



Unpacking Personhood and Identity in the Hohokam Area of Southern Arizona

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UNPACKING PERSONHOOD AND IDENTITY IN THE HOHOKAM AREA OF
SOUTHERN ARIZONA

by

Jessica Inés Cerezo-Román

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DEDICATION

To my mother and father for their love and support.

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ABSTRACT

My research centers on changes in personhood, identity and funerary rituals from the Early Agricultural Period to the Classic Period in the Tucson Basin. The three core papers of my dissertation represent submissions to peer-review journals or book chapters, all of which are connected by similar research themes. The first paper examines changes in funerary rituals from the Early Agricultural Period (2100 B.C.-A.D. 50) to the Early Preclassic Period (A.D. 475-750) and how these changes modified social relationships between the dead, their families and the community. A total of 21 archaeological sites and 436 burials were analyzed. The predominant mortuary rituals in the Early Agricultural Period were inhumations characterized by variations in body position and location, possibly emphasizing individuality. These rituals changed in the Preclassic Period as cremation became the dominant practice. Cremations during this period were mainly secondary deposits with low quantities of bone located in cemeteries within habitation courtyard groups. Social group membership was emphasized through these cremations. Results suggest that triggers for changes in funerary rituals through time were multicausal, but these changes are reflective of emerging group identities with strong social cohesion, consistent with patterns observed in other archaeological evidence from the area.

The second paper explores how the Preclassic Hohokam (A.D. 475-1150) of the Tucson Basin created different pathways to personhood for the dead. This consisted of examining how bodies were treated within cremation practices at four recently excavated Tucson Basin Hohokam archaeological sites and through consideration of different ethnographic accounts of cremation practices among Native American groups from the Southwestern United States. Historical accounts of cremation practices utilized in this work originate from the Pima (Akimel O'odham), Tohono O'odham, and several Yuman-speaking groups. Based on archaeological and linguistic evidence, the ancestors of these historic groups had ancestral connections with the Hohokam. Results of my research

suggest dynamic transitions of personhood occurred at death while these transitions occurred both with the dead as well as the living. Subsequent to the cremation pyre bodies were transformed into “body-objects” and continued to evoke memories of the deceased person’s life. Furthermore, at these events mutually-identifying relationships were created, transformed or destroyed through interactions of the community, family and deceased.

The third paper examines the identification of and changes in aspects of personhood among the Tucson Basin Hohokam from the Preclassic (A.D. 475-1150) to Classic periods (A.D. 1150-1450/1500). This is done by examining the biological profile, posthumous treatment of the body and mortuary practices of remains of 764 individuals from seven sites. Cremation was the predominant mortuary practice in the Tucson Basin during the Preclassic and Classic periods. However, inhumation also co-occurred at lower frequencies, particularly for fetus and infants, possibly due to the undeveloped form of self that these individuals had within the society. Through time cremation rituals changed particularly for individuals older than 15 years at death and adults. In the Preclassic Period, after the body was burned, the remains were fragmented, divided and distributed as inalienable possessions among families and within specific networks. This suggests a social construction of self that was more relational, part-person and part-object. In the Classic Period, these practices decreased and the remains were not divided but left in place or transferred almost wholly to a single secondary deposit. The perceptions of personhood in the Classic Period changed to a self that was considered as bounded units and more-whole even after its transformation during the cremation fire. It is possible that this transition through time occurred as a result of more centralized and private rituals, and by a general decrease in emotive networks. The changes in mortuary rituals are similar to broader sociopolitical changes observed in the Classic Period where an increase in social differentiation and complexity has been postulated.

CHAPTER ONE

Introduction

The overarching research focus of this dissertation is how the treatment of human remains relates to social relationships between the deceased and their survivors through time and space in southern Arizona. Specifically, I explore these relationships using the concept of personhood, while viewing the funeral and overall treatment of remains as an arena where social identities of both the deceased and mourners are negotiated, created, and transformed. To explore these relationships, I divide the research into three papers (Appendices A, B, and C), each addressing a different time period and aspect within the overarching research focus. Appendix A focuses on data from the Early Agricultural/Ceramic Period (2100 B.C.-A.D. 475) extended through the early phases of the Preclassic Period (A.D. 475-750). Appendix B focuses on data from the Preclassic Period (A.D. 475-1150), while Appendix C uses data to examine the transition from the Preclassic (A.D. 475-1150) to Classic (A.D. 1150-1450/1500) periods. Geographically, this research centers on the Tucson Basin and immediately adjacent areas.

Chapter One presents a literature review of key references on identity. To facilitate discussion, this literature review is organized by intersections, such as status, gender and sex, aging, life course and life cycle, and ethnicity and group identity. Additionally, the discussion includes a review of relevant anthropological and archaeological studies of personhood presented in chronological order. Also discussed in this chapter is the current state of funerary archaeology studies in the American Southwest. The following section briefly introduces the overall organization of the dissertation, thus contextualizing each chapter. A final section of this chapter, "Science and Social Theory: Putting it All Together," provides a brief discussion on how the current research utilizes and/or adapts previously discussed theoretical approaches. This

section also details how the current research operationalizes attributes of personhood that relate to unique individual identity, social age, sex, and group identity.

General Overview of Studies of Identity

The term “identity” has a long history in Western philosophy, extending from ancient Greece to the most recent publications in the social sciences. Today the term is regularly used in various media and is a common discussion point in daily life. For example, if one searches <http://World Cat.org>, one of the world's largest on-line networks of library content and services, for the years from 2008 to 2012, almost a quarter million references link to the term “identity,” used in various ways. In anthropology, usage of the term requires definition as, for example, it refers to both individual and group identity (Díaz-Andreu and Lucy 2005). Following the definition of Díaz-Andreu and Lucy (2005), “identity” in this research represents an individual’s identification with a broader group based on shared similarities and differences. The term links to a sense of belonging, as well as to how we perceive others and ourselves as being part of some groups but not others (Díaz-Andreu and Lucy 2005). Additionally, being part of a group entails active engagement, making identity situational, fluid, and dynamic. Identity also is both plural and intersectional, as we participate in many different spheres of social interactions. Due to the formation and preservation processes of the archaeological record, however, we can reconstruct only a few of these different interactions in past populations.

The notion of identity as a discursive category dates back to the ancient Greeks, but identity did not become important as an analytical concept in the social sciences until the 1960s, thanks to the influential works of Erikson, Merton, Goffman, Barth, and Berger, among others (e.g., Meskell and Pruecel 2006). Archaeological focus on identity is not new, although there is significant variability in how archaeologists study past identity and its conceptualization in the present (Díaz-Andreu and Lucy 2005). Through most of the twentieth century, archaeological theory focused on cultures rather than

individuals. Cultures were treated and perceived as “individuals” in the metaphorical sense, in that cultures were born, developed, flourished, and eventually transformed into something else before finally perishing. The key components of these approaches were ethnic identity and “archaeological cultures,” which were typically equated with ethnic groups and associated with little epistemologically self-reflective theoretical discussion. This naturalized equation and lack of theoretical evaluation extended to studies of social differentiation (high status vs. low status) and religious affiliation. To explore the development of identity studies in archaeology, I discuss in this chapter the diachronic study of particular intersections of identity. There are many intersections of identity, and numerous studies of identity use data derived from mortuary contexts. In most of these studies, there also are many correspondences between the interpretations of funerary customs and the study of each specific intersection of identity, as is the case of social status and ethnic identity. Mortuary contexts are therefore perfect archaeological assemblages in which to study identity(ies). Funerary contexts are created by the living, and their study, combined with that of the human remains, provides ways to examine how identities were constructed at multiple levels and within multiple intersections.

Processual Archaeology, Individual Identity, and Social Status

In the 1960s the New Archaeology, or processual archaeology, revolutionized archaeological theories and methods for studying the past. Influenced by neo-evolutionary theories and ideas from anthropologists Leslie White (1959a, 1959b) and Julian Steward (1955), processualists also viewed humans as organized within an ordered hierarchy of egalitarian, ranked, and stratified societies (Trigger 1989, 1996). This view centered on the cultural “system” itself and not in the individual. Nonetheless, contemporaneous discussions of individual identity started to emerge. Binford (1962, 1965) pointed out the link between material culture, symbols, and individual political processes and suggested that people participated differentially within a culture. However, this new way of thinking viewed individuals as passive agents and part of a group,

subject to the norms and pressures of the society and with little agency of their own (Brumfiel 1992; Hodder 1996; Trigger 1989, 1996). At the same time, influence from the neo-evolutionary approach created an interest in the study of social status in a simplistic, normative way and interpreted objects found in burials as direct reflections of the social statuses of the individuals. This processual approach promoted discussion of isolated aspects of identity, while research using a Western taxonomic point of view pigeonholed and classified individuals into rigid categories, such as elite/non-elite. However, discussion of individuals and their identity began to gain popularity.

In the 1970s, Arthur Saxe and Lewis Binford used the concept of *individual identity* under the paradigm of processual archaeology. These two authors did not focus on individual identity in their work, instead using terms such as *social identity*, *identity relationships*, and *social persona* in a more general way to explore social status. Saxe (1970) presented a hypothesis-based model concerning mortuary customs in order to understand social organization. An important contribution of this work was his use of ethnographic examples to test different hypotheses. He used a functional and cross-cultural comparative approach, testing a model of evolutionary change, to explore regularities in processes that resulted in a set of mortuary customs. Two goals of this work were to: 1) explain formal disposal types found in any sociocultural system, and, 2) by doing this, show how the domains formed by these types can elucidate social organization. To evaluate these ideas he proposed eight hypotheses and concluded that there was a relationship between disposal mode for the dead and social organization.

Saxe (1970) employed Goodenough's (1965) terminology for social identity, identity relationships, and social persona. For Saxe (1970), *social identity* results from membership in a category of people, a social position, or a status. *Identity relationship* is defined as two or more social identities engaged in a social relationship. *Social persona* is a composite of several social identities selected as appropriate to a given interaction. A social persona is, by linguistic analogy, a grammatically possible composite entity and must conform to syntactic governing principles. The governing principles to which they conform are what Goodenough called rights and duties: "Rights and their duty

counterparts serve to define boundaries within which the parties to social relationships are expected to confine their behavior” (Goodenough 1965: 3). Goodenough (1965) suggested that rights and duties are two sides of the same coin. For example, “in any relationship A’s rights over B are the things he can demand of B; these same things are what B owes A. B’s duties in the relationship” (Goodenough 1965: 3). The concepts *social persona* and *intersectional identities* are similar in that both are defined by social relationships. However, the difference between the two is that social persona is governed by principles based on rights and duties. These principles are restrictive and bind the social interactions of the individuals. Alternately, research on intersectional identities emphasized the fluidity and dynamics of social practices portraying these identities. Saxe related the definitions of *social identity*, *identity relationship*, and *social persona* to different types of social organization and complexity in order to understand variability within a site and how the site was socially organized.

These principles allow for combining social identities into identity relationships, permit the association of identities with occasions of death and disposal, and highlight the compatibility of social identities as features of coherent social personae (which implies the incompatibility of other identities and personae). Saxe also suggested that ego’s position in a web of social relationships, a set of social personae (in their syntactic principles), reflected the organizing principles of the larger social structure. Similar to Saxe (1971), Lewis Binford also began to use the concept of identity to interpret past behaviors.

In 1971, the landmark volume *Approaches to the Social Dimensions of Mortuary Practices* was published (Brown 1971a). It contained papers originally presented at a symposium held at the annual meeting of the Society for American Archaeology in 1966. A chapter contributed by Lewis Binford, one of the central figures in processual archaeology, aimed at understanding the social organization of pre-state societies through cross-cultural examination of mortuary behaviors and subsistence practices (Binford 1971). He used subsistence practices as a proxy for understanding socio-political complexity and argued that the socio-political form and complexity of the organizational

characteristics of a society defined the form and structure of differential treatment of an individual in the mortuary customs of any society. Binford argued that there was a direct relationship between differential treatment at death and variation in social identity of the deceased. He further suggested that differential burial treatment represented the basic components of social persona. This social persona is symbolized through variables like age, sex, social status, and social affiliation. The combination of these variables allows for inferences about an individual's multiple membership units within a society and/or membership in the society itself.

The links that Binford outlined demonstrate a set of mutual dependencies between forms of mortuary rites and social organizational features. Mortuary customs are phenomena that consist of technical and ritual acts (Binford 1971). As technical phenomena, burial customs provide for the disposal of the decomposing corpse of the deceased. As ritual, mortuary rites execute a number of symbolic acts that vary in the form of symbolic elements employed and in the number and kinds of referents given symbolic recognition. Binford stated that the meaning assigned to symbolic forms was arbitrary and could vary independently from the referents and vice versa. Therefore, the examination of mortuary customs within socio-cultural systems becomes an investigation of the distribution of communication systems. Additionally, the study of mortuary customs becomes an investigation of the degree to which there are links between the symbol systems and referential units. Binford (1971) commented on the possibility that groups can employ the same symbols but with contradictory meanings; one reason why it is very important to be aware of the context(s) in which symbols are presented. He also believed that some symbols can represent group identity but each member of the group must be able to recognize the meaning and symbolism.

Binford (1997), like Saxe (1970), drew on Goodenough (1965), including the terms *social identity*, *identity relationships*, and *social persona* in his lexicon. Binford (1971) thought that archaeologists could expect the expression of the *social identity*, *identity relationships*, and *social persona* of the deceased in mortuary customs as a composite recognition of an individual's status and position in life. Furthermore, Binford

(1971:17) noted that “we expect that the facets of the social persona symbolically recognized in the mortuary custom would shift with the levels of corporate participation in the ritual, and hence vary directly with the relative rank of the social position, which the deceased occupied in life.” He claimed that the form and complexity of the organizational characteristics of the society itself conditioned the form and structure of such differential categories, which characterize the mortuary customs of any society. He suggested that in order to understand change in the society, we need to understand the forces operating on socio-cultural systems as a whole, and only then can the causal nature of change be understood. His work centered on how mortuary customs reflect social organization and status of the individual based on the social identities and social personae of the dead.

The ethnographically derived works by Binford and Saxe were complementary and suggested that there may be a relationship between the social status of the deceased and the relative amount of treatment, energy expended, or grave goods in the burial of an individual. This approach became very popular and many scholars tested and reformulated the approach throughout the late twentieth century. This perspective is often called the *Saxe-Binford approach* (e.g., Brown 1995; Rakita and Buikstra 2005a). This viewpoint has clearly influenced the field of funerary studies and cemetery analysis, both in the Americas and Europe. Studies that adopted the Saxe-Binford approach include those by Tainter (1975), O’Shea (1984), and Mainfort (1985). Research that focused on the study of intra-site social differentiation included work by Chapman (1977), Gruber (1971), Hodson (1977), King (1969), Mainfort (1979), Rothschild (1979), and van de Velde (1979). Some chapters in the seminal edited volume by Chapman, Kinnes and Randsborg (1981), entitled *The Archaeology of Death*, also focused on social differentiation and adopted the Saxe-Binford approach. Researchers using multiple sites but maintaining a focus on social differentiation and complexity included Brown (1971b), Greber (1979), Peebles (1971), Peebles and Kus (1977), Renfrew (1973), and Tainter (1975; 1977). For example, the works by Peebles (1971), on Moundville and the Pickwick Reservoir in northern Alabama, and Peebles and Kus (1977), on archaeological

correlates of ranked societies, equated elaborate and unusual artifacts and individuals buried on platform mounds with high status individuals. Another example is the work by Tainter (1975, 1978) on social change in the Woodlands of West-Central Illinois. Tainter's model centered on energy expenditure invested in the burials to infer social ranking. He also proposed that rare and unique burial objects directly related to individuals of high status. Braun (1981) commented on the multivariate statistical analysis of burial practices used by Tainter (e.g., 1975, 1978). Braun (1981:389) suggested that Tainter's "analyses and interpretations can incorporate weakness ranging from faulty data coding and the misapplication of statistical procedures to biases in the statistical and logical procedures employed." Braun also mentioned that these types of particular analyses could be highly ambiguous and contradictory to the interpretations proposed by Tainter.

Several other authors, such as Peebles (1971) and Peebles and Kus (1977) also used the interpretation of social organization based on multivariate statistical analysis, and it became common to use energy expenditure on burial practices as a measure of rank. In addition to the inappropriate use of multivariate statistics in this type of work, as Braun mentions, there are other factors to consider when using energy expenditure as a measure. To equate energy expended on burials with rank is highly problematic, as several components of these practices may not leave archaeological traces. Also, energy expenditure on burial customs cannot be used as a universal measurement of rank but needs to be evaluated within a specific culture at a specific time period. I also consider that the work by Peebles (1971), Peebles and Kus (1977), and Tainter (e.g., 1975, 1978) did not explore in depth the complex relationship that exists between material culture, the individual, and burial customs, and simplified the models proposed by Saxe and Binford. As Rakita and Buikstra (2005a) point out, the results and conclusions of Saxe and Binford have been oversimplified by many researchers. Nonetheless, through time the work by Saxe and Binford became popular in conjunction with a series of critiques from post-processual archaeologists.

The “Saxe-Binford” Approach and Post-Processual Critiques of Social Status Intersections

Goldstein (1976) revisited and reformulated the work of Saxe six years after Saxe's seminal publication. She argued that it was necessary to add to the study of mortuary customs a multidimensional approach within a spatial framework, a suggestion later advocated by Chapman (1981). Specifically, Goldstein reformulated Saxe's hypothesis number eight¹. Along with James Brown, Goldstein noted that the disposal area is highly significant as an element of mortuary customs. In reaction to the work of Saxe and Binford, post-processual critiques also began to appear, especially within mortuary practices. For example, Hodder (1980, 1982a, 1982b, 1982c), mainly using ethnographic examples from the Nuba in Sudan, examined the social construction of cemeteries in order to interpret social organization. He pointed out that cemeteries represent the “ideal” social organization but not the “real” social organization. Hodder also argued that the attitudes of the living could be observed in the attitudes toward the dead but in an inverted, diffused, and distorted way, so we are not going to have an exact pattern of the living population in the mortuary evidence. Hodder proposed that attitudes toward death are not simple correlations between social organization and burial types. He argued for careful examination of ethnographic data to look for evidence of social organization, as well as evidence to assist in the interpretation of symbolic principles and ideologies.

On the other hand, Shanks and Tilley (1982) examined the definition and notion of ideology using skeletal remains and material symbols from Neolithic barrows in Wessex and Cotswolds in southern England and from southern Sweden. In their analysis,

¹ “Hypothesis #8: To the degree that corporate group rights to use and/or control crucial but restricted resources are attained and/or legitimized by means of lineal descent from the dead (i.e., lineal ties to ancestors). Such groups will maintain formal disposal areas for the exclusive disposal of their dead, and conversely” (Saxe 1970: 119). Goldstein (1976) modification read as following “To the degree that corporate group rights to use and/or control crucial but restricted resource(s) are attained and/or legitimized by lineal descent from the dead (i.e. lineal ties to ancestors), such groups will, by the popular religion and its ritualization, regularly reaffirm the lineal corporate group and its rights. One means of ritualization is by the maintenance of a permanent, specialized, bounded disposal area for the exclusive disposal of their dead” (Goldstein 1976:254)

they concluded that symbols involved in ritual such as the creation of the burial played an active part in the misrepresentation or concealment of real social relationships. In another study, Tilley (1984) and Miller and Tilley (1984) explored mortuary customs within the Funnel Neck Beaker and Battle-Axe/Corded-Ware traditions of southern Sweden to understand power strategies and modes of legitimizing asymmetrical power relations in small-scale, lineage-based societies. They concluded that mortuary practices included manipulation of material culture to legitimize social domination and conceal social contradiction.

Parker Pearson (1982) analyzed mortuary customs in modern and Victorian England, concluding that burial rituals are susceptible to ideological manipulations within the construction of social strategies. However, even though these critiques were very valuable they mainly centered on the living community and how they interacted with the dead. These types of critiques ignored the dead as the main focus of the funeral. Likewise, Pader (1982) had similar critiques to those of Hodder, Tilley and Miller, and Tilley, among others. However, Pader used a framework linked to structuralism and Marxism. She stated that the use of symbols and their meanings in funerary customs vary depending on where and how they are used, and that material culture will not directly objectify real-life relationships. McGuire (1988) suggested that burial rituals do not necessarily refer to actual relations of power in a society, but rather to idealized expressions of these relationships. He based his arguments on results from a study of gravestones from Broome County, New York. The proposal by McGuire (1988) follows similar ideas by Hodder (1980, 1982a, 1982b, 1982c), Shanks and Tilley (1982), Tilley (1984), and Miller and Tilley (1984), among others, deriving from early postprocessual critiques. However, these scholars were not the only ones who contributed to a better understanding of past burial customs.

Cannon (1989) developed another important critique for the meaning and variability of mortuary behaviors. He did not directly focus on status as an identity marker but he made a comparative analysis of mortuary behaviors to study variability and elaboration of particular archaeological burial assemblages. To explore this topic, he used

three case studies: Victorian to modern England, Historic Northeast Iroquoia, and ancient Greece. He found that changes in mortuary behaviors could be explained through cyclical changes in ostentation. These changes are examples of a continued transformation of culture through symbolic expression of social aspirations. In addition, the intensity of these cycles resulted from social tensions and status comparisons among individuals. Common processes of human social and expressive behavior developed the intensity of these cycles (Cannon 1989). Cannon's (1989) work was published several years ago, but I feel it is an important example of the importance of contextualizing the study of burial customs through time.

Ian Morris (1991, 1992) made important contributions to the study of mortuary customs by evaluating Saxe's original claims through three data sets: a generalized ethnological model, specific ethnographic data, and a historical comparison. He evaluated the relationship between burial and property transmission. Morris concluded that the relationships between burial and property transmission are not static, they can change over time and these changes need to be considered when analyzing ancient mortuary customs. Morris's (1991) contribution validated what Goldstein (1976) and Saxe (1970) proposed. In addition, he mentioned that the relationship between cemetery, dependent group, and power is only one aspect of the mortuary custom that can be analyzed. His analysis was a good example of how to integrate other classes of mortuary data with the analysis of skeletal remains. Morris, however, was not the only one to validate and revisit the work of Saxe (1970).

During late twentieth century, revision of the "Saxe-Binford" approach were observed in the edited volume *Regional Approaches to Mortuary Analysis* (Beck 1995a). This important volume goes beyond exploring intra-site variation to explore regional frameworks in order to understand variations in style, size, and content of burial customs. Brown's (1995) contribution to this volume centered on the "Saxe-Binford" approach, and he mentioned that one problem area in mortuary custom studies was the identification of determinant factors on behavior and conditions under which these were most likely to operate. He noted that the two main contributions of the Saxe-Binford

approach were complementary: Saxe focused on the organization of patterned differences in material culture on mortuary customs while Binford focused on the cross-cultural comparison of such patterns. Together they shared concerns for the social sources of patterned variability in mortuary treatment. Brown also mentioned that the “Saxe-Binford” approach, utilized by processual archaeologists especially in reference to the ideas of Goodenough, reflected a Western concept of burial of the dead by assigning social identities to individuals buried in particular graves. The definitions of *social identity* and *social persona* that Saxe and Binford adopted are more “egocentric,” differentiated, bounded and autonomous. Within studies of mortuary customs, other researchers moved away from these definitions and expanded to other areas of research.

Most studies of social status have broadened considerably through time and adapted to explore more in depth social inequality, social integration, and changes in power social relationships (Brumfiel 1992; Buikstra et al. 2005; Kuijt 1996). Kuijt (1996), for example, addressed social integration through the study of funeral customs. He examined the role of secondary mortuary rituals as a means of examining social integration during periods of social, economic, or environmental change in the Late Natufian and Pre-Pottery Neolithic A periods of the south-central Levant. He reevaluated notions of the emergence of social inequality in the past and investigated funeral customs in a more dynamic and multidimensional way (Kuijt 1996). Buikstra et al. (2005) explored changes in power relationships and local political economies within the complex interactions between the Chiribaya and Tiwanaku peoples of South America. They used multiple lines of evidence, including artifact distributions, artificial cranial deformation, and isotopic evidence of diet, in order to explore power relationships in this area. These broader works on changes in power relationships and social inequality are very exciting and useful as models to analyze past social dynamics.

Other researchers examined health and quality of life among particular subgroups within populations, to address social inequality in a very interesting way (e.g., Ambrose et al. 2003; Barrett and Blakey 2011; Robb et al. 2001; Sullivan 2004). For example, Ambrose et al. (2003) used multiple lines of evidence, such as dietary differences and

burial style, to examine status and gender differences among the Mound 72 burial sample at Cahokia. They mention that some burials associated with higher quantities of prestigious grave goods were of high status individuals in contrast to a mass grave of young adult females of lower status. However, their contribution was that they found dietary differences among individuals from these assemblages. For example, individuals in burials identified as high status consumed higher quantities of animal protein and lower quantities of maize. In contrast, individuals from the mass burial identified as low status consumed higher quantities of maize and lower quantities of animal protein. This work, using multiples lines of evidence, provided new insights into social and nutritional inequalities among the Cahokia populations. Within studies of inequality there also have been many interesting archaeological studies focusing on slavery (e.g., Andrews and Fenton 2001; Barrett and Blakey 2011; Gibbs et al. 1980; Young 1995). For example, Barrett and Blakey (2011) through the study of human remains, paleopathological conditions, and quality of life in an African slave burial ground, clearly demonstrated social differences in stress-related experiences over the life course of the enslaved population. These types of studies go beyond identifying social distinctions within populations and power relationships to an in depth understanding of how different groups experienced social inequality during their lives. An increased number of studies also examined the intersections of social differentiation with sex, gender, age group, and group affiliation, to integrate discussions of inequality with larger social processes. I will discuss these trends later in this chapter within the sections entitled “Sex and Gender Intersections,” “Aging, Life Course and Life Cycle,” and “Ethnicity and Group Identity Intersections.”

Moving from Social Status to Other Aspects of Identity

Marxism, structuralism, post-structuralism, and feminist researchers, among others, also influenced the manner in which archaeologists studied individuals and their particular intersections of identity in past societies. In the 1980s and throughout the

1990s, researchers outside archaeology continued to influence archaeological methods and theories. Pierre Bourdieu, Anthony Giddens, Michael de Certeau, and Richard Jenkins are amongst the social theorists who greatly influenced how archaeologists view and study individuals. Their theories were used to evaluate social relationships between individuals and between groups of individuals within a society. These scholars proposed that societies could not exist independently of their constituent individuals and proposed to reevaluate the relationship between the society and the individual's actions. This view promoted moving away from restricted categorizations and influenced archaeological approaches with a *gestalt* shift in how to interpret the past.

Pierre Bourdieu's theory of practice and his notion of *habitus* were key concepts in the theoretical construction of how archaeological research studied individuals in the past. Bourdieu (1977, 1990) suggested that subjects are active agents who are aware of societal rules, the possible results of actions, and the decisions and motives that underlie those actions. He also acknowledged a need to recognize that actions are performed using conscious reason, but that individuals may undertake these actions with subconscious motives. Practice theory states that objects of knowledge and individuals are constructed. A central concept of practice theory is *habitus*, which references the reciprocal construction and transformation of social structure through the actions of individuals. *Habitus* specifies different conditions of production, which are influenced by possibilities, impossibilities, freedoms, and necessities of an individual in a society. Additionally, how an individual pre-adapts or adapts to demands and strategies used within a group will affect the *habitus*. This model of society permits agents to contribute in some sense to construction of the world in which they live as they engage with its social and institutional structures. However, an individual's knowledge may not be perfect and their actions may have unexpected consequences as they are constrained by other individuals. Another author key to discussions of relationships between individuals within a society was Anthony Giddens.

Anthony Giddens' (1984, 1991) discussion of the relationship between agency and structure, his use of the concept of *practical consciousness*, and theory of *structuration*

are well known. Giddens distinguished reflexive monitoring and rationalization of actions from the nature of motivations. He emphasized that actors are not passive subjects, but are embedded in performance and actions and that this involved a rationalized process. The use of reason involves intentionality, that is, situations in which actors can explain their motives if asked. Motivation refers to the potential for action rather than to the mode in which agents carried out actions over time. The notion of practical consciousness, which is fundamental to his theory of structuration, suggests that there are differences between what people say and what they do; individuals at any point can act differently depending on their individual desires or power. Giddens argued, however, that rules and resources drawn upon in the production and reproduction of social actions are simultaneously the means of a system of reproduction, and this creates a duality of structure. This is one of the main propositions of structuration theory. He emphasized the importance of routine in social life and that the process of observing social norms creates a cycle that reproduces institutionalized practices. Giddens has been erroneously critiqued as being an institutional determinist. These critics ignored his discussion of the duality of structure in which he suggests that agents and structure are both produced through a structuration processes (Joyce and Lopiparo 2005).

Michael de Certeau (1988) is another researcher engaged in practice theory who provided an important perspective on the study of identity in past populations. He was a French Jesuit scholar greatly influenced by the work of Sigmund Freud and Jacques Lacan. De Certeau viewed individuals as agents with more freedom of action, arguing that the schematas that guide people in everyday life are not very comprehensively integrated (Joyce and Lopiparo 2005). Bourdieu's notion of strategies is similar to de Certeau's notion of tactics, although tactics are improvisations under the social structure. De Certeau's work centered on understanding everyday "ways of operating," or doing things, and he proposed that studying these practices should not center on individuals but on relationships. His analysis demonstrated that relationships are always socially determined; the individual is the locus in which an incoherent (often contradictory) plurality of such relational determinations interacts. What is important, however, is how

the individual acts. De Certeau also stated that the intention of his work was to explain the system of operational combinations, which composed a “culture” or a society, and to explain the models of actions by individuals where their statuses are the dominant elements in society. This focus on relationships and actions was an important and novel component of this research. De Certeau’s main contribution was the contextualization of relationships and actions, which are very relevant to archaeological studies of identity.

I consider Richard Jenkins (1996) to be another anthropological scholar who contributed significantly to the understanding of identity. His core argument was that both individuals and collective identities could be understood using the same model of internal and external processes. He argued that social identity is a characteristic property of humans as social beings developed in the eyes of the beholder(s). This approach emphasized notions of differences and similarities in the constructions of identities. In addition, identity was viewed as actively embedded in a context of agreement and disagreement, always negotiable. The work of Jenkins, especially his emphasis on the differences and similarities of actions embedded in a context of negotiation, is essential to the research presented here and facilitates the understanding of past relationships. Pierre Bourdieu, Anthony Giddens, Michael de Certeau, and Richard Jenkins were influential in the development of many theories and subsequent critiques of many different studies that focused on particular intersections of identities. For example, Bourdieu and Giddens also influenced studies of ethnicity, as will be presented later in this chapter. The works of Jenkins and de Certeau influenced the use of practice theory in studies on gender and embodiments, among others. However, there are other researchers and research trends, such as those from feminist theory, that advanced methods and theories used in the study of ancient identities and challenged the way we think about individuals in the past.

Sex and Gender Intersections

Feminist theory has been particularly influential in gender and identity studies in archaeology. This dissertation research does not explore in depth gender differences

between individuals through time and space, as the skeletal remains are fragmented and in many instances it was not possible to estimate sex. Nonetheless, it is important to emphasize that feminist theory and gender studies have influenced archaeological and identity studies. While not all gender archaeology allied with feminism, the two have evolved symbiotically (Gilchrist 1999). Feminist research has advanced in three waves, although this classification is sometimes controversial and difficult to delimit (Geller 2008). The “first wave,” roughly between 1880 and 1920, consisted of the time women achieved public emancipation and greater rights in public realms such as in politics, education, and employment (Gilchrist 1999). The “second wave,” during the 1960s, focused more on personal issues of equality in relation to sexuality, reproduction, and fulfillment (Gilchrist 1999). The “third wave,” and in my mind a phase very influential for archaeological identity studies trying to interpret the past, emerged over the last decade. This “third wave” embraced elements of postmodern thought and centered more on cultural and symbolic approaches, with an interest in understanding differences between men and women (Gilchrist 1999). The work of Michel Foucault greatly influenced this “third wave,” sometimes referred to as postmodernist feminism. Particularly influential were the ideas that each human agent draws meaning and experience from competing, multiple discourses over a lifetime, and the rejection of ideas of universal laws of human experience and cultural relativism. These changes promoted examining and evaluating differences between individuals and social groups, and were especially important in identity studies in archaeology. The influence of feminist theory greatly advanced our understanding of gender differences in ancient populations.

Influenced by neo-evolutionary theory, previous studies in gender differences discussed single issues of identity from rigid binomial categorization, such as male vs. female, and sometimes using uncritical gender distinctions based on outdated Western generalizations of identity. For example, David Clarke (1972) proposed gender divisions in the site layout from his work at an Iron Age Glastonbury settlement. In his approach, he correlated size of structures and associated artifacts with gender differences. He attributed larger houses to areas of male activity and smaller houses to areas of female

activity. These conclusions could be accurate, but he does not base his assumptions on ethnographic models or solid archaeological evidence, instead using Western generalizations and predisposed ideas of gender roles.

One of the first feminist critiques of these types of studies was *Archaeology and the Study of Gender* by Conkey and Spector (1984). This milestone publication discussed androcentrism and the use of gender stereotypes. Conkey and Spector (1984) provided background information on feminist studies and proposed a new archaeological approach to the study of gender that broke “methodological barriers” to reevaluate assumptions in light of feminist research. The approach promoted gender-inclusive models, questioned universal ideas of gender roles, and questioned how specific activities are valued in developing a critical theory to study the past (Gilchrist 1999). Since the 1980s, there has been greater concern for visibility of women in the past and for understanding gender differences between women and men. In *Engendering Archaeology*, edited by Gero and Conkey (1991), researchers continued to problematize underlying assumptions about gender differences and associations to particular types of artifacts and features. These underlying assumptions about gender roles influenced how archaeologists studied the past and allowed for movement away from uncritical preconceptions. For example, the work by Watson and Kennedy (1991), using ethnographic information and archaeological evidence, proposed that women domesticated plants through their activities in plant processing, disturbing soils, and introducing seeds. Their conclusions question fundamental assumptions based on androcentric ideas on the emergence of horticulture in the eastern United States. Part of the feminist critiques suggested moving away from broader cross-cultural generalizations and adopting a definition of gender centered on the population under study. Feminist studies continue to influence studies about the past.

More recently, research continued discussing differences between biological sex and the cultural construction of gender in more contextualized manners (e.g., Arnold 2002; Geller 2005, 2008, 2009; Hollimon 2001, 2011; Sørensen 2000; Stockett 2005; Stone and Walrath 2006). Arnold (2002), for example, commented on distinctions between gender and sex in mortuary practices. She favored maintaining the distinction

between the two while viewing sex and gender as part of an interconnected continuum rather than a distinct pair of binary opposites. Geller (2008), specifically focusing on bioarchaeological research, correlated important ideas derived from feminist inspired scholars, biomedicine, and bioarchaeology to gain a comprehension of sex through time. She promoted the contextualization of bodies from the larger archaeological setting. Geller (2008) suggested that bioarchaeologists should tap into the sizable body of feminist-inspired theory, a critique that I share. Within studies of gender differences in archaeology, the body itself began to gain center stage and studies of embodiment began to appear.

Researchers influenced by queer and embodiment theory have explored the production of gender by examining the life experiences of individuals inferred by the analysis of archaeological materials. Embodiment is how the physical body is shaped. The study of embodiment explores the human subject and the production of materialized actions and discourse (Joyce 2001a, 2001b, 2002). Several researchers juxtaposed identity and embodiment using a variety of data from the archaeological record (Fisher and Loren 2003; Joyce 2000, 2001a, 2005; Lee 2000; Meskell 1999; Meskell and Joyce 2003). Other researchers explored embodiment by analyzing variability in material culture and osteological studies of human remains (e.g., Fisher and Loren 2003; Joyce 2001a, Joyce 2001b, 2002, 2005, 2008; Meskell 1996; Perry and Joyce 2001). Joyce used embodiment as an analytical tool in several very interesting papers (2001a, 2001b, 2002) inspired by Judith Butler's theoretical framework. Joyce examined gender constructions within Classic period Maya and other Mesoamerican populations.

Judith Butler (1990, 1993), one of the central figures questioning the notions of sex and gender as analytical categories, is an important philosopher, feminist, and queer theoretician. Her work is influenced by figures such as Jacques Lacan, John Searle, and Michel Foucault. She has influenced the work of several archaeologists (e.g., Joyce 2001a, 2001b, 2002, 2005, 2008; Perry 2004; Perry and Joyce 2001). Among the most important debates that influenced archaeological thought is Butler's discussion of the uses and constructions of fixed categories of gender and sex and the concept of performativity.

Performative behavior is not a singular act performed through the voluntary will or creativity of an individual, but is rather a citation of iterable, regulatory norms which have binding power (Butler 1993). Butler suggests that these behaviors are continually created and recreated by our daily acts. Performing these acts creates the social reality in which we live, but this reality is still a social construction. One way in which she explored these performative acts was by deconstructing the use of fixed categories of gender and sex and by exploring what aspects of these terms are considered “biological.” Some authors commented on the practical problems of questioning the construction of sex, particularly when used for the estimation of sex on human remains (e.g., Sofaer 2006). It is impractical and perhaps erroneous to completely ignore “biological” data when interpreting the past, but these data should be evaluated within a particular culture. Nonetheless, Butler’s work on performativity has been influential in this research as has allowed me to explore repetitive practices and citations inferred from the archaeological record, particularly in exploring particular funeral customs, such as inhumations from 2100 B.C. to A.D. 475 in the Tucson Basin (as illustrated on Appendix A).

Moving away from Butler’s work, Perry (2004), for example, explored embodiment and sexual division of labor in the Greater Southwest. She used archaeologically and ethnographically documented sex-based differences in habitual labor and juxtaposed them with muscular-skeletal stress markers inferred in the human remains. She successfully explored relationships between operations of social power in the construction of sex, gender, and status in the North American Southwest. Sofaer (2006) also centered on the physical body in the book *The Body as Material Culture*. In this book, she proposed to view human remains as material culture and historical phenomena in order to bridge osteological studies and social theory. Her approach emphasizes that analytically the body should be conceptualized as the union between the biological body and the material body and both are social constructed. She proposed to analyze the body as material culture. Her view is interesting, but care is needed when evaluating the distinction between the biological body and the material body, in order to avoid ignoring biological realities that clearly influence the way bodies are treated and

were perceived in the past by ancient populations. These distinctions should be evaluated case by case and in a contextual manner, without assuming that they are universals.

In archaeology, studies of gender identity intersections and different overlapping spheres of social affiliation have slowly begun to replace studies in which single attributes of identity were the focus. Casella and Fowler (2005a) suggest that it is possible to employ one or many potential labels in describing the identities of an actor on two main axes. They argue that identity could be understood as multiple identities during one moment, over the span of a lifetime, or over a specific historical trajectory. Archaeologists typically explore two or three intersections of identity synchronically or diachronically. Studies often clearly differentiate gender and sex, but position gender as relationally intersected to other identities such as age, class, life cycle, and life course (e.g., Gilchrist 2000; Meskell 1999, 2002; Rega 2000; Sofaer 1997a, 1997b; Sofaer Derevenski 2000). For example, Sofaer (1997b) explores the relationship between age, life course stages, and gender in the Copper Age cemetery of Tiszapolgar-Basatanya, Hungary. She suggests, through her analysis of mortuary customs, that gender roles changed throughout the life course and proposes that identifying age-related trends that differed between men and women was a way to recognize gender difference in the archaeological record. Other researchers examine gender in relationship to kinship (Brumfiel 1992; Joyce 2000b; Meskell 2002). Other examples exploring multiple intersecting identities include the interesting edited volumes by Casella and Fowler (2005b) and Díaz-Andreu et al. (2005). Studies of gender-identity intersections and different overlapping spheres of social affiliation have proven to enrich the discussion on past social relationships between groups and individuals.

The value of these types of approaches is significant. Wylie (1992, 2002) pointed out that feminist initiatives illustrated how a range of empirical and conceptual resources can be used to critically evaluate not only conventional interpretations of the past but also how our own assumptions inform our interpretations. However, these approaches have not been without their critiques. For example, Tiesler (2012), commenting on studies by Meskell and Joyce (2003) and Sofaer (2006), considered the datasets insufficient to

properly evaluate the interpretations. These types of critiques are important, and adequate datasets are necessary to properly infer and interpret social practices in the past.

