archaeologists have



A composite of low-level aerial photographs was used to map the house outlines on Tumamoc Hill.

long interpreted this position, amid massive upper walls and terraces, as a defensive response to conflict. We now know that still earlier people constructed some and likely all of these features, and sometimes lived in pithouses on the terraces.

The residents of Tumamoc were notable for the diversity of the pottery that they possessed, indicating an unusual breadth of interactions. According to archaeologist Jim Heidke’s temper analysis, the basin-wide sources for Tumamoc vessels contrast with largely local ceramics at all other Tortolita phase sites. Clustering near summit edges, numerous petroglyphs bespeak concentrated ritual behavior of a sort that sets this *trincheras* village apart.



R. J. Beckwith

Reconstruction of a typical Tortolita phase (A.D. 500–700) house atop Tumamoc Hill. The low stone wall bases can still be seen on the site’s surface today, while the brush superstructures that were covered with a layer of earth are preserved only in fragments recovered through excavations.

Recent Research at the Redtail Site

Eric Klucas, Tierra Right-of-Way Ltd.

FOR THREE MONTHS in early 2007, archaeologists from Tierra Right-of-Way Ltd. conducted excavations at the Redtail site, a large Pioneer and Colonial period village in the northwestern Tucson Basin. The return to this site, which was partly excavated in the late 1980s, has been enlightening.

Under the direction of Jeff Jones, Tierra's work at the Redtail site explored a contiguous area of 1.8 acres and identified portions of 40 pithouses. One cluster of houses consists of a typical Hohokam courtyard group. Six other houses were excavated in their entirety, and the remaining structures were sampled, providing chronological data for all of the identified architectural features. The structures were arranged in an arc, approximately 260 to 330 feet across. The entries of most of the structures opened into the interior space, or plaza, defined by the arc. As noted by Wallace (see page 3), plazas were important elements of early Hohokam villages.

Within the plaza was the most intriguing finding of the current project, an extensive cemetery area. In total, 140 cremation and 4 inhumation burials were identified during Tierra's excavations. Of these, five of the cremation burials contained a large and diverse assortment of grave goods, including ceramic vessels, shell ornaments, stone figurines, palettes, and projectile points. An additional 24 burials were identified and excavated by Desert Archaeology, Inc., prior to Tierra's investigations, including one cremation with an exceptional number of burial artifacts (see page 7).

Preliminary examination of the ceramics recovered from house floors indicates an occupation from the late Pioneer period (A.D. 700–750) through the Colonial period (750–950), suggesting a long-term, but low-intensity use of this area. The ceramic data also indicate that the cemetery area was used throughout the occupation of this portion of the site. The artifact collections have the potential to address questions of craft production, as indicated



Henry D. Wallace

Aerial view of recent excavations at the Redtail site. Outlines of tested and fully excavated pithouses are visible in the arc of gray cultural soil. The light-colored interior of that arc is an open plaza with an extensive cemetery.

by numerous fragments of worked and unworked turquoise and several unfinished stone artifacts, including the roughed-out form of a bighorn sheep effigy.

The new data from Redtail allow us to address questions pertaining to mortuary practices, site structure, domestic organization, and craft production during a period of cultural change in the Tucson Basin. Through the collaborative efforts of the Tierra staff and others, we hope to provide new insight into these questions.

The Artisan's Burial from the Redtail Site

Michael W. Lindeman and J. Homer Thiel
Desert Archaeology, Inc.

IN THE SUMMER OF 2006, Desert Archaeology, Inc., was hired by the Town of Marana to conduct limited backhoe stripping at a portion of the Redtail site. This resulted in the discovery of 24 Hohokam cremation burials. One of the burials yielded the largest quantity of artifacts ever recovered by archaeologists from a Hohokam cremation. The quality and diversity of these artifacts were exceptional.

Along the cremation pit's east side were several deer antlers and horn cores from five bighorn sheep. Broken ceramic vessels and six tabular tools lay in the center, and an upside-down lapstone with a matching polisher was on the west side of the grave. Eleven stone bowls and four palettes lay beneath the pottery, and below these were a thick lens of ash, cremated human bone, shell jewelry (including 1,663 beads, 70 pendants, 27 *Glycymeris* bracelets, and 10 rings), and 54 arrow points. Also recovered were a piece of galena (lead ore), 4 bone awls, 2 bone tubes, 9 turquoise beads, 3 stone pendants, and a three-quarter-grooved axe. The cremated individual was a middle-aged to elderly adult, likely a male based upon the types of artifacts present. Pottery recovered from the cremation pit indicates a date range of A.D. 750 to 850.

Many of the artifacts were unusual. Among the 11 carved stone bowls were a bighorn sheep effigy (above right), two bowls with rattle-snake designs, and a horned lizard with a bowl that rested on its back, with matching melted pigment stains that indicated their original arrangement. Two decorated jars and two carved palettes, with animals (perhaps dogs) projecting from their rims, had been obtained from the Phoenix Basin. Especially rare artifacts included a *Strombus* shell trumpet, a carved stone ear spool, and a painted plaque with plaster still adhering to it.

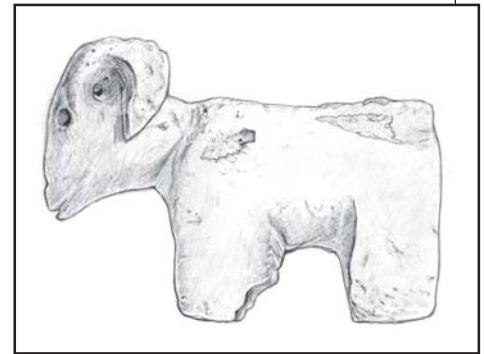
Among the elaborately carved stone artifacts were some of the tools used to make them, suggesting the burial was that of an artisan. Six

tabular tools used for incising stone were found in the feature. The edges of two tabular pieces fit incisions on carved stone artifacts. Not all of the carved ground stone pieces were complete, suggesting that the artisan died before finishing them.

The size of the burial assemblage, combined with the quantity of ornamental and rare artifacts, indicates that the artisan was a person of high social standing who held several social roles. As a craftsman, he likely produced elaborately carved stone bowls and effigy vessels. This work

would have required specialized knowledge, the possession of which may have led to increased social stature. The presence of numerous serrated arrow points, antlers, and horns suggests that hunting or ritual activities were also important to the artisan. Given his age, he may have had a leadership role in the village. The exceptional items buried with him indicate a person with access to some of the rarest artifacts in the Hohokam world and suggest wide-ranging social contacts. They may signify that the artisan was a village leader or trader who maintained connections with other villages throughout southern Arizona. We suggest

that the extraordinary mortuary assemblage buried with the individual reflects the various social roles—craftsman, hunter, trader, village leader—held by this individual.



