

# A Comparison of Mortuary Practices among the Tucson Basin Hohokam and Trincheras Traditions

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*Mortuary rituals are compared and contrasted in order to better understand social interaction between the Tucson Basin Hohokam of southern Arizona and the Trincheras tradition populations of northern Sonora. This interaction is explored through the examination of ideas about personhood and embodiment, and their relationship to the biological profiles and posthumous treatments of individuals during the Hohokam Classic period (AD 1150–1450) and the occupation of Cerro de Trincheras (AD 1300–1450). In both areas, cremation was the main burial custom, and both groups had complex, multistage cremation rituals, in which burning of the body played only a small part. Examination of rich archaeological data and well-excavated contexts at these sites revealed remarkable similarities and differences in body treatment during the mortuary ritual. Tucson Basin Hohokam mortuary practices suggest a stronger connection to, and remembrance of, the deceased within smaller social groups. In contrast, mortuary practices at Cerro de Trincheras emphasize similarities among the various cremated individuals, with rituals directed more toward the broader social group. Results suggest that the two groups were fundamentally similar in how they treated the bodies of the dead during the cremation process, but different in how the dead were remembered and commemorated.*

**Keywords:** Hohokam, Trincheras, cremation, mortuary rituals, Classic period

*Los rituales mortuorios se comparan y contrastan para comprender la interacción social entre los Hohokam del sur de Arizona y las poblaciones del Trincheras del norte de Sonora. Esto se explora usando ideas de personhood y embodiment, y su relación con los perfiles biológicos y los tratamientos póstumos de los individuos durante el período Clásico Hohokam (1150–1450 dC) y la ocupación del Cerro de Trincheras (1300–1450 dC). En ambas áreas, la cremación era la principal costumbre fúnebre, pero la quema del cuerpo era solo una parte del ritual. Los datos y los ricos contextos arqueológicos en estos sitios revelaron notables similitudes y diferencias en el tratamiento corporal durante el ritual mortuario. Las prácticas mortuorias de los Hohokam demuestran una conexión más fuerte y un recuerdo de los fallecidos dentro de grupos sociales más pequeños. En contraste, las prácticas mortuorias en Cerro de Trincheras enfatizan las similitudes entre los individuos incinerados, con rituales dirigidos más hacia el grupo social más grande. Los resultados sugieren que los dos grupos eran fundamentalmente similares en la forma en que trataban los cuerpos de los muertos durante el proceso de cremación, pero diferentes en la forma en que se recordaban y conmemoraban.*

**Palabras clave:** Hohokam, Trincheras, cremaciones, rituales mortuorios, Periodo Clásico

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The present research compares mortuary practices among the Tucson Basin Hohokam of southern Arizona during the Classic period (AD 1150–1450) to those of the residents of the Cerro de Trincheras site in northern Sonora, Mexico, which was occupied

from approximately AD 1300 to 1450 (Figure 1). In this article, I focus on two main questions:

- (1) What does the treatment of the dead tell us about social interactions on a broader regional level between these two regions?

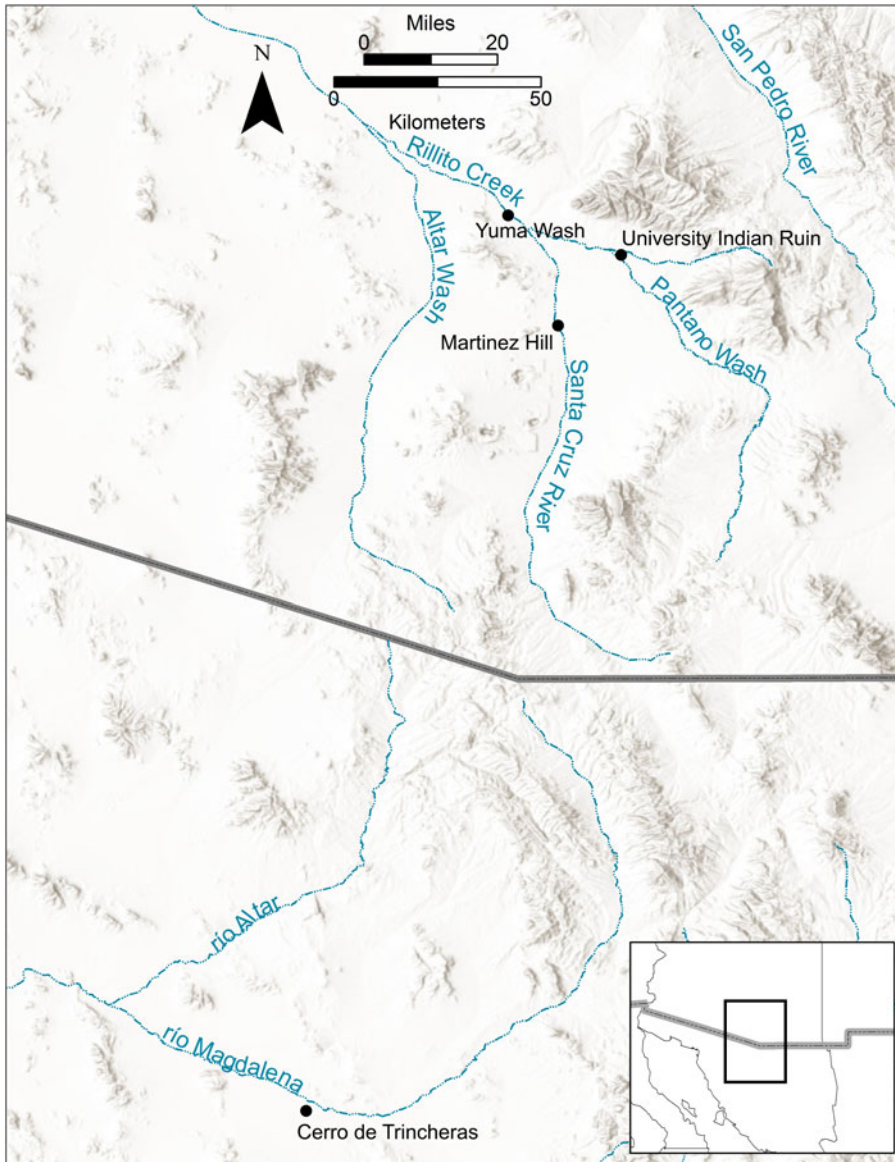
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**Figure 1.** Trincheras and Tucson Basin archaeological sites discussed in the text. Created by Matthew Pailles.

- (2) What do cremation funerals tell us about broader aspects of ideologies related to personhood and embodiment?

The connections between the southwest United States and northern Mexico have long been an important research inquiry in archaeology (Haury 1945; McGuire 1980; McGuire and Villalpando C. 2011, 2015; Nelson et al. 2015). Both the Trincheras and Hohokam traditions of

the Sonoran Desert constructed shallow pit-houses, made shell jewelry, practiced irrigation agriculture, and cremated their dead (McGuire and Villalpando C. 2011). There are also clear differences between them, however. The Trincheras tradition is dissimilar from the Hohokam in its primary methods of ceramic production, artifact assemblages, ritual diversity, and rock art design styles. It also lacks platform mounds and in general has smaller and less-built-up

settlements, with the exception of the Cerro de Trincheras site (McGuire and Villalpando C. 2011). Although separately the Hohokam and Trincheras traditions had broad social networks *across* the Greater Southwest, little evidence of social interaction *between* them has been documented (Braniff 1992; Fish and Fish 2007; Haury 1976; Johnson 1960; McGuire 1991; McGuire and Villalpando C. 2011, 2015). There is even a possibility that Trincheras and Hohokam groups were in conflict with each other (McGuire and Villalpando C. 2015).

Despite the amount of research conducted on the two traditions, each region's respective funeral rituals have yet to be systemically compared and contrasted. Mortuary practices offer a way for in-depth exploration of wider and more varied social interactions beyond the spread of technological knowledge, trade and/or economic transactions, and conflict.

Both the Classic period Tucson Basin Hohokam and Cerro de Trincheras populations primarily cremated their dead. Cremation is a complex, multistage process, of which the burning of the body is only one stage. Even though some aspects of the cremation ritual are similar between the two traditions, there are also critical differences, especially regarding the burial itself. Keeping these differences in mind is important when studying the mortuary practices and the archaeology of the prehispanic Greater Southwest.

The Hohokam and Trincheras traditions had some of North America's most diverse and extensive cremation customs, including the use of pyres and postburning rituals. The vast amount of data I examined from well-documented contexts has allowed me to go beyond overly general comparisons of funeral treatments and to present an in-depth, step-by-step comparison of the stages of the mortuary rituals. This approach is also important because it provides a holistic view that takes into consideration the decedent, mourners, community, and use of space.

### Embodiment and Personhood

The concept of embodiment emphasizes the diversity of bodies as lived experiences. How a body becomes a subject in social space can be

used to explore the relationship between culture and self. Csordas (1999) notes that embodiment invokes both Merleau-Ponty's (1962) idea of subject-object (or concept of "perception") and Bourdieu's concept of "habitus." In archaeology, interest in the concept of embodiment has become popular (e.g., Crossland 2010; Fisher and Loren 2003; Meskell and Joyce 2003). Previously, the body was viewed as stable material on which different identities, such as gender, were inscribed (e.g., Gilchrist 1999; Sørensen 2000; Voss 2008). Interest in studying lived experiences emerged later (Crossland 2010). These studies questioned preconceived ideas about the human body, focusing more on how and which practices and social relationships define bodies (e.g., Crossland 2010; Fisher and Loren 2003; Joyce 1998, 2005; Meskell 1999).

A common focus of inquiry has been on the relationship of body and mind, subject and object, derived from practice theory (Crossland 2010), in which embodied subjects are shaped through discursive practices and control of their own society. Meskell (2000) has criticized approaches derived from practice theory as over-emphasizing the "social body," suggesting that they view past bodies as artifacts without considering them as individuals *per se* or as specific forms of embodiment. Critiques within archaeology have also questioned the emphasis on individual differences rather than commonalities, artificially isolating individuals from society and providing little recognition of the institutions and structures in which they lived (Sofaer 2006; Sørensen 2000). Missing as well from many of these studies are the life histories of individuals (Sofaer 2006), except for a few instances (e.g., Joyce 2000, 2003).

Derived from a growing interest in both materiality and embodiment, increased attention has also been paid to understanding ideas of personhood or self as situated within, throughout, or without the bounded body (Hallam and Hockey 2001; Meskell 1999; Sofaer 2006). Mauss (1985) suggests that the notion of self is something that can change through time and space, as well as due to specific cultural norms. Building on these ideas, anthropologists such as Fortes (1987) argue that personhood—what constitutes the state or condition of being a

person—was also negotiated and relational (see also Brück 2006; Chapman 2000; Fowler 2001; Jones 2005). Taking these ideas into consideration, personhood can be seen as a social construct that is inherently dynamic and relational, taking on meaning only through the enactment of relationships.

Ideas about personhood have moved archaeologists to investigate the role and agency of the deceased as well as their associated burial objects and mortuary structures (Williams 2004). By their presence in the funeral, the dead evoke memories for the living and influence the latter's decision making in the selection of objects as well as the creation of social memories within mortuary rituals (Williams 2004). The full sequence of death rituals can be considered a dynamic, transformative process for the personhoods of both deceased and mourners (Cerezo-Román 2015). During this crucial transition, these personhoods are reconfigured through processes of dissolution, creation, negotiation, and transformation (Williams 2004). This analytical idea is powerful because it permits us to study how the deceased pass from being biologically dead to a transitional stage, and then explore whether or not they later become socially dead. It also facilitates reconstructing the different phases of mortuary practices and exploring the complex relationship between the living and the dead.