Aging, Life Course, and Life Cycle

Interest in observing gender differences and documenting the roles of women in the past influenced the study of other specific intersections of identity in archaeology, such as those related to aging and children. Archaeological studies on aging and children in particular began to gain popularity after the 1970s. The role of children's play in the possible displacement of artifacts has been addressed by authors such as Hammond and Hammond (1981) and Sutro (1991). Lillehamer (1989) discussed classification problems and limitations in terms of visibility for distinguishing children in the archaeological record. She also proposed an approach which concentrated on exploring the relationship of children to their environment and to the adult world. Edited volumes, such as those by Morre and Scott (1997), and Sofaer Derevenski (2000), also influenced the study of children in ancient populations. The primary interest of these volumes was reconstructing the materiality of children's lives, socialization, and learning.

Sofaer (1994; Sofaer Derevenski 2000) commented on the lack of research on children and their attributes in archaeological studies. One reason is that children exist only in relation to concepts of *adults*, *maturity*, and western notions of compartmentalisation of the human life cycle (Sofaer 1994; Sofaer Derevenski 2000). She suggested that in order to access children in the past it is useful to examine the intersections of age, gender, and status (Sofaer 1994; Sofaer Derevenski 2000). Sofaer mentions that by studying children in the past, access can be gained to understanding how gender is acquired throughout life as children are the learners and practitioners of gender (Sofaer 1994, 1997; Sofaer Derevenski 2000). This approach is fine and very useful; however, centering only on children as a way to understand adults does not allow for understanding children in their own sense. Children can be perceived in these types of

studies as passive agents or even passive appendages to women, a critique pointed out by researchers such as Lillehammer (2000), Wilkei (2000), and Lewis (2006), which I share.

Another important work entitled *The Archaeology of Childhood: Children, Gender, and Material Culture* is by Baxter (2005). This book aimed to recognize and problematize the study of childhood in the archaeological record. The work employed the concepts of socialization and gender in order to understand the relationship between ontological and social development. Baxter noted that the definition of childhood varied among cultures, and that members of each culture hold a unique set of expectations for the roles and behaviors appropriate during childhood. She stated that the notion of childhood is usually perceived as a dualism between nature and nurture and is often related to age-change categories. Baxter (2005) suggested that one could not study childhood as a *tabula rasa*, nor as simply part of a stage in a human life cycle. The study of children needs to be more contextualized and culturally specific in order to center on the children themselves and not as future adults.

Other studies, such as the innovative study by Crown (1999), explored craft production by children using knowledge of the psychology of development as a way to distinguish between child and novice artisans. Researchers also identified children using measurements of fingerprints left on material culture, such as ceramic containers (Kamp 1998; Kamp et al. 1999; Stinson 2004). A critical approach is necessary when defining children using the body as a universal development phenomenon, as specific cultural notions of “children” could be ignored. This critical approach is necessary in order to avoid uncontextualized interpretations of the past (Baxter 2005; Joyce 2000; Joyce and Claassen 1997; Kamp 2001; Lucy 2005a; Sofaer 2011). It is also important to recognize developmental and biological phenomena, as they are important and affect how children related to the world and were treated by others. However, archaeological studies on aging expanded through time and have explored the growth and development in many different ways.

Researchers within aging studies have also use life cycle approaches, and these types of research have moved beyond children to analyzing individuals throughout their

life courses (Appleby 2010, 2011; Gilchrist 2004; Meskell 1999, 2000). Approaches to studying past life course and life cycle are different; however, their distinctions are not always very clear (e.g., Gilchrist 2000). Studies of life course center on stages of an individual's development (e.g. childhood, adulthood, old age). On the other hand, life cycle studies attempt to understand human life as a continuum (Gilchrist 2004). In a similar vein of studies on life cycle but focusing on an individual level, the osteobiographic approach originally proposed within physical anthropology has also been used. Reconstructing individual identity in physical anthropology has a long tradition, probably influenced by the rise of forensic anthropology as a subdiscipline.

Reconstructing individual identity in past populations is apparent in the works of Frank Saul (1972) and Frank and Julie Saul (1991). In these works, Frank and Julie Saul introduce the term *osteobiography* inspired by methods for positive identification used in forensic anthropology. In this approach, the main goal is to identify an individual by reconstructing the biological profile of human remains through the estimation of age at death, sex, stature, and pathological conditions, among others. This approach centers on the individual and is mainly methodological, with minimum theoretical engagement. Several researchers in bioarchaeology explored single issues of identity using the osteobiography approach; however, it was not until recently that this approach engaged theoretical developments within archaeology (Goldstein 2006). Studies on identity, disability, disease and care are among those that have been more engaged in the social implications of a particular identity (e.g., Hawkey 1998; Knüsel 1999; Mollenson 1999; Roberts 1999; Tilley and Oxenham 2011). These studies seek to understand the reaction of both the individual and society (Buikstra and Scott 2009). For example, Hawkey (1998) used the osteobiography approach to examine an adult male from the Gran Quivira Pueblo, New Mexico. She discussed how this male had a debilitating disease that began in childhood and lasted until death in his middle adult age, and how due to the severity of his condition he was dependent on at least one group member for his well-being throughout his life. Her study diverged from the original osteobiography approach

by being more engaged in the social implications of this individual's particular identity and interaction(s) within the community.

Along a similar theoretical line and building on the work of the Sauls (1972; Saul and Saul 1989) and Hawkey (1998), John Robb (2002) proposed the use of the term osteobiography as a cultural narrative. Similar but more explicit than previous studies, Robb (2002) suggested that through the study of human skeletons as biographies and cultural narratives one could understand past life events and the history of human remains after death. He illustrated his approach with a case study of an individual from the Neolithic village of Catignano in the lowlands of Abruzzi, Italy. He suggested that a “cultural osteology” must carefully evaluate the relationship between biology and culture in these interpretations. For example, Robb (2002) stated that we cannot draw direct connections between age, cultural status, and paleopathology, and similarly we cannot draw direct connections between sex and gender. We cannot assume that there was a relationship between these biological phenomena and their cultural expressions. A middle ground is necessary in which biological processes are recognized but contrasted with contextual cultural interpretations without rigidly dictating the way they were understood in the past (Robb 2002).

Most recently within bioarchaeology, an edited volume by Stodder and Palkovich (2012), *The Bioarchaeology of Individuals*, emphasizes the osteobiography approach as a methodological and theoretical tool. However, the original ideas of the Sauls (especially Saul 1972; Saul and Saul 1989) were the main influence on contributors to this book. Interestingly, none of the seventeen contributions in the volume of Stodder and Palkovich (2012) cited the work of Robb (2002). Nonetheless, this volume presents different case studies that described the biographies of individuals throughout their life by careful examination of the human remains and archaeological contexts.

Archaeological studies of life cycles focusing on a population level began to be promoted by researchers such as Stoodley (1997, 2000), Meskell (1999; 2000), Gowland (2006; 2002), and Gilchrist (2004), among others. Stoodley (1997, 2000), studying early Anglo-Saxon burial rites in England, correlated burial objects, age at death, sex, and

burial rites to understand social life cycles. Stoodley (1997) used osteological and DNA analysis to determine an individual's sex, although his methods are not described in detail. Meskell (1999; 2000) for example, explored narratives of life experiences from pregnancy to death from the New Kingdom village of Deir el Medina (c. 1500-1100 BC), in Egypt. Other studies explored childhood transitions through time by using burial location and presence of burial objects of Romano-British children from Hampshire (Gowland 2001, 2002, 2006). However, other age categories such as adolescents are still understudied and require similar levels of attention (Gilchrist 2004). Some studies on aging suggested that we should avoid the use of age categories in order to avoid imposing our own perceptions of important age, social, or developmental transitions (e.g., Baxter 2005, 2008; Gowland 2006). Other research has drawn parallels between children and the archaeology of gender to understand cultural constructions of children in different ways (e.g., Ardren 2006; Baker 1997; Baxter 2005, 2008; Joyce 2000; Kamp 2001, 2006; Rothschild 2002). In these studies, aging was not simply a biological process; aging was a cultural construct characterized by different forms of knowledge, social roles, and symbolic meanings (Baxter 2008; Buikstra and Scott 2009). Research using intersections between different ages and gender also has been popular and promises to be an area of great growth in the near future (e.g., Arnold and Wicker 2001; Babić 2005; Baxter 2008; Díaz-Andreu et al. 2005; Geller 2008; Joyce 2008; Sofaer Derevenski 2000; Sofaer 2011; Sørensen 2000).

Ethnicity Identity Intersections

Ethnicity is another single identity attribute studied for a long time in archaeology. Ethnicity is defined as the feeling of social belonging based on culturally constructed notions of shared origins, and other types of communal identity, such as those based on territory (Lucy 2005b). However, only relatively recently have archaeological studies examined ethnicity in a fluid and changeable manner. Earlier archaeological studies mainly based group identification on studies of material culture

and conceived of groups as sharing biological affinity, a language, and/or a whole suite of material culture (Lucy 2005b). Gordon Childe for example stated that a culture could be identified by the presence of certain types of remains such as pots, ornaments, and implements, and subsequently “people” could be identified by studying these types of material culture (Jones 1997). In doing this, he establishes the basis for the idea that a limited number of “diagnostic” features could identify the presence of distinct “people” in the landscape. Childe also pointed out that culture defined the “people” but that the “people” forming a culture would not necessarily speak the same language, act as a political unit or were related (Childe 1951). During the 1960s, researchers such as Binford (1965; 1962) and Clarke (1968) questioned normative concepts of culture as a simple reflection of norms and suggested that culture constituted cultural processes. However, there was a lack of interest in ethnicity as archaeological research during this period (Lucy2005b), with the exception of a few examples such as the debate between Binford (1973) and Bordes (1973) on Mousterian “facies” (Lucy 2005b). Bordes (1973) identified several Mousterian facies (stylistic groups) and attributed them to different human groups or ethnic groups. On the other hand, Binford (1973) interpreted the Mousterian facies as representing functionally different occupations within the same group. The emphasis in these types of research, however, was on socio-economic factors such as subsistence strategies rather than ethnicity. Despite these developments, some more recent processual and post-processual research still assumes the existence of homogeneous bounded societies or socio-cultural entities, which are correlated to ethnic entities (Jones 1997). Wider debates within anthropology followed the works of Bourdieu (1977, 1990), Richard Jenkins (1996), and Barth (1969). The work by Frederick Barth has been particularly influential in archeological studies of ethnicity.

Frederick Barth's (1969) *Ethnic Groups and Boundaries* questioned the processes involved in generating and maintaining ethnic groups, and how material culture differences related to group identity. This seminal work is probably one of the most cited references in ethnicity studies (Rowlands 1998). Barth suggested that ethnic groups and cultural units are not the same, and that the study of ethnic groups primarily should focus

on how ethnic boundaries are constructed and maintained. Several subsequent authors have suggested that the use of material culture was one way in which groups created, contested, and recreated their own cultural identity (Hodder 1978, 1982a, 1982b, 1982c; Shennan 1978; Ucko 1969). However, many critiques are directed at studies that analyzed material culture as “text” that directly reflects ethnic groups, without questioning underlying theoretical assumptions adopted by the researchers (Lucy 2005b). One example of this type of study in which material culture is used as “text” is the work by Sackett (1970, 1990). Sackett suggested that style and decorative aspects of material culture were passive aspects of artifacts intended to communicate group identity. However, he did not consider the different processes of manufacture or production nor the contexts in which the objects were used (Lucy 2005b).

Throughout the 1970s and 1980s, researchers accepted the idea of culture as a multivariable phenomenon that could result from several different factors and tested this idea through spatial and statistical analyses (e.g., Hodder and Orton 1976; Shennan 1988). Other researchers also began to question fundamental assumptions of archaeological studies of ethnicity. An example of this type of work is the volume edited by Shennan (1989), *Archaeological Approaches to Cultural Identity*. Contributions to this volume questioned what material culture tells us about social groups as well as the fundamental assumptions about the relationship between social and biological entities and group affiliation. For example, DeCorse (1989) studied three groups from Sierra Leone in Africa to explore relationships between material culture and group affiliation. He found that material culture patterns provided only limited indications of division among the three groups and that different social groups shared similar material culture.

In the 1990s and more recently, research themes have centered on correlating material culture differences with different ethnic groups by considering all the stages of production, or the *chaîne opératoire*, rather than just looking at static aspects and the object's final form (e.g., Conkey 1990; Díaz-Andreu 1998; Dietler and Herbich 1998; Edmonds 1990; Lemonnier 1993; Lucy 2005b). Díaz-Andreu (1998), for example, examined the use of Lliria pottery, considered diagnostic of the Iron Age Edetanian

territory. However, she found that Lliria pottery is highly associated with male elites and only used for a limited time span. Studying this pottery type in context revealed it was not just an ethnic indicator, but rather that its usage was more complex. Stone's work (2003) is more recent but followed a contextual analysis similar to that of Díaz-Andreu (1998) by employing different stages of material culture production. Her work was influenced by theoretical frameworks from Barth, Bourdieu, Jones, and Giddens, and explored social identity and ethnic interaction in the Western Pueblos of Arizona in a dynamic way. She used multiple lines of evidence derived from isochrestic styles and technology in architecture and utilitarian ceramic production at the Grasshopper Pueblo and Point of Pines sites and within the Silver Creek area. Her research focused on evaluating the nature of social interactions between migrants and indigenous populations, and she concluded that these differed between sites. In some areas, ethnicity was emphasized, in other areas ethnicity was de-emphasized, while in still other areas it was completely ignored.

As mentioned earlier, the landmark publication on the archaeology of ethnicity by Jones (1997), *The Archaeology of Ethnicity*, was particularly influential on Stone, among other researchers. In this publication, Jones argued that the construction of ethnicity is grounded in the shared subliminal disposition of social agents, which shape and at the same time are shaped by their commonalities in practices, or *habitus*, using the concept of Bourdieu. However, she suggested that *habitus* and ethnicity are not congruent. Different from *habitus*, ethnic identification involves an objectification of cultural practices in the recognition and signification of differences in opposition to others. Jones (1997), commenting on the works of Hodder (1979) and Kimes et al. (1982), suggested that only a few archaeologists questioned the very existence of ethnic groups as monolithic territorial entities and bounded units.

There are many interesting ways in which archaeologists and bioarchaeologists have studied ethnicity through time, such as examining mortuary customs, material culture, body modifications, diet, and biological ancestry. In Beck's edited volume, *Regional Approaches to Mortuary Analysis* (1995a), contributors such as O'Shea (1995),

Fisher (1995), and Beck (1995b) centered on the study of identities and boundaries. They focused upon representations of specific burial customs at multiple sites across single regions and the determination of cultural boundaries. Beck (1995b), influenced by the works of Goodenough on *social persona* and Barth (1969) on distinguishing ethnic boundaries, studied Copena burials along the Tennessee River and its tributaries. She examined these burials at a regional level and found differences in burial assemblages, biological data, and locations. Beck (1995b) also found that similarities in the divisions of groups based on material culture and site structure suggested that multiple community groups participated in a broader regional mortuary cult. Rowlands (1998) examined changes in textile, clothing ornaments, and burial customs in northern Germany from the early to middle Bronze Age. In the early Bronze Age he found great similarities in burial customs and ornaments, while in the middle Bronze Age there were much clearer distinctions and the development of regional divergence probably caused by trade and movement of people on the landscape.

In a very interesting study, Chesson (1999) examined ethnographic studies in conjunction with archaeological data to investigate patterns of material culture, skeletal remains, and built environments. She did this to reconstruct social organization of the early urban community of Bad edh-Dhra' in the Early Bronze Age Levant. Using ideas from Weiner (1976), she discussed the occurrence of social negotiation as well as the display and negotiation of both individual and group identity in the creation of both primary and secondary mortuary rituals. Another example is the work by Megoni (2010) who, working within the theoretical framework of Barth (1969), explored identity formation in three cemeteries in Baoxing, Sichuan province, China. She analyzed the integration of non-local elements in grave goods, differences in burial structures, and mixed patterns in funeral customs.

A significant and important area of research correlates cultural body modification patterns with ethnic identity in an interesting way (e.g., Blom 2005; Torres-Rouff 2002). For example, Blom (2005) studied regional differences in patterns of cranial modification in Tiwanaku society. She found that populations in the Miquegua valley of southern Peru

employed fronto-occipital cranial modification while populations in the Katari valley practiced annular cranial modification on a more regular basis. Her results indicated that diverse groups were drawn to the Tiwanaku capital and that cranial shape modification defined symbolic boundaries of the geographical area. Recent studies employed multiple lines of evidence and intersections to analyze ethnicity. Some studies explored intersections of ethnicity with landscape, architecture, and/or migration (e.g., Bender 2001; Blake 1999; Laviolette 2003; Owoc 2005; Wallis 2008).

Food consumption and preparation were other attributes used as signals of ethnic differences, again employing multiple lines of evidence and a variety of archaeological materials and methods, including isotope studies and zooarchaeological analysis (e.g., Barrett et al. 2001; Crabtree 1990; Knudson and Blom 2009; Montgomery and Evans 2006; Sutter 2009; White et al. 2009). For example, Montgomery and Evans (2006) used multiple lines of evidence to explore patterns relating funerary customs with isotopic signatures in order to discuss differences among immigrants from the Outer Hebrides of Scotland. They questioned whether “the 'hard' geological evidence [is] more reliable than the archaeological, given the fluid nature of human ethnicity, belief and culture, or is it also subject to uncertainties and unknowns in how it is manifested itself in the human tissue” (Montgomery and Evans 2006:122). In this work, they successfully problematized differences between the isotopic and archaeological results without automatically equating both results and were able to identify migrants through time in the Outer Hebrides. Other researchers, such as Stojanowski (2005, 2009), Nystrom (2009), Zakrzewski (2011), and Sutter (2009) integrated ethnicity and ethnogenesis in theoretical discussions with archaeological data, biodistance, and/or craneometry data. Zakrzewski (2011), using multiple lines of evidence from mortuary customs, strontium isotopes, and metric and nonmetric skeletal traits, explored ethnic identity among the medieval Islamic population of Écija, Andalucía. She concluded that ethnic identity among the population of Écija comprised intersections of religion, age, sex, and ethnicity allowing for new insights on within group variations. Studies that analyzed human remains within critical theoretical frameworks to understand social processes and identity formation proved to

have great insights into past ethnicities. Research that used multiple intersections of identity and multiple lines of evidence showed the greatest interpretative power and promise for future understanding of the complex ways in which past ethnicities can be studied.

New Directions in Identity(ies) Research

Archaeological approaches to identity have broadened considerably in the past decade. They have moved beyond single attributes of identity to investigate the multiple and overlapping ways in which identity was constructed in the past. These new ways for exploring multiple intersections of identity and its various relationships have proven to be more informative and useful than looking at single attributes. I agree with Meskell (2001a), among other researchers, who noted that concentrating on a single issue such as ethnicity or gender, without interpreting it along other axes of identity, is too simplistic and narrow. By using these new approaches, individual identities are better defined and consideration is given to the multiple ways in which identities can be formed, reformulated, and transformed within particular social practices and through time. Social actors belong to multiple identity groups at any moment in their lives (Casella and Fowler 2005a). These are new and innovative discussions in archaeological research that bring a balance between agency and structure, where emphases are on notions of actions and relationships that move toward broader spheres of interpretation. Individuals can be interpreted by the way they participate at different levels and scales in society and by looking at repetitive and innovative actions (Joyce and Lopiparo 2005; Pauketat and Alt 2005).

This review emphasizes research that breaks rigid boundaries and deconstructs classifications of previous identity studies in archaeology. However, the “usefulness” of viewing identities as fixed “hard” categories, as opposed to more “soft constructions” or fluid sets of identifications open to re-evaluation and reflexivity, has long been a topic of debate and still lacks consensus (Brubaker and Cooper 2000; Meskell and Pruecel 2006).

Meskel and Pruecel (2006) suggest that we should view past identities through the practices that occurred. Archaeological studies on identity have grown considerably over time and the new directions taken in many studies are exciting and promising. Studies of intersections between social memory and identity have gained popularity and are now a major theme in mortuary studies (Joyce 2001a; Knudson and Stojanowski 2008; Kuijt 2001; Meskel 2001b; Peleg 2002; Williams 2005). The integration of subdisciplinary research and approaches between archaeologists and bioarchaeologists is a specific direction that I consider one of the most exciting.

The integration of archaeological and bioarchaeological studies to address past identities is not a new trend and has been strongly promoted since the 1970s by Jane Buikstra (1977, 1991). The edited volume *Bioarchaeology and Identity in the Americas* (Knudson and Stojanowski 2008) is a clear example of the integration of bioarchaeology and identity theories in the study of past populations. This volume included the use of historical and archaeological data in conjunction with population genetic analysis, biogeochemical analysis of human remains, and analysis of bone modifications to understand the integration of both multiple individual identities and community identity. One contribution to this volume addressed particular intersections of identity using multiple lines of evidence from bioarchaeological research (Knudson and Stojanowski 2008). Additional research on more specific attributes of identity and bioarchaeology include the publication of Stojanowski (2005), and chapters by Hollimon (2011) and Roberts (2011) in the edited volume *Social Bioarchaeology*. Using multiple lines of evidence, these authors addressed specific aspects of identity such as sex, gender, ethnicity, and disability. Contributions to the volume *Social Bioarchaeology* and publications previously discussed in this chapter illustrate the importance of analyzing different aspects of identity at multiple spatial and social scales as well as the importance of using clearly defined terms. Furthermore, these types of work emphasize the interpretation of past social practices within their contexts without ignoring biological attributes that also influenced how people behaved and were treated and perceived by others.

General Overview of Personhood Studies

There is a general lack of concern in the definition and characterization of individuals or agents in archaeology (Dobres and Robb 2000: 8-9). Agents are too often portrayed as self-interested, rational, and pragmatic (Gillespie 2001; Ortner 1984; Robb and Dobres 2000). Joyce and Lopiparo (2005: 367), specifically commenting on the work of Clark (2000), mentioned that researchers “have posited a class of super-agents who act as if provided with perfect knowledge and unfettered self-centered intentions, the hyperactive agents are self-diagnosed and auto-critiqued.” These authors noted that this perspective derived from evolutionary ecology and Darwinian archaeology, narrowly focused on rationality, and assumed that the motivation was universally dominant for all actions. Many past societies were not individualistic and were more socio-centric, meaning the web of social relationships connected to a person constituted a significant portion of their individual identity (Brück 2006a, 2006b; Gillespie 2001; Meskell 2001a; Meskell and Pruecel 2006; Williams 2004). With these observations in mind, it is important to recognize that there exist alternative and variable conceptions of what constitutes personhood among different cultures, both in the past and at present. These observations require problematizing the concept of *person* with various researchers suggesting that persons are formed only through complex relationships (Douglas and Ney 1998; Fowler 2010). Determining what constituted a social person in the past is fundamental to any investigation of past identity(ies). It also is important to note that identity and personhood are not the same; some aspect or quality may become an identity marker, however, it does not mean that it therefore denotes a person (Fowler 2010). Following these observations and critiques, this research employs the notion of *personhood* or *person*, which is concerned with the construction of diagnostic or indexical relationships and linking people in a society to elucidate the portrayal of individuals in the past.

Marcel Mauss in the early part of the 20th century was one of the first anthropologists to question and problematize the notion of *person* or *self*. Mauss (1985) worked with data from many native groups across the world, including the Zuni; Native Americans from the Northwestern United States, such as the Kwakiutl; and several Native Australian groups, such as the Arunta, the Loritja, and the Kakadu. From this cross-cultural work, he suggested that frames of reference for personhood changed through time and space. Fowler (2010) emphasized that Mauss' work was not simplistic and argued that the terms of reference for personhood varied, as did the formulation and experience of being a person, according to distinct cultural ideologies. Fortes (1987) used the notion of *personhood* proposed by Mauss in his ethnographic work with the Tallensi. Fortes (1987) found that within this group individuals fully achieved personhood only at completion of the life cycle, e.g., maturation, marriage, procreation, death, and concomitant conversion into an ancestor. However, personhood was not conferred to all individuals. Personhood also was not exclusively conferred to humans, but sometimes also extended to special animals, such as crocodiles, used in rituals. Fortes (1987) also suggested that personhood among the Tallensi was also negotiated and dependent upon social relationships and in light of specific moral codes. This idea suggests that personhood is a social category, that it is inherently dynamic and relational, and that it only takes on meaning through the enactment of relationships.

Concern with the relational aspects of personhood is not new and goes back to the 1980s (e.g., Daniel 1984; Marriott 1976; Strathern 1988). Social anthropologists, such as McKim Marriott (1976), and in more recent years Debora Battaglia (1983, 1990, 1995), Marilyn Strathern (1996; 1988, 1999), Grace Harris (1989), Nurit Bird-David (1993, 1999), and Bird-David and Israeli (2010), among others, explored the notion of *personhood*. In some of these works, they used the notions of *dividual* versus *individual* to argue that individuals rather than being indivisible units were composed of transferable substances or relations. For example, Harris (1989) defined person and personhood in terms of the possession of agency and social recognition (Buikstra and Scott 2009). She further defined the self as a locus of experiences, or "psychologicistic," and the individual

as a single human being, or “biologistic” (Buikstra and Scott 2009). Buikstra and Scott (2009) mentioned that Harris’ definition of personhood extended to deceased individuals treated as an “agent-in-society.” Ancestors, deities, nonhuman animals, and objects considered inanimate may also be persons if their actions affect human lives. Marilyn Strathern (1988, 1999) suggested that individuals are a specified form of personhood derived from specific sets of relationships, beliefs, practices, and experiences. In addition, they are influenced by exchange, kinship and other economic concerns that produce personal experiences. These persons are individuals and “they are separable into particular parts, relations, flows or elements” (Fowler 2001: 139). This implies that cognition, self-awareness, and autonomy are not prerequisites for personhood.

Conklin and Morgan (1996: 658) argued that “personhood is a social category that is inherently dynamic; people invoke certain ideas about how persons are constituted to legitimize their actions and position themselves in relation to others.” Conklin and Morgan (1996: 659) also mentioned that in anthropological literature, Western *individualism* has often been described as *egocentric*, differentiated, bounded, and autonomous. This contrasts with non-Western persons that are described as *sociocentric* or less individuated, less autonomous, and more interdependent or relational (Glaskin 2012; Spiro 1993). Conklin and Morgan (1996) argued, and I concur, that the terms *relationality* and *individualism* are appropriate for describing the relative value ascribed, respectively, to social ties and autonomous agency. In addition, either could be explored within the notion of self in the particular culture and time under study without preconceived ideas that non-Western cultures are going to be *de facto* sociocentric. In much of the current work on personhood, this important critique has not been considered. Fowler (2010: 368) noted that when operating in an anthropological framework we should consider individuality as an aspect of personhood that is similar to the way that being biologically female is one aspect of a person’s gender. I interpret these two observations from Conklin and Morgan and Fowler to suggest that archaeologically it is necessary to ground the analysis of social practices within a specific time and context in order to explore personhood from a relational perspective.

There are many different ways that persons may be relational in a society, and material culture can play a central role in the production of personhood in individuals. In addition, personhood can be given to non-human beings such as animals, objects, places, and natural phenomena. For example, Nance Munn's *The Fame of Gawa* describes how personhood was generated among the Gawa through an intersubjective field of social *spacetime*. In addition, "bodies, along with gardens, food, shell goods, and canoes, can be seen as 'qualisigns' with certain types of value, 'that is they exhibit something other than themselves *in themselves*'" (Fowler 2010:369). This suggests that in order to evaluate what constituted personhood it is important to consider the role of material culture and human bodies as media through which personhood forms.

Fowler (2001) suggested that ethnographic research documents the significance of different spheres of agency in producing personal identity, whereas archaeology rarely engages at the same level of complexity in interpreting personhood. Nonetheless, in the last ten years archaeological research has increasingly emphasized the concept of personhood as an analytical tool for interpreting the past. These studies included research exploring relational personhood through the treatment of human remains, material object placements, and landscapes (Fowler 1999, 2001, 2004; Giles 2008; Jones 2005). Fowler (1999, 2001), working with data from the British Neolithic particularly on the Isle of Man, studied social relationships between different aspects of life, including humans, animals, objects, and places, to understand the creation of persons through activities. He considered that these social relationships presented a struggle for different kinds of ideological regulation, fictions about personal identity, and social relations. He stated that his intention was not to provide a unified interpretation or to homogenize all the different sites, as they represent distinctive local trends. I consider this distinction very important and take it as a cautionary note. He further stated that he wanted to call attention to the composition of the person as a set of social relations, and to highlight the under-studied relationships between complete bodies, body parts, animal bones, and objects. Sarah Tarlow (1999) also used the concept of *selfhood* and individual identities in the context of

material culture, mortuary patterns, and life histories of named persons in her work on the Orkney Islands during the eighteenth and nineteenth centuries A.D.

Gillespie (2001) has presented an insightful discussion of personhood. Based on the work of Mauss (1954), she suggested that the concept of personhood recognizes the importance of collective and individual identity and provides a critical sociocultural context for understanding relationships between groups and individuals. Similar to other researchers, she stated that personhood derived from the enactment of relationships in society, which included relationships between different individuals, groups, objects, and the living and dead, among others. These relationships should not integrate old notions of group identities or roles, but rather should be considered within a system of context or form of social actions. These relationships are open to negotiation, subversion, and transformation (Gillespie 2001). Such relationships will be apparent in social interactions, and through these interactions, the structure will be internalized. Furthermore, as people performed these actions they also reproduced and transmitted them. In this way, linkages to others in a group shaped social constructions that symbolized and denoted persons. Gillespie (2001) illustrated this well in her case study from the Classic Maya civilization, in which she evaluated mortuary events, artistic depictions, and texts from the perspective of the social collectivity to derive personhood. She suggested that the Maya corporate kin-based groups, known as *houses*, were a major source of social identities expressed in political actions and represented in mortuary customs and monumental imagery.

Jones (2005) evaluated the constitution of the person during the European Neolithic to explore the development of sedentism, agriculture, and construction of monuments. He also explored the transformations of people during these processes by considering the role that materiality played in forming social relationships. In his work, the emphasis was on social relationships and context. However, he covered an extensive geographic area (southeastern Europe, central Europe, and northwestern Europe), only briefly describing each region. The problem with this type of extensive regional analysis is that it blurs differences within each region. However, Jones's work is a good starting

point for exploring the constructions of personhood in more depth by exploring variability within each region.

Other studies focused on the analysis of social relationships by considering the use of human remains, objects, and places in the past (Brück 2001, 2004, 2006a; Williams 2003). Joanna Brück (2001) reevaluated the dominant discourse on monuments, power, and their relationship with personhood in the British Neolithic. She commented on the idea that the ordering of space in British Neolithic monuments contributed to the production and maintenance of the dominant discourse. Her main critique was that the principal idea behind this interpretation was a post-enlightenment and individualistic conception of personhood. She examined this issue using a sociocentric notion of personhood in which the self is fluid and relational. Brück (2001) suggested that the application of this alternative framework to her case study provided information on a shift to a contextual conception of power relations that are more easily reconciled with the evidence from Neolithic monuments and the continuous creation and reinterpretation of spatial meaning. In another work, Brück (2006b) examined different practices of the deliberate fragmentation of human bodies and objects in Middle and Late Bronze Age Britain. She examined the productive processes of potting and metallurgy as potent metaphors for the construction of the human self, focusing on evidence from settlements and mortuary sites (Brück 2006b). She suggested, “the rise of an ideology of the ‘individual’ during the Bronze Age may be inappropriate in this cultural context” (Brück 2006b:297). I find both of her works useful since they examine variation in body treatment and the different ways in which these variable treatments can be interpreted using not only the concept of “bounded” bodies, but also what these treatments meant in terms of a wider set of social relations.

Chapman (2000; Chapman and Gaydarska 2007) focused on the complementary practices of fragmentation and accumulation of objects and human remains. He used, in a very novel way, the concept of personhood derived from social relationships and transactions, material objects, and landscapes to understand wider themes of exchange and consumption. This work, however, did not provide an in-depth discussion of the

social significance of the relationships and transactions during the process of fragmentation. Casella and Croucher (2011) have noted that works on fragmentation and personhood led to innovative ways in which archaeologists interpret the division and breakage of objects in the past (Brück 2005; Chapman 2000). I consider this concept useful in addressing and exploring the practice of fragmentation and distribution of cremated human remains in the Preclassic Hohokam Period (Cerezo-Román 2013a, 2013b). These ideas build on those presented in Weiner's (1992) book *Inalienable Possessions: The Paradox of Keeping-White Giving*.

The book *Inalienable Possessions: The Paradox of Keeping-White Giving* (Weiner 1992) centered on the analysis of the norm of reciprocity, incest taboo, and women's roles in production. Weiner, originally exploring *mapula* or "repayments or equivalent" following ideas of Malinowski, went to the Trobriand Islands and discovered that the original ideas proposed by Malinowski were inaccurate and underdeveloped. She explored more deeply acts of reciprocity and complex transactions that they involved, and proposed the concept of *inalienable possession*. The concept of *inalienable possessions* has been used in archaeological studies, and is defined as "objects made to be kept (not exchanged), have symbolic and economic power that cannot be transferred, and are often used to authenticate the ritual authority of corporate groups" (cited in Mills 2004: 238). These types of objects are broken and circulated but retain meaning derived from their original relationship(s) where they became imbued with the intrinsic and ineffable identities of their owners (Weiner 1992). Inalienable possessions do not just control the dimension of giving, but their historicities are also retained for the future and have memories from the past (Weiner 1992). Transformation of the original objects into fragments and distribution of these fragments suggest a different way to maintain, reinforce, or form new social relations. When applied to the treatment of human remains, this transformation shifts from the personhood of the deceased as a complete bounded unit to that of part-object and part-person (Cerezo-Román b).

Living and Dead Social Relationships

One of the main postprocessual critiques (Hodder 1980, 1982a, 1982b, 1982c; Miller and Tilley 1984; Shanks and Tilley 1982; Tilley 1984) of archaeological mortuary studies is that the attitudes of the living can be observed in their attitudes toward the dead, but in an inverted, diffuse, distorted way. Therefore, we are not going to have an exact map of the living community in mortuary evidence. In addition, burials are a medium where the living negotiated and/or controlled the display of power. These critiques suggest a more active role by the mourners but diminish the role of the deceased as an individual and source of remembrance in mortuary customs (Meskell 1996; Tarlow 1999; Williams 2004). As previous bioarchaeological studies on identity and this chapter demonstrate, the dead are a very important source of relevant information for studying past identities.

The dead and the living are closely connected throughout the funeral ritual. The presence of the deceased's body in the funeral affects the decision-making process of the mourners, as documented in many societies (Bloch and Parry 1982; Hertz 1960; Malville 2005; Metcalf 1982; Metcalf and Huntington 1991; Robben 2004). These works suggest that researchers often underestimate the complex relationships between people and objects, including the mourners, the dead, material culture, and the concomitant transformation of social practices and structures (Williams 2004). In addition, based on the assumption that death in the past was seen as a biological event in which the body was preserved as a bounded unit, there is an overemphasis on the agency of the mourners. This assumption may be incorrect; many past societies held different perceptions of the body and death, including a view that the body was not necessarily a bounded unit and that it endured when an individual died (Brück 2006b; Conklin and Morgan 1996; Fowler 1999, 2001, 2004; Giles 2008; Jones 2005). This critique is analogous to those offered above with regard to *individualistic* as opposed to *sociocentric* notions of the self.

In 2004 Howard Williams presented a view, applied in this dissertation, which observed the dead as agents. Following the work of Hertz (1960), van Gennep (1960),

Metcalf (1982), Metcalf and Huntington (1991), and Robben (2004), Williams reiterated the point that death might not be seen in society as a termination event but as a transition. In this transition, the identity of the dead could be transformed but nonetheless continued to be closely connected to the living throughout the funeral ritual. In addition, the dead might influence the way(s) in which the mourners treated and buried the body. The identity of the dead and the way in which the living remembered the dead is the basis of the influence. By its presence, the body of the deceased provokes an agency that affects experiences, memories, and decision-making of the mourners and community (Chesson 2001; Tarlow 1999; Williams 2004). The way in which this agency is manifested varies, depending on the social context and culture. The deceased could leave instructions for the living concerning their treatment in death. In mortuary customs, the dead may also have a direct perceived influence via dreams, or visions, or in other forms. The mourners can be acting as agents for the dead by spirit possession or just by acting on behalf of the dead person. In all these occasions, the deceased have agency and retain an active role, through the living, in directing the form and character of the mortuary customs. This suggests that the physicality and materiality of the deceased and associated objects, structures, and places where the dead are disposed can be seen as extensions of the personhood of the dead that affect the remembrance of the deceased by actions of the mourners and society.

Elizabeth Hallam and Jennifer Hockey (2001) were also influenced by Howard Williams' (2004) agency approach to the living and the dead. Following Alfred Gell, Hallam and Hockey theorized the nature of the deceased as both person and object, and suggested the incorporation of the agency of art and artifacts. Although Williams notes that the use of this approach in the study of objects is still under debate, he believes that it has value for understanding the special role of the corpse as both person and object. The dead body has social agency through its relationship with associated artifacts, monuments, places, and the living.

The above perspective is especially interesting because the study of skeletal remains, mortuary customs, and posthumous treatments of the body can be integrated to understand how different aspects of personhood and identity are portrayed, emphasized,

and contested throughout the different stages of ancient funeral customs. The study of skeletal remains can be a valuable source of information for studies of identity and personhood. Data analysis can reveal whether the remains were female or male, estimate age at death, and examine the state of health and evidence for disease. In addition, as previously noted, mortuary research can address other intersections of identity such as ethnicity and group affiliation. Furthermore, it can contribute to the study of biological relationships between individuals and residential patterns through the study, for example, of epigenetic traits and strontium isotope applications. In addition, such studies can provide information on nutrition and diet. Studying the treatment and biological profile of skeletal remains can contextualize the notion of person. The body as an object can be contextualized by reconstructing the treatment the individual received in death from the mourners and community. As Buikstra (1977) proposes, the dead body and the context are intrinsically connected and should not be studied separately. Mortuary customs, mortuary objects, body position in the landscape, and positioning of the burial with respect to other internments all reflect the importance of the relationships and aspects of social identity.

This approach can contextualize the nexus of social relationships, objects, and exchanges in which personhood and remembrance are distributed and constituted. However, these elements vary between groups, through time, and through different stages of the funeral custom. In some groups, the agency of the dead contributed to the management and control of the body, such as allowing putrefaction, trying to prevent it, as in cases of artificial mummification, or not permitting it at all, as in cases of cremation (e.g., Rakita and Buikstra 2005b). In other instances, the agency of the dead contributes to the type of objects placed in burials that reflect constructions of the person based on past relationships, for example personal possessions of the deceased, ritual objects, or gifts from mourners or others. As part of the mortuary customs the person also is constructed symbolically by relationships and linkages expressed in the practices of the mourners and the group in which they lived. The deceased, the mourners, and the group all hold agency in these interactions. In identity studies of past populations, it is important

to not over-emphasize single approaches, such as the mortuary treatment or the analysis of the body, but to integrate analyses with other types of evidence, such as intentional deposits, technological production, and uses of space and landscape. Authors such as Brück (2006b) illustrate the importance of not limiting the study of mortuary customs to the remains and mortuary treatment but to also include other types of deposits in order to generate a more integrated perspective in the study of past societies and identities.

Mortuary Customs in the Southwest: Previous Studies, Review, and Critiques

Social organization was one of the primary concerns of Southwestern archaeological research from the 1960s through the latter part of the twentieth century (e.g., Hill 1970; Lightfoot and Upham 1989; Longacre 1970; McGuire and Saitta 1996). This interest was also reflected in the study of mortuary customs in the region (Goldstein 2001). Such studies largely centered on examining stratification and ranking with a strong emphasis on the analysis of mortuary goods. Goldstein's important critique (2001) mainly addressed contributions in an edited volume by Mitchell and Brunson-Hadley (2001a; hereafter M-BH), but her point extends to most Southwestern mortuary studies. Themes covered in the M-BH volume included ideology and power (McGuire 2001), social organization (Mitchell and Brunson-Hadley 2001b; Whittlesey and Reid 2001), morbidity and mortality (Sheridan 2001), and inequality as indicated by a study of trauma (Martin and Akins 2001). Goldstein noted that research in the Southwest has a general tendency to focus on past social complexity, as well as themes within biological anthropology, such as warfare and cannibalism.