Bighorn sheep effigy.



This Gila Butte Red-on-buff vessel, which did not show burning in the cremation fire, overlay the ash, cremated bone, and burned artifacts. Like several other items in this burial assemblage, it was made at a village along the Gila River and imported to the Tucson area.

Ballcourt Communities of the Southern Tucson Basin

Henry D. Wallace, *Desert Archaeology, Inc.*

PRESERVED BENEATH the streets, fields, and remaining patches of desert along a six-mile stretch of the Santa Cruz River in southwestern Tucson are the remnants of seven large settlements that span the interval when the Hohokam were building earth-banked playing fields called ballcourts (A.D. 800–1050). Four of these settlements—Dakota Wash, West Branch, Valencia, and Julian Wash—have been archaeologically tested and mapped or extensively excavated. Along with a handful of other large villages along the Santa Cruz River, these settlements were the heart of ancient Tucson. Enduring centuries of floods, droughts, and river channel down-cutting, early Tucsonans flourished along the Santa Cruz riverine oases. They created their own distinctive pottery tradition, crafted exquisite etched shell ornaments, and traded for goods from as far away as Sinaloa in western Mexico.

It was true 1,000 years ago as much as it is today: community planning can sometimes leave something to be desired. Two of the ancient settlements in southwestern Tucson appear to have selected locations that were too small to accommodate growth or that were subject to repeated flooding. In both cases, the towns were simply moved a short distance away: for example, the inhabitants of Dakota Wash moved to a new location and became the West Branch community, and Valencia Vieja transformed into Valencia.

Daily life in these settlements revolved first around family and kin, and second around the village plaza. The importance of families and their enduring use of particular spaces is illustrated by the at-first bewildering jumble

of structures in Locus 1 of Julian Wash (see photograph above). Courtyards are the building blocks of Hohokam villages, each one likely representing the domicile of a family or of an extended family. Typical arrangements include one or two residential structures sometimes accompanied

by a dedicated storehouse, all of which face a common yard.

Ballcourts were probably present at all of the large villages along the Santa Cruz River that date from the ninth through the early eleventh centuries. However, only two remain from the seven settlements considered here. A hallmark of Hohokam villages, ballcourts are generally viewed as vital forces for economically and politically tying communities together.

The Hohokam villages of southwestern Tucson are well known for their pottery. The residents of these villages cooperatively produced most of the decorated pottery for the entire Tucson region, trading

their wares to sites within the area bounded by modern Oracle Junction and Marana to the north and Green Valley to the south. The villages themselves have some of the highest percentages of decorated and red-slipped pottery in the region, and most excavated households yielded archaeological evidence of ceramic production, such as polishers, pigment, clay, crushed gneiss (used as temper), tempered clay, and pottery anvils.

After A.D. 1050, ballcourts were no longer constructed or used in the Tucson area. Most archaeologists view this change as one indicator of a significant shift in belief systems. It may also relate to newly developing political systems.



©Adriel Heisey

This complex set of overlapping houses at the Julian Wash site revealed that extended families occupied courtyard spaces for as long as 200 years.

Specialized Production by Tucson Basin Households

Michael W. Lindeman, *Desert Archaeology, Inc.*

IN SOCIETIES WORLDWIDE, people are faced with choices about how to provide for themselves, maintain social relationships, and meet ritual obligations. The specialized production of crafts and other goods is one way in which people meet their daily needs and accomplish their long-term social goals. As part of my dissertation research at Arizona State University, I examined the productive strategies of 50 Middle Rincon phase (A.D. 1000–1100) households in the Tucson Basin.

My research built upon the considerable attention that has been paid to identifying Hohokam households, their social and economic roles, and their archaeological correlates. In the 1970s, archaeologist David Wilcox was the first to recognize that Hohokam pithouses were often arranged into distinct groupings, commonly called courtyard groups. Multiple houses were frequently arranged around a common area or courtyard and shared extramural features such as storage pits, cooking pits, and *hornos* (earth ovens). Courtyard groups often were occupied for several generations. What archaeologists uncover during the excavation of a courtyard group is a series of overlapping architectural features, extramural features, and refuse associated with the occupation. The spatial continuity of the courtyard allows for the association of the artifacts with a single household through time.

I examined the production of a number of goods and used relative comparative measures for identifying specialist producers. Following the work of archaeologist Cathy Costin, I defined specialization as *the production of goods for exchange*. Archaeologically, we are left with finished products and the remains of production, raw materials, tools used in production, or waste products of the crafting activity. The question becomes one of how we can separate *production for household use* (nonspecialist production), from *production for exchange* (specialist production). We can infer that when a household has substantially more tools, raw materials, and waste products than others, specialized production is indicated.

Evidence for specialized production was found at 22 of the 50 Middle Rincon households examined. Most specialist households produced a single kind of good; however, five produced two different items, and a single industrious household specialized in the production of three products. Middle Rincon specialists produced cotton and

agave textiles; decorated ceramic vessels; ornaments of turquoise, shell, and stone; agave and large game meat for food; and tabular knives. For social and productive reasons, some craftspeople clustered in small groups of households. For example, the production of cotton textiles and agave fibers often took place at the same household or site. Two of the largest sites in the sample, West Branch and Los Morteros, had concentrations of specialists.

The production of ornaments, jewelry, textiles, and ceramics suggests that artisans focused on objects that could be embellished or could serve as decoration; these are what



Henry D. Wallace

Excavating unfired pottery on the floor of a burned house at the Julian Wash site. Red-on-brown pottery was an important craft product at the West Branch, Julian Wash, and Valencia sites of the southern Tucson Basin.

archaeologist Katherine Spielmann terms “socially valued goods.” During the Middle Rincon phase, widespread participation at ritual gatherings would have helped create a demand for these kinds of goods, because participation in ritual performance involves more than attendance. For example, there may be socially acceptable standards of dress, ornamentation, cutlery, or food. Because participation was probably widespread, the demand for socially valued goods would have been substantial. The scale of this demand for such craft products created the opportunity for artisan households to achieve both economic and social goals through their specialized production. Specialist production allowed artisan households to gain and display social status and, in some cases, to compensate for inadequate access to good agricultural land.