Cremation customs, similar to other mortuary practices, are composed of different stages. Cremation, however, further involves the rapid transformation of the deceased's body and subsequent transformation of mourners and the community as well (Kuijt et al. 2014). Cremation changes the physicality of the body into fragments and ash that are easily managed and transported. This new materiality engenders different ways for mourners and communities to treat the dead after cremation (e.g., Cerezo-Román et al. 2017; Kuijt et al. 2014). By analyzing different stages of the cremation treatment even after the fire, it is possible to analyze how mourners and the greater society perceived the personhood and embodiment of cremated remains (e.g., part person / part object, or a preference for one over the other). In this study, I compare Tucson Hohokam and Trincheras cremation burial

customs in terms of personhood and embodiment in order to understand broader regional interactions between the two traditions.

### Contextualizing Cremations

Archaeological studies of cremation (e.g., Beck 2005; Binford 1971; Buikstra and Goldstein 1973; Parker Pearson 1982; Rakita and Buikstra 2005) have deep roots within mortuary archaeology (Quinn et al. 2014). Several authors have addressed significant issues regarding the unique aspects of cremation, the coexistence of cremation and inhumation, and the way cremation is linked with—and yet distinct from—other funerary practices (e.g., Cerezo-Roman et al. 2017; Kuijt et al. 2014; Rebay-Salisbury 2010; Thompson 2015; Williams 2014).

In North America, archaeological studies of cremation rituals have been conducted at many sites from different time periods. Cremations appear among Paleoindian populations as early as 11,500 years ago (Potter et al. 2011). Cremation was widely practiced in prehispanic times and has more recently increased in popularity among modern populations (Murad 1998). For example, cremation practices were relatively widespread among early Eastern and Midwestern groups (e.g., Baby 1954; Binford 1963; Goldstein and Meyers 2014; Robinson 1996; Sanger et al. 2019; Schurr and Cook 2014; Webb and Snow 1945) and among various groups in California (Hull et al. 2013). In the southwest United States, cremation customs have also been explored among various archaeological groups (e.g., Beck 2005; Brunson-Hadley 1994; Creel 1989; Merbs 1967; Reinhard and Fink 1982, 1994; Reinhard and Shipman 1978; Rice 2016; Robinson and Sprague 1965; Toulouse 1944).

### Tucson Basin Classic Period Hohokam

The Hohokam were a highly successful agricultural society living in the Sonoran Desert of central and southern Arizona from approximately AD 450 to 1450 (Bayman 2001; Wallace and Lindeman 2019). They created large-scale irrigation systems and built villages with communal architecture (Haury 1976; Mabry 2005). The Classic period (AD 1150–1450) was marked by

changes in several aspects of Hohokam culture, including a shift from pit structures to surface-structure courtyard groups with enclosed walls (Clark and Abbott 2017; Wallace and Lindeman 2019), and from ballcourts to platform mounds as centers for communal interaction (Clark and Abbott 2017; Elson and Abbott 2000). There also was a change in ceramic exchange networks and a reduction in the trade of mundane goods, whereas exotic items became increasingly concentrated at platform mound centers (Abbott 2000; Pailes et al. 2018; Wallace and Lindeman 2019).

### *Hohokam Mortuary Customs*

Past studies of Hohokam mortuary practices focused largely on social organization (Hegmon 2003; Longacre 2000). Studies of social status and ranking primarily used approaches proposed by Saxe (1970) and Binford (1971), emphasizing variation in grave structures and associated objects (Brunson-Hadley 1989; Mitchell and Brunson-Hadley 2001). Other studies (McGuire 1992, 2001) have considered mortuary customs more broadly to discuss social inequalities and other aspects of social organization, such as age, kin, corporate groups (Mitchell and Brunson-Hadley 2001; Neitzel 2001; Rice 2016), and gender differences (Crown and Fish 1996). From the early Preclassic to the Classic period, cremation was the primary funeral custom for Tucson Basin Hohokam communities (Cerezo-Román 2015; Cerezo-Román and Watson 2020).

Earlier studies of Hohokam cremation mortuary practices were initially conducted using datasets limited to osteological analyses from a single site or published as chapters of archaeological site reports (Birkby 1976; Fink 1988a, 1988b, 1989; Reinhard and Fink 1982, 1994; Reinhard and Shipman 1978). More recent studies of Hohokam cremations have examined different stages of cremation mortuary rituals and mourning customs using data from multiple sites (Beck 2005, 2011; Cerezo-Román 2014), as well as analyzing different aspects of Hohokam funerary customs with respect to changing personhood (Cerezo-Román 2015), architecture and its relationship with group membership (Byrd et al. 2012; Klucas and Graves 2019), social age, and

different intersecting identities (Cerezo-Román 2020a, 2020b).

### *Tucson Basin Sites Included in This Study*

Burials from three Tucson Basin Hohokam Classic period archaeological sites—Yuma Wash, Martinez Hill, and University Indian Ruin—were evaluated (Figure 1). These sites were selected based on their relatively high quantity of burials, the availability of the human remains for study, their reported site chronologies, and the presence of contextual information.

Yuma Wash was a village site densely occupied between AD 1150 and 1300, with some features dating from AD 1300 to 1450 (Swartz 2016). It contained pithouses, aboveground adobe-room compounds, extensive evidence of agriculture, and five nearby irrigation canals. Over the past two decades, several studies have analyzed portions of the dataset utilized here (Cerezo-Román 2015; Hall et al. 2016; Jones 1999a, 1999b, 1999c; MacWilliams 2005; McClelland 2009; Swartz 2016; Wallace and Swartz 2016).

The Martinez Hill site had a large Preclassic ballcourt, the Casa Azul complex (a compound with a minimum of 70 rooms), and four platform mounds from the Classic period (Wallace and Lindeman 2013). Gabel (1931) and Cummings excavated two of the mounds in 1929 and 1930 and found the burials discussed in this article. Mounds Two and Four were constructed by filling previous special-function rooms and adding construction cells to make the final structures larger (Gabel 1931; Wallace and Lindeman 2013). There were structures atop Mounds Two and Four as well as attached rooms, indicating at least three to four separate social units linked together in this compound (Wallace and Lindeman 2013). The fill of Mound Two postdates AD 1257 (Wallace and Holmlund 1984:181–183).

University Indian Ruin was a large Classic period platform mound village that may have been a ceremonial and communal center serving surrounding communities. Four major excavation projects have been conducted at University Indian Ruin, directed by Cummings (1930–1937), Haury (1938–1939), Hayden (1940–1941), and, most recently, Paul and Suzanne



Fish (2010–2012; Byrd et al. 2012). These excavations revealed two or three platform mounds, several adobe room blocks, and trash middens (Byrd et al. 2012).

### Trincheras Tradition

The Trincheras-tradition sites appear to cluster in the Magdalena, Altar, and Concepción River Valleys of Sonora (McGuire and Villalpando C. 2015). The people occupying these sites were agriculturalists, lived in pithouses and households on hillside terraces, and made marine-shell jewelry (McGuire and Villalpando C. 2015). The Trincheras tradition shares a border with the Hohokam cultural area to the north. It is best represented at the Cerro de Trincheras site (Figure 1)—whose name means “hill of terraces”—an important regional center situated on a hill along the Magdalena River (McGuire and Villalpando C. 2007, 2008, 2015; McGuire et al. 1999; Villalpando and McGuire 2009). McGuire and Villalpando C. (2015:437) suggest that this terraced hill town was built by two groups of Trincheras people: one group that had been displaced from the Altar Valley due to conflict with Hohokam people from the Papaguería, and another group that had been living along the Magdalena River.

The Cerro de Trincheras site was a large settlement occupying over 900 terraces that supported habitation structures, craft workshops, ritual performances, and social gatherings (McGuire and Villalpando C. 2007, 2015; Watson et al. 2015). Occupied from AD 1300 to 1450, the site was contemporaneous with similar *cerros de trincheras*-type sites in other portions of northwest Mexico and the southwest United States (Downum et al. 1994; Fish and Fish 2004, 2007; McGuire 1980; McGuire and Villalpando C. 2015; Nelson et al. 2015). These *cerros de trincheras* sites crosscut several archaeological traditions of the Greater Southwest, including the Hohokam, Trincheras, Rio Sonora, and Casas Grandes traditions (McGuire and Villalpando C. 2011). *Cerros de trincheras* sites have also been found in the Altar Valley (McGuire and Villalpando C. 1993) and Tucson Basin (Downum 2007), reflecting the adoption

of hilltop-focused ideology by regional neighbors, with various levels of syncretism (McGuire and Villalpando C. 2011; Pailes 2017).

There are around 16 small *cerros de trincheras* sites within a 75 km radius of the Cerro de Trincheras site, and most contain *corrales*—dry-laid masonry enclosures—on their summits for performing rituals (McGuire and Villalpando C. 2011; Pailes 2017:394). The Cerro de Trincheras site, however, is 17 times larger and covers twice the combined area of all the other *cerros de trincheras* sites in the region (McGuire and Villalpando C. 2015).

### Mortuary Practices at Cerro de Trincheras

Trincheras-tradition mortuary customs are not very well understood because the vast majority of the remains studied here come from the Cerro de Trincheras site and not from other sites in the region. The burials from other *cerros de trincheras* sites have either not been excavated or analyzed. Directly south of the main terraced hill at Cerro de Trincheras lies a smaller contemporaneous pithouse hamlet with a heavily pot-hunted cremation cemetery that has not been excavated (McGuire and Villalpando C. 2011). Only 10 inhumations and one cremation were uncovered on the terraces themselves (McGuire and Villalpando C. 2011; Villalpando and McGuire 2009).

The large urn-field cemetery, discussed in detail below, was found on the northeastern base of the main terraced hill, and it may date from approximately AD 781 to 1395 (Villalpando et al. 2009). The earlier date could have resulted from the use of old wood, gathered from the Sonoran Desert, in the cremation fires (McGuire and Villalpando C. 2011). Villalpando's most recent project at the Los Crematorios site, located a few hundred meters from the northwest end of the Cerro de Trincheras hillside, identified another variant of the mortuary ritual: an area of cremation pyres and two inhumations (Villalpando et al. 2009). Preliminary analysis (Cerezo-Román et al. 2018) found that this area was mainly used for burning individuals on pyres as part of cremation rituals. These rituals were performative acts that would have

stimulated the senses of the mourners, funeral participants, and members of the broader community. Although some aspects of the cremation pyres were reasonably standardized, others were not, indicating flexibility in practices among the participants (Cerezo-Román et al. 2018). A detailed analysis of the pyres is in progress for future publication in a separate article.

### Samples and Methods

To evaluate the funeral customs among the Tucson Basin Hohokam, a total of 282 cremation deposits from three sites was examined: 15 deposits from Martinez Hill, 28 deposits from University Indian Ruin, and 239 deposits from Yuma Wash. For Cerro de Trincheras, a total of one pyre and 115 secondary cremation deposits was analyzed from the urn-field cemetery (Table 1). Inhumations were found in low frequencies at all sites (Cerro de Trincheras: 12 out of 116; Yuma Wash: 77 out of 239; University Indian Ruin: 1 out of 28; and Martinez Hill: 5 out of 15; Table 1). The samples from the Tucson Basin and Cerro de Trincheras were selected based on the following criteria: (1) they were not significantly disturbed, (2) they had reported

chronologies, and (3) each contained the remains of a single individual.

### *Biological Profile of the Cremated Human Remains*

The biological profile estimates used for this study were age at death and biological sex. The protocols for osteological data collection were based primarily on those of Buikstra and Ubelaker (1994), subsequent revisions to some of those methods (Scheuer and Black 2000), and the protocols of the Bioarchaeology Laboratory of the Arizona State Museum (ASM; Arizona State Museum 2018). Skeletal data collection consisted of morphological information. First, a detailed skeletal inventory of each burial was generated. These data were used to infer the number of individuals represented in each deposit as well as body completeness. Second, age at death, with error ranges, and biological sex were estimated for each individual.

Next, individuals were classified into broader categories for analytical purposes, such as subadult (infants, children, and adolescents<sup>1</sup>), adults (individuals older than 18 years), and an additional category of older than 15 years. This last

Table 1. Funerary Features and Individual Attributes by Site.