Studies published in the M-BH volume reflect the authors' biases in that they attempt to fit their work into processual frameworks of mortuary studies centered on rank and status (Goldstein 2001). When these models did not fit the categories of ranked societies, there was a tendency to present the societies as egalitarian. These authors found differences between groups of people at individual sites, but did not adequately explain what the differences represented. Goldstein (2001) noted, and I agree, that McGuire

(2001), Mitchell and Brunson-Hadley (2001b), Whittlesey and Reid (2001), and Martin and Akins (2001) went beyond these classical studies of social organization; their works focused more attention on ritual and symbolic behavior. However, their scope was still too narrow when compared with the contemporary state of theory in mortuary customs studies. There are plenty of interesting questions about variability, such as how and why people employed a particular social structure, or why ritual changed through time (Goldstein 2001). Mortuary studies need to be broader with less focus on ranking and stratification, including more comprehensive comparative frameworks (Goldstein 2001). In addition, we can ask many other interesting questions. Goldstein (2001) cited the voluminous information available in ethnographies of historic and modern groups, and the willingness of tribes to work with archaeologists. However, the M-BH authors only used ethnographies and ethnohistoric data to confirm archaeological interpretations, rather than developing their expectations based on these data. Goldstein further argued that neither the quality of these data nor considerations of the amount of disturbance of the remains in Southwest studies are fully explored. She stated that the amount of disturbance would be an interesting focus of study. Mortuary custom variability, in terms of cremation vs. inhumations, was another aspect of inquiry that Goldstein believed needed further study.

Goldstein's critiques also pointed out that the majority of mortuary analyses focused on grave goods, which she argued limits the interpretation of mortuary and social behavior. She noted that while the paper by Martin and Akins (2001) exemplified her argument and was one of the exceptions, the great majority of papers only considered the kind and number of mortuary goods. The M-BH authors did not consider what the mortuary goods symbolized or the stages of mortuary customs. They likewise ignored postprocessual critiques of funerary studies. McGuire's article (2001) was an exception, but a more detailed and in-depth analysis is necessary in his work. Goldstein also argued for more attention to spatial and landscape approaches in the study of mortuary customs. The M-BH authors only considered variables such as the specific location in a room, cemetery area, or midden. They did not explore the relative positions within those

contexts, or within the community and landscape. Research focused on the type and quantity of mortuary goods is a worldwide tendency and not exclusively a tendency of the M-BH researchers (Goldstein 2001). However, the inclusion of other variables is equally important, including body position, spatial placement of items, the relative position of burials to each other, as well as the invaluable information concerning the biology of individuals. These and other SW mortuary studies that were not part of the M-BH volume mainly used the Saxe-Binford approach with only minor consideration given to subsequent critiques (e.g., Akins and Schelberg 1984; Creel 1989; Effland 1988; Mabry 1988; MacDonald 2001; McGuire 2001; Mowrer 2006; Ravesloot 1984, 1988).

There are other Southwest mortuary studies that focused upon social organization but only considered specific aspects, such as leadership roles, kinship, group membership, and social inequalities (e.g., Howell 1994, 1995; Martin and Akin 2001; Mitchell 1994; Simon and Ravesloot 1995). More recent analyses have begun to examine different themes such as gender roles, migration, co-residence patterns, and different phases of mortuary customs such as extended ceremonies and ancestorhood (e.g., Beck 2000, 2005, 2008; Clark 2001; Crown and Fish 1996; Howell 2001; Loendorf 1998; Neitzel 2001; Potter and Perry 2012; Rakita 2001; Rakita and Buikstra 2005b). In many of these studies, analysis of mortuary customs was a minor portion of the research. Most still focused on specific aspects of social organization, but analyses were contextual. Several authors have used variables such as cross-cultural comparison, burial items, and age at death to examine sex-gender hierarchies and leadership roles (e.g., Neitzel 2001; Simon and Ravesloot 1995). However, many still evaluated the items found in a burial as a direct reflection of the status of the deceased. Simon and Ravesloot (1995) examined the chemical composition of Salado ceramic vessels placed in burials and their relationship to age and gender. They successfully explored some of the patterns between local and non-local ceramics and social relationships between burials. However, they did not find direct correlations between gender and age and the abundance and variety of ceramic vessels. These analyses could be improved if sex was not equated to gender and physiological age was not equated to social age. Comparisons to other sites with larger

samples and dating to different periods, and a more in-depth theoretical discussion of alliance networks, could also improve the Simon and Ravesloot (1995) analysis.

Crown and Fish (1996) examined the intersection of sociopolitical organization and gender among the Preclassic and Classic period Hohokam. They did this by correlating energy allocated to productive tasks, domestic architecture, access to ritual spaces in structures, and sex. Today, it is one of the most frequently cited studies on gender differences among the Hohokam. Howell (1994, 1995) identified kinship and leadership roles among the Zuni using variables such as differential treatment of the individuals, spatial and dental characteristics, age at death, sex, stature, and non-specific physiological stress indicators. He used a multivariate approach to study kinship and leadership roles, but he did not thoroughly discuss the differences between biological affinity and social construction of identity and ethnicity, nor did he discuss differences between gender and sex or social age and biological age.

Mitchell (1994) studied group membership based on burial attributes at Pueblo Grande. He tried different methods to find indicators of group membership and to explain spatially grouped burials. He found patterns that corresponded to age group differences in variables such as grave type, grave orientation, and body preparation. Mitchell's findings were interesting in that he used different strategies to analyze group membership. However, his definition of group membership was not clear. His study leaves the reader wondering what types of group affiliation are being sought. One possibility is that he was looking at group membership based on biological affinity within a site; if this was the case, then this could be explored more in-depth using nonmetric traits in teeth, as demonstrated in the study of McClelland (2003).

Several studies have looked at social inequality based on mortuary variability. The study by Martin and Akin (2001), as Goldstein pointed out, went beyond the classic Saxe-Binford approach, and applied a multivariate approach using variables such as mortuary customs, trauma, age at death, and sex to explore aspects of inequality. Neitzel (2001) performed a study to understand how sociopolitical organization and gender relations intersected. She utilized ethnographic research and mortuary data to analyze the

value of grave goods interred with females and males and to produce a cross-cultural comparison of societies with different kinds of gender hierarchies. She based her analysis on the assumption that social organizational complexity equaled high elaboration of mortuary customs. Her work used the grave lot value approach and did not take into consideration problems of sample size (Orton and Hodson 1981), differences in complex artifacts, and differences between cremations and inhumations.

Migration and co-residence patterns have been explored to some extent using mortuary data. Clark (2001) examined the Pueblo migration from the Tonto Basin, as well as co-residence with other indigenous groups, by studying changes in mortuary custom patterns and decorated ceramics. Lowell (2007) examined warfare refugee populations, mainly of women, at Grasshopper Pueblo. She did not exclusively rely on mortuary customs but also used other lines of evidence such as trauma, burial, sex distribution, and continuity and discontinuity of material culture in an interesting way to support her conclusions. Martin (2008; Martin et al. 2008; Martin and Akins 2001) focused on the identification and condition of captives and slaves, mainly of females, among Ancestral Pueblo communities. They integrated skeletal analysis, mortuary context, archaeological reconstruction, and neuropathology.

Other areas receiving attention in Southwest mortuary studies include the roles of ancestors and the dead, and how they influenced the lives of the community and individuals (e.g., Howell 2001; Loendorf 1998; Rakita 2001). Howell (2001) used mortuary data from the ancestral Zuni settlement of Hawikku to identify burials of possible leaders. He used skeletal indications of diet and general health for comparisons between leaders and the rest of the population to assess whether these leaders controlled aspects of the economy as a foundation of their power. Skeletal indicators, such as porotic hyperostosis to infer iron-deficiency anemia and stature, provided information on general diet and health. Howell found that leaders did not benefit from longer and healthier lives than the rest of the population. Different types and quantities of grave goods suggested that leaders did not control trade or access to nonlocal materials. This provided support for the contention that the basis of the social control and power of

leaders was access to supernatural forces, esoteric knowledge, and possibly coercive ability.

Howell's results de-emphasized the role of economic control as a foundation of power. Based on the theoretical perspective proposed by Whittlesey (1978), among others, Howell utilized certain methods to identify leaders. In this approach, a "dimension" is defined as an attribute of mortuary treatment that survivors used to identify leaders, under the assumption that different roles are related to different social behaviors. Howell defined leaders as the apex of the decision-making structure. He argued that leaders had more social roles than the rest of the population. Accordingly, to identify these individuals, he used a diversity measure that included a count of the number of different types of grave goods and special body and grave preparations. Again, he stated that these are potential symbols of social roles; as such, the diversity score should indicate the number of social roles held in life. He did not consider in his diversity score calculations of age, sex, body position, orientation, degree of flexure, or temporal assignments. Howell's study certainly provided insights into social organization, mainly in terms of religious and political control. His discussion of health conflated indicators, particularly stature, which occurred when individuals were growing up and not as adults. He did not discuss dietary differences within his sample, even though he explicitly mentioned this as an objective. He also used indicators such as porotic hyperostosis that could have different etiologies, but he did not discuss the possible etiologies. He did not take into consideration other indicators, such as *cribra orbitalia*, that are usually used in conjunction with porotic hyperostosis when assessing the presence of iron-deficiency anemia.

After 2001, the study of funerary customs in the Southwest continued to go beyond studies of social organization, stratification, and ranking. Themes such as phases of mortuary customs, extended ceremonies, and ancestorhood assumed increased visibility. Another very important contribution was made to this field with publication of *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium* (Rakita et al. 2005). In this book, researchers expanded their analyses and

used models and theories from ethnohistory, bioarchaeology, and sociocultural anthropology. Researchers also examined specific themes, such as variability through time and space, extended and secondary mortuary ceremonialism, individual agency, and ancestorhood. Two articles focused on the Southwest explored these themes (Beck 2005; Rakita and Buikstra 2005b). Rakita and Buikstra (2005b) reexamined Hertz's perspective on secondary mortuary treatment. They evaluated this perspective using Pueblo cremations and the relationship between ancestors and the Katsinas. They discussed Andean mummification, especially the royal Inca mummy bundles, and the methods used to sustain the position of the soul in a liminal phase. Other important contributions to the study of mortuary customs in the Hohokam area were conducted by Beck (2000, 2005, 2008), who focused on cremation at different Preclassic Hohokam sites. In these excellent studies, she examined ethnographic documents, degree of incineration, and fragmentation to explore low bone weights of Hohokam cremations. She suggested that after initial burning, the remains were left in place, placed in a secondary deposit, or reburied as part of a memorial ceremony. However, it is not very clear how to identify reburial in cremated bones or how to distinguish reburial features and reburied deposits, other than as deposits of low bone weight. This very interesting theory should be tested in the future through experimental replication of the osteological characteristics proposed by Beck. Cerezo-Román and McClelland (2009) explored, with a limited dataset, differential treatments between inhumation and cremation in the Hohokam Classic Period (A.D. 1150-1450/1500) of the Tucson Basin. They found that cremation was the dominant custom, with emphasis upon secondary cremation deposits. This finding differs from data on the Phoenix Basin Hohokam, for whom inhumation was the prevalent mode of interment during this time period (Mitchell and Brunson-Hadley 2001b; Ravesloot and Regan 2000).

Mowrer (2006), on the other hand, examined social differentiation and regional variation among Basketmaker II sites. Her work continued a traditional theme of social differentiation, but she mainly focused on differences between age and sex by analyzing mortuary patterns and differences. She concluded that two distinct Basketmaker II groups

inhabited the northern Southwest and found clear social differentiation patterns within and among sites. However, her study equated sex and gender. She also used a static model to analyze sex and age differences with only minor consideration of current debates regarding identity. Nonetheless, Mowrer selected important variables in her study and the patterns contributed to expanding the knowledge of mortuary differentiation in the region. Rakita (2008), in an interesting work, explored the spatial and contextual distribution of different mortuary treatments observed in non-burial deposits and inhumations at Casas Grandes. He concluded that non-burial deposits containing human remains related to the transformation of ritual practice and the role of ritual specialists, which was then used to interpret ancestor worship and veneration.

Potter and Perry (2011) examined relationships among mortuary features, individual identities, and group identities in the context of the Ridges Basin community. They found that architectural and biodistance data indicated the presence of more than one ethnic group at this Pueblo I community. The patterns found in body arrangement, interment context, and treatment of the dead corroborated the presence of different groups. They concluded that groups and individuals performed mortuary rituals, incorporating exotic objects to help in the construction of gender identities that ultimately came to represent and reify group distinctions. Potter and Perry (2011) also suggested that elaborations of both gender and ethnicity provided visible and noticeable avenues of identity distinction. More recently, Harrod (2012) explored the use of violence as a means of social control among higher status members of Ancestral Pueblo society by using burial data derived from several sites. He analyzed and compared the demographic (age and sex), nutritional (stature), activity (robusticity and entheses), health (pathological conditions), violence (cranial trauma), and cultural (mortuary pattern) patterns of human remains and burials from Chaco Canyon and other sites in the region. He found that the hierarchy at Pueblo Bonito might have been able to suppress some violence. There was, however, evidence for interpersonal violence and biological stress, suggesting that the authority of high status individuals was limited. His approach is interesting but synchronic. His analysis conflated cumulative health markers, such as

stature, and various pathological conditions that occur at different stages of life (e.g., infant, childhood, subadults) with evidence of violent encounters. This approach may not adequately examine fluctuations of power and social control through time given that he used burials dating from approximately 520 years of Chaco prehistory. However, the use of multiple lines of evidence in these studies is promising.

As this summary of Southwestern U.S. archaeological mortuary studies indicates, there have been many important contributions, although many areas of inquiry remain open and are in need of further study. One area that requires further study is regional variation in cremation customs, particularly contrasts in Hohokam cremation customs between the Tucson and Phoenix basins. There is a need for an in-depth understanding of cremation funerals in past societies. These complex, multistage rituals are infused with elements that reflect individual and (sub)group identities. The rapid repatriation of skeletal remains in the Southwest is creating a great urgency to study burned human remains from museum collections, because previously collected osteological data are frequently limited in scope. Another area that is in need of further study is aging and life-course studies. Specifically, it would be productive to integrate historic and ethnographic data from Southwestern Native American groups. There is also a need for more comprehensive integration of current theoretical approaches to the study of different intersections of identity. Archaeological data in the Southwest are rich and diverse; however, many analyses still do not include a discussion of alternative discourses or attempt to understand the past beyond leadership and power relationships. The abundance of archaeological data in the Southwest should facilitate the exploration and testing of complex theoretical questions. Studies of mortuary customs in the Southwest will benefit from current research on different intersections of identity and the multiple and complex ways in which identity(ies) were constructed, destroyed, and reinforced.

Dissertation Research

This dissertation research follows the article format and structure of the Graduate College and the School of Anthropology, The University of Arizona. The dissertation is organized into six parts (Chapter One, Chapter Two, Chapter Three, or conclusions Appendix A, Appendix B, and Appendix C.).

This chapter (Chapter One) of the dissertation has presented a literature review of the main studies of identity, particularly those related to status, sex and gender, aging, life course and life cycle, and ethnicity and group identity. Also in this chapter, I have presented a literature review of the main studies of personhood in archaeological research used in this dissertation. In addition, this chapter has presented a review and critique of Southwestern U.S. mortuary practice studies, followed by a general outline of the dissertation research and how this research operationalizes the concepts of personhood and intersecting identities.

Chapter Two presents the sample, methods, and main findings of the dissertation research. Chapter Two explains the sample size and criteria used to select individuals included in the analysis. In order to evaluate the different research questions, each paper addresses two principal data types: (1) data on the human skeletal remains themselves, and (2) data on the posthumous treatment of the dead, including associated burial objects. The data collected on the human skeletal remains consist of a skeletal inventory, estimation of sex, estimation of age at death, estimation of pathological conditions, degenerative joint disease, and trauma. Information collected on the posthumous treatment of the dead include thermal alterations on burned human bone such as color, fractures and shrinkage caused by fire, and bone weights. Additionally, recorded variables include the deposit type (primary or secondary), body position, body orientation, and a detailed description of the associated burial objects. Chapter Two also presents the main findings of the research.

Appendix A consists of an article entitled “Transformation by Fire: Changes in Funerary Customs from the Early Agricultural to Preclassic period among the Hohokam

of southern Arizona” by Jessica I. Cerezo-Román and James T. Watson, and corresponds to the first part of the research. This article was submitted for publication in the *Journal of Anthropological Archaeology*. This article looks at data from the Early Agricultural/Ceramic Period (2100 B.C.-A.D. 475) through the early phases of the Preclassic Period (A.D. 475-750) in southern Arizona. In this article, we use the notion of citation from Butler (1990, 1993). Theories on social practice proposed by Richard Jenkins (1996) also influence our theoretical framework. We address two main research questions: 1) what was the variability in inhumation and cremation mortuary customs within and between the Early Agricultural/Ceramic and the early phases of the Preclassic periods; and, 2) how did changing mortuary customs modify social relationships between the dead, the families of the deceased, and the community? We characterize mortuary customs and biological traits as variables designed to explore how and why early Formative period residents of the area altered their mortuary treatments from solely inhumation to an increased frequency of cremation. Collected data consist of 148 burials from 18 archaeological sites in southern Arizona. Variables include biological traits (sex and age at death), posthumous treatment of the bodies inferred from the archaeological contexts in which they were found, and osteological analysis.

Appendix B, and second part of the research, is a paper entitled “Pathways to Personhood: Cremation as a Social Practice among the Tucson Basin Hohokam” by Jessica I. Cerezo-Román. This paper will be published in the book *Fire and the Body: Cremation as a Social Context*, edited by Gabriel Cooney, Ian Kuijt, and Colin Quinn, published by the University of Arizona Press, Tucson. This second phase of research focuses on the Tucson Basin during the Preclassic Period (A.D. 475-1150). The goal of this paper is to explore how the Preclassic Hohokam of the Tucson Basin created different pathways to personhood for their dead. This paper is influenced by theories on personhood from Mauss (1985) and several anthropological and archaeological studies of personhood (e.g., Brück 2006b; Conklin and Morgan 1996; Fowler 2005; Gillespie 2001; Jones 2005). Annette Weiner’s (1992) concept of “inalienable possessions” is also used to infer treatment of the cremated human remains. These concepts helped in examining

cremation customs at four Tucson Basin Hohokam archaeological sites. The four recently excavated archaeological sites from the Tucson Basin that I use are Honey Bee Village, Sleeping Snake Village, Fagan Ranch, and Los Morteros. In this research, I analyzed human remains from 415 individuals, including cremations, inhumations, and burial deposits which contained both burned and unburned bone. This investigation used ethnographic and ethnohistoric accounts of cremation customs mainly from the Pima (Akimel O'odham), Tohono O'odham, and Yuman-speaking Native American groups of the Southwestern U.S. These accounts, provide a range of options for interpreting and reconstructing the possible processes behind the formation of mortuary deposits.

The third part of the research (Appendix C) consists of the article entitled "Unpacking Personhood and Identity in the Hohokam Area of Southern Arizona" by Jessica I. Cerezo-Román. This article was submitted for publications in *American Antiquity*. This phase of the research focuses on the Preclassic (A.D. 475-1150) to Classic (A.D. 1150-1450/1500) period transition in mortuary customs among the Tucson Basin Hohokam of southern Arizona. This paper principally explores temporal variation in mortuary customs by examining how this variation relates to broader aspects of personhood within Hohokam society. This is done by exploring two overarching questions: 1) are there temporal variations in mortuary customs and, if so, what are they; and, 2) how do these variations relate to broader aspects of personhood among Hohokam society? The theoretical background for this paper follows ideas on social relationships proposed by Bourdieu (1977, 1990), Giddens (1984), de Certeau (1988), and Richard Jenkins (1996), in conjunction with mortuary customs models from Hertz ([1907] 1960) and van Genep ([1908] 1960). Concepts of personhood used in this article follows those proposed by Mauss (1985) and later reformulated and applied by Fowler (2005), Gillespie (2001), and Jones (2005). This research explores how a person is represented throughout the funerary sequence by examining two primary datasets: 1) biological profiles of the human skeletal remains; and 2) posthumous treatments of bodies inferred from the analysis of human remains and their contexts. A total of ten archaeological sites and 764 individuals from single graves were selected for this study.

Putting it All Together: Operationalizing Personhood and Intersecting Identities

Current identity studies emphasize research that breaks rigid boundaries and deconstructs classifications to study identity through past social practices (e.g., Brubaker and Cooper 2000; Meskell and Pruecel 2006). It is therefore important in this dissertation research to incorporate the works of Michael de Certeau (1988) and Richard Jenkins (1996). The works of de Certeau and Jenkins centered on relationships rather than individuals or society alone. These authors provided fresh perspectives and a balance to discussions of agency and structure to emphasize ideas about actions and relationships. This dissertation explores the ways in which individuals participated at different levels and scales in society by looking at citations and innovative actions in different contexts. The term *citation* refers to objects and actions considered to have been components of individual and multidimensional networks of other actions performed in the past (Gillespie 2011:103:103). Gillespie (2011:103) suggests that objects and actions “invoke an orientation to the past via memory, recapitulating past actions to create a sense of similarity or identity with precursors.” Focusing on the contexts of practices and their interactions facilitates an understanding of social relationships within and between communities and of how individuals and collectives were distinguished through their social relations (Meskell and Pruecel 2006). In addition, it facilitates comprehending and operationalizing how past identities were constructed, contested, and transformed. This avoids oversimplifying human behavior and resorting to using hard, fixed Western categories of identity.

I discuss the methods used in this dissertation in the next chapter, but they are used to both reconstruct a biological profile of the individuals and to infer how individuals were treated at death. The data generated from the biological profiles allow for the examination of specific physiological characteristics and changes observed in the body. The analytical data suggest that these played an important role in the social

construction of personhood. Characteristics and changes occurring throughout the life of an individual, such as infancy, adulthood, or becoming a woman/man, were usually socially differentiated in funerals, and it was possible to infer these characteristics. In addition, it was possible to evaluate how personhood changed through time in funeral customs by combining these data and reconstructing the patterns observed in each period (e.g., Appendices A, B and C). Operationalization of the variables in the biological profiles was accomplished through combination with the other data set, posthumous treatment of the body, and with spatial and temporal aspects of the specific archaeological contexts. Combining these different lines of evidence helped to elucidate cultural practices shared between group members, and to identify which are particular to specific groups and which were changed or maintained through time.

Attributes of personhood that relate to unique individual identity

Attributes of personhood that relate to unique individual identity were explored by correlating deviant posthumous treatment of the body and/or burials with sex and age at death. Individuals classified as “deviant burials” were not discussed or used in any of the articles. The type of burial object placed with the remains was also informative for exploring attributes of personhood that relate to unique individual identity. Different types of objects were found in inhumations, as well as in both primary and secondary cremations, and these objects may have been directly associated with the body and/or rituals during the fire (Cerezo-Román 2013a, 2013b; Cerezo-Román and Watson 2013).

In the case of cremations, different objects entered the archaeological record in at least three ways: as decorative ornamentation related to the clothing or accessories, as objects accompanying the body in the pyre, and/or as objects deposited with the body after burning (Appendices B and C). Other objects may have entered the archaeological record in later mourning rituals. In the Hohokam Preclassic Period, secondary deposits of cremated remains have more variability in associated objects than do primary deposits. Objects collected from the pyre area may have been placed in the secondary deposit later

with the cremated bone. Many burned objects recovered in secondary deposits of cremated remains may have accompanied or decorated the body during the original burning of the body on the pyre. In very few cases, objects did not present evidence of fire (e.g., vessels and hammerstones), and thus were added to the secondary deposits of cremated bone (Appendix B).

There was no statistically significant correlation between the quantity of objects, type of cremation, and age or sex of individuals (Appendices B and C). Objects such as beads, shell, bracelets, pendants, and quartz crystals may have decorated the bodies and been part of this initial stage of the ritual of preparing the body for the funeral. Other objects such as figurines, quartz crystals, stone tools, and ceramic vessels were burned with the body or placed after burning the body. These objects may have been possessions of the deceased or gifts from mourners. It is very difficult to exclude either possibility. However, I think (Appendix B) that through their selection these objects acquired capacities to sustain memory relationships between the survivors and departed as well as to represent multidimensional networks of reference for both the deceased and mourners, thereby giving agency both to the dead and living. If associated objects were former possessions of the deceased, they were designated as aspects or extensions of the personhood of an individual and thus became potent sources of memory because of the way in which object biographies become entangled with the biographies of the associated person(s) (Brück 2006a: 76; Gosden and Marshall 1999; Hallam and Hockey 2001; Hoskins 1989). It can also be inferred (Appendix B) that burned houses as well as burned and fragmented objects found in caches could present similar characteristics and acquire an extension of personhood once the individual died, following ideas presented by Murray and Mills (2013).

Mortuary attributes of personhood that relate to social age

In order to examine social age differences, I used a more nuanced approach for exploring mortuary treatment variation within and between sites and through time.

Mortuary attributes of personhood that relate to social age were obtained by contrasting physiological age with sex and posthumous treatment of the body without restricting comparisons to physiological age ranges (e.g., Baxter 2005; Gilchrist 2004; Gowland 2006; Lucy 2005a; Sofaer Derevenski 2000; Sofaer Derevenski 2004).

Initially, individuals were grouped using biological age groups (see Appendix C). Later, I regrouped these individuals using other attributes, such as funerary treatment and burial objects, and contrasted these data with biological ages to produce contextualized age group inferences. For example, if posthumous treatment and burial offerings associated with an individual of a subadult physiological age (12 to 18 years at death) are similar to males/females of adult physiological age (older than 18 years), this suggests that the subadult individual presented an adult social age and likely participated in the same networks as adults (e.g., Cerezo-Román and McClelland 2007; Cerezo-Román and Wallace 2008). Previous studies (e.g., Di Peso 1956; Hayden 1970; McGuire 1992) did not make any distinctions between different ages within Preclassic Period inhumations and considered all inhumations from a given site as a homogeneous group. However, this study recognized that inhuming an individual depended on several factors of the individual's identity, including social age, in cases of infants, and other identity attributes, in adult cases (Appendices A, B and C). Treatment of individuals with a social age younger than two years was similar to individuals of the biological age categories neonate and infant (see Appendices B and C). Treatment of subadult individuals as adults suggested that, among the Hohokam, they were considered to have an adult social age (see Appendices B and C). This research was done in order to break rigid boundaries and deconstruct age classifications and to construct social age groups contextualized for the Preclassic and Classic Hohokam of the Tucson Basin.

In cases of adult individuals, it was possible to infer a change in cremation customs through time. In the Preclassic Period, cremation deposits are mainly characterized by the presence of low quantities of bone, while in the Classic Period this changed drastically and deposits with higher bone quantities dominate the assemblages (Appendix B). However, it was not possible to evaluate this change in children or

subadults, as there are no comparative literature references for bone weights from these age groups. Nonetheless, these findings suggest a change in practices toward the body and a possible change in perception toward the personhood of adult individuals. Drawing from these examples, the utilization of comparative techniques for all individuals within and among sites was necessary to understand social age.

Consideration of sex attributes of personhood

Sex attributes of personhood were evaluated by analyzing patterns that relate to the individual's biological sex (e.g., Cannon 2005; Díaz-Andreu 2005; Geller 2005; Gilchrist 2004; Ginn and Arber 1995; Marcus 1993; Sofaer Derevenski 2000). Treatment at death in the analysis of sex differences in Hohokam mortuary customs has not been significantly integrated. However, the sex of these individuals possibly could influence the way individuals at death were treated. Based on the observations, patterns related to sex attributes or to other aspects of personhood were inferred. Most previous studies of sex differences in mortuary customs among the Hohokam were made on Phoenix Basin collections and focused particularly on the burials' spatial distribution and associated objects (Brunson-Hadley 1989; Crown and Fish 1996; McGuire 1992; Mitchell 1994). For example, males tended to be buried with higher frequencies of shell ornaments and ritual related items, while females were buried with higher frequencies of ceramic vessels among the Phoenix Basin Preclassic period Hohokam (Crown and Fish 1996).

Preliminary evidence from the Tucson Basin (Cerezo-Román 2010) suggests that the frequency of shell in burials was mainly associated with courtyards that contained the highest densities of shell at the site. In addition, differences in connections between the dead, living, and particular communities of practice included different socio-economic networks of shell manufacture among households at Sleeping Snake Village – a pattern recognized at other Tucson Basin Hohokam sites (Mills 2001; Seymour 1988). However, I did not problematize or analyze the relationship between gender and sex in depth in this research. The remains were fairly fragmented and it was not possible to estimate sex for

many individuals. Taking this into consideration, I only explored the relationship between sex and mortuary customs in general, and no statistically significant differences were found between sex and funerary customs as indicated by inhumations versus cremations (Appendices B and C).

Mortuary attributes of personhood that relate to group identity

Community- and regional-scale identities were explored by observing contemporaneous (dis)similarities between sites (Appendices A, B, and C). Repetitive patterns inferred from the archaeological record were analyzed by drawing from social theories proposed by Bourdieu (1977, 1990), Giddens (1984), de Certeau (1988), and Richard Jenkins (1996), and from notions of citation and “performativity” from Judith Butler (1990, 1993). Creation of a data set facilitated statistical comparisons and observations of patterns between the different sites. The data set allowed for identification of patterns of practices that relate to community identity, as well as the range of regional variability in those practices. In addition, it was possible to identify changes through time at these same scales. If a community participated in similar networks, there are shared patterns in the mortuary practices among the sites included in this group. The different variables explored in this research allow for a better understanding of the broader issues of personhood in Hohokam times by identifying changes in intersecting identities.

CHAPTER TWO: PRESENT STUDY

Unpacking Personhood and Intersecting Identities: Methods and Main Findings

This chapter presents a detailed description of the analytical methods and the most important findings for the research described in Appendices A, B, and C. I selected and designed methods in this dissertation to bridge theory and method by unpacking and operationalizing the concepts of personhood and multiple intersecting identities in mortuary assemblages. It is not practical to present a general, universal approach to examining personhood in prehistory, as personhood will normally change within the lifetime of an individual, change through time within a culture, and could be culturally specific. In addition, it is unrealistic to aim to identify all multiple intersecting identities of an individual as many are situational and many may not leave any archaeological traces. This is true also in cases of mortuary customs, which "transform the dead and may present them in ways which are not typical of other spheres of life" (Fowler 2010: 358). Additionally, some variables are potential indicators of multiple dimensions of identity, but not all of these dimensions are archaeologically distinguishable. Keeping these limitations in mind, this chapter will present the methods used to infer specific intersections and aspects of personhood construction through time.

Materials and Methods

Time Periods and Samples

This research focuses on collections consisting of 884 cremation and inhumation burials from 25 different archaeological sites in the Sonoran Desert, Arizona, from the Early Agricultural (2100 B.C.-A.D. 50) through the Classic (A.D. 1150-1450/1500)

periods. The Appendix A article, “Transformation by Fire: Changes in Funerary Customs from the Early Agricultural to Preclassic period among the Hohokam of southern Arizona,” covers the Early Agricultural Period (2100 B.C.-A.D. 50), the Early Ceramic Period (A.D. 50-475), and the Early Preclassic Period (A.D. 475-750). In this article, 149 individuals were selected from single inhumation and cremation deposits. The article in Appendix B covers the Preclassic Period (A.D. 475-1150) exclusively. In this paper, a total of 415 individuals were selected. The article in Appendix C covers the transition period from the Preclassic (A.D. 475-1150) to the Classic periods (A.D. 1150-1450/1500). In this article, a total of 764 inhumation and cremation deposits were selected.

The sites that were selected for each article were chosen because they have fairly complete site reports and field notes available for use, and because sample sizes consisted of at least 20 burials. Intrasite and intersite comparisons were made between contemporaneous assemblages based on dated features, which had diagnostic ceramics and independent dates. Site and burial chronologies were generated from published data and site reports, mainly following chronology classification from Wallace (2012). The reliability of dating criteria provided the basis for assigning a rank order variable in each case. Burials that could not be assigned to a specific date were placed into broader categories - early, middle, or later components of each general subperiod (e.g., Early Agricultural Period, Late Classic) or period (e.g., Preclassic, Classic) depending on associated ceramics (e.g., Wallace 2001, 2004, 2012). This study excluded burials that did not present any firm date. Chronological assignments were used to analyze contemporaneous practices and changes in burial customs through time.

The collected site data were the subject of intra- and intersite comparisons. The use of Microsoft Excel 2007 allowed for analyzing, manipulating, and storing data, as well as for generation of a regional database. The database design allowed easy export into statistical programs such as SPSS Statistics 19. The statistical analysis included descriptive statistics, exploratory data, non-parametric tests, and bivariate analysis. Data collection focused around two principal types: 1) those on the human skeletal remains

themselves, and 2) posthumous treatment of the dead, including associated burial objects inferred from the archaeological context and analysis of the human remains.

Human Skeletal Remains and Biological Profiles

Analysis of the human skeletal remains consisted of a reconstruction of the individuals' biological profiles. The osteological analysis was morphoscopic and metric. The individuals' biological profiles in this study consisted of the physiological age at death, sex, and pathological conditions, which were determined using standard data collections protocols. These protocols will be discussed briefly in this chapter, and more in-depth discussions will be provided concerning how thermal alterations were recorded in burned bones and how data and theory were combined.

Burned and unburned bones were analyzed in a similar manner when reconstructing the biological profiles, in order to acquire comparable results. The degree of fragmentation of remains, particularly cremated bone, limits some analytical observations, particularly in the determination of sex and the clinical diagnosis of pathological conditions. However, less fragmented burials allowed for evaluation of element presence, physiological age at death, sex, and pathologies.

The protocols for osteological data collection are mainly based on those proposed by Buikstra and Ubelaker (1994) and research protocols from the Arizona State Museum's (ASM) Bioarchaeology Laboratory (McClelland 2012), where most of the remains are currently housed. The thermal alteration and posthumous treatment of cremated bones were evaluated in detail. Previous Hohokam research on mortuary practice largely relied on the study of inhumations, with little or no attention paid to cremations. This was largely due to challenges involved in working with this type of material. However, a careful examination of this material provided the means necessary to maximize cremation analysis and acquire significant additional information. This added another dimension of analysis not previously considered with Southwestern

mortuary materials, and allowed for new and innovative ways to study personhood and identity through mortuary customs.

Skeletal Element Inventory

The first step in skeletal data collection consisted of a detailed skeletal inventory of each burial, which included recording elements present, including side (left or right), and preservation condition. These analyses allow for interpretations of body completeness at the moment of burial and the number of individuals represented in each deposit. Standard protocols for data collection used to produce a skeletal inventory of the unburned bones were established by the ASM's Bioarchaeology Laboratory (McClelland 2012). However, a similar but more in-depth skeletal inventory was used for the burned human remains. This allows for easy comparison of results between burned and unburned individuals. Recording of skeletal elements was by degree of preservation (complete > 75 percent present, partial = 75-25 percent present, and fragmentary < 25 percent present). The side (left, right, or unsided) for elements also was recorded. For the appendicular area of the skeleton, skeletal elements of each individual were recorded by anatomical segments, such as the proximal epiphysis, proximal midshaft, midshaft, distal midshaft, and distal epiphysis. The Bioarchaeology Laboratory has subsequently adopted this methodology to record burned bone, and it is now part of their standard protocol for data collection (www.statemuseum.arizona.edu/crservices/forms.shtml#burial).

Two main indicators, the presence of duplicate skeletal elements and differences in development and morphology related to age (subadult vs. adult), were used for determination of minimum number of individuals (Fairgrieve 2008; McKinley 2000; McKinley and Bond 2001). Researchers have suggested that in cases of cremated remains, differences in the size of the elements and differences in color also may be indicators of the minimum number of individuals (Correia and Beattie 2002; McKinley and Bond 2001). However, using differences in the size of the elements and differences in color to determine minimum number of individuals could be very misleading. Burned

skeletal elements from a single individual can shrink differently depending on the soft tissue shield that was protecting them in the fire (Gonçalves et al. 2011). Differences in color are also problematic, as is clearly exemplified in many forensic cases (e.g., Symes et al. 2008), since a single individual may have drastic color differences within even a single bone, depending on the body position in the fire, tissue shield, duration and intensity of the fire, and the pyre technology.

Estimation of Sex in Individuals Older than 18 Years at Death

Sex was only estimated for individuals older than 18 years at death, or for very gracile older subadults. Sex was estimated before the age at death estimate, as many methods used to estimate age at death are sex-specific. In general, the secondary sexually dimorphic characteristics begin to show in the skeleton at puberty and tend to present earlier in females than in males (Buikstra and Ubelaker 1994; Coleman 1969). Sex was estimated primarily based on secondary sexual characteristics that presented in the pelvis and cranium. The hipbone presents the most reliable indicator of sex in the skeleton (Buikstra and Ubelaker 1994). Metric analyses of skulls and postcranial elements were also considered.

The observed morphological characteristics of the pelvis were the ventral arc, subpubic concavity, and the ischiopubic ramus ridge. These were recorded using the method proposed by Phenice (1969). In this case, the female represented the positive expression of these features, while the males did not present these features. The greater sciatic notch and the preauricular sulcus were also used to estimate the sex of individuals (Buikstra and Ubelaker 1994). The greater sciatic notch is broader in females than in males. Scores from one to five were assigned based on differences in the angle of the greater sciatic notch (Buikstra and Ubelaker 1994), with a lower score representing a wider notch. The preauricular sulcus was also taken into consideration when estimating sex. This sulcus is more commonly present in females than males. The expression of the preauricular sulcus was scored from one to four. When this attribute was absent, this was

noted. All of these characteristics were scored following accepted recording protocols proposed by Buikstra and Ubelaker (1994).

Morphological characteristics observed in the skull were the robusticity of the nuchal crest, size of the mastoid process, sharpness of the supraorbital margin, prominence of glabella, and projection of the mental eminence. A five-point scale was used, reflecting a range from more gracile to more robust. The more gracile individuals were estimated to be females, while the more robust individuals were estimated to be males. These features were recorded using accepted standard recording protocols proposed by Buikstra and Ubelaker (1994). The main metric analyses used were the femoral and humeral head diameter, radial head diameter, and the epicondylar breadth of the humerus (France 1998). In cases where the bones were burned, caution was taken to estimate sex, as shrinkage could affect the observation of sexually dimorphic characteristics (Fairgrieve 2008). In this case, males may be underrepresented, and a disproportionate number of individuals may be identified as females (Fairgrieve 2008). In order to avoid this problem, no heavily shrunken skeletal elements were used to estimate sex. Others have proposed the use of a measurement scheme to estimate sex (Gejvall 1969, 1981; McKinley 2000; McKinley and Bond 2001; van Vark 1975). Use of these measurements requires that the remains need to be fairly complete in order to compare samples. This necessity limits the use of such methods. Cremations analyzed in this study were highly fragmented and therefore comparisons between samples could not be performed.

Estimation of Age at Death

The third step in reconstructing biological profiles was estimation of physiological age at death. First, methods used to estimate physiological age of individuals younger than 18 years at death will be explained. Next, methods used to estimate physiological age of individuals older than 18 years at death will be discussed. Age estimations were defined as narrowly as possible. In Appendix A, the age categories,

suggested by Buikstra and Ubelaker (1994), comprised: infant (birth-3 yrs.); child (3-12 yrs.); adolescent (12-20 yrs.); young adult (20-35 yrs.); middle adult (35-50 yrs.); old adult (50+ yrs.), or general 'adult' (20-50+ yrs.). In Appendices B and C individuals were classified into age categories such as fetus (<- newborn), infant (birth-2 yrs.), children (2-12 yrs.), subadult (12-18 yrs.), young adult (18-34 yrs.), middle adult (35-49 yrs.), old adult (50 + yrs.), and indeterminate, following standard protocols for data collection established by the ASM's Bioarchaeology Laboratory (McClelland 2012) and Buikstra and Ubelaker (1994). However, if it was not possible to estimate a narrow age at death, individuals were classified into much wider categories, such as older than 15 years at death or adult (≥ 18 yrs). The estimation of age at death was made using a variety of techniques that approximate a physiological age range and allow a more precise estimation using multiple lines of evidence.