Honey Bee Village: Intensive Exploration of a Ballcourt

Henry D. Wallace, *Desert Archaeology, Inc.*

FOR ALMOST A YEAR, Desert Archaeology, Inc., personnel conducted extensive excavations at Honey Bee Village in Oro Valley just north of Tucson, exposing more than 95 percent of the preserved portions of the village outside its 13-acre core. The core of the site is being set aside as an archaeological preserve by Pima County and the Town of Oro Valley. One of the goals of the project was

to obtain as broad a view as possible of the village. Therefore, much more extensive backhoe stripping operations were conducted than is typical of Hohokam site excavations. The stripping operation was partly guided by backhoe trench testing and surface distributions of artifacts and partly by what was found. Over time, many different archaeologists have estimated the number of buried features present. Our estimates were the highest, but in the end, even ours were too low.

We ultimately stripped approximately 11 acres within and around Honey Bee Village, discovering more than 350 structures, 15 cemeteries, over 200 burials and crematoria, 400 pits, 12 *hornos*, and a range of trash deposits and other cultural features. The remains were largely confined to residential areas used from the Tortolita phase to the Tanque Verde phase. We estimate that the occupation of the village ranged from roughly A.D. 500 to 1200, with a possible limited reoccupation later in the 1200s.

Testing conducted in 1987 in the core of Honey Bee Village, combined with surface mapping then and recently as part of the current project, provided an unusually complete view of the



Aerial overview of Honey Bee Village showing stripping and trenching operations in the western, southern, and eastern portions of the site.



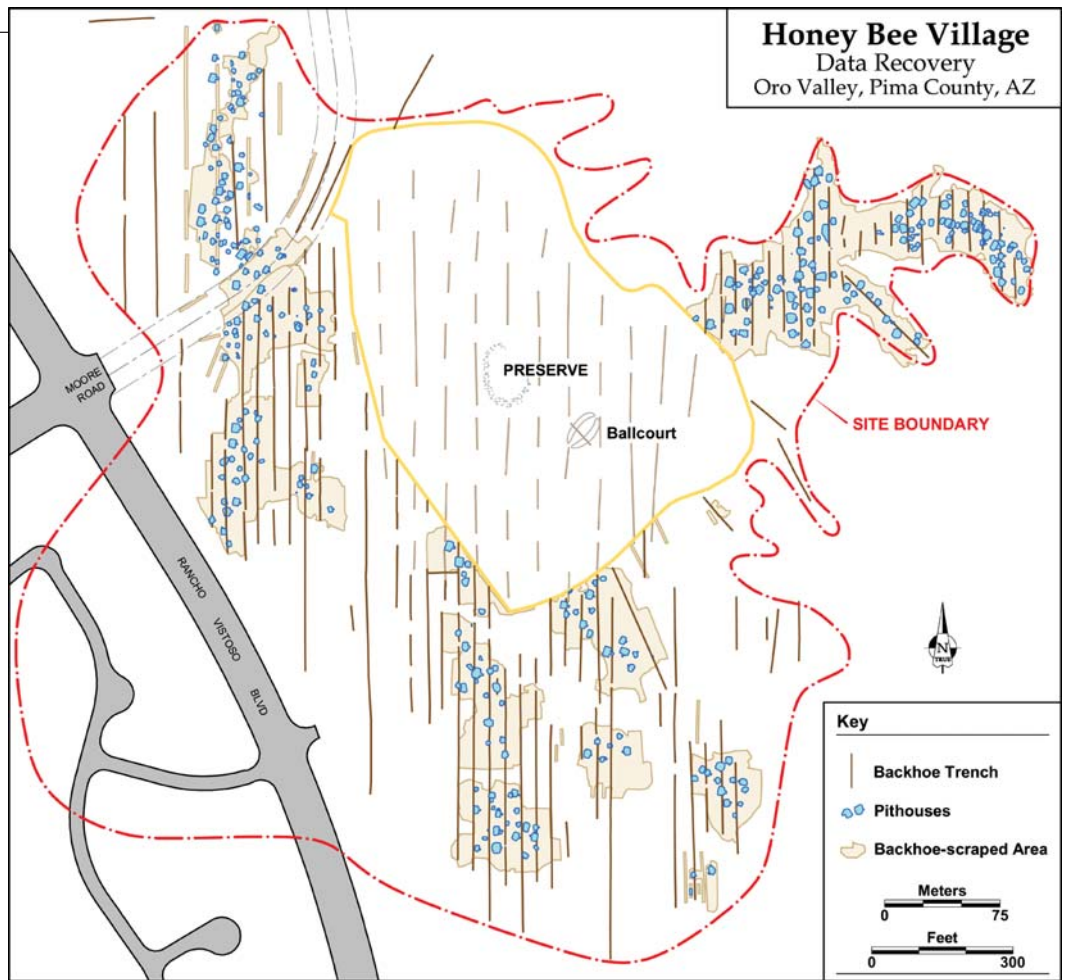
Left: Distinctive Cañada del Oro Valley pithouse architectural style: a true pithouse with inset roof-support posts. Archaeologist Jeff Charest is shown excavating a posthole. Right: A Pioneer period (A.D. 500–750) pit structure with a long and extremely narrow entry. At least nine of these structures were found at Honey Bee. The entry on this structure aligns precisely with the winter solstice sunrise over the Catalina Mountains.



Extensive public outreach in the neighborhood school.

structure of this large ballcourt site. This will allow us to place the excavations of the past year into the context of the overall village. For example, it will be possible to compare tested households located in the core of the site to those on the periphery.

One of the more interesting discoveries is the evidence for a unique architectural tradition at the site, known also from excavations by SWCA, Inc., at the nearby ballcourt village of Sleeping Snake. Juniper trees, gathered from the uplands of the Tortolita or Santa Catalina mountains, were used as main support posts in the large, deep pithouses that exemplify this tradition. Does this style mark a distinct cultural identity for this region? Analyses of artifacts recovered from the excavations are currently in progress, and I hope to be able to address that question in much greater detail and report on the other exciting discoveries once these studies are completed.

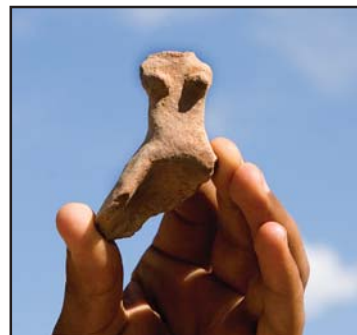


Map of the 2006–2007 excavations at Honey Bee Village showing test trenching, stripped areas, and the mapped stains of pithouses recorded during stripping operations



Henry D. Wallace

reach took place throughout the Honey Bee excavations. Here, a group views one of the impressive pithouses that appear to be from the del Oro Valley.



Clockwise from top left: clay "dogbone," clay figure head, a Pioneer period projectile point, and a female clay figurine fragment—all recovered from Honey Bee Village. (All photographs by Henry D. Wallace.)