Observed Attributes	Number of Individuals			
	Cerro de Trincheras	Martinez Hill	University Indian Ruin	Yuma Wash
Primary cremation	1	—	1	73
Secondary cremation	115	15	27	135
Primary and secondary cremation	—	—	—	31
Inhumation	12	5	1	77
Cremated males	29	3	1	10
Cremated females	26	2	12	5
Cremated subadults ≤18 years	25	4	5	52
Cremated adults ≥15 years <sup>a</sup>	85	11	22	153
Cremated bone not placed inside vessel found in a pit within secondary cremation	2	—	—	40
Cremated bone placed inside vessel in secondary cremation	111	15	27	43
Cremated bone placed under vessel in pit in secondary cremation	—	—	—	29

*Note:* This is a presence/absence dataset organized by the attributes that could be observed or estimated on individuals found at each site. It was not possible to observe all attributes in all individuals. For example, it was only possible to estimate the sex for 15 individuals from Yuma Wash. The counts will not add up to the total number of individuals.

<sup>a</sup>Age category of ≥15 years was used for adults and individuals who—in terms of size, morphology, and degree of development—were consistent with adults but could not be differentiated between adolescent (more than 12 and less than 18 years) and adult (over 18 years) because of the degree of fragmentation, thermal alteration, or both.

category was used for individuals who, in terms of size, morphology, and degree of development, were consistent with adults but could not be differentiated between adolescent (more than 12 and less than 18 years) and adult (over 18 years) because of the degree of fragmentation, the degree of thermal alteration, or both. In these cases, individuals assigned to this category were combined with the adults for analyses and were not duplicated in the adolescent category. The degree of fragmentation for cremated bone limited certain analytical observations—including some bone identification, age at death, sex, and pathologies—although these estimations were attempted when possible.

#### *Posthumous Treatment of the Remains and Archaeological Context*

Posthumous treatment of the body was inferred through observations of the skeletal remains and examination of contextual data from archaeological field notes, reports, and published analyses. Thermal alteration and postfire body treatment were documented to reconstruct in detail the posthumous treatment of remains from pyres and secondary deposits. Secondary deposits refer to deposits with recoverable bone in a secondary location to which cremated human remains were relocated after removal from the pyre or crematorium. These deposits can have a wide range of bone in them and yet not reflect anatomical relationships. They can consist of (1) simple pits that lack burned soil but have bone in them or (2) pits that contain cremated bone in and/or around ceramic vessels or sherds.

Following data-collection protocols proposed by Cerezo-Román (2014), the recorded variables included bone weight as well as the color, degree, and type of shrinkage and fractures caused by fire. Adult cremation weights were used to evaluate how the burned remains were treated after being exposed to fire. A typical cremated adult's bones are expected to weigh over 1,500 g, whereas adult bone weights below this would imply that not all of the remains were present (Bass and Jantz 2004; Sonek 1992; Trotter and Hixon 1974). Subadult bone-weight differences were not explored because there were no comparable published data. Bone weights can vary for

many reasons, including differential funeral treatment, postdepositional disturbances, archaeological excavation, and analysis procedures. Therefore, only deposits with no major postdepositional disturbance were selected for this study for comparison. Specific excavation protocols and techniques were used to optimize recovery of human remains by the author, archaeologists from the Instituto Nacional de Antropología e Historia, and various CRM personnel. The chronological period for the remains, as estimated by the archaeologists, was recorded from field notes and reports. The variables in posthumous body treatment were integrated with the osteological information, reconstructions of posthumous treatments, and intersite data comparisons. Statistical analyses employed software programs such as SPSS Statistics 19 and Microsoft Office Excel 2016.

### Results

Cremation, particularly secondary deposition of cremated bone, was found to be the main burial custom at all of the study sites in the Tucson Basin and Cerro de Trincheras (Table 1). Males, females, and individuals of different age groups were cremated, with no apparent age- or sex-based selection (Table 1). At Cerro de Trincheras, most pyres were located in a separate area. Preliminary data from this area, however, suggest that most of the remains at Cerro de Trincheras were collected and placed in secondary deposits in the urn-field cemetery and not left on the pyres themselves (Cerezo-Román et al. 2018; Watson et al. 2015). In contrast with Cerro de Trincheras, bones from secondary deposits in the Tucson Basin varied in their placement inside the pit. Remains from Yuma Wash were found in simple pits, with the bones placed under or inside vessels, whereas at Martínez Hill and University Indian Ruin, they were found mainly inside vessels in the secondary deposits (Table 1).

The thermal alteration of the remains was fairly similar at Cerro de Trincheras and the Tucson Basin sites. The predominant (>75%) color of the cremated remains is a proxy for the extent and temperature of the burning in the pyre, which in both samples was white (Table 2). The



Table 2. Adult Cremation Colors and Bone Weights (g) by Geographical Region.

	Cerro de Trincheras	Tucson Basin	
		Pyres	Secondary Deposits
<i>Predominant color of remains per individual</i>			
White	131	49	102
Blue	1	—	—
Gray	1	2	7
Black	1	—	1
<i>Adult cremation weight (g)<sup>a</sup></i>			
<i>N</i>	98.00	42.00	105.00
Mean	752.24	323.72	362.70
Median	727.00	193.20	273.00
Mode <sup>b</sup>	0.00	0.00	3.60
Standard deviation	568.71	356.58	361.83
Range	2,172.00	1,257.50	1,998.10
Minimum	0.00	0.00	1.90
Maximum	2,172.00	1,257.50	2,000.00
Sum	73,720.00	13,596.30	38,083.70

<sup>a</sup>Weights are from undisturbed cremations.

<sup>b</sup>Multiple modes exist. The smallest value is shown.

similarities in color and the white coloration suggest that the remains were mostly calcined, indicating that they were burned very efficiently. Quantifying mean bone weights of cremations allows for exploring the average amount of bone present in the deposits (Table 2). Differences in mean bone weights of the cremations were examined for adult individuals exclusively. The bone weights for subadults were not included in this study because subadult bone weights from modern control cremations were not available for comparison. Secondary cremations from the three Tucson Basin Classic period sites had a mean bone weight of 362.7 g, whereas the mean weight of the remains from the pyres was 323.72 g (Table 2). At Cerro de Trincheras, the mean bone weight of secondary cremation deposits was 752.24 g (Table 2), whereas remains from the only pyre found at the urn field weighed 553 g. These mean weights indicate that less bone was placed in secondary deposits in the Tucson Basin in comparison to Cerro de Trincheras.

Evaluated individually, there were variations in bone weights in pyres and secondary deposits between sites (Figure 2). Martinez Hill and Cerro de Trincheras showed fairly similar mean bone weights in secondary deposits, suggesting similar practices of placing bone in the deposits

between these two sites, even though they are from different regions (Figure 2). In contrast, the mean bone weights for adult individuals were similar in the secondary deposits at Yuma Wash and University Indian Ruin, suggesting that individuals placed similar quantities of bones in the deposits (Figure 2). At Yuma Wash, Martinez Hill, and Cerro de Trincheras sites, the weight of bone inside vessels and the weight of bone found in pits without vessels ranged from  $\leq 1$  to 1,500 g (Table 3). When the mean bone weight of adults was compared with modern adult cremated remains, the total bone weights for the prehispanic samples were somewhat higher for the Cerro de Trincheras and Martinez Hill deposits (Figure 2).

A major difference between the sites in the Tucson Basin and Cerro de Trincheras was the location of the inhumations and secondary deposits. Most of the inhumations at Cerro de Trincheras were found on the hill (McGuire and Villalpando C. 2011; Villalpando and McGuire 2009). The secondary cremated deposits from Cerro de Trincheras were mainly found in a large communal cemetery at the bottom of the hill (see Cerezo-Román et al. [2018] and Watson et al. [2015] for illustrations and photos of the site). By contrast, most of the inhumations from the Tucson Basin were

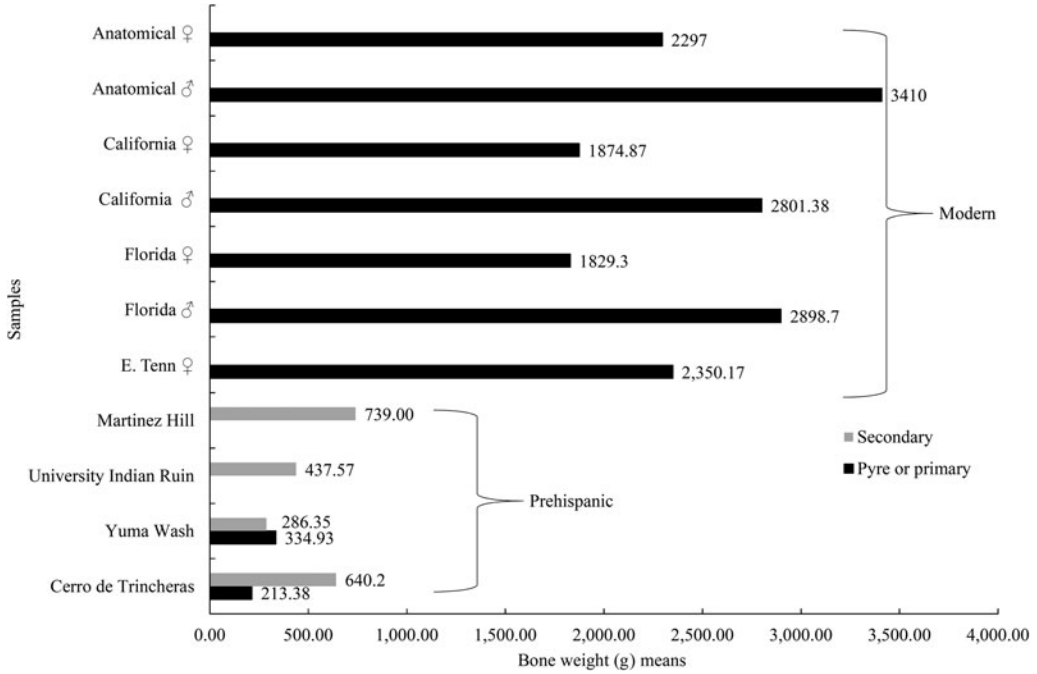


Figure 2. Adult cremation mean weights (g) in modern versus prehispanic examples.

Table 3. Cremations Mean Weight (g) and Location of Bones within Burial.

	Cerro de Trincheras		Martinez Hill	University Indian Ruin	Yuma Wash		
	in vessel	not in vessel			in vessel	in vessel	not in vessel
≤1–500	29	—	3	14	7	17	9
500–1,000	22	2	5	7	1	1	9
1,000–1,500	15	—	2	—	1	2	1
>1,500	10	—	1	—	—	—	—

found next to the cremations (Byrd et al. 2012; Hall et al. 2016; Wallace and Lindeman 2013; Wallace and Swartz 2016). The cremations at Yuma Wash, University Indian Ruin, and Martinez Hill were placed under the floors of rooms and/or in much smaller cemeteries associated with habitation structures (see Figure 3 for an example of a cemetery). At Yuma Wash, 36 small cemeteries containing from one to 43 individuals were found in just two loci (Locus AZ AA:12:122 [ASM] and Locus AZ AA:12:311 [ASM]), whereas four burials with no apparent grouping were found at a third locus (Locus AZ AA:12:314 [ASM]; Hall et al. 2016; Wallace and Swartz 2016). Only 28 individuals (27 secondary cremations and

one individual in a pyre) were found at University Indian Ruin, whereas 15 individuals in secondary cremation deposits were from Martinez Hill. Most Hohokam cemeteries from the sample sites had pyres (see Figure 4 for an example of a pyre) and secondary cremation deposits, except for Martinez Hill, where only secondary cremation deposits were documented.