For individuals younger than 18 years at death, three sets of attributes were observed: tooth formation and development, cranial and postcranial osteometrics, and skeletal maturation estimates based on epiphyseal formation, development, and fusion. The first set of techniques used focused on formation and eruption of each deciduous and permanent tooth, as proposed by Smith (1991) and Ubelaker (1989, 2000). The technique proposed by Smith is based on evaluation of stages of formation of the crown, roots, and apex of the teeth. In this technique, stage of formation of each tooth is evaluated first, and then an age estimate assigned. Ubelaker (Buikstra and Ubelaker 1994; Ubelaker 1989, 2000) proposed a different technique based on dental formation and eruption of deciduous and permanent dentition. The different stages of development correspond to estimated age ranges. This technique also was used in the present study.

The second set of techniques that was used was the correlation between estimated age ranges and cranial and postcranial measurements. Cranial measurements used included the length and width of the greater wing of the sphenoid, the length and width of the petrous and mastoid portion of the temporal, and length and width of the basilar part of the occipital. Estimated age ranges for these elements were based on the work of Scheuer and Black (2000). Postcranial measurements used were length and width of the

scapula, as proposed by Scheuer and Black (2000), and correlation between chronological age estimates and maximum diaphyseal lengths proposed by Ubelaker (1989). Elements used to calculate diaphyseal length included the humeri, radii, ulnae, femurs, tibiae, fibulas, and ilia. Only complete elements from both the right and left sides were used. These techniques were very rarely applied to cremated remains. Most of the cremated remains were fragmented, and therefore shrinkage could have affected the measurements (Fazekas et al. 1978; Huxley 1998; Huxley and Kósa 1999; Petersohn and Köhler 1965).

The third set of data used to estimate age at death was based on the analysis of skeletal maturation and epiphyseal union and fusion. Skeletal maturation stages were evaluated following the chart proposed by Buikstra and Ubelaker (1994:43). This chart focuses on the epiphyseal union and fusion of primary ossification centers for several skeletal elements. The rate of epiphyseal fusion and skeletal maturation was also used (Scheuer and Black 2000).

Age at death for individuals over 18 years old was estimated using several accepted protocols proposed by Buikstra and Ubelaker (1994). These methods were used to estimate age categories based on morphological characteristics observed on the auricular surface, pubic symphysis, obliteration of the cranial sutures, morphological changes of the sternal end of the fourth rib, and general size, morphology, and development. Additionally, epiphyseal fusion of the clavicles, iliac crest, and basioccipital synchondrosis were observed to estimate whether individuals were young adults or older. These techniques were developed to estimate the age of adults, and are based on changes that occur in the skeleton after bones stop growing in length and the epiphyses fuse. Genetic predisposition, nutrition, physical activity, and other factors can affect the changes that occur with age, as well as the process of deposition and resorption of bone. However, the methods for estimating age at death that were selected in this study are based on accepted data collection protocols (Buikstra and Ubelaker 1994). Once age at death estimates were obtained from the different methods, minimum and maximum age estimates were chosen for each individual.

Morphological changes in the pubic symphysis were scored according to systems proposed by Todd (1921a, 1921b) and Suchey-Brooks (Brooks and Suchey 1990; Suchey and Katz 1986; Suchey et al. 1979). These methods focus on the observation of key features, such as the ridge-and-furrow system, dorsal margin, dorsal platform, ventral rampart, ossific nodules, rim, and delimited extremities (Buikstra and Ubelaker 1994). The evaluation of the morphological changes of the auricular surface mainly focuses on the apex, superior demiface, inferior demiface, retroauricular area, degrees of granularity, billowing, density, and porosity (Bedford et al. 1989; Lovejoy et al. 1985; Meindl and Lovejoy 1989). Changes that occur in this area are correlated with physiological age changes, and an age range is assigned. Another method that was employed to estimate the age at death in individuals older than 18 years was obliteration of the cranial suture. This method is based on the premise that cranial sutures generally fuse with age. However, the rate at which the suture closes varies widely (Buikstra and Ubelaker 1994). The degree of fusion was recorded for 10 ectocranial, four palatal, and three endocranial locations. Each segment was recorded according to specific stages, and an age range was assigned (Buikstra and Ubelaker 1994; Meindl and Lovejoy 1985). This technique is based on a composite of methods developed by several researchers (e.g., Baker 1984; Mann et al. 1991; Meindl and Lovejoy 1985). Estimations of age at death were also made using the technique proposed by İşcan and colleagues (1984; 1987) and İşcan and Loth (1986), which estimates the age at death based on degenerative processes that occur with age in the sternal end of the fourth rib. This technique defines nine phases of degenerative progression, graded from zero to eight, to assign a physiological age range at death (İşcan et al. 1984; İşcan et al. 1987).

Each of these techniques to estimate age at death was used, depending on the skeletal elements present and their state of preservation. Where none of these techniques were possible due to fragmentation of the material and/or absence of specific elements, other indicators, such as dental wear, antemortem tooth loss, presence and degree of degenerative joint disease, and size and thickness of the skeletal elements were taken into

consideration. In these cases, individuals were assigned to wider age range categories, such as older than 15 years at death and/or adult (older than 18 years at death).

Estimation of Pathological Conditions, Degenerative Joint Disease, and Traumas

Pathological lesions observed in human skeletal remains were recorded following standard data collection protocols proposed by Buikstra and Ubelaker (1994) and the ASM's Bioarchaeology Laboratory (McClelland 2012). Pathological lesions were recorded as present, absent, or unobservable, and each lesion was described in detail, measured, and drawn. When possible, trauma was recorded as *antemortem* or *perimortem*. Protocols from the ASM's Bioarchaeology Laboratory (McClelland 2012) limited photographic documentation of the skeletal elements, and therefore photographs were not taken. Pathological lesions documented in the cranial area included porotic hyperostosis, cribra orbitalia, premature synostosis, osteomas, periosteal reaction, lytic reactions, proliferative reactions, and trauma. Degenerative joint diseases in the cranial area were recorded on the articulations of the temporomandibular joint, mandibular condyles, and occipital condyles, following data recording protocols proposed by Ubelaker (1999). Dental pathologies were also recorded following protocols from the ASM's Bioarchaeology Laboratory (McClelland 2012) and Buikstra and Ubelaker (1994). Dental pathologies were recorded as present, absent, or unobservable. Where applicable, the degree of pathology was noted. The main dental pathologies recorded were caries, abscesses, hypoplasia, calculus, periodontal disease, and hypocalcification. Lesions of the axial area of the body that were recorded included ankylosis, arch defects, compression fractures, Schmorl's nodes, periosteal reactions, lytic reactions, osteoporosis, and trauma. The different stages of osteophytosis on the superior and inferior surface of the vertebral bodies of the cervical, thoracic, and lumbar were recorded following standards proposed by Ubelaker (1999).

Degenerative joint disease was recorded in the superior and inferior articular surface of both sides of the cervical, thoracic, lumbar, and sacral vertebrae. Lesions recorded for the appendicular area of the body included periosteal reactions, lytic reactions, proliferative reactions, osteoporosis, trauma, osteomyelitis, and exostoses. Degenerative joint disease recorded on the appendicular area of the body was in the following articulations: right and left glenoid fossa, medial and lateral epiphysis of the clavicles, proximal and distal epiphysis of the humeri, ulnae, radii, femurs, tibiae, patellae and fibulas, left and right acetabulum, and left and right greater and lesser trochanter of the femurs. Lesions recorded from the extremities included lytic reactions, proliferative reactions, periosteal reactions, trauma, and exostoses. Degenerative joint diseases in the extremities were recorded on the proximal and distal epiphysis of the carpal and tarsal phalanges, carpals, metacarpals, tarsals, and metatarsals. Most of the remains analyzed in this research were cremations. The degree of fragmentation, particularly of cremated bone, limited some analytical observations. The frequencies of these pathological conditions represent the minimum that could be present in the population. Clinical diagnoses of pathological conditions and the etiology of trauma were particularly affected. In most cases, skeletons were not complete, and therefore it was not possible to evaluate the distribution of lesions throughout the remains in a homogenous way.

Posthumous Treatment of the Body and Archaeological Context

Posthumous treatment of the body was evaluated using primary and secondary data. Primary data were collected from the osteological analysis and archaeological record to infer posthumous practices. Secondary data were obtained from archaeological reports, field notes, and published analyses. For both types of data, remains were analyzed from intentional, undisturbed, or only slightly disturbed deposits.

Deposit Type (Primary vs. Secondary)

Deposits were classified as primary, secondary, or undetermined. Primary inhumations refer to deposits in which the remains were first deposited and where decomposition occurred. The term “primary” is used similarly for cremation deposits and refers to the pyre site, crematorium, or primary cremation locality – the feature that contains burned human remains and has direct evidence of fire. The implication is that the body is placed and burned *in situ*, but this does not mean that the remains were found articulated and/or the deposits contained all the skeletal elements. Secondary deposits refer to deposits in which human remains were placed after removal from primary deposits. When analyzing human remains, these deposits are identified based on the lack of articulated skeletal elements and no evidence of fire in the earthen pit. Secondary deposits of burned bones consist of deposits that contain unarticulated bone fragments in urns within earthen pits, or bone fragments placed directly in earthen pits. One of the main attributes of these secondary deposits of cremated bone is that the earthen pits do not have any evidence of fire. These deposits may contain high to very low bone weights.

Body Position and Body Orientation

When available from site reports and/or field notes, anatomical orientation and cardinal direction of the body position were recorded. However, more general classifications were used for statistical analysis and intersite comparisons (Appendix A). Cerezo-Román and Watson (Appendix A) used a general classification of the orientation of the body, such as right, left, supine seated, prone, and head down, and a very general classification of the position of the appendicular area of the body, such as flexed, semi-flexed, and extended.

Thermal Alterations of Burned Human Bone

Thermal alteration and body manipulation were analyzed to provide a detailed reconstruction of posthumous treatment of cremated bones from primary and secondary deposits. These variables allow one to infer how bodies were treated in both primary and secondary cremation mortuary rituals and to correlate these findings with biological data. The thermal alteration recording procedure used in this research built on existing standard data collection procedures established by the ASM's Bioarchaeology Laboratory. The ASM data collection procedures for burned bones were established to inventory the elements present and provide a general evaluation of the thermal alteration. For example, ASM recording forms include variables such as color, bone weight, maximum length of fractures caused by fire (cm), and average length of the entire skeleton. ASM recording forms also include approximate percentages to describe the general representation of the different anatomical areas of the body such as cranial, axial, appendicular, and extremities.

The present study provides an in-depth analysis of thermal alteration. In this research, color, bone weight, type, and degree of fractures cause by fire, maximum length (mm), average length (mm), and quantification of bone fragments ≥ 2 mm in length were recorded for the cranial, dental, axial, upper appendicular, and lower appendicular anatomical regions, and for the extremities (see Appendix D). In addition, a general evaluation of thermal alteration summarized all of the data. Bone counts of all the bone fragments ≥ 2 mm in length were subsequently divided by the total weight to determine quantitatively the average bone weight and as an overall indicator of degree of fragmentation (McClelland pers. comm.). The ASM's Bioarchaeology Laboratory integrated collection data protocols proposed in this research, and these protocols currently are used as standard collection information on thermal alterations (www.statemuseum.arizona.edu/crservices/forms.shtml#burial).

Color

There have been many studies of bone color changes due to thermal alterations (e.g., Buikstra and Swegle 1989; Gejvall 1969; Shipman et al. 1984; Ubelaker 1978). Bone color indicates the variation in heat exposure and oxidation related to the tissue shield of the body, anatomical region, and body position (Symes et al. 2008). In addition, it indicates temperature, duration, combustion circumstances, and fuel load (e.g., Buikstra and Swegle 1989; Devlin and Herrmann 2008; Fairchild 2005; Fairgrieve 2008; Gejvall 1969; Shipman et al. 1984). Factors such as the stirring of the bones during burning would alter these variables. In this study, the Munsell soil color chart was used for the documentation of color (Buikstra and Ubelaker 1994; Shipman et al. 1984). However, the use of Munsell soil color charts has been critiqued, because it depends on matching bone color to a color in the chart. The technique introduces interobserver error, and variations in lighting can affect color interpretation and produce errors. Some authors therefore suggest use of the CIELAB system (Devlin and Herrmann 2008; Fairchild 2005). The use of the CIELAB system could minimize interobserver error. However, to use the CIELAB system, an appropriate measuring instrument is required, such as a colorimeter, spectrometer, or spectrodensitometer. In addition, visualization software is needed.

Considering these factors, it was decided that the Munsell soil color chart would be used in this research. The Munsell soil color chart is well known, transportable, and easily accessible. Most archaeologists and physical anthropologists around the world have access to one and can compare the results. To minimize some of the limitations of the Munsell soil color chart, a detailed narrative accompanied the observations of color, and all remains were analyzed under the same artificial lighting. Predominant and secondary colors were recorded for the cranial, dental, axial, upper appendicular, and lower appendicular anatomical regions, and for the extremities (see Appendix D). Most remains were consistent in color; most of them presented white and gray colors (Appendix B). Homogeneity in color may suggest that someone with expertise, perhaps a specialist, burned the remains (Appendices B and C). In addition, there was no evidence

that the degree to which the bodies were burned changed through time (Appendices B and C).

Under different circumstances where time constraints were not an issue, and with a smaller sample, a reconstruction of each element would be ideal to infer in more detail the body position of the remains. Subsequent to the reconstruction of each element, drawing the color of each fragment in a skeletal chart also would be beneficial in order to visualize the color of each element. However, both exercises are time consuming and not suitable for larger samples, especially when the remains are highly fragmented. Nonetheless, this type of exercise should be performed in certain contexts, and particularly in forensic settings.

Fractures and Shrinkage Caused by Fire

Fractures and shrinking caused by fire also were analyzed in this research. Many researchers have used time and degree of fractures and shrinkage as an indicator of whether the bodies were burned with flesh, partially moist, or dry (e.g., Baby 1954; Binford 1963; Buikstra and Swegle 1989; Fairgrieve 2008; McKinley 1989; Symes et al. 2008). In this research, fracture types were analyzed by anatomical region (cranial, dental, axial, upper appendicular, lower appendicular, and extremities), and their presence and frequencies were recorded (see Appendix D). Fracture types, such as longitudinal, concentric/thumbnail, and vertical, were recorded. Fracture degree was based on approximate divisions: minor (<25 percent), moderate (25-75 percent), and heavy (>75 percent). The degree of shrinkage was also recorded by anatomical areas and classified as minor (< 25 percent), moderate (25-75 percent) and heavy (>75 percent). The degree of shrinkage is a bit subjective as its assessment is based on a degree of distortion that deviates from the regular shape of a particular bone. Type and degree of fractures and shrinkage caused by fire were used as a proxy to infer whether or not the bodies were burned with flesh. However, it is suggested that fractures and shrinkage are not very reliable when used as the sole indicators of the condition of the body

immediately prior to burning. Multiple lines of evidence such as the skeletal inventory, absence/presence of cutmarks, and color of the remains were also assessed.

Physical anthropologists have debated how to distinguish between burning of fresh bone, bone with moisture or “green” bone, and dry bone. Baby (1954), using works by Krogman (1939) and Webb (1945), suggested that dry bone could be differentiated from bone burned with flesh, or at least moisture, by the presence of superficial checking, fine longitudinal striae, deep longitudinal fracturing, and the absence of warping.

Buikstra and Swegle (1989) suggested that the characteristics presented by Baby were not exclusive to dry, fresh, or green bone, but rather that warping was observed in both circumstances. They suggested that it is better to use color differences and to focus on variability in fracture patterns. Buikstra and Swegle (1989) mentioned that in the case of the femur, the appearance of concentric rings of curved fissures in the popliteal region on fleshed femora was a diagnostic characteristic that the bone was burned with flesh. However, the absence of this does not mean that the element was not burned with flesh. In bones that are burned to a smoked condition, fracture or cracking patterns are less diagnostic than the distribution of color changes. Due to differential combustion of soft tissue, fleshed bone develops marked variation in coloration and one cannot assume that uniform blackened conditions are a characteristic of the specimens. Dry bone showed less extreme color changes than did fleshed or green remains. Color changes were not diagnostic in separating green from fleshed remains. Color changes did help to distinguish dry bones from the fleshed and green specimens (Buikstra and Swegle 1989). Buikstra and Swegle (1989) suggest that the difference in cracking patterns is a matter of degree and not of kind. Both fleshed and green specimens showed deep longitudinal cortical fissures. Transverse cracks occurred in both groups, but were more common in fleshed specimens. The most significant change in dry specimens was the tan color. However, Buikstra and Swegle (1989) mentioned that the different stages must be studied, taking into consideration the variability rather than expected attributes of a particular stage. Other studies suggest that the presence of warping and thumbnail

fractures can be observed in dry bone, and that their presence is not restricted to the burning of non-dried bones, as has generally been believed (Gonçalves et al. 2011).

Gonçalves et al. (2011) mention that warping and thumbnail fractures are an indicator of the preservation of collagen-apatite links that also could be present in dry bone. However, in their study, bone warping, thumbnail, and concentric fractures were found in very low frequencies. Considering the pattern of fractures and shrinkage caused by fire, it is suggested in this research that they should not be used as the sole observations from which to infer whether bodies were burned with flesh, moist, or dry. Their presence and frequencies should be recorded for the entire skeleton rather than for single bones. In addition, in order to make an accurate assessment, it is necessary to consider the degree of tissue that covered each element. In areas where muscle attachments are bigger, an increase in concentric fractures caused by fire would be expected. The presence of a particular type of fracture, such as concentric or thumbnails should not be considered as the sole indicator of the pre-burning condition of the body. It is necessary to complement the fracture data with the skeletal inventory, presence/absence of cut marks, and color of the remains.

Weights

Cremation bone weights were taken for each anatomical region (e.g., cranial, dental, axial, upper appendicular, lower appendicular, and extremities), and for all bone for an individual (see Appendix D). The bones were weighed after the inventory and biological profile of individuals were concluded in order to avoid commingling remains and only include weights for single individuals. The weights were measured in grams on a high precision electronic scale. Cremation bone weights, in conjunction with the skeletal inventory, informed inferences about the division and fragmentation of remains as a whole and by anatomical region in the primary cremation fire, or removal into secondary deposit(s). Cremation weights were used as a proxy to analyze how much bone belonging to a single individual was found in a single deposit. These values were used as

approximations, as many factors can contribute to bone loss. Post-depositional disturbances and cultural practices can result in bone loss and can obscure what can be understood from burials. In order to minimize bone loss, most researchers excavating Hohokam burials employ ¼-inch and ⅛-inch mesh screens. Storage and analysis methods can potentially bias skeletal element identification and bone weight by increasing fragmentation of the remains and by loss of fragments and dust through handling. However, procedures are “relatively standardized,” which makes possible comparisons between cremation deposits within and between sites. Several other factors can contribute to bone loss, such as ancient secondary ritual practices, especially in the creation of secondary deposits. One of the major biases could be natural processes, such as soil condition (e.g., pH) and bioturbation; however, these are random and are not expected to bias the analysis of large samples. In addition, no weight information from disturbed burials was used in this research.

The archaeological recovery procedures and field notes that describe the disturbance of a burial were evaluated before considering the analytical use of bone weight. This information was essential before considering the use of bone weight to make any inferences about past practices. Cremation weights should not be used to determine either the sex or the minimum number of individuals (Fairgrieve 2008). Published procedures used to weigh elements vary. Some researchers weigh the complete cremation, while others weigh the elements by anatomical region (Brothwell 1963; McKinley 1989; Trotter and Hixon 1974). Both methods are considered useful as ways to quantify the remains that are present. Recording the weight of the complete cremation and the weight by anatomical regions allows one to include bone fragments that cannot be specifically identified due to their advanced degree of fragmentation and small size (e.g., minor long bone fragments, vertebra fragments, unknown fragments).

A cremated adult individual’s total bone weight is expected to be approximately more than 1,500 grams. Cremations weighing more than 1,500 grams from a single individual are expected to represent a fairly complete individual, while bone weights below this imply an incomplete individual (e.g., Bass and Jantz 2004; Brothwell 1963;

McKinley 1989, 1994; Sonek 1992; Trotter and Hixon 1974). This value varies between subadults and adults. In addition, bone weights from an adult will differ based on sex, stature, ancestry, and the presence of pathologies, such as osteoporosis (Bass and Jantz 2004; Sonek 1992; Trotter and Hixon 1974). As found in this research, there is great variation among prehistoric cremation deposit bone weights (Appendices A, B and C). McKinley (2000; 2001) found that an ancient cremation of a single individual could produce a bone weight from 57 to 3000 grams. McKinley (2000; 2001) suggested that these values varied from a single deposit containing only a fraction of an individual to the remains of multiple individuals. Information from modern cremations is useful to contrast with prehistoric cremations. Modern cremation customs are controlled and minimal bone is lost in the process. It is probable that less care was taken during ancient cremation, where there were not legal implications for having incomplete individuals. Conceptions of the body are time- and culture-specific. In the United States, there are many regulations that prohibit the mixing and loss of human remains in funerary homes. There are cases in which funerary homes have been sued as a result of improperly handling human remains (Murray and Rose 1993). Regulations promote minimizing bone weight loss. Modern examples serve as proxies for bone representing one individual, and when compared with ancient samples, they allow the study of the influence of post-depositional disturbances and/or cultural customs on bone loss.

Associated Burial Objects

The analysis of burial objects was based on published data, unpublished site reports, and field notes from each site. For each burial object, the functional category, and, if available, location in relationship to the body, were recorded. The classification system proposed by McGuire (2001) was used for Preclassic Period samples, and the classification system used by Mitchell (1994) and Mitchell and Brunson-Hadley (2001) was used for Classic Period samples. These classification systems are the most complete published classification systems for Hohokam burial objects and are frequently used by

Hohokam archaeologists in published reports. These systems employ general categories, such as utilitarian, ornamental, ritual, and miscellaneous items, to classify different objects. These studies also explored whether objects were placed in burials whole or as fragments, in order to examine potential correlations between object condition and treatment of cremated remains (Appendix B). A determination was made as to whether objects were placed and burned in the cremation pyre or placed subsequent to burning (Appendix B).

Difficulties in Studying Associated Objects from Burial Contexts

Many inconsistencies in how associated objects were described were found in the published data, site reports, and field notes. No in-depth analysis of all objects was performed. This represented a challenge for the comparison of the results among different sites. Usually the objects recovered from the archaeological sites were analyzed in depth, but this was not always the case with objects associated with burials. The minimum number of objects was difficult to obtain. In addition, it was difficult to discern whether fragments of sherds correspond to a single vessel. Most reports do not mention whether the objects were burned or the exact position of the objects in the burial. However, it was generally possible to evaluate the presence of certain types of objects, using raw material as a general category, as most published data, site reports, and field notes contained this information (Appendices A and B).

Main Findings

Appendix A: Transformation by Fire: Changes in Funerary Customs from the Early Agricultural to Preclassic Period among the Hohokam of Southern Arizona

The article entitled “Transformation by Fire: Changes in Funerary Customs from the Early Agricultural to Preclassic period among the Hohokam of southern Arizona” examines changes in funeral customs from the Early Agricultural and Early Ceramic periods (2100 B.C.-A.D. 50 and A.D. 50-475) to the early phases of the Hohokam Preclassic Period (A.D. 475-750). These changes in practice suggest a change in social relationships among the dead, their families, and the community. The research focuses on two main research questions to explore changes in mortuary rituals: 1) what was the variability in mortuary customs within and between the Early Agricultural/Ceramic and early phases of the Preclassic Period; and, 2) how did changing mortuary customs modify social relationships between the dead, the families, and the community?

A total of 18 archaeological sites and 148 burials were examined. Variables examined include biological traits (sex and age at death), posthumous treatment of the bodies inferred from the archaeological contexts in which they were found, and osteological analysis. Cerezo-Román and Watson (2013) found that inhumation was the dominant mortuary custom during the Early Agricultural Period. These inhumations were characterized by variation in body position and location, which may have emphasized individuality. Inhumations were not exclusive of age or sex, as most members of the community were inhumed. Inhumation funeral customs in general did not change dramatically from the Early Agricultural Period to the Early Preclassic Period. A decrease in the variation of burial orientation was noted for Early Preclassic Period inhumations. However, variation in objects found with the remains and frequency of ceramic vessels increased during this period. Bodies were not destroyed in inhumations, and it is suggested that this type of funeral ritual preserved the individual social persona and its physicality. The citation and performative aspects of these inhumations suggest a

more homogeneous regional identity that emphasizes both individual and group identity. However, inhumations decreased in frequency through time and were mainly used for infants and a few adult individuals in later times.

Cremation became the prevalent funeral custom during the Early Preclassic Period. These cremations were mainly secondary deposits that contained very low quantities of bone located within habitation courtyard groups. The secondary nature of these deposits suggests a new treatment of the dead, with an additional community investment in the funeral custom. The bodies in this ritual were destroyed by fire and converted into bone fragments. This type of treatment created commonality and a certain level of homogeneity among individuals, maintaining levels of corporate similarity. In addition, a transformation of the body that occurred during the ritual implies a different way of dealing with the dead. Changes in funeral customs can occur as a result of many factors and are usually not monocausal.

The gradual change in mortuary customs from inhumation to cremation suggests a gradual change in perception of the dead body through time and an additional community investment. It is possible that this change in funeral custom was related to broader changes in society in terms of individual and group identities. These changes are reflective of the emergence and reaffirmation of more social cohesion than was previously observed. This is consistent with contemporaneous changes in material culture, architecture, and social organization inferred from other archaeological investigations at Hohokam sites in the Tucson and Phoenix basins.

Appendix B: Pathways to Personhood: Cremation as a Social Practice among the Tucson Basin Hohokam

The article entitled “Pathways to Personhood: Cremation as a Social Practice among the Tucson Basin Hohokam” examines how the Preclassic Hohokam of Southern Arizona created different pathways to personhood for the dead. This includes examining how bodies were treated within cremation customs at four Tucson Basin Hohokam

archaeological sites, and through comparison with different ethnographic accounts of cremation customs among Native American groups of the Southwestern United States. The goal was not to use ethnographic cases as direct analogy, but rather to use these case studies to show the different pathways through which the dead and living interact during the transition process from life to death. Here, Cerezo-Román uses the concept of personhood to explore complex relationships between the dead, the living, and material culture among the Preclassic Hohokam of Southern Arizona. The comparative data come from four recently excavated archaeological sites in the Tucson Basin: Honey Bee Village (AZ BB: 9:88 [ASM]) (Craig 1989; Wallace 2012), Sleeping Snake Village (AZ BB: 9:104 [ASM]) (Ezzo 2005), Fagan Ranch (AZ EE: 1:345 [ASM]) (Ezzo 2008), and Los Morteros (AZ AA: 12:57 [ASM]) (Wallace 1995a, 1995b). In this research, I analyzed human remains of 415 individuals, consisting of cremations, inhumations, and other burial deposits that contained both burned and unburned bone. Most of these individuals were found in cemeteries associated with courtyards. Courtyard groups are spatially patterned regions and facilities within sites (Fish and Fish 1991:159) that are generally believed by Hohokam archaeologists to represent households and extended family households (e.g., Fish and Fish 1991; Wallace et al. 1995; Wilcox et al. 1981). Historical accounts of cremation customs utilized in this paper originated from the Pima (Akimel O'odham), Tohono O'odham, and several Yuman-speaking groups. Based on archaeological and linguistic evidence², ancestors of these groups had contact with the Hohokam in the past (Ezell 1963; Shaul and Andresen 1989; Shaul and Hill 1998). The Pima and the Tohono O'odham consider the Hohokam to be their ancestors, although the "Pima-Hohokam continuum" is a source of debate among Hohokam and Southwestern archaeologists (e.g., Ezell 1963; Jill 2001).

Hohokam Preclassic Period cremation customs are overwhelmingly characterized by the presence of both primary and secondary deposits of cremated bones. Typically, variable amounts of bone, from a small amount to a whole individual, were collected

²Shaul and Hill propose that the Proto-Tepiman speech community incorporates attestation of language contact with Proto-Yuman based on data from phonology, syntax and lexicon (Shaul and Hill 1998). This suggests that the Hohokam were a multi-ethnic community who spoke both Proto-Tepiman and Proto Yuman ca. 1000 years ago.

from the primary cremation (pyre site) and placed in secondary deposits. Relationships between the living and dead were transformed at this point, and based on archaeological evidence there was no intent to keep the remains of an individual together. Interestingly, no significant differences were found between cremation types based on age group (except infants, which were not cremated), or based on sex. This homogeneity in cremation regardless of age or sex does not mean that the multiple intersecting identities of the dead ceased to exist, but rather that they were extended and transformed during these rituals.

During the Preclassic Period, it seems that subsequent to burning, cremated remains were fragmented, divided, and distributed. However, no reburning episodes of secondary cremated deposits have been documented, and it is likely that remains were disposed in one or multiple separate pits. In the Preclassic Period, after the body was burned, it continued to evoke the personhood of the deceased but was transformed into “body-objects,” which could be divided and circulated as inalienable possessions. Inalienable possessions are objects meant to be kept and not exchanged. These objects have symbolic power (Weiner 1992). They are usually used to authenticate the ritual authority of particular corporate groups (Mills 2004). The Preclassic Hohokam practice of dividing human remains varied between archaeological sites and even within courtyard groups at specific sites. At these sites, it is possible that low cremation weights indicate that remains were fragmented and divided within/between the different levels of Hohokam organization. Organizational levels among the Hohokam consist of courtyard groups, suprahousehold units, sites, and communities (Fish and Fish 1991, 2007). These levels of organization comprise different networks tied together by different social affiliations, such as biological, civic, political, social, economic, and religious groups, among others. The specific relational network of the deceased and family would dictate how the remains were distributed.

Remains had symbolic power as sources of remembrance of the personhood of the deceased, and as a material enactment of connections and networks that previously existed between the deceased and mourners. Value could be transferred by participation

in distribution of the remains, with ritual and symbolic values imbued by participation in the event, and possibly through the act of placing remains in the final deposition as secondary deposits. It is uncertain how many people could participate in distribution of the remains. However, it seems likely that the more connections the deceased had in life, the larger the number of people who participated in distribution of the remains, and therefore the smaller the amount of bone each participant obtained in the distribution. In this paper, it was concluded that in mortuary customs, a transition occurred for both the dead as well as the living. In these transitions, relationships and networks were reconfigured between different individuals, individuals and groups, individuals and objects, and the living and dead. Bodies were converted into “body-objects,” but continued to evoke memories of the deceased person’s life. Objects became extensions of personhood, and mourners’ relationships were reconfigured. Rather than adopting a static, stage-oriented approach, bodies can be viewed as part of different sets of interactions – interactions that defined the personhood of each individual involved.

Appendix C: Unpacking Personhood and Identity in the Hohokam Area of Southern Arizona

This paper attempts to link mortuary customs observed in the Hohokam Preclassic Period with changes in the Classic Period. The identification of and changes in aspects of identity and personhood among the Hohokam are examined from a regional perspective. The chronological and geographical foci were the Tucson Basin Hohokam of Southern Arizona from the Preclassic to Classic Period. This research mainly explores two questions: What are the temporal differences/similarities in mortuary customs, and how do these relate to broader aspects of personhood within Hohokam society? To answer these questions, differences between sites by time period were analyzed to look at patterns on a regional scale. The concept of personhood was used to explore complex relationships between the dead and living using remains from ten Preclassic and Classic Period Hohokam archaeological sites in Southern Arizona. A multidimensional approach

was used in this research, and a regional database was created for the Tucson Basin Hohokam. The goal was to explore how a person was represented in mortuary customs through two main data sets: 1) biological profiles of the human skeletal remains; and, 2) posthumous treatment of the body inferred from archaeological context and analysis of the human remains. A total of 764 individuals recovered from single graves were examined from the ten archaeological sites.

During the Preclassic Period, the majority (n=278, 69.8 percent) of burials were secondary deposits of cremated bone or unspecified deposits containing cremated human remains. The remainder consisted of primary and secondary inhumations (n=67, 16.8 percent), primary deposits of cremated bones (n=52, 13.1 percent), and a new burial deposit type - a combination of primary and secondary deposits of cremated bone (n=1, 0.3 percent). Likewise, in the Classic Period, most cremated remains were secondary deposits (n=178, 63.3 percent), while 25.3 percent (n=71) were primary deposits of cremated bones. The new burial type, "primary/secondary cremation deposits," also became more frequent in the Classic Period (n= 32, 11.4 percent). The relationship between burial pattern and time period was statistically significant.

Cremation, in general, was the primary mortuary practice in both the Preclassic and Classic periods. This differs from what has been reported in the Phoenix Basin, where inhumation became the prevalent mortuary practice in the Classic Period. In both the Preclassic and Classic periods in the Tucson Basin, infants usually were not cremated, probably because they had not reached the social age necessary to be considered full members of the society. This pattern is also statistically significant. In addition, only a few adults were not cremated. However, as Cerezo-Román reports elsewhere, the reasons for not cremating infants were very different from the reasons for not cremating adults (2013a).

Using accepted protocols, sex was estimated for few individuals (n= 128, 16.7 percent), but no observable patterns were apparent between sexes by time period or within burial type. The quantity of cremated bone placed in secondary deposits changed from the Preclassic to Classic Period, and these differences are statistically significant.

During the Preclassic Period, most bone weights were less than 50 grams. However, during the Classic Period, there are less drastic differences between bone weights found in secondary deposits and there was a general tendency toward higher bone weights in those deposits. During the Classic Period, there is an increase in burial deposits containing 500 to 1000 grams of bone and a decrease in deposits containing less than 10 grams of bone. In the Preclassic Period, primary deposits of cremated remains present lower weights than the Classic Period.

The statistical mean of bone weights from secondary deposits in the Preclassic Period was much less than in the Classic Period, but the minimum and maximum ranges were similar for the two periods. These differences cannot be explained solely by differential excavation and recovering techniques, as most burials were excavated using similar protocols and techniques that optimized the recovery of the human remains. It is more likely that what is observed is a change in how the living treated the cremated remains of the dead. The evidence indicates that in the Classic Period, the practice of dividing the remains declined. Bodies were burned and later placed in secondary deposits, but were not divided. On several occasions, it was observed that remains were not placed in a secondary deposit, but rather were left in the pyre site and placed inside an urn and/or a pit in the same deposit. This suggests an emphasis in practice on a relational self – part-person and part-object.

During the Classic Period, this practice decreased in frequency, and the remains were not divided, but rather left in place or transferred to a secondary deposit. In the Classic Period, it is probable that networks were more private within each level of organization at a site, and that relational networks of people were less extensive. In addition, not as many people participated in these rituals. Furthermore, it is possible that there was a decrease in the extent of “emotive” or remembrance networks with other individuals. The perceptions of self changed to a more whole and bounded unit even after the self’s transformation through the cremation fire. Platform mounds and adobe compounds began to appear among the Classic Period Hohokam. These new types of architecture imply limited access to spaces, as well as an increase in social

differentiation. In contrast, Preclassic Period public and social spaces, such as plazas and ball courts, were more open and available, suggesting broader networks and interactions of people within and between sites and communities. The creation of social divisions and segmented spaces reduced interactions between members of the community, and it is possible that this was also reflected in funeral ritual during the Classic Period. The funeral customs of the Classic Period are the result of a more segmented population but possibly closer alliances within the networks. This suggests a change in conceptions of personhood through time not limited to funeral customs, but rather extending to broader aspects of personhood and conceptions about the self among the Tucson Basin Hohokam. These changes in mortuary customs are parallel to broader sociopolitical changes observed in the Classic Period, where an increase in social differentiation and complexity has been recorded.

CHAPTER 3: CONCLUSIONS

My research centers on changes in personhood, identity and funerary rituals from the Early Agricultural Period to the Classic Period in the Tucson Basin, Arizona. This concluding chapter presents a summary of the dissertation and its overarching findings. This dissertation was organized into six parts. The First Chapter presents the background and overarching research problem and describes the unique contribution of this dissertation to the field of study. This was done by explaining the research problems and their contexts. In addition, a literature review was presented. The main overarching research problem of the dissertation is to investigate ancient identities among the Tucson Basin Hohokam by applying the concept of personhood as expressed in mortuary customs through time and space. This concept was used to understand the ranges of identity practices found within site mortuary assemblages, and the ways in which these revealed different aspects of personhood and identity associated with an individual's social networks. In addition, I evaluated how these relate to broader changes in Hohokam society. To explore this overarching research question three papers were produced (see Appendix A, B and C). Different time periods were analyzed in each paper. The first paper focuses on changes in funeral rituals from the Early Agricultural and Early Ceramic periods (2100 B.C.-A.D. 50 and A.D. 50-475), to the early phases of the Hohokam Preclassic Period (A.D. 475-750) in Southern Arizona (Cerezo-Román and Watson 2013). The second paper examines how bodies were treated within cremation customs at four Hohokam Preclassic Period (A.D. 475-1150) sites using comparisons with different ethnographic accounts (Cerezo-Román in press). The third article focuses on funeral customs among the Tucson Basin Hohokam from the Preclassic (A.D. 475-1150) to the Classic (A.D. 1150-1450/1500) periods (Cerezo-Román 2013).

Chapter One of the dissertation presents a literature review of the main studies of identity and personhood in archaeological research used in this dissertation. In addition, as the research centers on mortuary customs, a general overview of the main studies exploring identity and personhood in mortuary customs is presented. This chapter also

presents a review and critique of Southwestern U.S. mortuary practice studies. My research builds on significant advances in identity studies of past populations, particularly by looking beyond the study of a single attribute of identity to the multiple ways a person's identity was constructed in the past. It employs an original multidimensional approach that has implications for the refinement of archaeological and anthropological method and theory. The results also have a broader anthropological impact because they emphasize a better understanding of broader issues of personhood through time and space. This broader understanding of how personhood changes through time is tied to broader social changes that occurred in the Greater Southwest that have already been documented for the Preclassic and Classic Hohokam. The dissertation research also advances reconstruction of the histories of past populations in the Hohokam region. Although extensive archaeological research has been conducted in the Tucson area, and several large-scale excavations projects have recently been completed, there are as yet no syntheses of mortuary behavior. The present study fills this gap in our knowledge of mortuary customs by incorporating recent archaeological results with previously documented data.

Chapter Two presents the methods, results, and conclusions of the dissertation research. In this chapter, the sample size and criteria used to select individuals included in the analysis are explain. In addition, chronology factors and criteria behind exclusion of burials that did not present chronological information are discussed. In order to evaluate the different research questions, each paper addresses two principal data types: (1) data on the human skeletal remains themselves; and (2) data on the posthumous treatment of the dead, including associated burial objects. These data collected on the human skeletal remains consist of a skeletal inventory, estimation of sex, estimation of age at death, estimation of pathological conditions, degenerative joint disease, and trauma. Information collected on the posthumous treatment of the dead include thermal alterations on burned human bone such as color, fractures and shrinkage caused by fire, and bone weights. Additionally, the deposit type (primary or secondary), body position, body orientation, and a detailed description of the associated burial objects were recorded. Chapter Two

also includes a description of how data are interpreted theoretically, and how the concept of personhood is operationalized. Data generated from the biological profile allows for the examination of specific physiological characteristics in the body that played important roles in the social construction and perception of personhood by the mourners. These variables are combined with those on the posthumous treatment of the body and temporal aspects of the specific archaeological context to help elucidate how bodies were treated after death, as well as the social practices relevant to identity and personhood constructions through time.

Appendix A discusses the change from inhumation to cremation funerary rituals during the formative transition in Southern Arizona – from the Early Agricultural and Early Ceramic periods (2100 B.C.-A.D. 50 and A.D. 50-475), to the early phases of the Hohokam Preclassic Period (A.D. 475-750). In this paper, 146 individuals were evaluated to understand how changes in funerary rituals related to changes in social relationships between the living and dead. During the Early Agricultural and Early Ceramic periods, mortuary customs likely emphasized both group and individual identities based on the preferential use of inhumations. However, cremation slowly became the dominant burial ritual in the early phase of the Preclassic Period. These changes in funeral custom likely reflect a greater investment in these customs and an emerging group identity with strong social cohesion, an observation that also is consistent with other archaeological evidence from the area.

