## ARCHAEOLOGY SOUTHWEST . Magazine

#### CONTINUE ON TO THE NEXT PAGE FOR YOUR FREE PDF

**Archaeology Southwest** (formerly the Center for Desert Archaeology) is a private 501 (c) (3) nonprofit organization that explores and protects the places of our past across the American Southwest and Mexican Northwest. We have developed an integrated, conservation-based approach known as Preservation Archaeology.

Although Preservation Archaeology begins with the active protection of archaeological sites, it doesn't end there. We utilize holistic, low-impact investigation methods in order to pursue big-picture questions about what life was like long ago. As a part of our mission to help foster advocacy and appreciation for the special places of our past, we share our discoveries with the public. This free back issue of *Archaeology Southwest Magazine* is one of many ways we connect people with the Southwest's rich past. **Enjoy!** 

#### Not yet a member? Join today!

Membership to Archaeology Southwest includes:

- » A Subscription to our esteemed, quarterly Archaeology Southwest Magazine
- » Updates from This Month at Archaeology Southwest, our monthly e-newsletter
- » 25% off purchases of in-print, in-stock publications through our bookstore
- » Discounted registration fees for Hands-On Archaeology classes and workshops
- » Free pdf downloads of Archaeology Southwest Magazine, including our current and most recent issues
- » Access to our on-site research library
- » Invitations to our annual members' meeting, as well as other special events and lectures

### Join us at **archaeologysouthwest.org/how-to-help**

In the meantime, stay informed at our regularly updated <u>Facebook</u> page!



## ARCHAEOLOGY SOUTHWEST . FALL 2019 Magazine

A QUARTERLY PUBLICATION OF ARCHAEOLOGY SOUTHWEST

#### VOLUME 33 | NUMBER 4

# The Casa Grande. Community

- **3** The Casa Grande Community, William H. Doelle
- 6 Spotlight: The Nation's First Federally Protected Archaeological Site, Tobi Lopez Taylor
- 8 The Meaning of Huhugam, Barnaby V. Lewis
- 10 Exploring Indigenous Associations with Casa Grande Ruins National Monument, Cait B. McPherson and T. J. Ferguson
- 13 Life at the Grewe Site, Douglas B. Craig
- 14 Spotlight: Early Work at the Grewe Site, Mark Hackbarth
- 14 In Memoriam: Douglas Craig, William H. Doelle
- 16 A New Look at the Casa Grande Community's Growth and Development, Christopher R. Caseldine and Arleyn W. Simon
- 18 The Casa Grande Ballcourt, Douglas B. Craig
- 19 Spotlight: Stone and Lac, Sharlot Hart
- **20** Interpreting the Casa Grande, David R. Wilcox
- 21 Spotlight: Ritual Pathways, J. Brett Hill
- 22 Special Architecture at Casa Grande Ruins, Jeffery J. Clark
- **23** Adamsville—Towers and Stories, Henry D. Wallace and William H. Doelle
- 25 Hohokam Canal Systems along the Middle Gila River, M. Kyle Woodson
- 26 The Casa Grande Irrigation Community, David A. Gregory
- 27 In Memoriam: David Gregory, William H. Doelle
- 28 The Escalante Community, David E. Doyel
- 29 Spotlight: The Poston Butte Site, William H. Doelle
- **30** Leaving Casa Grande, William H. Doelle
- **31** Akimel O'Odham Cultural Traditions regarding the Past, Chris Loendorf and Barnaby V. Lewis
- 33 The Polvorón Phase, Christopher R. Caseldine
- 34 Preservation Spotlight: Introduction, William H. Doelle
- 36 Preservation Spotlight: Sheltering the Casa Grande, Rebecca Carr Wong
- **37** Preservation Spotlight: The Perils of Pageantry at Casa Grande Ruins, *Tobi Lopez Taylor*
- **38** Preservation Spotlight: Protecting Compound B, Michael Brack
- **39** In Memoriam: John Andresen, William H. Doelle
- 40 Back Sight, William H. Doelle

#### **CE** and **BCE**

Beginning with this issue of Archaeology Southwest Magazine, we will use the designations CE (Common Era, equivalent to AD) and BCE (Before the Common Era, equivalent to BC).

#### **ISSUE EDITOR:**

William H. Doelle

#### **ONLINE EXCLUSIVES:**

For additional references and links, visit www.archaeologysouthwest.org/asw33-4

#### SUBSCRIBE:

Use the enclosed envelope or inquire by:

phone: 520-882-6946, ext. 26 online: archaeologysouthwest.org/ subscription email: kfitzpatrick@archaeologysouthwest.org

Established by William H. Doelle in memory of his mother, the **June Harper Doelle Endowment fund** supports the publication of Archaeology Southwest Magazine and other public outreach programs.

**Contact Linda Pierce** at 520-882-6946, ext. 23, or lpierce@archaeologysouthwest.org to learn how to support our mission through an endowment.

Cover image: Casa Grande Ruins National Monument. IMAGE © JONATHAN T. BAILEY



Archaeology Southwest Magazine (ISSN 1523-0546) is a quarterly publication of Archaeology Southwest. Kate Sarther (kate@archaeologysouthwest.org), Content Editor. Kathleen Bader, Design Production.

Tobi Lopez Taylor served as content editor for the 2009 edition, which is revised and expanded here.

Copyright 2020 by Archaeology Southwest. All rights reserved; no part of this issue may be reproduced by any means without written permission of the publisher.

Archaeology Southwest is a private 501 (c) (3) nonprofit organization supported through memberships and donations, as well as grants from individuals, foundations, and corporations. For three decades, Archaeology Southwest has practiced a holistic, conservation-based approach to exploring the places of the past. We call this Preservation Archaeology. By exploring what makes a place special, sharing this knowledge in innovative ways, and enacting flexible site protection strategies, we foster meaningful connections to the past and respectfully safeguard its irreplaceable resources.

### The Casa Grande Community

#### WILLIAM H. DOELLE ARCHAEOLOGY SOUTHWEST

*In 1694,* O'Odham residents of what is now southern Arizona guided Father Eusebio Kino to a massive adobe building, Sivan Va'aki, on the Gila River's south side. Impressed, the Jesuit missionary made a sketch of the large central building, which he labeled "Casa Grande," on his 1695–1696 map of the region. In 1697, Kino returned with his travelling companion, Captain Juan Mateo Manje, who created his own sketches. Beginning with those visits, a long sequence of non-Indigenous voices took up—took over—the story of the Huhugam cultural landscape.

Note that I did not say "Hohokam cultural landscape." That has never existed. Archaeologists use the term "Hohokam" to describe an *archaeological tradition* that comprises the material goods—pottery, houses, ceremonial architecture, irrigation canals—that are visible on today's landscape and datable to specific time periods. Around 1450, almost 250 years before Kino arrived in the region, that recognizable material pattern no longer existed, and so archaeologists say that the Hohokam archaeological tradition came to an end (page 30).



Akimel O'Odham traditional knowledge says that the Casa Grande settlement was known as Tco'-oltûk (Corner). This is an artist's visualization of life in this vibrant and well-connected community around 1300 CE. The setting is a conjectural yet data-grounded reconstruction of Compound A at Casa Grande Ruins National Monument (pages 16–17). This is part of an interpretive wayside panel at the monument. VISUALIZATION: ROBERT B. CIACCIO, COURTESY OF THE NATIONAL PARK SERVICE

But the people who created those patterns did not come to an end (pages 8-9, 10-12, and 31-32). And here is where another term and concept are very important-the word Huhugam, which is used by O'Odham speakers of southern Arizona and northern Sonora today. This term refers to both ancient and very recent ancestors of the O'Odham. We are privileged that Barnaby V. Lewis, Tribal Historic Preservation Officer for the Gila River Indian Community, offers his perspective on the term Huhugam here.

This revised and expanded issue of Archaeology Southwest Magazine chronicles more than a century of research, preservation, and educational endeavors related to the Casa Grande (also known as the Great House) and its ancient community. It also celebrates the process of returning Indigenous voices to the telling of the story. Although this is a young process, it has advanced significantly since our 2009 edition. For example, Tribal members reviewed the current edition-and I thank them for their time and expertise. This shift is also evident in Casa Grande: House of Many Stories, the film shown at Casa Grande Ruins National Monument's visitors' center, which shares Native voices and commentary on the traditional significance of this place. And the ethnographic study summarized in this issue (pages 10–12) is another strong example.

#### A Monumental Place

Generally speaking, non-Indigenous writers have focused on Casa Grande's monumental architecture. People built three kinds of monumental architecture-massive undertakings requiring great effort-during the era archaeologists refer to as the Hohokam Millennium (450-1450 CE). From about 800 to 1100, nearly every village had a ballcourt, a sunken oval area flanked by raised berms. Some ballcourt villages also had small mounds capped with earthen plaster, or more formal circular mounds called platform mounds. Ballcourt use ceased after 1075 or so. Platform mounds continued, and by the 1200s they were consistently much larger and the focus of the village. Rectangular platform mounds with massive adobe retaining walls created a flat surface one story high that served as a base for additional rooms.

In the 1300s, multistory buildings embodied further expression of monumentality (pages 23-24). Compound A, the central

Important elements of the Casa Grande Community. This map displays three threads of information: O'Odham names for landforms and key places, ancient canal systems, and archaeological sites. Barnaby V. Lewis provided the O'Odham place names. M. Kyle Woodson provided the canal systems, based on his research on the middle Gila River, work by Jerry Howard on the lower Salt River, and work by Allen Dart on Queen Creek (see archaeologysouthwest. org/asw33-4 for references). MAP: CATHERINE GILMAN, BARNABY V. LEWIS, M. KYLE WOODSON, LYNN SIMON, AND BRIAN LEWIS

place at Casa Grande, contains examples that reach two, three, and four stories in height.

#### **A Protected Place**

Remarkably, much of that adobe architecture is still preserved today. That so much remains intact owes firstly to the original builders' massive investments. It also results from active protection measures begun in the late 1800s and continuing to the present

(pages 34-35, 36, and 38-39). In fact, Casa Grande was the United States' first archaeological preserve—480 acres set aside in an 1892 executive order by President Benjamin Harrison (page 6).

That year, the population of Arizona-then only a territory—was a mere 60,000 people. Today, more than seven million people live in the state. Most of that growth occurred on the lands of the ancient Hohokam World, with positive and negative consequences. Where growth has been subject to environmental



Archaeology Southwest

#### A Closer Look: O'Odham

The Gila River Indian Community (Akimel O'Odham and Pee Posh) and the Salt River Pima-Maricopa Indian Community (Akimel O'Odham and Xalychidom Piipaash) have adopted the spelling "O'Odham," with two capital Os, so we use that here.

### The Nation's First Federally Protected Archaeological Site

Frank Pinkley (second from left), first full-time custodian and eventual manager of Casa Grande, and archaeologist Jesse Walter Fewkes (center) during Fewkes's 1906–1908 excavations at the site. IMAGE COURTESY OF THE NATIONAL PARK SERVICE

*Many archaeologists* consider Theodore Roosevelt the nation's first preservation-minded president, because he authorized the Antiquities Act of 1906. More than 10 years earlier, however, in 1892, the all-but-forgotten Benjamin Harrison signed an executive order preserving the Casa Grande Ruins and the 480 acres that surrounded it. Harrison also set aside 13 million acres as the nation's first forest reserves.

Although visitors to the site had raised concerns about its condition as early as the 1860s, little progress was made until 1889, when some prominent Bostonians, including philanthropist Mary Hemenway and poet Oliver Wendell Holmes, contacted Massachusetts senator George Frisbie Hoar. They asked that "the ancient and celebrated ruin of Casa Grande, an ancient temple...of the greatest ethnological and scientific interest...be protected by proper legislation from destruction or injury." Later that year, Congress allocated \$2,000 to "repair and protect" the site.

