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Ancestor Worship in the Middle Sicán Theocratic State

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ANCESTOR WORSHIP IN THE MIDDLE SICÁN THEOCRATIC STATE

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A Dissertation
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DISSERTATION APPROVAL

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GO MATSUMOTO, for the Doctor of Philosophy degree in ANTHROPOLOGY, presented on October 29, 2014, at Southern Illinois University Carbondale.

TITLE: ANCESTOR WORSHIP IN THE MIDDLE SICÁN THEOCRATIC STATE

MAJOR PROFESSOR: Dr. Izumi Shimada

The major focus of this dissertation is the ancestor worship that is inferred to have been practiced in the multiethnic Middle Sicán theocratic state (AD 950-1100) that prospered on the northern North Coast of Peru. The major objective is twofold: (1) demonstrating by archaeological means that ancestors were indeed worshipped in the Middle Sicán society and (2) elucidating the nature and role of the inferred ancestor cult and associated rituals and ceremonies.

Ancestor (and the veneration of it) is one of the themes that have the deepest roots in the anthropological thoughts; nevertheless, many archaeologists have uncritically invoked ancestor veneration without sufficient theoretical underpinning and empirical support, to the point that James Whitley (2002) decried "too many ancestors." This dissertation thus begins with a review of the earlier anthropological discoveries and theoretical debates on what ancestor is and who becomes an ancestor, including the cases in the Andes. Based on this review of previous studies, it is hypothesized that the select members of deceased Middle Sicán elites were transformed into an ancestor through a series of prescribed processes. This hypothesis is examined in

terms of the five possible material correlates of the inferred Sicán ancestors extracted from the regional archaeological database of the study area accumulated by the Sicán Archaeological Project (SAP) for the last three decades.

The role of the inferred Middle Sicán ancestor cult is approached from the ideological perspective. It is inferred that the ancestor cult was employed by the ruling group as an ideological and political means to justify the existence and extension of social hierarchies and inequalities and thus targeted at wider populations different in genealogical origins as opposed to family or lineage members. This study focuses attention on the food preparations and consumptions documented by a test excavation at the principle plaza of the Sicán capital, "Great Plaza," adjacent to the inferred ancestral tombs and hypothesizes that the commensality among the living and the dead during feasts there served not only to commemorate the inferred ancestors, but also to bring together people in different social tiers and to consolidate the highly stratified, multiethnic Middle Sicán society.

Two excavations at the ceremonial core of the Middle Sicán state capital, one at the Huaca Loro West Cemetery in 2006 and the other at the Great Plaza in 2008, provide varied lines of evidence that support the above two hypotheses. The results suggest that ancestor worship was indeed practiced during the Middle Sicán Period. By maintaining and monopolizing the ritual access to the Sicán Deity through their ancestors, the Sicán elites reproduced their religious and political power and retained the legitimacy of their social status. Concurrently, the Sicán elites consciously employed their ancestor cult for social integration. After the Middle Sicán Period, these ancestors seem to have retained their spiritual viability even after the later Chimú Empire took the control of this region. If not recognized as the Sicán anymore, they were remembered and honored by the living for over four centuries.

On the basis of the merits of traditional approach (e.g., the study of architecture, iconography, bioarchaeology, and ethnohistory and ethnography in the Andes), this study gives primacy to the direct focus on the material residues and relational contexts and patterns of ritual activities and studies their change and stability through time in relation to other historical contingencies. The merit of focusing on the trajectories of ritual activities themselves in a long and wide perspective is that it sheds light on the regional peculiarities and contingent nature of the inferred ancestor veneration, which may be overlooked in cross-cultural, ethnological arguments about the nature, role, and capacity of ancestors. It also provides a wealth of information not only to determine what types of activities took place, but also to explore the intangible symbolic significance behind those activities. As a result, this approach provides a practical solution to the justified criticism by Whitley (2002) and demonstrates how we should approach ancestor veneration and what evidence we would need in order to appropriately define it in archaeological record.

DEDICATION

I dedicate this dissertation to my wife Akiyo with my greatest respect, gratitude, and love.

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I also deeply thank the members of my dissertation committee, Dr. Frank L. Salomon, Dr. Jonathan D. Hill, Dr. Roberto Barrios, and Dr. Anthony K. Webster, as well as Dr. Robert S. Corruccini and Dr. Andrew K. Balkansky who had to leave the committee after my candidacy exam due to circumstances. Their suggestive advices always guided me to the right direction during my dissertation research. Their thought-provoking questions and insightful comments were always so challenging. When I overcome them, however, I realized that each one of them became a critical foundation of my study.

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My biological parents Masafumi and Mayumi passed on physical and mental strength – as my name Go spells in one Chinese character literally meaning tough, rigid, and strong – and some very important nature such as perseverance and undauntedness for me. My foster parents Izumi and Yuko Kamo laid the seeds of "appetite for knowledge" on my ascribed basis and patiently fed the buds that came out. I could not have been here in the US pursuing academic career, without either of their gifts. My father-in-law Hiroshi Suzuki showed his deepest understanding of my aims and aspirations, and supported my family from Japan both physically and spiritually. I truly appreciate his understanding and support.

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CHAPTER 1

INTRODUCTION

Sicán (a.k.a. Lambayeque) is the name for a late prehispanic archaeological culture and society that prospered about 1,000 years ago on the Peruvian northern North Coast (Figure 1.1). The main subject of this dissertation is the ancestor worship cult that is inferred to have been central to the religious beliefs and practices of this society. Even those who have not ever heard this name Sicán may have been familiar with the central image of the Sicán religious art – what we now call "Sicán Deity" image. This eye-catching image has taken a life of its own out of the original cultural contexts and has gained popularity widely among the people of Peru (Shimada 2014; Shimada and Samillán 2014). The image has eventually been selected as the motif for logos of the national flag carrier and the state-owned petroleum company (Figure 1.2). Most recently, it was chosen as the very first of the 24 designs ("Tumi de Oro") for the new coin series titled "Wealth and Pride of Peru" and put into circulation since the 24th of March 2010 (Figure 1.3). Not necessarily knowing that it represents the Sicán religious art, people have developed the Sicán Deity image as an important icon directly linked to the national identity of modern-day Peru. Furthermore, the image has come to attract public attention even more widely beyond the seas. In the Disney movie "The Emperor's New Groove" (2000), the Sicán Deity image is obviously "cited" together with other prominent artistic motifs of the Andes (e.g., Wari Staff Deity). The main character *Kuzco*, the 18-year-old vain and selfish emperor of the "Inca Empire," lives in his imperial palace decorated with an enormous Sicán Deity image and furnished with personal belongings and paraphernalia likewise decorated with the same image. In spite of such an international-level visibility, however, the nature of the prehispanic religion that created this image is yet to be fully understood. Focusing on the inferred ancestor cult in the Sicán society, this study aims to contribute to a better understanding of the Sicán religion and its significance in the Peruvian prehistory for both academic and public spheres.

1.1. Research issues, questions, and aims

The late prehispanic archaeological culture Sicán became recognizable around AD 850 after the political demise of the preceding Mochica (a.k.a. Moche) and persisted for over five centuries until conquered by the expanding Chimú Empire in 1375 (Shimada 2000). Sicán chronology is divided into the Early (AD 850-950), Middle (AD 950-1100), and Late (AD 1100-1375) periods based on over 100 radiocarbon dates and ceramic, iconographic, and architectural features and changes (Shimada 1990, 1995).

Shimada (2009:53) characterizes the Middle Sicán leadership as straddling both secular and sacred domains and exercised by six elite lineages that competed and/or allied at different times to gain and/or retain power. The six elite lineages are inferred to have been unified with the shared belief in the omnipotent, supreme deity Sicán Deity. Subordinating or coexisting with the Mochica and Virú (a.k.a. Gallinazo) ethnic groups (Shimada and Maguiña 1994:56; Shimada 2009:28), the Sicán elites firmly established the basis of their powerful state by about AD 1000 and built the capital within the modern-day Pómac Forest National Historical Sanctuary in the Middle La Leche Valley, the area traditionally called Batán Grande[1]. The state reached its height of prosperity and political and religious power during the Middle Sicán period, establishing dominance over a 400-km stretch of the coast from the Chira Valley to the north to at least the Chicama Valley to the south (Shimada 2009; Segura and Shimada 2014; also see Rucabado-Yong and Castillo Butters 2003; cf. Montenegro 2010; Sapp 2011). The political unification of the Middle Sicán state seems to have been based on political and religious allegiance from the subordinate in return for pragmatic merits, rather than achieved by military conquest and coercion. Hardly any archaeological evidence of armed conflicts has been thus far reported (e.g., weapons, traumatic features on human remains, artistic representations of armed combats, and defensive architecture such as fortress). Underlying the economic and religious developments and augmentations of the Sicán state were the agricultural production on vast and fertile land watered by a macro-regional inter-valley irrigation system called "Lambayeque Complex" (Figure 1.4) and the mass production of arsenical bronze for both regional utilitarian and ceremonial use as well as long distance trade.

Architecturally, the state capital (or the site of Sicán) is a concentration of a dozen monumental structures and a large rectangular space called "Great Plaza" in the area of ca. 2 km^2 or 200 ha (ca. 1 [N-S] x 2 km [E-W]) with very limited residential areas for elites (Figure 1.5). Six major multi-level platform mounds – Huacas Loro (a.k.a. Oro), Las Ventanas, La Merced, Sontillo (a.k.a. Santillo), Lercanlech, and El Corte – had a ritual space on top and were accompanied by cemetery and specialized craft workshop(s)[2] at the mound base (Figure 1.6). Based on their interdisciplinary analyses of these two elite shaft tombs, Shimada et al. (2004) hypothesize that the major mounds at the Middle Sicán state capital were the physical foci of ancestor veneration cult for different elite lineages and that the sociopolitical identity and power of each lineage were maintained and reproduced through veneration and commemoration of its mythical, supernatural ancestors.

This dissertation is guided by two-twofold question: (1) "Did ancestor worship indeed occur in the Middle Sicán society?" and (2) "If so, what role did it play in the societal development of the time?" In order to collect archaeological data and answer these questions, I participated in two excavations by the Sicán Archaeological Project (SAP) in 2006 and 2008 at the ceremonial core of the Middle Sicán state capital.

Thus far, without scrutinizing what ancestor is and who becomes an ancestor, many archaeologists have uncritically invoked ancestor veneration to the point that James Whitley (2002) decried "too many ancestors." Without seeking for sufficient empirical support, they have tended to focus simply and solely on collective burials and give short shrift to potentially much more complicated issues by simply lumping them together under the heading of "ancestor cults." In order to seriously face and accept Whitley's criticism and caution, we have to start with accurately understanding the salient characteristics of ancestors by hearkening back to the earlier anthropological discoveries and theoretical debates on what ancestor is and who becomes an ancestor (Chapter 2). We also have to consider how ancestors manifest themselves in material expressions, which may be used as material correlates to find ancestors in archaeological records. Since the concepts of ancestors may vary from time to time, influenced substantially by historical contingencies, we also have to take into account a series of peculiarities of the time and region in question and "tailor" the general definition of ancestor with reference to such idiosyncrasies (Chapter 4). In so doing, particularly important is to understand wider ecological, economic, political, and cultural contexts of the study area (Chapter 5).

1.2. Organization of this dissertation

This dissertation is organized as follows. In Chapter 2, I will explore the anthropological approach and cross-cultural perspective to the questions of what ancestor is and who becomes an ancestor. First, I sketch out general characteristics of ancestor and the veneration of it, referring to the major interpretive models based on ethnographic cases observed and documented in different parts of the world. Then, I narrow my focus to the ancestors in the Andes and review different approaches to and associated theoretical perspectives on them. Finally, emphasizing ancestral rituals, I argue for an integrative approach to make the best of the merits of the said approaches and perspectives.

Although the ethnological generalizations of ancestor veneration presented in Chapter 2 are very helpful to present an overview of the nature, role, and capacity of ancestors, a shift of focus to ritual activities leads one to realize that the veneration practices seems not to be universal in nature but rather highly contingent on their own historical contexts and their relations with social institutions. The contingent nature of ancestor veneration would be even more pronounced, when thinking about why it is/was practiced. In Chapter 3, I comparatively explore the two major theoretical perspectives on this question: one that focuses on the economic aspects of ancestor cult and another on the ideological aspects.

On the basis of my theoretical arguments in the previous chapters, in Chapter 4, I present two general hypotheses. I also discuss the test implications of these hypotheses and expected material correlates. And, lastly, I discuss the possibility that excavations and analyses may bear unanticipated results that require additional considerations for alternative scenarios.

Chapter 5 provides some background information addressing the Sicán culture and society within broader spatiotemporal contexts from which they emerged and developed. It will illustrate the intellectual history of Sicán archaeology and discuss how this prehispanic culture came to be recognized, defined, studied, and integrated into broader discussions of Andean archaeology. The first half of the chapter briefly overviews the origin and extrication of a longstanding stylistic and chronological confusion, while the second half illustrates the major geographic settings and ecological characteristics of the study area on the northern North Coast of Peru.

Chapters 6 and 7 describe the results of the two field excavations at the West Cemetery in 2006 and at the Great Plaza in 2008 and the subsequent material analyses of the artifacts and ecofacts, respectively. In chapter 7, confining my focus primarily to the documented food preparations and consumptions at the plaza, I explore the question of what role ancestral rituals and ceremonies played from the perspective of food practices.

In Chapter 8, I return to my original research questions. I sum up the findings from the two seasons of field excavations at the West Cemetery and the Great Plaza and from the subsequent laboratory analyses of the excavated artifacts and ecofacts and examine the two general hypotheses that I present in Chapter 4 against the obtained data. Lastly, I discuss the intellectual merits of the current study and broader impacts. I also refer to the future tasks to be completed.

NOTES

1 The use of “Batán Grande” is inappropriate for two reasons. First, Batán Grande refers to the very wide area that includes not only the concentration of prehispanic huacas in the Pómac Forest but also much of the middle La Leche Valley that was once held as a hacienda by Juan Aurich family. In order to pinpoint the archaeological site in the forest, the term “the site of Sicán” (or “Huacas de Sicán” in Spanish) would be much more appropriate. Second, there is an archaeological site called Huaca El Pueblo Batán Grande (HPBG) located further inland some 15 km from the site of Sicán to the east. The use of “the site of Sicán” is also appropriate to distinguish it from HPBG.

2 It has been reported that both Huaca Loro and Huaca Las Ventanas were accompanied by at least one metal workshop. The discovery of pottery-making molds at the east base of Huaca Lercanlech suggests the presence of a ceramic workshop there.

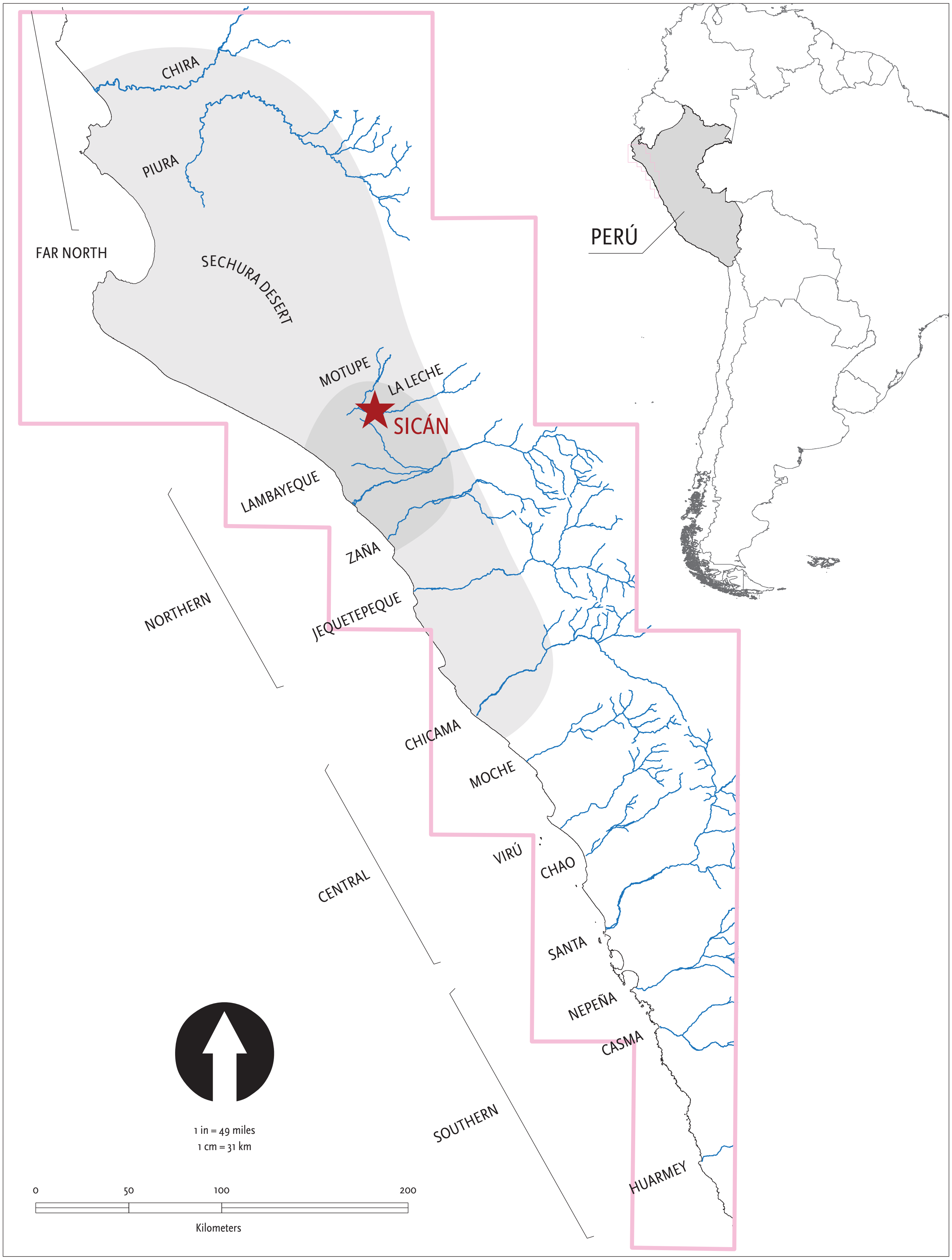


Figure 1.1. The extent of cultural and economic influences of the Middle Sicán state.

Figure 1.2. The logo of the state-owned petroleum company, Petroperú.

Figure 1.3. "Tumi de Oro," the first of the 24 designs for the new coin series.

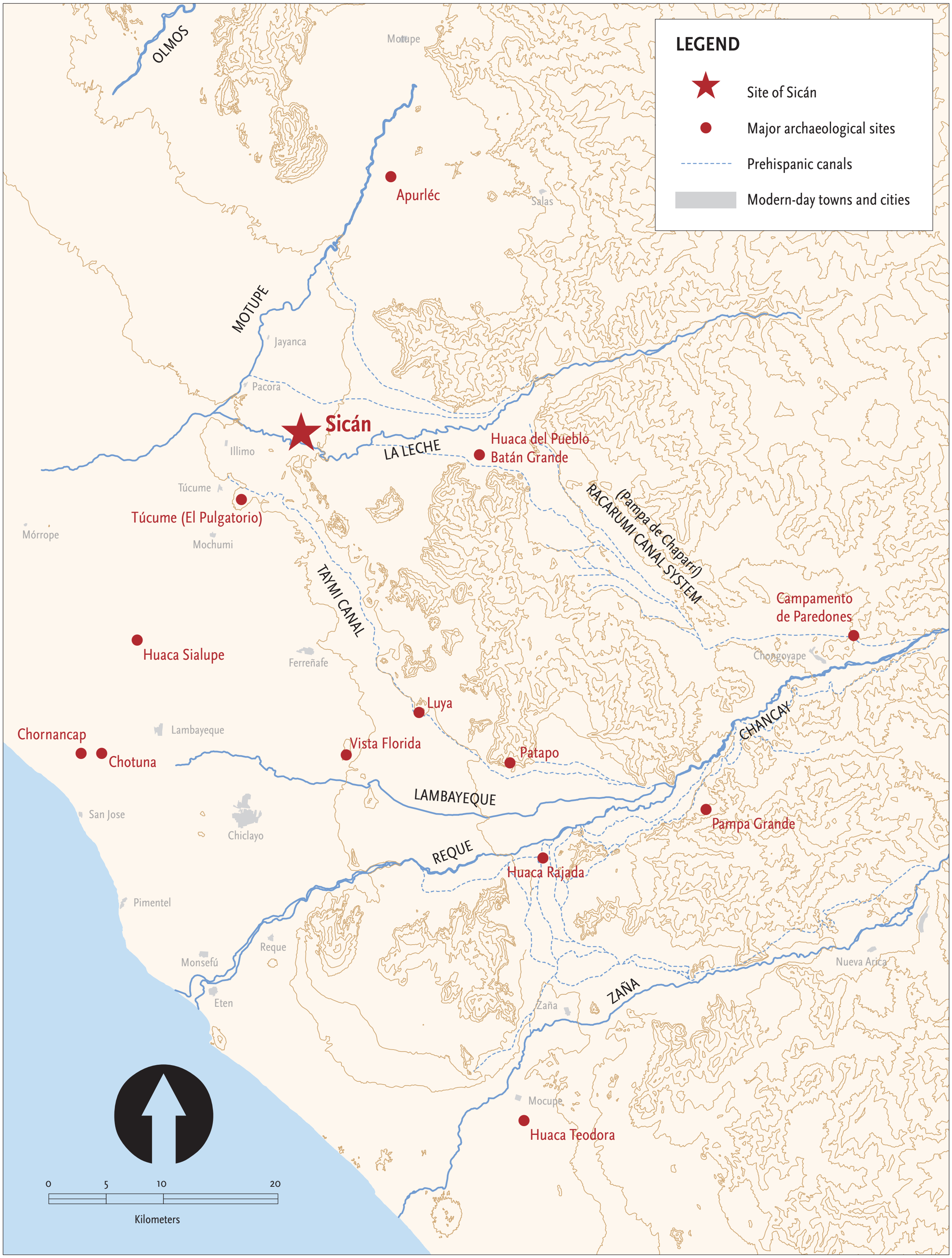


Figure 1.4. The Lambayeque Complex (the Jequetepeque Valley excluded).