Appendix B focuses on the Hohokam Preclassic Period when cremation was the predominant mortuary ritual. This paper focuses on understanding how personhood was constructed both in life and at death through the different interactions between individuals and the deceased. Treatments of human remains within cremation customs and comparisons with different Southwestern Native American ethnographic accounts of cremation customs are examined. Ethnographic accounts were not used as analogies, but rather were used to see how groups that lived in the areas during historic times interacted with the dead. The results suggest that there was a dynamic transition of personhood for both the living and dead during different stages of the funerary ritual. Bodies were burned

in pyres and the deceased was transformed into “part-person and part-object” evoking both the deceased person’s life and different materialities of the cremated remains. In addition, at these events mutually-identifying relationships between the community, family and deceased were created, transformed or destroyed.

Appendix C builds on the previous papers by using a bigger sample to explore the transition in funeral customs from the Preclassic (A.D. 475-1150) to Classic period (A.D. 1150-1450/1500) among the Tucson Basin Hohokam. Changes in aspects of personhood through time are examined. In the Preclassic Period, as observed in Appendix B, cremation were the prevalent funeral custom used for most individuals, with the exceptions of neonates and infants. This differential treatment of neonates and infants is also observed in the Classic Period. This suggests that these individuals had not acquired a full personhood, but was still treated with care. The absence of burning does not indicate a disregard for neonates and infant, rather that they were commemorated in a different manner because they were too young to have developed all the requisite relationships that confer personhood for older individuals. On the other hand, children, subadults and adults usually were cremated. Among cremated adult individuals, once the bodies were burned the remains were distributed as inalienable possessions among families and within specific networks, emphasizing a relational social construction of self; part-person and part-object. In the Classic Period cremations continued to be the dominant funerary custom, but the ritual itself changed. Cremated bones were no longer divided, but transferred almost wholly to single secondary deposits. This suggests that perceptions of personhood at this time changed from those of the Preclassic Period, and that the self was considered as a bounded unit and was considered to be relatively whole, even after its transformation during the cremation fire. This change suggests that this transition through time occurred as a result of shifts toward more private rituals and a general decrease in “emotive networks” or “remembrance networks.” The changes in mortuary customs through time are similar to broader sociopolitical changes observed among Classic Period Hohokam in other archaeological materials, where an increase in social differentiation and complexity has been postulated.

The findings and conclusions of this research are significant and innovative, as previous studies of mortuary customs among the Hohokam have not been as detailed or extensive in this region. The combined use of data collected from the human skeletal remains themselves, posthumous treatment of the remains, and archaeological assemblages are essential for more robust interpretations of past practices. Analysis of the human skeletal remains is particularly important, as cremated bones have typically been overlooked and understudied.

Cremation customs in past societies are not well understood. However, these complex multistage customs are filled with elements of individual and (sub)group identities. Funerals are events where relationships are formed and/or transformed through interactions between the community, family and deceased. Cremation rituals differ from inhumations by physically transforming the body into bone fragments that can be easily transported, stored and dispersed. The portability of cremated bone allows for very different treatments depending on perceptions of the deceased and how the body was transformed during the funeral (e.g., Williams 2011). Cremation also required extra community investment in the creation of secondary deposits. It is possible to infer these different treatments from a detailed analysis of thermal alteration and posthumous treatment of cremated bones. Previous Hohokam research on mortuary customs has largely relied on the study of inhumations, with little or no attention paid to cremations. This is largely due to the challenges of working with this type of material, which is particularly challenging to study as it presents a high degree of fragmentation and small bone sizes. However, this material was studied in detail in this research and it was possible to acquire significant additional information. This adds another dimension of analysis not previously possible with Hohokam material, allowing for new and innovative ways to study personhood and identity through mortuary customs.

In this research, it also was possible to bridge theory and method by unpacking and operationalizing the concepts of personhood and multiple intersecting identities as applied to past mortuary customs. It was not practical to present a general, universal approach to examining personhood in prehistory; not all intersecting identities or aspects

of personhood can be fully identified from past contexts. Additionally, some variables are potential indicators of multiple dimensions of identity, but not all of these dimensions are archaeologically distinguishable. Nonetheless, it was possible to identify and examine specific intersecting identities and aspects of personhood construction through time by observing the social contexts of change in ritual mortuary behaviors and object use, particularly as related to individual identity, social age and group identity.

Observing funeral rituals within broader social context was of great importance in this research. As the research presented in these different papers has pointed out, similar changes were observed through time in broader issues of personhood and identity. These changes also relate to broader social changes that were occurring in the Tucson Basin in the different time periods. These broader social and cultural changes were inferred from the analysis of other archaeological materials. In the future, it would be valuable to correlate attributes of these cultural changes in a systematic manner to gain more in-depth knowledge of variation within the region. The immediate study of burned human remains in the Southwest is at a critical stage, since skeletal remains are rapidly being repatriated from museum collections and osteological data previously collected from this type of remains are limited. By applying existing methods and those developed in this research and by establishing new data collection protocols that maximize information recovered from cremation analysis, significant new information can be acquired before the remains are gone forever. Expanding the focus to other areas in the American Southwest, Northern Mexico and California also would be of great interest for regional comparisons.

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APPENDIX A PREFACE PAGE

Breakdown of individual authors' contributions:

Jessica I. Cerezo-Román	90%
James Watson	10%

APPENDIX A – TRANSFORMATION BY FIRE: CHANGES IN FUNERARY CUSTOMS FROM THE EARLY AGRICULTURAL TO PRECLASSIC PERIOD AMONG THE HOHOKAM OF SOUTHERN ARIZONA

Paper is pending review in Journal of Anthropological Archaeology

Jessica I. Cerezo-Román³ and James Watson⁴

Introduction

Explaining changes in mortuary customs, especially shifts between inhumation and cremation practices, is relevant to much New and Old World archaeological research. In this paper, we examine this important change, from the Early Agricultural (2100 B.C.-A.D. 50) to early Hohokam Preclassic (A.D. 475-750) period, in the Sonoran Desert of the American Southwest (Table 1). While previous studies of this transition have recognized a general shift in the dominant form of body treatment from inhumation to cremation burial (e.g., Bayman, 2001; Wallace et al., 1995), many significant issues have yet to be systematically studied. We focus on two: 1) how the major change in the funeral custom occurred, 2) social implications of alternative funerary treatments regarding attitudes about the dead, the body, and the community.

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Table 1. Archaeological Chronology in the Sonoran Desert (modified from Wallace, 2012).

Period	Phase	Dates
Classic	Tucson	A.D. 1300-1450/1500
	Tanque Verde	A.D. 1150-1300
Sedentary (late Preclassic)	Rincon	A.D. 950-1150
Colonial (early Preclassic)	Rillito	A.D. 850-950
	Canada del Oro	A.D. 750-850
Pioneer (early Preclassic)	Snaketown	A.D. 700-750
	Tortolita	A.D. 475-700
Early Ceramic	Agua Caliente	A.D. 50-475
Early Agricultural	Cienega	800 B.C.-A.D. 50
	San Pedro	1200-800 B.C
	Unnamed	2100-1200 B.C
Archaic		8500-2100 B.C.
Paleoindian		10,000-8500 B.C.

To this end, we characterize mortuary customs and biological traits as variables useful in exploring how and why Prehispanic residents of the area altered their mortuary treatments from solely inhumations to a dramatic increase in the frequency of cremations. Collected data consisted of 148 burials from 18 archaeological sites in southern Arizona (Fig. 1; Table 2). These sites were selected as they are the only well-documented ones in the area and which have available mortuary data for these time periods. Variables explored through these data include biological traits (sex and age at death), posthumous treatment of the bodies inferred from the archaeological contexts in which they were found, and osteological analysis. Analyses focused on remains recovered from site contexts dating from the Early Agricultural, Early Ceramic, and early Preclassic periods.

Figure 1. Location of sites in southern Arizona.

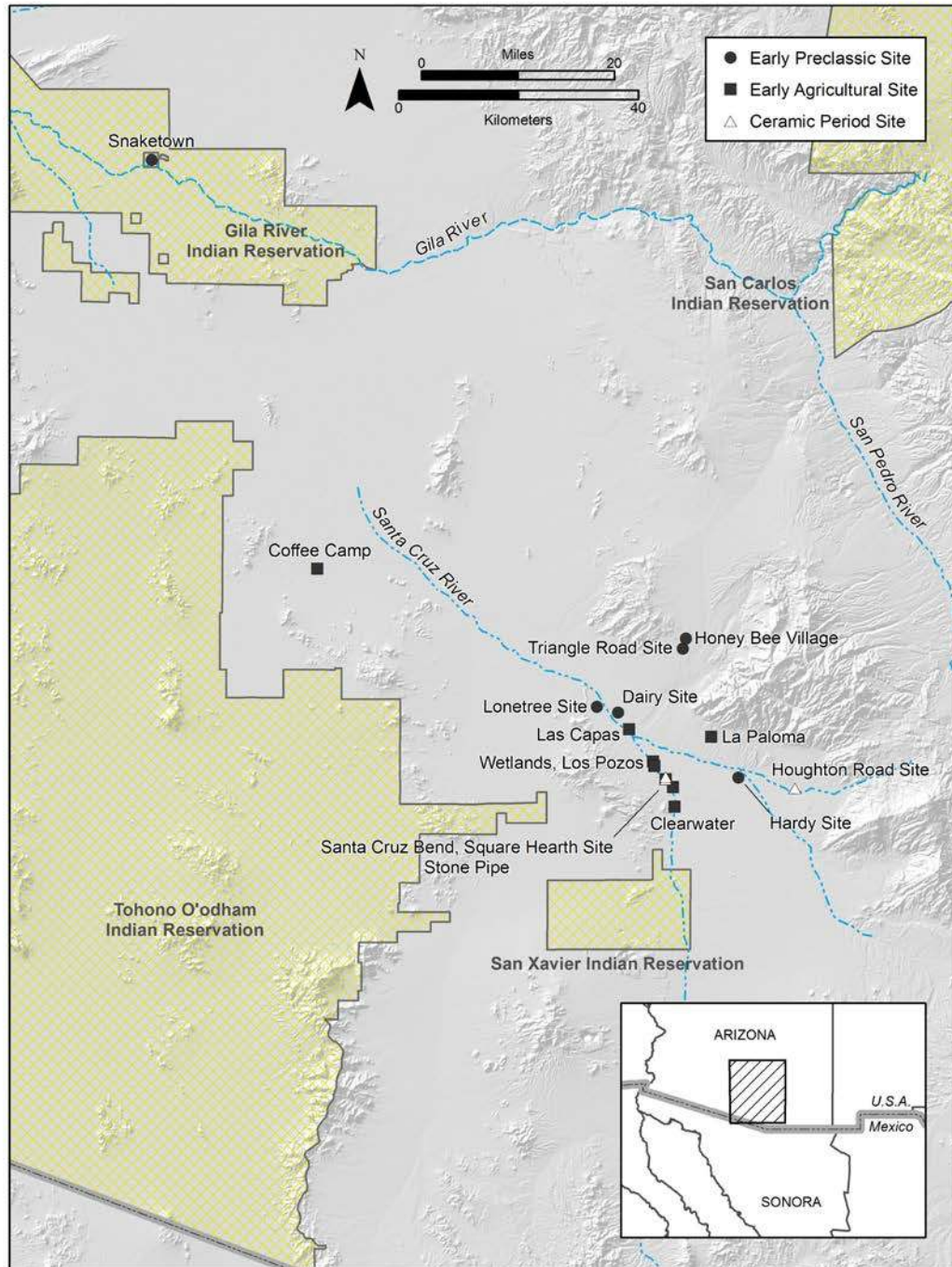


Table 2. Archaeological Sites by Period and Phase with References.

Early Agricultural Period (2100 B.C.-A.D. 50)					Early Ceramic Period (A.D. 50-475)					Early	
Sites	Phases	Inhumations	Cremations	References	Sites	Phases	Inhumations	Cremations	References	Sites	Phases
Clearwater	Cienga	15	-	McClelland et al. 2006	Houghton Road Site	Agua Caliente	3	1	Ciolek-Torrello 1998	Dairy Site	Tortolita, Snaketown
Coffee Camp	Cienaga	3	2	Dongoske 1993	Santa Cruz Bend	Agua Caliente	2	-	Mabry et al. 1997	Tortolita Mt. Area	Tortolita, Snaketown
La Paloma	Cienaga	1	-	Dart 1986	Square	Agua Caliente	2	2	Mabry et al. 1997	Hardy Site	Tortolita, Snaketown
Las Capas	San Pedro	15	-	McClelland 2005	Hearth Site	Agua Caliente	2	2	Mabry et al. 1997	Lonetree Site	Tortolita
Los Pozos	Cienaga	19	-	Gregory 2001a; McClelland 2005; Minturn and Lincoln-Babb 2001						Triangle Road site	Tortolita
Santa Cruz Bend	Cienaga	7	-	Mabry et al. 1997; McClelland 2005						Snaketown	Tortolita
Stone Pipe	Cienaga	1	1	Mabry et al. 1997; McClelland 2005; Swartz and Lindeman 1997						Honey Bee Village	Tortolita, Snaketown
Wetlands	Cienaga	23	-	Freeman 1998; McClelland 2005							

Repetition and Innovations Acts on Funerary Customs

Funerals involve carefully crafted ritual acts, which may have taken days to plan and execute (Parker Pearson 1999). Funerary customs are usually composed of several stages involving ceremonies that take place from just before the time of biological death through to and following the final disposition of the deceased's remains. We apply the works of van Gennep ([1908] 1960) and Hertz ([1907] 1960) as a framework to understand what happens at various funerary stages. These models have proven to be invaluable tools to explain mortuary customs through time in archaeological and anthropological studies (e.g., Bloch and Parry, 1982, Buikstra and Nystrom, 2003; Rakita and Buikstra, 2005). Van Gennep's universalist theory of the rites of passage, later elaborated by Turner (1967), set out a tripartite model based on processes of transition from one social stage to another (van Gennep [1908]1960). The model includes rites such as pregnancy, childbirth, marriage, and death. These transitions are accompanied by preliminal (separation), liminal (transition), and postliminal (reincorporation) rites. Van Gennep ([1908]1960) highlighted the symbolic importance of mortuary ritual performance to facilitate the rite of passage from death (preliminal), to funeral and burial (liminal), and eventually incorporation of the deceased into the world of the dead and the mourners back into society (postliminal).

Hertz ([1907]1960) focused on parallel transitions affecting mourners, the dead, and the soul within the different stages of funeral rituals. These transitions start with the death of the individual and end in the final stage of the burial with the soul departing to the land of the dead and the mourners being relieved of duties imposed upon them (Hertz [1907]1960). These models are not universal or static but can be modified and adapted depending on the funeral custom, the culture, and the time period. The models of van Gennep ([1908] 1960) and Hertz ([1907] 1960) are useful tools to deconstruct the elements of funerary customs and the sequence of these customs. However, typically only the last stage of the funerary custom, the burial, is preserved in most archaeological contexts. Regardless, by focusing upon the information contained in these deposits we

can reconstruct some of the practices that occurred prior to burial, which could relate to other stages of funerary customs. In this research these models will be used to organize the discussion and reconstruct burial custom sequences inferred from archaeological evidence. In this paper, we have focused mainly on the funeral and burial, or what van Gennep ([1908] 1960) and Hertz ([1907] 1960) called the liminal stage.

In this study, we characterize funerary customs throughout the Formative period by analyzing repeated and innovative actions in burials customs in order to understand the social implication of these treatments and attitudes toward the dead, body and community. Repeated and innovative actions of burials customs had been studied in many ways using slightly similar approaches (e.g., Barrett 1990; Gillespie 2011; Jones 2001, 2003; Joyce 2001; Mizoguchi 1993; O’Shea 1984; Williams 2003, 2006, 2013). Mizoguchi (1993), for example, studied the role of time and memory reproduction by analyzing repeated actions in burial customs of the Late Neolithic and Early Bronze Age in Yorkshire. He mentioned that the dead can be seen as portable artifacts carrying bundles of symbolic meaning. The different memories are attached to each body by different individuals. The dead person’s mother or sister, for example, would have different memories according to their personal relations with the deceased while still alive. In the funeral, these memories are reaffirmed, transformed or even challenged through the examination of their relationships to the dead. Mizoguchi (1993) mentioned that treatment of the dead, such as the position of the body and burial objects, can be thought of as a material residue of such acts.

Other researchers have focus on notions of memory⁵ and remembrance⁶, and proposed more structured analytical models to study repetitive or citational acts and innovations in mortuary customs, such as “technologies of remembrance” (e.g., Jones 2001, 2003; Williams 2003, 2006, 2013). “Technologies of remembrance”, proposed by Jones (2001, 2003), builds from concepts of Derrida (1982), Butler (1993), and Gell

⁵ Memory can be considered “as the process involved in the transmission of knowledge and experience” (Jones 2006: 66).

⁶ Remembrance can be defined as the act of remembering something.

(1998), on citation, material performances and *oeuvre*⁷. The notion of citation “captures the sense that in order for a word or thing to make sense it must reiterate components of previous sentences or objects”(Jones 2001: 340). Jones (2001) mentioned that performance of a citation both encapsulates previous ideas or things while also rearticulating them afresh in order to create or define a new category. These citational actions are not going to be the same as past actions, but they instead will be a mix of actions influenced by the present and the past. Jones (2001, 2003) suggested that technological production is allied to the creation of collective memories and sequences of artifacts and monument production, and are highlighted as one means of promoting certain form of remembrance. These modalities are also constructive of specific narratives of identity (Jones 2003). Technologies of remembrance in mortuary studies served to evaluate “how mortuary practices are sequences of acts and practices (‘techniques’) that together create chains of actions that connect to transform the social persona and reconstitute them in a new form in death” (Williams 2006: 20). They often are the results of informed decisions and choices by the mourners. The mourners actively remember past funerals and at funerals they reproduce and reformulate them but also engage in new and innovating ways of treating their dead. Gillespie (2011) adopted a citational approach to investigate small-scale patterns evident in mortuary customs in residential burials. She found that the common burial location was under house floors while some other high status burials occurred in more open spaces. Despite the differences in location, both burial customs in the above two examples drew on claims of ancestral continuity by citation of past practices. More recently, Williams (2013) explored the interplay between two strategies, commemorative ‘citations’⁸ and how material culture operated as commemorative ‘catalyst’⁹, to analyze mortuary commemoration through the use of artifact deposition in early medieval graves. He

⁷ *Oeuvre* “consist of objects extended in space and time each related to their neighbor due to the possession of traces in common. Each object therefore possesses traces that embody retentions from a previous object or protentions to a future object” (Jones 2001: 340).

⁸ Commemorative citation is defined in this context as memory creation (Williams 2013).

⁹ Commemorative ‘catalyst’ is defined as actions not commemorating themselves but enabling commemoration to take place by protecting, transforming and regenerating the dead (Williams 2013).

illustrated his argument by using four early medieval archaeological case studies from England and Scandinavia.

By analyzing repeated and innovative actions in mortuary customs, we emphasize contexts of practices and their interactions, which open the analyses to understanding social relationships between people and communities, and how individuals and collectives were distinguished through their social relations (Meskell and Pruceel, 2004). Previously, mortuary studies that used the notion of citation, and repeated and innovative practices mainly centered on the study of material culture found in graves and/or placement of burial in the landscape. However, in this paper the analysis centers mainly on the bodies of the deceased and how these bodies were treated at death by analyzing repeated and innovative actions in burial customs. The treatment of bodies at death embodies certain processes of remembering and forgetting (Williams 2013). The steps that are taken in the preparations of the body, and their treatment in the funeral and burial will allow memories to be evoked in particular ways. Thus, this analytical approach unfolds and materializes these processes throughout the funeral and burial.

Funerary customs are usually a mix between practices that can be seen as repeated actions influenced by the identity¹⁰ and personhood¹¹ of the deceased, mourners and community as a whole. However, this depends on the cultural context, as well as the balance and/or emphasis of one or the other. Mourners follow cultural practices in executing funerary customs but also are influenced by the agency¹² of the deceased individual. The deceased possesses agency in the ritual that affects experiences which evoke memories and alter the decisions and actions of the mourners in the creation and production of funerals and burials (Chesson, 2001; Hallam and Hockey, 2001; Tarlow, 1999; Williams, 2004). This agency could be expressed by the choice of funerary

¹⁰ “Identity” in this research represents an individual’s identification within a broader group based on shared similarities and differences. The term links to a sense of belonging, as well as to how we perceive others and ourselves as being part of some groups but not others (Díaz-Andreu and Lucy 2005).

¹¹ Personhood is the participation of individuals in mutually identifying relationships within and between communities as expressed through their actions. In addition, these relationships shape social constructions that reference and symbolize individuals (Gillespie 2011).

¹² Agency is defined as the strategic carrying out of intentional plans for purposive goals (e.g., Cowgill 2000, Walker and Lucero 2000).

customs, selection of particular objects to place with the deceased, and practices that may leave characteristic archaeologically visible traces. The differentiation of these different practices and finding those patterns is by no means straightforward and in many occasions impossible to differentiate.

It is not practical to present a general, universal approach to examining personhood in prehistory; not all intersecting identities or aspects of personhood can be fully identified in archaeological contexts. Additionally, some variables are potential indicators of multiple dimensions of identity, but not all of these dimensions are archaeologically distinguishable. Due to the formation and preservation processes of the archaeological record, only a few of these different interactions that could relate to particular intersections can be reconstructed in ancient populations. Specifically, particular intersections can be explored in depth from the biological profile of the skeletal remains and posthumous treatments of skeletal remains, such as age at death and sex, as well as more generalized patterns that relate to community- and regional-scale identities. Due to the small sample size within each time period in this research we could not explore in depth differences between age at death, sex, or other particular identity intersections. Considering this limitation, we still can address changes through time in body position and orientation, and type and frequency of burials objects, but we do not attribute these characteristics to particular identity intersection. We also explore regional-scale identity by observing contemporaneous (dis)similarities through time of repetitive patterns in burial custom types and how the body was treated (inhumation vs. cremation). Emphases on actions and relationships provide a more balanced way to understand how people participated at different levels and scales in society (Joyce and Lopiparo, 2005; Pauketat and Alt, 2005).

Early Agricultural, Early Ceramic and early Preclassic periods in Southern Arizona

This study uses the recent chronological summary compiled by Wallace (2012a) to temporally situate the data. We consider the early Formative ('Neolithic') transition in southern Arizona to encompass three archaeological periods: the Early Agricultural [EA] period (2100 B.C.-A.D. 50), the Early Ceramic [EC] period (A.D. 50-475), and the early Preclassic [PC] period (A.D. 475-750). These periods are further divided into phases, with samples in our research dating from about 1200 B.C. to A.D. 750. The Early Agricultural period is divided into three phases: an unnamed initial phase (2100-1200 B.C.), the San Pedro phase (1200-800 B.C.), and early and late components of the Cienega phase (800-400 B.C. and 400 B.C.-A.D. 50). The Early Ceramic period is divided into early and late components of the Agua Caliente phase (A.D. 50-350 and A.D. 350-475). The Preclassic period is traditionally divided into three periods by Hohokam archaeologists, each of which is additionally subdivided into phases. However, our primary concern for this analysis is the initial phase of the Pioneer period (A.D. 475-750), referred to as the Tortolita phase (A.D. 475-700) in the Tucson Basin (Tables 1 and 2). These time period divisions and chronological parameters used in this paper are based on existing chronological and dating sequence studies on changes in Hohokam archaeological material culture in the Tucson basin (e.g., Wallace 2012a). However, we do not suggest that these divisions are clear cut or that they mark completely different changes in mortuary practices through time. They are used in this study to facilitate the discussion of the results and present the patterns observed through time.

During the Early Agricultural period, populations in the Sonoran Desert became increasingly sedentary with a mixed subsistence economy of foraging and farming (Roth and Wellman, 2001; Watson, 2005; Watson et al., 2010; Wills, 1995). The earliest phase is characterized by the arrival and incorporation of cultigens into existing subsistence strategies along with some evidence for small villages on the floodplain of the Santa Cruz River (Mabry, 1998). The subsequent San Pedro phase is marked by increased farming of

the rich lowland floodplains, the initiation of canal irrigation, the presence of small oval habitation structures and ceramic figurines, increased varieties of ground stone, and the production of shell jewelry (Copeland et al., 2012; Roth and Wellman, 2001). The final phase of the Early Agricultural period is marked by a greater dependence on agriculture, local and long distance trade networks, larger villages and habitation structures (including communal structures), and larger storage pits. In addition, a greater diversity of artifacts also occurs including the earliest ceramic traditions, increasingly complex ground stone artifact types, and the introduction of the bow and arrow (Mabry, 1997, 2008; Roth and Wellman, 2001).

The presence of large communal-ceremonial structures and their spatial organization during the final EA phase represents the development of social integration above the level of the household (Gregory, 2001b; Mabry, 2008, 2005). This criterion has been used to define the threshold of “village” social organization in the prehispanic Southwest (Lightfoot and Feinman, 1982; Mabry, 2005; Wills and Windes, 1989). However, Wallace and Lindeman (2012:37) suggest that the evidence remains equivocal and more likely reflects a social structure consisting of households and weak local leaders.

The Early Ceramic period (A.D. 50-475) is marked by a slight break in occupational continuity in some areas, possibly the result of a period of floodplain instability and erosion (Wallace 2007; Waters and Haynes 2001). However, Wallace et al. (1995) suggest that, besides the beginning of formal ceramic production, there are many similarities in architecture, material culture, and settlement organization between the EA late Cienega phase and the EC early Agua Caliente phase. These indicate significant population continuity and large-scale communication networks (Doyel, 1991; Feiman, 1991; Gumerman, 1991; LeBlanc, 1982; Whittlesey, 1995; Wilcox, 1988).

Toward the end of the Early Ceramic period a shift in residential patterns is observed, as well as gradual increases in shell bracelet production, variation in food preparation, and storage options (Wallace and Lindeman, 2012). This era also is characterized by the appearance of increasingly permanent habitation structures such as

rectangular pithouses with substantial walls and roof supports (Wallace and Lindeman, 2012). During this time, settlements were long-lived, had public architecture such as plazas, and were part of a settlement system that included multiple adaptations such as riverine villages, farmsteads, field houses, seasonal camps, and hilltop retreats (Wallace and Lindeman, 2012).

The Hohokam cultural sequence formally begins with the early Preclassic period (A.D. 475, the Pioneer period), which includes the production of red ware ceramics and the formation of large formal interconnected villages. Between A.D. 475 and 500, sites such as Valencia Vieja had become villages with residential areas formed in an arc that enclosed a central plaza displaying numerous rebuilding episodes.

Some suggest that the time period between A.D. 550 and 650 marks Hohokam origins and the first clear-cut indicator of corporate groups (Wallace et al., 1995; Wallace and Lindeman, 2012). They define a corporate group “as clusters of households that exhibit a recognizable degree of residential coherency” (Wallace and Lindeman, 2012: 39). However, in their use of the concept of corporate group they do not specifically indicate that it is a descent group, although they could be isomorphic. They mainly use the concept to imply that each group shares economic, social, political, and possibly ritual pursuits (Wallace and Lindeman, 2012). This is similar to the concept of courtyard groups, which are spatially patterned regions and facilities within Hohokam sites (Fish and Fish, 1991:159), but which are generally believed to represent simple and extended family households (e.g. Fish and Fish, 1991; Wallace et al., 1995; Wilcox et al., 1981). Wallace and Lindeman (2012) mention that between A.D. 550 and 650, larger square houses fronting the village plaza appear and these structures are associated with lineage leaders. They also suggest that smaller square structures near the leader’s house, but not fronting the plaza, were associated with the next-in-line leaders. Alternatively, residences of the leader’s other kin are smaller and rectangular and form courtyard groups behind the leader’s house farther away from the plaza. Wallace and Lindeman (2012) also suggest that the presence of a plaza signifies social cohesion, village identity, and was a stage where political and religious leaders in the community could perform, providing an

initial mechanism for the emergence of formal corporate groups. In the early Preclassic period particularly between A.D. 550 and 650, cemeteries composed of secondary deposits of cremated bones began to occur adjacent to courtyard groups.

The Hohokam are characterized by widespread production and exchange of ceramics, such as red-on-buff and red-on-brown wares, widespread construction and use of ballcourts, plazas, mirrors, marine shell ornaments, palettes, and extensive and complex irrigation canal systems. During the Preclassic period, site structures became more “formalized” (Bayman, 2001). Groups of individual houses surrounded courtyards or plazas and courtyard groups—suggested to represent corporate descent groups (Bayman, 2001)—shared outside cooking ovens, formal refuse middens, and cemeteries. Several distinct groups of sites, referred to as “communities,” are thought to have interacted with each other, and often shared irrigation systems and/or ballcourts (Bayman, 2001). Cultural attributes characteristic of the Early Agricultural, Early Ceramic, and Preclassic periods represent the Formative transition in the Sonoran Desert, effectively bridging Archaic period foraging and Hohokam agricultural intensification in the region (Wallace and Lindeman, 2012).

Materials & Methods for Unpacking and Operationalizing Funerary Customs

Data were recorded directly by the authors or extracted from previous analyses and publications. The sample consists of a total of 148 burials from eight Early Agricultural, three Early Ceramic, and seven early Preclassic period sites/or components of sites from southern Arizona (Table 2). The recorded variables consist of two main types: 1) archaeological data documented from mortuary features, and 2) biological data derived from the osteological analysis of the skeletal remains from these features.

Archaeological data comprise primary and secondary sources produced by analyzing the posthumous treatment of individuals within mortuary features. These data derive from archaeological reports, field notes, and published analyses. Variables

characterizing posthumous treatment include deposit type (inhumation vs. cremation), orientation (side on which the body was placed such as left, right, supine, prone, seated and head down), position of body (flexed, semi-flexed and extended), and objects found associated with the remains. Dates associated with individual burials and site-specific chronologies were acquired from published data and site reports. Burials that could not be dated to a specific phase were placed in broader categories based on associated site dates and/or ceramic types (e.g., Wallace 2001, 2004). Several sites have multiple and/or continuous occupations from the Early Agricultural to early Preclassic periods and individual burials could not always be assigned a specific date. To avoid problems with chronological classification we only included burials from publications and site reports that were explicitly assigned to time periods using criteria other than the type of mortuary custom. The biological data include estimations of sex and age at death. They were recorded using research protocols for osteological data collection based mainly on Buikstra and Ubelaker (1994) and the Bioarchaeology Laboratory of the Arizona State Museum (ASM) (McClelland, 2013).

Analyses were performed based on trait frequencies for each variable, which were calculated using a simple dichotomy: presence or absence. These binary data were then converted into percentages based on the presence of the trait within each site sample by archaeological phase/period for use as continuous data in statistical comparisons. The statistical analysis evaluates frequency distributions across archaeological phase/period by means of a Pearson's chi-squared test for each variable. We expect that most of the variables change over time as social systems became more complex and populations grew.

Results

Variables

The results of the Pearson's chi-squared tests on frequency distributions of the variables identify a statistically significant difference in the proportion of inhumation burials ($\chi^2 = 62.352$, $df = 3$, $p < 0.001$) from the Early Agricultural, Early Ceramic and early Preclassic periods. The percentage of inhumation burial decreases significantly from the San Pedro phase (1200-800 B.C) of the Early Agricultural period (100%) to the Tortolita phase (A.D. 475-700) of the early Preclassic period (35%) (Table 3). There is a corresponding increase in the number of cremations in southern Arizona sites over this same time (Figure 2). This transition in the early Preclassic period also included the adoption of secondary deposition of cremated remains. Early Agricultural period sites have fewer numbers of cremations and more evenly distributed types (two secondary and one primary), while Preclassic period sites have increased numbers and the majority were secondary deposits (42 out of 44). This suggests that the shift in mortuary custom to cremation moved rapidly to investment in secondary cremation burial as a preferred form of final deposition.

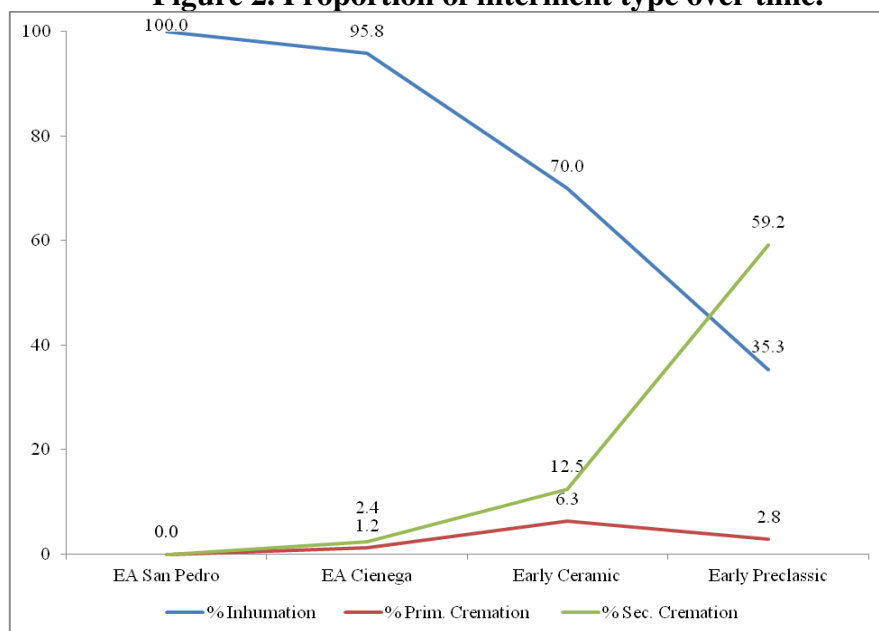
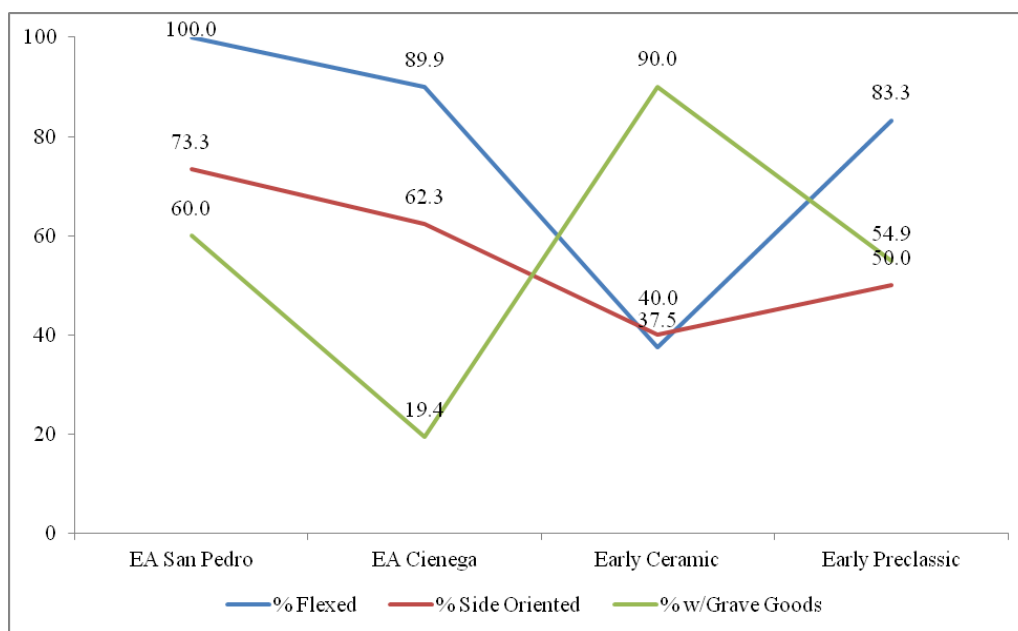
Figure 2. Proportion of interment type over time.

Table 3. Variable Frequencies by Archaeological Period/Phase.

Period Phase	Early Agricultural		Early Ceramic	Early Preclassic
	San Pedro	Cienega	Agua Caliente	Tortolita
Sample (n)	15	72	10	51
Inhumation	15 (100%)	69 (95.8%)	7 (70%)	18 (35.3%)
Prim. Dep. Cremation	0 (0.0%)	1 (1.2%)	1 (6.3%)	1 (2.8%)
Sec. Dep. Cremation	0 (0.0%)	2 (2.4%)	2 (12.5%)	32 (59.2%)
M:F Ratio	1.50 (N♂=6, N♀=4)	0.54 (N♂=15, N♀=28)	0.33 (N♂=1, N♀=3)	1.17 (N♂=6, N♀=7)
Mean Age	30.5	34.0	29.0	29.0
Flexed	15 (100%)	65 (89.9%)	4 (37.5%)	42 (83.3%)
Side Oriented	11 (73.33%)	45 (62.3%)	4 (40%)	26 (50%)
w/Grave Goods	9 (60%)	14 (19.4%)	9 (90%)	28 (54.9%)

Comparisons of the archaeological data collected from mortuary features are presented in Table 3 and Figure 3. The results indicate that body positions for inhumations also changed over time ($\chi^2 = 29.838$, $df = 6$, $p < 0.001$), and that the percent of individuals placed in a flexed and extended position decreased steadily through the Early Ceramic period, then rose again (Table 3 and Figure 3). In contrast, variability in body orientation (% Side Oriented) did not change appreciably over time in the sample ($\chi^2 = 17.490$, $df = 12$, $p = 0.132$). There is considerable variability in the orientation of inhumations during the Early Agricultural period, although there was a definite preference for placement on one side (either right or left), whereas during the initial phase of the early Preclassic period many individuals were placed supine.

Figure 3. Distribution of cultural attributes over time.



The proportion of individuals interred with associated funerary objects or displaying body treatment also increased significantly across archaeological periods ($\chi^2 = 30.161$, $df = 3$, $p < 0.001$). During the Early Agricultural period, several individuals were buried with red ochre, but only a few were found with shells, animal bone, projectile

points, ground stone, ceramics, and/or with multiple artifacts. Similar objects, such as shell, animal bone, and ground stone, were found in the Early Ceramic and early Preclassic periods, however, the application of red ocher ceased as a funerary custom and the frequencies of ceramics and other artifact classes increased substantially (especially during the Early Ceramic period).

Discussion

Mortuary customs in the Sonoran Desert shifted from inhumation to cremation during the Early Agricultural and Early Ceramic periods and Hohokam early Preclassic periods. In order to examine this transition, we address our first research question: 1) how did the change in funeral custom occur? In the discussion we subsequently address our second research question: 2) what are the social implications of the alternative funeral treatments regarding attitudes about the dead, the body and the community? We argue that the shift from inhumation to cremation mortuary customs over this Formative transition is best considered in terms of citation or innovation and the relationships among individual and group identities. We also suggest that the change, in terms of performance, of these mortuary customs relates to changes in social relationships between the living and dead.

Variability in Mortuary Customs within and between the Early Agricultural, Early Ceramic, and Early Phases of the Preclassic Periods

During the Early Agricultural and Early Ceramic periods inhumation was the dominant burial custom. During this period inhumed bodies were placed in a variety of orientations (e.g., seated, on one side, prone, supine or head down). However, the dominant orientations were on either the right or left side or supine. Most individuals also were placed in a flexed position, and a few individuals were placed in semi-flexed or

extended positions. Specific patterns of body positioning in the burial practice do not appear to have been codified. In general, few objects were placed with individuals but through time the number of objects placed within burials increased.

There are several possible interpretations for these developments. We suggest that the predominance of inhumation interment customs throughout the Early Agricultural and Early Ceramic periods represents a reiteration of norms observed in the citationality of this custom at several sites. This was particularly expressed at the moment of interment when the body and burial objects were placed in the grave. These patterns and repetitions of practice suggest that the earliest inhumations from the Early Agricultural may have established precedents that were cited by subsequent burials. This type of patterning and continuity could be more than just commemoration of the dead itself by the mourners, it may also be similar to a 'cultural norm' comprising a reiteration of group identity within a site and at a regional scale in the Tucson Basin and southern Arizona. This 'regional identity' was also manifested by the longevity of this custom throughout the Early Agricultural period and into the Early Ceramic period, and could inscribe a link to identities of Early Agricultural population. However, these inhumations were not identical and it is not expected that they would be, as each inhumation will not exactly copy past actions. We think that the differences within inhumations could relate to particular identity intersections of the deceased and the mourners. Family, subgroup settings, and circumstances at death for each deceased individual are unique. In these early Formative time periods, variations in body positions and types and quantities of objects in inhumations suggest that the identity of the deceased and/or mourners also were emphasized in funerary customs. It is possible that variation in body position and burial objects could be used as a means of displaying and distinguishing the particular identity of each deceased and the mourners.