Between 1889 and 1892, the federal government dispatched a number of researchers to assess the site's condition, including Victor and Cosmos Mindeleff of the Smithsonian's Bureau of American Ethnology. During those years, some preliminary preservation work was initiated. Reverend Isaac Whittemore, a resident of nearby Florence, was tapped to be the site's custodian. Unfortunately, because neither Whittemore nor his successor, H. B. Mayo, lived on-site, the Casa Grande remained vulnerable to vandalism and looting.

In 1901, Frank Pinkley was hired as full-time resident custodian. More than any other, and despite some serious missteps (page 37), Pinkley contributed to the preservation of what became, in 1918, Casa Grande Ruins National Monument. In 1932, at a cost of about \$28,000, the 600-year-old multistory adobe structure was at last protected by a permanent steel structure—the same one that visitors see today.

—Tobi Lopez Taylor Independent Scholar

regulations—where archaeological investigations occurred before bulldozers hit the ground—a concomitant growth in knowledge about the Hohokam Millennium has been dramatic. Nevertheless, the rate of growth has been so rapid that loss of important places has outpaced knowledge gains. Destruction of cultural landscapes bearing evidence of the Hohokam archaeological tradition has been relentless.

As knowledge about that tradition increases, the value of these ancient places becomes even more evident. Preserving Casa Grande Ruins and its diverse cultural values benefits science, the United States, Arizona, local communities, and, most importantly, the Native American nations who have traditional associations with this place. Ongoing loss of Hohokam archaeological sites brings urgency to the current effort to expand Casa Grande Ruins National Monument (page 35).

#### A Residential Place

Although people of the Hohokam World participated in a regional economy, they grew and gathered most of their food fairly locally. They had deep knowledge of their desert landscape and its resources, and they invested substantial labor in building and maintaining canals and fields, in domestic and sacred architecture, and in technologies ranging from pottery to cotton textiles. In addition, they maintained social relationships at local and regional levels.

Archaeological evidence indicates the basic unit of society was the household. Architecturally, households comprised two to six dwellings that opened onto a shared courtyard space. That such households endured for many generations indicates people had a developed concept of property (pages 13–16). As the Hohokam World developed, and by about 500 CE, villagers began arranging households around a central open space, or plaza. Cemeteries were usually located near plazas, and so were large, special houses that probably belonged to lineage leaders. Late in the 700s, ballcourts became an essential element of every village. By the 900s, villages were often regularly spaced along irrigation canals.

Although typical villages had 300 to 500 residents, a few settlements—towns—may have been home to 1,000. The Casa Grande Community was, undoubtedly, a significant town.

The Grewe site just to the east—the earlier part of the Casa Grande Community—was also an exceptionally large place. Today the "boundary" between the older Grewe and the younger Casa Grande is impossible to discern. The Grewe Community's westward drift was gradual at first (pages 13 and 16–17). But between 1000 and 1050, the community center seems to have shifted to a new plaza and ballcourt at Casa Grande. Even more dramatic changes soon followed, and there was further reorganization. The ballcourt at the center of the Casa Grande Community may have been a powerful reference to that past (pages 18–19), even as it became surrounded by new architectural traditions—adobe compounds and platform mounds.

#### A Connected Place

What I just described for Grewe–Casa Grande is but one example of the large-scale transition in the Hohokam World that occurred between about 1075 and 1200, from what archaeologists call pre-Classic to Classic period times. As we examine larger landscapes, we are finding that the organization of entire irrigation communities changed during this transition (pages 25 and 26–27).

The full story is still only poorly understood, but it is preserved within the monument and its proposed expansion. Nearby Adamsville, too, has a ballcourt and platform mound, as does the Poston Butte–Escalante Community on the north side of the Gila River (pages 28–29). These general similarities surely mask local differences between these communities and how they changed during the transition. Preserving archaeological diversity is an important reason for including Adamsville within an expanded Casa Grande Ruins National Monument. It also justifies preservation of the Poston Butte–Escalante Community.

#### A Teaching Place

Casa Grande Ruins National Monument preserves and interprets the Hohokam World, and monument staff have long contributed to protection and research (pages 34–39). Alycia Hayes, the current Archeologist at Casa Grande, has overseen multiple studies highlighted in this updated issue. I thank her for her tireless assistance during the editorial process.

Earlier, I mentioned recent ethnographic research interviews and site visits—with the Gila River Indian Community, Hopi Tribe, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, and Pascua Yaqui Tribe (pages 10–12). A common theme expressed by all Tribal representatives was the importance of viewing Casa Grande as part of a broader cultural landscape. Although this accords well with the archaeological perspective in this issue, the Tribes also asserted that their vision of cultural landscapes and ethnographic resources is expansive and complex.

Another new National Park Service study reported here is an intensive surface survey of the monument undertaken

**Above right:** Father Kino returned to the Casa Grande in 1697, accompanied by Captain Manje. Manje made an elevation (top) and a floor plan (bottom) sketch of the building. **Right:** Map of Casa Grande Ruins prepared by Jesse Walter Fewkes after his 1906–1908 excavations. Note the central place of the ballcourt and the stagecoach road (highlighted in red). See archaeologysouthwest.org/asw33-4 for references.

#### A Closer Look: Ruins

Although the institutional names of many sites include the word "ruin(s)," it is important to acknowledge that descendant communities do not view places where their ancestors lived as "ruins." Rather than being used up or abandoned, these places are replete with stories, messages, and lessons, and ancestors remain there. This view resonates with today's archaeologists, who see sites not as "ruins," but as places rich with information about life in the past.

by Arizona State University (pages 16–17). The results refine our understanding of how the Casa Grande Community developed over time.

#### An Ancestral Place

The story of the Grewe–Casa Grande Community raises important questions. What does the decline, or termination, of residential presence on that landscape mean? What was life like at that time?

I believe better understanding will come from close investigation of the final patterns of the Hohokam archaeological tradition (page 30) and the patterns that followed (page 33), and from listening to the deep knowledge Tribes connected to Grewe–Casa Grande are willing to share (pages 30–32). These point to challenging times, but ones that people nevertheless endured.









### The Meaning of Huhugam

#### BARNABY V. LEWIS GILA RIVER INDIAN COMMUNITY

*The O'Odham* have a familial relationship of shared cultural identity that we trace over millennia, from recent to ancient ancestors, all of whom we call Huhugam. Huhugam inhabited what is now central and southern Arizona and portions of northwest Mexico. Today, O'Odham are represented by four federally recognized Tribal governments—the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, and Tohono O'odham Nation. O'Odham of the Tohono O'odham Nation also reside at San Lucy in Gila Bend; at Florence Village, west of Florence; and at the San Xavier District Community in Tucson.

Ethnographers and archaeologists who spoke with O'Odham informants in the early 1900s incorrectly translated Huhugam. This is probably due to the contexts of the conversations and to informants' limited knowledge of English. Huhugam does not literally mean "the things that are all used up." Huhugam specifically applies to past human life, not objects. In the most common translation, "that which has perished," the word "that" inaccurately implies reference to an object. Present-day O'Odham would say "those who have perished."

Furthermore, Huhugam is not the same as the archaeological term "Hohokam," which is arbitrarily limited by time periods. The archaeological term does not acknowledge ancient ancestors nor living O'Odham who will become ancestors today or tomorrow.

In the O'Odham traditional view, Huhugam refers to O'Odham ancestors, identifying a person from whom an individual is a lineal descendant. The O'Odham family tree is inclusive of all O'Odham. This has been related not by one particular person, but has as its basis the creation story that places the existence of life on Earth from time immemorial.

The O'Odham are primarily an oral-history society. O'Odham origins and history are passed from one generation to the next by practice of traditional protocols to memorialize significant events in the passage of time. O'Odham oral traditions identify Huhugam as the ancestral relatives of present-day O'Odham, and that knowledge lies at the core of O'Odham cultural identity.

Archaeological sites define and establish the connections O'Odham have with their Huhugam ancestors. The spiritual, reverent, and respectful associations assist in maintaining our links to these ancestral and sacred places. Spiritual associations to sacred places in the landscape define the existence and extent of the O'Odham world. These places are not just historically significant; by virtue of their role in annual cycles of universal and spiritual renewal, religious practice, and traditional knowledge, they are critical to O'Odham beliefs about cultural perpetuation and survival.

### **Exploring Indigenous Associations** with Casa Grande Ruins National Monument

#### CAIT B. MCPHERSON AND T. J. FERGUSON UNIVERSITY OF ARIZONA

At the request of Casa Grande Ruins National Monument, we undertook formal study of the traditional associations five federally recognized Indian Tribes have with the monument. Four of these Tribes are culturally affiliated with the monument's ancient residents-the Gila River Indian Community, Hopi Tribe, Pueblo of Zuni, and Salt River Pima-Maricopa Indian Community. The fifth, the Pascua Yaqui Tribe, has ancient traditional associations with the ancestral communities of the monument.

We were engaged to interview representatives of these Tribes regarding ethnographic resources on the monument. In order to identify and record resources people used historically and in the present, we also visited the monument in the company of Tribal representatives. Participants generously provided their time and insights, and we are grateful to them. Through their cooperation and assistance, the study produced an inventory of known ethnographic resources within the monument, recommendations for the management and interpretation of those resources, and suggestions for future research.

#### What Are Ethnographic Resources?

This turned out to be a complicated and stimulating question. The National Park Service defines ethnographic resources as "landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life." Our study participants found that definition too restrictive, however, and this contention led to rich and productive discussions. Tribal representatives cautioned against categorically separating cultural and natural resources, pointing out that natural resources have significant cultural value. Participants also asserted that ethnographic resources are culturally, geographically, and ecologically interrelated.

#### Key Findings

Research participants emphasized that the monument is best understood as part of a broader cultural landscape encompassing surrounding landmarks and extending to distant places through social, cultural, and economic ties. The geographic extent of migration, trade, and pilgrimage routes were repeatedly underscored in our discussions.

All representatives expressed their conviction that the area encompassing the monument has been occupied since time immemorial, and said that the cultural landscape of the monument is of enduring significance to their communities. In concrete terms, research participants viewed the resources they identified as a means of educating new generations about Tribal history and ways of life, and they indicated a desire to gather these materials and conduct ceremonial activities at spiritually significant places in the monument. It is vitally important that the perspectives and histories of these Tribes are incorporated and integrated into the management and interpretation of the monument's heritage resources.