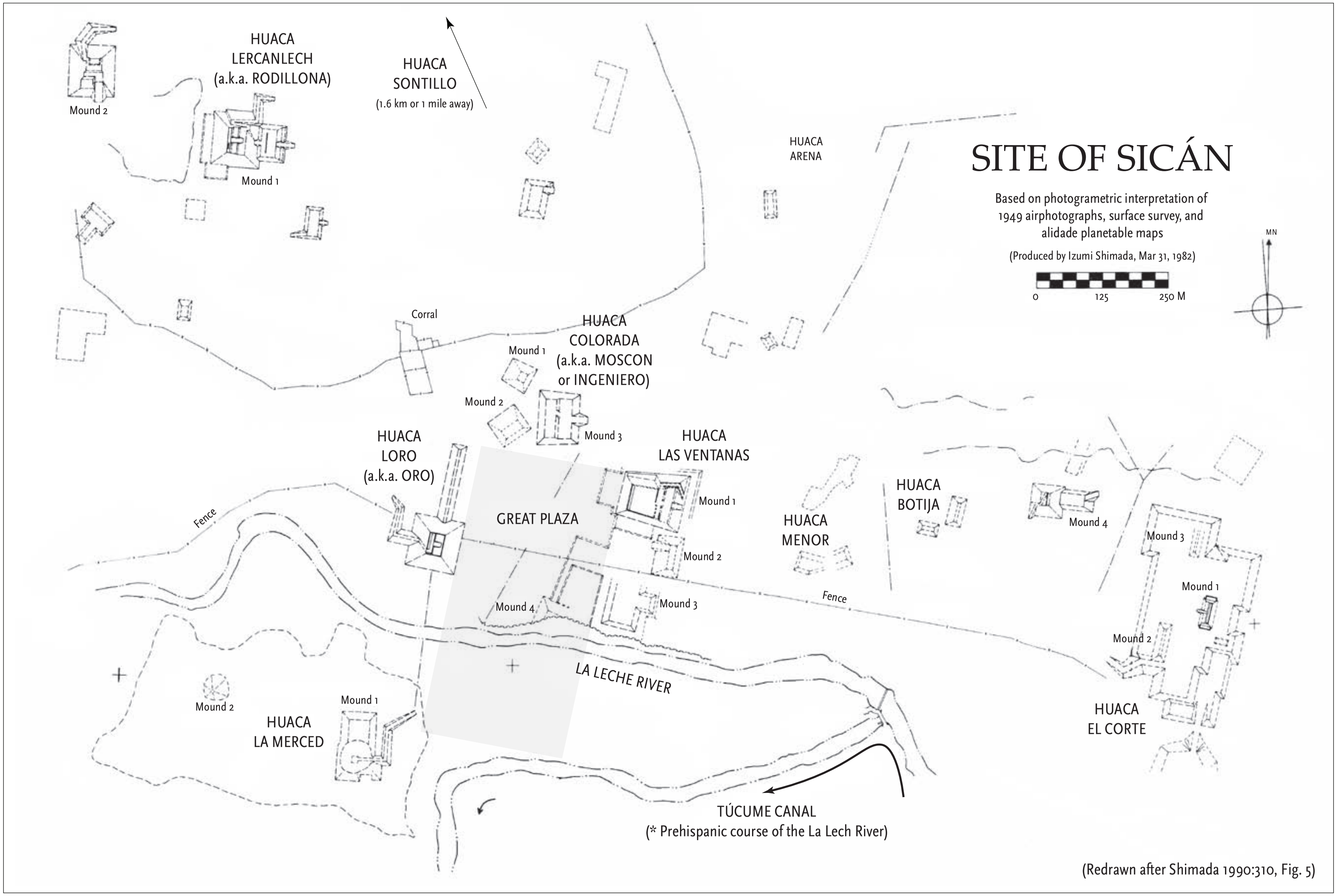


Figure 1.5. Architectural reconstruction of the Middle Sicán state capital. Many of the ceremonial mounds have been partially or fully eroded or uprooted by the river floodings and thus are not visible today (e.g., Huaca La Merced).

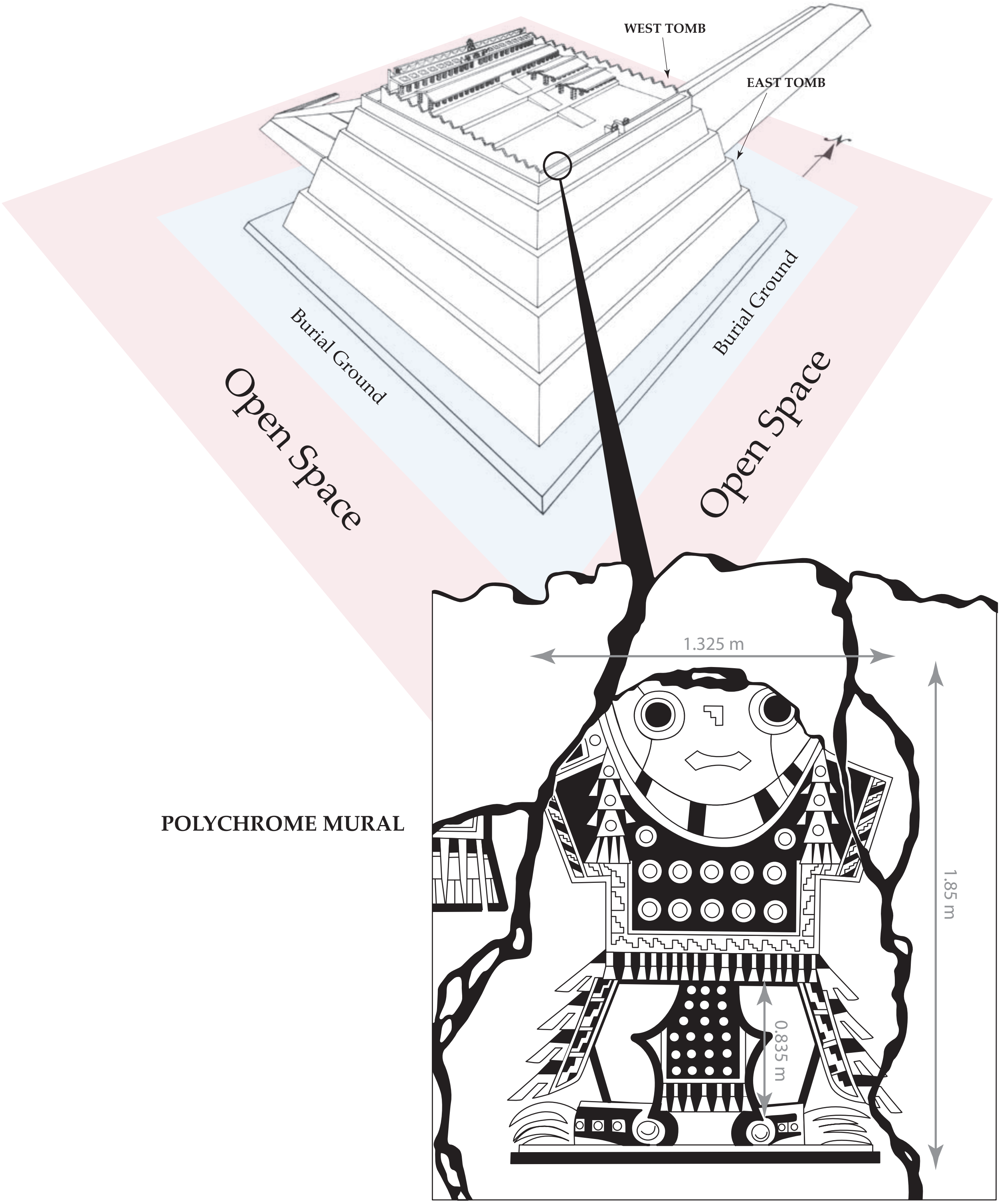


Figure 1.6. An isometric reconstruction of the Huaca Loro mound with its temple at the top (taken from Shimada 1999:57, Fig. 49) and the polychrome mural that decorated the interior surface of the East Façade around the southeast corner of the temple (redrawn after Florián 1951:9; a partial photo seen in Bonavia 1974:109, Plate 57; another photo in Narváez and Delgado 2011:65, Fig. 43-G).

CHAPTER 2

ANTHROPOLOGY OF ANCESTOR VENERATION: WHAT IS ANCESTOR?

In this chapter, I explore the anthropological approach and perspective to the questions of *what ancestor is*. First, I sketch out general characteristics of ancestor and its veneration, referring to the major interpretive models based on ethnographic cases observed and documented in different parts of the world. Then, I narrow my focus to the ancestors in the Andes and review different methodological approaches to and associated theoretical perspectives on them. Finally, emphasizing ancestral rituals, I argue for an integrative approach to make the best of the merits of the said approaches and perspectives.

2.1. General characteristics for defining ancestor

Ancestor (and the veneration of it) is one of the themes that have the deepest roots in the anthropological thoughts, and still draws attention from anthropologists and archaeologists today. An overview of anthropological studies of ancestor cult since the late 19th century reveals an alternate sequence of two contrastive theorizing efforts:

that which emphases the generality of the beliefs and practices and that which stresses their peculiarities. Putting more emphasis on the former, I will illuminate general characteristics for defining ancestor below.

2.1.1. Early anthropological studies of ancestor

The first intellectuals who drew attention on the theme of ancestor and its worship were the 19th-century unilineal-evolutionist anthropologists such as Tylor (Tylor 1958 [1871], 1958 [1877]), Spencer (1882), Ridgeway (1910), and Lubbock (1913 [1865], 1868, 1898 [1870]). Tylor (1958 [1877]) organized and reviewed an immeasurable number of written documents that described various religious beliefs and practices in different parts of the world. Most relevant to the current study are the concept of life in the form of soul (or ghost) after biological death and the doctrine of transmigration or bodily resurrection (a.k.a. reincarnation), that is, the belief that the soul of a deceased person enters and animates the body of a newborn[1].

All living beings including humans are subject to death. Although the ways in which people accept and comprehend this universal phenomenon vary across time and space, it is commonly believed that death is not an impasse, but the commencement of a new stage of life in the form of soul. The souls of the deceased are thought to possess supernatural powers, if beneficial or hazardous, and keep exerting influences over the lives of their living descendants for years after they depart from physical bodies

(Radcliffe-Brown 1948 [1922]:304). Amicable and friendly souls that bring benefits are welcomed and propitiated by the living, while hazardous and hostile ones are feared and held back from the sphere of the living (e.g., ghosts among the Khoekhoe of Southwestern Africa, the Yakuts of the Sakha Republic, and the Karen People in Myanmar) (Crooke 1908-1927:425; Canney 1921:20). Jevons (1911 [1896]:54; Tylor 1958 [1877]) argued that these seemingly opposing feelings of the living towards the souls of the deceased are both reflections of their premortem relationships. According to Spencer (1897:422), those who transcend the ordinary (e.g., a founder of a tribe, a chief known for bravery, a distinguished medicine-man, and an inventor of something innovative) tend to be not only distinguished from other members of the society, but also viewed as supernatural or divine and revered during their life. These remarkable individuals are regarded with increased awe after their death. The appeasement and propitiation of their souls are greater than that of other ordinary people which are less feared, and will finally develop into an established worship – what Tylor (1958 [1877]) called *manes worship* after the ancient Roman belief, that is, the worship of the revered soul/spirit of the dead.

In many cultures, the departed souls are also believed to come back to this world and achieve bodily resurrection sooner or later. Tylor (1958 [1877]) postulated that among the "higher races" in more advanced societies, the transmigration of souls is restricted to a human-to-human transaction, while among the "lower races" in more primitive societies, the souls transmigrate into animals, plants, and even inanimate objects. The latter is widely known as animism. Tylor speculated that the resemblance of physical and /or behavioral characteristics between the deceased and the new life form makes one believe that the latter is the incarnation of the former.

In accordance with Bastian's (1860) ethnological approach, these evolutionists attempted to search for the universal origins of social phenomena. They took the concept of progress as a fundamental principle to explicate different cultural beliefs and practices and argued that religion evolved from a simple to more complex form in the contexts of social evolution from primitive to more advanced societies. Tylor (1958 [1877]) viewed aminism and ancestor worship as the elementary forms of religion that pervaded among the "lower races" in primitive societies. It was proposed that these elementary forms were associated with the emergence and growth of agriculture and related conceptions (e.g., cycles of fertility, seasonality, and possession of the land) and were eventually developed through polytheism to the highest form, the enlightened monotheism of the Victorian society. Ridgeway (1910) similarly saw the origins of religions within the ritual behaviors surrounding death. The works of unilineal-evolutionists deserve credit to certain extent in that they made an overarching effort to ethnologically theorize diverse religious belief s and practices across time and space; however, later ethnographic and archaeological discoveries have countered their theoretical stance exclusively relying on the narrow-minded evolutionism. For example, it is now known that ancestor veneration is/was not only practiced in the state-level societies such as modern-day nations primarily in Asia and Africa and *Tawantinsuyu*[2] in the prehispanic Andes, but also known to coexist with other beliefs and practices of the state religion.

Subsequent studies developed controversies primarily around two major points: (1) the antiquity of ancestor worship (Jevons 1911 [1896]; Durkheim 1961 [1912]; Radcliffe-Brown 1952) and (2) the characteristics of ancestors, that is, whether they are friendly or hostile (Smith 1927 [1889]; Hastings 1908-1927; Frazer 1968 [1913-24]; Phillpotts 1913; Canney 1921; Frazer 1933-36; Gough 1958; Newell 1976). Many of their arguments, however, were still based on the previous evolutionistic logic and thus did not make any critical theoretical advancement.

The cul-de-sac of the generalized approach to ancestor and its veneration during this period may have been because ancestor worship was largely contingent on its own historical contexts and its relations with other social institutions, as is the case with other religious beliefs and practices (Insoll 2004), although sharing some common characteristics. What became conspicuous during this period was that there were few consensus generalizations about the nature, role, and capacity of ancestors among different scholars, and that scholars found no clear distinction between ancestor worship and the cult of the dead. Nonetheless, in response to the growing interest in the study of lineage systems and the development of functionalist approaches during the subsequent decades in the early 20th century (Radcliffe-Brown 1948 [1922]; Malinowski 1954 [1925]; Gough 1958; Bradbury 1965, 1966), ancestor worship regained popularity as a major focus of attention particularly in British anthropology with important works by Max Gluckman, Jack Goody, A. R. Radcliffe-Brown, and Meyer Fortes.

2.1.2. The Fortes/Newell definition of ancestor

Although the anthropological studies of ancestor began in the late 19th century, the efforts of theorizing its associated beliefs and practices in full swing awaited to emerge until the second half of the 20th century, partially due to the two World Wars that disturbed and retarded academic developments in general (e.g., Robert Hertz, whom I will refer to later, was killed leading his section in the attack on Marcheville on the 13th of April, 1915 at the age of 33). One of the leading scholars during this postwar period is Meyer Fortes. Based on his reflections on ancestor worship documented in Africa in general, including the Tallensi of Ghana that he himself studied, Fortes provided a concise definition of ancestor:

> Ancestor is "*a named dead forebear who has living descendants of a designated genealogical class representing his continued structural relevance. In ancestor worship such an ancestor receives ritual service and tendance directed specifically to him by the proper class of his descendants*" (Fortes 1965:124).

In this definition, Fortes particularly emphasizes the occurrence of ritual service and tendance as a key element of ancestor worship. This is why he does not regard what Berndt (1970) considers as “ancestors” – primordial animal species revered among Australian aboriginal groups – as such, due to the fact that their ritual practices “lack such distinctive features as prayer, libation, and sacrifice” (Fortes 1976:4).

Newell (1976:20) further refined Fortes’ definition and added that the service and tendance for ancestors require the existence of a cult place and a cult leader and/or sacrificers. About a decade earlier, based on his ethnographic study of the LoDagaa of the West Africa, Goody (1962:395-405) listed four distinguishable roles in sacrifices, which he argues are applicable to a wide range of societies: (1) the donor (or owner of the offering), (2) the officiant (or speaker who addresses the shrine), (3) the sacrificer (or assistant), and (4) the recipient (or the supernatural being to whom the offering is made). Consequently, ancestor cult may include critical components such as: (1) a named dead person; (2) his/her living descendants who belong to the same genealogical class (which provides legitimacy for claiming continuity from and connection to the dead forebear); (3) postmortem interactions between the dead and the living in the form of ritual service and tendance given by the latter to the former; (4) a designated place of cult; and (5) a cult leader and/or sacrificers. Each of these components deserves a loser look in relation to later theoretical arguments.

2.1.2.1. Component 1: A named dead person. First, ancestor cult requires death as its necessary condition (Fortes 1965:125). A group of anthropologists argued that the beliefs and practices of ancestor cult in Africa do not constitute worship in a strict sense. These scholars focused on the possibility originally raised by Tylor and reiterated by Jevons that ancestor worship might be an extension of the structure of social relations at the domestic level in the societies. Driberg (1936) argued that the respect shown to ancestors is *pietas*, an extension of attitudes directed towards living elders rather than worship in a religious sense. In the same light, Kopytoff (1971) pointed to the use of the same kinship terms for ancestors and living elders such as "fathers," "grandfathers," and "elders" (cf. Brain 1973; Sangree 1976; See Salomon 1995:336-337 for an Adean case in which the despoiled bones of ancestors are referred to as "los hermosos abuelos" by modern Huarochiranos). Ancestors and living elders are seemingly treated similarly in these African societies. On the other hand, Fortes (1976) made a strong counterargument that ancestors and living elders have to be clearly distinguished in that the former have experienced death and already belonged to the afterworld. Death clearly demarcates the spheres of the dead and the living. Therefore, the living simply cannot communicate with ancestors in the same way as they do with their living elders. Rather, death "opens a way to a mode of participation that is different from the mundane mode of the living" (Fortes 1976:5). The veneration of ancestor never occurs without death.

Fortes confined ancestors to those with their names; however, the length of time a deceased individual is remembered and honored varies cross-culturally to a large degree (Helms 1998:36). With the concept of *house* (the fundamental kinship-defined social organization of sociological/cosmological "Us") as the focal point, Helms (1998:35) cross-culturally categorizes ancestors into two groups in terms of their spatial and temporal positions relative to the house: (1) "distant beings related to the house in a context of original or prior origins" (first-principle or creator ancestors) and (2) "specific named dead of the house who are remembered as having achieved exceptional socially significant goals while still physically alive" (emergent house ancestors) – the type of ancestors that Fortes and many other scholars generally assume. The emergent house ancestors are thought to have emerged from the house and directly linked to the house from which they derived, while the first-principle ancestors are thought to have originated in a very distant cosmological locale outside the house (e.g., above the firmament, beneath the sea, and at the eastern or western horizons) and immigrated into the house from there. Therefore, in the cult of the first-principle ancestors, the venerating and the venerated are *spatially* situated and recognized respectively as being *inside* and *outside* the house, whereas in the cult of the emergent house ancestors, they are both *insiders* within the house domain as a closed or "pure" entity and are *temporally* situated either at present (the living/venerating) or in the past (the dead/venerated) (Helms 1998:37-38). In a broad historical sense, Helms speculates, the spatially-recognized first-principle ancestors preceded the temporally-recognized emergent house ancestors, because the spatial cosmological axis was formed and elaborated before the temporal one. The seniority of the first-principle origins gives it an ontological priority over the prior house origins (Helms 1998:87-88). Kan (1989) also distinguishes these two types of ancestors and identifies them ritually honored and tended during the Tlingit memorial potlatch. Like Helms, Kan also emphasizes the "Otherness" of and the more powerful cosmological energies extracted from the affinal (matrilineal) ancestors who deceased long ago, rater than the house member who recently died.

2.1.2.2. <u>Component 2: Living descendants who "make" ancestors</u>. Second, people do not necessarily become ancestors automatically after they die (Goody 1962; Bradbury 1965; Ooms 1976). In order for a deceased person to be recognized as an ancestor, it is essential to get initiated (or engaged in social relations) and produce offspring. This is most clearly reflected in the fact that the deaths of children often go unrecognized, and they never become ancestors (Gluckman 1937; also see Chamberlain and Parker Pearson 2001:91-94 for archaeological discussions). Without any living descendants who make a claim for legitimacy based on their continuity from and connection to him/her (e.g., senior filial successor), s/he not only fails to achieve ancestorhood, but also may become something else (e.g., *muenbotoke* in Japan and wandering, ill-disposed ghosts in Africa).

Ancestorhood is thus a sort of status to be given by the living and constantly reproduced by means of remembering. The living descendants bestow this status upon the dead through a transformational process of making an ancestor of him/her. As mentioned immediately below, this process consists of designated ritual protocols that should be appropriately followed.