The Archaeology of Dove Mountain at the Southern Margin of the Tortolita Mountains

Deborah L. Swartz, *Desert Archaeology, Inc.*

UNTIL THE EARLY 1980s, little was known about prehistoric settlement along the southern side of the Tortolita Mountains in the northern Tucson Basin. At that time, the Arizona State Museum conducted a survey of more than 100 square miles that extended east from the Santa Cruz River for 15 miles across the northern portion of the basin. It was difficult to date or to determine the nature of the past occupation at many of the sites recorded in the 1980s, because they were known only from surface observations.

Over the past 10 years, prior to residential and resort development, Desert Archaeology, Inc., personnel have investigated 30 prehistoric sites within the roughly 9-square-mile Dove Mountain parcel. This area includes Wild Burro and Ruelas canyons, two of the major drainages from the Tortolita Mountains. The sites were clustered along these drainages, which provided at least a seasonal source of water. Several perennial springs were located a short distance from the sites.

The 30 Dove Mountain sites were occupied from the Middle Archaic to the early Classic period (6500 B.C.–A.D. 1300). Of these, 27 sites were small and had relatively brief occupations. The sites ranged from temporary camps or single petroglyph panels, to small seasonal sites, to larger habitation sites. There was a large concentration of Western Archaic petroglyphs at the Atlatl Ridge site.

The most intensive occupation of the area occurred during the Tortolita phase (500–700), when 11 pit structures were occupied at the Desert Tortoise site, at the mouth of Wild Burro Canyon. The pottery found at the site suggests that the inhabitants interacted with people to the east,

including the residents of Honey Bee Village (see pages 10–11) and the Romero Ruin. Over the next 250 years, the Desert Tortoise site and the nearby Wild Burro Canyon



©Adriel Halsey

The Wild Burro Canyon site is in the foreground of this view up the canyon into the Tortolita Mountains. Atlatl Ridge is a small extension of the first mountain area to the left of Wild Burro Canyon.

site functioned as a single community that was occupied sporadically, with about three structures in use during each 50- or 100-year period.

During the Sedentary period (950–1150), the population shifted eastward to the Ruelas Canyon site, located in one of the last open spaces in the foothills near Ruelas Wash. During the Middle Rincon phase (1000–1100), eight pit structures were occupied at this site. The presence of locally made pottery, the relatively high amount of energy expended on pit structure construction, and the heavy use-wear observed on the ground stone tools suggest that this was a year-round settlement. The Ruelas Canyon inhabitants had a wider area of interaction than the earlier occupants of this area, based on the decorated ceramics, the ground stone raw materials, and the amount of

shell at the site. As with most Tucson Basin Middle Rincon sites, the red-on-brown ceramics at this site were made at the West Branch, Julian Wash, or Valencia sites (see page 8; see also map on page 2).

Our research has had to confront difficult issues of measuring seasonal versus permanent occupations using archaeological information. Evidence from the three largest sites—Wild Burro Canyon, Desert Tortoise, and Ruelas Canyon—suggests that the Desert Tortoise and Ruelas Canyon sites were occupied permanently during some periods, and seasonally during others. However, botanical remains indicate that at no time were the inhabitants of these sites farmers. Wild Burro Canyon appears to have been more seasonally occupied, based on the limited activities and the lack of architectural formality, even though there was a trash mound, a feature usually found at permanent sites.

New knowledge from these sites on the edge of the Tortolita Mountains points to the need to more fully consider the roles of seasonal sites in our goal of understanding Hohokam lifeways in the Tucson Basin.

The Ruelas Canyon site is in the foreground of this view looking south toward the center of the Tucson Basin.



Petroglyphs in the Dove Mountain Area

Henry D. Wallace, *Desert Archaeology, Inc.*

THE PETROGLYPHS of the Tortolita Mountains provide a dramatic visual testament to the people who inhabited and visited the region during the past 3,000 to 4,000 years. The largest site in the Dove Mountain area is primarily pre-Hohokam in age, and some of the elements at that site might date as early as 6,000 B.C. The site is located within Wild Burro Canyon, and it bears the most depictions of atlatls (spear throwers) of any site in the region. Hohokam sites are also present and widely distributed in the Dove Mountain area.

Together with other data, the rock imagery investigations in this area led to new insights into ritual practices and the role of petroglyphs for the prehistoric inhabitants of the region.



The footprint-like designs on this boulder are duplicated on a boulder in southwestern New Mexico—a possible indication of the range of social networks among the foragers who pecked the designs.

Hohokam Life in the Eastern Tucson Basin

Mark D. Elson and Patricia Cook
Desert Archaeology, Inc.

THE EASTERN TUCSON BASIN lies east of where Pantano Wash and Tanque Verde Creek join to form the Rillito River (see map on page 2). Prehistoric sites in this area are numerous, ranging from small fieldhouse and farmstead sites to hamlets and large villages. Three important differences between the eastern basin and the rest of the Tucson area played a significant role in structuring prehistoric settlement there. First, Tanque Verde Creek and Pantano Wash are much smaller and less reliable drainages than the Santa Cruz and Rillito rivers, with smaller areas of arable land; second, resources from higher elevations in the Santa Catalina and Rincon mountains were readily obtainable; and third, nearby Redington Pass provided access to groups and resources in the San Pedro River Valley.

Excavations by Statistical Research, Inc., personnel at the Houghton Road site revealed a significant Agua Caliente phase (A.D. 50–500) and limited Tortolita phase (500–700) occupation just above the floodplain of Tanque Verde Wash. Architectural variation was evident, as was also the case at Valencia Vieja on the Santa Cruz River (see pages 3–4), though the overall community pattern was not apparent due to the narrow right-of-way in which excavations occurred.

The Tanque Verde Wash site has been the location of multiple excavations since the early 1980s. The site dates to the Rincon phase (950–1150), a time when numerous other sites are known from this area.

Excavation data from the Tanque Verde Wash site indicate that most of the ceramics were not made locally in the eastern basin, but instead were imported from pottery-producing sites along the Santa Cruz River. This raises a very interesting question. If pots were being traded into the eastern basin, what was going out? In his recent doctoral dissertation, Michael Lindeman reexamined the artifact assemblage from the Tanque Verde Wash site. He suggested that Tanque Verde Wash inhabitants specialized in jewelry production, particularly mica jewelry. We also know that pottery-producing sites along the Santa Cruz



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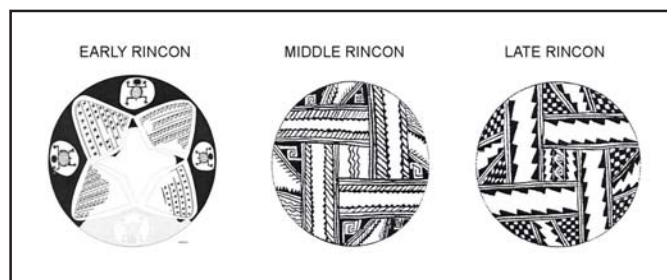
The 1985 excavations at the Tanque Verde Wash site revealed a multigenerational household of seven pithouses arranged around a common open courtyard. Only two or three houses were occupied at any one time. Recent excavations focused on additional households north and west of this area.