Interior of the Great House, from right: Octavius Seowtewa (Pueblo of Zuni, Zuni Cultural Resources Advisory Team), Alvcia Haves (National Park Service), and Ronnie Cachini (Pueblo of Zuni, Zuni Cultural Resources Advisory Team) discussing portals in the Great House. Mr. Seowtewa shared that the Zuni name for the Casa Grande is Shiwan A'n Kyakwen ne, meaning "priest rain house." The Great House itself was variously interpreted as a residential, defensive, or ceremonial structure, and study participants thought that it probably served multiple purposes throughout its use life. Several people offered interpretations of certain architectural features of the Great House that archaeologists have traditionally described as viewing ports to track solar and lunar phenomena (page 21). Mr. Seowtewa shared his view that the portals were for following light hitting the opposite wall. O'Odham and Puebloan participants communicated the enduring significance of astronomical phenomena in the timing of ceremonial events and agricultural activities. IMAGE: BENJAMIN A. BELLORADO





ancestors traveled. IMAGE: T. J. FERGUSON

Archaeology Southwest

Barnaby V. Lewis, Reylynne Williams, Larry Benallie, and Dwight Honyouti (Gila River Indian Community Tribal Historic Preservation Office) walk the perimeter of Compound G (page 22). Study participants described traditional songs that reference the places now in the monument and features of the surrounding landscape. The Gila River Indian Community explicitly identified the monument's viewshed as an ethnographic resource in its owr right. People stressed the importance of using Native names for places and landscape features in the monument's interpretive materials (see map on pages 4–5). Doing so raises general awareness of the history of culturally affiliated and traditionally associated Tribes and their enduring relationship to the landscape. IMAGE: T. J. FERGUSON

Stewart B. Koyiyumptewa (Hopi Tribe, Cultural Preservation Office) and Alycia Hayes (National Park Service) discuss interpretive signage outside the Great House. Several conversations referred to migration histories and traditional narratives involving the monument and other regional landmarks. Hopi and Zuni participants discussed traditional narratives that describe their ancestors migrating south and settling away from their present homelands, and they emphasized the great distances their



At the top of Compound B (pages 38–39), from the left: Joel Nicholas (Hopi Tribe, Cultural Preservation Office), Alycia Hayes (National Park Service), Stewart Koyiyumptewa (Hopi Tribe, Cultural Preservation Office), Cait McPherson, Stephanie Mack (National Park Service), Katherine Shaum (National Park Service), and Rosemary Sucec (National Park Service). Research participants identified similarities among architectural features in the monument and those built by historical and present-day Native American populations. Several described possible uses of specific architectural features, including in the primary compounds, the Great House, the platform mounds within Compound B, and the adjacent ballcourt. The ballcourt (pages 18–19) was generally seen as a place to gather for a variety of communal activities. Participants had particular interests in and commentary on the spatial organization of living spaces and ceremonial spaces, and they identified this as one of several topics for further collaborative study. IMAGE: T. J. FERGUSON



Representatives identified stylistic and functional parallels among artifacts found at the monument and those produced by ancestral, historical, and contemporary members of their communities. For example, several types of shell are still used to make jewelry and as components of ritual offerings. People commented on the meanings of motifs on decorated pottery, and attributed the incredible stylistic and technological diversity of pottery found at the monument to economic exchange or gift-giving. Cultural values related to materials such as cotton, certain plant fibers, ironwood, and pine were discussed. Some representatives indicated interest in sourcing and identification studies on certain materials—obsidian and cotton species, for example—in order to learn more about social networks and interaction in the past. The artifacts in this picture were collected in 2017 and 2018. The rings and the Spondylus shell bead are from the middens associated with Compound A and the Great House. The turquoise pendant was found at a site in the northern part of the park in 2017. IMAGE: DOMINIC HENRY, COURTESY OF THE NATIONAL PARK SERVICE



Gilded flicker (Colaptes chrysoides) looking out from its saguaro home. Participants identified culturally significant plants and animals, with importance being based on appearance, behavior, associations with natural phenomena, ceremonial uses, medicinal uses, food value, and relationship with humans. Of particular significance are certain kinds of birds; plants and animals associated with water; and animals featured in traditional songs and stories. Collating Native names for specific flora and fauna, and ascertaining more about their roles in the cultures of traditionally associated tribes, were seen as another avenue for collaborative research. In addition to providing a better picture of the monument's ecology and the relationship between ancient inhabitants and their environment, this would enable the sharing of culturally appropriate information about plants and animals in interpretive materials. IMAGE COURTESY OF THE NATIONAL PARK SERVICE

### Life at the Grewe Site

DOUGLAS B. CRAIG NORTHLAND RESEARCH, INC.

**People established** the first permanent farming villages in the southern Southwest around 500 CE, coinciding with the emergence of the Hohokam archaeological tradition. One settlement founded as part of this initial wave was the Grewe site, located along the middle Gila River and adjacent to today's Casa Grande Ruins. Together, Grewe and Casa Grande formed part of a community that covered roughly two square miles and thrived for nearly a millennium, from about 500 to 1450.

Grewe's earliest settlers lived in wattle-and-daub pithouses surrounding a central plaza. Sometime around 800 CE, villagers constructed a large ballcourt along the northern edge of the plaza. They also established a communal cooking area with more than two dozen earth ovens (hornos) near the ballcourt. Around the same time, in another portion of the central plaza, people created a "Shrine Area" (page 14).

In the mid-1990s, as part of a road-widening project sponsored by the Arizona Department of Transportation, Northland Research conducted large-scale excavations in the central portion of Grewe. Work focused on a residential district in the heart of the village with more than 250 pithouses. We also investigated a portion of the central plaza that included the large ballcourt and the communal cooking area. As a result, we learned a wealth of new information about everyday life and ritual activities at Grewe that built on findings of the 1930–1931 Van Bergen-Los Angeles Museum Expedition (page 14).



This graphic strips away modern roads and buildings to create an approximation of the former landscape. The Grewe site is depicted with its houses, plazas, and trash mounds, as well as the irrigation canal that once passed through the village. By the 900s, some Grewe residents had started to move westward toward and even within the area shown as Central Casa Grande. Note the major compounds, ballcourt, and other buildings of Casa Grande. This illustration represents 900 years of living on this landscape, though people only lived on portions of it at any one time—as shown by the fine-scale residential chronology on pages 16–17. VISUALIZATION: ROBERT B. CIACCIO, BASED ON ORTHOIMAGERY BY GOOGLE EARTH

# Early Work at the Grewe Site

Van Bergen-Los Angeles Museum Expedition crew at the Grewe site. Irwin Hayden at the plane table, mapping the structure; Milton Wetherill squatting below; Ben Wetherill with back to camera; others unidentified. IMAGE: NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY, NO. 8002

#### The Van Bergen-Los Angeles Museum Expedition

(1930–1931) was financed by Charles Van Bergen and supervised by Arthur Woodward and Irwin Hayden. "Van Bergen's gophers," as the archaeologists called themselves, were interested in finding earlier evidence of the Hohokam archaeological tradition than what had been recovered from Casa Grande's adobe compounds.

Although their work began in Compound F, a site half a mile to the east soon drew their attention. The Grewe site (named for the landowner) was being levelled to grow cotton, and some of the exposed artifacts were being looted and sold—including the kinds of red-on-buff pottery the archaeologists were looking for. Van Bergen leased 30 acres from Mr. Mayfield, the tenant farmer, with the understanding that the archaeologists would excavate and level the site and looters would be kept away, at least until it was time to plant in the spring of 1930. The deadline was ultimately extended.

Within two weeks, the team was unearthing incredible objects. In the parcel's southeast corner, they recovered pyrite-encrusted sandstone mirrors, elaborately carved shell and bone tools, and caches of desert bighorn sheep horn cores. Hayden identified a "Shrine Area" immediately adjacent to the largest houses—which, in turn, we now know were near the large central plaza. From these deposits came some of the most impressive Hohokam artifacts ever found.

The expedition's work at Grewe is also noteworthy for its use of traditional and innovative field techniques. The crew employed a mule team and fresno scraper to locate houses and cemeteries and to excavate trash mounds. Their sampling strategy for the parcel included systematic excavation of shovel test pits. The team mapped features with an alidade and plane table and undertook photographic documentation. All artifacts were collected and examined. —Mark Hackbarth Logan Simpson

#### Households, Property, and Inequality

Within Grewe's residential district, groups of pithouses were often arranged around courtyards, similar to the layout of many other Hohokam sites (see graphic on facing page). Prior to 800, courtyard groups at Grewe tended to be small, with only one or two houses inhabited simultaneously. After that time, some courtyard groups became quite large, with as many as six houses inhabited concurrently. We think 5 to 8 people, on average, resided in smaller courtyards, whereas 20 to 25 people may have lived in large courtyards. These figures are consistent with the idea that courtyards were the domain of extended family or multifamily households.

In addition to these size differences, Grewe courtyard groups varied in terms of how long they were inhabited. Some were occupied for one or two generations, while others were occupied for hundreds of years. The degree of residential continuity seen in these long-lived courtyards is impressive by virtually any standard. It implies people recognized place over long periods of time and held property rights that were transferred across generations. The longevity of some Grewe courtyards further implies that households were committed to maintaining their property holdings over time.

We also examined the degree to which architectural differences among the pithouses might reflect wealth differences among households. Labor



Doug Craig (right) with Julian Hayden (left), renowned archaeologist and son of Irwin Hayden, at Grewe in the mid-1990s. Julian Hayden had worked for his father on the 1930–1931 excavations at the site. IMAGE: STEPHANIE SHERWOOD

Doug Craig, who passed away in early 2020, had a storied career as a Hohokam archaeologist. An expert on households and community organization, he worked with Pima Community College and Desert Archaeology, Inc., early in his career. Doug excavated at Dakota Wash, a Tucson Basin ballcourt village, for both organizations, and he worked at the Meddler platform mound in the Tonto Basin for Desert Archaeology. He then spent many years at Northland Research, Inc., for which he undertook extensive excavations at the Grewe site. Always generous with his knowledge and time, Doug also served as President of the Friends of Casa Grande Ruins.

-William H. Doelle

costs associated with building a sample of 132 wellpreserved pithouses were estimated based on a combination of field data and experimental data. Only houses for which relatively complete architectural information was available were included in our analysis. Spatial and temporal patterns revealed that the largest and longestoccupied courtyard groups contained the most "expensive" houses, which tended to be larger and more elaborate than others. They were also distinguished by where they were located—namely, near the communal cooking area and the ballcourt.

**Right:** Opening a large agave roasting pit like those near the Grewe ballcourt. A community feast would follow. VISUALIZA-TION: ROBERT B. CIACCIO **Below:** People established the first permanent farming villages in the southern Southwest around 500 CE, coinciding with the emergence of the Hohokam archaeological tradition. These early villages were relatively large (100 or more people) and internally structured from the outset. Groups of dwellings were arranged around courtyards, and even when the structures themselves were left to the elements or torn down and rebuilt, households maintained their general residential footprint for generations. This graphic shows clusters of pithouses at Grewe and indicates the longevity of two household groups. GRAPHIC: CATHERINE GILMAN, USING AN AERIAL IMAGE FROM THE ARIZONA DEPARTMENT OF TRANSPORTATION AND ANALYSIS BY DOUGLAS B. CRAIG AND NORTHLAND RESEARCH, INC.



15



The proximity of these larger, longer held, more elaborate courtyard groups to public areas where important ceremonies took place lends support to the idea that access to ritual played a key role in the emergence and persistence of inequality in Hohokam society. Nearby households presumably had greater access to the facilities and exercised greater control over their use. They were probably also among the primary sponsors and bene-ficiaries of any ritual events that took place under their watch.

# A New Look at the Casa Grande Community's Growth and Development

#### CHRISTOPHER R. CASELDINE, ARCHAEOLOGY SOUTHWEST ARLEYN W. SIMON, ARIZONA STATE UNIVERSITY (RETIRED)

*In 2016*, the Center for Archaeology and Society Repository, Arizona State University, conducted an archaeological survey of Casa Grande Ruins National Monument for the National Park Service. Our team documented, but did not collect, surface artifacts at more than 700 locations (inventory units). Specifically, we examined the densities of artifacts across the monument and



e densities of artifacts across the monument and the presence and relative amounts of temporally distinct kinds of decorated pottery. Together with archival sources, these data helped us to refine a model

> of the monument (pages 13–16). The scant Pioneer artifacts found on the ground in the monument hint that

of how the Casa Grande Community

developed at the Grewe site northeast

developed and changed over time.

During the Pioneer period

(500-750 CE), a large settlement

The single story rooms of Compound A are protected with a "sacrificial" coating of adobe that is regularly replaced by National Park Service staff and volunteers. IMAGE © JONA-THAN T. BAILEY Grewe residents undertook activities there, but it was not a place of residence.

The Colonial period (750–950) marked the establishment of two households in the northeast and northwest quadrants of the monument, heralding settlement dynamics that took shape during the subsequent Sedentary period. These two founding households persisted for centuries, through to the late Classic period (1300–1450).

During the Sedentary period (950–1100), the center of the community shifted from Grewe to the northern and western portions of the monument, where people established additional households. They created a large central plaza and built a ball-court along the southern margin of the plaza.