Discussion

Hohokam and Cerro de Trincheras Connections

The Cerro de Trincheras site and the Tucson Basin Classic period Hohokam sites examined in this study developed separately and were

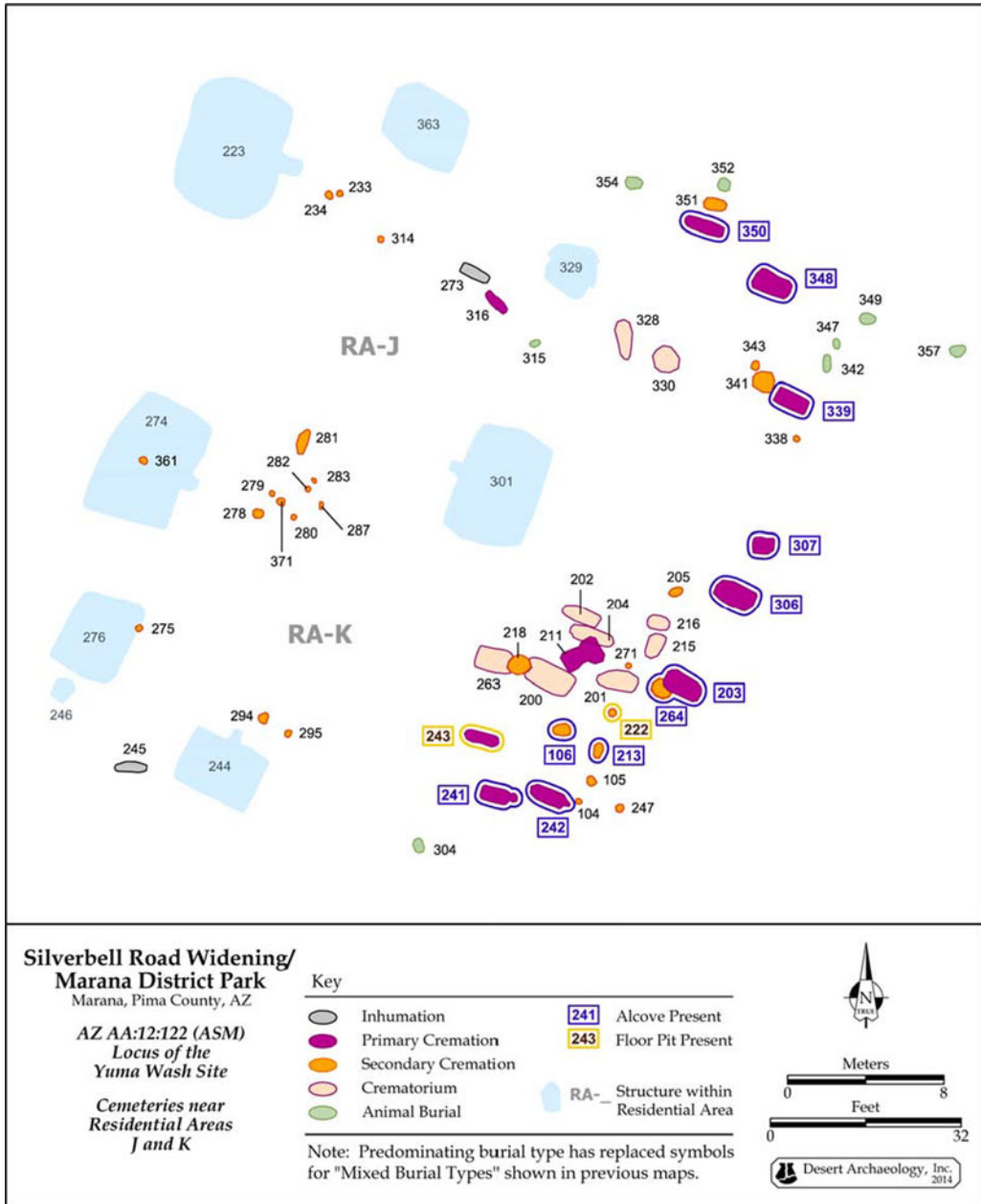


Figure 3. Example of Hohokam cemeteries near residential areas. Created by Catherine Gilman. Courtesy of Desert Archaeology Inc., Tucson, Arizona.

distinct but contemporaneous archaeological groups. Little evidence has been found of connectivity between Cerro de Trincheras and the Hohokam area (e.g., McGuire and Villalpando C. 2011; McGuire et al. 1999; Punzo Díaz and Villalpando Canchola 2015; Watson et al.

2015). The population at Cerro de Trincheras has been described as a society minimally involved in long-distance exchange (McGuire and Villalpando C. 2011; O'Donovan 2002; Pailes 2017). Pailes (2015) argues that populations in northern Sonora were of moderate

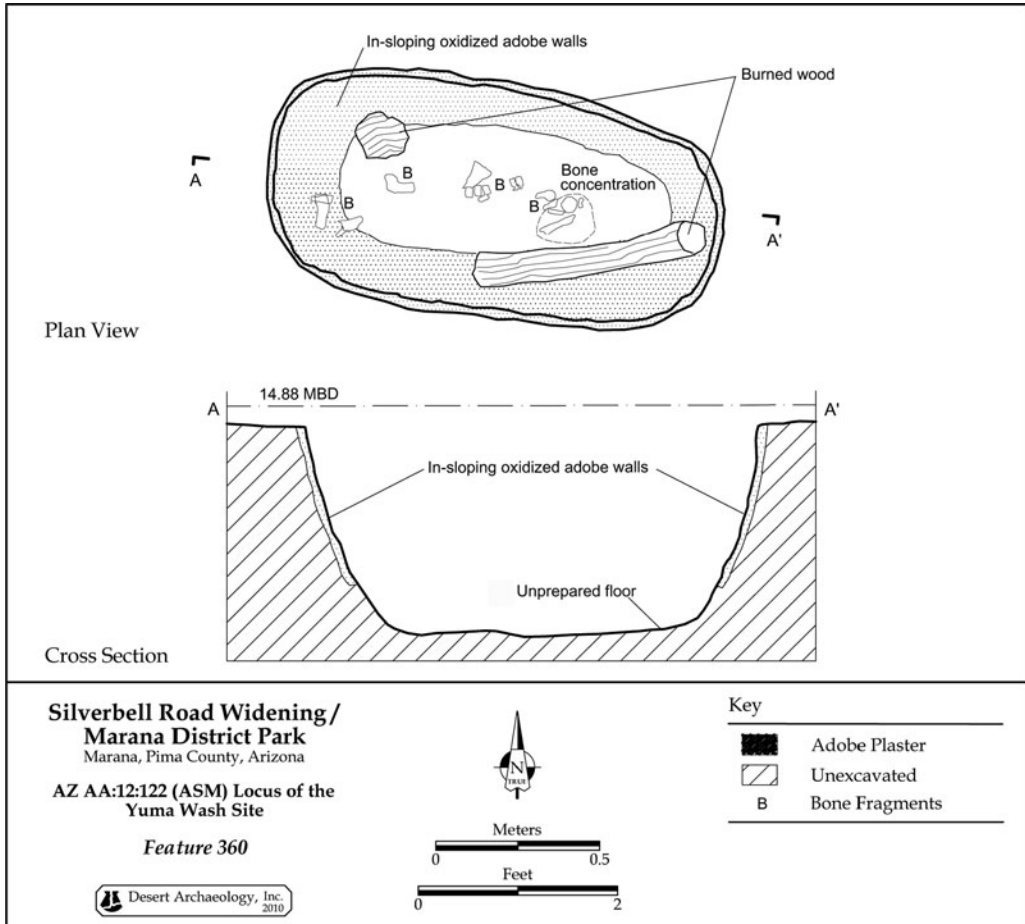


Figure 4. Example of pyre at Yuma Wash. Created by Susan Hall. Courtesy of Desert Archaeology Inc., Tucson, Arizona.

density, segmented into small independent polities with limited connectivity and in relative isolation from other regions socially. McGuire and Villalpando C. (2011), Villalpando (2012), and Punzo Díaz and Villalpando Canchola (2015) suggest that the population of Cerro de Trincheras probably interacted more with the residents of Paquimé in Chihuahua, Mexico, than with the Hohokam.

Trincheras painted pottery types occasionally have been found at Preclassic (AD 475–1150) Hohokam sites (Fish and Fish 2007), but ceramic evidence of direct trade is lacking in both regions (McGuire et al. 1999; McGuire and Villalpando C. 2007, 2011). McGuire and Villalpando C. (2015) note that in the Classic period, around AD 1300, the Hohokam

tradition replaced the Trincheras tradition in the Altar Valley, and the inhabitants from the area moved and aggregated in the Magdalena Valley.

There is a fairly direct route between the northern Sonoran heartland and Tucson Basin via the Magdalena River, which originates north of Cerro de Trincheras (Figure 1). The river valley serves as a corridor leading toward the upper reaches of the Santa Cruz River, which flows north through the Tucson Basin (Fish and Fish 2007). Many *cerros de trincheras* sites occur along this route (Fish and Fish 2007; Fish et al. 2007; McGuire and Villalpando C. 2015). Fish and Fish argue that the “constellation of trincheras concepts and its archaeological manifestations” (2007:165) appeared first in the Sonoran

Trincheras culture sequence and subsequently was adopted by the Tucson Basin Hohokam. They further suggest that the presence of *cerros de trincheras* sites along the route between the Sonoran heartland and the Tucson Basin could imply a unified phenomenon at some fundamental level, but with local variations across regions and cultural traditions (Fish and Fish 2007). In both the Altar and Magdalena Valleys, intervisibility between both contemporary and ancestral *cerros de trincheras* sites is common and might have been important for larger scales of integration and hilltop rituals (Pailes 2017; Zavala 2006).

It is also notable that cremation was the main burial custom for both the Trincheras people and the Tucson Basin Hohokam, whereas at Paquimé, Chihuahua, inhumation was the primary mortuary practice (Di Peso 1974; Rakita 2009; Whalen and Minnis 2001a, 2001b, 2003, 2009).

Could the treatment of the dead—particularly cremation—be related to a fundamental unity, at a regional level, between the Tucson Basin Hohokam and Cerro de Trincheras? It is indeed a possibility. Analyzing the differences and similarities in mortuary rituals and their stages allows a deeper understanding of the social interactions between both regions, as well as the broader aspects of ideologies related to personhood and embodiment.

#### *Transformation of the Body in Mortuary Rituals*

The human body is constituted, in part, by its relation to people and things. Meskell (2000) and Hampson (2016:219), among others, suggest that studies of just “the body”—in which analytical stress is placed on the body as a socially inscribed and passive object—ignore the individual per se. By contrast, embodiment emphasizes the diversity of bodies as lived experiences. It captures the notion of *making* and *doing* the work of bodies as well as *becoming* a body in social space (Hampson 2016:219). Bodies are more than constructed social objects controlled and manipulated by institutions of power or the living. They are also more than just passive reflectors of large-scale social processes. Instead, bodies are objects and subjects at the same time. This

becomes clearer when we put them into the context of mortuary rituals.

The dead do not bury themselves. It is mourners who create the deposits (Parker Pearson 1999). But mortuary customs are not all about the living. Restricting the study to the living completely ignores the dead as individuals and sources of remembrance. The dead influence the living through their identity in life and death as well as the ways they are remembered by the living (Williams 2004). Through its presence in mortuary ritual, the deceased body evokes memories. It thereby alters the decision making of mourners and the broader community with regard to the ways bodies are treated. For the Tucson Basin Hohokam and Trincheras traditions, archaeological evidence of such decision making could consist of the choice between inhumation and cremation, as well as how remains were disposed of.