River contain hundreds of pieces of raw micaceous schist used to temper their pottery. Mica and micaceous schist are found only in the Santa Catalina and Rincon mountains. Finished pots may have been exchanged for these materials as well as for agave, acorns, juniper berries, and pinyon nuts.

The population declined somewhat in the eastern basin during the Classic period, though several villages remained occupied. In the early Classic period (circa 1150–1300), groups that originated somewhere to the north took up residence in the San Pedro Valley as well as in the easternmost Tucson Basin. The most obvious indicator of these migrants is the presence of corrugated ceramics at eastern basin sites. At sites where archaeological excavations have

been conducted, such as Gibbon Springs, Whiptail, and Sabino Canyon Ruin, there are also architectural indications of these migrants. Gibbon Springs and Whiptail yielded the first-ever tree-ring dates from the Tucson area—specifically, cutting dates of A.D. 1237, 1246, and 1247. The three sites, which are similar and are within five miles of each

other, likely represent an interrelated migrant enclave. More work is needed before we can fully understand if or how these people were integrated into the larger Tucson Basin community.



Early work at the Tanque Verde Wash site played an important role in the work of Henry Wallace and Jim Heidke to refine the temporal resolution of Tucson Basin Red-on-brown ceramics. Finer control over time has allowed greater insights into settlement pattern change.

The Yuma Wash Site: A Classic Period Hohokam Settlement

Courtney Rose, Old Pueblo Archaeology Center

THE YUMA WASH SITE was first recorded in 1982, during the Northern Tucson Basin Survey by the Arizona State Museum. Current research at this Classic period site is sponsored by the Town of Marana. Several other archaeological projects, sponsored by developer Douglas Kennedy and others, have been conducted at the site over the past 10 years. A small portion of the Yuma Wash site in the Town of Marana's new Silverbell-Cortaro District Park, was excavated with the help of volunteers who participated in Old Pueblo Archaeology Center's public research and excavation program. A larger portion of this park area will be preserved.

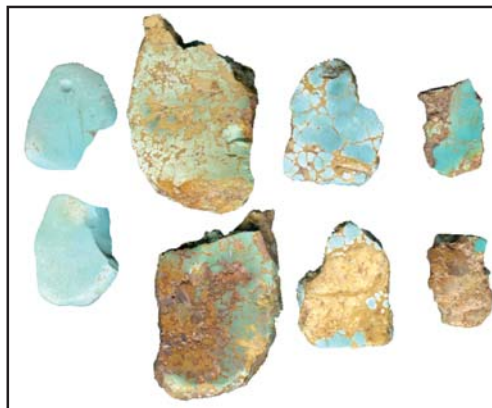
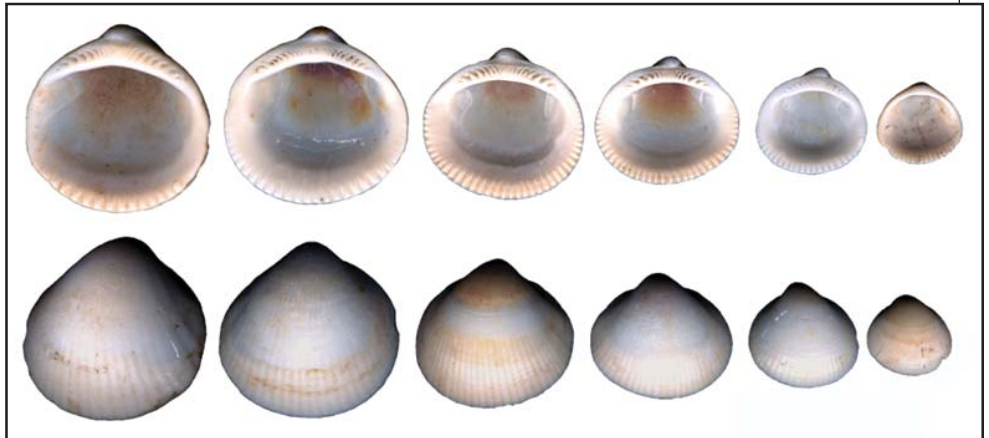
The site, which covers about 42 acres, is located just above the Santa Cruz River floodplain, east of the Tucson Mountains. Evidence for agriculture at the site comes from remnants of domesticated plants recovered from house floors and ancient trash deposits. In addition, five irrigation canals have been found at smaller sites nearby.

The Yuma Wash site was most intensively used during the early Classic period, between A.D. 1150 and 1300. Ceramic evidence, in the form of Salado Polychrome, indicates that occupation at the site extended into the late Classic period (1300–1450). The site also had an earlier limited Hohokam occupation.

Three different types of architecture were used: pithouses, semisubterranean adobe-walled structures, and compound rooms. These three kinds of houses may have been used contemporaneously, or at least did not follow a simple chronological sequence. Interestingly, some pithouses and semisubterranean adobe-walled structures may have been constructed after abandonment of the compound rooms.

The limited extent of our excavations did not reveal the overall spatial patterning at this large settlement. How-

ever, there was evidence of household-level craft production in different areas of the site. Yuma Wash residents had access to several types of nonlocal materials, such as turquoise, chert, obsidian, and marine shell. The large quan-



Multiple kinds of craft products were recovered from the Yuma Wash site excavations, including items of turquoise, shell, and obsidian. Top: unworked Glycymeris shells; middle right: fragments of Glycymeris shell bracelets; middle left: turquoise in various stages of manufacture; bottom right: obsidian point. (Photographs by A. C. MacWilliams.)

ties of shell came primarily from the Gulf of California, at least 130 miles to the southwest. Unworked shell materials greatly outnumbered finished forms, such as bracelets, pendants, tinklers, and beads. While analyses are still underway, it appears that different households at the site may have concentrated on producing different types of craft items.