The Casa Grande Community's population was highest in the early Classic period (1100–1300). The community comprised several residential areas surrounding Compound B. Residents divided the central plaza that had been established in the Sedentary

period into at least three plazas associated with distinct residential areas. People also built two platform mounds at Compound B. By 1300, the ceremonial and residential center of the community had shifted to Compound A.

> Artist's visualization of builders laying courses of adobe for the Casa Grande, the multistory structure in Compound A. VISU-ALIZATION: ROBERT B. CIACCIO, COURTE-SY OF THE NATIONAL PARK SERVICE





As the late Classic period (1300–1450) progressed, the Casa Grande Community began to contract, and people began leaving residential areas away from the ceremonial core. We surmised this in part from the distributions of Salado polychrome (also known as Roosevelt Red Ware) on the ground surface across the monument. By 1350, most of the community was living at or near Compound A. By the early 1400s, it is plausible that the few remaining households near Compound A were integral to maintaining ceremonial activities at the Great House, and this probably continued until about 1450.

Around that time, people in the region had begun living in ways that look mostly very different, archaeologically, from what we see in the two centuries before (pages 30–33). We know more about this transitional time, which researchers call the Polvorón phase, from excavation records.

Left: Settlement changes in the Grewe–Casa Grande Community through time. Each frame corresponds to the rectangle in the visualization on page 13. GRAPHIC: CATHERINE GILMAN, BASED ON A GRAPHIC BY CHRISTOPHER R. CASELDINE

### The Casa Grande Ballcourt

#### DOUGLAS B. CRAIG NORTHLAND RESEARCH, INC.

*Along the northern edge* of the central plaza at Casa Grande, about halfway between Compounds A and B, is an elongated oval feature with earthen embankments on both sides and a depression in the middle (see map on page 7). For much of the late 1800s and early 1900s, archaeologists debated its purpose.

In December 1918, just a few months after Casa Grande Ruins was proclaimed a national monument, Superintendent Frank Pinkley excavated several test pits in the so-called "elliptical mound" and discovered a well-preserved, slightly sloping plastered floor with a stone marker in the center. Pinkley concluded the feature was most likely a facility used for public gatherings and ceremonies.

Further support for this idea was provided by excavations carried out in 1934–1935 at the site of Snaketown, located about 25 miles northwest of Casa Grande. Under archaeologist Emil Haury's direction, on behalf of the Gila Pueblo Foundation, teams excavated two large elliptical earthen "bowls" at Snaketown. Both turned out to have floors nearly identical to the one at Casa Grande; they also had central marker stones. Drawing on parallels between these features and Mayan ballcourts, Haury proposed that these "bowls" were ballcourts where people had played a version of the Mesoamerican ballgame (but see page 19).

More than 250 ballcourts have since been recorded across the Southwest, with the densest concentration in the Hohokam

heartland, in the irrigation communities along the middle Gila and the lower Salt Rivers. The largest ballcourts, including one of those from Snaketown, had playing surfaces that were roughly two-thirds the size of a modern football field and earthen embankments about 8 to 10 feet higher than the playing surface. Archaeologists estimate that 500 spectators could have been accommodated on top of these embankments. Some smaller courts, such as the one at Casa Grande, were less than half this size and presumably capable of accommodating far fewer people.

The first wave of ballcourt construction across southern and central Arizona occurred at about 800 CE, coinciding with the emergence of a regional ceremonial and exchange system. Ballcourts from this time period have been reported at sites in the Phoenix Basin, Tucson Basin, San Pedro River valley, lower Verde River valley, and Gila Bend and Globe areas.

Many of these early ballcourts are quite large, like the one at Snaketown, but people built large and small ballcourts from the very start. No large ballcourts are known to have been built after about 950, however, and by the end of the 1000s, ballcourt construction had come to a halt, and the regional ballcourt system appears to have collapsed.

Unfortunately, little direct evidence exists to date the Casa Grande ballcourt. Indirect evidence suggests that people built the ballcourt at some point between 1000 and 1050, coinciding with the emergence of Casa Grande as a major population center.

> Why would Casa Grande's community members build a ballcourt at a time when the ballcourt system appears to have been on the verge of collapse? To answer this question, we should consider the relationship between Casa Grande and the nearby Grewe site, the ancestral village to Casa Grande (pages 13–16).

> Grewe had a ballcourt that was quite similar in appearance and age to the large one at Snaketown, making it one of the largest and earliest ballcourts in the Hohokam region. Archaeologists have identified two other ballcourts at Grewe, and both

Ballcourt at the Casa Grande Ruins National Monument, view to the southeast. IMAGE: HENRY D. WALLACE



appear to have been built after the large ballcourt, but before the one at Casa Grande. This suggests there was a meaningful sequence of ballcourt construction in the Grewe–Casa Grande site complex.

Ballcourt events brought together large groups of people and helped promote a sense of shared identity. The presence of two dozen earth ovens (hornos) suggests people had ritual feasts next to the large ballcourt at Grewe. Artifactual evidence shows people bought and sold many ordinary and luxury objects at trade fairs held in conjunction with ballcourt events.

At Grewe, the wealthiest households lived near the large ballcourt and controlled access to the communal cooking area. Once the fortunes of these households started to decline, however, people ceased to use the ballcourt and the communal cooking area. The seat of power within the village then moved, as indicated by the construction of new ballcourts in other areas. From such a perspective, even if it was used for only a short time, the Casa Grande ballcourt would have been a visible reminder of the shift in power from Grewe to Casa Grande that took place near the end of the 1000s.  $\square$ 

### Stone and Lac

**Sixteen dusty stone balls.** Luckily, they have not been washed clean. These lithic spheres in Casa Grande's collections are probably associated with activities people undertook in its ball-court centuries ago. Although we do not have well-documented context information for most of the spheres, which were collected in historic times, what we do have is evidence physically wedged in the vesicles and on the surface of these balls. What is it, and why was it applied? How might it help us understand age-old practices?

Hohokam ballcourts are symbolic, monumental public architecture typically dating to the pre-Classic period, built mostly from about 800 to 1075 or 1100 CE. In scale, they are not unlike regulation courts of various sports today. Although many researchers think what happened in a ballcourt may have been similar to a Mesoamerican ball game, contemporary O'Odham disagree. They describe other games, in which players used only feet to maneuver balls, and remind us that these events were important methods of learning cultural and community values. Historic and contemporary accounts also include O'Odham women's *toka*, which is much like field hockey, played with two balls strung together. The O'Odham men's long distance run, *wuicuda/wuitcu't/wuichuda*, today uses wooden balls, *songiwul*. In *wuicuda*, tracks are flat areas in the desert with sparse vegetation; historically, they were reported as being 20 miles long, on average. Imagine running a marathon while also driving a ball ahead of yourself!

Although to my knowledge O'Odham *wuicuda* only uses a wooden ball, ethnographers working in the early 1900s recounted use of stone balls, often with a covering of creosote or mesquite gum over the stone surface. In her work with Hopi at Walpi, stone artifact specialist Jenny Adams reported that some racing stones were specifically ground concave on a side and had pitch applied to allow better adherence and heft during the kick. Applied pitch or "gums" could also have helped pre-Classic ballplayers with easier handling as they possibly bounced stones off their hips (which still sounds like an arduous task). Eleven of the Casa Grande balls fit Adams's dimensional criteria for Hopi race balls.

For our ongoing project, my team photographed all 16 balls under ultraviolet (UV) light. Recent investigations into plant resins and lac led to this seemingly odd choice. Lac is a material exuded by insects, and one species of lac-producing insect traditionally hosts on the creosote bush, *Larrea tridentata*. Plant resins and lac glow, or fluoresce, different colors under UV light. All 16 balls fluoresced under UV light.

Did people who performed in Hohokam ballcourts coat their balls in resins or lac? Is there a functional difference between the two materials? Although UV light can help us identify

the material difference, this is just a first step—true confirmation comes through microchemical testing.

Careful investigation rules out some of the lac or resin candidates, due to historical treatments or remnant clay from their resting places. But two seem to indicate remnant lac. As always, more O'Odham collaborative research is needed to confirm this finding, and to get at the juicy questions: Why lac? Why stone? Why and when were they used?

I am still glad nobody washed these artifacts.

—Sharlot Hart, National Park Service

Above: Resin on the surface of a stone ball recovered at the monument. **Right:** The resin fluoresced under ultraviolet light, indicating it was probably lac from an insect that hosts on creosote bushes—and leading to more questions. Stay tuned. IMAGES COURTESY OF THE NATIONAL PARK SERVICE



### Interpreting the Casa Grande

#### DAVID R. WILCOX ITINERANT SCHOLAR

*In 1976*, Lynette Shenk and I worked inside the Casa Grande for a month, making detailed elevation drawings of interior wall faces. The building had three stories with five contiguous rooms each, and a fourth story with a single room. The details we recorded as we observed the calcium carbonate-rich walls became new knowledge.

We found that horizontal arrays of holes indicated the former presence of roof beams on the second-, third-, and fourth-story levels (the first story had been filled with dirt). A pattern of large/small/large/small holes on one side was matched with one of small/large/small/large holes on the other. The builders evidently used 10-foot-long logs that tapered at one end, and placed them so that the large and small ends alternated, to achieve greater uniformity and strength in the roofs.

We then noticed intervals that were about three feet long where this pattern did not hold. The length of the roof beams, calculated by adding the depth of opposite beam holes to the width of the room, showed that in those intervals unusually long



Artist's visualization and cutaway view of the Great House showing construction details. The building had three stories with five contiguous rooms each and a fourth story with a single room. The first story was filled with dirt. The illustration shows various ideas about how people used rooms in the Great House—for making things, for storing cotton, textiles, and pottery, and for storing ritual materials. VISUALIZATION: ROBERT B. CIACCIO, COURTESY OF THE NATIONAL PARK SERVICE

or short measurements were found. To explain these facts, we posited that there were roof hatchways. Happily, the location of these hatchways was highly patterned: they occurred at one end of the central three room-tiers, and at both ends of the north and south tiers. Thus, the rooms of the Casa Grande were all linked by well-planned access routes.

Careful measurement also showed that the building was designed and built as a whole. Long cracks in the walls at wall junctions were drying cracks, not abutments. From extant pieces of the Casa Grande's roof beams, we know that white fir and ponderosa pine logs were used. They must have come from at least 50 miles away, in the Santa Catalina Mountains. Associated pottery and multiple carbon-14 dates from one log indicated a construction date in the first half of the 1300s.

Holes through the walls of two third-story rooms and in the central, uppermost room were design features. Studies by John Molloy suggest that these holes worked well to observe key astronomical events, such as solstices, equinoxes, and perhaps lunar phenomena. Fire blackening on many interior walls may indicate that the floors once contained hearths. Thus, the Casa Grande probably was a special habitation or religiously charged structure.

What was the role of the Casa Grande in Hohokam society? More than four decades ago, I suggested that it was a "chief 's house." In 1999, archaeologist Jason Shapiro used graph theory to argue that its access patterns point toward it being a specialized ceremonial structure. Archaeologist Donald Kayser's earlier idea also could be true: that, as a tower, it could have been designed to help regulate the distribution of irrigation water in the Casa Grande irrigation community (pages 25–27).

In all these ways, it may have been an essential facility to promote the integration of a regional economy in which settlements of the middle Gila River valley were linked with the larger, contemporaneous sites of the lower Salt River valley. I have argued that the large platform mound sites of Pueblo Grande and Mesa Grande shared power in a dualistic political system in which the Casa Grande Community was a subordinate center. Archaeologists would like to know if these ideas are true. The scientific challenge they pose is how to test them with new facts.