#### *Inhumations in Context*

Although inhumations were found in low frequencies in both areas (see Table 1), the practice of inhumation cannot be underestimated when studying the burial customs of the Trincheras and Tucson Basin Hohokam traditions. The decision to inhumate a family member likely represents multiple and even contradicting beliefs within a society (Cerezo-Román and Watson 2020). The co-occurrence of inhumation and cremation among the Tucson Basin Hohokam sites in the Classic period has been discussed elsewhere (see Cerezo-Román 2020b). Classic period Tucson Basin inhumations were located in cemeteries inside courtyard groups, close to where cremations were found. The association of inhumations juxtaposed with cremations suggests that inhumed individuals possessed similar relationships as cremated individuals within the smaller groups, and this also may indicate that inhumed individuals were an integral part of the community (see Cerezo-Román 2020b). Among the Tucson Basin Hohokam, infants usually were inhumed rather than cremated (Cerezo-Román 2014, 2015, 2020a, 2020b) and, on occasion, they were buried within residential units. This suggests that infant status, as a social age category, was an important variable in deciding how bodies were treated and how personhood



was acquired (Cerezo-Roman 2015). Perhaps personhood was acquired gradually, as the individual established connections outside the household and reached the social age at which one was considered a full member of society. In contrast, these marked differences in age and treatment were not found at Cerro de Trincheras, suggesting that, for the Trincheras people, personhood acquisition might not have been tied to social age at death.

Inhumation, however, more than cremation—particularly of adults—seems to have been a way for Tucson Basin people to display different social and economic relationships (Cerezo-Román 2020b). This was possibly signaled by the quantity and variability of the objects placed with the deceased and the burial treatment (i.e., inhumation; Cerezo-Román 2020b). In comparison, at Cerro de Trincheras, 10 inhumations were found on the hill itself, including 11 individuals (seven subadults and four adults), and two adults in the pyre area (McGuire and Villalpando C. 2011; Villalpando and McGuire 2009; Villalpando et al. 2009). Only two of these burials contained offerings (McGuire and Villalpando C. 2011:830). McGuire and Villalpando C. (2011:830) suggest that the co-occurrence of inhumations and cremations at Cerro de Trincheras might be similar to that of the Hohokam. Building on their proposal, I argue that the locations of the inhumations on the hill and in the pyre site could be one way to socially differentiate these individuals from the other members of the community buried in the urn-field cemetery. It is possible that, for the residents of Cerro de Trincheras, the practice of inhumation had multiple meanings. However, due to the limited archaeological data and lack of other contemporary sites in the area for comparison, there may be alternative explanations as to why these individuals were not cremated. These include adverse weather conditions, shortage of fuel, and lack of social cooperation (Cerezo-Roman 2020b; Squires 2017).

### *Cremations in Context*

As previously noted, at Cerro de Trincheras and in the Tucson Basin, cremation was the main burial custom. Unlike inhumation, cremation usually involved an extra step—the creation of a

secondary deposit. In order to deconstruct, compare, and contrast these different stages between regions, this discussion is divided into sections on preburning, burning, and postburning practices.

*Preburning and Burning in Cremation Rituals.* In a cremation, first the body is prepared for placement on a pyre. The location of the pyre was different between the two regions. The pyres in the Tucson Basin were mainly found in small to medium-sized cemeteries adjacent to residential structures, whereas the majority of the pyres at Cerro de Trincheras were east of the site, away from the urn-field cemetery. At least one poorly preserved pyre was found at the urn-field cemetery, but based on the excavations, this was not the main area for burning. Various items were also placed with the dead on the pyre and burned (Cerezo-Román 2016, 2020a, 2020b; Watson et al. 2015).

In both the Trincheras and Tucson Basin Hohokam traditions, deceased individuals were burned as complete bodies in what is inferred to have been a reasonably similar manner, given that the remains were predominantly calcined (Cerezo-Román 2015, 2020a; Cerezo-Román et al. 2018; Watson et al. 2015; Table 2). This suggests an equally efficient pyrotechnology in the pyres and that temperatures were above 600°C (Binford 1963; Gonçalves and Pires 2017; Schultz et al. 2015; Thompson 2015).

*Postburning and Final Deposition in Cemeteries.* In a cremation, a body's transformation by a fire could destroy, reconceptualize, and/or maintain concepts of embodiment and group identity, in part because cremation rituals also involve a stronger community investment through the use of secondary burial. After the fire, in both traditions, the remains were not usually left on the pyres after burning. Instead, the bone fragments were collected and placed in an urn or pit and buried as part of a secondary cremation deposit. The act of removing or leaving the remains in the pyre, or placing them in an urn or a pit can be reconstructed by analyzing the quantity of an individual's recovered bones.

Compared to modern adult cremations, which usually weigh more than 1,500 g, the Trincheras cremations did not represent complete bodies.

Considering, however, that they were archaeological samples and that a fraction of the remains may have stayed on the pyre or been destroyed by the fire, the mean bone weights from adult cremations were reasonably high. The remains still represented fairly complete bodies, not token burials (Figure 2). Similarly, at Martinez Hill, the residents collected the vast majority of the bones from the pyres and put them in urns (Tables 1 and 3). These practices indicate that even when the body of the dead was transformed into bone fragments, it was still treated as a single unit. Whether or not the remains were placed in a vessel—and how much bone was deposited inside it—does not seem to have contributed significantly to the high bone weights (Table 3).

At Yuma Wash and University Indian Ruin, the secondary deposits had fewer bones represented, suggesting that, in general, the residents were not treating the remains as a complete unit after the fire (Figure 2). There was also more variation in bone weights at Yuma Wash, which may indicate a more diverse community reflecting a wider array of concepts of personhood and embodiment at the end of the funeral ritual (Table 3). In contrast, cremation practices at Cerro de Trincheras and some Tucson Basin sites suggest that even when the deceased's body was transformed into bone fragments, it was still treated as a single unit.

### **Commemoration, Remembrance, and Personhood at Cerro de Trincheras**

At Cerro de Trincheras, individuals of all age groups and sexes were buried in the urn-field cemetery (Cerezo-Román et al. 2018; Watson et al. 2015). Mourners and persons who knew the deceased could view the fire, smell its smoke, and also see when the urns were placed. The cemetery's high visibility suggests personal and active participation by the viewers, and this could have created an indelible memory of a particular decedent. The visibility of the cemetery may also have helped the community to both deal with the loss of and remember the deceased. When viewed from afar, the differences between urns would not have been apparent. The homogeneity in treatment seen at the site may suggest

a ritual that emphasized a collective—rather than individual—identity for the deceased (Cerezo-Román et al. 2012; Watson et al. 2015). The treatment of the bodies suggests a more unified view of personhood and embodiment, with only minor differences between individuals. Over time, the memories of individuals buried in the urn-field cemetery became indirect and referential, transforming them into a collective ancestry (Cerezo-Román et al. 2018). In addition, the creation of a cemetery close by, where these vessels were placed, created a social context for community cohesion and shared membership over time. As new cremations occurred, they would engender memories of previous funerals. Over time, a cremation tradition was created as a way to commemorate the dead and remember the past.

### **Commemoration, Remembrance, and Personhood in the Tucson Basin**

Compared to the occupants of Cerro de Trincheras, the Tucson Basin Hohokam seem to have had a different way of remembering and commemorating the dead. No communal cemetery of a size comparable to that of the Cerro de Trincheras cemetery has been found at the other sites included in this study. Although there are Tucson Basin Classic period sites with large cemeteries, such as Muchas Casas (Henderson 1987; Morris and Brooks 1987), which could represent cemeteries for a large social unit (Wallace and Swartz 2016), Tucson Basin cemeteries were smaller than the urn field of the Cerro de Trincheras, based on the available data.

Numerous researchers have explored spatial patterns of Hohokam burials and their relationship to residential architecture (Anderson 1986; Byrd et al. 2012; Effland 1988; Mitchell et al. 1989), and some have argued that individuals buried in platform mounds may have had roles related to the control of resources or religious leadership (e.g., Anderson 1986; Doyel 2007; Effland 1988; Fish and Fish 2000; Mitchell et al. 1989). In addition, families could visit the burial location and cemetery to claim a connection to the area and any architectural units associated with the cemeteries.

Craig (2007, 2010) proposed that individual habitational structures were arranged so as to create an exterior courtyard space—presumably for corporate use, including burials of group residents—that represented continuity in control over space and resources by a single domestic unit through generations. Byrd and colleagues (2012) argue that the act of interring members of the lineage within or around an architectural unit, as opposed to an external cemetery shared by multiple lineages, may have been intended to legitimize a “house’s” connection to property rights, especially to land. Klucas and Graves (2019) suggest that membership in a courtyard group did not require a shared kinship, but that kinship still played an important role. Other residential localities existed as well, and individuals may have established and maintained residences at those other locations, returning periodically to the original courtyard groups and associated cemetery for mortuary ceremonies or other activities that reinforced group membership. Studies by Klucas and Graves (2019) and Byrd and colleagues (2012) highlight a cross-cultural pattern, previously proposed by Saxe (1970) and reformulated by Goldstein (1976), in which formal disposal areas, such as cemeteries, generally are used by corporate groups to claim lineal ties to the ancestors to control access to crucial but restricted resources and territory. Klucas and Graves (2019) and Byrd and colleagues (2012) focus on the mourners and their rights almost exclusively. Here, I build on their work by considering the dead as a source of remembrance and commemoration from the perspective of embodiment and personhood.

In the Tucson Basin, the locations of the cremation burials suggest a stronger connection to, and remembrance of, specific deceased individuals within the nuclear groups, rather than the burial rituals of the broader social group. This indicates that the embodied personhood of these individuals in the Tucson Basin persisted even though the fire transformed the remains into small bone fragments and ash. This idea is also reinforced by the presence of the inhumations near the cremations. The final stages of the mortuary ritual emphasized the mourners’ and the decedent’s smaller nuclear-group identities, and not

the identity of the broader community. At the site level, this could be tied to a more diverse—and possibly multiethnic—community.

In the Tucson Basin, the pyres, inhumations, and secondary burial deposits were not located in communal spaces of the same magnitude as those found at Cerro de Trincheras. Instead, only members of a household and family group had access to the burial location and even the pyres. The broader social group did not have regular access to these spaces because they were usually enclosed by a wall that limited the visibility of the specific burial locations. The placement of the dead in proximity to the living provided the latter with a more intimate and direct connection as well as a constant reminder of their lineage, founding members, family group history, and traditions. Keeping the bones in separate spaces as single units preserved the individual memory and individuality of the dead.

The mortuary rituals of the Tucson Basin and the Cerro de Trincheras populations had many similar patterns. For example, the practice of inhumation may have been one way to differentiate the social significance of some of their members. In the cremation funeral ritual, bodies were treated and burned similarly, suggesting a shared view of the body, at least in the initial stages. The various stages of mortuary rituals also show some differences in concepts of emerging personhood and, possibly, embodiment. Practices diverge significantly in the case of the inhumations, in which differences between individuals in the society were indicated by the location of burials (in the case of Cerro de Trincheras) and by the quantity and variability of objects (in the case of the Tucson Basin). Regarding cremation, differences were found after the burning stage and in the final deposition rituals, indicating different notions of personhood and embodiment.

## Conclusions

This article explores the similarities and differences in mortuary practices at three Hohokam Classic period Tucson Basin archaeological sites in southern Arizona and an urn-field cemetery at the Cerro de Trincheras site in northern Sonora. Both areas have extensive and well-documented archaeological data and numerous

cremation deposits. The rich contextual information and detailed analyses from the sites provided the opportunity to explore cremations and mortuary customs in new and innovative ways. My approach consisted of an in-depth evaluation of all stages of the mortuary ritual and facilitated a holistic way to explore the intricate connections between the deceased, the mourners, and the community—both among and between the Tucson Basin and Cerro de Trincheras groups. In both regions, inhumation, on certain occasions, was one way that the mourners marked social and economic differences. Analysis of Tucson Basin cemeteries and burials suggests a stronger connection to, and remembrance of, specific deceased individuals within their respective groups, in addition to a wider array of concepts of personhood and embodiment. These findings are perhaps reflective of a more diverse community, rather than a focus on communal burial ritual. In contrast, burial practices at Cerro de Trincheras emphasized similarities among the individuals, with rituals directed toward the broader collective social group as well as a unified view of personhood and embodiment. Cerro de Trincheras and the Tucson Basin are interpreted as fundamentally similar in the way they initially treated the bodies of the dead but fundamentally different in the way the dead were transformed through the life-and-death continuum.