Herskovits (1938:194-208) reports detailed ritual processes of the Dahomey in the present-day Republic of Benin, through which a recently deceased individual is recognized as an ancestor and becomes the subject of worship by joining a transgenerational collectivity of ancestors including the most powerful ones of the earliest time even before the origin myth (called *Dambada Hwedo*) to those less powerful of the recent past. During this deification rite, a ritual specialist (*dokpwégą*) calls out the names of the known ancestors and provides a ritual care for one by one. This process makes ritual participants aware of their kinship structure and helps them redefine their relative positions within the structure with reference to the traced genealogical sequence. Interestingly, the Dahomey take this ritual act of sending the deceased as deified ancestors to the other world as an analogy of ferrying people over the river. In order to successfully ferry the dead over the river, the living descendants are expected to provide substantial amounts of sacrifices (e.g., various kinds of animals, metals, money, cloths, drink, tobacco, bamboo fiber, pipes, and beads), which forces them to bear a heavy economic burden. Although the ritual processes are basically performative, accompanied by singing, drumming, dancing, and marching, they also leave material signatures such as ancestral houses and various sacrifices continually dedicated to ancestors.

2.1.2.3. <u>Component 3: Postmortem ritual interactions</u>. Third, the contacts and interactions with ancestors, who were separated by death from the living, take the form of rituals. Only through prescribed ritual protocols could the living gain access to the ancestors in the afterworld. Although death sets apart the dead and the living, this does not mean that ancestors cease to participate in the lives and activities of their descendants. As noted above, ancestors are believed to possess supernatural powers that directly affect their descendents. These ancestors require perpetual service and obedience in return for providing the welfare (e.g., health, wealth, and children) for the "good life" and inversely cause misfortune if the descendants do not satisfactorily acquit their ritual obligations (Goody 1962:430; Keesing 1975:60; Uchendu 1976:206; Kerner 1976:207-208; Fortes 1976:14-15; Fortes 1983:22, 30; Helms 1998:38). Durkheim (1961 [1912]:63) argues, "there is no cult of the ancestors except where sacrifices are made on the tombs from time to time, when libation are poured there on certain more or less specific dates, or when festivals are regularly celebrated in honor of the dead." In this regard, the cult of ancestor goes beyond mortuary ritual such as interment and funerary rites and continues to hold protracted and ritualized interactions with the dead for ritual service and tendance (Hertz 1960 [1905-06]; Goody 1962; Fortes 1965; Morris 1991).

2.1.2.4. Component 4: A designated cult place. Forth, the interactions with ancestors take place at the designated cult places. Depending on the type of ancestor, the place may vary. Helms (1998:38-39) argues that first-principle ancestors are sometimes objectified or made accessible at particular locations on the cultural landscape of the earth (e.g., Herskovits 1938:208; Goldman 1963:184, 254; Endicott 1979:124; Evens 1984:327-328; Gudeman 1986:92; Myers 1986:126, 240-243). In contrast, emergent house ancestors are contacted in a context within or related to the house domain (e.g., ancestral shrines and tablets at individual houses in East Asia).

2.1.2.5. Component 5: Ritual specialists. Fifth, in many cases, ritual specialists take control of the preparation and implementation of rituals. It is these specialists who know what and how needs to be prepared by whom, and when and where the rituals should be implemented in what order. More importantly, they share some esoteric knowledge of rituals that is usually associated with the way of summoning the deceased to this world and is only imparted to new specialists during their training. What identifies ritual specialists is not only their intangible knowledge, but also their ritual paraphernalia, a part of which may help archaeologists recognize their existence in archaeological data. For example, the specialists of the aforementioned Dahomey deification rite use a long staff, whistles, caury shells, chicks, corn flour mixed with palm-oil, ceramic pots, and so on (Herskovits 1938:198). It is also notable that the Dahomey deification rite has a two-stage format, and a different ritual specialist is assigned to each state: *dokpwégą* for the first stage and *tɔvodúnọ̄* for the second stage (Herskovits 1938).

Under the direction of ritual specialists or community leaders, all of the required tasks for rituals are assigned to those considered as appropriate. Those who are in charge of the critical roles (e.g., preparing the corpse and offering sacrifices) may vary depending on the type of ancestors addressed and recognized (Helms 1998:37-38). During the rituals recognizing emergent house ancestors, the house members generally take full responsibility for the preparation of the corpse and other related funerary activities. This assignment prevents the living "Others" such as affines from assisting with those activities (Helms 1998:38; also see Bloch and Parry 1982c:29-30; Vitebsky 1993:22). This is because affinal relations are considered as an intrusion of outsiders, and thus more emphasis is placed on the ritual role of siblings (Howell 1992:131). The living and the dead of the house (respectively as "Us" and related "Other") constitute a self-contained ideological order (Bloch and Parry 1982b:211; Strathern 1982:38; Rowlands 1985:51-52). The emergent house ancestors do not need to form any alliance with other people or other orders of beings to maintain their spiritual viability (Helms

1998:37-38). In other words, death is "domesticated." During the rituals for first-principle ancestors, on the other hand, critical roles are often assigned inversely to affines in the preparation of the corpse and other related activities. The first-principle ancestors require alliance with other people for the maintenance of their spiritual viability. Death is wild, not tamed.

2.1.3. Growing interests in rituals: van Gennep and Hertz

As manifested in the Fortes/Newell definition of ancestor, the growing interests in rituals became prominent after the middle of the 20th century. This led to the "rediscoveries" of two studies that had long been overlooked regardless of their distinguished significance: those by Arnold van Gennep and Robert Hertz. Their studies cogently modeled funerary rituals within the social contexts and established a firm basis for later theoretical developments, particularly interpretive and symbolic approaches to death rituals.

Van Gennep (1960 [1909]) defined death as a rite of passage that deserves celebration, just as birth and other life-cycle events are celebrated. Funerary rituals, or any ritual of transition, consist of three stages: (1) *separation* (or *pre-liminality*; rites of separation from the existing world), (2) *liminality* (a period of uncertainty during the transitional stage), and (3) *incorporation* (or *post-liminality*; ceremonies of incorporation of the mourners into their normal but "new" world. Only through funerary rituals could the living restore social harmony and stop feeling *betwixt and between* in Turner's (1969:93) terms, and the deceased join the pantheon of mythological forefathers and foremothers (cf. Metcalf and Huntington 1991:112).

About the same time, based on his review of documentary sources on the double burial in Borneo, Hertz (1960 [1905-06]:27-86) similarly postulated that the continuity of society is threatened by someone's death and only through funerary rituals and mourning could balance be regained. Funerary rituals served the worthy purpose of reassessing the loss of the deceased and reassigning new roles to the living. He proposed a tripartite model of ritual transitions undergone by (1) mourners (indulging in grief, getting separated from the dead, and readjusted and redefined), (2) corpse (from a dead body, through a putrescent corpse, to clean bones), and (3) soul (staying in the body, getting out of the body, and journeying to the land of the dead), each of which goes through van Gennep's transitional stages. This model of funerary rituals, as well as van Gennep's, provided a clear image of the stepwise departure process of the souls of the deceased after bodily death, which was not discussed in detail by Tylor and other previous scholars (Parker Pearson 2000:22). In addition, Hertz and van Gannep differed in the approaches that they adopted. Hertz focused on an in-depth case study of the mortuary process, while van Gennep took a broad cross-cultural, comparative approach to a range of rites of passage. It is this basic distiction that explains why Hertz gains larger popularity among archaeologists.

What characterizes these two studies is that from a functionalist perspective they viewed death as a social threat that disturbs the order in the community, rather than as a source of personal fear that triggers the desire for survival after death, and emphasized funerary rituals as the means to restore and redefine the social order. Their symbolic and interpretive approach is also very notable. Hertz's focus on the symbolic interplays among different agents involved in rituals is particularly important and may have been inspired by the contributors of *L'Année Sociologique* such as Durkheim and his nephew Mauss. Durkheim (1961 [1912]) and Mauss (1969 [1903]) took an approach that foreshadowed the later taxonomic (or classificatory) approaches to religion (e.g., Levi-Strauss, Evans-Pritchard, and Radcliffe-Brown). They viewed religion as a process of classification that is fundamentally aimed at making intelligible the relations between things by means of a dichotomous scheme. Religious beliefs presuppose a classification of all things, real or ideal, into two classes or opposed groups: sacred and profane. The sacred is set apart and protected by interdictions, while the profane is that to which interdictions are applied and must remain separate from the sacred. Durkheim and Mauss emphasized the social basis of moral and religious classifications and argued that each religious belief is shared among the people who belong to the same social stratum or group and helps to maintain the stability and *status quo* of the group (drawing upon the idea of homeostasis). They assumed that there is a dialectic relation between social strata and religious beliefs (and other collective consciousness and representations), in which the former exert a constraining influence onto the latter and in return the latter shape the former. Within a social group, religious rites serve as the rules of conduct which prescribe how a person should comfort him/herself in the presence of the sacred objects. By practicing those religious rites with a shared faith, people feel themselves united to each other and enhance their solidarity (e.g., the significance of "Church" and the influence on shamanic rituals suggested by Levi-Strauss). Durkheim is criticized for his "top-down" theory in favor of generalization over empirical reality and for his ahistorical approach, in which religion is fixedly viewed as a conservative force to maintain social *status quo*. Nonetheless, his study deserves attention in that it viewed religion in relation to social structure and collectivity.

2.1.4. Distinctions between the cults of the dead and ancestor

A few decades later, there was another important study that had also been forgotten for many years. Gluckman (1937) was the first to make a clear distinction between the cult of the dead and the cult of ancestor, which were often mixed up and confused during the previous era. He argued that the ideas of comforting the grief of losing the beloved ones and wishing for their survival after death result in the cult of the dead, while the cult of ancestor focuses more on the restoration and redefinition of social relations in the community at the time of death especially of those who were high in status and had a number of social relations. According to Gluckman, the former include the cults among the Fijians, North American Indians, Egyptians, Romans, and Greeks and show their stronger interests in the journey of the souls to the afterworld and what happens to the souls there. On the other hand, the latter involve those among the African tribes and are more concerned with settling social affairs at death, leaving the picturing of the afterlife to each cult follower as individual imagination rather than cultural dogma[3]. Consequently, what distinguishes ancestor cult from the cult of the dead is that it clearly addresses the sociopolitical concerns among the living descendants. Although ancestors are specific individuals generally known for their achievements in life, their careful selection reflects broader collective or sociopolitical concerns.

One of the important concerns of the living at the time of someone's death is whether if the transgenerational transmission of resources, privileges, and obligations is successfully completed. The whereabouts and well-being of the souls of the deceased are trivial matters. For amicable agreements among right holders, death rituals provide an arena for political negotiations. Goody (1962) also views funerary rituals as a nexus of conflict and power struggle. He argues that the veneration of ancestors is a unifying force of kinship groups – a critical ritual mechanism that smoothes over the tension among group members during the time of inheritance from one generation to another. For a successful inheritance, the living heirs expect the deceased to embody the continuity of their lineage, which helps them legitimize their claim. Most critical here is whether the deceased has achieved parenthood. Successful parenthood often fulfills the necessary criteria for an honored ancestral status even if the deceased has failed in other respects (Fortes 1976:9; Uchendu 1976:293; cf. Herskovits 1938:201; Taylor and Aragon 1991:42). The highest priority is thus assigned to the well-being of the social group as a whole, which is based on the continuous succession of lives, rather than who the deceased individual actually is (also see Jackson 1977:293-294; Weeks 1979; Endicott 1979:111-112, 128; Battaglia 1990:10).

The greater importance of the societal over the individual is also reflected in Bloch's (1992; 1998) model of funerary rituals. He argues that rituals of any kind consist of two parts: (1) some aspects that may be unique in the society in which the rituals are conducted and subject to change in relation to mutable politico-economic circumstances; and (2) other aspects that remain unchanged and may be quasi-universal across societies – what he calls "a central minimal structure" or "irreducible core" (Bloch 1992:1). Bloch attempts to elucidate this quasi-universality of the irreducible core of, especially, religious phenomena, and concisely defines the irreducible structure as a ritual representation of the existence of human beings in time. In many cultures, human life is viewed in a dichotomy between the everyday aspects of society and the transcendental (or the ideal) counterparts. The former (e.g., lifecycle events) are the symbols of *mutability*, *ephemerality*, and *division* that represent individualism, and thus threatening to the continuation and maintenance of society or collectivity. They need to be negated and subordinated to the latter through a ritual process. Among the Merina of Madagascar, for example, funeral rituals are considered as an attempt to conquer the individual life and death in the everyday sphere and replace them for a notion of continual life (Bloch 1992:228). The rituals consist of a classic three-stage dialectical process (separation, liminality, and incorporation in van Gennep's [1908] terms) and two intervening acts of violence (the more important latter act called "rebounding violence") as a mechanism to transit from one stage to another.

What is the transcendental, then? According to Helms (1998), the transcendental refers to the beings and qualities that belong to the intangible cosmological world of the there-and-then (e.g., cosmological "Others"), vis-à-vis those in the tangible here-and-now (e.g., cosmological "Us"), and have a direct access to the cosmological origin or the ultimate source of creational and energizing power. In accordance with Eliade's (1959:95) assertion that the proper human behavior in traditional societies is defined by archetypes referencing extrahuman prototypes, Helms (1998:36) argues that the transformational process of making an ancestor of a deceased individual is an effort "to transform the quality of being of the honorably deceased from that of an *individual* member of living society to that of an ancestral *person* or archetype associated with qualitatively distinctive sociological/cosmological roles (Weeks 1979:70; also see Eliade 1959:46-47). Once the deceased is considered to be qualified as ancestor, the individual idiosyncrasies and peculiarities of the dead as a mortal existence are often extinguished so that only those qualities and attributes associated with the archetype or idealized role of ancestor will be sorted out and applied to the new ancestral status (and remembered by the living descendants). Consequently, after the dead becomes an ancestor, s/he does not take over his/her personal characters in life, as opposed to Tylor's (1958 [1877]) assumption that spiritual beings are projections of human ones. The new ancestors with their individual attributes removed will join a collectivity or a class organized on different principles and supported by a different cult group (Newell 1976).

2.1.5. Conclusion

The above overview of anthropological studies of ancestor cult has discussed major common characteristics for defining ancestor and associated veneration rituals by referring to some major interpretive models based on ethnographic cases observed and documented in different parts of the world. A series of theoretical arguments by preceding scholars help me further elaborate the conventional Fortes/ Newell definition of ancestor of five components and present a more comprehensive list of the characteristics of ancestor veneration. They involve: (1) a human life continues to exist in the form of soul after biological death and exert influences over the lives of his/her living descendants; (2) ancestorhood is a status to be given to the deceased by his/her living descendants; (3) in order to gain ancestorhood, the deceased needs to fulfill varying kinds of requirements (e.g., achievement of parenthood, direct descent in one's lineage for successful inheritance of rights and obligations, and possession of greater cosmological energy); (4) the type of ancestor varies depending on his/her spatial and temporal position relative to the *house* (or cosmological "Us"); (5) the contacts and interactions with ancestors, who were removed by death from this world, take the form of rituals; (6) the living descendants constantly keep gaining access to ancestors and propitiating them through ritual service and tendance, the failure of which may incur their wrath and lead them to exert deleterious influences over the lives of the living; (7) the cult place varies depending on the type of ancestor; and so forth. Particularly interesting to archaeologists in this list are the material clues to locate the possible cult places where ancestral rituals took place.

The generalizing models discussed above are very useful to make a summary review of ancestor cult; however, it is inevitable that an uncritical application of such ahistorical models will cast a veil over historically contingent, dynamic aspects of ancestor cult in relation to other sociocultural institutions and ecological background of the society. The observed veneration practices are not passive reflections of the timeless idealized, archetypal image of ancestor shared among the community members. Rather, the focus of attention should be broadened to cover not only the idealized image of ancestor itself, but also the dialectic relations between the image and its embodiment (or ancestral rituals), in which the former exerts a constraining influence onto the latter and in return the latter redefine the former.

2.2. Ancestors in the Andes

In this section, I narrow my focus to the ancestors in the Andes and review different methodological approaches to and associated theoretical perspectives on them in Andean archaeology. As will be discussed below, ancestor worship seems to have been widely practiced at least immediately before the Contact Period in the Andes. This raises a set of questions – *Are the Andean ancestors different from or similar to those in the other parts of the world? Does the Fortes/Newell definition of ancestor apply to the Andean cases? Or, do we see some totally unique characteristics that require new definition and explanations? How far could we trace the veneration practices back in the prehispanic times?* Traditionally, archaeological studies of prehispanic religion and ritual in the Andes have focused primarily on: (1) ethnohistorical resources and ethnographies; (2) iconographic representations; (3) ceremonial architecture; (4) and/or mortuary practices. Each of these approaches sheds light on a different aspect of multifaceted ancestor cult from a different, and sometimes shared, perspective.

2.2.1. Ethnohistorical/ethnographic approach and perspective

There is no doubt from various documents left by Hispanic priests that Andean people before the Spanish Conquest, at least those in *Tawantinsuyu*, honored the deceased and deities in the ways quite exotic (and thus pagan) from the Westerners' eyes (e.g., Arriaga 1968 [1621]; Cobo 1990 [1653]; Duviols 1967). This is also testified by some other invaluable written sources that represented or reflected natives' perspective to some extent, such as Betanzos' (1996 [1551], 2004 [1551]) accounts of the Inca history and traditions based on the testimonies of Inca royal members and Guaman Poma's (1956-66 [1615]) 1000+ page letter to the Spanish King replete with a wealth of illustrations. These ethnohistorical documents have been a major source of information for those who have attempted to explore prehispanic ancestors and the veneration of them. A common approach among them is to extract the quintessence of religious beliefs associated with ancestor veneration during the pre-Contact and Contact periods.

Through his longitudinal overview on ethnohistorical sources recorded from the 16th to 20th centuries, Kaulicke (1997) presents a model of the concept of death in the Andes and shows its applicability to the prehistoric times using archaeological data. He argues that the concept of death has not changed very much from that which he infers in the prehistoric times. Regardless of its complexity and variability, the inferred basic concept of death oriented to maintaining physical persistence of the dead seems to have existed since 8,000 years ago. According to Kaulicke, the death in the Andes is not merely an antonym of life, but rather a state of its cyclical, transformational sequence that comes into existence under *supersocietal* conditions and eventually leads to regeneration. Therefore, the dead and the living cannot be separated. For the society that wishes for permanence, the death is perceived as a crisis that could disturb it. This is the very reason why the deceased need to be transformed into ancestor so as to join a transgenerational collectivity and eternize the cyclical sequence of society. Kaulicke's argument shares a common ground with the functionalists' views of death as a threat of social disruption, and of death rituals as the means for restoring the disturbed social order (see the previous section).

The Andean[4] concept of life and death as a cyclical, transformational sequence is also reflected in a series of vegetative metaphors and the concept of cosmological hydraulic systems. Andean vegetative metaphors likened the dead people to the dried or shriveled but still life-bearing and life-giving parts of plants such as seeds, rhizomes, or *ch'uñu* (or stored, freeze-dried tubers) (Allen 1982). When a person died, before the body became completely dried, *anyma* – "dead person's vivifying essence" – emerged from the deteriorating flesh, just as living seeds break away from desiccating plants. While the desiccated body was wrapped in a textile bundle (*mallqui*) and recognized as the object of veneration, the *anyma* went back to its resting place called *pacarina* or its ultimate origin in *upaimarca*[5] that was imagined as an "eternal farm, wherein the escaping *anyma*, replanted, would regenerate the fertility of its descendants" (Salomon 1995:341).

According to the myth of the Andean creator deity *Viracocha*, it was the Lake Titicaca where *Viracocha* created all of the ancestors of Andean people, as well as, the sun, moon, and stars. Thus, *upaimarca* is oftentimes identified with the Lake Titicaca and recognized as the primordial water source. The earth began to be populated when *Viracocha* ordered the ancestors to travel under the earth from the Lake Titicaca through mythical subterranean hydraulic systems, to emerge at different landscape features (e.g., lakes, springs, rivers, hills, caves, or roots of trees), and to found their kin groups (*ayllus*[6]) there (Sherbondy 1982:120-125). These features from which the founding ancestors emerged came to be called *pacarinas* and usually symbolized by a shrine and venerated by the *ayllu* members as their place of origin (Arriaga 1968 [1621]:182; Salomon 1991:19).

By extension, in *Tawantinsuyu*, the mummified ex-rulers (*mallquis*) symbolically represented the royal family tree that bore fruits in the form of descendants, as indicated by the use of the Quechua term as a "cultivated tree" (Sherbondy 1986b). In other words, *mallquis* embodied the history of the royal lineage and legitimized the existence of their living descent groups (*panacas* or royal *ayllus*) (Randall 1982; Sillar 1992). This is why the body of the dead *Inca Pachacutec Tupac Yupanqui* became a hostage in the fighting between the half brothers *Huascar* and *Atahualpa* immediately prior to the arrival of the Spaniards in 1532. The burning of *mallquis* was a vital means to rewrite the royal history of the Incas.

Bastien's (1995) ethnographic work reveals a similar concept of life and death as stages of a cyclical, transformational sequence among the modern-day highland population of the Kallawaya in Bolivia. Life comes from the mythological place of origin on the earth, called *Uma Pacha*[7]. A child learns how to nurture and benefit from the earth through the cycle of agricultural activities (e.g., plowing, sowing, germinating, nourishing, and harvesting) and becomes more of an adult (*runa*). By reiterating this cycle, an adult becomes an elder (*pasado runa*), and eventually is recognized as a completed person (*machula*). The completed person returns to *Uma Pacha* at death through an underground river (Figure 2.1; also see Arguedas 1956).