**Top left:** Path through rooms. **Top right:** A design in the wall of the central secondstory room of the Great House. **Bottom left:** Design shown to Father Nentvig in 1764. **Bottom right:** Contemporary Man-in-the-Maze symbol. IMAGES PROVIDED BY J. BRETT HILL

*In 1907,* Jesse Walter Fewkes produced the first scientifically accurate drawings of the Great House. He also published his analysis of a design pecked into the wall of the central room of the second story. Thin Leather, an O'Odham Elder, had told Fewkes it was called Se'ehe ki, but Fewkes called it a "fictitious ruin." Fewkes noticed its similarity to another design shown to Father Juan Bautista Nentvig in 1764 when Nentvig had asked his Native guides about other buildings like Casa Grande.

Some two decades before Fewkes's plan drawings were available, anthropologist Frank Hamilton Cushing had speculated that there was a ritual pathway through the Casa Grande. What would such a pathway look like? If one entered from the east, where the chief was said to watch the sun rise, there would only be two options: pass straight to the central room, or turn right. If one desired to pass through any other rooms before entering the central room, the path would necessarily return upon itself. Moreover, the path would be repeated on multiple floors connected by ladders, through a distinctly labyrinthine design. This plan seems intended to structure movement in a complicated way.

Such a recursive pathway looks suspiciously similar to designs seen by Nentvig and Fewkes, as well as to the contemporary l'itoi ki (Man in the Maze) symbol. I propose that what Nentvig's guides were describing was not an architectural drawing, as he expected, but the experience of moving through such a building. This interpretation presents a subjective understanding and emphasizes the feeling of movement and mystery, rather than the appearance of a building. It also potentially connects the central symbol of O'Odham identity to the Casa Grande.

-J. Brett Hill, Hendrix College

### Special Architecture at Casa Grande Ruins

#### JEFFERY J. CLARK ARCHAEOLOGY SOUTHWEST

**During Jesse Walter Fewkes's** 1906–1908 excavations at Casa Grande Ruins, he identified four structures that he called "clan houses." To Fewkes, these small, compact features appeared to represent a different architectural tradition than the compounds found at the site.

When Fewkes excavated the most prominent of these structures, Compound G (which Fewkes called Clan House 1; see map on page 7), he found a U-shaped room block and small plaza constructed of thick adobe walls. Although most of the rooms lacked internal features, the large "throne room" situated at the top of the "U" had a centrally placed adobe seat, with a back, that could accommodate one person.

Fewkes determined that two rooms had been added to the northern wall of Compound G. One room in what Fewkes called "the Annex" was unroofed and contained a painted adobe crypt in which lay the remains of a man and numerous grave offerings. The painted designs on the crypt included a series of red, white, yellow, and black hooked triangles similar to those seen on Tanque Verde Red-on-brown bowls and on Salado along the Gila River. With the exception of its annex, Compound G—like the Great House in Compound A—was constructed in a single episode. The layout of Compound G resembles a small room block, a type of structure associated with Ancestral Pueblo immigrants elsewhere in the southern Southwest. The other special buildings are also adobe, and may have this same layout.

Salado polychromes were by far the most common ceramics recovered at Compound G. In addition, two sherds of Tucson Polychrome—a pottery type associated with Ancestral Pueblo immigrants—were found. This kind of pottery is very rare at Casa Grande.

The architecture of Compound G, with its unique layout, throne room, and remarkable burial, suggests a special high status for the residents. Did Compound G's residents have a different cultural background than the majority of the community's other inhabitants? This question can be answered only through additional fieldwork or more intensive examination of existing artifact collections.

polychrome vessels. Fewkes believed the design represented quail-head feathers. On Salado polychrome pots, many of these design elements are attached to long lines, and these motifs have been interpreted as feathered or horned serpents. Funerary objects included an unusual double-bitted axe and a finely made mortar and pestle stained with green pigment. In the man's left hand were a number of arrowheads, and his right hand held fragments of paint, perhaps from a perishable object, like a wooden staff.

Most compounds at the site were built incrementally, and similar architecture is common in other compounds



Bird's-eye view of Compound G created by archaeologist Jesse Walter Fewkes. The long axis of this compound is east–west. Fewkes called the rooms at left "the Annex." (See archaeologysouthwest.org/asw33-4 for full citation.)

### Adamsville—Towers and Stories

HENRY D. WALLACE, DESERT ARCHAEOLOGY, INC. WILLIAM H. DOELLE, ARCHAEOLOGY SOUTHWEST

*Early archaeologist-observers* in the Phoenix Basin got to see earthen platform mounds and towers before they were destroyed by looters, agricultural development, and urban expansion. Because they were seeing those buildings for the first time, they often overlooked or did not mention details later archaeologists have found to be important. But they did note some key aspects.

Preservation archaeologists often use notes and information from earlier archaeologists and then reintegrate that material into the body of subsequently accumulated knowledge. This has been the case as the two of us have sought to understand a building at Adamsville that attracted the attention of both Jesse Walter Fewkes and Harold Gladwin in the early 1900s. Our quest also led us to review records of several other contemporaneous multistory buildings in the Hohokam World—one at Pueblo Grande in Phoenix and one at Casa Grande.

In 1906–1907, Fewkes sketched a map of the Adamsville site. On a separate page (reproduced here at lower left), he recorded details of the impressive walls of a relatively small structure located well north of the large platform mound. The walls were at least three feet thick, and Fewkes was sufficiently impressed that he included two photos of this structure in his report on the Casa Grande excavations (see the top image on page 24 for one that shows a view to the southeast).



**Left:** Fewkes's sketch of the massive-walled structure shown on page 24. Upside-down phrase at top reads "7 ft high highest point." North is up. IMAGE COURTESY OF HENRY WALLACE AND THE ARCHIVES OF THE BUREAU OF AMERICAN ETHNOLOGY, SMITHSONIAN INSTITUTION **Right:** Anthropologist Frank Cushing's drawing of a tower at Pueblo Grande from his 1887 partial excavations there. The noted hearth was on a third-story floor. The first story was actually an earthen platform mound. IMAGES: AUTRY MUSEUM OF THE AMERICAN WEST, MS.6.HAE3.28AA AND 28Z

In 1887, Frank Cushing partly excavated a three-story tower structure at Pueblo Grande. Fortunately, he provided high-quality plan and profile views of that structure (paired images at left). The filled-in first story is clearly illustrated in his cross section, and a second and third story are documented above the filled-in base story.

Also in 1906–1907, Fewkes excavated the three-story Southwest Building in Casa Grande's Compound A. Unfortunately, he did not describe the nature of the earth his crew was removing (see bottom image on page 24, which was taken in 1891 prior to excavation). Fortunately, caretaker Frank Pinkley was in residence during those excavations. In a 1931 publication, Pinkley noted:

"Near the southwest corner of the compound is the ruin of a large building which had five rooms on the ground plan, four on the second story and one only on the third story. The three story tier of rooms in this building had the lower room filled with dirt at the time the house was erected."

So now we know of two three-story towers with similarities in construction: a stack of rooms with the bottom one filled in.



Lower stories could have rooms surrounding the stack, but the top story was a single room.

In 1927, Harold Gladwin, subsequent sponsor of a great deal of Hohokam archaeology, gained his first field experience in the southern Southwest. While working at Casa Grande, he also excavated in the interior of Fewkes's Adamsville structure.

> Gladwin is frustratingly terse in his reporting. He tells us that a burial was discovered on the floor, underlain by partially charred logs.

Could those logs represent the ceiling of a deeper room? Could they be part of a collapsed upper floor? The massive walls of this Adamsville structure might indicate it was a three-story tower. If so, Gladwin might have been excavating within a second-story room, and there might be a filled-in first-story room as yet unexplored. We dug a bit deeper into our notes.

In the 1980s, David Gregory (pages 26–27) mapped the northern portion of Adamsville. The result was an integrated map of the entire site. And it established that the Fewkes structure and other nearby rooms were located within a compound wall that was much larger

than the wall that enclosed the platform mound.

In January 1994, we visited Adamsville with a focus on that platform mound area. Wallace's notes describe a two-story room in that area of the site, which suggests that Adamsville may have had *two* multistory structures—the one Wallace noted in the platform mound area and the Fewkes structure.

We still have not arrived at a definitive answer regarding the nature of either building. But our investigation illustrates one reason why protecting Adamsville is an urgent priority-it clearly holds scientific values, as well as cultural and public ones (page 35). As preservation archaeologists, we are confident that we can pursue this and other questions through mapping and deep archival research, thereby uncovering critical clues, and hopefully answers, without further excavation.



**Top:** The multistory building—possibly a tower building—at Adamsville that impressed Fewkes and was partially excavated by Gladwin. This image was taken in 1906–1907. **Bottom:** The Southwest Building in Compound A at Casa Grande prior to excavation. Note the large mound created by the eroding three-story structure. For references, visit archaeologysouthwest.org/asw33-4.

### Hohokam Canal Systems along the Middle Gila River

#### M. KYLE WOODSON GILA RIVER INDIAN COMMUNITY

**People built** canals along the middle Gila River at least 1,500 years ago, during early pre-Classic times (500–600 CE). These served the villages at Grewe (pages 13–16) and Snaketown. Over the ensuing two centuries, nine canal systems came into operation.

We learned a great deal about these systems through a study conducted by the Gila River Indian Community just over a decade ago, as part of the Bureau of Reclamationfunded Pima–Maricopa Irrigation Project. An important contribution of this study is a comprehensive map of middle Gila canal systems (represented in part in the map on pages 4–5).

The early systems were not built to their greatest extents until the 800s. Two additional systems were built in the middle of the pre-Classic (750–900), and the remaining two systems may not have been built until the late pre-Classic (900–1100). All 13 systems were in operation during the Classic period (1100–1450). Some systems were linked, or consolidated, with other systems, evidently during the late pre-Classic and Classic periods.

#### The Grewe-Casa Grande Canal System

The Grewe–Casa Grande canal system is the farthest upstream Hohokam canal system along the middle Gila River. The system probably began as two separate, shorter systems: one built early in the pre-Classic, serving Grewe, and the second built upstream in the middle of the pre-Classic. The two systems were probably consolidated into one longer system in the 1000s.

In its inferred Classic period configuration (pages 26–27), this system had the largest and longest main canal, which ran

for more than 20 miles. The canal's command area—field areas that were irrigated at least once—was the largest of the 13 systems, estimated between about 6,000 and 9,000 acres.

The Grewe–Casa Grande system held a clear advantage in having the farthest upstream heading, giving it the most reliable water supply of the Gila systems. This heading became even more important in the pre-Classic to Classic period transition, when changing river conditions and high demand for water presented a significant challenge for irrigators to maintain a reliable water supply.

Researchers have shown that the river downcut and widened, and was marked by below-average streamflow during this time (pages 31–32). Water scarcity also became a serious concern for downstream systems. Nearly all the main canals below Grewe– Casa Grande decreased in capacity during this transition.

The vulnerability of these systems exerted pressure on farmers to link with another system higher upstream. Even with such linkages, farmers along the downstream systems may have had problems with crop failure and would have needed to find food elsewhere.

Finally, water-scarcity conditions probably "pushed" people to move upstream, or elsewhere. My research indicates major population declines along the downstream systems. Along the Snaketown canal system, the population may have declined by as much as 40 percent between the pre-Classic and the Classic periods. The Santan system also witnessed declines.

The best place to move was the Grewe–Casa Grande system, because it had the most reliable water supply and the largest command area. All these conditions contributed to the rise of Casa Grande and its associated villages in the Classic period.



A remnant segment of the Casa Grande Canal, north of Pueblo Bisnaga (see map on pages 4–5), facing east. The two people are standing on the crests of the embankments about 56 feet apart. IMAGE: M. KYLE WOODSON

### The Casa Grande Irrigation Community

#### DAVID A. GREGORY DESERT ARCHAEOLOGY, INC., AND ARCHAEOLOGY SOUTHWEST

*The Casa Grande Canal* served a number of sites during the Classic period (1100–1450 CE). Its headgates lay immediately below the North and South Buttes, where the Gila River flows out of constraining bedrock mountains. These sites—known to archaeologists as the Casa Grande irrigation community—consisted of the Casa Grande settlement, four contemporaneous platform mound villages, and several smaller sites (see map on pages 4–5).