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*Data Availability Statement.* All osteological inventories and field notes for this study are stored in the Bioarchaeology Laboratory, Department of Anthropology, University of Oklahoma, Norman, Oklahoma; and the Bioarchaeology Laboratory, ASM, Tucson, Arizona. All data are available upon request from the author.

## Note

1. The age category for an infant is newborn to two years at death; a child is over two years to 12 years at death; and an adolescent is more than 12 and less than 18 years at death.

## References Cited

- Abbott, David R.  
2000 *Ceramic and Community Organization among the Hohokam*. University of Arizona Press, Tucson.
- Anderson, Keith M.  
1986 Hohokam Cemeteries as Elements of Settlement Structure and Change. In *The Palo Verde Archaeological Investigations Hohokam Settlement at the Confluence: Excavations along the Palo Verde Pipeline*, edited by John M. Antieau and Robert E. Gasser, pp. 181–196. Research Paper 20. Museum of Northern Arizona, Flagstaff.
- Arizona State Museum  
2018 *ASM Osteology Recording Packet*. Cultural Resource Services Forms & Guidelines. Arizona State Museum, University of Arizona, Tucson. Electronic document, <https://statemuseum.arizona.edu/file/712>, accessed December 2, 2019.
- Baby, Raymond S.  
1954 *Hopewell Cremation Practices*. Papers in Archaeology No. 1. Ohio Historical Society, Columbus.
- Bass, William M., and Richard L. Jantz  
2004 Cremation Weights in East Tennessee. *Journal of Forensic Sciences* 49:901–904.
- Bayman, James M.  
2001 The Hohokam of Southwest North America. *Journal of World Prehistory* 15:257–311.
- Beck, Lane Anderson  
2005 Secondary Burial Practices in Hohokam Cremations. In *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium*, edited by Gordon F. M. Rakita, Jane E. Buikstra, Lane

- A. Beck, and Sloan R. Williams, pp. 150–154. University Press of Florida, Gainesville.
- 2011 Analysis of Human Bone from the 2000 Excavations at the Julian Wash Site, AZ BB:13:17 (ASM). In *Craft Specialization in the Southern Tucson Basin: Archaeological Excavations at the Julian Wash Site, AZ BB:13:17 (ASM): Part 2, Synthetic Studies*, edited by Henry D. Wallace, pp. 619–627. Anthropological Papers No. 40. Center for Desert Archaeology, Tucson, Arizona.
- Binford, Lewis R.  
1963 An Analysis of Cremations from Three Michigan Sites. *Wisconsin Archaeologist* 44(2):89–110.  
1971 Mortuary Practices: Their Study and Their Potential. In *Approaches to the Social Dimensions of Mortuary Practices*, edited by James A. Brown, pp. 6–29. Memoirs No. 25. Society for American Archaeology, Washington, DC.
- Birkby, Walter H.  
1976 Cremated Human Remains. In *The Hohokam: Desert Farmers and Craftsmen: Excavations at Snaketown, 1964–1965*, by Emil W. Haury, pp. 380–384. University of Arizona Press, Tucson.
- Braniff Cornejo, Beatriz  
1992 *La Frontera Protohistórica Pima-Ópata en Sonora, México: Proposiciones Arqueológicas Preliminares*. 1st ed. Colección Científica. 240–242 Serie Arqueología. Instituto Nacional de Antropología e Historia, Mexico City.
- Brück, Joanna  
2006 Death, Exchange, and Reproduction in the British Bronze Age. *European Journal of Archaeology* 9:73–101.
- Brunson-Hadley, Judy Lynn  
1989 The Social Organization of the Los Muertos Hohokam: A Reanalysis of Cushing's Hemenway Expedition Data. PhD dissertation, Department of Anthropology, Arizona State University, Tempe.  
1994 Cremation Burials. In *Archaeology of the Pueblo Grande Platform Mound and Surrounding Features: Features in the Central Precinct of the Pueblo Grande Community*, edited by Todd W. Bostwick and Christian E. Downum, pp. 145–184. Anthropological Paper No. 1. Pueblo Grande Museum, Phoenix, Arizona.
- Buikstra, Jane E., and Lynne Goldstein  
1973 *The Perrins Ledge Crematory: Analysis and Interpretation of a Complex Crematory Site*. Report of Investigations No. 28. Illinois State Museum, Springfield.
- Buikstra, Jane E., and Douglas Ubelaker  
1994 *Standards for Data Collection from Human Skeletal Remains: Proceeding of a Seminar at the Field Museum of Natural History*. Research Series No. 44. Arkansas Archaeology Survey, Fayetteville, Arkansas.
- Byrd, Rachael M., James T. Watson, Paul R. Fish, and Suzanne K. Fish  
2012 Architecture and the Afterlife: A Spatial Analysis of Mortuary Behavior at University Indian Ruin. *Journal of Arizona Archaeology* 2:101–111.
- Cerezo-Román, Jessica I.  
2014 Unpacking Personhood and Identity in the Hohokam Area of Southern Arizona. PhD dissertation, School of Anthropology, University of Arizona, Tucson.  
2015 Unpacking Personhood and Identity in the Hohokam Area of Southern Arizona. *American Antiquity* 80:353–375.  
2016 Transformation by Fire. *Archaeology Southwest Magazine* 30(3):22–23.
- 2020a Cremation Funeral Customs among the Classic Period Hohokam of the Tucson Basin. In *Ancient Southwest Mortuary Practices*, edited by James T. Watson and Gordon F. M. Rakita, pp. 175–208. University Press of Colorado, Boulder.
- 2020b Bodies among Fragments: Non-Normative Inhumations among the Preclassic and Classic Period Hohokam of the Tucson Basin. In *The Odd, the Unusual, and the Strange: Bioarchaeological Exploration of Atypical Burials*, edited by Tracy K. Betsinger, Amy B. Scott, and Anastasia Tsaliki, pp. 18–43. University Press of Florida, Gainesville.
- Cerezo-Román, Jessica I., Silvia Ivette Nava Maldonado, Carlos Cruz, James T. Watson, and Elisa Villalpando  
2018 Changes in Remembrance of a Cremation Urnfield Cemetery from Prehispanic Times to the Present at Cerro de Trincheras, Sonora, Mexico. *Latin American Antiquity* 29:185–190.
- Cerezo-Román, Jessica I., and James T. Watson  
2020 Transformation by Fire: Changes in Funerary Customs from the Early Agricultural to Early Preclassic Period among Prehispanic Populations of Southern Arizona. *American Antiquity* 85:132–151.
- Cerezo-Román, Jessica I., James T. Watson, María Elisa Villalpando C., Carlos Cruz, and Silvia Ivette Nava Maldonado  
2012 Mortuary Practices at the Cerro de Trincheras, AD 1300 to 1450, Sonora, Mexico. Paper presented at the 54th Congreso Internacional de Americanistas, Vienna, Austria.
- Cerezo-Román, Jessica I., Anna Wessman, and Howard Williams (editors)  
2017 *Cremation and the Archaeology of Death*. Oxford University Press, Oxford.
- Chapman, John  
2000 *Fragmentation in Archaeology: People, Places and Broken Objects in the Prehistory of South-Eastern Europe*. Routledge, London.
- Clark, Jeffery J., and David R. Abbott  
2017 Classic Period Hohokam. In *The Oxford Handbook of Southwest Archaeology*, edited by Barbara J. Mills and Severin Fowles, pp. 353–380. Oxford University Press, Oxford.
- Craig, Douglas B.  
2007 Courtyard Groups and the Emergence of House Estates in Early Hohokam Society. In *The Durable House: House Society Models in Archaeology*, edited by Robin A. Beck Jr., pp. 446–463. Occasional Papers No. 35. Center for Archaeological Investigations, Southern Illinois University, Carbondale, Illinois.  
2010 Modeling Leadership Strategies in Hohokam Society. *Journal of Arizona Archaeology* 1:71–88.
- Creel, Darrell  
1989 A Primary Cremation at the NAN Ranch Ruin, with Comparative Data on Other Cremations in the Mimbres Area, New Mexico. *Journal of Field Archaeology* 16:309–329.
- Crossland, Zoë  
2010 Materiality and Embodiment. In *The Oxford Handbook of Material Culture Studies*, edited by Dan Hicks and Mary C. Beaudry, pp. 386–405. Oxford University Press, Oxford.
- Crown, Patricia L., and Suzanne K. Fish  
1996 Gender and Status in the Hohokam Pre-Classic to Classic Transition. *American Anthropologist* 98:803–817.



- Csordas, Thomas  
1999 Embodiment and Cultural Phenomenology. In *Perspectives on Embodiment: The Intersections of Nature and Culture*, edited by Gail Weiss and Haber Honi Fern, pp. 143–162. Routledge, London.
- Punzo Díaz, José Luis, and M. Elisa Villalpando Canchola  
2015 Paquimé: A Revision of Its Relations to the South and West. In *Ancient Paquimé and the Casas Grandes World*, edited by Paul E. Minnis and Michael E. Whalen, pp. 172–191. University of Arizona Press, Tucson.
- Di Peso, Charles C.  
1974 *Casa Grandes: A Fallen Trading Center of the Gran Chichimeca*. Vols. 1–3. Amerind Foundation, Dragoon, Arizona; Northland Press, Flagstaff, Arizona.
- Downum, Christian E.  
2007 Cerros de Trincheras in Southern Arizona: Review and Current Status of the Debate. In *Trincheras Sites in Time, Space, and Society*, edited by Suzanne K. Fish, Paul R. Fish, and M. Elisa Villalpando, pp. 101–136. University of Arizona Press, Tucson.
- Downum, Christian E., Paul R. Fish, and Suzanne K. Fish  
1994 Refining the Role of Cerros de Trincheras in Southern Arizona Settlement. *Kiva* 59:271–296.
- Doyel, David E.  
2007 Irrigation, Production, and Power in Phoenix Basin Hohokam Society. In *The Hohokam Millennium*, edited by Paul R. Fish and Suzanne K. Fish, pp. 82–89. School for Advanced Research Press, Santa Fe, New Mexico.
- Effland, Richard W., Jr.  
1988 An Examination of Hohokam Mortuary Practice from Casa Buena. In *Excavations at Casa Buena: Changing Hohokam Land Use along the Squaw Peak Parkway, Volume 1*, edited by Jerry B. Howard, pp. 693–794. Publications in Archaeology No. 11. Soil Systems Inc., Phoenix, Arizona.
- Elson, Mark D., and David R. Abbott  
2000 Organizational Variability in Platform Mound-Building Groups of the American Southwest. In *Alternative Leadership Strategies in the Prehispanic Southwest*, edited by Barbara J. Mills, pp. 117–135. University of Arizona Press, Tucson.
- Fink, T. Michael  
1988a Human Skeletal Remains and Mortuary Practices at La Lomita Pequeña. In *Excavations at La Lomita Pequeña, a Santa Cruz/Sacaton Phase Hamlet in the Salt River Valley*, edited by Douglas R. Mitchell, pp. 339–350. Publications in Archaeology No. 10. Soil Systems Inc., Phoenix, Arizona.  
1988b The Practice of Cremation at the Yale-Sheridan Locus of Casa Buena. In *Excavations at Casa Buena: Changing Hohokam Land Use along the Squaw Peak Parkway, Volume 2*, edited by Jerry B. Howard, Ethne Barnes, and Cory Dale Breternitz, pp. 67–83. Publications in Archaeology No. 11. Soil Systems Inc., Phoenix, Arizona.  
1989 Analysis of the Human Remains from La Lomita (AZ U:9:7 ASM). In *Excavations at La Lomita, Phoenix, Arizona*, edited by Douglas R. Mitchell and Cory Dale Breternitz, pp. 67–83. Publications in Archaeology No. 15. Soil Systems Inc., Phoenix, Arizona.
- Fish, Paul R., and Suzanne K. Fish  
2000 The Institutional Contexts of Hohokam Complexity and Inequality. In *Alternative Leadership Strategies in the Prehispanic Southwest*, edited by Barbara J. Mills, pp. 154–167. University of Arizona Press, Tucson.  
2004 In the Trincheras Heartland: Initial Insights from Full Coverage Survey. In *Surveying the Archaeology of Northwest Mexico*, edited by Gillian E. Newell and Emiliano Gallaga, pp. 47–63. University of Utah Press, Salt Lake City.  
2007 Regional Heartlands and Transregional Trends. In *Trincheras Sites in Time, Space, and Society*, edited by Suzanne K. Fish, Paul R. Fish, and M. Elisa Villalpando C., pp. 165–194. University of Arizona Press, Tucson.
- Fish, Suzanne K., Paul R. Fish, and M. Elisa Villalpando C. (editors)  
2007 *Trincheras Sites in Time, Space, and Society*. University of Arizona Press, Tucson.
- Fisher, Genevieve, and Diana DiPaolo Loren  
2003 Embodying Identities in Archaeology. *Cambridge Archaeological Journal* 13:225–261.
- Fortes, Meyer  
1987 *Religion, Morality and the Person: Essays on Tallensi Religion*. Cambridge University Press, New York.
- Fowler, Chris  
2001 Personhood and Social Relations in the British Neolithic with a Study from the Isle of Man. *Journal of Material Culture* 6:137–163.
- Gabel, Norman  
1931 Martinez Hill Ruins: An Example of Prehistoric Culture of the Middle Gila. Master's thesis, Department of Anthropology, University of Arizona, Tucson.
- Gilchrist, Roberta  
1999 *Gender and Archaeology: Contesting the Past*. Routledge, London.
- Goldstein, Lynne  
1976 Spatial Structure and Social Organization: Regional Manifestations of Mississippian Society. PhD dissertation, Department of Anthropology, Northwestern University, Evanston, Illinois.
- Goldstein, Lynne, and Katy Meyers  
2014 Transformation and Metaphors: Thoughts on Cremation Practices in the Precontact Midwestern United States. In *Transformation by Fire: The Archaeology of Cremation in Cultural Context*, edited by Ian Kuijt, Colin Quinn, and Gabriel Cooney, pp. 207–232. University of Arizona Press, Tucson.
- Gonçalves, David, and Ana Elisabete Pires  
2017 Cremation under Fire: A Review of Bioarchaeological Approaches from 1995 to 2015. *Archaeological and Anthropological Sciences* 9:1677–1688.
- Hall, Susan D., CaraMia R. Whitney, Chance Copperstone, April Whitaker, Michael Margolis, Deborah L. Swartz, and Michael W. Lindeman  
2016 Human Mortuary Features. In *Archaeological Investigations at the Yuma Wash Site and Outlying Settlements*, edited by Deborah L. Swartz, pp. 247–538. Anthropological Papers No. 49. Center for Desert Archaeology, Tucson, Arizona.
- Hallam, Elizabeth, and Jennifer Hockey  
2001 *Death, Memory, and Material Culture*. Berg Publishers, Oxford.
- Hampson, Jamie  
2016 Embodiment, Transformation and Ideology in the Rock Art of Trans-Pecos Texas. *Cambridge Archaeological Journal* 26:217–241.
- Haury, Emil W.  
1945 *The Excavation of Los Muertos and Neighboring Ruins in the Salt River Valley, Southern Arizona*. Papers of the Peabody Museum of American Archaeology and