Underlying the above vegetative metaphors and cyclical sequences of life and death in relation to the life-giving earth is a fundamental idea concerning the corporeal and cosmic structures and processes; the living beings (e.g., plants, animals, and humans) are all unities of the watery (wet) and the earthy (dry). For example, the worldview in the Huarochirí Province during the late prehispanic and early colonial times "opposes the qualities of still centricity – depth, solidity, dryness, stability, potential fecundity, womanliness – to those of a restlessly moving outer orbit – height, fluidity, wetness, movement, potential for insemination, virility. As the outer waters wash over the inner earth, these two fundamental lives mix in the circulation of water over soil. Lives that are both watery and earthy emerge" (Salomon 1991:16; also see Bastien 1978 for another dichotomy between solids/male and liquids/female). This union of the two different or opposing but complementary elements is also seen in the dichotomous conceptualization of flesh as the wet and "chaotic" and bones as the dry and "structured" (Classen 1990:174-175). At death, however, this union breaks down. The bodies consisting of solids and liquids will return to and separate into the original substances (Allen 1982:192). It is at this point that rituals come into play. Rituals, including those recognizing ancestors, aim "to ensure a steady circulation of biological energy through *pacha* by conducting social exchange among its living parts" (Salomon 1991:16).

In Kaulicke's model noted above, the potency and fertility of ancestors seem to be attributed to their timeless anonymity. Truly powerful ancestors should never be contingent upon historical changes or any kind of restrictions of the time. Timelessness is the source of transcendental power. Because they are a transcendental existence, they can be employed as a timeless index to address various social events and natural phenomena and as a means to circumvent the difficulties throughout the ages. For the pursuit of eternity, therefore, the temporality (or ephemerality) of the mortal individuals has to be overcome. Otherwise, they will be forgotten, as the time goes after their physical death. The process of making an ancestor of a deceased individual is the process of conquering and transcending the temporality of human existence. During the transition from the named dead to a more transcendental existence, all of the individual attributes of the deceased will be eliminated so that s/he can eternalize his/her existence. The recent dead who have not gone through this process and thus still hold their names would be less powerful.

Drawing upon Salomon's (1995:319-323) comparative ethnohistorical studies, Dulanto (2002) extracts an ideal-typical image of the organization of Andean ancestor veneration in terms of spatial and material dimensions (landscape, public spaces, and mummified bodies) and explores how a specific archaeological case resembles or deviates from the image. The ideal-typical ethnohistorical image may be summarized as follows (Salomon 1995:319-323):

> Some landholding corporate groups called *ayllus* were grouped together as a unit called *llacta*[8] and affiliated to the same local ceremonial center. A *llacta* center had a small plaza (often called *cayan*[9]) close to or overlooking the residential area. This plaza was bordered by small cells, each storing the mummified body of *ayllu*-founder (or *mallqui*)[10] as well as a group of lesser sacred objects called *conopas*[11]. Periodically, the *ayllus* gathered in the plaza, jointly honored and tended their mummified founders, and celebrated their entitlement of lands and resources. These mummified *ayllu*-founders were incorporated in a broader network of nested genealogies together with other

superhuman ancestors. The *mallquis* were placed at the lower level of this network and grouped under their superhuman common parents (or *huacas*) whose physical substance inhered in monoliths, statues, or other sacred objects. Oftentimes, these *huacas* were further recognized as the descendants of permanent land features or natural forces (e.g., great snowcapped mountains and lightning) at the highest level of genealogical network. The Andean ancestry is comprised of this seamless web of descent that connects household-level organizations to a broader cosmological order and thus in principle covers the whole of the known world. In addition, the mummified *ayllu*-founders correspond to Helms' (1998) "emergent house ancestors", while the superhuman ancestors at the higher level of genealogical network correspond to the "first-principle or creator ancestors."

For comparison with the local ceremonial centers described in the ethnohistorical documents, Dulanto (2002) focused on the inferred ancestor cult during the late Initial Period and Early horizon (ca. 700-200 BCE) at the site of Pampa Chica in the Lurín Valley on the Central Coast of Peru. He found both similarities and differences in terms of (1) site location relative to other sites and natural resources, (2) internal organization of architecture and activity areas within the site, and (3) processes involved in the formation and transformation of various contexts containing human remains. Like the ethnohistorical centers, Pampa Chica is inferred to have overlooked one or more residential sites nearby and marked the preferential access to certain critical resources in the area, although it is located at least 1km away from the residential sites. Dulanto (2002:113) explains this distance by pointing to "a general correlation between geographic and genealogical distance ... The more distant the place of ancestor veneration from a habitation site, the more distant in the genealogical structure the ancestor venerated in that place was from the descendants who lived in that habitation site." Pampa Chica consists of highly visible buildings designed presumably to store human remains in one area and to accommodate a large number of people in the other area. Unlike the ethnohistorical centers, the two areas show marked separation and distinction. The inferred area for body storage is more closed and secluded from the outside and suggests the use for a more intimate type of activities, while the area for gathering is more open and suggests the use for large-scale public activities (e.g., public displays and feastings). Furthermore, mortuary data show some evidence of post-interment treatments and repeated burials of the bodies, but concurrently demonstrate that the site was probably used for temporal storage of the corpses of adolescent and male adults. Based on these finds, Dulanto concludes that Pampa Chica was designed, built, and used in accordance with the image.

Salomon (1995:339) emphasizes the structural similarities of ancestor veneration practices in general and points out that "[t]he world of the ancestors is in many cultures imagined as an eternal version of society, a fixed and prototypical model." The image of tomb and cemetery as a "theater of social structure" reflects an ideal community celebrating organizational continuity (Salomon 1995:341). Unlike Kaulicke, however, Salomon also emphasizes the dynamic aspect of ancestor cult. "The conduct of ancestor cult was not a mechanical consequence of rules of descent but a product of interaction between the repetitive program of inheritance and the historical need to reconcile inherited interests with unpredictable current circumstances" (Salomon 1995:346). Thus, ancestor cult not only internalizes sociopolitical concerns within it, but also unites some intrinsic characters formed in relation to the peculiarities and contingencies of the time. Under the Incas, for instance, political negotiations and compromises between the living sovereign and the living descent groups or corporations (royal *ayllus* or *panacas*) of the ex-rulers were put under control of the oracular mediums of mummified sovereigns. Gose (1996:1) argues that "they spoke as deified dead rulers for social groups removed from the current power center, allowing the living sovereign to govern while receiving advice and information from subordinate groups." The *panacas* of the ex-rulers attempted to influence and even challenge the living ruler's agenda through oracular practices. More recently, Nielsen (2008) also argues that even within the genealogical system in which both the venerating and the venerated were hierarchically placed with different sets of obligations and social inequalities, there was always room for social negotiations by which the subordinate groups could challenge the established economic and political order.

These ethnohistorical and ethnographic interpretations and models are very important in that they provide us with a means for synchronic comparisons between the Andean ancestors and those in other parts of the world. However, archaeological applications of them require a careful consideration, as will be discussed in the next section. The disregard of historical perspective will pose a risk to negate the dynamic, historically contingent aspects of religious beliefs and practices. It is one of the major advantages of archaeological study that its temporal scale is unexceptionally much larger than those of ethnographic and ethnohistorical studies. This advantage may allow us archaeologists to observe change and stability in a broader scale, and even provide us with some material clues to beliefs and practices unique in the prehistoric past.

2.2.2. Iconographic approach and perspective

From "idolatry" trials and testimonies of chronicles, it has been known that during the (pre-)Contact Period, there were some objects that invoked the image of ancestors and served as a physical reminder of ritual obligations to honor and tend ancestors. Arriaga (1968 [1621]:20-21) lists a series of objects that were recognized as the instruments and incitements of idolatry and thus destroyed or burnt during extirpation campaigns:

> "603 principle *huacas* were taken away … as well as 3,418 *conopas*, 45 *mamazaras*[12], 189 *huancas*[13] …, and 617 *malquis* … About 357 cradles were burned, 477 bodies were returned to the church, not counting many bodies of *chacpas*[14] and *chuchus*[15], which are also venerated and kept in the house, without mentioning the *pactos*[16], *axomamas*[17], *micsazara*[18], *huantayzara*[19], *huayriguazara*[20], and the thousand other things they are superstitious about."

This list of extirpated objects suggests that in the ancestral cult, the main focuses were put on the origins of lives (humans, plants, and perhaps animals as well), their growth and fertility, and the protection of them. More importantly, these ancestral objects including mummified bodies served as the "incitements" of ancestor veneration practices, because they anchored the living descendants in both time and space. They created a strong link not only "between the mythology of *huacas* and the purportedly known genealogy of named groups of the living" (Salomon 1991:20), but also between the ancestral place of origin and the territory of the living. In other words, by the medium of these ancestral objects, ancestors and their living descendants were temporally and spatially aligned with each other. The extirpators aimed to erase the temporal/spatial links by destroying *huacas*, *mallquis*, and *conopas* and disenfranchise the resources and labors from the native populations, although it was less than successful (Lau 2008:1032). The questions to pose for the current study are simple: *How can we identify those images of ancestors in the visual representations of the prehispanic times? Were ancestors and/or associated practices depicted in the first place?*

When Andean archaeologists use the term "iconography", it usually refers to the interpretive study of the representational images found on a variety of expressive media including those of ceramic, metal, bone, wood, mural, and textile. In the field of art history today, however, iconography refers to no more than the *description* and *classification* of images. This term needs to be distinguished from "iconology" that refers to the *interpretation* of images. Panofsky (1962 [1939]:3-31) not only made a clear distinction between these two, but also proposed a three-level interpretive approach to the intrinsic meanings of images. At the first (or pre-iconographic) level, images are simply identified based on the factual and expressional apprehensions of the interpreter. In other words, the interpreter relies on his/her own practical experiences (or familiarity with objects and events) to identify images. At the second level (one level *below*), the motifs that were identified at the upper level are now linked to certain themes and concepts. This task usually requires knowledge of literary sources (e.g., stories and allegories). Iconographic analyses do not exceed this level of interpretation. It is at the third level that the deepest level of interpretation – an iconological interpretation – is achieved. Iconological analyses are aimed at gaining an exhaustive interpretation of art work "by ascertaining those underlying principles which reveal the basic attitude of a nation, a period, a class, a religious or philosophical persuasion – unconsciously qualified by one personality and condensed into one work" (Panofsky 1962 [1939]:7). The compositional and iconographic features identified at the upper levels are viewed as the manifestations of the underlying principles (or "symbolical values"). An iconological interpretation is not necessarily related to what the artist intended to express in his/her work. Panofsky emphasizes that the "symbolical values" of art work may radically differ from the conscious intention of the artist.

Needless to say, for the iconological study of such non-literate past societies as those in the prehispanic Andes, it requires tremendous amount of research efforts to reach the deepest level of interpretation. The continuing studies by the Andean archaeologists and art historians have barely reached Panofsky's second (or iconographic) level. Nonetheless, the Mochica iconography blessed with highly graphic representations depicted on the ceremonial vessels, in particular, has provided important clues to explore the intangible aspects of society, namely, religious beliefs and cosmology (Hocquenghem 1977, 1981, 1987; Donnan and McClelland 1979; Berezkin 1980; Hocquenghem and Lyon 1980; Quilter 1990, 1997; Hill 1998, 2008; Bourget 2006). Fineline motifs have been described and/or classified in reference to the inferred plots of stories and allegories which will never be known (Golte 1993, 1994a, 1994b). Furthermore, with the help of recent burial excavations at the Mochica ceremonial centers, it is now suspected that those fineline drawings may represent historical events (e.g., Alva and Donnan's work at Huaca Rajada and Bourget's works at Huacas de Moche and Huaca El Pueblo). The high rate of correspondence between the interred individuals dressed in full regalia and the inferred royal families and priests in fineline drawings is powerful enough to convince many archaeologists that those buried may be given the same social persona as those depicted and assume to have engaged in the same ceremonial activities (Alva and Donnan 1993; Bourget and Newman 1998; Bourget 2010).

The Mochica ceramic art depicts various scenes of death rituals, in which various natural, transitional, and supernatural beings take part. Bourget (2006:225-238) draws upon van Gennep's and Turner's theories of rituals and presents a derivative model to explain the Mochica death rituals as a transformational process from life through death to afterlife, the transitions between the three stages marked by two intervening liminal phases. During this transformation, an individual changes his/her status moving through three different domains: the World of the Living, the World of the Dead, and the Afterworld. In the light of Fortes' (1965:124) definition of ancestor worship, however, Bourget (2006:62) concludes that "such a specific belief cannot be confidently demonstrated for the Moche at the moment" (also see Bourget 2001a:113-114 for his own conflicting argument about the role of whistle in Mochica culture as a means to warn ancestors of the human offerings to come). The major focus is put largely on the journey of the deceased to the World of Dead and the Afterworld (e.g., flies and maggots associated with the escaping "souls" of the dead; see Bourget 2001b:104-105), and evidence for ritual service and tendance after funerary ritual and interment is relatively scarce. If we apply to them Gluckman's (1937) distinction between the cults of ancestor and the dead, the Mochica death rituals may be categorized as those for the latter.

Examining the same package of the Mochica visual representations, on the other hand, Hill (1998, 2007, 2008) alludes to her view that ancestor worship was indeed practiced by the Mochica. She points to the ethnographic cases in which women tend to be responsible for day-to-day, routine cares of ancestors (Yonemura 1976; e.g., Freedman 1970) and raises the possibility that a figure depicted in the fineline drawings – seated in a structure with gabled roof and attended by women – may represent an ancestor (Hill 2007). She also argues that the Strombus shells depicted in the Burial Theme may have been offered to ancestors and played a role as the medium through which the living descendants made requests for water (Hill 1998:533; also see Hocquenghem 1987:82). Underlying her argument is an analogy of the ethnohistorical and ethnographic view of Andean landscape, onto which the aforementioned genealogical network of human and superhuman (or "other-than-human" in her terms) ancestors was mapped. In the inferred space/time world of the Mochica, the major ceremonial sites directly associated with distinct topographic features (e.g., Huaca de la Luna, Mocollope, and Pañamarca) provided access points to the other-than-human realm (Hill 2008; also see Glowacki and Malpass 2003).

Hill's heavy reliance on ethnohistorical/ethnographic resources makes explicit a hermeneutic limitation of iconographic identification and iconological interpretation in Andean archaeology. Practically speaking, without this kind of explanatory models that derived from ethnohistorical and ethnographic studies, it would be impossible for archaeologists to know which objects invoked the image of ancestors among the prehispanic people in question. In this regard, Lau (2001, 2002, 2008, 2014) demonstrates a well-balanced application of ethnohistorical and ethnographic finds to archaeological interpretations of visual representations. He proposes a hypothesis that many of the Recuay stone sculptures found at the archaeological site of Chinchawas in the northern highlands (AD 500-900) portray the images of ancestors (Lau 2002:294-297; also see Tello 1929:73-81; Schaedel 1952). The vertical slabs depict a full-bodied and full-faced human figure with a flat ovoid mask-like face, emphatically wide eyes, and a prominent jaw in a conventionalized position reminiscent of mummy bundle. The figure also wears a headdress-like ornament that often has serpent appendages emerging towards either side. At Chinchawas, these slabs were found predominantly in a cemetery area and were located within or near the clusters of *chullpas* (or above-ground, open sepulchers). Judging from the corresponding size between a large hollow on the jamb of a *chullpa*'s interior chamber and a slab found just outside, Lau suspects that the slab adorned the jamb (Lau 2008:1035-1036). The considerable variability in form, limb position, and headdress attributes of the depicted figures leads Lau to infer that these figures represent different individuals, more specifically, the deified lineage founders, rather than a single divinity repeatedly. Lau views these stone sculptures as a prehispanic instance of *huancas* – large stones placed in front of houses and venerated as a guardian ancestor (Arriaga 1968 [1621]:20; Doyle 1988-65).

2.2.3. Architectural/behavioral approach and perspective

As the Andean concept of life and death as stages of a cyclical transformational process is reflected in vegetative metaphors and cosmological journey of souls documented during and after the Contact Period, it also seems to have been expressed in different forms in different media in the prehispanic societies. One of those media is architecture. For instance, Blom and Janusek (2004:126) discuss the notion of "life-cycle" of buildings in Tiwanaku in the light of the same concept. When building or re-flooring a residential dwelling or compound in the altiplano, it is required to make ritualized dedications of animal and human sacrifices (e.g., llama fetuses and human placentas). Shimada also documented a similar practice of placing llama fetuses at the smelting workshop at Huaca del Pueblo Batán Grande (HPBG) on the northern North Coast, which suggests a ritual practice that crosscuts the coast-highland distinction. These dedications guarantee the healthy circulation of the cycle, which in turn ensures the social regeneration and well-being of the group who reside the built environment. Blom and Janusek's argument finds its theoretical basis in the view of dwellings and compounds as scaled micro-cosmic domains among the people in the altiplano. Constructing the foundation of a compound is likened to the act of planting roots in the ancient rock of the earth (Arnold 1992).

Another example is found at the archaeological site of Pisac, known as a royal estate of the *Pachacuti Inca* of *Tawantinsuyu*, in the Urubamba Valley (a.k.a. the Sacred Valley of the Incas). Kaulicke and his colleagues argue that the sacred landscape of the site represented the three-dimensional cosmogram – a material manifestation of cosmology – of circulatory flow of life energy, in which the living *Inca* sovereign, his ancestors (deceased ex-rulers), and the Sun God (*Inti*) played significant roles (Kaulicke 2012; Kaulicke et al. 2003). In the *Inca* cosmology, the social welfare and its maintenance required continuous renewals of the world – oftentimes likened to the repetitions of (re)birth and death. *Inti* was believed to plunge into the sea at night and revive again next morning. He was accompanied by a group of the dead *Incas* through his journey. However, his "death" was not a dead end, but the source of regeneration (e.g., Bloch and Parry 1982a). When he revived, for example, *Inti* brought the subterranean water to this world. The living *Inca* sovereign was also expected to repeat a similar cycle. Although there was no doubt about his supremacy, his energy also had to be constantly renewed and enhanced by sacrifices in the forms of liquids, fire, and life – usually young children still full of life energy (*capac hucha*). The offered liquids internalized a vitalizing energy and were considered to be equivalent to *chicha* (a traditional, lightly fermented drink made out of grains, fruits, or nuts), blood, urine, and perhaps human semen. This vivifying energy originated in its ultimate source, in the light of *Inti* (Kaulicke 2012:311-312). Kaulicke et al. suspect that these elements of the *Inca* cosmology are manifested in the architectural features of the site. The natural water that had its origin in the Lake Quinsacocha traveled ca. 20 km towards the south to the site of Pisac. As it poured into the elaborate ritual hydraulic system of the site in the morning, an architectural complex with two *chullpas* for ancestors received the vivifying energy from the light of the "young" *Inti* (Kaulicke 2012:314, Figure 2). The energized ancestors carried this natural water through the channels and the fountains associated with a ritual space called *Intiwatana*[21] and converted it into "cultural water." This cultural water finally disappeared in the sector called *Pisaqa* after a course of 1.1 km. Kaulicke et al. view this elaborate hydraulic system as a "materialized cosmogonic history of cycles related to light and darkness, birth and death (or regeneration), centrality (*huaca*), and varied stone installations and constructions used for liquids and 'natural' water converted into 'cultural' water which fulfills a couple of roles in the meaningful ordering of space" (Kaulicke 2012:316). This particular case study clearly suggests the importance of a comprehensive understanding of cosmology, in which ancestors played a critical role but were an integral part of the whole. It is important to point out, however, that the formulation of his microcosmic model of Pisaq would have been feasible without detailed information afforded by Betanzos.

On the other hand, Moore (1996a, 1996b:121-167) emphasizes the human perception within the built environment (e.g., vision, hearing, and comprehension) and its limitations, and investigates how and what kind of information could be communicated over varied distances during the ritual experiences in and around ceremonial architectures. The premise of his approach is that "insofar as ritual architecture forms the physical setting for that communication, certain elements of the ritual architecture will reflect the nature of the communication" (Moore 1996b:164). Moore (1996b:123-131) compares ancestral and oracular shrines (e.g., Pashash and Pachacamac) in terms of architectural characteristics and concludes that one significant difference between them is the size of the associated public spaces where ritual participants may have gathered. The latter is much larger than the former, which is inferred to reflect the difference in the social units of the participants. In the same light, Blom and Janusek (2004) focus on the size and configuration of ritual architecture to infer the type of rituals that took place in and around it. They assume that a ritual of more intimate and private nature – such as ancestral rituals – may have been performed in a closed space by a local resident group(s) (Blom and Janusek 2004:137; also see Moore 1996b:165). Bonnier (2007:28) similarly argues that the ritual incinerations of objects using the central hearths in the small walled structures at the site of Kotosh were dedicated to the deities and the ancestors (See Grieder 1988 for his descriptions about similar chambers with a ventilated hearth in the center built on top of the ceremonial mound and later converted into tombs at the site of La Galgada). It is important to note here that what all of these studies assume for ancestral rituals is a relatively small gathering of local resident groups within a *cayan* immediately associated with ancestral burials.

One of the major contributions of architectural approach is that they focus not only on burial locat0ions of ancestors, but also on ritual activities in the associated public spaces like *cayan* and plaza. Dulanto's (2002) arguments mentioned above were based on the architectural distinction between a closed space for storage of ancestral bodies and a more open space for feasting. Lau (2002) and Hastorf (2003) also focuses on special enclosed spaces, near tombs or having stone sculpture, with evidence of intensive commemorative rites at archaeological sites. Ethnohistorically, Betanzos (1996 [1551]:134-135, 154, 162) describes a large-scale one-month-long festival (called *Purucaya* signifying "feathers" [*puru*] and "a special dance" [*caya*]) performed in the plaza a year after the death of an *Inca*, during which the dead *Inca* was succeeded and "canonized" or "considered as a saint" (in Betanzo's terms) – became a deified ancestor. Right before the festival, the dead *Inca* was commemorated by not only the royal descendants, but also the other nobles of the capital Cuzco through a series of prescribed procedures.