Inhumation customs in the early Preclassic period changed very little from those of the Early Agricultural and Early Ceramic periods; the custom of inhuming individuals in a flexed position persisted. However, in the early Preclassic period variation in body orientation decreased considerably; supine became more common and no individuals

were found in seated, prone, or head down orientations. In terms of citation, it appears that this inhumation pattern became more standardized over time, suggesting a more homogeneous regional identity or at least a more homogeneous burial custom. The use or placement of red ocher disappeared, suggesting the possibility that there was a shift in focus away from the body toward other aspects of the burial, such as the type and quantity of burials objects. One variable within inhumation that increased significantly in the Early Ceramic and early Preclassic periods was the type and quantity of objects placed in the grave. The increases in supine body orientation and grave objects could be link to the use of the grave as an arena for display for both a regional identity and the particular identity of the deceased. Objects placed with the remains could be possessions of the deceased and/or gifts and offerings from the mourners, and it is not possible to clearly distinguish between the two. Regardless, through their selection these objects acquired capacities to sustain memory relationships between the survivors and departed. These objects could represent multidimensional networks of reference for both the deceased and mourners, thereby giving agency both to the dead and living. If the objects were former possessions of the deceased, they were designated as aspects or extensions of the personhood of the individual, and thus they become potent sources of memory because of the way in which object biographies are interwoven with the biographies of the associated person(s) (e.g. Brück, 2006a:76; Gosden and Marshall, 1999; Hallam and Hockey, 2001; Hoskins, 1989). In these cases, identity markers also potentially changed from the Early Agricultural period where differences were found in body positions to early Ceramic and Preclassic period differences where more variation exists in burial objects found in graves.

Inhuming a body without burning declined through time, and inhumation burial at Preclassic period Hohokam sites existed as a custom almost exclusively for infants (<2 year at death) and few select adult individuals (Cerezo-Román in press). Inhumation funerary customs were subsequently largely replaced with cremations in the Tucson Basin of southeastern Arizona. Cremation first appeared as an innovation in burial customs during the Cienega phase of the Early Agricultural period and showed a clear

increase in use that culminated during the Hohokam Preclassic and Classic periods. It is uncertain if cremation as a funerary custom began within a specific subgroup as it was not possible to identify one with the limited information available from the biological profiles and posthumous treatments of these cremation, but this custom type was adopted by the majority of Preclassic Hohokam individuals (>2 year at death) regardless of sex or age. This change in body treatment from inhumation to cremation created new dynamics between the dead and living.

Changing Relationships between the Dead, the Families, and the Community

This leads to the second research question presented in this study: what are the social implications of the alternative funeral treatments regarding attitudes about the dead, the body and the community? We suggest two main components of that change: first, the adoption of a funeral custom that is transformative in nature has implications regarding attitudes about the dead and the body, and second, an increase in community investment toward the funeral ritual has implication for the mourners and to the community as a whole. Based on archaeological evidence from the early Preclassic period, there is a gradual increase in burning bodies at funerals, a transformative funerary practice. We define transformative as creating changes in the form or appearance of a person and/or object. For example, in a cremation the physical appearance of the body is transformed into bone fragments as the flesh burns. After the bodies were burned the remains typically were removed to secondary deposits, an act differing from inhumations that were only buried in a primary deposit. The type of cremation funeral observed in this period suggests a stronger community investment through the use of secondary burials. The creation of a secondary burial is an extra step in the funeral ritual that requires extra effort and time devoted to the preparation and creation of these types of deposits. The use of secondary cremation burials also creates stronger social ties within sites and a distinct shared group identity not previously seen within the region. In order to illustrate this we discuss several key similarities and differences between open-air cremations and the

subsequent secondary deposits of cremated remains, and primary inhumations. To address similarities and differences we use the different stages of funeral rituals to facilitate discussion. Not all the different stages of funerals will leave archaeological traces but it is possible to reconstruct some essential differences based on reconstructed traces from the archaeological record and osteological analysis.

In both funerary customs, following the stages proposed by Hertz ([1907]1960) and van Gennep ([1908]1960), it is assumed that at the moment of death the bodies were prepared by family members or persons in charge of these proceedings and subsequently taken to the funeral pyre or burial pit. As an event both inhumation and cremation customs require advanced preparation. In a cremation, fuel needs to be collected and the pyre constructed prior to burning the remains. Similarly, with an inhumation, a burial pit must be excavated and prepared for deposition of the body. These practices of inhuming and burning human remains are documented among Southwestern Native American Groups, such as the Tohono O’odham and the Yuman speaking groups (e.g., Brew and Huckell 1987; Hanlon 1972; Russell 1908; Spier 1933). The Pima (Akimel O’odham) and the Tohono O’odham consider that the Hohokam were their ancestors, although the “Pima-Hohokam continuum” is a source of debate among Hohokam and Southwestern archaeologists (e.g., Bahr 1971; Bahr, et al. 1994; Ezell 1963; Jill 2001; Malhi, et al. 2003). Regardless of the specific connection, archaeological and linguistic evidence¹³ suggest that ancestors of these groups had contact with the Hohokam in the past (Ezell 1963; Shaul and Andresen 1989; Shaul and Hill 1998).

Depending on whether the body will remain intact and be inhumed or cremated and then buried, the spectators and/or mourners will have different sensorial experiences and different ways to physically relate to the deceased body throughout the entire funeral custom. Contrary to cremation, inhumation typically does not transform the body. No evidence of secondary treatment or body alteration prior to burial was found in inhumed deposits and the bodies were placed in the ground intact and with flesh. Taking this into

¹³Shaul and Hill (1998) propose that the Proto-Tepiman speech community incorporates attestation of language contact with Proto-Yuman based on data from phonology, syntax and lexicon. This suggests that the Hohokam were a multi-ethnic community who spoke both Proto-Tepiman and Proto-Yuman ca. 1000 years ago.

consideration we suggest that it is likely that the physicality of the deceased's body, in terms of facial and body characteristics, remained fairly intact and recognizable up to the point of burial. These physical attributes and the presence of the intact body would evoke memories that could be attributed to the deceased while still alive and/or the role that the deceased will take at death (Williams 2004). Inhumation preserves that physicality and association with a specific person until the body of the deceased is actually buried. Transformation in these cases typically occurs away from observation of the mourners, as the wholeness and integration of the body is preserved until it decomposes in the grave (underground) over a long period of time. However, it is possible that a metaphorical transformation could occur socially in the deceased and inhumed individual as they passed through the funerary rituals, especially from the liminal to the post-liminal stages. After the final interment, other rituals also may have occurred but no evidence was found that involved secondary burials or manipulation of the bodies of inhumed individuals.

Cremation, on the other hand, is dramatically and physically and transformative. Several researchers have commented on this process within Hohokam cremation customs, describing this transition as a transformational process (Beck, 2005; Cerezo-Román, in press, 2013; Rakita and Buikstra, 2005). The meaning of this transformation is cultural and time specific. Regardless of the meaning, the burning of the body and the fire in a cremation will create a different sensorial experience for the mourners, will physically transform the body, and will create a new way of dealing with the remains. Once the body began to burn, the smell, smoke, and heat associated with the fire would be readily noticeable among the audience (as well as the community), effectively creating active participation in the performance through a variety of sensorial experiences as has been documented in historic accounts of cremation rituals in some Southwestern Native American Groups (e.g., Kelly 1949; Moriarty 1965:12; Spier 1933). Human tissue passes through various degrees of burning, as is seen in clinical contexts of living individuals (Fairgrive 2008). The flesh of the body is destroyed in the pyre and the facial and physical attributes, previously recognizable by the living, are permanently transformed. As the flesh burns, the wholeness and integrity of the body is transformed in the

cremation ritual and the entire body is converted into small fragments of bone. Cremated remains recovered from sites dating to each of the archaeological periods discussed here are heavily burned, mostly calcined and significantly reduced in size and weight. The bones have a different and new materiality (i.e., bone fragments) that can be seen as part-person and part-object and that can be transported and treated very differently from a complete body (Williams 2004, 2011).

After the body was consumed and transformed in the cremation fire, the subsequent rituals also were different from inhumation rituals. Cremations in southern Arizona, beginning in the Early Agricultural period but widely adopted by the community in the early Preclassic period, were complex as they usually involved secondary rituals where the cremated bones are removed from the pyre site and redeposited in a secondary location(s) as the final resting place(s). This extra stage in the creation of the secondary burial deposit(s) marks an increase of community investment in the funerary custom resulting in stronger social ties. Secondary mortuary customs can be defined “as the social acts focused on the regular and socially sanctioned removal of all or part of a deceased individual from some place of temporary storage to a permanent resting place” (Kuijt 2008:84). Also, these secondary funerary customs “are highly visual social events within which personal and collective identities are defined and negotiated” (Kuijt, 2008:84), and we think this also was the case in our contexts. The majority of cremation features documented from each of the archaeological periods considered here represent secondary deposits (Early Agricultural = 66.7%; Early Ceramic = 66.7%; Preclassic = 97%). These deposit types and customs, well established in the Preclassic period at a regional level, were practiced regardless of the sex of the individual and for individuals older than two years at death. This is an important additional and intentional stage in the funerary custom.

Among the Preclassic Hohokam, secondary burials of cremated bone are usually characterized by deposits with very low bone weights, and some researchers have suggested that most cremated remains were divided between different social networks and likely buried in multiple secondary deposits (e.g., Cerezo-Román in press, 2013). It

has been documented elsewhere that the custom of placing the remains into single or multiple secondary deposit(s) was the prevalent custom among the Tucson Basin Hohokam. However, information collected on bone quantities was limited by the fact that many cremations had previously been repatriated when this study began. Therefore, it is not possible to address how much bone from an individual was present in some deposits and what that meant in terms of social relationships. Nonetheless, the secondary nature of these deposits suggests a new treatment of the dead with additional community investment not seen with inhumed bodies. After the bodies were burned in these new secondary burial customs, the living collected the remains and deposited them within courtyard groups, plazas and/or in others places on the landscape. These new interactions between the deceased, living, and community could have created, reinforced, maintained, transformed, and/or destroyed social relationships as individuals participated in these new customs and in the secondary burials of the cremated remains.

We infer that through the act of creating these secondary cremated deposits the living actively displayed connection(s) with the deceased, family of the deceased, and community. The citation and standardized patterns observed at different sites in placing remains into secondary deposits, usually within cemeteries, created commonalities and homogeneities between individuals, thus maintaining certain levels of corporate similarity. This also would create shared social meaning and memory between members of the community. We argue that these types of cremation customs highlight the “collective identity”, ultimately a shared social memory, and not so much the deceased individual themselves.

The gradual shift in predominant mortuary custom from inhumation to cremation indicates a significant but protracted change in perception toward the dead through time in southern Arizona. It is possible that changes in the way bodies were treated relate to broader social changes in terms of individual and group identity(ies). It is important to note that Preclassic period sites were larger and more socially complex landscapes than sites from earlier periods, typically including large community integrative structures, such as plazas and ballcourts. Cerezo-Román (in press) suggests that cremation customs

complement these structures, representing expressions of more inclusive social networks and group cohesion among the Preclassic Hohokam population of the Tucson Basin. It is possible that the social triggers for changes in funerary customs reflect other larger social changes occurring in the greater region. These changes are associated with the development of cultural features archaeologically recognizable as Hohokam. We suggest that it was the performative and secondary extended treatment of cremations, particularly at increasingly larger settlements with more complex social structures, which inspired a more widespread adoption of these mortuary practices at this time.

Conclusions

A major change in funerary customs, from inhumation burial to cremation, occurred in southern Arizona during the early Formative period. The Early Agricultural period is characterized by the intact interment of the deceased, in a wide variety of positions and orientations, and with few funerary offerings. This early group, characterized by small villages, mixed subsistence economy and slowly increased dependence on farming, did not destroy the bodies of their deceased during the funeral, rather preserving the deceased's physicality throughout the funerary custom. Inhumation was not exclusive by age or sex and its form generally did not change significantly from the Early Agricultural to Early Ceramic periods. However, during the early Preclassic period, variability of body orientation in inhumation burials decreased significantly and the occurrence, number and types of associated objects, including ceramic vessels, increased. The patterning of these inhumation practices suggests a more homogeneous regional identity that emphasized both individual and group identity. As sites became larger and more socially complex in the early Preclassic period, including increased multisite networks and public architecture, inhumation burial decreased in frequency and was only practiced for individuals younger than two years old at death or a few isolated adults. By this time, cremation also had increased in frequency to become the dominant

burial custom for the remainder of the Tucson Basin Hohokam cultural sequence (Byrd et al., 2012; Cerezo-Román, 2013; Cerezo-Román and McClelland, 2009).

In this paper we argue that cremation physically transformed the body of the deceased, facilitated a secondary treatment of the remains, and implied a larger change in relationships between the living and dead. Although inhumation burial continued throughout the Hohokam cultural sequence, it becomes far less variable and frequent, and apparently was restricted to only particular segments of the population. Investment in cremation is costly, and a secondary custom is added to the funeral sequence, but it is symbolically powerful as a transformative agent for both the deceased and mourners. The sensory differences of cremation and the increase in community investment including the secondary mortuary customs could have been manipulated to build or reinforce stronger social ties. Small bones weights of Preclassic period cremations suggest dissemination of the remains within the community, which could have further functioned to support these relationships. The transformation and treatment of the bodies subjected to cremation customs imply a different way of treating and viewing the dead by the living. We suggest that possible triggers for these changes in funerary customs through time, particularly in southern Arizona, are multi-causal and complex, but are likely reflections of strong social cohesion and group identity.

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APPENDIX B – PATHWAYS TO PERSONHOOD: CREMATION AS A SOCIAL PRACTICE AMONG THE TUCSON BASIN HOHOKAM

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Introduction

Personhood is constructed both in life and at death through multiple interactions of people with the deceased. In this paper, I explore how the Preclassic Hohokam of Southern Arizona created different pathways to personhood for the dead by examining how bodies were treated within cremation practices at four Tucson Basin Hohokam archaeological sites and through comparison with different ethnographic accounts of Southwestern Native American cremation practices.

Mortuary practices have been viewed as proceeding through three stages associated with pre-death, death, and post-death rituals (e.g., Hertz 1960; van Gennep 1960). The entire sequence of death rituals, however, can be considered as dynamic transformative processes for personhood beginning with pre-death rituals and ending with the final mourning rituals. These processes are not seen as a series of unrelated separate stages (Bourdieu 1991:117-127; Brück 2006a), but rather as integrated and dependent upon the people involved. During the life-death transition, the personhoods of both the deceased and mourners are reconfigured through processes of dissolution, creation, negotiation, and transformation (e.g. Bloch and Parry 1982; Hertz 1960; Metcalf 1982; Williams 2004, 2013). Some researchers (e.g., McGuire 1992; Parker Pearson 1999) suggest that mortuary rituals often mask or transform actual power or social relationships of the living. It is important to note that prioritizing exclusively the role of the living could diminish the role of the dead as an individual and a source of remembrance (e.g.,

Meskill 1996; Tarlow 1999). Furthermore, focusing only on the role of the living diminishes potential connections that the living may have had with the deceased (Williams 2004).

The term “personhood” is employed in identity research and has been suggested for use particularly in the study of mortuary practices. Gillespie (2001), Fowler (2005), Jones (2005) and Brück (2006b), among others, study mortuary practices and identity through the lense of “personhood”, and envision people as participating in mutually-identifying community relationships and practices (Brück 2006b, this volume; Chapman 2000; Jones 2005). Gillespie (2001:75), drawing from Marcel Mauss (1954, 1985), argues that personhood derives from the enactment of connections within a society including relationships between different individuals, individuals and groups, individuals and objects, and the living and dead. These connections shape social constructions that symbolize and refer to individuals.

In this paper I use the concept of personhood to explore complex relationships between the dead, the living, and material culture among the Preclassic Hohokam from Southern Arizona through the analysis of archaeological and osteological data from four sites in the Tucson Basin. I contrast these with ethnohistoric and ethnographic funerary accounts from different Southwestern Native American groups. Comparative data for this study derive from the archaeological sites of Honey Bee Village (Craig 1989), Sleeping Snake Village (Ezzo 2005), Fagan Ranch (Ezzo 2008), and Los Morteros (Wallace 1995a, 1995b). This research examines human remains from 415 burials, including cremations, inhumations, and burial deposits containing both burned and unburned bone. Most of these individuals were found in cemetery burials associated with courtyards. Courtyard groups are spatially patterned regions and facilities within sites (Fish and Fish 1991:159), and are generally believed by Hohokam archaeologists to represent households and extended family households (e.g. Fish and Fish 1991; Wallace, et al. 1995; Wilcox, et al. 1981).

The Datasets: Archaeological Assemblages and Historic Accounts

The Hohokam was a society of farmers and artisans that lived mainly from A.D. 475 to 1450/1500 in the Sonoran Desert of the Southwestern United States (Fish and Fish 2007). They were notable for their large-scale canal irrigation agriculture, red-on-buff ceramics, monumental architecture and marine shell ornament production and circulation (Bayman 2001). They also have been described as comprising different communities and settlements that expressed different levels of social organization¹⁴, interactions, and networks (e.g., Doelle and Wallace 1991; Fish 1996).

Historical accounts of cremation practices utilized here originate from the Pima (Akimel O’odham), Tohono O’odham, and Yuman-speaking groups. Archaeological and linguistic evidence¹⁵, suggest that ancestors of these groups had contact with the Hohokam (Ezell 1963; Shaul and Andresen 1989; Shaul and Hill 1998). The Pima (Akimel O’odham) and the Tohono O’odham consider that the Hohokam were their ancestors, although the “Pima-Hohokam continuum” is a source of debate among Hohokam and Southwestern archaeologists (e.g. Bahr 1971; Ezell 1963; Jill 2001; Malhi, et al. 2003).

In this paper, I explore how ethnographies and oral traditions can be used for comparison and as a source of inspiration to evaluate social connections associated with cremation. I do not argue that the ethnographic practices had the same meaning to the prehistoric peoples, nor is it suggested that there was direct cultural continuity between groups. Although some of these groups may believe that they have ancestral ties with the Hohokam it is important to recognize that historic communities may live and interpret

¹⁴Fish and Fish (1991) proposed different levels of social organization for the Hohokam: courtyard groups, suprahousehold units, site and community. Suprahousehold units have been identified as social units that incorporate several courtyard groups. Site level incorporates different suprahousehold units. A community has been defined as bounded territorial units centered on pivotal sites. The community encompasses several multisite organizational units at the level of the ballcourt, platform mound community, or primary village.

¹⁵Shaul and Hill proposed that the Proto-Tepiman speech community incorporates attestation of language contact with the Proto-Yuman based on data from phonology, syntax and lexicon (Shaul and Hill 1998). This suggests that the Hohokam were a multi-ethnic community who spoke both Proto-Tepiman and Proto Yuman ca. 1000 years ago.

cultural domains very differently. The ethnographic and oral tradition accounts of mortuary practices also present several limitations intrinsic to the nature of these sources (see Vansina 1985, for expanded discussion). Regardless, they can provide insights to interpret archaeological remains (e.g., Mason 2000; Wylie 1985). Descriptions of mortuary rituals in a written source provide analogs for some of the different types of social actions that individuals performed during mortuary rituals, as well as possible material traces that these practices could have left behind.

Historic Accounts: Cremation Practices among Southwestern Native American Groups

Southwestern Native Americans practiced different types of cremation throughout their histories. Archaeological evidence suggests that Puebloan groups, such as the Zuni of New Mexico, practiced cremation frequently (but not exclusively) in the past but no longer practiced cremation after the Spanish conquest (e.g. Howell 1994; Riley 1975). The 19th and early 20th century Akimel O'odham and Tohono O'odham, located further south in Arizona, also practiced cremation but only under special circumstances (e.g., death from warfare or in a violent encounter). They often, however, burned the houses and possessions of the deceased on a regular basis (Brew and Huckell 1987; Russell 1908; Underhill 1939, 1954; Velarde 1931).

Other groups in the Southwest, such as the Yuman-speaking peoples, regularly practiced cremation into recent history (e.g., Colorado River Yuman such as the Halchidhoma and Maricopa, and Cocopas, and Southern California Yuman such as the Luiseños, Diegueños, Kumeyaay, and Quechans). Cremation mortuary rituals encompassed multiple activities practiced in sequence and the activities are similar between groups. The mourning rituals, however, often varied (Spier 1933). For the Yuman, the cremation sequence began in the house of the moribund when the shaman and orator prepared the dying individual and family for the imminent death and departure

(see Table 1). Subsequent activities occurred once the individual died. The body was prepared at the house and taken to a funerary pyre to be cremated on the same day or the day after the individual died (Kelly 1949; Schaefer 2000). At the funerary pyre a tribal orator, an official funeral orator, a fire tender or *aume'va*, the relatives, people from the community, and guests from other tribes were assembled. Once the body arrived it was placed in the pyre and burned (see Table 1 for details). Among the Maricopa speakers, an orator, singers and dancers performed and food was available for the guests while the body was burning. Objects and blankets are piled or thrown over the fire by relatives or guests (Schaefer 2000; Spier 1933).

Table 1. Historic Accounts of Cremation Rituals from Southwestern Native American Groups

Historic Accounts of Cremation Rituals		
Process	Location	Actions
Individual is dying	House of the dead	Moribund individuals were assisted by a shaman who sang several songs. After the shaman finished an orator prepared the moribund and the relatives for death.
Individual dies	House of the dead	Body was washed, dressed in its best clothes, the hair combed, the body painted and decorated by the mourners. The body was then wrapped in a cloth by a person from outside the family.
After a day	Transportation of body	Body was taken outside to the pyre to be burned
Burning pyre and burning of body	Pyre site	The body was placed on the pyre, and laid with the head to the east and then turned on its right side. While the pyre was burning, a fire tender adjusted the body with a long pole running it under the corpse to let in the air, and pushed the blazing logs over the corpse, so that it could not be seen by the relatives. Singers and dancers perform and food was available for the guests. Objects and blankets are piled or thrown onto the fire by relatives or guests. People from the community and guests from other tribes were invited
Body partially consumed		The speakers delivered an oration
Body consumed/cremated remains		The mourners and guests left the area once and the fire tender stayed with the body.
After fire		Most of the Yuman-speaking groups placed the remains in a secondary deposit: exceptions to this, the Luiseños that buried the remains in the pyre site, other Yuman-speaking groups do this if an individual dies in enemy territory
	Rock piles away from village or elsewhere	The Diegueño Indians of Southern California Placed the remains in mortuary ceramic vessels after the cremation.
	Close distant to the pyre site	Maricopas and Halchidhoma divided the remains once the body is burned into four holes that were dug close to the heap of ashes, two on the south site, and two on the north after the fire had burned out. The fire tender, starting at the west end of the head scraped the ashes alternately north and south of the centerline. He then divided the two piles to the west and to the east. Each pile was put in a hole and covered.
Post death rituals	House of the deceased and adjacent space	O'odham, Apache, and Navajo burned the houses and property of an individual at their death but did not practice cremation as a prevalent mode of interment (Mills, et al. 2006). On some occasions, destruction of the property and house was not done by very poor families or the dying person was removed from their house so destruction of the house could be avoided.
		Yuman-speaking groups: The destruction of the property and house of the dead was performed on a regular basis but varied in complexity and time. The Maricopas only did it for particular individuals, singers, warriors, and orators.
		Quechans: The participants prepare a pyre, similar to the cremation pyre, and burn a memorial image of the deceased, personal belongings and clothing. The participants may also throw in the pyre objects that belong to them as an offering for the dead or as a contribution to the mourners within four-month to a year
		Cocopas: Representations of the faces of the deceased were painted on the post of the houses and then the houses were burned with the associated objects. This practice was made for a particular deceased and for other relatives who had previously died. The properties of the other dead were included in the pyre.

Once the body was consumed by fire, most Yuman groups placed the remains in a different secondary depositional location. In this paper the term ‘secondary deposit’ is used to describe a deposit where cremated human remains were placed after removal from the pyre, crematorium or primary cremation locality. These deposits could consist of either urns or earth pits, or a combination of the two, containing cremated bone. Deposition of the remains after the fire, however, can vary between groups (Dubois 1907; McGuire 1992:45; Moriarty 1965:12; Schaefer 2000; Spier 1933). For example among the Maricopas and Halchidhoma the remains were divided into four piles and placed in four secondary deposits (see Table 1; Spier 1933:302-303).

Additional rituals followed the final deposition of the body. These did not directly involve the deceased but involved the objects of the deceased, and the mourners. The O’odham, Apache, and Navajo continued their mourning by burning the houses and property of an individual, but these groups do not practice cremation as the major funerary custom (Brew and Huckell 1987; Durivage 1937; Ezell 1961; Mills, et al. 2006; Russell 1908). Yuman-speaking groups who practiced cremation also burned and destroyed the property of the dead and objects that belong to them as an offering for the dead or as a contribution from the mourners (Dubois 1907; Kelly 1949:153; Moriarty 1965; Schaefer 2000; Spier 1933; Yarrow 1880). Mourning rituals varied in complexity and timing between groups (McGuire 1992; Spier 1933). In some instances the Pima (Akimel O’odham) removed the main posts of the house prior to the fire and used them as construction material for a new house (see Table 1 for exceptions). In cases when the dead were singers, orators, or warriors the mourners also invited individuals from other tribes to be part of the mourning ceremony. Usually invited tribes had previously participated in other activities with the mourning tribe (e.g., going to war together, among others) and/or were allies.

The practices of burning the body and destroying the property of the dead were done for several reasons, none of which are mutually exclusive (see Table 1). Among Yuman-speaking accounts, individuals were cremated so that they could enter the “land of the dead” (Spier 1933), where, upon arrival, the dead performed similar activities and

had similar life cycles as the living but with plenty to eat and their life was “renewed”. The aged became young and old possessions burned in mortuary and mourning rituals were transported to the land of the dead as new (Spier 1933), thereby providing a rationale for the burning of property and possessions (Kelly 1949). Alternatively, mourners feared that the dead would return to the land of the living (Spier 1933; Underhill 1939:190). The accounts of Yuman-speakers and the O’odham mention that cremation and mourning rituals would destroy enemy magic, the sickness of the deceased and the polluted body (Hanlon 1972:106; Spier 1933; Underhill 1939:190).

Southwestern ethnographic accounts of cremation rituals help us interpret and understand the meanings of these practices. Ethnographic accounts can be utilized to evaluate the archaeological record and gain insight into past processes and practices. Although it is difficult or almost impossible to get to the exact meanings of specific practices, comparison with historic groups that practiced cremation rituals allow us to explore the similar and/or multiple meanings represented by historic rituals and offer some reasonable hypotheses about what the Preclassic rituals may have meant to the past peoples.

Archaeological Evidence

Cremation was practiced in Southern Arizona since the beginning of the Early Agricultural period, circa 2100 B.C.-A.D. 50, albeit at low frequencies (Cerezo-Roman and Watson forthcoming; Mabry 1998). The use of cremation slowly increased through time into the Preclassic Period, A.D. 475-1150 (Fish and Fish 2007), where it became the prevalent mode of interment. For example, from the four archaeological sites in this research, 369 of 415 burials were cremations, 44 were inhumations, and two represented deposits that contained burned and unburned human bone. The overwhelming majority of inhumations were infants (newborn to 2 years at death) with the rare adult being inhumed. In this period the Proto-Yumans and Proto-Tepimans would have been living in close contact with one another (Shaul and Hill 1998). During the Classic Period, A.D.

1150-1450/1500, cremation decreased as a mortuary practice. In the Phoenix Basin the decrease was earlier than in the Tucson Basin (Cerezo-Román and McClelland 2009).

Evidence for Burning Bodies

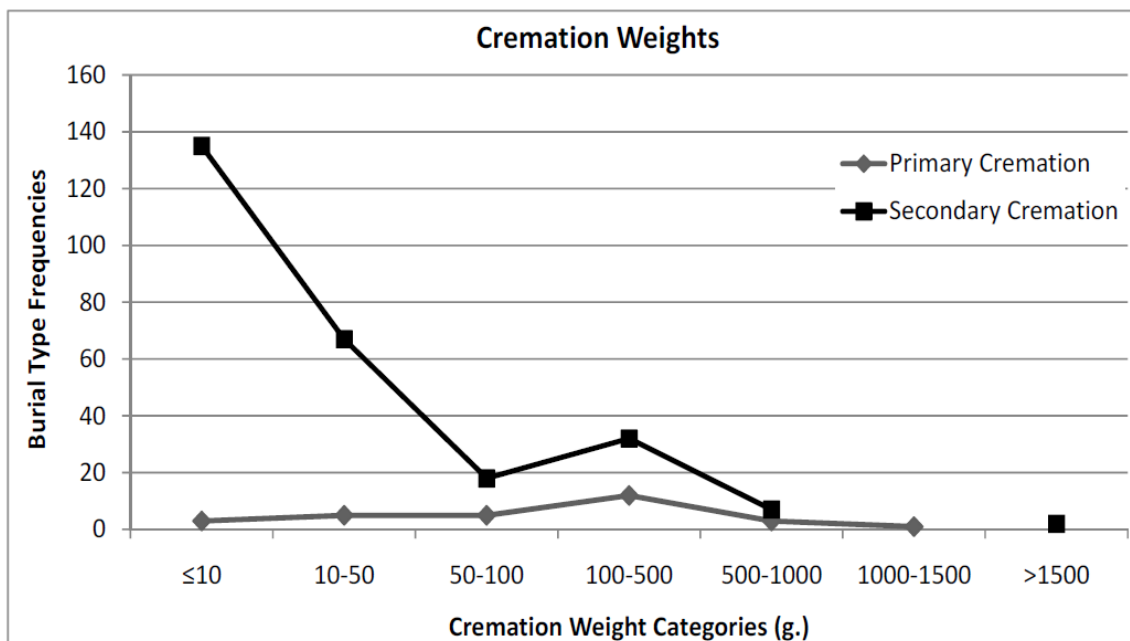
The Preclassic Hohokam practiced cremation as a primary mode of interment. Cremation was a multi-stage process where several actions and activities were performed by the living prior to final disposal of the deceased. The first step was the burning of the body. Studies suggest that the body was first placed on a small wooden platform. Fuels may have included *Prosopis sp.* (mesquite), *Cercidium sp.* (paloverde), *Olneya sp.* (ironwood), along with other desert legume-wood trees (Wallace, personal communication). Personal adornment artifacts – beads, shell, quartz crystals, bracelets, and pendants – and activity-specific items – hammerstones, polishing stones, quartzite saws, ground stone and ceramic vessels – were placed or thrown in the pyre. The majority of bodies were burned until the bones were white, indicating temperatures reaching 800°F (Holden, et al. 1995a. 1995b). The homogeneity in color, high degree of incineration, and degree of fragmentation present in these cremations suggests that specialists were in charge of the technological and performance aspects of the burning. These specialists needed enough experience and knowledge to burn the bodies thoroughly.

The place where the body was burned – the crematory, pyre site or primary cremation – usually was (sub)rectangular in shape and had an east-west orientation. The terms “primary deposit of cremated” bone refer to a feature containing primary burned human remains and direct evidence of fire. The implication is that the complete body is placed and burned *in situ*, but this does not necessarily mean that the remains were found articulated. These primary deposits typically were used once by the Hohokam. Once the body was burned, the remains were collected from the pyre area and placed into a secondary deposit(s) of cremated bone (previously defined). The archaeological samples used in this study comprise 34 primary deposits of cremated bone, 258 secondary

deposits of cremated bones and 77 unspecified cremation deposits. Remains found in the secondary and unspecified cremation deposits could represent the same individuals found in the primary deposits of cremated bone or pyre sites. In fact, most cremated bone deposits analyzed in this study do not contain remains of complete individuals.

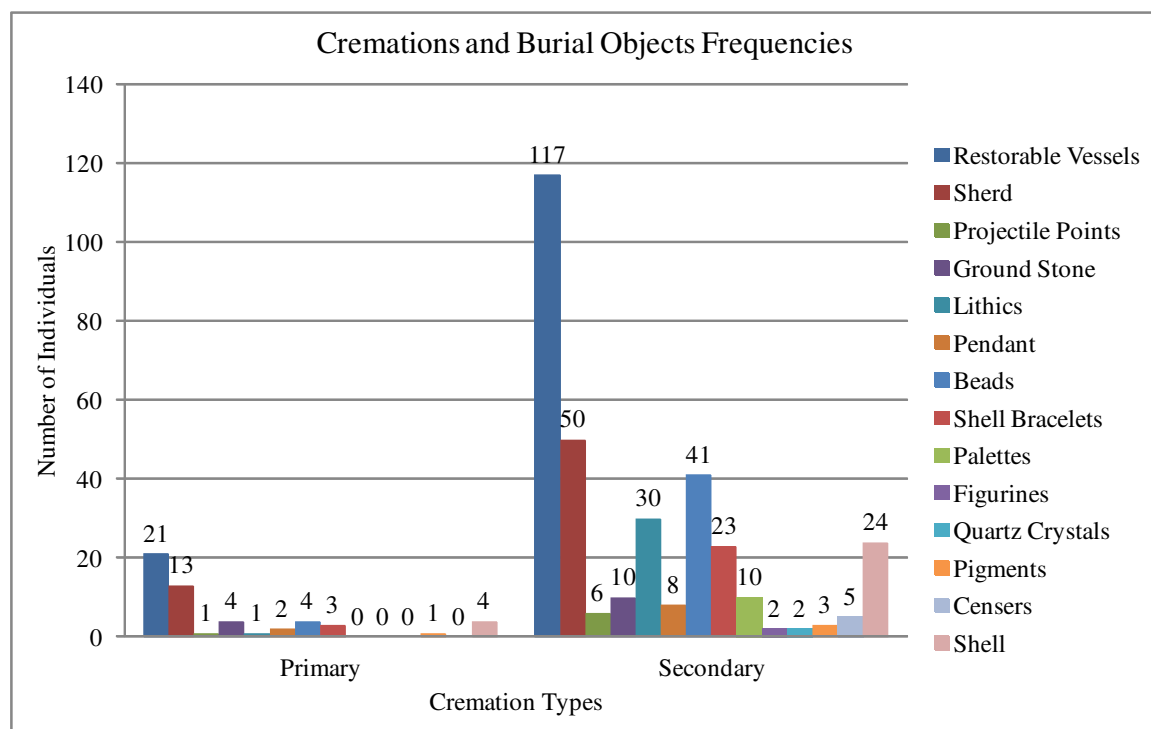
Recent research illustrates that bone weights can vary between males and females as well as between biological populations (e.g., Bass and Jantz 2004; May 2011; Van Deest, et al. 2011). Nonetheless, the bones of a complete cremated individual usually weigh more than 1500 grams. The mean weights of the cremations analyzed here (~85 grams), however, were significantly lower. No significant differences in weight were found between males or females and a specific cremation burial practice. In contrast, infants were not found in any primary deposit of cremated bone, but were found in five instances of secondary deposits of cremated bone. Primary deposits of cremated bone contain bones from all anatomical regions of the body (e.g., cranial, axial, appendicular, extremities). In 29 of the 34 primary cremations, the deposits did not present any major post-burial disturbances and only one individual was present. Weights for these ranged from 1 to 1091 grams, with a mean bone weight of ~204 g (see Fig. 1).

Figure 3 Cremation Weights Classification (g.)



There were no major post-burial disturbances and only one individual was present in 196 of the 258 secondary cremated bone deposits. No significant differences were found between sex or age at death in secondary deposits of cremated bone. The majority of these cremations were placed in a pit, although a few remains also were found in vessels or under vessels. Secondary deposits of cremated bone included bones from all anatomical areas of the body. The mean weight for these cremations was ~73 g. The plotted distribution has a significant positive skewness with wide variation in bone weights (see Fig. 1). However, it was clear that most primary and secondary deposits of cremated remains do not contain complete individuals or bodies, and it is possible that the remains of a single individual could be spread between multiple deposits. Despite the use of high-recovery protocols, it is possible that some bone, such as very small fragments, could have been lost during archaeological excavation. Regardless, the low bone weights in these cremation deposits cannot be explained by differential excavation and recovering techniques alone.

A total of 172 of the 415 deposits did not contain any associated objects. However, in the remaining deposits, different types of objects were found in primary and secondary cremation deposits (see Fig. 2). Secondary cremation deposits have a greater variability in associated objects than primary deposits of cremated bone, and some objects may have been collected from the pyre area with the cremated bone. Many burned objects found in secondary cremation deposits may have accompanied or decorated the body during the burning on the pyre. In rare cases objects did not exhibit evidence of fire, e.g. some vessels and hammerstones, and thus they were added to the secondary deposits of cremated bone. There was no significant correlation between the quantity of objects, type of cremation, age or sex of the individuals. However, Crown and Fish (1996), among others (McGuire 1992, Teague 1984), found that male adult cremations usually were buried with a variety of types of mortuary items, such as shell ornaments and ritual related items. In contrast, women were more often buried with a higher mean number of ceramic vessels than males (Crown and Fish 1996).

Figure 4 Cremations and Burial Objects Frequencies

Evidence for Post-Depositional Practices

Burning structures and objects is a common occurrence in Hohokam sites. Some might be associated with rituals that occurred after final disposition of the dead. In a survey of over 34 sites and 800 excavated Preclassic period pithouses, Mills et al. (2006) found that at least 35% and as many as 75% of the structures had evidence of burning, a frequency that was too high to be accidental or random. Two main theories have been proposed to explain these findings: 1) fires were caused by conflict or warfare (Oliver 2001; Rice 2001; Wallace and Doelle 2001), and 2) the houses were burned as part of a ritual related to the death of a member of the household or head of the family (Fish and Fish 2006; Greenleaf 1975; Huntington 1986; Wallace 1995a, 1995b; Wallace and Doelle 2001). These theories are not mutually exclusive and other models can explain the archaeological record. Therefore, each burned house should be evaluated independently. Mills et al. (2006), however, also mention that some of the houses were heavily burned,

lacked large center posts, contained minimal useable artifacts, and that recovered artifacts were usually broken. These findings are consistent with a funerary ceremony where interiors of the houses were cleaned out prior to a burning ceremony, the center post was removed, and the structure mainly contained offerings or property of the deceased. Mills et al. (2006) argue that mortuary ritual and not warfare was the major factor in household burning.

Transformation of Personhood: Death of the Individual

Archaeologists have yet to develop the means of identifying pre-death mortuary rituals associated with the sick and dying. It is possible that in some cases transitional death rituals to the “afterlife” started when people were still alive. Once biological death occurred, however, rites began that potentially produced archaeological traces. At times the family acquired a situational personhood of mourners (Bird-David and Israeli 2010). The family prepared the body, including dressing the dead for the funeral ritual. When the body was ready, it was taken to the pyre to be cremated.

Archaeological evidence for body preparation can include particular objects found with the remains. Many objects found in primary and secondary cremation deposits appear to have been directly associated with the body and/or ritual during the cremation fire. Objects such as beads, shell, bracelets, pendants and pigments decorated the bodies and were probably part of this initial stage of ritual preparation. Also, primary and secondary cremation deposits often contain figurines, quartz crystals, stone tools, and ceramic vessels that were burned with the body or placed after the burning of the body. These objects may have been possessions of the deceased or gifts from mourners. Likewise, palettes (Hawley 1947), censers, and pigments may have been utilized in the ritual performance. Some objects may also have been burned separately in a post death/mourning ritual. Through their selection these objects acquire capacities to sustain memory relationships between the survivors and departed, as well as to represent multidimensional social networks among the deceased and mourners. It is, moreover,

possible that the deceased's possessions were designated as aspects or extensions of the personhood of the individual, potentially creating object biographies that entangled the biographies of the person(s) and the objects (e.g. Brück 2006a:76; Gosden and Marshall 1999; Hallam and Hockey 2001; Hoskins 1989).