Between 1300 and 1400, the Casa Grande settlement was home to about 1,500 people. The four platform mound settlements in the Casa Grande irrigation community are thought to have had between 200 and 300 people each.

Marked regularities in the distribution of principal settlements along main canals have been previously recognized for pre-Classic as well as Classic period irrigation communities. This may reflect the distance one is able to walk to fields, tend them, and return to the settlement in a single day. Regular spacing may also relate to the necessary distribution of labor for routine maintenance of main canals. Extending more than 20 miles long, the Casa Grande Canal was the longest main canal in the Hohokam area. In addition, in terms of main canal length and the number of principal settlements, the Casa Grande system was one of, if not the, most complex in the entire Hohokam area. And the Casa Grande settlement may have exercised control over three other irrigation communities—the Blackwater, Chee Nee, and Escalante.

The Blackwater irrigation community was served by the Blackwater Canal, whose headgates appear to have been located at or immediately upstream from the base of Cholla Mountain, and just north of Casa Grande itself. This main canal was unusual in the Hohokam area because water could be diverted from either side of the canal. The Blackwater irrigation community itself is also somewhat unusual, as there are no known platform mounds in the community's two principal settlements.

Directly across the river from the Blackwater irrigation community —and similar to it in many ways—was the Chee Nee irrigation community. Headgates for the Chee Nee Canal were located in the same general area but on the opposite

> side of the river, at or slightly upriver from the base of Cholla Mountain. This main canal served two principal settlements,

View north of the ballcourt at Adamsville, the best-preserved site in the former Casa Grande irrigation community, other than Casa Grande itself. It is the only site where relationships among settlements along the Casa Grande Canal can be explored, and it is one of only a few remaining sites in the region where the relationship between platform mounds and ballcourts can still be investigated. IMAGE: HENRY D. WALLACE



Cholla Butte and Chee Nee. As at the Blackwater irrigation community, platform mounds were not present between 1300 and 1400 at Chee Nee.

The Escalante irrigation community had only one principal settlement, the Escalante site, excavated in 1973 (pages 28–29). The position of the Poston Canal headgates indicates this canal would have been competing with the Casa Grande system for water, especially in times of low flow. One possibility is that the Casa Grande irrigation community could have asserted its water rights by overwhelming force, ultimately resulting in the demise of the Escalante irrigation community. Another hypothesis is that the Escalante irrigation community was actually part of the Casa Grande system, and was engaged in relationships similar to those among the five principal settlements of the larger system.

Unfortunately, Pueblo Pinal, Florence Pueblo, Pueblo Bisnaga, and numerous smaller sites along the Casa Grande Canal have been largely destroyed due to cultivation and development. We owe much of our knowledge of these sites to Frank Midvale, an avocational archaeologist who traveled throughout southern and central Arizona, making maps and taking notes prior to and during the process of their destruction.

Aside from Casa Grande, Adamsville is the best-preserved site in the former irrigation community—the platform mound and associated compound wall, the earlier ballcourt, portions of other compounds, and several trash mounds are still extant. The site has tremendous research potential. It is the only site where the nature of relationships among settlements along the Casa Grande Canal can be explored, and it is one of only a few remaining sites in the Phoenix

Basin where the relationship between platform mounds and ballcourts can still be investigated.

important settlement in the Casa Grande irrigation community, is well preserved. Proposed legislation calls for cooperative management by Arizona and the National Park Service (page 35). IMAGE: HENRY D. WALLACE

#### In Memoriam: David Gregory



Dave Gregory (left) with eminent Hohokam archaeologist Emil W. Haury.

Prolific archaeologist Dave Gregory passed away in 2010. Dave directed fieldwork for the Arizona State Museum at the Phoenix Basin site of Las Colinas, where excavations focused on a ballcourt and a platform mound. He did creative fieldwork and reporting on Early Agricultural period archaeology in the Tucson area when employed with Desert Archaeology, Inc. While he was a senior researcher with Archaeology Southwest (then the Center for Desert Archaeology), Dave worked with David Wilcox to organize and develop a major edited book, Zuni Origins.

—William H. Doelle



### The Escalante Community

#### DAVID E. DOYEL RESEARCH ASSOCIATE, ARIZONA STATE MUSEUM

*The Escalante Community* figures prominently in the history of Hohokam archaeology. Members of Father Eusebio Kino's expeditions in the 1690s visited the place, as reported by Juan Bautista de Escalante, for whom the site is named. Earlytwentieth-century archaeologists Jesse Walter Fewkes, of the Smithsonian Institution, and Harold Gladwin, of the Gila Pueblo Foundation, recorded the Escalante site. Decades later, the excavations I directed there in 1973 for the Arizona State Museum played a prominent role in more-recent interpretations of the Hohokam World. Our project preceded Conoco's planned, but unrealized, development of a large open-pit copper mine. Fieldwork focused on the Escalante platform mound and several nearby adobe compounds. We sought to understand the community's history and how the settlements were organized, both individually and as a community. Although the platform mound was partially excavated, the compound associated with it was fully excavated.

The area was inhabited by the 1100s, perhaps by families associated with the ballcourt village at Poston Butte just



Escalante compound and platform mound, view to the east. In this aerial photograph from 2009, the arrangement of rooms around courtyards is still apparent. Various Akimel O'Odham traditional songs identify platform mound sites throughout southern Arizona. IMAGE: HENRY D. WALLACE

upriver. Excavations revealed a succession of settlements dating throughout the Classic period (1100–1450). Three early Classic period settlements comprised structures and yard areas enclosed by solid-adobe compound walls. These sites varied greatly in architectural style, indicating residents were learning how to build with adobe.

The Escalante site proper was the sole late Classic period (1300–1450) village in the community, and the only one with a platform mound enclosed by a compound. Our work provided insights into the structure of Hohokam villages. The early Classic period sites were organized by walled courtyards and enclosing walls. The later Escalante site was a preplanned, patterned village with walled plazas and room spaces of differing functions distributed throughout the village, including on top of the mound.

Previously, archaeologists had attributed the presence of earthen mounds in Classic period sites to a postulated invasion of Salado groups from the northeast, referring to these features as "house mounds." It is now apparent that the mounds were actually artificial platforms initially constructed for special purposes, including ceremonies.

Excavations at Escalante demonstrated that the technology and style of construction of these mounds was within the Hohokam tradition. Furthermore, the early Classic period edifices were constructed as ritual features, and only later did people add rooms atop the mounds. During the later years of residence at Escalante, it is likely that community leaders lived on the mound.

The history of the Escalante Community helped me conceptualize the dynamics of the early Classic period. The lack of a ballcourt indicated a late founding date, after this kind of public architecture had fallen out of favor (page 4). In addition, the platform mound had been constructed on new ground unsullied by earlier construction. For this local area, there is a significant spatial separation between the Poston Butte ballcourt and the Escalante platform mound. Current knowledge indicates a separation in time and often in space between ballcourts and rectangular platform mounds, although there are exceptions to this pattern. My thinking has been that this separation was due to a failure of the old ideology and a desire to create a fresh start in new places.

Although contemporaneous with the ancient Casa Grande Community, Escalante had a different history and expressed a different view of Hohokam society. Escalante was a local center, and Casa Grande was a preeminent regional center. The compound enclosing the Casa Grande is one of the largest on record, much larger than Escalante. The single platform at Escalante is not even as large as one of the two platforms in Compound B at Casa Grande, nor as large as others in the Casa Grande system, including Adamsville. In fact, Casa Grande is more the exception than the rule, whereas Escalante reflects the structure of many smaller communities throughout the Hohokam area.



The oval depression and embankments of Poston Butte's ballcourt are clear in this aerial view. The small rises all around are what archaeologists call trash mounds, though we are learning that "trash" might not be an appropriate way to think of such deposits. The mounds surround a large, open plaza at the center of the village. The north side irrigation canal ran along the alignment of the modern canal at far left in this photograph. IMAGE: HENRY D. WALLACE

*I first learned about* the long-lived Hohokam village near Poston Butte in 1975, from maps made a decade earlier by Frank Midvale, one of the most productive self-trained archaeologists to work in the region. At the time, I was a graduate student employed by the Arizona State Museum to supervise research related to an area where Conoco planned to create extensive tailings piles from an open-pit copper mine that was to be centered where the Escalante site still sits today.

After a long day of fieldwork in the agricultural rock piles of the Conoco project area, I finally made it to the Poston Butte site. In the late afternoon light, the low trash mounds were clearly visible, and the ballcourt stood out despite recent plowing. Fortunately, the site had not undergone the intensive leveling and cultivation that destroyed so many Hohokam villages around Phoenix. It preserved the typical layout of a Hohokam ballcourt village, arrayed around a central plaza, all in a compact area (pages 13–16).

About 16 years ago, archaeologist Tom Wright conducted a survey for an access road to a new gravel pit planned in the Gila River floodplain. The road skirted the west edge of the Poston Butte site. The site remained intact, just as I had seen it. Wright mapped the surface features and began talking with the property owners about site preservation. Over time, the Archaeological Conservancy and Archaeology Southwest joined the effort to develop a preservation strategy for the site. Poston Butte is a challenging site to protect, but our two organizations have not given up. If there is one thing I have learned since 1975, it is that preservation and persistence are inextricably linked.

—William H. Doelle

### Leaving Casa Grande

#### WILLIAM H. DOELLE ARCHAEOLOGY SOUTHWEST

*The Grewe–Casa Grande Community* experienced at least 800 years of continuity and growth. Significant organizational transformations occurred, but the community adapted and adjusted and continued on. Evidence of an ultimate decline and apparent cessation of a residential presence raises the question: Why did people leave?

Because patterns of population decline and changes in the material items that make Hohokam history visible are widespread around 1450, many archaeologists have asked: Is there cultural continuity between the people living along the middle Gila during the Hohokam Millennium and the O'Odham communities of today? In his book *From Huhugam to Hohokam*, J. Brett Hill notes that there is an increasing tendency among archaeologists to work with "a premise of continuity." The two articles that follow consider aspects of these late times and begin to address how people left Casa Grande.

Chris Loendorf and Barnaby Lewis (pages 31–32) consider O'Odham traditional knowledge and archaeological evidence to show that major cultural changes were responses to environmental stresses and social disruptions. They conclude that observed changes reflect a return to earlier ways of living evidence of continuity.

The recent intensive archaeological survey over the entire monument (pages 16–17) helped to refine our understanding of patterns of residential and ceremonial uses of the area. The dwindling of the quantity and spatial extent of late pottery types returns us to the question: What was life like in those late times?

Loendorf and Lewis sketch some of the major elements of change in that era—a return to living in pithouses and changes in pottery. Christopher Caseldine looks broadly and sees specific markers of change: small-scale, not large-scale, irrigation; pithouses rather than adobe rooms; greater use of wild plants for food. The scale and pace of change imply that these may have been challenging times, which is also implied by conflicts recounted in O'Odham traditional knowledge.

This is where a premise of continuity should help archaeologists expand the framework for the questions they ask.



Traditionally, we have asked: Why did large-scale irrigation systems cease? And why was there dramatic decline in population? Those are still relevant questions, but they could be reframed: How were challenges met? And what can we learn from the resilience of these people?