The Zanardelli Site

Jeffrey T. Jones, *Tierra Right-of-Way, Ltd.*

Ellen C. Ruble, *Desert Archaeology, Inc.*

THE ZANARDELLI SITE was a large, predominantly Classic period Hohokam village located on the east side of the Santa Cruz River floodplain. The site was first recorded in 1929 by archaeologist Frank Midvale for Gila Pueblo. He noted a compound, about 10 mounds, and at least two smaller buildings. Midvale observed at least 20 rooms, with some rooms in the compound at least two stories high. In 1934, archaeologist Alfred V. Kidder visited the site and called it a “Great House.” He also noted that two rooms had been intentionally filled with river boulders. These two descriptions both provide strong evidence for the presence of a platform mound. Unfortunately, even in 1929, Midvale described the site as “Nearly destroyed by highway, railroad and other grading.” However, subsequent researchers have had substantial successes in a series of small-scale undertakings.

In 1948, two University of Arizona students, Rex Gerald and Barton Wright, conducted limited excavations on the portion of the site owned by August and Florence Zanardelli. Surface collections in 1984 by the Center for Desert Archaeology showed that the site was extensive during the early Classic period but that by the late Classic period, the occupation was concentrated around the inferred platform mound. It is unclear if this represents a loss of population or a process of aggregation. In addition, an impressive concentration of agave roasting pits, rock piles, and other nonriverine agricultural features is preserved east of the site.

Since the mid-1980s, a number of archaeological firms have worked at the site. The two most recent projects were conducted by Tierra Right-of-Way Ltd. in 2002, and by Desert Archaeology, Inc., in 2003.

During the work by Tierra, 61 Classic period features were found, including 11 habitation structures, 31 pits, 14 human cremations, 2 adobe walls, a storage structure, an occupation surface, and a compound wall. Archaeologists discovered three superimposed features—two adobe-walled pithouses and an adobe-walled cell or cubicle that is likely a portion of the platform mound described by Gila Pueblo. Azurite, calcite crystals, and bighorn sheep remains were found in the two pit structures, suggesting that the household occupying these features was involved in ritual activities that may have culminated in construction of the platform mound. Other evidence for ritual activities near the platform mound consists of *hornos*, cooking pits, and large ceramic bowls that may have been used in communal feasting.

During Desert Archaeology’s 2003 work, 45 Classic period features were found, including 10 habitation structures, 4 adobe wall segments, 1 inhumation, 6 cremations, 1 animal burial, and 23 pits. Evidence from the artifact and floral analyses indicates that the site’s inhabitants specialized in the production of agave.



Henry D. Wallace

THE MARANA MOUND was a platform mound site in the northern Tucson Basin that was occupied only during the early Classic period (A.D. 1150–1300). For many years, Paul and Suzanne Fish, John Madsen, and James Bayman have conducted survey and excavation that focused on a detailed understanding of this entire community. There are multiple compounds, only one of which contains a platform mound. The long trench in the photo above runs the length of the mound. The large adobe-walled room lies just off the mound. The site is at the end of an irrigation canal that begins at the northern end of the Tucson Mountains and extends for seven miles. The site is adjacent to an extensive area of dry-farming fields with numerous large roasting pits for cooking agave hearts. Both the Marana Mound and the Zanardelli site are examples of community-level specialization in the production of agave for food and fiber.

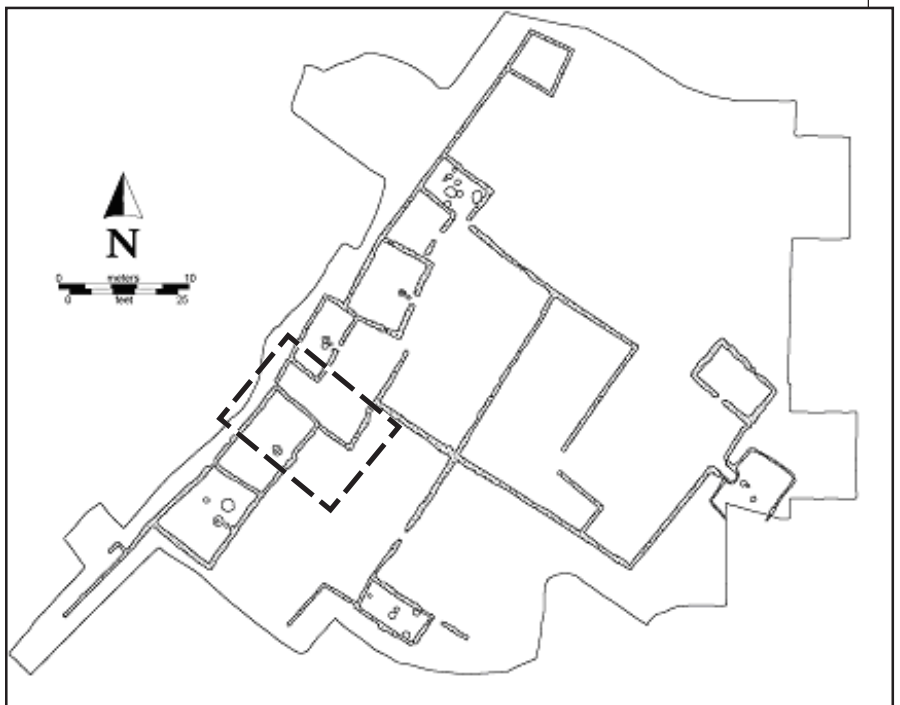
The Shamrock Ruin: A Late Classic Compound

Robert Heckman and Jeffrey Altschul
Statistical Research, Inc.

THE DAIRY SITE, located near Cortaro Farms Road and Interstate 10, lies on the alluvial fan of the Cañada del Oro drainage. This portion of the fan is ideally suited to a type of floodwater farming, *ak chin*, in which the natural grade is used to direct rainwater to fields. Not surprisingly, human habitation dating from the onset of agriculture through the end of prehistory has been documented at the Dairy site. In 1995, Statistical Research, Inc., was contracted to excavate a portion of the site scheduled for a mixed residential and commercial development. We concentrated our efforts on one component: a rare compound dating to the late Classic period (A.D. 1300–1450). We named the compound the Shamrock Ruin because the Shamrock Dairy had once stood on the site.

The late 1300s and early 1400s were a time of major demographic upheavals and changes in organization and settlement throughout the Southwest. These changes are evident in the material remains of the Tucson Basin's prehistoric inhabitants. By the late Classic period, surface adobe structures with post-reinforced, cobble-reinforced, and solid adobe walls had largely replaced the semisubterranean, adobe-lined pit rooms that dominated the domestic architecture of the early Classic period (1150–1300). Profound changes occurred in pottery manufacture, as the long-lived tradition of using red pigments against the earthen-brown background of the hand-molded pottery waned and colorful new polychrome pots emerged. Painted in combinations of red, white, and black, these ceramics are categorized by archaeologists as Tucson Polychrome, Gila Polychrome, and Tonto Polychrome.