Differences in the deceased's personhood are potentially reflected through variation between burials and types of objects. These objects entered the archaeological record with the remains in at least three different ways: decorative ornamentation as part of the clothing or accessories, objects accompanying the body in the pyre, and/or objects deposited with the body after burning. It is also possible, however, that the objects entered the archaeological record in later mourning rituals. In addition, burned houses, and burned and fragmented objects found in caches could present similar characteristics and may have acquired an extension of personhood.

Cremation as a Physical Change: From Flesh to Bones

Cremation involves both physical and social transformation of the deceased (Cooney, 2013; Goldstein and Meyers, 2013). In these transitions, the dead were closely connected with the living throughout the funeral rituals. Spier notes that among the Yuman the soul leaves the body during burning (1933:296). During cremation ceremonies orators, dancers, and singers helped direct the soul of the deceased to the world of the dead (Kelly 1949). Very little archaeological evidence exists for these types of activities among the Hohokam. The presence of certain objects in cremation deposits, however, such as palettes, censers, and pigments illustrates that they may have been utilized in the ritual performance (Fig. 2).

Roasting and feasting were often part of funerary events of many Southwest Native American groups. At Honey Bee Village (Cerezo-Román and Wallace 2008), Fagan Ranch (Ezzo 2007), and Los Morteros (Wallace 1995b:252-253), *hornos* (furnaces or adobe-built outdoor ovens), roasting pits, and possible cooking pits were found in close proximity to cemetery areas. Thus, feasting and cremation may have occurred

among the Hohokam. The number of people who participated in the transition may have been low even though cremations were visually more spectacular than inhumations and more people would have been aware of when they occurred. Archaeological data suggest that cremation rituals were performed in the cemeteries of courtyard groups, spatially distinct clusters of houses that represented extended families, and it is possible that only the participants in these ceremonies were members of the household and suprahousehold group, and individuals involved with ritual funeral performance.

As the center of ritual, the body of the dead possessed an agency that affected experiences, provoked memories, and altered decision-making and the actions of mourners and the community (Chesson 2001; Hallam and Hockey 2001; Tarlow 1999; Williams 2004). One way in which the dead body may have had social agency was in the choice of mortuary treatment. It is, for example, common to find that only a few adults and the great majority infants (newborn to 2 years at death) were inhumed. The reason for inhumation probably differed for adults and infants. In the case of adults, it was probably because of their particular identity or role in society (Cerezo-Román 2010; Cooney 2013; McGuire 1992), while infants were not considered fully active members of the society. Tohono O'odham ethnographic evidence indicates that dead infants did not present any danger to the living because they were not full persons (Kozak 1991). Among the Hohokam it is likely that infants had fewer social networks than older individuals. It is possible that infant networks were household oriented rather than to specific suprahousehold or other sectors of the community. It is common, for example, to find infants buried under the floors of pithouses. In sum, it is likely that personhood was not yet established among infants, possibly linked to high mortality rates.

Division of the Remains: Social Implications of Fragmentation of the Body

After burning the body no longer resembled or had the physicality of a person and was converted into calcined bone. The personhood of the deceased was also transformed at this time. Few individuals were left in the place where they were burned. Some burned

bone, varying from a small amount to the whole individual, were collected from the pyre site and moved to a secondary location. Relationships between the living and dead were transformed at this point. It is possible that after burning the cremated remains began to be treated more like a “body-object” that could be fragmented, divided, distributed and easily transported by the Hohokam, similar to what has been observed among other groups practicing cremation (see Brück 2013; Cooney 2013). Interestingly, no significant age-specific differences are found between cremation groups (except infants which usually were not cremated). Likewise, no differences are observed between sex and cremation type, although only 41 individuals could be sexed by standard accepted protocols (Buikstra and Ubelaker 1994). The homogeneity in cremation types does not mean that the multiple intersecting identities of the dead ceased to exist or were no longer a source of remembrance or personhood. Rather identities were extended and transformed during these rituals.

Historic accounts of the Maricopa and Halchidhoma indicate that after burning the bones were deposited into four different pits as secondary cremation deposits. Archaeological evidence suggests a somewhat similar practice where a single individual’s bones were divided into one or more deposits (e.g., Birkby 1976; Minturn and Craig 2001). Beck (2000, 2005, 2008) examined ethnographic documents, bone weights of cremation deposits, degree of incineration, and fragmentation to explore the low bone weights of Hohokam cremations. She suggested that after initial burning the remains were left in place, placed in a secondary deposit or reburied as part of a memorial ceremony. However, in the current research no direct archaeological evidence for reburial episodes of secondary cremated deposits was found.

It is likely that no additional burning episodes of secondary cremation deposits occurred and that remains from primary cremation deposits were dispersed into one or more pits. This practice would explain why bone weights are so low in Hohokam cremations. Most modern cremations have more than 1500 grams of bone while the mean weight of Hohokam cremations is much lower (Fig. 1). Moreover, the osteological analysis suggests that not all the cremated remains of an individual were deposited in the

same cemetery. The Hohokam often divided remains between communities and even within courtyards. For example, at the Fagan Ranch site, remains of a single individual were identified in two separate cremation deposits in close proximity within the same courtyard group (Ezzo 2008). At Honey Bee Village, however, a refitting exercise was done between burials within the same courtyard and no refitting skeletal elements were found between the deposits. It is possible that at all four sites low cremation weights indicate that remains were highly fragmented and divided between members of the same and/or different courtyards, and possibly between different communities, reflecting different social networks.

Rebay-Salisbury (2010) suggests that the practice of fragmenting and dispersing a body might indicate that the body was thought of as consisting of many parts rather than being an indivisible entity (e.g., Brück 2013; Fowler 2010; LiPuma 1998). From this perspective, the deceased is transformed and treated as a “body-object.” The body-objects may evoke the deceased person’s life but also evoke the absence of the embodied person (Hallam and Hockey 2001). The concept of inalienable possessions may provide insight into the Hohokam case study. Annette Weiner (1992) discusses the concept of inalienable possessions, defined as “...objects made to be kept (not exchanged), have symbolic and economic power that cannot be transferred, and are often used to authenticate the ritual authority of corporate groups” (Mills 2004:238). These types of objects are broken and circulated but retain meaning derived from their original relationship(s) where they became imbued with the intrinsic and ineffable identities of their owners. Inalienable possessions do not just control the dimension of giving, but their historicities also are retained for the future and have memories from the past (Weiner 1992). Transformation of the original objects into fragments and distribution of these fragments suggest a different way to maintain, reinforce, or form new social relations. Mills (2004:239) suggests that the concept of inalienable possessions “provides an important alternative for conceptualizing how objects are differentially valued and how that value is formed by social relationships that go beyond economic transactions.” When applied to human remains, this transforms the personhood of the deceased from a complete bounded unit to

that of part-object and part-person. With the Hohokam, after the body is burned it evokes the personhood of the deceased but it is transformed into “body-objects” which could be divided and circulated as inalienable possessions. The differing levels of Hohokam organization consist of different networks tied together by a source web of affiliations (e.g., biological, civic, political, social, economic, religious and ritual) (Fish and Fish 1991, 2007). It is possible that the remains were distributed among families and along specific social networks where remains had symbolic power as sources of remembrance, and created a material enactment of connections and networks.

From this perspective value could be imparted through the distribution of the remains, with ritual and symbolic values imbued by participation in the event and possibly by placing the remains in a final deposition. While it is uncertain how many people could participate in the distribution of the remains, it is possible that greater connections in life would be linked to increased fragmentation and distribution of the remains. Brück (2006a:88) suggests that gifts given at death (e.g., fragments of the deceased) “are a material manifestation of the substance of the dead person; they reconstitute the deceased in all his or her elements”. Moreover, since people are constituted relationally, funeral mourners may feel that they have lost part of themselves. One way they avoid losing identity is to transform it into something else, to disaggregate the energy locked into the deceased and convert it into objects that can be used to form new social relationships (Battaglia 1990; Brück 2006a:88). Furthermore, circulating these body-objects in the rituals compensates all those who contributed to the life of the deceased (Brück 2006a:88), and for authenticating particular connections.

Through the division of the remains, alliances could be reinforced by the distribution and partitioning of inalienable body/objects, and establishes a time when alliances could be created among participants in the ceremonies. At the same time, existing networks could be destroyed by the death of a person who functioned as the connection between other individuals, communities and society as a whole. For example, in the case of a village, clan, or association, the duties of one member could be readily assumed by another, but this is not so easily accomplished within the family (Kelly

1949). Among the Yuman, when one spouse died the other spouse was no longer considered related to the deceased's family (Spier 1933:215). Accounts suggest that the length of the mourning period was not fixed. Some remarried within a few months but people normally waited a year (Spier 1933:304), when new alliances could be formed.

Although it is difficult to say when the cremated remains were placed in the final secondary deposits, it is likely that the final secondary disposition occurred when the remains/inalienable possessions still held remembrance power and identity of the deceased, albeit in a transformed way. Historic accounts suggest that the final disposition could occur on the same day or a few days after the cremation ritual, and there is no archaeological evidence that points to the contrary. There is neither obvious weathering of the bone nor any other indication that they remained unburied for a long time. The acts of redistribution and redeposition of cremated remains by the mourners within a courtyard cemetery serve as a symbolic reaffirmation of social memory and identity. It also serves as a reaffirmation of membership identity within a particular social network related to the deceased and the mourning family (Gillespie 2002, 2011; Hodder and Cessford 2004; Kuijt 2000, 2001, 2008; McAnany 1995).

Transformation of Personhood: Rituals after the Final Deposition

Rituals that occurred after the final disposition of the dead are difficult to reconstruct from archaeological evidence. It is possible, however, that burned Hohokam structures and objects are associated with post-death mortuary rites. Historical accounts mention that rituals occurred four months or more after an individual's death in a commemorative ritual (Davis 1921; Moriarty 1965; Schaefer 2000; Spier 1933). Woodward (1968) mentions that the ideological basis of the mourning anniversary is dual: it is the termination of mourning by the living and the final dismissal of the dead. Burned and fragmented objects have also been found in caches at Hohokam sites, often in the fill of pithouses (Birkby 1976:175). Burned and/or broken objects in caches are interpreted as "killed" objects (Mills and Field Murray 2008). These objects could

possibly be possessions of the deceased, objects used in the mortuary rituals, or other ritual objects that needed to be terminated appropriately. Many caches of Hohokam objects, including concentrations of palettes and censers, were treated like cremated individuals. Censers in particular were burned, broken, deposited, fragments re-excavated, dispersed, and reaccumulated (Mills and Field Murray 2008). These practices may have symbolized the destruction of a particular social persona and the transformation of interpersonal relationships that such significant moments involved. In addition the destruction of the objects is a powerful symbolic statement of the social impact of death. The objects could never be used again, and the relationships that they once sustained and signified come to an end (Brück 2004:320). Burning of objects and houses, then, was seen as the most appropriate means of ending these objects' lives.

Conclusions

The Preclassic Hohokam presents an opportunity to examine the dynamic transitions of personhood that occurred at death. These transitions occurred both to the dead as well as the living. In these transitions, relationships and networks were reconfigured between different individuals, individuals and groups, individuals and objects, and the living and dead throughout the funerary rituals. Bodies were converted into "body-objects" but continued to evoke memories and the deceased person's life, objects became extensions of personhood and mourner's relationships are reconfigured. Rather than a static stage-oriented approach bodies can be viewed as part of different sets of interactions – interactions that defined the personhood of each individual who was involved.

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APPENDIX C – UNPACKING PERSONHOOD AND IDENTITY IN THE HOHOKAM AREA OF SOUTHERN ARIZONA

Paper is pending publication in *American Antiquity*

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This paper examines the identification of and changes in aspects of personhood through the study and interpretation of funerary customs. The geographical, cultural, and temporal foci are the Tucson Basin Hohokam of southern Arizona from the Preclassic (A.D. 475-1150) to Classic (A.D. 1150-1450/1500) periods, where variations in social, ritual, and political organization are well-documented. This research explores two overarching questions:

1. Are there temporal variations in mortuary customs and, if so, what are they?
2. How do these variations relate to broader aspects of personhood within Hohokam society?

To answer these questions this research explores funerary patterns of 764 single interments from seven different archaeological sites to observe patterns across space and through time at a regional scale. In particular, the analysis centers on how the bodies of the dead were treated at different stages of funeral customs. This theme is understudied in Southwestern mortuary studies where past research has mainly centered on objects found in burials (e.g., Brunson-Hadley 1989; McGuire 1992; Mitchell and Brunson-Hadley 2001a, 2001b). This article explores how persons were represented throughout the funerary sequence by utilizing two primary datasets: (1) biological profiles of the human skeletal remains; and, (2) posthumous treatments of bodies inferred from the analysis of human remains and their contexts. In this research it was found that cremation was the predominant mortuary practice in the Tucson Basin during both the Preclassic and

Classic periods. However, inhumation also co-occurred at lower frequencies, particularly for fetuses and infants, possibly due to the undeveloped form of self that these individuals had within the society. Through time cremation rituals changed, particularly for individuals older than 15 years at death and adults. In the Preclassic Period, after the body was burned, the remains were fragmented, divided and distributed as inalienable possessions among families and within specific networks. This suggests a social construction of self that was more relational, part-person and part-object. In the Classic Period these practices decreased and the remains were not divided but left in place or transferred almost wholly to a single secondary deposit. The perceptions of personhood in the Classic Period changed to a self that was considered as a bounded unit and more-whole even after its transformation during the cremation fire. It is possible that this transition through time occurred as a result of more centralized and private rituals within Hohokam society, and by a general decrease in emotive networks. The changes in mortuary rituals are similar to broader sociopolitical changes observed in the Hohokam Classic Period where an increase in social differentiation and complexity has been postulated.

Personhood and Funerary Customs

The concept of personhood is employed in identity research across the social sciences, and also has been applied in archaeology (e.g., Fowler 2005; Gillespie 2001; Jones 2005). Following Gillespie's (2001) definition, personhood is the participation of individuals in mutually identifying relationships within and between communities as expressed through their actions. In addition, these relationships shape social constructions that reference and symbolize individuals. Furthermore, these relationships derive from the enactment of connections within a society that include relationships among individuals, individuals and groups, individuals and objects, as well as the living and dead (Gillespie 2001:75). However, death brings about a rearrangement of these relationships and connections in the society. The individual, formerly a living, active

member of the society, is transformed into the deceased with a new identity(ies). Drawing upon Hertz ([1907] 1960) and van Gennep ([1908] 1960), the research presented here emphasizes that while proceeding through stages associated with death rituals the deceased pass from being biologically dead to a liminal stage and only later become socially dead. Models of Hertz ([1907] 1960) and van Gennep ([1908] 1960) have been used in mortuary custom research and have proven to be great tools to explain mortuary customs through time (e.g., Bloch and Parry 1982; Buikstra and Nystrom 2003; Rakita and Buikstra 2005). The full sequence of death rituals can thus be considered dynamic transformative processes for the personhood of both the deceased and mourners. During this crucial transition, the personhood of both the deceased and mourners are reconfigured through processes of dissolution, creation, negotiation and transformation (e.g., Williams 2004). Beginning in the liminal stage and continuing to the end of the funeral and mourning rituals, the deceased pass into the “land of death” and/or become an ancestor. In parallel, the mourners pass through processes of separation and finally reintegration into society as the funerary rituals conclude.

Cremation customs, as with most funeral customs, are composed of different stages in which the bodies are prepared, burned, and disposed. However, cremations also involve an intentional and relatively rapid transformation. Burning transforms the body, the mourners, and the community (Cooney et al. 2013). Cremation produces a fast physical change of the deceased whereby the overall physicality, including facial and body attributes, is no longer recognizable. Furthermore, fire transforms the body into just bone fragments and ashes in a matter of hours to days. Cremation also transforms the way mourners and community members interact with the deceased. Moreover, cremated bones are manageable; they are not heavy and are easily transported. These attributes allow for many creative post-burning treatments, which can even be personalized as observed in modern and historic societies (e.g., Williams 2011). Cremated remains facilitate “diversification, providing a substance for commemoration that is part-person, part-material culture with a distinctive, malleable and shifting materiality of its own” (Williams 2011:114). Following Williams’ ideas, a cremated body may evoke the

deceased person's life, but it also evokes the absence of the embodied person. The displaying and disposal of these cremated remains will vary depending on the wishes of the deceased, mourners, community and/or other social entities, as well as how the mourners and society perceive the cremated remains (e.g., part person and/or part object and/or preference for one over the other). By analyzing how these remains were treated it is possible to explore how a person was perceived through time and the complex relationships that existed between the living and dead.

Previous Research on Hohokam Mortuary Customs

A primary focus of U.S. Southwestern archaeological research since the 1960s has been prehistoric social organization (Hegmon 2003; Longacre 2000). For mortuary customs, this meant emphasizing formal variations in grave structures and contents, primarily based on associated objects, which were used to infer social status and ranking (e.g., Brunson-Hadley 1989; McGuire 1992; Mitchell and Brunson-Hadley 2001a). These studies, including those on the Hohokam, primarily used approaches proposed by Saxe (1970) and Binford (1971), but they did not include subsequent critiques of these models by processual and postprocessual mortuary specialists (e.g., Beck 1995; Hodder 1980; Pearson 1982; Rakita et al. 2005).

In 2001, Lynne Goldstein commented that many Southwestern mortuary studies, including those involving the Hohokam, would benefit from going beyond questions of ranking, social stratification, and the use of mortuary offerings in the exploration of social organization. Much subsequent research in Southwestern mortuary studies has moved beyond themes of stratification and ranking based exclusively on mortuary goods. The expanded themes include examining other aspects of social organization, such as sex-gender hierarchies (Crown and Fish 1996; McGuire 1992), and age, kin and corporate groups (Mitchell and Brunson-Hadley 2001b; Neitzel 2001). A few Hohokam mortuary studies also have followed this trajectory by expanding beyond the classical approaches of Binford and Saxe and exploring different stages of cremation mortuary and

mourning customs (e.g., Beck 2005, 2008; Cerezo-Román 2013). Also, a few studies on Hohokam cremated remains have been conducted using limited datasets and centering on the osteological analysis of the remains of a single site (e.g., Birkby 1976; Fink 1988a, 1988b, 1989; Reinhard and Fink 1982, 1994; Reinhard and Shipman 1978). Extensive variation in mortuary customs exists within the broader Hohokam region through time and across space. Both inhumation and cremation were practiced throughout the Preclassic and Classic periods, but their frequency and mode varied. In the Preclassic Period, secondary deposits of cremated remains were most common and inhumations infrequent (e.g., Haury 1976; McGuire 1992; Minturn and Craig 2001). During the Classic Period, inhumation became the prevalent mode of interment in the Phoenix Basin (Mitchell and Brunson-Hadley 2001b), but not in the Tucson Basin, as Cerezo-Román and McClelland (2009) and the present study demonstrate.

Methods for Unpacking and Operationalizing Personhood

The comparative archaeological dataset consists of materials recovered from ten archaeological sites located in the Tucson Basin, Arizona, dating from the Preclassic (A.D. 475-1150) and Classic (A.D. 1150-1450/1500) periods (Figure 1 and Table 1 see appendix). This study uses the recent chronological summary compiled by Wallace (2012) to temporally situate the data. Seven sites represent the Preclassic Period, and three represent the Classic Period (Table 1 see appendix). A total of 764 individuals were used for this study: 398 Preclassic Period and 366 Classic Period. In these sites there are a low frequency of deposits where more than one individual was found. However, in this paper only deposits containing remains of a single individual were selected to facilitate the analysis and discussion. Most secondary deposits of cremated remains and inhumations contained the complete or partial remains of an single individual in both the Preclassic and Classic periods. There are also other types of treatments that occurred in low frequencies, such as multiple interments in a single burial, and secondary inhumations. For example, remains of unburned infants and children are found with

cremated remains of adults or vice versa. However, these types of deposits are atypical. This article also provides the basis to explore these different alternative treatments in the future, but these treatments (e.g., multiple interments in a single burial and secondary inhumations) will not be discussed in this paper. Several types of primary and secondary data were collected. Primary data were generated directly from the human remains and field notes produced by the author. Secondary data, recorded after skeletal remains were repatriated and no longer available for study, were collected from osteological inventory forms, archaeological reports, field notes, and analyses performed by individuals other than the author, as cited.

Biological Profile of the Human Skeletal Remains

The human skeletal remains consist of burned and unburned bones from cremation and inhumation deposits. The biological profile estimates age-at-death, biological sex, and pathological conditions. The protocols for osteological data collection are based primarily on those of Buikstra and Ubelaker (1994) and the Bioarchaeology Laboratory, Arizona State Museum (ASM), where some of the remains were housed at the time of analysis¹⁶ (McClelland 2012). Skeletal data collection consisted of recording both metric and morphological information. First, a detailed skeletal inventory of each burial was generated. These analyses allow for interpretations of body completeness at the moment of burial and number of individuals represented in each deposit. Second, age-at-death was estimated with error ranges following accepted standards (Buikstra and Ubelaker 1994). Third, biological sex was estimated for each individual following standard accepted protocols (Buikstra and Ubelaker 1994). Degree of fragmentation for cremated bone necessarily limited some analytical observations including bone identification, age at death, and sex, although these estimations were attempted when possible.

¹⁶ The Bioarchaeology Division of the ASM granted permission to study these collections.

Previous Hohokam research about mortuary customs relied largely on the study of inhumations with limited attention paid to cremations, largely due to the challenges of working with this type of material. However, prior research indicates that significant information that can be collected from cremation burials (e.g., Buikstra and Goldstein 1973; Gejvall 1969, 1981; McKinley 1989, 1994; Schmidt and Symes 2008; Williams 2004). Previous research on Hohokam cremations (e.g., Birkby 1976; Fink 1988a, 1988b, 1989; Minturn and Craig 2001; Reinhard and Fink 1982; Reinhard and Shipman 1978; Shipman and Wolf 1977) began to explore similar types of assemblages in the region mainly using a limited dataset, but provide the basis to explore this significant dataset. This work indicated that there are many significant questions that need to be addressed and explored, particularly on how the bodies of the dead are treated in the cremation funeral customs. In depth analysis of cremation burials at a regional scale in the current research, particularly in the inclusion of datasets from recent large scale excavations projects, adds a dimension not previously available with Hohokam remains, allowing new and innovative ways for studying personhood and identity through mortuary customs.

Biological profiles play an important role in construction of social life histories and personhood. Sex and age frequently are associated with life stage transitions, such as from childhood to adulthood or becoming a “woman” or “man.” Individuals were grouped using categories such as male, possible male, female, possible female and indeterminate. If particular observed posthumous treatments are indistinguishable between males and females, it is inferred that the treatments were not gender specific. However, these interpretations are limited due to the small quantity of individuals in which sex could be estimated.

A few short studies, such as those of Reinhard and Fink (1982) and Fink (1988a, 1988b), have made distinctions between ages at death using limited datasets and have found that bones of neonate and infants usually were not completely collected from the pyres. However, the current research found that interment without cremation was performed in high frequencies for infants and a few adults. In exploring this pattern

further, it is recognized that this treatment depended on several factors related to identity, including social age¹⁷, for infants, and other attributes such as possible manner of death or kin affiliation, in adult cases. This suggests that understanding social age will require a more nuanced approach for exploring mortuary treatment variation within and between sites and through time. Mortuary signatures of personhood in relationship to social age were obtained by contrasting biological age with sex and posthumous treatment of the body without trying to impose preexisting age constructs, following work by Gowland (2006), Lucy (2005), and Sofaer (2004), among others. Initially individuals were grouped using biological age groups such as: neonate to newborn and infant (<2 years), children (2 - 12 years), subadult (12 - 18 years), and adult (older than 18 years) (Table 2 and Table 3 see appendix). In some cases, it was only possible to estimate that individuals were older than 15 years at death, and in other cases, an individual's bones were so fragmented that their age could not be estimated. However, if posthumous treatment of an individual with subadult physiological age (12 to 18 years at death) was similar to that of an individual of adult physiological age (older than 18 years), this could suggest that the subadult individual presented an "adult" social age. It was previously suggested that individuals with a social age younger than two years were treated similarly to individuals of the biological age categories neonate and infant (Cerezo-Román and McClelland 2009). Subadult individuals were treated as adults in mortuary customs, suggesting that at this age among the Hohokam they were considered to have an adult social age. Thus, combining different lines of evidence helps elucidate cultural practices shared between group members or, alternatively, those that are distinct.

Posthumous Treatment of the Body and the Archaeological Context

Posthumous treatment of the body was inferred through observations of the human skeletal remains and contextual data generated from archaeological reports, field

¹⁷ Social age refers to the social and cultural understandings that are attributed to the chronological age.

notes, and published analyses. Primary deposits of cremated bones, as discussed here, represent the pyre sites and these typically were used only once based on the absence of duplicate skeletal elements from multiple individuals. Secondary deposits refer to deposits in secondary locations to which cremated human remains were relocated after removal from the pyre, crematorium or other primary cremation location. These secondary deposits consist of pits with cremated bone in and/or around ceramic vessels or sherds, or just simple pits. The terms “secondary deposit of cremated bone” are used here and include all secondary deposits with any recoverable bone. Recorded variables from cremation remains include color, degree and type of shrinkage and fractures caused by fire, and bone weights (Table 4). Cremation weights are used in this study to infer how the bones of individuals were treated after cremation and to observe patterns between different deposit types. For example, a typical cremated adult’s bones are expected to weigh over 1,500 grams, while adult bone weights below this imply an incomplete individual (e.g., Bass and Jantz 2004; Brothwell 1963; Gonçalves et al 2013; McKinley 1989, 1994; Silva et al 2009; Sonek 1992; Trotter and Hixon 1974). This value will vary slightly depending on if the bodies were burned in a coffin or without a coffin, and the material of coffins most commonly used are cardboard or wood (Krasker and Sousa 1987; Murad 1998). Krasker and Sousa (1987) suggested that if individuals are burned with a coffin the material of the coffin will increase the cubic inch volume; for example 195.8 in³ for particle board, 188.5 in³ for wood and 166.7 in³ for a crematory coffin composed of something else. Other important factors also contribute to bone weight variation such as sex, stature, ancestry, and the presence of pathologies, such as osteoporosis (Bass and Jantz 2004; Herrman 1976; Lowrance and Latimer 1957; Sonek 1992; Trotter and Hixon 1974). Modern cremation customs are controlled and minimal bone is lost in the process. It is possible that less care was taken during ancient cremation processes, where there were no legal implications for having incomplete individuals.

Table 4. Thermal Alteration of the Bones.

Categories	Variables Evaluation	Information Obtained	References
Color	Degree of burning of each region of the body.	Variation in the exposure to the fire of the skeletal elements on the cremation pyre. Observe if bones were burned dry or with moisture and/or with flesh.	Brothwell 1963; Buikstra and Swegle 1989; Devlin and Herrmann 2008; Fairgrieve 2008; Gejvall 1969; McKinley and Bond 2001; Shipman et al. 1984
Shrinkage	General description of the variation of the presence and degree of alteration of the normal bone shape by the fire.	Observe if bones were burned dry or with collagen and/or with flesh.	Baby 1954; Binford 1963; Buikstra and Goldstein 1973; Buikstra and Swegle 1989; Fairgrieve 2008; McKinley 1989; Symes et al. 2008
Fractures pattern cause by the Fire	General description of the degree of alteration on the bone cause by the fire.	Observe if bones were burned dry or with moisture and/or with flesh.	
Cremation weights	Complete bone weight Weight by anatomical region.	Division and fragmentation of the remains after the fire.	Baby 1954; Bass and Jantz 2004; Brothwell 1963; McKinley 1989; McKinley and Bond 2001; Sonek 1992; Trotter and Hixon 1974

Also, different populations have different mean, minimum and maximum bone weight values (Bass and Jantz 2004; Brothwell 1963; Gonçalves et al. 2013; Malinoski and Porawski 1969; McKinley 1989, 1994; Silva et al 2009; Sonek 1992; Trotter and Hixon 1974; Van Deest et al. 2001). Among the different studies on modern cremated bone weights the minimum bone weight reported for females is 1,540 grams and maximum bone weight mean is 2,233 grams (Van Deest et al. 2001). The minimum mean

weight of cremated remains reported for males is 2,004 grams (Malinoski and Porawski 1969) and maximum mean bone weight is 3,233 grams (Van Deest et al. 2001).

Bone weights for archaeological remains also can vary for other reasons, including variations in mortuary customs as well as in archaeological excavation and osteological analysis procedures. In this study, only burial deposits that did not report post-depositional disturbances were selected. Specific excavation protocols and techniques were used to optimize recovery of human remains by the author and by personnel at the various private CRM companies that excavated and analyzed the remains. Variables such as deposit type (e.g., inhumation vs. cremation), and cremation deposit type (e.g., primary deposit¹⁸ vs. secondary deposit of cremated bone) also were used. The chronological period for the remains, as estimated by the archaeologist, were recorded from archaeological reports and field notes. The variables on posthumous body treatment were integrated with osteological information, intersite comparisons, and reconstructions of posthumous treatments. The analysis of burial objects will not be discussed in this paper. Burial objects are an important part of mortuary assemblages and the center of numerous studies on mortuary practices. However, this article centers on the body itself as on many occasions this important element is has not explored in depth for Hohokam mortuary customs, but as this article demonstrates they provide an invaluable source of information to interpret the past.

Statistical analyses employed software programs such as SPSS Statistics 19 and Microsoft Office Excel 2007. The first statistical analysis explored the frequency and statistical relationship between inhumations and cremations in the Preclassic and Classic periods with a two by two frequency table (Table 5 see appendix), a Pearson's Chi-Square test and a Fisher's Exact Test (Tables 6, 7 and 8 see appendix). The second statistical analysis evaluated relationships between age groups (infant or younger, children, and subadult or older), burial type (inhumation and cremation) and chronological period (Preclassic and Classic) with a Pearson's Chi-Square test (Table 3 see appendix). The third statistical analysis was performed to observe the relationship

¹⁸Also called primary cremation, pyre or crematorium.

between how much cremated bone was placed in a deposit and time period. The quantity of bone present in a deposit could vary for many reasons, as discussed above. Regardless, low bone weights for cremation deposits from the Preclassic Period cannot be explained solely by losses from excavation and recovery techniques or osteological analysis. Additionally, bone weights for cremations were only evaluated for individuals older than 15 years and adults since there is a lack of comparative reference data for subadult, child, and infant cremation weights. Descriptive statistics were performed on cremated bone weights for primary and secondary deposits (Table 9 and Figures 2 and 3 see appendix). A fourth statistical analysis, using a Mann-Whitney U test, compared bone weight means for secondary deposits of cremated remains from the Preclassic and Classic periods (Tables 10 see appendix). The Mann-Whitney U test was selected as bone weights are a continuous variable and they present a bi-modal distribution.

Results

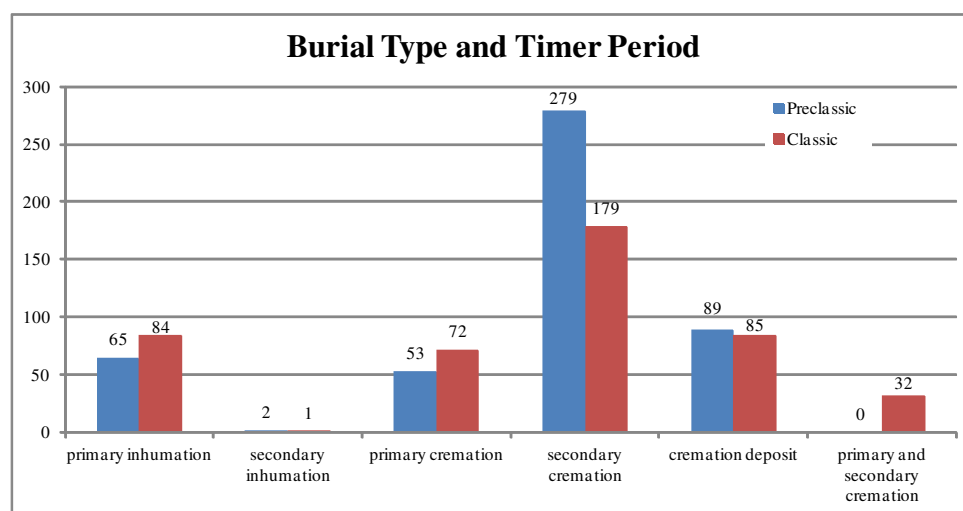
Most Preclassic Period interments were secondary deposits of cremated remains (n = 278, 69.8 percent; Figure 4). The remaining Preclassic Period burials consisted of primary¹⁹ (n = 65, 16.3 percent) and secondary²⁰ inhumations (n = 2, 0.5 percent), and primary deposits of cremated bones (n = 52, 13.1 percent). However, a new burial deposit type, combined primary and secondary deposits of cremated bone (n = 1, 0.3 percent) was identified. This deposit type has been termed “primary/secondary cremation deposit,” and consists of cremated bones both left on the pyre surface and placed in a vessel(s) and/or in an alcove inside the primary pyre deposit (Hall et al. in press). Due to project burial agreement requirements for Preclassic Period sites where complete vessels with primary/secondary cremation deposits were found, the bone fragments could not be examined to determine if remains from the feature represented the same or different

¹⁹ Initial burial of a complete articulated body.

²⁰ Burial deposit consisting of a whole or partial body in a place other than the initial burial location. Please see Wallace 1995a, 1995b and 2013 for a complete description of these intentional secondary inhumations.

individuals, and so they were only included singly in the frequency analysis. In the Classic Period, most remains were cremated (n = 281, 76.8 percent), although some still were inhumed (n = 84, 23.2 percent). Most cremated remains (n = 178, 63.3 percent) were secondary and primary deposits (n = 71, 25.3 percent) (Figure 4), although “primary/secondary cremation deposits” become more frequent (n = 32, 11.4 percent). Osteological analyses performed on “primary/secondary cremation deposits” from the Classic Period at Yuma Wash site suggest they all were grave deposits of single individuals (Hall et al. in press).

Figure 4. Burial Type Frequencies.



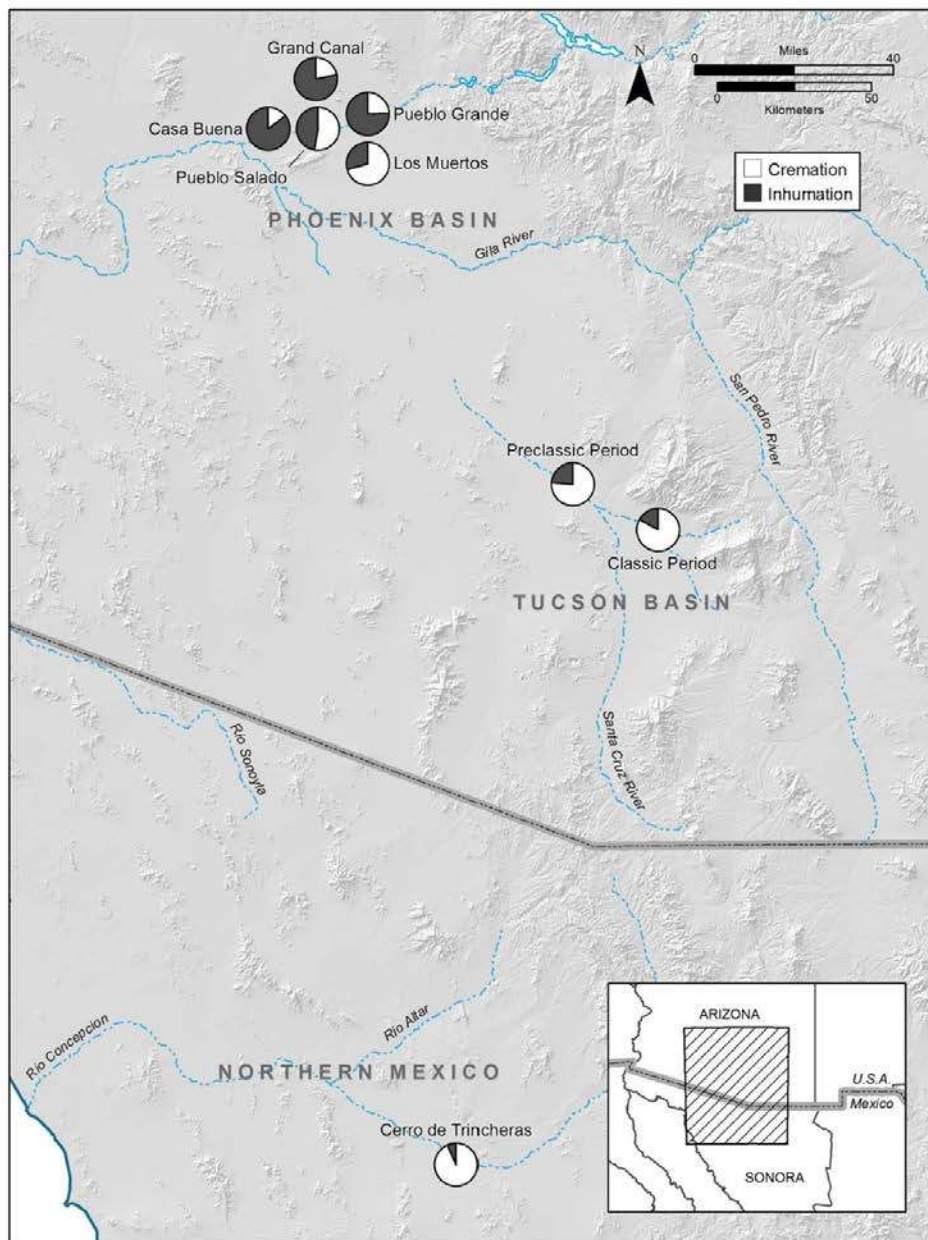
Cremation was the primary mortuary custom in *both* the Preclassic and Classic periods in the Tucson Basin. This conclusion is based on basic frequencies and the statistically significant relationship between burial type and times periods (Preclassic and Classic periods: $X^2 = 4.885$, $df = 1$, $p = 0.027$, Tables 5 and 6 see appendix), as well as the statistically significant relationship within a time period and burial type (Preclassic Period: $X^2 = 398.000$, $df = 1$, $p = 0.000$, Tables 5 and 7; Classic Period: $X^2 = 366.000$; $df = 1$; $p = 0.000$, Tables 5 and 8 see appendix). This pattern is different from some Hohokam sites in the Phoenix Basin where the Classic Period was dominated by

inhumation burials (Table 11, Figure 5). On the other hand, this pattern is similar to the Cerro de Trincheras site in Sonora, Mexico, an archaeological site contemporary with Classic Period Hohokam sites in the Tucson Basin (Table 11, Figure 5).

Table 11. Cremations and Inhumations in Southern Arizona and Northern Mexico.

Site	Cremation	Inhumation	Reference
Tucson Basin			
Preclassic Period	331 (83.17%)	67 (16.83%)	This study
Classic Period	281 (76.78%)	85 (23.22%)	This study
Phoenix Basin			
Pueblo Grande	198 (24%)	620 (76 %)	Mitchell 1994:74
Los Muertos	370 (70.88%)	152 (29.12%)	Brunson 1989
Casa Buena	9 (14.52%)	53 (85.48%)	Effland 1988
Grand Canal	22 (21.78%)	79 (78.22%)	Mitchell et al. 1989
Pueblo Salado	62 (53%)	55 (47%)	Mitchell and Jones 1996:370
Northern Mexico			
Cerro de Trincheras	141(93.37%)	10 (6.62%)	Watson et al. 2013.