The Great House from the air before sunset. IMAGE: HENRY D. WALLACE

### Akimel O'Odham Cultural Traditions regarding the Past

#### CHRIS LOENDORF AND BARNABY V. LEWIS GILA RIVER INDIAN COMMUNITY

Although there is little consensus about what caused major changes in material culture in the Phoenix Basin around 1450 CE, nearly all researchers maintain that these changes marked the end of the Classic period and the Hohokam archaeological culture (see pages 8–9 for discussion of the term "Hohokam"). At the same time, though archaeologists have long recognized that the material culture of the Akimel O'Odham—the people who were living along the middle Gila River when European colonists arrived—is remarkably similar to that of the Phoenix Basin's pre-Classic residents, most current theories about "Hohokam collapse" fail to account for these close correspondences.

Understanding these changes has been a challenge to researchers. We think this is because they have assumed the major material culture differences indicate that a different group of people migrated into the region. Most archaeologists who have studied these changes have failed to consider the implications of conditions before and after this time, including similar and seemingly abrupt shifts in cultural practices.

Akimel O'Odham knowledge explains why these cyclical changes occurred, however, and substantial archaeological data support this understanding of the past. The Akimel O'Odham worldview involves an inception, then overpopulation and breakdown of traditional practices, followed by destruction; this cycle then repeats. Therefore, their belief is that population fluctuated dramatically over time, and that different O'Odham existed through time. This Indigenous understanding has important implications for interpreting material culture variation within the Phoenix Basin.

The Akimel O'Odham narrative begins with Earth Doctor creating the O'Odham and their world, but the people rapidly became too numerous, so Earth Doctor destroyed his creation. He then made new O'Odham, but in contrast to the previous



The Southwest Building in Compound A at Casa Grande Ruins National Monument. IMAGE © JOHN R. PORTER

cycle, other supernatural beings, including Elder Brother and Coyote, were also created. The people again started to increase in numbers, but Elder Brother shortened their lives so they did not overrun the earth again.

This did not satisfy Elder Brother, however, and he decided to destroy the people again. This was accomplished by sending a handsome man who caused increasingly rapid reproduction to occur until he directly gave birth himself, and the tears from that baby caused an overwhelming flood. Before the flood, Earth Doctor helped some O'Odham escape through a hole in the earth, and he directed others to a high place above the floodwaters.

After traveling back from the distant locations where the water carried them, Coyote, Earth Doctor, and Elder Brother reunited. They agreed that Elder Brother was first to emerge, and he was therefore the ruler of the world. They traveled again until they found the center of their world, and the three of them made new people and animals. Coyote created web-footed animals, snakes, and birds that Elder Brother said to throw into the water. Earth Doctor made creatures resembling human beings, but they were deformed. Elder Brother told Earth Doctor to put his creations in the west, after which Earth Doctor sank into the ground, leaving sickness behind him. Elder Brother then made new O'Odham.

These O'Odham subsequently decided to kill Elder Brother because he had become mischievous. After three attempts—he revived each time—they enlisted the help of Vulture for a fourth try, but Elder Brother still was not destroyed. In retaliation, he sank into the ground and resurrected the people whom Earth Doctor had previously helped escape (the O'Odham from before the flood), who proceeded to attack and defeat,



View of the Great House from within Compound A. IMAGE © JONATHAN T. BAILEY

one by one, the platform mound leaders along the Salt and the Gila Rivers.

It is important to recognize that the protagonists in this tradition are all very clearly O'Odham ancestors, and it is illogical to interpret the conquest narrative as an invasion of outsiders, or to suggest that any of the people created by Earth Doctor and Elder Brother were somehow not O'Odham.

The population fluctuations described in this narrative are also mirrored in archaeological evidence, in studies of past environmental conditions, and in the very natures of the two rivers. Although the Salt and the Gila Rivers come together at the lower end of the Phoenix Basin, upstream from their junction there is substantial variation in the topography and elevation of their drainage basins. Those differences create different patterns in the lower Salt and the middle Gila areas, in terms of water quantity and seasonal availability. It is likely that past climatic variation intensified those differences and favored conditions for irrigation along the Salt at some times, and along the Gila at others.

These environmental factors probably conditioned people's movements among different locations. This, in turn, affected ideological, economic, and political relationships in the region. In addition, settlement pattern changes caused by a downcutting episode around 1100 resulted in a fundamental reorganization of Phoenix Basin populations. This included a substantial decline in population along the middle Gila River, which coincided with a substantial increase along the lower Salt River and in the Tonto Basin upstream.

After the Classic period, conditions shifted back to favor the middle Gila, where the O'Odham concentrated their settlements for defensive purposes. Because Historic period residents of the Hohokam core area consolidated their settlements

along a small segment of the middle Gila River, many researchers have incorrectly concluded that the remainder of the Phoenix Basin was abandoned or depopulated—but it was not. The Akimel O'Odham were farming fields across a larger area, and they extracted resources throughout the Phoenix Basin, which they defended as their territory.

The Akimel O'Odham also returned to emphasizing practices that are highly similar to those of the pre-Classic period, when the population was previously highest along the middle Gila River. Although the overpopulation and subsequent reorganization of ancestral communities could be characterized as a series of "collapses," we believe this cycle is more accurately seen as a sequence of cultural responses to changing conditions. By understanding that the Akimel O'Odham are a reorganized society who survived and succeeded, we stop denying these people their past, and recognize that their ancestors in the Phoenix Basin did not fail and disappear.

### The Polvorón Phase

#### CHRISTOPHER R. CASELDINE ARCHAEOLOGY SOUTHWEST

*The Van Bergen-Los Angeles Museum Expedition's* work at Compound F in 1930 revealed something archaeologists had not expected: three pit structures dug *through* the eroded adobe walls of the compound. The stratigraphy showed that "enough" time had passed, and the adobe walls of Compound F were no longer standing and intact when people made the pit structures.

As I was studying settlement patterns at the Casa Grande Community for the Arizona State University project reported here (pages 16–17), I sought to better understand population decline in the final century of large-scale settlement there. The expedition's finding led me to revisit an earlier concept—the existence of a Polvorón phase. Based on his excavations at El Polvorón, a site north of the Gila River, archaeologist Earl Sires posited a Polvorón phase in which people were no longer living in ways that produced the preceding Civano phase material culture. Sires argued people had returned to a pre-Classic lifestyle.

Through my work, I found that the Polvorón phase is better viewed as a rearrangement of long-existing cultural traits coinciding with the emergence of a new way of life. The most obvious change was construction of *jacal* (brush-walled) pithouses. People built these structures on bajada slopes along the boundary of the Phoenix Basin and, as at Compound F, through Civano phase adobe architecture at depopulated villages.

There are interesting continuities with the Civano phase, however—people continued to use obsidian, for example, and even more so. And Polvorón sites have an abundance of Salado polychrome pottery, especially late types like Cliff and Los Muertos Polychromes. In addition to Salado polychromes, Polvorón populations appear to have made red-on-brown pottery in areas formerly dominated by red-on-buff pottery. Evidence from the site of Las Colinas (a large and long-lived Hohokam community northwest of Phoenix, on a major canal system of the Salt River) and from Casa Grande's Compound F suggests that local potters may have been making red-on-brown pottery during the Polvorón phase in the Phoenix Basin, as potters were in the Tucson Basin. Lower Colorado Buff Ware and Jeddito Yellow Ware appear at some sites dating to this time, suggesting connections to lower Gila River settlements and Hopi areas, respectively.

It is important that large-scale irrigation, so long a hallmark of Phoenix Basin life, ceased at the end of the Civano phase. Polvorón farmers practiced small-scale irrigation, and they may have reused Civano-era canals, dug small channels next to major rivers, or pursued run-off (*ak-chin*) farming on the bajada slopes, or a combination thereof. We have evidence people were eating a much greater proportion of wild foods such as cactus fruits and mesquite pods than previously—as much as half of the Polvorón diet.

Archaeologists have been perplexed as to when the Polvorón phase began. I analyzed absolute dates from Polvorón sites and found early and later expressions. An earlier Polvorón occurred from the very late 1300s (after 1380) to around 1450. A later Polvorón, when people across the Phoenix Basin ceased living in ways that look like the Civano phase, probably began around 1450, and may have extended well into the 1500s.

I view the Polvorón phase as a time of fundamental cultural change, not the disappearance of a people. Archaeological research on this transition to the early historic O'Odham is ongoing and expanding (pages 31–32). Although descendants of practitioners of a Hohokam lifeway were certainly part of the Polvorón, evidence from pottery and architecture indicates interaction with groups from the lower Gila River valley and other areas. Research questions outlined by Tribes in a recent ethnographic study (pages 10–12) also highlight the importance of interregional interactions. I look forward to exploring these questions together and learning more about this transitional time.

Pottery at Polvorón phase sites shows continuity with previous traditions, the emergence of new traditions, and connections to other regions. **Left:** Lower Colorado Buff Ware from Pueblo Grande. IMAGE: CHRISTOPHER R. CASELDINE, COURTESY PUEBLO GRANDE MUSEUM **Middle:** Tanque Verde Red-on-brown from Compound F that exhibits late Tanque Verde attributes (for example, recurved vessel form and panel layout design).

**Right:** Jeddito Black-on-yellow from Compound F. IMAGES: CHRISTOPHER R. CASELDINE, COURTESY CASA GRANDE RUINS NATIONAL MONUMENT AND WESTERN ARCHEOLOGICAL AND CONSERVATION CENTER

PRESERVATION SPOTLIGHT

In 1889, three years before the land around the Casa Grande was set aside as a federal preserve, the need to shore up the bases of the building's thick adobe walls prompted the first major preservation activities at what is today Casa Grande Ruins National Monument. And ever since, management priorities have been a balancing act between sharing a special place with visitors and protecting that place from the erosive effects of wind and rain and the (usually unintentional) destructive actions of people and animals. It might surprise our readers to learn that the current monument archaeologist probably spends as much time on integrated pest management as on research.

Our closing articles highlight different aspects of protection and failure to protect over time. While Frank Pinkley was the first resident caretaker, he actually built a house, dug a well, and lived within Compound A. He also supervised a series of pageants atop Compound B that are cringeworthy to read about today-for their storylines and for their physical impacts to the archaeology (page 37). And yet, Pinkley strongly advocated for protecting the Great House with massive architectural shelters (page 36).

Time has shown that archaeological preservation is most effective when ancient structures exposed through excavation are reburied. When those structures are more than one story high,

Archaeology Southwest

IMAGE © JONATHAN T. BAILEY

as in Compound B, backfilling becomes a creative engineering challenge (pages 38–39).

Finally, as population grows and development intensifies, the urgency of protecting such special places is clear. This perspective has resulted in a long-term commitment to expand our nation's first archaeological preserve, and today, in 2020, there is once again legislation before Congress to expand Casa Grande Ruins National Monument.

—William H. Doelle



#### A Closer Look: Proposed Boundary Expansion in 2019

In October 2019, a bipartisan group of Arizona lawmakers led by Representative Tom O'Halleran introduced the Casa Grande Ruins National Monument Boundary Modification Act (H.R. 4840). Senators McSally and Sinema introduced S. 3119 in December. This legislation would create a federal land exchange to expand Casa Grande Ruins National Monument by transferring administrative jurisdiction of just over 11 acres of federal land to the National Park Service. It would also authorize acquisition of key lands of the Grewe and Casa Grande sites adjacent to the national monument, and it would create the opportunity for cooperative management with the State of Arizona of 200 acres of the Adamsville site. Expansion would help convey a landscape-scale view of how villages cooperated to maintain the canal systems that enabled them to thrive. The proposed legislation has strong Tribal and local community support.

### PRESERVATION SPOTLIGHT Sheltering the Casa Grande

#### REBECCA CARR WONG BERRYESSA SNOW MOUNTAIN NATIONAL MONUMENT

*The techniques used* to protect and preserve the Casa Grande have evolved over the past century-plus. Many historic treatments that had limited maintenance cycles have since been removed or replaced. The benefits and drawbacks for some of these treatments are still debated, yet the exceptional condition of the Casa Grande may be attributed, at least in part, to these early preservation methods. One of the most important efforts in the preservation of the Casa Grande has been keeping it covered.