- Ethnology No. 24(1). Harvard University, Cambridge, Massachusetts.
- 1976 *The Hohokam: Desert Farmers and Craftsmen: Excavations at Snaketown, 1964–1965*. University of Arizona Press, Tucson.
- Hegmon, Michelle  
2003 Setting Theoretical Egos Aside: Issues and Theory in North American Archaeology. *American Antiquity* 68:213–243.
- Henderson, T. Kathleen  
1987 *Structure and Organization at La Ciudad*. Anthropological Field Studies No. 18. Office of Cultural Resource Management, Arizona State University, Tempe.
- Hull, Kathleen L., John G. Douglass, and Andrew L. York  
2013 Recognizing Ritual Action and Intent in Communal Mourning Features on the Southern California Coast. *American Antiquity* 78:24–47.
- Johnson, Alfred E.  
1960 The Trincheras Culture of Northwestern Sonora. *American Antiquity* 29:174–186.
- Jones, Jeffrey T.  
1999a *Archaeological Test Excavations at the AZ AA:12:122 (ASM) and AZ AA:12:311 (ASM) along Silverbell Road South of Cortaro Road in Marana, Pima County, Arizona*. Old Pueblo Archaeology Center, Tucson, Arizona.  
1999b *Archaeological Test Excavations at the Portion of AZ AA:12:311 (ASM) West of Yuma Wash and South of Silverbell Road in Marana, Arizona*. Old Pueblo Archaeology Center, Tucson, Arizona.  
1999c *Archaeological Test Excavations at the Portion of AZ AA:12:314 (ASM) West of Silverbell Road and North of Ina Road in Marana, Arizona*. Old Pueblo Archaeology Center, Tucson, Arizona.
- Jones, Andrew  
2005 Lives in Fragments? Personhood and the European Neolithic. *Journal of Social Archaeology* 5:193–224.
- Joyce, Rosemary A.  
1998 Performing the Body in Prehispanic Central America. *RES* 33:147–165.  
2000 Girling the Girl and Boying the Boy: The Production of Adulthood in Ancient Mesoamerica. *World Archaeology* 31:473–483.  
2003 Making Something of Herself: Embodiment in Life and Death at Playa de los Muertos, Honduras. *Cambridge Archaeological Journal* 13:248–261.  
2005 Archaeology of the Body. *Annual Review of Anthropology* 34:139–158.
- Klucas, Eric Eugene, and William M. Graves  
2019 The Hohokam House: Identifying Nested Social Groups during the Pioneer Period in the Tucson Basin. In *Interaction and Connectivity in the Greater Southwest*, edited by Karen Harry and Barbara J. Roth, pp. 171–192. University Press of Colorado, Louisville.
- Kuijt, Ian, Colin Quinn, and Gabriel Cooney (editors)  
2014 *Transformation by Fire: The Archaeology of Cremation in Cultural Context*. University of Arizona Press, Tucson.
- Longacre, William A.  
2000 Exploring Prehistoric Social and Political Organization in the American Southwest. *Journal of Anthropological Research* 56:287–300.
- Mabry, Jonathan B.  
2005 Changing Knowledge and Ideas about the First Farmers in Southeastern Arizona. In *The Late Archaic across the Borderlands from Foraging to Farming*, edited by Bradley J. Vierra, pp. 41–83. University of Texas Press, Austin.
- MacWilliams, Art C. (editor)  
2005 *Notice of Fieldwork Completion Report on Supplemental Archaeological Test Excavations at Sites AZ AA:12:314 (ASM) and AZ AA:12:315 (ASM) near the Silverbell and Ina Roads Intersection in Marana, February–March 2005*. Old Pueblo Archaeology Center, Tucson, Arizona.
- Mauss, Marcel  
1985 A Category of Human Mind: The Notion of Person, the Notion of Self. In *The Category of the Person: Anthropology, Philosophy, History*, edited by Michael Carrithers, Steven Collins, and Steven Lukes, pp. 1–25. Translated by Wilfred Douglas Halls. Cambridge University Press, Cambridge.
- McClelland, John  
2009 Archaeological Context and Osteological Observations of MSM Project Human Burials at AZ AA:12:311 (ASM), AZ AA:12:314 (ASM), and AZ AA:12:315 (ASM). In *Archaeological Investigations at Five Sites West of the Santa Cruz River in Marana, Arizona: Yuma Wash and Silverbell–Ina Hohokam Sites*, AZ AA:12:311 (ASM), AZ AA:12:314 (ASM), and AZ AA:12:315 (ASM), & *Bojórquez-Aguirre Ranch & Meador-Cañas Sites AZ AA:12:122 (ASM) and AZ AA:12:313 (ASM)*, edited by Art C. MacWilliams and Allen Dart, pp. 5.1–5.32. Old Pueblo Archaeology Center, Tucson, Arizona.
- McGuire, Randall H.  
1980 The Mesoamerican Connection in the Southwest. *Kiva* 46:3–38.  
1991 On the Outside Looking In: The Concept of Periphery in Hohokam Archaeology. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest*, edited by George J. Gumerman, pp. 347–382. University of New Mexico Press, Albuquerque.  
1992 *Death, Society, and Ideology in a Hohokam Community*. Westview Press, Boulder, Colorado.  
2001 Ideologies of Death and Power in the Hohokam Community of La Ciudad. In *Ancient Burial Practices in the American Southwest: Archaeology, Physical Anthropology, and Native American Perspectives*, edited by Douglas R. Mitchell and Judy L. Brunson-Hadley, pp. 27–44. University of New Mexico Press, Albuquerque.
- McGuire, Randall H., and María Elisa Villalpando C.  
2015 War and Defense on Cerros de Trincheras in Sonora, México. *American Antiquity* 80:429–450.
- McGuire, Randall H., and María Elisa Villalpando C.  
1993 *An Archaeological Survey of the Altar Valley, Sonora, Mexico*. Archaeological Series No. 184. Arizona State Museum, University of Arizona, Tucson.  
2007 Excavations at Cerro de Trincheras. In *Trincheras Sites in Time, Space, and Society*, edited by Suzanne K. Fish, Paul R. Fish, and María Elisa Villalpando, pp. 101–164. University of Arizona Press, Tucson.
- McGuire, Randall H., and María Elisa Villalpando C.  
2008 The Hohokam and Mesoamerica. In *The Hohokam Millennium*, edited by Suzanne K. Fish, and Paul R. Fish, pp. 156–163. School for Advanced Research Press, Santa Fe, New Mexico.
- McGuire, Randall H., and María Elisa Villalpando C.  
2011 Conclusions. In *Excavations at Cerro de Trincheras, Sonora, Mexico, Volume II*, edited by Randall