These procedures included visitations of the lands where the *Inca* often visited in his life, conversations with his belongings such as clothes and weapons, and retrospections of his deeds. After the festival, a statue of his fingernails and hair was made and worshiped as a lord thereafter.

These architectural approaches would gain greater persuasive force, when backed up by multiple lines of evidence (e.g., mortuary practices, iconographies, and ethnohistorical documents). In this regard, Isbell's (1997) study of *chullpas* cogently demonstrates that they served as a cult place for ancestor worship, as opposed to many other studies that simply assume that they served as such. *Chullpas* usually house human remains inside and have flat meeting places in front of them. In contrast with the *huaca* cemeteries and attendant ritual practices on the coastal regions, which he inferred as "one-time events" (e.g., Mochica, Nasca, Pachacamac, and Sicán/Lambayeque), Isbell argues that the *chullpas* were revisited by the living and functioned to link them with their ancestors. He hypothesizes that *ayllu* revolved around the veneration of ancestors mummified and enshrined in these *chullpas*. Isbell's approach that combined the studies of architecture and mortuary practices paved the way for subsequent archaeological researches of Andean ancestors. His contrasting models for coast and highlands, nonetheless, ignored then known evidence of post-primary interment "visitations" and alterations of the dead on the coast (e.g., Hecker and Hecker 1992a; Hecker and Hecker 1992b; in fact, many additional cases from all along the coast and dating from various periods have been documented over the past decade [e.g., Nelson 1998; Franco et al. 1998; Millaire 2002; Klaus 2003; Segura et al. 2006; Shimada et al. 2006, 2010).

2.2.4. Bioarchaeological approach and perspective

The previous section made clear the distinctions between the cults of the dead and ancestor with reference to major ethnographic finds (e.g., Hertz 1960 [1905-06]; Gluckman 1937; Goody 1962; Fortes 1965). However, it was not until the end of the 1970's that these finds came to be integrated and tested by archaeologists including Andeanists for their studies of death and death rituals in the prehistoric past. The two decades since the end of the 1970's saw major theoretical challenges by postprocessualists to the so-called "representationist approach" (Brown 1995:393) advocated by a group of New Archaeologists, particularly with regard to the uncritical claim for the correlation between funerary elaboration and social complexity and the persistent focus on the deceased as opposed to the living. The paradigm shift achieved by this postprocessualist school of thought, sometimes referred to as "misrepresentationist" approach, helped to broaden the perspective of mortuary archaeologists and channeled their analyses into a new set of research interests and questions.

Representationists tended to view mortuary practices as material manifestations of social structure in a time-less framework as with the studies in the structural-functionalist camp. In this model, the mourners should always be motivated by obligations that they owed the deceased and moved to symbolize the social status of the deceased in a traditional static way. It was problematic that the social persona represented in the mortuary context was assumed to have been the "most important" of the varied personae of the deceased, and that the role that Goodenough (1965)[22] saw as dynamic and situational was presented as static and rigid. The conceptions of dynamic cultural contexts, which did not necessarily corporealize but did have an impact on mortuary patterns, were completely ignored. However, a growing number of ethnographic and ethnoarchaeological studies of mortuary practices in many parts of the world during this period came to bear an alternative broader perspective (Parker Pearson 1982; Hodder 1982; Cannon 1989). Metcalf and Huntington (1991:149-150), for instance, demonstrated that the burials of high-status individuals were sometimes marked by inconspicuous representations in the Berawan of Borneo. Even the slightest preparation for death was proscribed among them. Therefore, the funerary obligations (e.g., responsibility for the funerary feasts and monumental construction) fell on to the shoulders of the host of ritual and feast, not prescribed by the individual before his/her death. It should have not infrequently been the case that the socioeconomic powers and resources of the two were disproportionate. The expected correlation between elaborate burial and high status cannot always be observed. This awareness helped archaeologists to view mortuary practices as dynamic processes contingent upon non-material factors. In other words, acknowledging that the enactment of representation is not a constant but a variable led way to the discovery of hidden dimensions of social organization (Brown 1995:393-395). It was not until mortuary analysis was fully equipped with historical perspective that one could determine the social and ideological meanings of the mortuary representations which emerged in specific temporal and cultural contexts (Braun 1981; Cannon 1989).

The other remarkable feature during this period was that the major concern of mortuary analysis shifted from the deceased to the living who took care of them. Mortuary practices may disguise social status and relationships of the dead and inform more about the living, as is the case with the Berawan burials (Metcalf and Huntington 1991:149-150). Now that the living survivors are viewed not as passive followers of traditional funerary customs, but as knowledgeable social agents capable of maintaining and redefining old customs, social status turned out to be something variable and negotiable (Parker Pearson 1993, 2000). Furthermore, burials were not necessarily the exclusive loci of social representations. Rather, primary importance may have been placed on ritual activities before, during, and/or after the interment such as feasting and mourning ceremony (Goldstein 1981; Trinkaus 1984). Thus, from the viewpoint that the deceased were treated in accordance with the needs and desires of the livings (Hodder 1982; Parker Pearson 1982; Shanks and Tilley 1982), a larger number of archaeologists began to focus attention on how the living manipulated dynamic sociopolitical affairs for their own sake, as well as how they dealt with symbolic aspects of death through the concepts such as social memories, identities, and cosmology (Pader 1982; Parker Pearson 1993; Tarlow 1999).

At the annual symposium of the Dumbarton Oaks in 1991, a group of Andean archaeologists made a meritorious effort to focus on the social functions of funerary paraphernalia (e.g., ritual activities, special grave goods, and large monumental architectures) that clearly went beyond their funerary purpose, more specifically, the social and economic roles of funerary practices (Dillehay 1995b). In sync with the theoretical debates noted above, they considered burials as a ritual process linked to fundamental but negotiable concepts of death central to cultural identity, history, and stability (Dillehay 1995a:19). The resultant collected volume is still highly regarded in that most of the articles attempted to draw attention to the symbolic linkages between the living and the dead. As expressed in the title of the symposium, the conception of "tombs for the living" began to form one of the central themes in the Andean mortuary analysis. Since then, many case studies have detected such dynamic relationships between the living and the dead largely through post-depositional burial alterations oftentimes indicative of some kind of rituals (Hecker and Hecker 1992a, 1992b; Isbell 1997; Nelson 1998; DeLeonardis 2000; Proulx 2001; Lau 2002; Millaire 2002, 2004; Klaus

2003; Isbell 2004; Santoro et al. 2005; Segura et al. 2006; Conlee 2006; Shimada and Fitzsimmons 2014). This trend in the greater emphasis on the living and their elongated interactions with the deceased was not new at all, but rather had its root in Hertz's (1960 [1905-06]) aforementioned argument a century ago on the collective representation of death, which focused attention on the triadic interplay among the dead (soul), the corpse (burial), and the living (mourners).

At the Patapatane Cave site in Arica, northern Chile, Santoro and his colleagues (2005) recovered an Archaic burial that contained an incomplete but *in situ* female skeleton (20-23 years of age, dating to the end of the Middle Archaic Period at 5,910 ± 90 BP). The unwrapped body lacked some bone elements (e.g., mandible, scapulas, clavicles, some upper ribs, the complete right leg, and so forth). All bones left, except for the cranium, were recovered in their correct anatomical position, although they had been partially fractured probably due to accidental post-interment disturbance. The cranium was placed on its base and aligned with the spine. Judging from the relocation of the cranium and the removal of several bone elements with no cutting and gnawing marks left on the bones, they argued that the idiosyncrasies of the burial should have been attributed to anthropogenic post-interment alterations. The cranium was separated from the trunk after the corpse had skeletonized, and was placed back into the burial in a vertical position. Regarding the reason for the missing bones, Santoro et al. think of the following possibilities: (1) the bones were used to make tools; and (2) the burial was revisited for ideological or funerary procedures. Although they leave it as an open question to be pursued in future research, for the latter scenario, Santoro et al. suspect that the well-defined funerary procedure at Patapatane might have represented a part of progressive phases in which the deceased female individual transformed from fleshed, to rotten body, to clean bones, which was parallel to the spiritual journey of her soul from her homeland, followed by limbo, to the land of the ancestral dead.

Blom and Janusek (2004) documented some deposits of disarticulated human bones in a Late Formative ritual space at the Akapana East located along the east edge of Tiwanaku ceremonial core. Most probably, the bones were originally bundled as ancestral fetishes and directly incorporated into the walls or eaves of ceremonial buildings. Many of the bones showed scraping and cut marks that suggested repeated acts of cutting and scraping – perhaps defleshing bones. Judging from these observations, as well as private nature and the extraordinarily cleanliness of the ritual spaces, Blom and Janusek argue that these bones are manifestations of continual, careful curation of ancestral bodies. They also point to the possibility that the practice of defleshing bones was associated with the rites of compassionate cannibalism or the consumption of the flesh of deceased relatives. For the world's oldest artificial mummification among the Chinchorro, communities of fisher-gatherers in northern Chile, Arriaza (1995:147) similarly reports that the mummies were defleshed with removal of brain, heart, lungs, and intestines and raises the possibility that the

Chinchorro practiced cannibalism for the purpose of obtaining the spiritual energy or some desired qualities of the deceased. The Chinchorro mummies were created by stripping down the body (e.g., defleshing and degutting) and rebuilding and decorating it with such materials as animal furs and skins, mats and clothes, wooden sticks, reed ropes, clays, ashes, and pigments (Arriaza 1995:95-124, Plates 1, 3, 6, and 12-21). "After accomplishing the mummification, Chinchorro mourners likely feasted with the dead, just as the Incas did thousands of years later parading mummified ancestors, giving them drink, food, clothes, and other offerings" (Arriaza et al. 2008:56). Arriaza argues that the mummy making of the deceased body (and perhaps associated cannibalism) and subsequent feast marked the liminal stage of tripartite mortuary rite, through which the deceased obtained ancestorhood. He concludes that the Chinchorro mummification illustrates religious beliefs such as ancestor worship, life after death, and continuity of life in this or in a parallel world (cf. Chamberlain and Parker Pearson 2001:95). The concept of the parallel world draws upon some ethnographic reports. For instance, the Laymi people in Bolivia believe that the dead people live in the same place as the living and even cultivate the same fields to harvest chili peppers (Harris 1982; 1983:146), while the Runa people in Peru believe that the spirits of the deceased cultivate potatoes (Allen 1988:56). The two separate worlds can communicate each other by means of dreams, wind, and moonlight.

2.2.5. Conclusion

In sum, many of the archaeological, ethnohistorical, and ethnographic cases discussed above appear to conform to the Fortes/Newel definition of ancestor and additional salient characteristics sketched out in the previous section. Andean people also believed in the life after death of physical bodies and thought that the dead kept exerting largely beneficial influences over the lives of the living. The deceased were ritually transformed into ancestors by their living descendants (e.g., perfoming Purucaya festivals; also see Cieza de León 1883 [1551]:96 for description of a ritual process of making ylla). The protracted interactions with ancestors took the form of rituals that were performed by a specialist at a certain cult place (e.g., coca divination and rituals by the diviners [yachajkuna] among the Kallawaya in Bolivia; Bastien 1995:361; also see Bastien 1973, 1978). Ancestor worship was viewed as a ritual attempt to ensure the healthy circulation of the world and to wish for the social welfare and reproductive success – fertility cultism, the explicit cultural purposes are the fertilization of nature and the regeneration of community. Helms' (1998) distinction between emergent house ancestors and first-principle ancestors also seems to have been present in the Andes. The *mallquis* of the named ancestors honored at *cayan* fall into the former, while the superhuman *huaca* ancestors likened to landscape features and natural forces fall into the latter. These different types of ancestors were organized in a hierarchical structure and recognized as a member of a cosmological clan of mythical genealogy. At the lower level of this genealogy, ancestors were mummified and honored as a corporeal entity in the house contexts, whereas at the higher level, landscape features (e.g., outcrops, mountains, and islands) were personified as non-corporeal, ancestral superhuman heroes (or *huacas*), or viewed as the places where those heroes originated. These superhuman ancestors were considered to be common parents of the house ancestors at the lower level and were contacted by the living through natural forces (e.g., lightning, fire, rain, and hail). This characterization of superhuman ancestors is also in sync with the fact that first-principle ancestors are objectified or made accessible at particular locations on the cultural landscape of the earth in other parts of the world (e.g., Herskovits 1938:208; Goldman 1963:184, 254; Endicott 1979:124; Evens 1984:327-328; Gudeman 1986:92; Myers 1986:126, 240-243; Helms 1998:38-39).

Compared to the abundant case studies about the late prehispanic ancestors in the southern highlands, the rest of the Andean World (particularly the North Coast) is underrepresented. What I have treated as the "Andean" concept of ancestor is heavily based on those readily available information. Therefore, I have to admit that the comparison with the Fortes/Newell definition should be regarded as preliminary or partial. More importantly, it is dangerous to generalize a cultural trait documented in a certain area during a certain time period under the name of the "Andean." Seemingly similar traits and practices may have carried different meanings in relation to different societal and environmental contexts. This will result in blindly ruling out the possibility that the ancestor concept may have varied in different areas and changed over time. The approach to implicitly or subconsciously search for pan-Andean characteristics across time and space and homogenize the entire Andean World is what Shimada criticizes and calls "Andean uniformitarianism" (Shimada and Fitzsimmons in press). Uniformitarianism is an assumption initially proposed in geology that the natural laws and processes observed today have always operated in the past, and thus can be applied everywhere in the world. It would be possible in theory to suggest a single "Andean culture area" in terms of what has been known as "lo andino" (Salomon 1985). Although there is always a merit in generalizing the subject matter (a cultural trait in this case) to some extent and locating it in relation to other phenomena for a more comprehensive understanding of the subject, it should be clearly distinguished from the act of "rounding off factions" or specificities that best characterize the cultural trait in question.

The relative paucity in my review above of information from the northern half of the Andean World may be compensated by the recent synthesis by Shimada et al. (in press, Table 3) of evidence of the living-dead interaction from the Central and North Coast starting with the late preceramic times. In contrast to the highlands (from the Recuay to the Titicaca regions) where the emphasis was placed on the visual access to the remains of the deceased (e.g., above-ground *chullpas* and mummies in caves), there seems to have been a contrasting situation on the coastal regions, particularly on the

North Coast. Elite individuals were buried deep in the ground. There is a tendency among the deceased elites to be buried deeper than the rest of the society. This major difference separates the two geographical regions and raises a distinct possibility that the deceased and their corpse and *anyma*/soul may have been conceived differently from those in the highlands. This instance alone is hortative enough to awaken and lead us archaeologists to focus on such concrete archaeological evidence, rather than indulging in the implicit practice of Andean uniformitarianism.

The above review of different methodological approaches to and associated theoretical perspectives on ancestors in Andean archaeology has revealed that to a varying degree, all of the arguments draw upon ethnohistorical/ethnographic observations and interpretations for theory construction. The postprocessual counterstatement to representationist approach made it clear that one-sided way of looking at mortuary representations does not allow for any in-depth reconstruction of sociopolitical and religious structure. A securer achievement of this task requires a more sophisticated understanding of the multiple factors and processes that build up mortuary patterns (e.g., pre- and post-interment funerary rituals, mortuary symbolism, and the living survivor as an active agency). However, one of the major faults of the postprocessual school was that none of the highly sophisticated arguments drawn from ethnographic or ethnohistorical case studies provided general methodological guideline for archaeological mortuary analysis. Furthermore, their undiminished heavy reliance on written accounts had made no difference from the previous processual representationist approach. This is serious particularly for Andean archaeologists who study the non-literate societies. Then, would it be unfavorable to keep relying on the ethnohistorical analogy of written accounts concerning the post-Conquest populations or oral histories in the Andes left by the chroniclers in the 16th century or the trans-Atlantic application of European ethnographic models? This will be discussed in the following section.

2.3. An integrative approach to ancestor cult

The different approaches to Andean ancestors discussed above have provided archaeologists with various merits. Ethnohistorical data and interpretations are particularly informative and insightful and have always been a source of theoretical inspirations for archaeologists. Without this critical source of information and inspirations, I wonder how much archaeologists could have been able to explicate the highly complicated system of beliefs and practices of the remote past solely with raw archaeological data in their hands. Iconographic approach has also offered a series of important visual clues to explore the cosmology of the prehispanic Andean people. The proxemics branch of architectural approach has already opened up a new field of study in archaeology and nourished archaeologists' interests to explore into the corporeal experiences during the human activities in question. Last but not least, bioarchaeological approach has provided critical methods to meticulously examine and document the elongated interactions between the dead and the living.

However, concurrently, these approaches have some weaknesses in common as well as their own drawbacks and thus require caution when applied for archaeological purposes. To name a few, the architectural approach tends to oversimplify a broad array of complex ritual traditions into a single category of behavior, while ethnohistorical analogy "may cause the archaeologist to risk assuming the very thing he should be trying to find out" (Gould 1971:143) and overlooking the existence of religious practices unique in the prehistoric past. Various interpretations and hypotheses derived from iconographic approach are essentially subjective outlooks hard to prove by archaeological means and thus must remain propositions. Bioarchaeological approach suffers from a serious imbalance between highly developed methodology and underdeveloped theories. These inherent drawbacks tend to be most pronounced when a single type of materials is employed for arguments. Relying on multiple lines of evidence would offer a greater persuasive power. The major weaknesses that these approaches have in common are: (1) overreliance on historical evidence for data interpretation and theory construction, (2) lack of focus on the ritual activities themselves, and (3) inability or failure to account for historical changes.

This section aims to propose an alternative approach that integrates and enhances the advantages of and compensates for the drawbacks of the above approaches. In the first half, I discuss how we should integrate archaeology and history (ethnohistory and ethnology) for the shared goal of studying the Andean past. This discussion will address archaeological debates about whether historical evidence should be (1) used as a heuristic method to inform the planning of archaeological fieldwork or (2) combined only *ex post facto* as an independent method to interpret or compare archaeological findings. In the second half, I point out the scarcity of attempts to investigate ritual activities themselves for exploring ancestor cult and argue for an alternative approach. The combination of the close attention on ritual activities and the practice- and performance-oriented theories of rituals may compensate for the drawbacks of the conventional approaches and perspectives.

2.3.1. Coordination of archaeological and historical evidence

As I pointed out in the previous section, all of the approaches rely on ethnohistorical/ethnographic observations and interpretations for theory construction to a varying degree. Given the fact that we archaeologists have to rely on some form of analogy for our understandings of the prehistoric past, I believe, we have no choice but to consult ethnohistorical and ethnographic data and observations for theoretical inspirations with a clear awareness of the potential dangers arising from erroneous applications of them (cf. Pärssinen 2010). The question is when and how we should consult them.

Dymond (1974:75) characterizes that archaeological and historical evidence are similar in that the final product in both archaeology and history is a "historical reconstruction of the past in the form of written statements", although either one of them would never become a complete history. Based on this characterization and comparison, Dymond argues that the integration and coordination of archaeological and historical evidence is to show whether these two different types of records are not discordant and could therefore apply to the same places or events – e.g., Heinrich Schliemann's identification of the Hissarlik mound as the ancient city mentioned in Homer's account of Trojan War and the assessment of the validity of the so-called Naymlap Legend first recorded by Miguel Cabello Valboa (1951 [1586]) in the Andes. The coordination of archaeological and historical evidence is possible only if they are developed independently and complement one another.

For about three decades since the 50s, many ethnohistorical interpretations about *Tawantinsuyu* had been accepted as axiomatic among archaeologists (Schaedel 1988). These include Murra's (1985a, 1985b, 1972) famed concept of "vertical archipelago" and others. With few exception (Rowe 1944), the Late Intermediate Period (LIP) and Late Horizon (LH) had gained little attention from archaeologists due to the availability of historic accounts of the Incas and the groups they conquered. These situations seem to have been more or less similar in Mesoamerica. Nearly all of the knowledge of the Triple Alliance empire was derived from ethnohistorical sources with little contribution from archaeological data (Smith 1987).

A few remarkable attempts to integrate history (primarily ethnohistory) and archaeology in the Andes began to appear during the decade of what Schaedel and Shimada (1982) called "Muelle-Fullbright phase (ca. 1958-68)." Murra (1975) came to assume that *Tawantinsuyu* was "an ephemeral and nefarious episode" of the long Andean past (Schaedel 1977:129) that resulted from the adoption of hierarchy, differentiation, and authoritarianism of the coastal societies into the self-sufficient Andean highland communities that were originally colligated by the concept of reciprocity. Thus, the study of Andean past should be undertaken not by merely following up and rehashing historical statements produced after the European Contact, but by coordinating archaeology and ethnohistory with a clear emphasis on the continuity of the patterns of relations among ethnic groups from the pre-Incaic times. In this context, Murra (1962, 1972) attempted to figure out the protohistoric settlements by means of archaeological record and to examine ethnohistorically reconstructed models of articulation between the state and the province of Huánuco. Schaedel and Shimada (1982) commend his efforts to show the value of provincial administrative documents and to achieve a fruitful integration of history and archaeology at the level of research design.