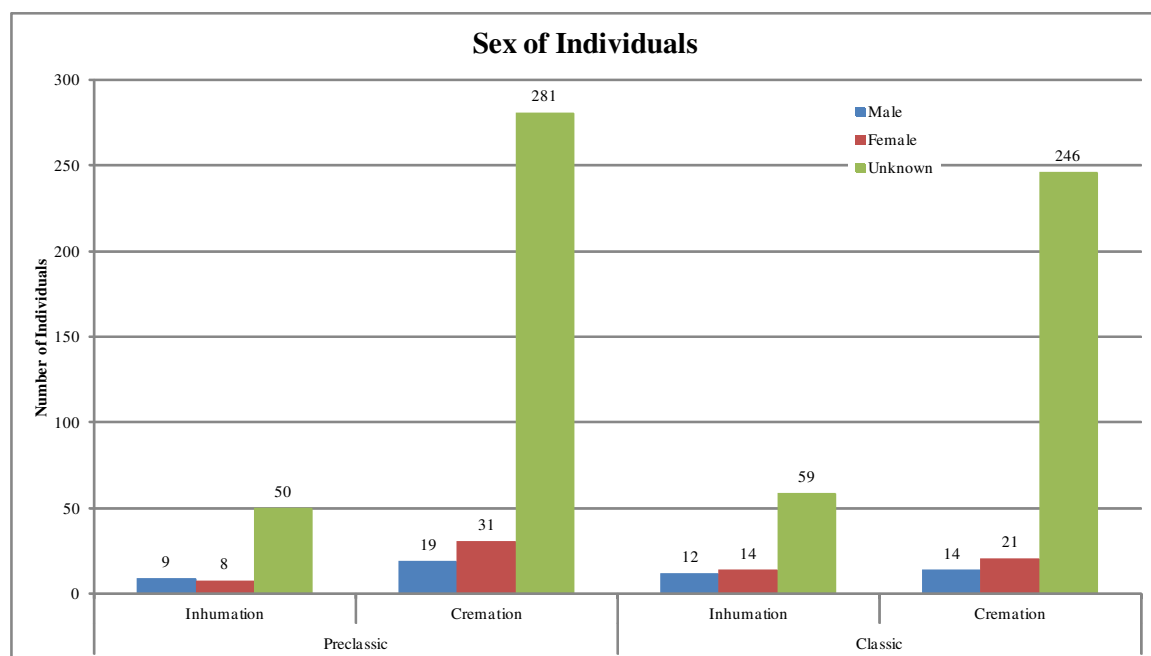
Figure 5. Preclassic and Classic Period Cremations and Inhumations in Southern Arizona and Northern Mexico.



No apparent differences are observed between time period and degree of burning, based on thermal alterations observed in the cremated remains. Cremated remains from

both time periods presented extensive warping and horizontal, vertical and concentric cracking caused by the fire. These types of fractures and the presence of warping suggest that individuals were burned while the remains still contained preserved collagen (e.g., Van Strydonck et al. 2005), and possibly flesh as well (Baby 1954; Buikstra and Swegle 1989; McKinley and Bond 2001). In addition, most bone in these cremated deposits were extensively burned and calcined.

Within the age-estimated remains, newborns and infants usually were not cremated – 67.9 percent ($n = 19$) and 67.7 percent ($n = 44$) were inhumations in the Preclassic and Classic periods, respectively (Table 2 see appendix). For both the Preclassic and Classic periods in the Tucson Basin statistically significant differences between age group and type of burial also are found (Preclassic Period: $X^2 = 59.389$, $df = 2$, $p = 0.000$; Classic Period: $X^2 = 77.006$, $df = 2$, $p = 0.000$) (Table 3 see appendix). Children, subadults and adults were inhumed at low frequencies (Table 3), with most individuals older than two years of age at death being cremated (Tables 2 and 3 see appendix). These results suggest that during the Preclassic and Classic periods in the Tucson Basin, the incidence of cremation and inhumation primarily varied with respect to age group. It was possible to estimate sex in a relatively small number of cases ($n = 128$, 16.7 percent), and it was found that there were about equal numbers of males and females represented across treatment types (Figure 6).

Figure 6. Sex and Number of Individuals.

Although cremation was the predominant burial custom for individuals older than two years of age at death in both periods, aspects of cremation customs changed through time. During the Preclassic Period, Hohokam cremation customs are overwhelmingly characterized by the presence of both primary and secondary deposits. No differences in treatment types were found between cremated infants, children and subadults, other than the expected lower quantity of bone from younger individuals. Most primary cremations consisted of individuals older than 15 years at death and adults (Tables 2 and 3 see appendix). During the Preclassic Period, most primary deposits contained between 10 to 500 grams of bone while in the Classic Period most contained between 10 to 1,000 grams of bone (Figure 2 see appendix). The mean primary cremation bone weight and standard deviation for individuals older than 15 years at death and adults were slightly lower in the Preclassic Period than in the Classic Period (Table 9 see appendix), however, no statistically significant differences were found. After bodies were burned in the cremation pyre, it was common throughout both periods to remove the remains and place them in a

vessel or pit. Pits containing these secondary deposits varied in size and form but usually were round.

Secondary deposits of cremated remains of adults and individuals older than 15 years at death in the Preclassic Period were treated differently than similar aged individuals in the Classic Period, and considerable differences were observed in the quantity of bone placed in these deposits (Table 9, Figure 3 see appendix). In the Preclassic Period, cremated bone in most secondary deposits weighed less than 50 grams, while in the Classic Period more variation is apparent, although most secondary deposits contained cremated bone weighing more than 50 grams (Figure 3 see appendix). The mean bone weight (99.97 g) and standard deviation (230.61 g) for Preclassic Period secondary deposits were much lower than those from the Classic Period mean bone weight (362.70 g) and standard deviation (361.83 g) (Table 9 see appendix). Statistically significant differences exist between the Preclassic and Classic periods in mean bone weights from these secondary deposits ($U = 3754$; $Z = -8.114$; $p = 0.00$) (Tables 10).

Discussion

In the Tucson Basin, it appears that cremation was the primary burial treatment among Hohokam during *both* the Preclassic and Classic periods, with emphasis upon secondary cremation deposits (Table 10 see appendix and Figure 5). In this regard, the Classic Period Tucson Basin Hohokam share more similarity with their southern neighbors from Cerro de Trincheras in Northern Sonora. However, in the Phoenix Basin, cremation occurred primarily during the Preclassic Period while inhumation became the prevalent funerary custom in the Classic Period (Mitchell and Brunson-Hadley 2001b; Ravesloot and Regan 2000).

Another aspect of the funeral ritual among the Tucson Basin Hohokam that did not change was the treatment of neonates and infants. The main funerary treatment for neonates and infants was inhumations, which was consistent throughout the Preclassic and Classic periods. This suggests that infant age was an important variable in decisions

about how bodies were treated. Ethnographic evidence can be used to help interpret the rationale behind treating Hohokam neonates and infants differently from other members of the society at death.

Different cultures have different perspectives about when an individual acquires the status of “person.” (Conklin and Morgan 1996; Hockey et al. 2010). Conklin and Morgan (1996) suggest that one way in which individuals give meaning to a particular body (e.g., body of a neonate vs. body of an elderly person) is by locating personhood in specific features of the body. They mention, for example, that in the United States most of the discourse on neonate personhood emphasizes contested medical definitions for the timing of when a neonate acquires specific capacities, such as consciousness or the ability to survive in the womb. However, other groups may locate key features of the person in social ties and their discourse on personhood identifies the cultural construction of a “body” as consisting of the social interaction between individuals and integration in social groups, among others.

The differential mortuary treatment of infants and children has also been documented in ethnographic and ethnohistoric research in the Southwest (Russell 1908; Spicer 1980; Spier 1933; Underhill 1939, 1946). The riverine Yuma practiced cremation as their principal mortuary treatment, however, they did not cremate infants or individuals that were kinless (Levy 1978; McGuire 1992; Spier 1933; Wallace 1978a, 1978b). Schillaci et al (2011) mention that children move through different rites of passage among the Hopi, Zuni, Tewa Indians of San Juan Pueblo, and Keres Pueblo of Cochiti and Zia. For example among these groups infants are named between 4 to 20 days of life, and later in a second rite infants are welcome to a specific moiety and given a specific moiety name (Lange 1959; Ortiz 1969; Parsons 1974; Schillaci et al 2011). However, among the Tewa, it is not until the child is six to ten years that a third rite name, “water pouring”, marks the transition from “innocence” and “unknowing” to becoming an older child or she t’a and only then are they considered Tewa (Ortiz 1969; Schillaci et al 2011). Ortiz (1969) mentioned that before children become she t’a or Tewa they are not considered “human” and not yet out of the realm of spiritual existence. Ethnographic

records for the Tohono O'odham (southern Arizona) report that dead infants did not present any 'spiritual' danger to the living because they were not yet fully persons (Kozak 1991).

Similar to the Puebloan groups and Tohono O'odham account, personhood among the Hohokam may have been acquired gradually as the individual established connections outside the household and reached a social age in which one is considered a member of society. The presence of inhumed, uncremated neonates and infants at Hohokam sites suggests the possibility that they had not lived long enough to establish connections outside the household, and thus their personhood was not yet established.

A few children, subadults, and adults among the Tucson Basin Hohokam also were inhumed without being burned. It is possible that the reasons for not burning these individuals were very different from those for the inhumed neonates/infants, including some reasons that can be drawn from global ethnographic examples. Occasionally among the Hindu of Bali, where cremation is the primary mode of interment, families which do not have the resources to perform a cremation will inhume the deceased, or sometimes individuals are temporarily inhumed until resources for cremation are acquired (Downes 1999). Another possibility is that these individuals and/or their families were not considered part of the community or the individual died under unusual circumstances (McGuire 1992). Differential body and burial treatment for individuals that die under unusual circumstances has been documented extensively in ethnographic and historic accounts, and archaeological studies among Southwestern Native American, as well as in different groups from around the world (e.g., Binford 1971; Bloch and Parry 1982; Brew and Huckell 1987; Hanlon 1972; Holtorf and Williams 2006; Murphy 2008; Russell 1908; Underhill 1939). However, it is not possible at this point to exclude any of the possibilities for this dimension of differential treatment among certain children, subadults, and adults.

Changes through time in mortuary customs among the Tucson Basin Hohokam primarily involved procedures for treating bodies following incineration. However, the manner of incineration did not change significantly through time. Cremated bone from

deposits dating to both periods was highly calcined, which results from being exposed to temperatures of more than 600° C and/or having been burned for a long period of time (e.g., Buikstra and Swegle 1989; Devlin and Herrmann 2008). After the body was consumed and the fire cooled, it was common for the remains to be collected and placed in a secondary deposit. Variable amounts of bone were collected from the primary cremation (pyre site) and placed in the secondary deposits. However, there are significant differences through time in how much bone from an individual was placed in these secondary deposits.

The Preclassic Period

Cremation deposits for the Preclassic Period Hohokam are characterized by low bone weights. Cremated bones of an adult are expected to weigh over 1,500 grams (Bass and Jantz 2004; Brothwell 1963; Gonçalves et al 2013; McKinley 1989, 1994; Silva et al 2009; Sonek 1992; Trotter and Hixon 1974). However, bone weights of Hohokam Preclassic Period secondary deposits in the Tucson Basin are considerable lower.

Ancient cultural practices were most likely the major agents creating bone weight differences in these deposits. Therefore, archaeological and historic evidence of cultural practices could help explain low quantities of bone present in these deposits. Beck (2005, 2008) suggested, after examining ethnographic documents and thermal alteration patterns on Hohokam cremated remains, that after the initial burning remains were left in place, placed in a secondary deposit, or reburied as part of a memorial ceremony. She did not specify whether or not the remains after the reburial were left in the reburial location or placed in another deposit. The reburial of the remains could have created deposits with lower weights. However, in this research no direct archaeological evidence for additional burning episodes of cremated bones was found. Differential degrees of burning can also be ruled out. The documented degree of burning between the different time periods was fairly similar. A more likely explanation for the low bone weight in

secondary deposits is the division of cremated remains during or subsequent to removal from the primary cremation location.

Historic evidence for the division of cremated remains after the fire has been documented in accounts from the Maricopas and Halchidhoma, both Colorado River Yuman-speaking groups from the American Southwest. Cremation was the primary funerary custom for these groups, who divided the cremated body into four piles and placed these in four secondary deposits (Spier 1933:302-303).

Evidence suggesting a similar practice were found at the Fagan Ranch archaeological site where cremated remains from a single individual, a young to middle-aged adult, possibly male, were found in two distinctive deposits (Feature 34 and 163) in close proximity (Ezzo 2008). This determination was possible due to a fortuitous refit by the author of the right and left parietal at the sagittal suture of the cranium. Feature 34 was an oval, shallow pit 42 cm in length and 38 cm in width and Feature 163 was an irregular, shallow pit 42 cm in length and 35 cm in width. Neither of these two features had evidence that they were pyres and/or the remains were burned *in situ* and most likely these were secondary deposits. Feature 34 contained 150 grams of bone, 90% of which come from the cranium; while the remainder was fragments of a thoracic vertebra, a radius and a tibia. Feature 163 contained 575 grams of bone with about 40% of that coming from the cranium and 40% from the appendicular part of the body. The right and the left arm were present as well as some of the leg bones. In addition, a few vertebra fragments, one rib fragment, and a few hand and foot bones were present. If the remains from the two deposits are considered together, the individual is still not complete, for example no teeth were found in either of these deposits.

At other Prehispanic sites in Arizona, such as Meddler Point in the Tonton Basin in Arizona, contemporary with the Preclassic and Classic period sites in the Tucson Basin, were found examples of Preclassic period secondary deposits of cremated bones (Feature 408, 411, and 443) that had conjoining artifacts²¹, likely suggesting that the

²¹ Swartz et al (1995) mentioned that both features were circular and were 53 cm in diameter. The fill of these two pits were gray and ashy. Feature 408 contained sherds, lithics and 455.9 grams of cremated adult human bone, a palette, and a ground stone. On the other hand, Feature 411 contained four grams of

bones of the individual also were split (Swartz et al. 1995). Also at this site other features were found that contained conjoining artifacts (Features 346 and 456), but these features did not have any associated bones.

Therefore, low bone weight deposits found in the Tucson Basin analyzed in this research likely represent remains of individuals divided into one or more secondary deposits after the bodies were burned, as has been suggested previously for the Hohokam (e.g., Birkby 1976; Cerezo-Román 2013; Fink 1988a; Minturn and Craig 2001). This could explain why these secondary deposits present such low bone quantities. To determine if individuals were divided and placed into separate secondary deposits in close proximity, a refitting exercise was performed by the author with selected secondary deposits found within a cemetery area at the Honey Bee Village archaeological site. However, no bones could be refitted between different deposits. This could suggest that remains from a single individual were not necessarily deposited within the same cemetery but rather could have been deposited elsewhere within a site (e.g., as secondary deposits of cremated bone in other cemeteries within a site, other secondary deposits of cremated bone in other cemeteries, within plazas, and/or scattered within structures) or in the landscape (Wallace 2012). Differences related to age and quantity of bone in the secondary deposits could not be evaluated, because no comparative bone weight data are available for children and subadults. The quantity of bone placed in the deposits could only be evaluated for individuals older than 15 years of age at death and adults, but there does not appear to be a correlation with sex. While the sex of the individual does not appear to have affected decisions about this aspect of mortuary practices, sex-based differences could have been expressed in other ways during funerals. It is possible that at the point when remains were being distributed other social attributes were more important than the sex of the deceased.

cremated human bone and a sherd. Feature 408 had a large plainware bowl rim that conjoined with a sherd from Feature 411. In Feature 408 was found a broken palette that was completed when a piece found in Feature 443 was refitted to it. Feature 443 was located 1.5 meters to the north and had the same general appearance as the other two cremations; circular, roughly 50 centimeters in diameter, with a gray and ashy fill and 20.7 grams of cremated human bones.

Kinship and other social alliances could have played a more important role in the distribution of the cremated remains. In a previous study, the author suggested that during the Preclassic Period, subsequent to burning, the cremated remains were divided and distributed among the family and other members of social networks as inalienable possessions (Cerezo-Román 2013). The inalienable possession²², part person and part object, could be used to authenticate particular connections between different social, civic, political, economic, religious and/or ritual networks connected with the deceased and/or mourners. The specific relational networks of the deceased and family determined how the remains were divided and distributed and this was a way to authenticate particular social alliances. The cremated bones had symbolic power as sources of remembrance of the personhood of the deceased and as a material enactment of connections and networks that previously existed between the deceased and mourners. The value of the cremated remains could be transferred by participating in the distribution and placement of the remains in secondary deposits. It is likely that the more connections the deceased and their family had in life the greater the number of people that could have participated in the division of the remains. This could result in lower quantities of bone being distributed and placed in secondary deposits, although this could vary between individuals and between or within sites. Regardless, the way bodies were treated after burning changed through time.

The Classic Period

In the Classic Period, cremation customs changed in at least one major respect from the previous period. A statistically significant difference is observed in the bone quantity of secondary deposits between the Preclassic and Classic periods. The quantities of cremated bone placed in secondary deposits were significantly greater in the Classic

²² Inalienable possessions are objects meant to be kept and not exchanged and have symbolic power (Weiner 1992).

Period than during the preceding period. Thus, there is a change through time in how the living treated the cremated remains of the dead.

In the Classic Period, after the body was burned, most of the remains appear to have been placed in a single secondary deposit. This activity does not appear to depend on sex. No differences were found between sex and bone quantity placed in secondary deposits, at least for the few adult individuals where sex could be estimated. On occasion in Classic Period deposits, it was observed that the bone was not removed to a distant secondary deposit but rather left at the pyre and placed inside an urn as part of the same “primary/secondary cremation deposit”. The primary/secondary cremation deposits that date from the Preclassic Period could not be subjected to osteological analysis, and so it is not possible to evaluate if this treatment was the same as in the Classic Period.

The evidence clearly indicates that during the Classic Period the practice of dividing cremated remains declined; bodies were burned and placed in secondary deposits but not divided. Instead of the remains being transformed into part person part object, as in the Preclassic Period, their part-person aspect appear to have been emphasized. Thus, the bodies were still transformed, but they were treated as integrated units. This suggests that the personhood of the individual in the Classic Period was more bounded and with fewer networks that needed to be acknowledged through partitioning of the body. The custom seems to be more centered in the wholeness and completeness of the remains even though they were cremated and the individual transformed from a physical body to bone fragments. The practice of dividing the remains declined in the Classic Period, which may also indicate that fewer individuals participated in this aspect of the funeral custom. This may also suggest that the funeral custom was becoming more “private” and less elaborate through time.

The archaeological evidence suggests that changes in conceptions of personhood and social relationships through time were possibly not limited just to the funerary customs but also to broader aspects of personhood at a regional scale. In the Preclassic Period, public and communal spaces, such as plazas, ball courts and courtyard groups, were more open and available suggesting broader networks and interactions of people

within and between sites and communities (e.g., Abbott et al. 2007; Fish 1989; Fish and Fish 1991; Fish and Fish 2000; Wilcox 1991). During the Classic Period an increase in social differentiation and complexity has been observed throughout the Hohokam area, both in the Phoenix and Tucson basins. Large sites with public architecture, such as platform mounds, began to appear. Platform mounds could have been used for multiple purposes, such as elite residences, for administrative needs (Whittlesey and Ciolek-Torrello 1992), and/or for secretive ceremonial rituals (Downum and Bostwick 2003; Elson 1998; Howard 1992). Platform mounds also were restricted spaces where only limited members of the community had access (e.g., Abbott 2000; Doyel 1991; Elson and Abbott 2000; Fish and Fish 2000; Lindauer and Blitz 1997). Sites with platform mounds were centers of an interrelated settlement system that formed political communities, probably associated with elites as well (e.g., Fish and Fish 1991:162; 1994). It has been suggested that political and socially integrated groups clustered around platform mound sites and group members interacted more commonly among themselves than with individuals and members of other groups beyond the community limits (Abbott et al. 2006). The conclusions of Abbott et al (2006) are mainly based on ceramic sources and exchange within the Phoenix Basin which were not necessarily the same as in the Tucson Basin. However, in the Classic Period, adobe compounds, which enclose residential areas and separate them from different sectors of the society, began to appear. Compounds in many cases may enclose the equivalent of multiple courtyard groups, which could suggest that the immediate “family” network could be bigger (e.g., Bayman 1996; Crown and Fish 1996; Sires 1987). Within the Tucson Basin Hohokam these types of structures restrict residential spaces (e.g., Ciolek-Torrello 2012; Crown and Fish 1996). Extensive social networks in the Tucson Basin Classic Period existed but perhaps the “emotive networks” or “remembrance networks” were reduced through time within the site. The creation of social division and segmented spaces reduced interactions between members of the community, and it is possible that this also was reflected in funerary customs. Funerary customs in the Classic Period are thus interpreted as resulting from a segmented population whose social alliances were centered within smaller and/or more exclusively

family networks. This suggests a change in conceptions of personhood through time not limited to funerary customs but encompassing broader aspects of personhood and concepts about the self among the Tucson Basin Hohokam.

Conclusion

The Preclassic and Classic period Hohokam offer a fascinating case study for understanding how personhood in the Prehispanic Tucson Basin changed through time. This was explored by examining the biological profile, posthumous treatment of the body and mortuary custom in burial remains of 764 individuals from 10 archaeological sites. Cremation comprised the predominant mortuary custom in the Preclassic and Classic periods of the Tucson Basin. However, neonates and infants were inhumed and not burned, possibly due to the lack of development of self that these individuals had in the society. More importantly, some cremation customs changed through time, which was most readily demonstrated for individuals older than 15 years at death and adults. During the Preclassic Period, after the body was burned, the remains were fragmented, divided and distributed as inalienable possessions among the family and within specific networks. This suggests an emphasis in practice on a more relational self, part person and part object. In the Classic Period, this practice decreased and the remains were not divided but left in place or transferred to a single secondary deposit. The perceptions of self also likely changed to a more whole and bounded unit, even after transformation of the body during the cremation fire. It is possible that this occurred as a result of more “private” customs and due to a general decrease in emotive or remembrance networks and a more segmented society. These changes in mortuary customs are similar to broader socio-political changes, such as an increase in social differentiation and complexity, documented among the Classic Period Hohokam.

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Appendix

Figure 1. Tucson Basin Archaeological Sites Discussed in Text.

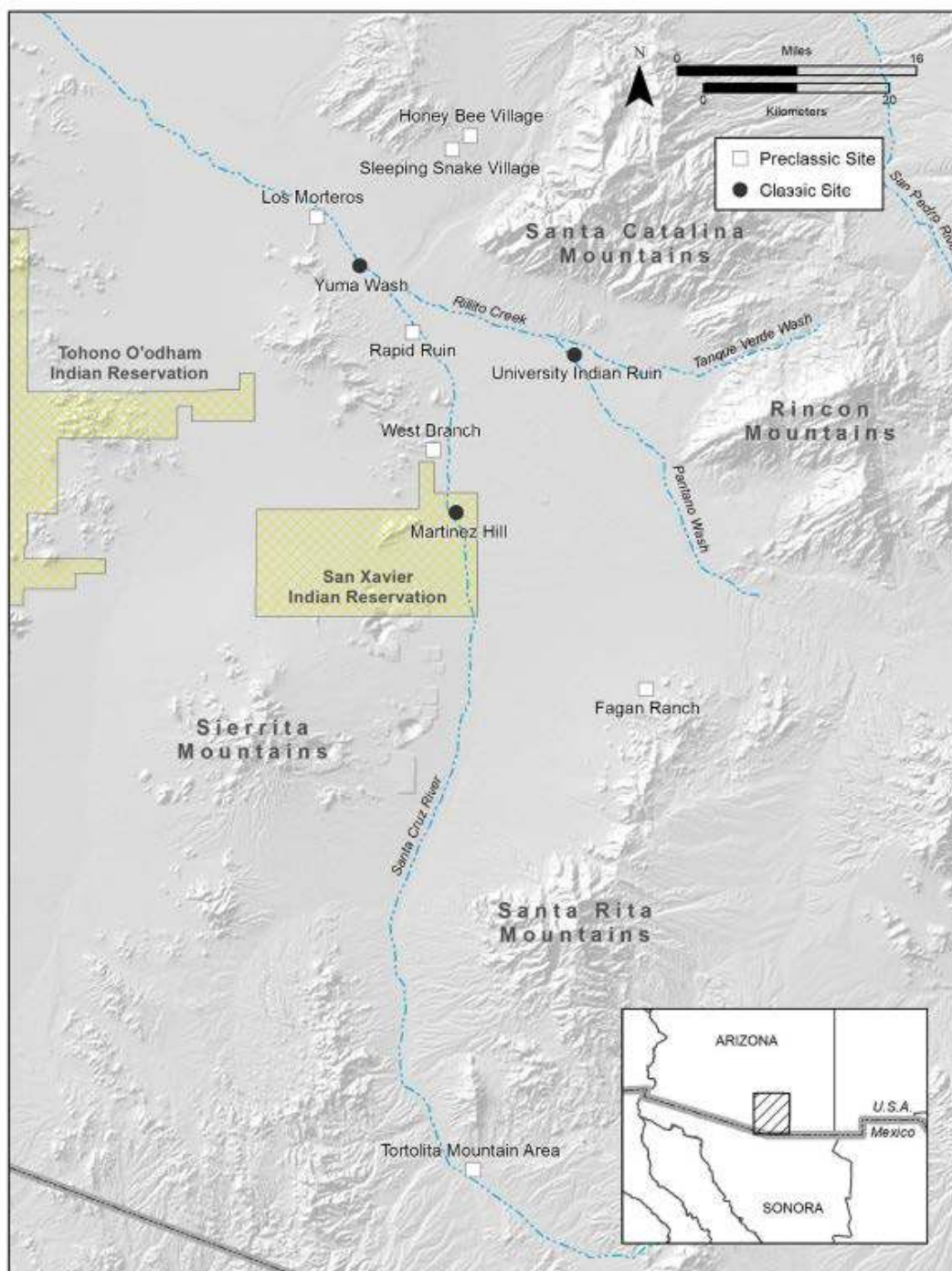


Table 1. Samples from the Preclassic and Classic Period.

Archaeological Sites	Preclassic Period		Classic Period		References
	Individuals	% of Preclassic	Individuals	% of Classic	
Honey Bee Village AZ BB:9:189(ASM)	189	47.5	3	.8	Craig 1989; Wallace 2012
Fortolita Mountains Area (AZ AA:12:84					
(ASM), AZ AA:13:83 (ASM), AZ AA:12:170 (ASM), AZ AA:12:785 (ASM))	30	7.5	-	-	Swartz 2008
Sleeping Snake Village					
(AZ BB:9:104(ASM))	40	10.1	-	-	Ezzo 2005
Los Morteros (AZ AA:12:57(ASM), AZ AA:12:58)					
	61	15.3	-	-	Wallace 1995a, 1995b
Fagan Ranch ((AZ EE:1:345(ASM); AZ EE:1:384(ASM))					
	21	5.3	-	-	Ezzo 2008
West Branch (AZ AA:16:3(ASM))					
	22	5.5	-	-	Huntington 1986; Whittlesey 2004
Rabid Ruin (AZ AA:12:46(ASM))					
	35	8.8	-	-	Hammack 1969
Martinez Hill (AZ BB:13:3(ASM))					
	-	-	20	5.5	Gabel 1931
University Indian Ruin					
(AZ BB:9:33(ASM))	-	-	31	8.5	Hayden 1957
Yuma Wash (AZ AA:12:311(ASM), AA:12:312(ASM), AA:12:122(ASM), AA:12:314(ASM))					
	-	-	312	85.2	Cerezo-Román and McClelland 2009; Hall et al. in press

Table 2. Age at Death and Burial Type Frequencies.

	Age at Death	Burial Type					Total
		Primary Inhumation	Secondary Inhumation	Primary Cremation	Secondary Deposits of Cremated Bone	Primary and Secondary Deposits of Cremated Bone	
Preclassic	Infant (0 to 2 years)	19	0	2	7	-	28
	Child (2 to 12 years)	8	0	4	21	-	33
	Subadult (12 to 18 years)	3	0	3	13	-	19
	Adult (18 or older)	23	2	32	162	1	220
	Older than 15 years	4	0	8	35	-	47
Classic	Neonate to NB	17	0	1	2	0	20
	Infant (0 to 2 years)	27	0	4	14	0	45
	Child (2 to 12 years)	7	0	6	22	5	40
	Subadult (12 to 18 years)	0	0	3	1	1	5
	Adult (18 or older)	31	1	32	72	17	153
	Older than 15 years	1	0	18	41	9	69

Table 3. Age at Death, Inhumation, and Cremation Frequencies.

Time Period	Burial Type	Age at Death		
		Infant or Less (< 2 yrs)	Child (2 to 12 yrs)	Subadult and Adult (>12 yrs)
Preclassic	Inhumation	19	8	32
	Cremation	9	25	254
Classic	Inhumation	44	7	33
	Cremation	21	33	194

(PP: $X^2 = 59.389$; $df = 2$; $p = 0.000$; CP: $X^2 = 77.006$; $df = 2$; $p = 0.000$)

Table 5. Frequencies of Inhumation and Cremation by Time Period.

	Burial Type				Total
	Inhumation	Inhumation %	Cremation	Cremation%	
Preclassic	67	16.83%	331	83.17%	398
Classic	85	23.22%	281	76.78%	366
Total	152	19.90%	612	80.10%	764

Table 6. Pearson Chi-Square Values for Burial Type and Time Period.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.885 ^a	1	.027	-	-
Continuity Correction ^b	4.492	1	.034	-	-
Likelihood Ratio	4.885	1	.027	-	-
Fisher's Exact Test	-	-	-	.030	.017
N of Valid Cases	764	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 72.82.

b. Computed only for a 2x2 table

Table 7. Pearson Chi-Square Values for Burial Type and Preclassic Period.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	398.000 ^a	1	.000	-	-
Continuity Correction ^b	390.889	1	.000	-	-
Likelihood Ratio	360.785	1	.000	-	-
Fisher's Exact Test	-	-	-	.000	.000
N of Valid Cases	398	-	-	-	-

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.28.

b. Computed only for a 2x2 table

Table 8. Pearson Chi-Square Values for Burial Type and Classic Period.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	366.000 ^a	1	.000	-	-
Continuity Correction ^b	360.413	1	.000	-	-
Likelihood Ratio	396.722	1	.000	-	-
Fisher's Exact Test	-	-	-	.000	.000
N of Valid Cases	366	-	-	-	-

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.74.

b. Computed only for a 2x2 table

Table 9. Bone Weights (g.), Means, and Std. Deviation.

Weight ^a	Primary Cremation Preclassic	Primary Cremation Classic	Secondary Cremation Deposit Preclassic	Secondary Cremation Deposit Classic
N	37	42	171	105
Mean	243.86	323.72	99.97	362.70
Median	150.00	193.20	22.00	273.00
Mode	1.0b	-	2.00	3.60
Std. Deviation	262.54	356.58	230.61	361.83
Variance	68925.68	127151.77	53180.98	130924.19
Range	1090	1257.50	2286.50	1998.10
Minimum	1.00	-	.50	1.90
Maximum	1091	1257.50	2287.00	2000.00
Sum	9023	13596.30	17095.10	38083.70

Note: a. Weights are from undisturbed cremations from adults and older than 15 years at death individuals. b. Multiple modes exist. The smallest value is shown

Figure 2. Undisturbed Primary Cremation Bone Weights (g.) of Individuals Older than 15 years and Adults.

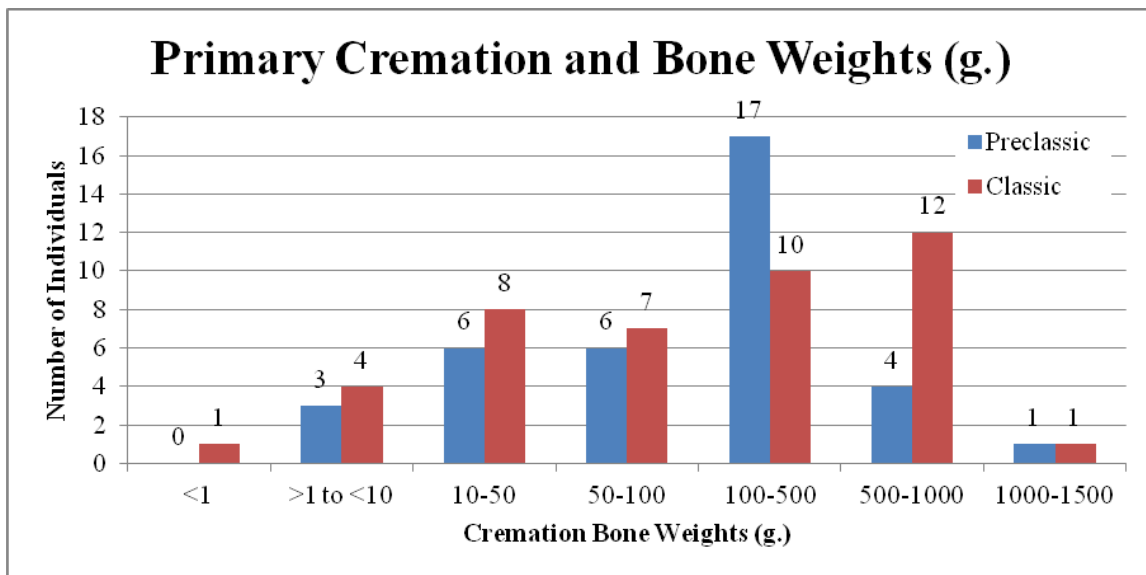


Figure 3. Bone Weights (g.) of Cremated Bone from Undisturbed Secondary Deposits for Individuals Older than 15 yrs. at Death and Adults.

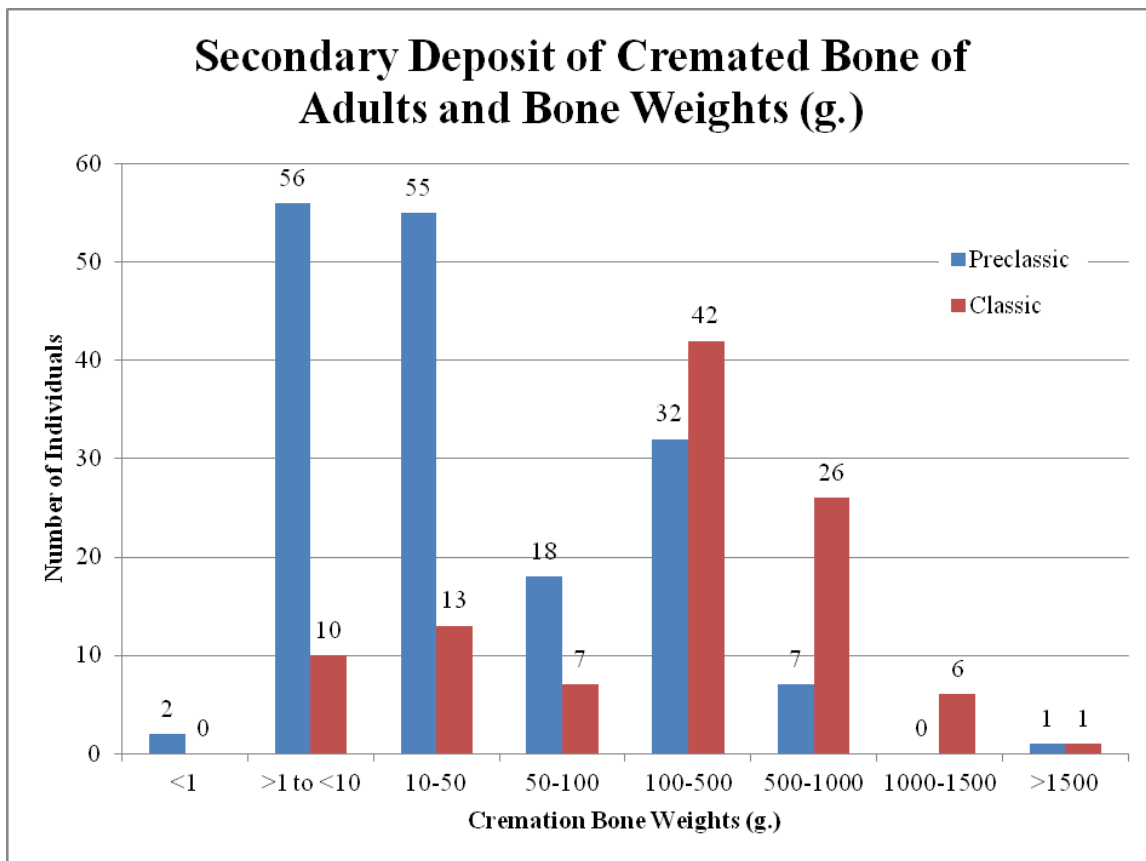


Table 10. Time Periods, Secondary Cremation Deposits Weights, and Mann-Whitney Analysis.

Ranks of Mann-Whitney Test for Time Period and Bone Weights from Secondary Deposits (g.)				
Bone Weights (g.)	N	Mean Rank	Sum of Ranks	Weight
Preclassic	171	107.95	18460.00	-
Classic	105	188.25	19766.00	-
Total	276	-	-	-
Mann-Whitney U	-	-	-	3754.000
Wilcoxon W	-	-	-	18460.000
Z	-	-	-	-8.114
Asymp. Sig. (2-tailed)	-	-	-	.000

APPENDIX D

Thermal Alteration Form

Provenience	Number ID
Deposit Type (Primary or Secondary Deposit):	Primary or Main Color & Munsell Code
Secondary Color & Munsell Code	Calcined (Y/N) & Observations
Chalky (Y/N) & Observation	Warping, Degree & Observations
Cracking Type, Degree & Observations	Bone Weight (grams) & Observation
Total Bone Count & Observation	Maximum Length (mm) & Bone ID
Average Length (mm)	Burning Degree (see Holck 1969)
General Observations	Cranial Weights (grams)
Cranial Count	Cranial Maximum Length (mm) & Bone ID
Cranial Average Length (mm)	Cranial Color
Cranial Cracking , Degree & Type	Cranial Warping , Degree & Observations
Cranial Observation	Dentition Weigh (grams)
Dentition Count	Dentition Color
Dentition Warping, Degree & Observations	Dentition Cracking Degree & Type
Dentition Maximum Length (mm) & Bone ID	Dentition Average Length (mm)
Axial Weight (grams)	Axial Count
Axial Color	Axial Cracking Degree & Type
Axial Warping, Degree & Observations	Axial Maximum Length (mm) & Bone ID
Axial Average Length (mm)	Axial Observations
Ribs Weights (grams)	Ribs Count
Vertebrae Weights (grams)	Vertebrae Count
Scapula Weights(grams)	Scapula Count
Pelvis Weights (grams)	Pelvis Count
Humeri, Radii & Ulnae Weight (grams)	Humeri, Radii & Ulnae Count
Humeri, Radii & Ulnae Maximum Length (mm), & Bone ID	Humeri, Radii & Ulnae Average Length (mm)

Provenience	Number ID
Femora, Tibiae, Fibulae & Patellae Weight (grams)	Femora, Tibiae, Fibulae & Patellae Count
Femora, Tibiae, Fibulae & Patellae Maximum Length (mm) & Bone ID	Femora, Tibiae, Fibulae & Patellae Average Length (mm)
Unidentified Long Bone Frag. Weight (grams)	Unidentified Long Bone Frag. Count
Appendicular Weight (grams)	Appendicular Count
Appendicular Color	Appendicular Cracking Degree & Type
Appendicular Warping, Degree & Observations	Appendicular Maximum Length (mm) & Bone ID
Appendicular Average Length (mm)	Extremities Weight (grams)
Extremities Count	Extremities Color
Extremities Cracking Degree & Type	Extremities Warping Degree & Observations
Extremities Maximum Length (mm) & Bone ID	Extremities Average Length (mm)
Unidentified Bone Weight (grams)	Unidentified Bone Count (Fragments Length \geq Equal 2 mm)
Unidentified Bone Color Unidentified Bone, Cracking Degree & Type	Unidentified Bone Warping Degree & Observations
Unidentified Bone Maximum Length (mm) & Bone ID	Unidentified Bone Average Length (mm)
Total Weight (G.) Sieve 9.5 mm	Maximum Length Sieve 9.5 mm
Total Weight (G.) Sieve 4.75 mm	Maximum Length Sieve 4.75 mm
Total Weight (G.) Sieve 2 mm	Maximum Length Sieve 2 mm
Total Weight (G.) Sieve <2 mm	Maximum Length Sieve < 2 mm
Additional Observations	Fragmentation Observations

Notes: Cracking type: V = Vertical, H = Horizontal and C = Concentric (thumbnail),
Warping and Cracking degree: Minor = < 25% , Moderate = 25%-75%, Heavy = >75%

Reference:

Holck, P.1969 *Cremated Bones: A Medical-Anthropological Study of an Archaeological Material on Cremation Burials*. Anthropologiske skrifter Nr, 1 Anatomical Institute. University of Oslo, Oslo.