- H. McGuire and Elisa Villalpando, pp. 823–861. Archaeological Series No. 204. Arizona State Museum, University of Arizona, Tucson.
- McGuire, Randall H., María Elisa Villalpando C., Victoria D. Vargas, and Emiliano Gallaga M.  
1999 Cerro de Trincheras and the Casas Grandes World. In *The Casas Grandes World*, edited by Curtis F. Schaafsma and Carroll L. Riley, pp. 134–148. University of Utah Press, Salt Lake City.
- Merbs, Charles F.  
1967 Cremated Human Remains from Point of Pines, Arizona: A New Approach. *American Antiquity* 32:498–506.
- Merleau-Ponty, Maurice  
1962 *Phenomenology of Perception*. Translated by Colin Smith. Routledge and Kegan Paul, London.
- Meskell, Lynn  
1999 *Archaeologies of Social Life: Age, Sex, Class, Et Cetera in Ancient Egypt*. Blackwell, Oxford.  
2000 Cycles of Life and Death: Narrative Homology and Archaeological Realities. *World Archaeology* 31:423–441.
- Meskell, Lynn M., and Rosemary A. Joyce  
2003 *Embodied Lives: Figuring Ancient Maya and Egyptian Experience*. Routledge, London.
- Mitchell, Douglas R., and Judy L. Brunson-Hadley  
2001 An Evaluation of Classic Period Hohokam Burials and Society: Chiefs, Priests, or Acephalous Complexity? In *Ancient Burial Practices in the American Southwest: Archaeology, Physical Anthropology and Native American Perspectives*, edited by Douglas R. Mitchell and Judy L. Brunson-Hadley, pp. 45–67. University of New Mexico Press, Albuquerque.
- Mitchell, Douglas R., T. Michael Fink, and Wilma Allen  
1989 Disposal of the Dead: Exploration of Mortuary Variability and Social Organization at the Grand Canal Ruins. In *Archaeological Investigations at the Grand Canal Ruins: A Classic Period Site in Phoenix, Arizona, Volume 2*, edited by Douglas R. Mitchell, pp. 705–773. Publications in Archaeology No. 12. Soil Systems Inc., Phoenix, Arizona.
- Morris, Donald H., and Dan Brooks  
1987 Cremations at Marana Sites. In *Studies in the Hohokam Community of Marana*, edited by Glen E. Rice, pp. 223–233. Anthropological Field Studies No. 15. Office of Cultural Resource Management, Arizona State University, Tempe.
- Murad, Turhon A.  
1998 The Growing Popularity of Cremation Versus Inhumation: Some Forensic Implications. In *Forensic Osteology: Advances in the Identification of Human Remains*, 2nd ed., pp. 86–105. Charles C. Thomas, Springfield, Illinois.
- Neitzel, Jill E.  
2001 Gender Hierarchies: A Comparative Analysis of Mortuary Data. In *Women and Men in the Prehispanic Southwest: Labor, Power, and Prestige*, edited by Patricia L. Crown, pp. 137–168. School of American Research Press, Santa Fe, New Mexico.
- Nelson, Ben A., Elisa Villalpando Canchola, José Luis Punzo Díaz, and Paul E. Minnis  
2015 Prehispanic Northwest and Adjacent West Mexico, 1200 B.C.–A.D. 1400: An Inter-Regional Perspective. *Kiva* 81:31–61.
- O'Donovan, Maria  
2002 *New Perspectives on Site Function and Scale of Cerro de Trincheras Sonora, Mexico: The 1991 Surface Survey*. University of Arizona Press, Tucson.
- Pailes, Matthew C.  
2015 Political Landscapes of Eastern Sonora: A Reconsideration of Scale and Organization. *Latin American Antiquity* 26:530–549.  
2017 Northwest Mexico: The Prehistory of Sonora, Chihuahua, and Neighboring Areas. *Journal of Archaeological Research* 25:373–420.
- Pailes, Matthew C., Natalia Martínez-Tagüeña, and William H. Doelle  
2018 The Role of Future Discounting in Subsistence Decisions: The Case of Hohokam Agave Bajada Cultivation. *Journal of Field Archaeology* 43:619–633.
- Parker Pearson, Mike  
1982 Mortuary Practices, Society, and Ideology: An Ethnoarchaeological Study. In *Symbolic and Structural Archaeology*, edited by Ian Hodder, pp. 99–113. Cambridge University Press, Cambridge.  
1999 *The Archaeology of Death and Burial*. Texas A&M University Press, College Station.
- Potter, Ben A., Joel D. Irish, Joshua D. Reuther, Carol Gelvin-Reymiller, and Vance T. Holliday  
2011 A Terminal Pleistocene Child Cremation and Residential Structure from Eastern Beringia. *Science* 331:1058–1062.
- Quinn, Colin P., Ian Kuijt, and Gabriel Cooney  
2014 Introduction: Contextualizing Cremations. In *Transformation by Fire: The Archaeology of Cremation in Cultural Context*, edited by Ian Kuijt, Colin Quinn, and Gabriel Cooney, pp. 3–21. University of Arizona Press, Tucson.
- Rakita, Gordon F. M.  
2009 *Ancestors and Elites: Emergent Complexity and Ritual Practices in the Casas Grandes Polity*. AltaMira Press, Lanham, Maryland.
- Rakita, Gordon F. M., and Jane E. Buikstra  
2005 Corrupting Flesh: Reexamining Hertz's Perspective on Mummification and Cremation. In *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium*, edited by Gordon F. M. Rakita, Jane E. Buikstra, Lane A. Beck, and Sloan R. Williams, pp. 97–106. University Press of Florida, Gainesville.
- Rebay-Salisbury, Katharina  
2010 Cremations: Fragmented Bodies in the Bronze and Iron Ages. In *Body Parts and Bodies Whole: Changing Relations and Meanings*, edited by Katharina Rebay-Salisbury, Marie Louise Stig Sørensen, and Jessica Hughes, pp. 64–71. Oxbow Books, Oxford.
- Reinhard, Karl J., and T. Michael Fink  
1982 The Multi-Individual Cremation Phenomenon of the Santa Cruz Drainage. *Kiva* 47:151–161.  
1994 Cremation in Southwestern North America: Aspects of Taphonomy That Affect Pathological Analysis. *Journal of Archaeological Science* 21:597–605.
- Reinhard, Karl J., and Jeff H. Shipman  
1978 Prehistoric Cremations from Nogales, Arizona. *Kiva* 43:231–252.
- Rice, Glen E.  
2016 *Sending the Spirits Home: The Archaeology of Hohokam Mortuary Practices*. University of Utah Press, Salt Lake City.
- Robinson, Brian S.  
1996 Archaic Period Burial Patterning in Northeastern North America. *Review of Archaeology* 17:33–44.
- Robinson, William J., and Roderick Sprague  
1965 Disposal of the Dead at Point of Pines, Arizona. *American Antiquity* 30:442–453.

- Sanger, Matthew C., Brian D. Padgett, Clark Spencer Larsen, Mark Hill, Gregory D. Lattanzi, Carol E. Colaninno, Brendan J. Culleton, Douglas J. Kennett, Matthew F. Napolitano, Sébastien Lacombe, Robert J. Speakman, and David Hurst Thomas  
2019 Great Lakes Copper and Shared Mortuary Practices on the Atlantic Coast: Implications for Long-Distance Exchange during the Late Archaic. *American Antiquity* 84:591–609.
- Saxe, Arthur A.  
1970 Social Dimensions of Mortuary Practices. PhD dissertation, Department of Anthropology, University of Michigan, Ann Arbor.
- Scheuer, Louise, and Sue Black  
2000 *Developmental Juvenile Osteology*. Academic Press, London.
- Schultz, John J., Michael W. Warren, and John S. Krigbaum  
2015 Analysis of Human Remains. In *The Analysis of Burned Human Remains*, 2nd ed., edited by Christopher W. Schultz and Steven A. Symes, pp. 83–103. Academic Press, London.
- Schurr, Mark R., and Della Collins Cook  
2014 The Temporal and Cultural Contexts of the Enigmatic Cremations from the Yoken Site, Illinois, USA. In *Transformation by Fire: The Archaeology of Cremation in Cultural Context*, edited by Ian Kuijt, Colin Quinn, and Gabriel Cooney, pp. 67–92. University of Arizona Press, Tucson.
- Sofaer, Joanna R.  
2006 *The Body as Material Culture: A Theoretical Osteoarchaeology*. Cambridge University Press, Cambridge.
- Sonek, A.  
1992 The Weight(s) of Cremated Remains. In *Proceedings of the 44th Annual Meeting of the American Academy of Forensic Sciences*, pp. 169–170, New Orleans, Louisiana.
- Sørensen, Marie Louise Stig  
2000 *Gender Archaeology*. Polity Press, Cambridge.
- Squires, Kirsty E.  
2017 Come Rain or Shine? The Social Implications of Seasonality and Weather on the Cremation Rite in Early Anglo-Saxon England. In *Cremation and the Archaeology of Death*, edited by Jessica I. Cerezo-Román, Anna Wessman, and Howard Williams, pp. 250–265. Oxford University Press, Oxford.
- Swartz, Deborah L.  
2016 *Archaeological Investigations at the Yuma Wash Site and Outlying Settlements, Part 1*. Anthropological Papers No. 49. Center for Desert Archaeology, Tucson, Arizona.
- Thompson, Timothy James (editor)  
2015 *The Archaeology of Cremation: Burned Human Remains in Funerary Studies*. Oxbow Books, Oxford.
- Toulouse, Joseph H.  
1944 Cremation among the Indians of New Mexico. *American Antiquity* 10:65–74.
- Trotter, Mildred, and Barbara B. Hixon  
1974 Sequential Changes in Weight, Density, and Percentage Ash Weight of Human Skeletons from an Early Fetal Period through Old Age. *Anatomical Record* 179:1–18.
- Villalpando, María Elisa  
2012 Acompañamientos Funerarios entre las Comunidades Agricultoras del Desierto de Sonora (Consideraciones Preliminares). Paper presented at the 54th Congreso Internacional de Americanistas, Vienna, Austria.
- Villalpando, María Elisa, Carlos Cruz Guzmán, and Silvia Nava Maldonado  
2009 *Proyecto Institucional Trincheras Informe de Actividades Julio–Diciembre 2008 y Propuesta 2009*. Centro Nacional de Antropología e Historia, Sonora, Mexico.
- Villalpando, María Elisa, and Randall H. McGuire  
2009 *Entre Muros de Piedra: La arqueología del Cerro de Trincheras*. Proyecto INAH Trincheras Instituto Sonorense de Cultura, Programa Institucional Trincheras Instituto Nacional de Antropología e Historia, Sonora, Mexico.
- Voss, Barbara L.  
2008 Sexuality Studies in Archaeology. *Annual Review of Archaeology* 37:317–336.
- Wallace, Henry D., and James P. Holmlund  
1984 The Classic Period in the Tucson Basin. *Kiva* 49:167–194.
- Wallace, Henry D., and Michael W. Lindeman  
2013 Competition and Cooperation: Late Classic Period Aggregation in the Southern Tucson Basin. In *From Prehistoric Villages to Cities: Settlement Aggregation and Community Transformation*, edited by Jennifer Birch, pp. 134–152. Routledge, New York.
- 2019 Social Distancing and Fragmentation: The 150-Year-Long Transition to the Hohokam Classic Period in the Tucson Basin of Southern Arizona. In *Communities and Households in the Greater American Southwest: New Perspectives and Case Studies*, edited by Robert James Stokes, pp. 97–115. University Press of Colorado, Louisville.
- Wallace, Henry D., and Deborah L. Swartz  
2016 Death outside the Door: Investigating the Funerary Practices of Yuma Wash and the Classic Period Tucson Basin Hohokam. In *Archaeological Investigations at the Yuma Wash Site and Outlying Settlements, Part 2*, edited by Deborah L. Swartz, pp. 861–914. Anthropological Papers No. 49. Archaeology Southwest, Tucson, Arizona.
- Watson, James T., Jessica Cerezo Román, Silvia Ivette Nava Maldonado, and María Elisa Villalpando C.  
2015 Death and Community Identity in the Trincheras Cremation Cemetery, Sonora, Mexico. In *The Analysis of Burned Human Remains*, 2nd ed., edited by Christopher W. Schmidt and Steven A. Symes, pp. 339–354. Academic Press, London.
- Webb, William S., and Charles E. Snow  
1945 *The Adena People*. Department of Anthropology and Archaeology, University of Kentucky, Lexington.
- Whalen, Michael E., and Paul E. Minnis  
2001a Architecture and Authority in the Casas Grandes Area, Chihuahua, Mexico. *American Antiquity* 66:651–668.
- 2001b *Casas Grandes and Its Hinterland: Prehistoric Regional Organization in Northwest Mexico*. University of Arizona Press, Tucson.
- 2003 The Local and the Distant in the Origin of Casa Grandes, Chihuahua, Mexico. *American Antiquity* 68:314–332.
- 2009 *The Neighbors of Casas Grandes: Excavating Medio Period Communities of Northwest Chihuahua, Mexico*. University of Arizona Press, Tucson, Arizona.
- Williams, Howard  
2004 Death Warmed Up: The Agency of Bodies and Bones in Early Anglo-Saxon Cremation Rites. *Journal of Material Culture* 9:263–291.

2014 A Well-Urned Rest: Cremation and Inhumation in Early Anglo-Saxon England. In *Transformation by Fire: The Archaeology of Cremation in Cultural Context*, edited by Ian Kuijt, Colin Quinn, and Gabriel Cooney, pp. 93–118. University of Arizona Press, Tucson.

Zavala, Bridget

2006 Elevated Spaces: Exploring the Symbolic at Cerros

de Trincheras. In *Religion in the Prehispanic Southwest*, edited by Christine S. Van Pool, Todd L. Van Pool, and David A. Phillips Jr., pp. 135–146. AltaMira Press, Lanham, Maryland.

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