Late Classic period settlements within the Tucson Basin are few, supporting the interpretation that it was a time of flux reflected in the reorganization of existing communities, abandonment of earlier settlements, and perhaps migration of groups from other areas. Environmental factors may also have contributed to this cultural shift and reorganization.



Top: Post-reinforced adobe walls were common at the Shamrock Ruin. Bottom: Map of the excavated portion of the compound. Dashed area is shown in the photograph above. (The photograph and the map are courtesy of Statistical Research, Inc.)

The collapsed walls and the other long-ago buried features of the once-thriving Shamrock Ruin community

are characteristic of late Classic period architecture. Similar architectural configurations dating to the same time were found at the University Indian Ruin on the eastern side and Martinez Hill on the southern side of the Tucson Basin. We infer from the bonding and abutting of the house and compound walls at the Shamrock Ruin that its construction was not a single event. When a new family arrived, it would build one or more rooms and extend the compound walls to define a new courtyard area immediately in front of its new home. Along the walls of the courtyards, we found cooking features, and possibly storage features, suggesting that these areas were heavily used for daily activities.

We suspect that these families came from near and far. At the Shamrock Ruin, we found a great deal of variability in the materials used as temper for the Gila and Tonto Polychrome pottery. Some tempers are consistent with those that were commonly used in the Tucson Basin, while other tempers suggest that the vessels were manufactured

in other parts of Arizona, perhaps in the Phoenix Basin or in the Picacho Peak area. We also recovered several sherds of a pottery type called Ramos Polychrome. This pottery was probably obtained via trade from people in Chihuahua, Mexico, and indicates interaction with communities within what archaeologists call the Casas Grandes (Paquimé) culture.

In addition, we found hundreds of flaked stone tools and debris fashioned from obsidian. Obsidian tools are relatively rare in the Tucson Basin, largely because there are no suitable local sources of obsidian. Chemical analysis of the obsidian recovered from the Shamrock Ruin suggests that most of it came from a source in the Saucedo Mountains in southwestern Arizona, more than 100 miles west of Tucson. Many of the projectile points do not appear to have been utilized. O'odham elders who visited the site believed that these tools had not been manufactured to be used, but instead, had been designed for ritual purposes.

Late Classic Period Platform Mound Sites in the Tucson Basin

*Henry D. Wallace and William H. Doelle
Desert Archaeology, Inc.*

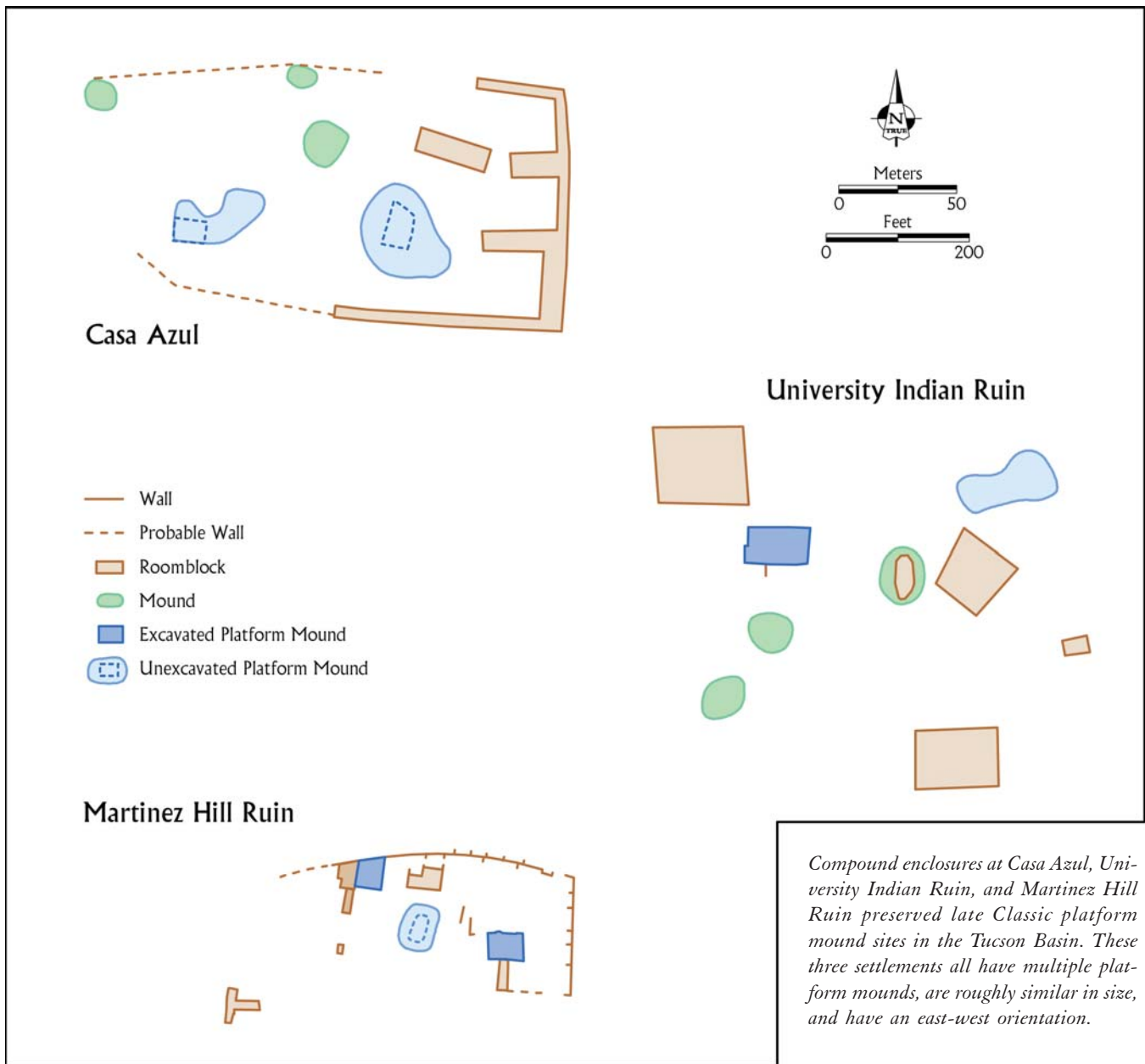
THERE WERE PROBABLY AT LEAST six late Classic period (A.D. 1300–1450) platform mound villages in the Tucson area. Two have been largely or completely destroyed, and we cannot be certain that they indeed had platform mounds. One of these, known as Furrey's Ranch, was located in the Rillito–Santa Cruz River confluence area, and the other was located south of downtown Tucson on the upper terrace above the Santa Cruz. A significant portion of a third site, the Zanardelli site, remains (see page 16), but the platform mound, recorded by Alfred V. Kidder, appears to have been destroyed when the new Nogales Highway was constructed. Three sites still have preserved platform mounds—Martinez Hill Ruin, Casa Azul, and University Indian Ruin—though a significant portion of University Indian Ruin has been lost due to development.