In the wake of Rowe's (1944) pioneering work for the archaeology of Cuzco, archaeologists gradually showed their interests in *Tawantinsuyu*; however, these studies were quite independent from the ethnohistory and ethnology. The majority of the historical evidence concerning the history and culture of *Tawantinsuyu* was recorded at and thus referred to the events and situations around the capital Cuzco (Menzel 1959). Interested in the cultural situations of the provinces on the South Coast of Peru, Menzel (1959) focused on archaeological evidence. She suggests, "Instead of lamenting the absence of written records in the Andean area, we have only to look closely at the abundant evidence which has survived in the form of archaeological associations. The answers to many of our questions can be found in the ground" (Menzel 1959:141).

On the other hand, another group of archaeologists has applied *ex post facto* ethnohistory and ethnology into their interpretations of archaeological findings. Their research interests tend to have been independently developed with particular archaeological problems. The oldest case may be traced back to around the beginning of the 20th century. For example, Uhle accidentally recovered in 1901 a section of huge cemetery ground for nobles during the period of the Inca state near the provincial capital called "Old Ica" (Menzel 1976, 1977). The size, shape, and furniture of the burials were very similar to those in the descriptions made by Cieza de León. Based on a series of accordance with the ethnohistorical descriptions, the burials were eventually considered as dwellings for the dead, just as so did Cieza (Menzel 1977). Similarly, Bandelier (1910) used Spanish chronicles and his own ethnographic observations of Aymara people on the Islands of Titicaca and Koati in the Lake Titicaca to interpret the ruins of *Tawantinsuyu*. More recently, household archaeology often employs ethnohistorical and ethnographic analogies. Nash (2009) argues that household archaeology in the Andes requires ethnoarchaeology and theory-building in order to understand the complex social dynamics at the foundation of ancient Andean societies (e.g., Kuznar 2001).

As for my stance, I would carry the banner for a well-balanced exercise of these before- and after-the-fact applications of ethnohistorical evidence into archaeological study. The data and interpretations made by ethnohistorians will surely be useful for archaeologists to develop research questions and design a new research. However, once this before-the-fact application is complete, archaeology and ethnohistory should be independently developed until the after-the-fact application. Constant reference to each other would inevitably result in an unbalanced reliance. After all, ethnohistorical data are often quite explicit and detailed (whether accurate or not), tempting the archaeologist, perhaps unconsciously, to become overly reliant on them. At the time of until the after-the-fact application, archaeologists not only consult ethnohistory again for the interpretation of their data from excavations, but should provide ethnohistorians with new archaeological findings and subsequent interpretations, which will possibly be different from those of ethnohistory, thereby ethnohistorians may be able to reinforce or modify their assertions. Such an interactive dialogue should be of mutual benefit to both sides. One's disproportionate reliance on the other or uncritical borrowing of results from the other is completely beside the point.

Nonetheless, in order to achieve the task above, there are a series of critical issues to ponder when using ethnohistorical sources for archaeological research. To name a few, the issues include Westerner's ethnocentrism inherent in the statements, demographic and subsequent social changes due to the epidemics that drastically lowered native population during the Contact Period, applied Christian concepts of paganism filtered by a simplified dichotomy of Christianity vs. paganism, difficulty to extract information unique only in remote past, and so on (See Abercrombie 1998). The most relevant issue here would be the concern with historical analogy. On the basis of the geographic and temporal distance from the available information (e.g., coastal vs. highland, early vs. late prehispanic populations), many archaeologists hesitate or reject to employ cross-cultural application of ethnographic/ethnohistorical analogy. In contrast, Ucko (1969) points out that anthropologists are concerned with synchronic correlations and consider them to be cultural solutions to similar social situations. They assume that analogy is applicable once it is confirmed that there are structural compatibilities and similarities in sociocultural contexts between the known and the unknown. Historical analogy is based on descent and/or cultural associations (e.g., Direct Historical Approach). Whitley (2008) points out that the question of descent is not an either/or problem, but rather a problem of relative degrees of geographic and temporal continuity between the known and the unknown.

Who has successfully achieved the well-balanced exercise of the before- and after-the-fact applications of ethnohistorical evidence into archaeological study? One of the pioneers would be Murra and Morris (1976). They combined ethnohistorical interpretations of Andean institutions (Murra 1956, 1962, 1975) and a series of results from archaeological fieldworks in the Huánuco region of the central highlands of Peru (Morris and Thompson 1970; Morris 1972, 1975) for the purpose of testing Murra's notion of redistributive economy and state in the provinces of *Tawantinsuyu*, which was largely based on Károly Polányi's substantive economy perspective. This project demonstrated that archaeological research could confirm, supplement, and correct the historical evidence. Furthermore, the subsequent, continuing ethnohistorical research efforts by Murra, Rostworowski, Rowe, and Zuidema during the 70s to 80s drew attentions from more and more archaeologists and led them to think that "the fragmentary ethnohistorical evidence could provide varied models of regional prehispanic organization that could be tested, revised, and broadened using archaeological methods" (Burger 1989:55). A series of ethnohistorical models and interpretations came to be reassessed by archaeological research.

A representative example is Bauer's (1992) analysis of the Cuzco *ceque* system in Collasuyu. The *ceque* system consists of at least 328 shrines (*huacas*) and organized along

42 hypothetical lines (*ceque*) radiating out of Cuzco. It was first approached by Kirchhoff (1949) and formally studied by Zuidema (1964) in the mid-50s. Archival research indicates that the system was conceptually related to the fundamental social, political, spatial, and temporal divisions of the Cuzco region and Inca society (Cobo 1956 [1653], 1979 [1653], 1990 [1653]). Bauer documented through field research the likely positions of 85 *huacas* and the probable courses of nine *ceques* in Collasuyu (the southeast quarter of *Tawantinsuyu*), and compared them with predicted courses set forth in current models of the system. New findings challenge a number of assumptions in the earlier model of the system based on the 17th-century ethnohistorical sources (e.g., *ceques* as straight lines radiating out from the *Cori Cancha*) (Zuidema 1977, 1982a, 1982b, 1990, 2011; Sherbondy 1982, 1986a; Van de Guchte 1984, 1990). Niles (1987) actually reports that the fourth, fifth, and sixth *ceques* in Antisuyu also take a form of zigzag line. Bauer concludes that there are numerous internal inconsistencies and possible errors in the sources and that the courses of the *ceques* may have varied substantially from those suggested in the documents. As these cases clearly indicate, a well-balanced before- and after-the-fact coordination of ethnographic, ethnohistorical, and archaeological research will not only expand our understanding of the Andean past, but also facilitates a dialectical relationship among different fields that enables us to pose new research hypotheses and questions and to test them.

2.3.2. Practice- and performance-oriented approach to ancestral rituals

As is the case with *ceque* system discussed above, ethnohistorically and ethnographically recorded concepts and ideas may represent purely abstract, idealized images and deviate significantly from their embodiments and enactments in materials and activities. The misalignments between ideals and their embodiments, however, may be revealed through meticulous examinations from materialist perspective. The same is probably true of ancestor cult. Salomon's (1995:319-323) comparative studies of the 17th-century documents found an idealized image of ancestor in *Tawantinsuyu*. Dulanto's (2002) "ground-truth checking" by means of archaeological methods illuminated both the consistencies and inconsistencies between the Incaic idealized image of ancestor and the pre-Incaic sacred landscape and associated ritual activities. These inconsistencies should not be surprising, if one takes into account the large spatial and temporal dissociation between the compared populations (several hundred kilometers and over 1,200 years apart), which again invokes the Andean uniformitarianism discussed in the previous section. The inconsistencies may also suggest a more dynamic relationship between the ancestral image and its embodiments. In the previous sections, I have intentionally discussed many cases of ancestor cult documented in different parts of the world, past and present, in a timeless, static framework to emphasize their commonality and structural similarity and to make a summary review of the theme. It is inevitable, however, that such an ahistorical approach will cast a veil over dynamic and creative aspects of the ritual activities in relation to other historical contingencies. In reality, the materials and activities as the instantiations of the idealized image of ancestor may not merely be given restrictions by the image and manifest themselves as its faithful and passive reflections. Rather, ritual activities as well as material productions may have had a creative power to override and even transform the image.

The critical problem is that archaeologists will never be able to have direct access to the idealized image of ancestor in the remote past, not to mention the inferred dynamic relation with its manifestations in ancestral rituals. Nonetheless, the search by means of field excavation for material residues of ritual activities and associated relational and contextual data in the ground may allow us to reconstruct and make inferences about the original activities. The changes in the patterns of the documented material vestiges may correspond to the changes in the ritual type and/or composition. An undisturbed sequence of stratigraphic layers may be viewed as palimpsests of a seamless historical trajectory of ritual change and stability.

It is notable that the majority of the traditional approaches to ancestor cult has not focused attention on the ritual activities themselves. In favor of historical, iconographic, and architectural evidence, archaeological contextual data have been relegated to a subservient position in the studies of prehispanic religion and ritual in general. Iconographic approach has investigated the artistic representations of inferred ritual activities depicted on the flat surfaces of ceremonial vessels and murals, not the activities themselves that took place in the three dimensional ritual spaces[23]. These representations are nothing different from the idealized image extracted from ethnohistorical and ethnographic records, in that they are the depictions of mental image of ancestor and associated materials and activities. Architectural approach, on the other hand, has discussed the hypothetical ritual activities within architecture that are assumed and predicted from the architectural constraints usually with the perspective *from the outside in*, as opposed to the perspective *from the inside out*. Neither approach gives primacy to the direct focus on the ritual activities themselves, while both heavily rely on ethnohistorical and ethnographic evidence and interpretations. Bioarchaeological approach has nourished its growing interests in meticulously observing and recording the material traces of mortuary activities on the basis of the recent theoretical and methodological advancements. With few exceptions, however, the focuses of bioarchaeologists are still confined largely to the burial contexts and do not necessarily encompass and search into the ritual activities that took place in adjacent or remote areas (e.g., *cayan* and plaza) and, more broadly, into the local landscape and living contexts, which might not have been irrelevant to the understanding of ancestors and their venerations.

In contrast, the current study proposes an alternative approach that focuses on the ritual activities inferred to have been associated with ancestor cult. It is one of the major advantages of field archaeology that we could directly deal with the material vestiges of human activities and examine their change and stability over a long time in relation to other societal contexts. However, the exploration of ritual change and stability requires a major paradigm shift and has to be underpinned by theories that account for historical change. I suggest that the combination of the close attention on the material residues and relational contexts and patterns of ritual activities and the practice- and performance-oriented theories of rituals would not only make the archaeological study of ancestral rituals feasible but also compensate for the drawbacks of the conventional approaches and perspectives. Bell (1997:83) lists four major characteristics that most practice-oriented theories of rituals have in common. Each of the characteristics will be integrated into the proposed alternative approach and briefly discussed in the following section.

Practice theories of ritual:

(1) "attempt to see ritual as part of a historical process in which past patterns are reproduced but also reinterpreted or transformed,"

(2) "are explicitly concerned with what rituals do, not just what they mean, particularly the way they construct and inscribe power relationships,"

(3) address "the issue of individual agency," (cf. Gillespie 2001) and

(4) implicitly or explicitly "suggest the value of jettisoning the category of ritual as a necessary first step in opening up the particular logic and strategy of cultural practices."

2.3.2.1. Acknowledging the duality of structure. As Bell (1997:82) cogently summarizes, "the study of ritual as practice has meant a basic shift from looking at activity as the expression of cultural patterns to looking at it as that which makes and harbors such patterns." In this regard, the first characteristic is most fundamental to the practice theory of ritual. It is what Giddens (1976, 1979, 1981, 1984) termed "the duality of structure." Structures are "both the medium and the outcome of the practices which constitute social systems" (Giddens 1981:27). In other words, structures set a limit on and shape people's practices, but they are in turn transformed and reproduced by the practices. Giddens (1984:377) defines structures as "[r]ules and resources, recursively implicated in the reproduction of social systems" – "cultural schemas" in Sewell's (1992) terms. Structures do not exist concretely in time and space, but exist only as memory traces and are instantiated in action (Giddens 1984:377). Similarly, Bourdieu's (1977) concept of "habitus" refers to the set of structured and structuring dispositions in dialectic relations to social structure, which are also embodied in individuals' actions in a practical way. The recursive relation between structures and human practices requires us to view it not in a static and timeless framework, but as a dynamic historical process.

This is a strong critique of the inability of purely structural and semiotic approaches to account for historical change, and is the very reason why Giddens calls his theory "the theory of structuration" to distinguish his notion of structure from that conceived by French structuralists such as Lévi-Strauss. Bell (1997:76) states, "In contrast to the static view of structuralism, which tend to see human activity as a matter of enacting cultural rules, practice theory claims to take seriously the ways in which human activities, as formal as religious ritual or as casual as a midday stroll, are creative strategies by which human beings continually reproduce and reshape their social and cultural environments."

2.3.2.2. Focusing on what rituals do. For the second characteristic, the shift of focus from what rituals mean to what rituals do, Kertzer's (1991) study of the role of political ritual is highly significant. It demonstrates that a sociopolitical and religious organization can be consolidated without any consensus on the meanings of symbols. Kertzer illuminates the important role of rituals as symbolic behavior capable of creating and preserving a reality and an identity (also see Douglas 1966). Before the problem of the indeterminacy of the world, the very fixity and timelessness of rituals help one to tame time and to define reality. The state and institutionalized religious organization are not physical units but unseeable images created and conceived only by symbolic representations of rituals (also see Anderson 2006 [1983]). Through those symbolic representations, people identify themselves and are considered by others to belong to a particular group. No consensus on the meanings of symbols is required to unite the group. Standardized repetitive actions during (sometimes coercive) rituals bring about solidarity among the members of the group.

Regarding the connection between ritual practices and power, there are two prominent studies, that is, Ortner's (1978, 1989) study of the Sherpa's everyday rites and political activities associated with the foundation of Buddhist temples in Nepal and Comaroff's (1985) study of post-Colonial ritual life of the Tshidi in South Africa. Both studies view ritual as the catalyst that serves to link enduring structures and current political situation and addresses the recursive relationship of structuring and being structured through rituals between them. They describe how ritual practices produce and negotiate the power relations, rather than passively reflect current political situation or enduring cultural patterns.

2.3.2.3. <u>Emphasizing agency</u>. Practice as well as performance theorists are also open to strong formulations of agency, explaining how persons "acquiesce yet protest, reproduce yet seek to transform their predicament" (Comaroff 1985:1). It is what Giddens calls "knowledgeable human agents." Structures "must not be conceptualized as simply placing constraints on human agency, but as enabling" (Giddens 1976:161). These agents act by putting into practice their necessarily structured knowledge. This conception of human agents as "knowledgeable" and "enabled" implies that those agents are capable of putting their structurally formed capacities to work in creative or innovative ways. And, if enough people or even a few people who are powerful enough to act in innovative ways, their action may have the consequence of transforming the very structures that gave them the capacity to act (Sewell 1992:4). Consequently, for those people, ritual can act as an agent of both stability and change, and can be used to justify the existence and extension of hierarchies and inequalities. Aldenderfer (1993) explores the role of ritual as an agent of change by means of dual inheritance theory and discusses the implications of the model. Similarly, Schachner (2001) argues that at the times of social disruption in middle-range societies, ritual might have served as a political means to restructure social landscape. He focuses on the changes in ritual architecture that corresponded to the episodes of migration and environmental change during the Pueblo I period (AD 750-900) in the northern San Juan region of the American Southwest and argues that inspiring individuals or groups of individuals attempted to transform an extant ritual in order to improve their social standing.

On the other hand, Inomata (2006) strongly emphasizes the agency of audience during ritual performances and argues that the messages disseminated by the performer(s) are not necessarily accepted or positively evaluated by the audience. In his discussion of verbal art as performance, Bauman (1975:293) argues that "[p]erformance involves on the part of the performer an assumption of accountability to an audience for the way in which communication is carried out, above and beyond its referential content. From the point of view of the audience, the act of expression on the part of the performer is thus marked as subject to evaluation for the way it is done, for the relative skill and effectiveness of the performer's display of competence." Again, what rituals mean is not the primary concern. From a performance perspective, highly acclaimed would be how rituals are performed. It is the audience's choice that they accept or reject the symbolic expressions corporealized by the performer. In addition, the understanding of expressions by the audience also depends upon various factors such as the perceptiveness, ideological orientation, sociocultural background of the audience members, the linguistic concept of the "shared contextual knowledge," and the physical setting in which the performance takes place and other environmental determinants. These indicate that the rules, values, and ideals constructed and transmitted by rituals may be perceived, understood, and evaluated differently and shared by degree among the members of the same community.

2.3.2.4. Jettisoning the category of ritual. Bell (1992:69-70) points to a few critical problems that she encountered when defining the term "ritual." The conventional definitions have become a set of criteria to judge what is considered to be ritual and will inevitably keep growing to account for new empirical data that emerge from one to the next and do not fit the current definitions. The pursuit of a universal definition will generalize one-time-only events diminishing their particularity and dispensing with the specificity of cultural, political, and/or social contexts. In order to overcome these problems, Bell (1992, 1997) advocates the value of jettisoning the category of ritual. Rather than imposing categories of what is or is not ritual, she finds it more useful to focus on the way in which certain actions strategically distinguish and privilege themselves in relation to other (usually more quotidian) actions and are considered as rituals – the process of what Bell (1992:88-93) terms "ritualization." Ritualization is a circular process in which a person involved (1) embodies the structures of the world within his/her body by obtaining and internalizing a scheme for ordering the world through physical movements in a sociocultural space-time environment, (2) transforms into a ritualized body and appropriates the world of body, thereby appropriates the world, but concurrently perceives that the values and experiences come from an authoritative source of power and order beyond him/her and his/her ritual activity ("misrecognition"), and (3) generates strategic schemes of a series of privileged oppositions that help to appropriate or dominate other sociocultural situations ("ritual mastery"[24]). Therefore, Bell (1992:74, 80-81) advocates an exploration of the distinctive strategies and cultural logic that underlie ritual practices – more specifically, the description of the culturally specific strategies or idioms of differentiating practices, privileging a qualitative distinction between sacred and profane, and ascribing such distinctions to realities thought to transcend the powers of human actors.

2.3.3. Conclusion

A scrutiny of prehispanic ancestral rituals from the perspective of practice and performance theories may provide a breakthrough in archaeological study of ancestor in the Andes. In contrast to the traditional approaches, the current study focuses attention on the material residues and relational contexts and patterns of ritual activities and studies their change and stability through time in relation to other historical contingencies, without heavily relying on ethnohistorical and ethnographic evidence. Ancestral rituals viewed as practices are considered not only to embody and enact the idealized image of ancestor and its veneration as rules and structures, but also to transform and reproduce the very image. Although we archaeologists have no method to access the unseeable images and explore their meanings in the remote past, meticulous investigations of the material vestiges of ritual activities and surrounding contexts and patterns in conjunction with broader societal situations inferred from existing archaeological databases may allow us to reconstruct the original activities and their change and stability, identify the composition of ritual participants, and even infer the power relations among them and the culturally-specific political strategies of ritual performer(s) to sacralize their practices and differentiate themselves from others through ritual performances. The performance theory urges us to turn a watchful eye on the agency of all ritual participants as well. For those who were held back from the esoteric knowledge about symbolic representations in materials and actions, those symbols may not have been of primary importance during rituals. Their interests may have been more in how the rituals were performed, rather than what they meant.

Now that I clarified the theoretical stance of this study above, some critical methodological questions will emerge: How can we find ancestors in archaeological records? How can we identify ancestral rituals as such? My arguments in the previous section demonstrated that ancestors and their veneration practices may not be addressed by a single line of evidence, just as iconographic approach cannot persuasively identify ancestors in artistic representations without any other supportive evidence such as ethnohistorical characterizations of ancestor cult and bioarchaeological examinations of the bodies of inferred ancestors. In his evocative article, "Too Many Ancestors," Whitley (2002) warns that many archaeologists tend to focus solely on burial locations and give short shrift to potentially much more complicated conceptions and activities by simply lumping them together under the heading of "ancestor cult." Although his narrowly-defined ancestors may not count in what I assume to be a type of ancestor (e.g., Helms' [1998] first-principle ancestors and Andean superhuman *huaca* ancestors), his sharpshooting should be seriously taken to heart. There has been very little attempt to respond to this warning in Andean archaeology during the last decade. As a response to Whitley's arguments, I will demonstrate in Chapter 4 (4.2. "Test Implications and Material Correlates") how we should approach prehistoric ancestor veneration and what evidence we need to define it in archaeological records, taking as an example the case of the inferred Middle Sicán ancestor cult.

NOTES

1 The transmigration of the souls is not always successful. Some may not even survive the death. The people of the Tonga Island believed that only noble people are allowed to join the afterworld called "Happy Land of Bolotu", while the souls of commoners will collapse just as their physical bodies do. The Nicaraguans believed that if a person lived well, his/her soul would ascend to live among the deities, but if ill, it would perish with the body. The Fijians believed that they become ghosts after their physical death and subordinate to and judged by the serpentine creator deity called *Ndengei*, equivalent to *Yama* in Hinduism. However, in order to get to this judge-seat, the ghosts have to fight against soul-killing *Samu* and his brethren. This is why the dead bodies of the Fijians are oftentimes accompanied by a war-club when buried. If they are defeated in this battle and eaten by *Samu* and his brethren, they will have to face the second death. A similar tale of the trial for souls is transmitted among the people of Guinea. These beliefs clearly illustrate that the souls of the deceased are not immortal, but rather should be considered as liable to accident, challenge, and death as the physical bodies (Tylor 1958 [1877]: 22, 45, 91).

2 *Tawantinsuyu* is the Quechuan term used by the Incas to refer to their Empire, literally meaning "the Land of Four Quarters."