The first shelter for the Casa Grande, designed by S. J. Holsinger and built in 1903, was a corrugated iron hip roof with prominent wooden structural supports and cables to



secure it during high winds. It was painted red and closely reflected the scale of the Casa Grande. By 1930, this shelter was in need of replacement.

The current design, a culmination of efforts by architects Frederick Law Olmstead Jr. and Thomas Vint, was erected in 1932. Constructed of steel with concrete-filled pilasters, it was designed to both complement and contrast with the architectural scale and style of the Casa Grande.

From a functional perspective, the empty space between the Casa Grande and the shelter roof allows heat to rise without retaining it inside the earthen building. It also lets moisture escape without forming a microclimate that could potentially damage it. The shelter's glass skylights provide ambient lighting for the building, and its louvered ventilator enables it to withstand high winds.

Olmstead and Vint's approach has been praised and criticized. Although the shelter was intended to protect the Casa Grande, it has become a recognizable icon in itself. Architecture students regularly tour the site to discuss how these two structures complement each other. Depictions of the Casa Grande and shelter are found on City of Coolidge signs, websites, streetlights, and even police badges.

> In 1995, the shelter was determined to be eligible for the National Register of Historic Places.

Rebecca Carr Wong was the Archeologist at Casa Grande Ruins National Monument when she wrote this for the 2009 edition. She now manages Berryessa Snow Mountain National Monument.

**Top:** A 1915 view with the 1903 shelter taken from the southwest corner of Compound A. The Southwest Building is in the foreground, and custodian Frank Pinkley's residence is to the right. IMAGE COURTESY OF THE NATIONAL PARK SERVICE **Bottom:** Aerial view with the 1932 shelter at sunset. IMAGE: HENRY D. WALLACE



# The Perils of Pageantry at Casa Grande Ruins

#### TOBI LOPEZ TAYLOR INDEPENDENT SCHOLAR

*In the 1920s*, monument custodian and booster Frank Pinkley devised ways to promote the monument, including inviting school, church, and women's groups to tour the site. During a fateful women's club picnic at Casa Grande Ruins, an annual pageant was proposed.

Such historical spectacles were popular at the time, portraying events in national and local history, as well as innovations in labor, agriculture, and education. Whereas adherents believed the art form encouraged a sense of community and might heal societal ills, detractors claimed pageants perpetuated offensive stereotypes and disseminated inaccurate historical accounts to tout progress and promote tourism. Indeed, when the Arizona Pageantry Association was established, its stated mission was to "perpetuate the legends of Arizona and especially the legends of the Indians" so that Arizona could become "the premier tourist center of the world."

The newly formed association went into action, raising money, attracting new members, and soliciting donations and support from prominent Arizonans, including Governor George W. P. Hunt and Dwight Heard, publisher of the *Arizona Republican* newspaper and founder of the Heard Museum.



To promote the monument, custodian Frank Pinkley and a supporting association held pageants at the monument from 1926 to 1930. Crews built a stage and a multistory "adobe" made of wood in Compound B (pages 38–39). Edwin F. Carpenter, an astronomy professor at the University of Arizona, captured this image in November 1926. IMAGE COURTESY OF THE NATIONAL PARK SERVICE

Meanwhile, Pinkley and other National Park Service (NPS) employees determined that Compound B would be a good location to mount the first pageant, held over a three-day period in November 1926. Crews built a stage and a multistory "adobe" made of wood. Unfortunately, the 13,000 attendees caused damage to the site as they parked automobiles near Compound C and trampled over Compound B and a nearby mound.

The play itself—written and directed by NPS employee Garnet Holme and billed as "a spectacular drama of historical events in this state during the Indian, Spanish, and Pioneer days"—emphasized the "romance" of Arizona's past at the expense of the facts. As an NPS historian reflected, "Pinkley must have wanted to go into hiding by the end of the affair."

Nevertheless, the 1926 pageant was considered a success, and another was scheduled for November 1927. This time, Pinkley was better prepared: he ensured that policemen handled the parking, a children's nursery was created, and measures were taken to control dust in the compound. Attendance was estimated at "only" 10,000, whereas 16,000 visitors had been expected. Pinkley trenchantly termed the production, written and directed by Conrad Seiler, a "three ring circus."

> The next two pageants, in March 1929 and March 1930, were written by anthropologist Byron Cummings of the University of Arizona. He not only brought in Hopi, Diné (Navajo), and O'Odham Tribal members to perform traditional dances, but also gave acting roles to his own graduate students, including Florence Hawley Ellis and Clara Lee Tanner. Cummings's 1929 production included "Cave Men," "Pithouse Men," and "Late Pueblo Men," while his 1930 offering focused on Tanaloma, "the Bride of the Sun," who was stolen by Clever Hand, a "Young Prince from the Northland," and also featured O'Odham people prevailing over a band of murderous Apaches.

> Although the 1929 and 1930 pageants were well received, they were not well attended. Like the rest of the country, Arizona's interest in pageants had begun to wane, and the Arizona Pageantry Association canceled the event. Thus ended Pinkley's most unusual—and destructive—effort to publicize Casa Grande Ruins National Monument.

# PRESERVATION SPOTLIGHT Protecting Compound B

#### MICHAEL BRACK DESERT ARCHAEOLOGY, INC.

*Casa Grande's incredible* standing earthen architecture has long presented challenges for management and maintenance. This has been the case since the first stabilization and repair work was carried out on the Great House in 1891. Subsequent restoration, preservation, and stabilization activities reflect the



methods, techniques, and historical contexts in which the projects occurred.

The major excavations by Jesse Walter Fewkes (1906–1908) took place on stable earthen mounds that encapsulated buried architecture. Upon completion, there were unprotected adobe

walls and rooms exposed to the effects of weather and gravity. Fewkes recognized the public and scientific value of preserving Casa Grande Ruins. At the Compound A Great House, and in some other areas, Fewkes backfilled and dug drainage ditches. His treatment of Compound B, the second major architectural compound at Casa Grande Ruins, was very different.

Compound B (see map on page 7) features a massive exterior compound wall that encloses twin earthen platform mounds and multiple adobe walls and rooms. In Fewkes's view, it held greater interpretive potential and experiential qualities, so he decided not to backfill his excavations there. This left delicate

adobe walls standing 6 to 8 feet high.

From 1908 on, fragmented records describe declining conditions at Compound B. They also note a sequence of detrimental preservation approaches, including trials of encapsulation materials and chemical treatments. In the 1970s, reburial was judged to be

**Top:** Google Earth image and stabilized topography showing the reburied compound. **Bottom:** Artist's visualization of Compound B by air based on architectural information. VISUALIZATION: ROBERT B. CIACCIO, COURTESY OF THE NATIONAL PARK SERVICE



Archaeology Southwest

the only option for preservation, and the compound was sheeted in black plastic and covered in loose fill.

The limited backfilling provided a brief reprieve, but simple maintenance over subsequent years could not address the magnitude of the stabilization needs. By 2010, an assessment indicated that Compound B had deteriorated to a critical condition.

Based on that evaluation, the National Park Service (NPS) and Desert Archaeology, Inc., worked together to stabilize the architecture and rebury the entire compound with an engineered earthen construction. The NPS backfilled open rooms, removed multiple layers of failed preservation treatments, and covered architecture in a protective layer of geotextile fabric and a buttress of sandbags.

Next, Desert Archaeology designed and built a massive earthen structure to permanently encapsulate Compound B. There were two key design constraints: construction had to be a permanent stabilization solution, and it had to convey the appearance of two platform mounds enclosed by a substantial compound wall.

Using light-duty machinery and a combined century of experience in archaeology, engineering, and earthen construction, Desert Archaeology's team ultimately delivered, emplaced, compacted, and graded more than 12,000 tons of engineered fill at Compound B. We corrected erosional and drainage deficiencies by vastly reducing slopes and runoff energy, controlling drainage-basin catchments, establishing positive drainage conditions, and burying architecture in a layer of stable protective fill.

In the context of Casa Grande Ruins, "permanent" is a relative descriptor, but after nearly a decade of weathering, the reburial project at Compound B has proven to be a successful approach to stabilization and preservation while maintaining the character and significance of this valuable historic resource.



Using light-duty machinery and technical knowledge of earthen construction, an expert team ultimately delivered, emplaced, compacted, and graded more than 12,000 tons of engineered fill at Compound B. IMAGE: MICHAEL BRACK



**Archaeologist John Andresen** was stationed at Casa Grande Ruins National Monument from 1978 to 1992. Publications and documents show that he invested much of his free time conducting archival research at the monument and elsewhere. None of Andresen's research required new excavations, yet it was remarkably productive.

Andresen wrote a good description of the unpublished results of excavations at Compound F carried out by archaeologist Arthur Woodward and the Van Bergen-Los Angeles Museum Expedition to Arizona in the early 1930s (page 14). He also compiled and compared the different statements made by archaeologist Jesse Walter Fewkes about the "murals" actually just small painted fragments—exposed in Compound G (page 22). And, very, creatively, he worked with historical linguist David Shaul to integrate linguistic and archaeological evidence of contact between groups living on the middle Gila River and groups living in the lower Colorado River and lower Gila River regions.

Andresen's work demonstrates that he was a preservation archaeologist long before that term existed. He retired from a National Park Service position at the Midwest Archeological Center in Nebraska in 2005, and passed away some time later. His contributions are important, and his story should remain connected to the Casa Grande. There is no doubt that he would have been an ardent supporter of expanding the boundaries and mission of this special place.

—William H. Doelle



NONPROFIT ORGANIZATION U.S. POSTAGE PAID TUCSON, AZ Permit No. 878

back sight

As the nation's first archaeological preserve, the Casa Grande's story is central to the Preservation Archaeology ethic. Reissuing this updated magazine has further reinforced Archaeology Southwest's mission focus on collaboration with Tribes.

While writing this issue's introduction, I imagined Father Kino's 1694 visit to the Casa Grande. At the time, Kino had visited northern Sonora and the area around Tucson, but was at an early stage in his journeys north of today's international border. It was O'Odham residents from well south of the Gila River who led him to the Casa Grande.

Though it stood several days' travel away, it was obviously a destination, well known. People had pride of place and a connection to its story.

As I considered this further, it dawned on me the trip to the Casa Grande marked a transition. With Kino's visit, European settlers took control



Sivan Va'aki impressed Father Kino, and he added the Casa Grande, as he called it, to his 1695–1696 map. (See archaeologysouthwest. org/asw33-4 for more information on this map.)

over the story of the Casa Grande, its builders, their predecessors-and, to some extent, even their descendants.

I first visited the Casa Grande in 1974, during my early professional training, about 280 years after Kino's sojourn. At the time, several Tohono O'odham specialists were formally teaching me about traditional uses of wild plants. Thinking back, I realize I had already adopted the cultural conceit of my new profession. I was using their knowledge to build my "expertise" as a "Hohokam archaeologist."

Today, I try to exhibit greater humility and undertake and advocate for partnership and collaboration with Tribes. Pawnee writer and historian Roger Echo-Hawk asks a question that is, for me, a provocation and a motivation:

> The American archaeological community has proven beyond a doubt that it can study Indian history in North America without involving any living Native Americans, and Indian historians have managed to preserve a vast array of oral traditions about the past without any assistance from archaeology. But what would happen if archaeologists, as a matter of course, began to work in full partnership with Indians?

Casa Grande is clearly one of many, many places with ready opportunities. I am glad that so much meaningful work is underway across this continent. I look forward to more. We at Archaeology Southwest are committed to being part of more—learning, not studying. We have a lot to learn. This is the way forward.

For the full reference to Echo-Hawk (2000), visit archaeologysouthwest.org/asw33-4.

6) illa Z. Doelle

**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 Archaeology Southwest's mission.