Excavations and mapping have been conducted on all three sites with preserved mounds. Byron Cummings, Director of the Arizona State Museum at the University of Arizona, and Norman Gabel, a student at the university, excavated at Martinez Hill in 1929 and 1930, leading to a master's thesis by Gabel. However, the work was otherwise unpublished, and although archaeologist Julian Hayden did an excellent job of documenting his excavations in a

portion of a platform mound at University Indian Ruin, he did not, unfortunately, map the entire site. In addition, the earlier excavations by Cummings in other portions of the site are inadequately documented and unpublished. Casa Azul, located only a short distance from Martinez Hill, is largely unknown to local archaeologists. However, both sites have been mapped, and they have been found to include large compound-walled enclosures with two or three internal platform mounds or mounds representing multi-story architecture. It is likely that the same general template was used for their construction.

University Indian Ruin, based on recent inspection, historic maps, and conversations with Hayden, may have had a similar layout to that seen at Casa Azul and Martinez Hill. The platform mound partially excavated by Hayden was within a multiple mound compound similar to those at these sites.

The late Classic period platform mound sites discussed here represent large aggregations of people in relatively compact villages in the best-watered portions of the Tucson area. Many of the clues to the terminus of the Hohokam sequence in the region can probably be found at these rare sites, and therefore it is imperative that they be preserved.



See the Center for Desert Archaeology website for more information: <<http://www.cdarc.org>>

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Back Sight

POPULATION GROWTH, intensive land development, and the increase in archaeological knowledge have been tightly interlocked processes. But whenever archaeological sites are excavated and then development proceeds, there is an inevitable loss. Our current techniques will be superseded by more effective techniques in the future, but we will not be able to return to these sites to apply them.

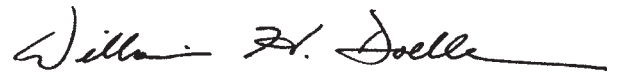
While Arizona state laws mandate the excavation and reburial of human remains from archaeological sites on both state and private land, these salvage procedures disrupt the places where past communities interred their mothers, fathers, and children. If these sites could be preserved, such disruption would be avoided.

In the Tucson Basin, there is a long tradition of archaeological preservation. For example, University Indian Ruin was set aside in the 1930s, and the University of Arizona initiated a preservation process for the site of Los Morteros that has been advanced substantially by Pima County and the Archaeological Conservancy in recent years.

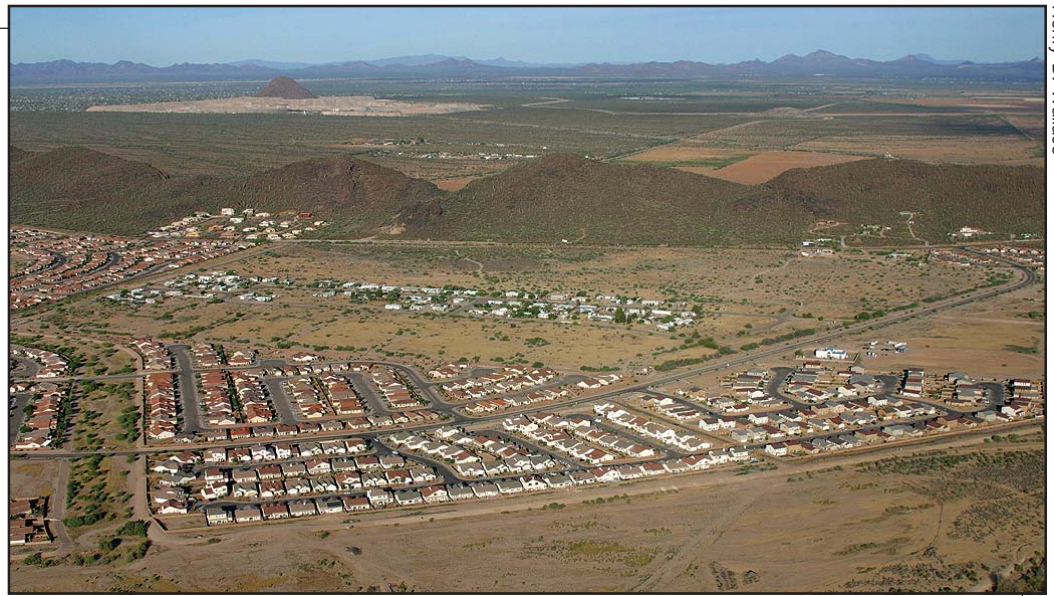
The contract firm Desert Archaeology, Inc., worked with the Arizona Department of Transportation and the City of Tucson to preserve 17 acres of the Julian Wash site within the Interstate 10/Interstate 19 interchange (see photograph on page 1). Other archaeological preserves and parks in the Tucson Basin include Catalina State Park (Romero Ruin), Dakota Wash, Honey Bee Village, Vista del Rio, Yuma Wash, and the Desert Vista campus of Pima Community College.

Pima County has used voter-approved bond funds to purchase several key archaeological sites. In addition, there are creative opportunities to achieve preservation that still allow development to proceed. Our partner in preservation at the Archaeological Conservancy, Jim Walker, is quick to remind both developers and archaeological consultants that “preservation is the least expensive form of mitigation measure.”

The pace of change over the 35 years I have lived in Tucson has been dizzying, and geographer Ellsworth Huntington (see page 1) would find very little that was similar to what he observed nearly 100 years ago. Fortunately, there are multiple archaeological preserves of varying sizes and shapes that serve to slow the pace of change and give hope that there will be a future for the archaeology of the Tucson Basin.



*William H. Doelle, President & CEO
Center for Desert Archaeology*



The core 32 acres of the ballcourt village of Los Morteros was donated to the University of Arizona in 1979. Over the past 15 years, the Archaeological Conservancy and Pima County have expanded this preserve to more than 120 acres—the green open space at the center of this photograph.

back sight (băk sīt) n. 1. a reading used by surveyors to check the accuracy of their work. 2. an opportunity to reflect on and evaluate the Center for Desert Archaeology's mission.

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