3 It is notable that the type of ancestor that Gluckman assumes is what Helms defines as the emergent house ancestors. These recently dead ancestors are remembered by their names and generally recognized as notable achievers when physically alive.

4 Although I speak of the "Andean" concept or view of life and death in a broad and inclusive manner, the sources of this concept nearly all derived from the highlands, particularly the southern region. Therefore, a question remains as to the extent to which the highland conception applies to the coastal regions, particularly the North Coast.

5 *Upaimarca* is the ultimate resting place of the dead (Gose 1993:495); however, there seems to have been regional variability in how it was called and which geographic feature it actually referred to (Sherbondy 1982:124, 147; also see Velasco 1961:49).

6 Rowe (1946:255) defines *ayllu* as "a kin group with theoretical endogamy, with descent in male line, and without totemism" that owns a definite territory.

7 The *Uma Pacha* is a term very similar to the prehispanic concept of *upaimarca* (Salomon 1995:341). It is considered as the "mythological place of origin and return for people, animals, time, and history in the highlands of *ayllu* Kaata. Kaatans associate *uma* with head and water, and *pacha* with space and time"

(Bastien 1995:360). *Pacha* is a untranslatable notion that simultaneously signifies a moment in time and a locus in space. The term also refers to the world or the name of earth in general (Salomon 1991:14).

8 *Llactas* are categorized into two groups: those who considered themselves descending from *llacyayoc* (ancient, valley-owning, agricultural heroes/ancestors) and those from *llacunas* (immigrant conquerors whose origin lay in the camelid-herding highlands) (Salomon 1995:322).

9 Doyle (1988:111) defines *cayan* as "a flat area often formed by terracing, where individuals or groups could gather to carry out activities related to the malquis or other individuals buried in the machay." Archaeological cases have also been documented at various sites (e.g., Pashash in Ancash and Pampa Chica; see Grieder 1978; Dulanto 2002).

10 *Malluquis*' dwellings took different forms and were called by different names: (1) *machay* (mummy cave), (2) *chullpa* (burial tower), (3) *pucullo* (burial house), and (4) *aya huasi* (house of the dead) (Salomon 1995:322).

11 *Conopa* refers to a small sacred object that is owned and worshipped privately (1968 [1621]:178). It was made of stone and usually took the form of food plants or animals (e.g., maize, potatoes, and llamas) and was believed to encapsulate

generative power. Arriaga (1968 [1621]:28) compares it to Lares and Penates, guardian and household deities in the ancient Roman religion.

12 *Mamazara* is a type of *conopa*. It refers to the maize ear that has an unusual or beautiful shape, or several ears joined together. It was viewed as the "mother of the maize" (Arriaga 1968 [1621]:20, 181).

13 *Huanca* is a large stone placed in front of house and venerated as a guardian ancestor (Arriaga 1968 [1621]:20; Doyle 1988-65).

14 *Chacpa* is a child who was born in a breech position (or born feet first). S/he was viewed a privileged being and was generally dedicated to sorcery or the priesthood. After death, his/her bodies received special care and veneration (Arriaga 1968 [1621]:20, 178).

15 *Chuchu* refers to multiple birth or twins, or fruit or maize growing double (Arriaga 1968 [1621]:21, 178).

16 *Pacto* refers to equal bodies or those similar in shape or color, or hair that is cut off (Arriaga 1968 [1621]:21, 181).

17 *Axomama* is a type of *conopa*. It refers to the "mother potato", first potato, or "double potato" (Arriaga 1968 [1621]:21, 177).

18 *Micsazara* (or *michacasara*) refers to the first maize that ripened, or a brightly colored ear of maize (Arriaga 1968 [1621]:21, 181).

19 *Huantayzara* (or *huantaysara*) refers to the tallest maize or the highest on the same stalk. It also refers to a doll supposed to protect the maize (Arriaga 1968 [1621]:21, 179).

20 *Huayriguazara* (or *hayrihuasara*) refers to two kernels of black and white maize that grew together, or two ears from the same stalk" (Arriaga 1968 [1621]:21, 180).

21 *Intiwatana* is a sacred rock or place for observing the sun and conducting dedication rituals for the sun.

22 Goodenough's (1965) role theory characterizes an individual or a group of individuals as a social persona, a composite of his/her multiple identities selected as appropriate to given interactions with other members or groups of the society. As opposed to its conventional definition in a purely categorical sense, status (or termed "social identity") is considered to be a scale pattern represented by its role, that is, the distribution of rights and duties in accordance with the dynamic identity relationships.

23 Some archaeological researches point to the high rate of correspondences between iconographic representations of ritual scenes and funerary treatments of inferred ritual practitioners (e.g., Alva and Donnan 1993; Bourget and Newman 1998).

24 Ritual mastery was coined by Bell after Bourdieu's (1977) "practical mastery" and defined as "the ability – not equally shared, desired, or recognized – to (1) take and remake schemes from the shared culture that can strategically nuance, privilege, or transform, (2) deploy them in the formulation of a privileged ritual experience, which in turn (3) impresses them in a new form upon agents able to deploy them in a variety of circumstances beyond the circumference of the rite itself" (Bell 1992:116).

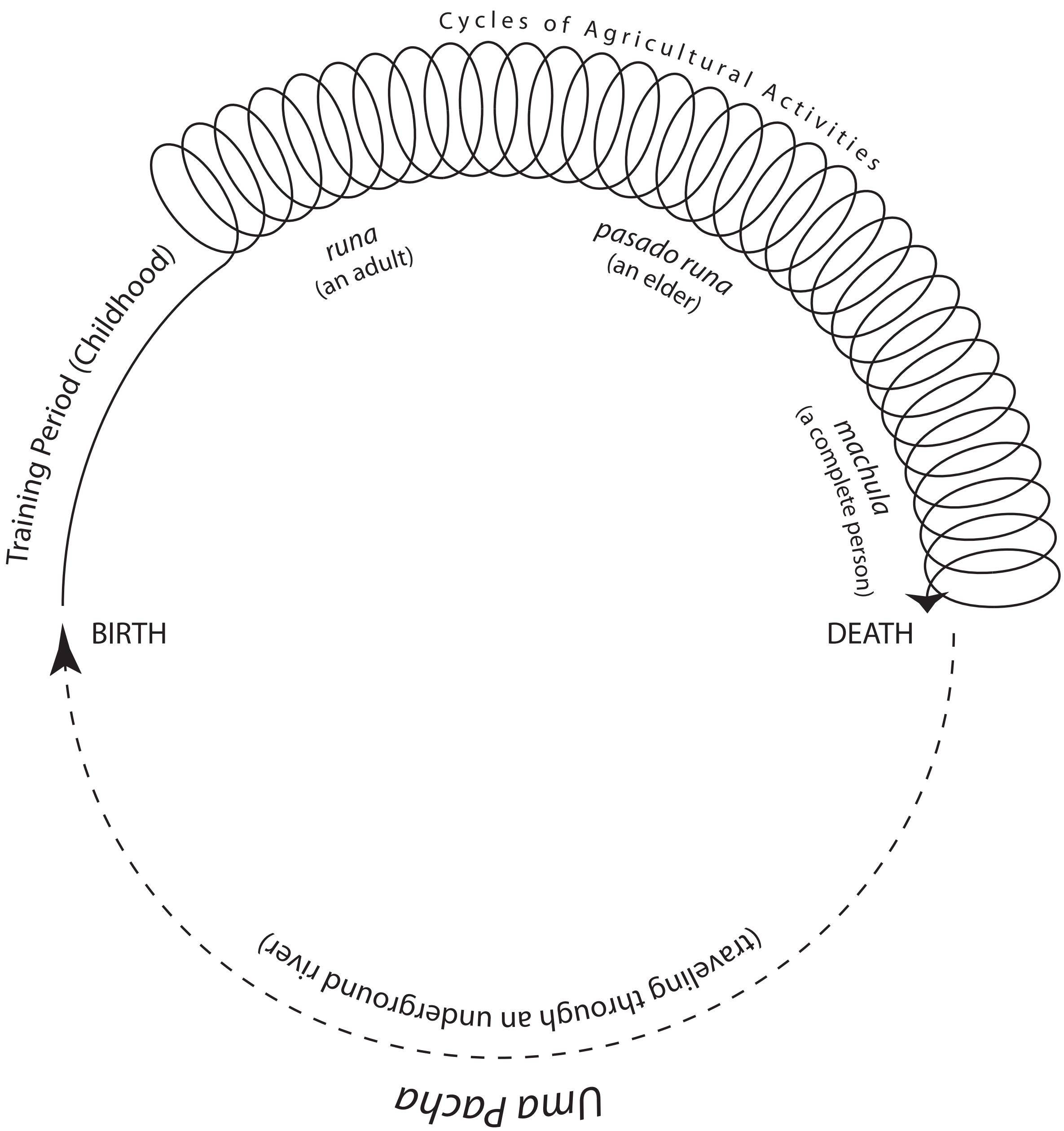


Figure 2.1. A schematic representation of the Kallawaya's notion of cyclical transformational sequence of life and death reported by Bastien (1995). The cycles of agricultural activities in relation to the earth help an individual gain ancestorhood and recognized as a complete person.

CHAPTER 3

COMPETING THEORETICAL PERSPECTIVES ON WHY ANCESTOR VENERATION WAS PRACTICED

This chapter discusses why ancestral ritual practice has persisted. Previous studies that dealt with this question may be broadly divided into two groups: those that focus on the economic aspects of ancestor cult and those on the ideological aspects. In the sections that follow, I discuss these two groups of competing theoretical perspectives.

Underlying the distinction between the two schools of thought are different views of religion. Those who emphasized the economic aspects of ancestor cult viewed religion as one of the social subsystems that constitute an overall functioning system and studied in causal relationships among other subsystems such as economy and sociopolitical organization (Figure 3.1; e.g., Binford 1962; Clarke 1968). This school of thought was strongly influenced by general systems theory originally proposed by von Bertalanffy (1950, 1969) and his colleagues in the 1950s and a hint of Marxist view of ideology and religion as the superstructure that is prescribed by the economic or productive base. Implicitly getting along with Hawkes' (1954) "Ladder of Inference," one started investigating technology, economy, and social organization to infer ideology and religion. Religious beliefs and practices were considered to be a consequence at the level of superstructure that resulted from a change in the mode of production. In this context, ancestors were discussed in relation to the territoriality and indebtedness to forebears of agriculturalists. In contrast, those who emphasized the political and ideological aspects of ancestor cult attempted to invert the conventional recognition of religion as being epiphenomenal, particularly explicit in orthodox Marxist approach. As Gramsci (1971) acknowledged the major role of superstructure (or "hegemonic culture" in his terms) for capitalism to maintain its control and *status quo*, it may be safe to say that the base is conversely prescribed by the superstructure.

In the current study, I try not to be committed to either economic or ideological approach and avoid making a judgment on the relative significance between the two approaches. Ingold (1986:243) asserts that the hunting, usually assumed as being structured by economic rationale alone, may be "a drama often imbued with religious significance, involving some kind of exchange between mankind and spirit world." *Rigveda*, one of the textual roots of Hindu religious tradition, preaches that food is not merely a means of bodily sustenance, but rather part of a cosmic moral cycle (Achaya 1994:61). These views of religion emphasize the ideological significance, but do not illuminate on the clear disjuncture and the inferior-to-superior (or subordinate-to-dominant) relationship between infrastructure and superstructure, and the secular and the religious. They assume the interpenetration between the religious and the secular (e.g., social, technological, economic, and practical concerns of everyday life), considering the former as an omnipresent, influential factor in society and giving it an active role for social change and stability (Figure 3.1; Insoll 2004).

3.1. Economic perspectives

In the previous chapter, I referred to Goody's (1962) study of the LoDagaa, in which he viewed ancestor veneration as a socially significant mechanism to smooth out property transmission, in contrast to the cult of the dead concerning the whereabouts and well-being of the souls of the deceased individuals. In anthropology, it has been widely known that proprietary privileges in the agricultural societies rest with father and the eldest brother in patrilineal descent groups. In order to legitimize their title to the land resources, the farmers emphasize the importance of the continuity of their descent groups (or ancestral reference) and employ religious rituals to reaffirm group solidarity (e.g., Meggitt 1965b).

3.1.1. Ethnographic cases

Meggitt (1965a) conducted ethnographic studies in horticulturalist egalitarian Enga societies in the western highlands of New Guinea and revealed a strong positive correlation between population density and the degree to which social groups are structured in terms of agnatic descent and patrilocality (Figure 3.2; see Meggitt 1965a:279, Table 92; Saxe 1971:51, Fig.8). The population density in the figure is displaceable for the land scarcity. In the Enga societies, people belong to named and localized patriclans, and the clan territories are sharply defined. Due to land scarcity, disputes among the clans are very common. The reliance on agnation as an organizing principle enables the sedentary horticulturalists to more unequivocally and economically define the titles of land-holding groups and thus provides them with a practical solution to the land disputes over the limited property without bloodshed and lasting disruption of social relationships. Furthermore, religious beliefs and practices serve to reinforce this agnatic principle of resource inheritance. "[R]rituals regularly reaffirm the cohesion and continuity of the patrilineal group," and "the dogma in itself implies a title to land by relating living members of the group to a founding ancestor who is believed to have first selected that locality for settlement" (Meggitt 1965b:131). Specifically, Meggitt (1965a:279) hypothesized that:

> "where the members of a homogeneous society of horticulturalists distinguish in any consistent fashion between agnates and other relatives, the degree to which social groups are structured in terms of agnatic descent and patrilocality varies with the pressure on available land resources."

If this hypothesis holds, it is expected that the group with the highest population density and the smallest land to cultivate should demonstrate the most clearly defined agnatic descent system and patrilocal residence pattern. Regardless of the variability of the distribution pattern of territories and of the land quality of each territory in terms of production of the staple sweet potato, Meggitt (1965a:268-280) argues that his ethnographic reviews and own observations generally support this hypothesis.

The adherence to the land resources is unique to agriculturists. Meillassoux (1972:98-100) argues that the cult of ancestors as well as other features[1] finds its root in the social conditions of agricultural production. Unlike hunter-gatherer societies where people simply extract the necessities of life (primarily food) from various areas of the land through a series of short-term transactions, agriculturalists commit themselves to a specific area of territory for a long time and invest time and labor to cultivate it. This requires collaboration networks among the farmers and provisions for feeding them during the non-productive period between clearing the ground and harvesting the crops. What is important is that the farmers are linked not only to one another, but also to the forbearers who produced and prepared the provisions in the previous cycles. In this type of "delayed-return" economy, the returns for their investments depend not only upon the outcome of their own decisions and efforts, but also upon the work of their forebears (Woodburn 1980). In this regard, agriculture is the mode of subsistence that makes people become more aware of the genealogical continuity from previous generations and feel indebted to them. In agriculturalist societies in general, people owe labor, infrastructures (e.g., cultivable fields and irrigation systems), and productions (e.g., seeds and food) to the previous generations. Marxist archaeologists suggest that this sense of indebtedness may have established the basis for the emergence of ancestor veneration in small-scale kinship-based agricultural societies. This type of economic model of ancestor cult may be viewed as the extension of anthropological endeavor to explore the origin and function of ancestor veneration during the early 20th century.

There is an interesting ethnographic case describing the use of ancestral reference that Meggitt (1965a, 1965b) discussed and considered as a religious, epiphenomenal means to claim for the limited land tenure by establishing a visible connection between a particular territory and the remains of forbearers buried within it. Coining an interesting term "domestication of death" to describe it, Glazier (1984) refers to a drastic transformation of traditional beliefs and practices regarding death and inferred ancestors among the modern population of the Mbeere in modern Kenya, once a highly mobile group of so-called immediate return system. These people used to leave the dead bodies exposed in the wilderness to be "processed" by carrion feeders and be indifferent to the material remains of the deceased, not to mention the relationship between lineages, ancestors, and territories. It was believed that the acts that displease the spirits of genealogically close and recently dead individuals (e.g., father and grandfather) provoke their wrath and cause them to bring about some afflictions among the bereaved. Thus, the living rather hoped to sever the relationship with the spirits of the dead and clearly showed their distaste for any protracted discussion of death. They never developed any elaborate funerary rituals or build any ancestral shrines as the center for sacrifice and collective observance. However, once the colonial government banned them from leaving the dead bodies, requiring disposals in underground pits, and legally recognized a claim to the land and its inheritance, the Mbeere began to develop the senses of lineality and territoriality and transform their traditional beliefs and practices. Burials enabled them to effectively dissociate death from the previously unclaimed wilderness that was the traditional abode of the spirits ("domestication of death") and provided them with the proof of long-term occupation of land for the arguments about the ownership of disputed territory. This ethnographic case demonstrates that changes in the economic or productive base (e.g., laws defining inheritance rules) trigger and instigate those in religious beliefs and practices.

3.1.2. Saxe/Goldstein Hypothesis

Focusing on the ethnographic populations in the same region as Meggitt investigated, Saxe (1970, 1971) recognized the significance of Meggitt's hypothesis and considered effective agnation to be a response to ecological factors. He took the hypothesis one step forward and made some changes and additions to it. These changes and additions were later examined and tested by Goldstein (1976:35-69, 1981).

First, Saxe hypothesized that "Meggitt's demographic factors and effective lineality-locality would also control the customs of disposition of the dead in … egalitarian groups" (Saxe 1971:51). This extension has come to be recognized as the major contribution of Saxe's reformulation of Meggitt's hypothesis to mortuary archaeology in general. Saxe argued that the importance of ancestral reference for the attainment and legitimization of limited land tenure be reflected in the ways that the disposal areas were selected and that the dead bodies were treated and interred. More specifically, he believed that a particular locale within the disputed land should be specially selected and sacralized to dispose formally and exclusively one's ancestral bodies and show their long-term occupation there.

Second, Saxe attempted to generalize Meggitt's hypothesis and make it applicable cross-culturally. Two major changes he made are obvious in his hypothesis:

> "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).

These two changes account for some ethnographic cases that could not be explained by the agnatic principle or simply do not support Meggitt's hypothesis. The first change is from "agnatic descent" and "patrilocality" to "lineal descent" as opposed to Meggitt's original ideas that agnation and patrilocality would be the most effective, and perhaps the only, way to outride the competition over limited land resources. For example, the Kapauku Papuans of West New Guinea are patrilineally organized, but the individuals in the same group scatter throughout the large Kapauku territory and do not form patrilocal residential units. Since the lineal descent, whether patrilineal or matrilineal, is not relevant to the corporate group rights to use and control crucial land resources, people are expected to acquire their crucial lands and resources by individual efforts or inherit them from parents. There are indeed some lands corporately owned and maintained ("lineal territory"); however, they are all economically less important than the individually acquired (Saxe 1970:126-127, 131-140, 151-154; also see Pospisil 1965a:186, 1965b; cf. Herskovits 1967 [1948], 1965 [1952]). Inevitably, they do not maintain any permanently bounded area set aside for the formal disposal of their dead. The Ashanti, on the other hand, attain and legitimize the corporate group rights to use and control the land by virtue of matrilineal, rather than patrilineal descent (Saxe 1970:198). The land is believed to belong to the ancestors who are formally buried upon it, rather than to any individuals. The Bontoc Igorot of Luzon fall between the Kapauku and the Ashanti. Although they show the lack of corporate unilineal descent groups that control access to crucial resources and the absence of formal bounded disposal areas for their dead, there seem to be regular locational procedures followed (Saxe 1970:218-224). Saxe also changed "land resources" more generally to "(restricted) resources." Goldstein (1976:38) points out that Meggitt's formulation was "based on the cultural adaptations made by settled horticulturalists in a situation of scarce land." In essence, those who claim for land tenure by means of ancestral reference is given legitimacy base on the symbolic link between their ancestors and the place where they are buried within the disputed land; therefore, the inclusion of other natural resources will blur the point of debate and reduce the persuasive power of ancestral reference. These two changes made Saxe's hypothesis diverge from Meggitt's.

Third, Saxe added that the converse of the hypothesis will also hold: "if formal disposal areas exist, then a situation exists where there is a critical resource controlled by corporate group rights which have been legitimized by means of lineal descent from the dead (ancestors)" (Goldstein 1976:39). As Goldstein says, if it is to be tested against archaeological data, this addition will be very helpful for mortuary archaeologists.

In order to further refine Saxe's Hypothesis 8, Goldstein (1976, 1981) not only reexamined the ethnographic data Saxe used, but also studied 30 more societies in terms of settlement pattern, social organization, subsistence economy, inheritance rule, resource management, and mortuary practice. As a result, she added to Saxe's hypothesis the spatial dimension of mortuary practices, more specifically, the spatial positioning and organizational principles of disposal areas, which had previously been overlooked by archaeologists. She focused on two cemeteries of Mississippian society in the lower Illinois River Valley (Moss and Schild) and demonstrated that social categories such as age, gender, and class were reflected in the spatial organizations of burials (e.g., clustering in rows and on a mound) and the treatments of the interred bodies (e.g., body positioning and orientation and presence and absence of body containers and associated grave goods). In these two cemeteries, individual bodies were found lining or clustering together, which would suggest communal organization. The constructions of temple mound and what Goldstein assumed to have been “charnel structure” represent large energy expenditures for creating formal, bounded disposal areas. She concluded that “Mississippian society is organized on the basis of corporate or lineal descent groups with control access to crucial resources. The hierarchy of Mississippian sites is represented in mortuary practices as well, and reflects, on an increasingly larger scale, the progressive elaboration and incorporation of smaller corporate groups” (Goldstein 1976:263-264). Saxe’s Hypothesis 8 was reformulated with modifications as follows:

A. 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.

B. If a permanent, specialized bounded disposal area for the exclusive disposal of a group's dead exists, then it is likely that this represents a corporate group who has rights over the use and/or control of crucial but restricted resource(s). This corporate control is most likely attained and/or legitimized by means of lineal descent from the dead, either in terms of an actual lineage or in the form of a strong, established tradition of the critical resources passing from parent to offspring.

C. The more structured and formal the disposal area, the less number of alternative explanations of social organization apply, and conversely (Goldstein 1976:254-255).

Her refinements gained support from many archaeologists in synchronization with the revealed fact that many of mortuary mounds had been found around the limits of agricultural colonization where land suitable for farming might have been in short supply. The selected locations were considered as a corroborative witness for the inferred strategic use of ancestors' burials. The refined form of Hypothesis 8 has come to be called Saxe/Goldstein Hypothesis and widely applied to prehistoric societies.

In the Old World, a growing number of studies of the mortuary mounds in Europe have made it evident that during the Neolithic Period widely took place some changes in the architectural features of those mounds and in mortuary practices. More specifically, corpses became more accessible by the living in open chambers, and more human remains were added, reorganized, or even taken away, rather than left undisturbed. Bradley (1998:51-67) argues that these changes suggest the increasing importance of ancestors in the agricultural societies of the time, and that the agriculturalists came to obtain a new awareness of time. In synchronization with other archaeologists (e.g., Renfrew 1976; Chapman 1981), Bradley (1984) maintains that the act of disposing ancestors at a given location represents a claim for the agricultural land and that the claim could be legitimized by the physical presence of the ancestors' physical remains. This argument is a refined version of Mellissoux's (1972) assertion that agriculturalists have a stronger sense of genealogy than hunter-gatherers do, with a hint of Saxe/Goldstein Hypothesis. Whitley (2002:120) illustrates that "[t]he Merina of Madagascar (Bloch 1971), agriculturalists who bury their dead collectively in monumental tombs located in ancestral villages, quickly became the ethnographic analogy of choice for a whole generation of Neolithic archaeologists, processual and post-processual alike."

In the New World, McAnany (1995) points out that when there was a striking demographic increase during the first millennium C.E. in the Maya Lowlands, the inhabitants correspondingly began to employ a series of strategies not only to encode and preserve, but also display their genealogical information. These strategies involve: "repetitive, transgenerational occupation and refurbishing of household compounds (in which ancestors were interred); successive interment of the dead in ancestral shrines and pyramids … ; protracted treatment of the dead with display of skeletal pares and ashes in wooden and clay icons … ; and iconography and script replete with references to ancestors" (McAnany 1995:15). She strongly argues that "[c]ommuning with deceased progenitors was not a religious experience divorced from political and economic realities ...; rather, it was a practice grounded in pragmatism that drew power from the past, legitimized the current state of affairs (including all the inequities in rights and privileges), and charted a course for the future" (1995:1). Concerned with this pragmatism, many archaeological studies in the New World began to focus attention on the economic benefits among the venerating at intercommunity level, emphasizing a close linkage between the descent reckoning and the resource rights or territoriality (e.g., Gil García 2001; Lau 2002; de la Vega and Stanish 2002; Dulanto 2002b; Hastorf 2003b; Herrera 2003; DeLeonardis and Lau 2004; also see Fleming 1973; Hyslop 1977:151-152). McAnany has come to be recognized as a prominent intellectual "ancestor" for those who study prehistoric ancestors (e.g., her role as a discussant for the symposium "Ancient Ancestors in Global Perspective" at the 72th annual meeting of the Society for American Archaeology in Austin, Texas).

The Saxe/Goldstein Hypothesis was an attempt to search for cross-cultural, causal relationships among ancestor cult, mortuary rituals, and property transmission, which came out of the nomothetic neo-evolutionary archaeology during the 1960s and 1970s. After its eco-functional assumptions were harshly criticized during the 1980s (e.g., Shanks and Tilley 1982, 1987; Hodder 1984; Ingold 1986; Cannon 1989), Morris (1991) revisited and reassessed the hypothesis and presented two major findings. First, some ethnographic case studies suggest that the construction and maintenance of formal, bounded disposal areas (or cemeteries) may not be the only way to make claims for land resources and political power at their transgenerational transmissions. For instance, Freedman's (1966, 1979) study of the Ch'inan in Taiwan demonstrates that the agnatic principle functions effectively for inheritance as Meggitt (1965a) hypothesized and that only those who pass on their properties to offspring are recognized as ancestors; however, their ancestorhood will not be represented in the acts of constructing and maintaining cemeteries. Instead, those recognized as ancestors become the subject of veneration rites at ancestral halls that reposit tablets, each having the name of ancestor painted on it. Regardless of whether they achieve parenthood or pass on their properties to the next generation, the deceased individuals are all interred in the same burial. Among the Ch'inan, cemeteries do not serve as the medium to convey the ideological message concerning ancestor cult and property transmission. There is also a substantial degree of variability in the body treatments in those cemeteries that arises from economic factors, independent of the degrees of agnation and land scarcity. Similarly, Dillehay's (1990, 1995b) study of historic Mapuche ancestor statues/mounds illuminates that they may relate not only to the protection of land-use rights, but also to other variables such as the changing social relations between different lineages, long-term "kinship sedimentation," residential contiguity of related lineages, and profitable alliance making and trade-exchange affairs. In addition to the fact that the construction of burials is not the only way to stake a claim to resources and power, burials are not necessarily always related to kinship reckoning and land scarcity.

Second, a historical comparison of Athens (from the fifth to first centuries BC) and Rome (from the second century BC to the second century AD) suggests that the way in which material culture (e.g., cemeteries and ancestral bodies) mediates political conflicts and struggles in the society may be historically contingent. In these societies, the competitions and conflicts over the access to political power and land resources had developed and led to the polarization of social structure between citizens and slaves (or rich and poor, more powerful and less powerful). Within this polarized structure, deceased citizens were interred in reserved cemeteries, spatially distinct from those for the slaves, and their citizenship in the city-state was likened to the membership in a unitary descent group and testified by the place of their interment. Gluckman's (1937) definition of ancestor cult is not applicable to this type of societies. Both mortuary and ancestral rituals were concerned with the burial place, which blurs the distinction between them. The aggravated land shortage, however, brought change to this structure over time. In Rome, the state attempted to expand and conquer the surrounding areas and integrate the conquered people as a modified form of citizens. Accordingly, the significance of citizenship and of the disposal areas for the citizens also changed, and the burials no longer served as the indicator of descent group. In Greece, the city-states were too tightly packed to expand for additional lands. Some Greek communities sent their people to colonies in Italy, Sicily, and the Black Sea area, which in turn led to the development of egalitarian citizenship.

Based on these two findings, Morris (1991:161) concluded that the hypothesis may be applicable at some levels cross-culturally to prehistoric societies, but the inference of property transmission simply from the existence or increasing elaboration of formal cemeteries may cause huge misunderstandings. Instead, the relationships between ancestor cult, mortuary practices, and property transmission have to be examined in a wider perspective with an emphasis on the specificities of historical situations in the society in question.

3.1.3. Archaeological applications in the Andes

One of the best examples in the Andes to which the Saxe/Goldstein Hypothesis or a similar idea is applied is the study of *chullpas*[2] widely distributed in the highlands. As I discussed in the previous chapter, *chullpa* is an above-ground, open sepulcher or burial tower varying in size (within a range of one to five meters), shape ("igloo-shaped" or tower of a circular, elliptic, or rectangular plan), and construction material (fieldstones, cut stones, and/or adobes), usually accompanied by multiple human remains inside it – as many as 200 individuals in a particular case. Human remains are always accessible through small doorway(s). Some *chullpas* have niches in the wall and/or a subterranean burial chamber as well (Bandelier 1905; Hyslop 1977; Isbell 1997; Stanish 2003).

Hyslop (1977:150, Figure 1) surveyed 170 *chullpas* at 23 sites of the Lupaca Kingdom that flourished on the southwest side of the Lake Titicaca after the political demise of Tiwanaku around AD1100 (see Murra 1968) and studied their architecture and associated ceramics in reference to ethnohistorical documents to organize them in a chronological sequence and infer their origins and functions. His survey made some important findings. First, *chullpas* emerged during the Altiplano phase (or Late Intermediate Period, ca. AD 1100-1450). Hyslop explains that their emergence corresponds to the growing importance of ancestor-related beliefs and rituals in the area. Second, *chullpas* at higher elevations may be those for people higher in status. Hyslop recognized a pattern in the relation between size and placement of *chullpas* built during the Altiplano phase in Cota, Pucara, Chucuito, Kapalla, and Chukasuyu: The higher the *chullpas* were located, the larger they were. Third, *chullpas* kept being built in the subsequent Chucuito-Inca phase (or Late Horizon, ca. AD 1450-1550) and increased their size with new traits (e.g., interior niches and cornice moldings) through time (Hyslop 1977:155, Figure 6). Forth, some of the largest *chullpas* were decorated with Inca-style stonework. Hyslop suggests that this indicates that the local Lupaca elites reached their height of glory under the aegis of the Inca rulers. Besides in the area round the Lake Titicaca (e.g., Gil García 2001; de la Vega and Stanish 2002; Hastorf 2003b; Bongers et al. 2012), *chullpas* have also been recorded in wide areas such as the Peruvian northern, central, and southern highlands to the north (e.g., Squier 1877; Isbell 1997; Lau 2002; Herrera 2003; DeLeonardis and Lau 2004; Mantha 2009; Nystrom et al. 2010) and the Bolivian, Chilean, and Argentine Altiplano to the south (e.g., Rydén 1947:339-342; Rossi et al. 2002; Dedenbach-Salazar Sáenz 2012; Duchesne and Chacama 2012; Morales et al. 2013). This wide distribution implicates that regional variability and contingency need to be taken into account, rather than simply generalizing this particular type of mortuary practice. Guaman Poma de Ayala (2009 [1615]:226-234) recognizes clear distinctions in the form and function of mortuary architecture among different quarters of Tawantinsuyu. In the Lípez region (Potosí, Bolivia), rectangular *chullpas* began to be constructed during the Late Horizon, compared with the earlier emergence in other regions. Their emergence parallels the change in house plan from circular/elliptic to rectangular in the area (Nielsen 2001) and reinforces the analogy of *chullpas* as "houses of the dead" (Morales et al. 2013). Information presented by Isbell (1997) and Lau (2002) also suggests that the transformation in the funerary and residential structures in Callejón de Huaylas went hand in hand and may have begun by the end of the Middle horizon perhaps as local responses to external stimuli (from the Wari Empire).

Most relevant to the current study is Hyslop's (1977:151-152) argument that *chullpas* served not only as burials, but as land boundary markers for individual family units to show their control over the demarcated lands. His assertion has been advocated implicitly or explicitly by many Andeanists who recognize the significance of spatial distribution of *chullpas* (e.g., Isbell 1997; Gil García 2001; Lau 2002; de la Vega and Stanish 2002; Hastorf 2003b; DeLeonardis and Lau 2004). More recently, Herrera (2003) focuses on the settlement pattern in the Lower Yanamayo Valley on the eastern slope of the Andes and compares the distributions of three types of architecture (agricultural, administrative, and mortuary) of Tawantinsuyu and the local Marañón polity. His comparative study revealed competing strategies for the two political bodies to claim rights for the use and control over the Yunga oasis. Mantha (2009:159), on the other hand, views territoriality not merely as a mean for claiming rights over resources, but "as a dynamic strategy of social control through space and place" and attempts to explain why *chullpa* among others was employed to put that strategy into play. He focused on the *chullpas* in the Rapayán Valley on the western side of the Upper Marañón basin in Ancash and examined the relationship between *chullpas,* ancestor worship, and territoriality. Mantha argues that the construction of *chullpas* across the landscape during the LIP served "to draw social boundaries between insiders and outsiders by strengthening identity and social solidarity through ancestor worship" (Mantha 2009:159; cf. Helms 1998).

Furthermore, in the Lake Titicaca basin, Bongers et al. (2012) utilized Geographic Information Systems (GIS) and tested their assumption that *chullpas* were constructed at highly visible loci for their functions as burial structures to "perpetuate memory, delineate social ties and territories, and demarcate access to resources." The assumption was tested against the data from the western Lake Titicaca basin during the LIP (AD1100-1450) and Late Horizon (AD1450-1532). The study supported their assumption and revealed a high degree of clustering of *chullpas* in highly visible areas that could be seen from occupation sites and areas of economic importance such as Lake Umayo. After the political demise of Tiwanaku in the Lake Titicaca basin, the earlier phase of LIP was a turbulent period of high degrees of political fragmentation and warfare that led social groups to establish their settlements with fortifications (*pucaras*) in highly defensible areas (Stanish 2003; Janusek 2004; Arkush 2011). The defensive nature of these settlements suggests competitions over the limited land resources and ecological fluctuations (Binford et al. 1997; Arkush 2008). Correspondingly, the mortuary structures showed a major shift from the underground cist tombs during the previous time (Middle Horizon) and came to be constructed primarily above the ground with some exceptions of cave burials (e.g., slab-cist tombs marked by a ring of erect stones and *chullpas*) and distributed widely throughout the basin (Albarracin-Jordan 1992; Stanish 2003; Arkush 2009). Visually appealing methods of demarcating one's territories seem to have been more effective for the purposes of demonstrating continuous occupancy and claiming for land tenure. Approaching the later phase of LIP, some major *pucaras* emerged with a massive defensive system that embraced residential sectors, enclosed cemeteries, and sometimes pasture areas inside it. These *pucaras* centralized political powers and formed autonomous regional polities (Arkush 2011).

Based on an well-balanced employment of ethnohistorical documents, mortuary evidence, and iconographic interpretations, Isbell (1997) demonstrates that the *chullpas* were revisited by the living and served to link the living with the ancestors stored inside them. As mentioned in the previous chapter, he hypothesizes that the land-holding corporate group of *ayllu* revolved around the veneration of the ancestor mummified and enshrined in the *chullpas*. It is one of archaeology's advantages that we can explore the process of community creation and subsequent emergence of complex society in the long term. How complex societies came into being has also long been one of the hot debates among Andean archaeologists. Like Isbell, some emphasize the role of ancestor veneration in that process. Hastorf (2003b) attempts to elucidate when the community creation by means of ancestor veneration began in the Andes. She proposes that "early highland Andean community life was punctuated with periodic rituals, tying the family to the landscape, as the concept of territoriality was increasingly active" (Hastorf 2003b:309). Drawing on her research at the Formative site of Chiripa in the Titicaca Basin, she concludes that the earliest community was created through rituals surrounding ancestral energies.

Underlying most of the arguments discussed above is an ethnohistorical analogy. To a varying degree, they all rely on written documents such as Guamán Poma de Ayala's (2009 [1615]:282, Drawing 139) description and illustration of *chullpa*-like architecture as a land boundary marker, reports based on the Spaniards' inspections called *visitas* (e.g., Diez de San Miguel 1964 [1567]), and Cobo's (1895 [1653]:232-236) description that the *chullpas* in the Province of Caracollo (modern-day Bolivia) were built on the family property of the deceased individuals. It is worth reaffirming here that overreliance on ethnohistorical analogy would prevent archaeological studies of critical cross-checking with historical evidence. Furthermore, many of the studies discussed above did not fully examine by archaeological means whether the *chullpas* indeed served as the cult place for ancestor worship but simply assumed as such. Exceptionally, however, Baca et al. (2012) recently analyzed the remains of 41 individuals from the Tompullo *chullpas* in Arequipa during the Late Horizon (AD 1476-1534) with both uniparental (mtDNA, Y-chromosome) and and biparental (autosomal microsatellites) markers and revealed a kinship relation only among the male individuals of the studied population. They conclude that the Tompullo *chullpas* were constructed and maintained by one family of *patrilineal* descent. Morales et al.'s (2013) dendrochronological study of the construction materials for *chullpas* enables archaeologists to infer the detailed sequences of construction and repair and the duration of use of mortuary architecture for the inferred ancestral cult. In order to fully examine the relationship between ancestor cult, mortuary architecture, and territoriality, it would probably be important to gain a refined perspective scalable from intra-structural to macro-regional levels and to take a holistic and integrative approach for collecting the maximum amount of fine-grained information about mortuary and associated ritual activities (e.g., bioarchaeological studies of human remains, architectural studies of mortuary furniture, and regional settlement pattern studies).

3.1.4. Conclusion

The hypotheses formulated by Meggitt, Saxe, and Goldstein may hold to some extent in a certain type of societies, as Morris (1991:161) concluded. However, the obstinate pursuit of cross-cultural applicability may not be very productive for future research. Morris' ethnographic/historical research revealed that aforementioned Gluckman's (1937) distinction of the cults of the dead and ancestor should not be taken as a cross-culturally applicable criterion. Human reactions to demographic pressure and associated resource scarcity may take various forms in association with historical contingencies arising from cultural, economic, and ecological idiosyncrasies of the society in question. Most importantly, the above hypotheses left out an important question of whether the dead in question were indeed ancestors or not and uncritically assumed that "formal disposal areas" were the places where the presupposed ancestors were buried. How could we distinguish the burials of ancestors from those of non-ancestors? Is there any distinction between the two in the first place?

Concerning these questions, the economic approach that I discussed in this chapter focuses on the continuous use of the same burial location and mortuary architecture (e.g., *chullpas*) for the disposal of the deceased bodies by the family and lineage members who will also be interred there when they die. Recently, Whitley (2002) refers to the re-use of Neolithic chamber tombs during the earlier Atlantic Iron Age of Scotland and warns that such a continuous use of burial furniture at the same locale may not necessarily be considered as an indicator of ancestral burials. According to Whitley, the Fir Bolg and the Tuatha Dé Danaan in Irish mythology, who were traditionally associated respectively with the stone-built forts of the Aran Islands and the three passage graves of Newgrange, Knowth and Dowth at the Brú na Boínne, were not ancestors, but rather semi-divine powerful aliens. However, if one takes into account Helms' (1998) "first-principle ancestors" and Andean superhuman ancestors, it may be quite enigmatic that this type of semi-divine powerful beings are excluded from possible ancestors simply because they were biologically and genealogically unrelated to the present inhabitants in Ireland (or "Cosmological Others" in Helms' [1998] terms).

Another important question to address is whether archaeologists could establish symbolic relationships between the disposal of ancestral bodies at the cemeteries located at strategic locales for resource control and management on one hand and the commemorative rituals somewhere else on the other – e.g., funerary rituals at the cemeteries and ancestral rituals in the halls of tablets in Taiwan – without any *a priori* knowledge about the characteristics of funerary and ancestral rituals in question. Morris (1991:155) explicitly presents his pessimistic view that "there is nothing in archaeological data themselves which can tell us what the relationships were between ancestor cult, funerals and property transmission." It is very disappointing that Morris disclaimed archaeological approach to prehistoric ancestor cult and stated, "To insist on detailed, contextual studies of particular archaeological sequences is little more than a platitude" (Morris 1991:155). He then unhesitatingly resorted to historical data. Quite obviously, his arguments were theoretically very insightful, but did not provide any methodological solutions for the problems that he tracked down.

I advocate the theoretical stance that, as McAnany (1995) argues, ancestor cult is not a discrete package of religious beliefs and practices divorced from other social realities, e.g., economic and political, but rather a practice grounded in pragmatism aspiring economic benefits and political powers. In this section, I discussed the economic aspects of ancestor cult. I will move on to discuss its political aspects in the next section.

3.2. Political and ideological perspectives

As elaborated below, it may be problematic to consider the veneration practices *solely* in terms of kinship reckoning and economic merits and to expect cross-cultural generalities of ancestor cult as an adaptive behavior to given ecological fluctuations and subsequent resource scarcity. The creative power of ritual activities to structure and restructure sociopolitical landscape, discussed in the previous chapter, urges us to consider the political and ideological aspects of ancestor cult as well. For example, ancestor cult may be employed by a ruling group of a society to justify the existence and extension of social hierarchies and inequalities. Thus it may target at wider populations different in genealogical origins as opposed to family or lineage members, e.g., integrating those populations into a single sociopolitical system, rather than encouraging factionalism (e.g., the ancestor worship of the Qollahuaya in the Midwestern Bolivia and the Cubeo mourning rituals in the Northwestern Amazon as the integration of outside groups; see Bastien 1978; Goldman 1963). Such political and ideological aspects of ancestor cult for contending with the close-at-hand sociopolitical agendas and preventing or reconciling potentially conflicting interests among different groups of the society have not been discussed with equivalent attention as the pervasive economic approach above. The current study *equally* emphasizes both aspects and will discuss the former in this section of the chapter.

3.2.1. Postprocessual critiques of processualist approaches

During the era of New Archaeology, a group of archaeologists were concerned with timeless, cross-cultural regularities that they thought should be found among the ancestor cults different in time and region and focused attention on the adaptive strategies of societies from an ecological perspective. The occurrence of ancestor veneration was attributed to the economic merits gained from the venerating practices. The most representative example of this type of ecological/economic approaches is Saxe/Goldstein Hypothesis discussed in the previous section. Based on the same or similar logic, processual studies such as Chapman (1981) and Renfrew (1976) argued that interments in monolithic monuments and cemeteries emerged during the times of resource scarcity in the Mesolithic and Neolithic Europe and were used for territorial claims. Hodder (1984:53) criticized these processualist approaches and argued that "[t]he Saxe hypothesis not only presents a relatively passive view of society, but also, and more clearly, it disregards the cultural context so central to ideology and ideological functions. When individuals act socially, and represent their actions to others, they necessarily do so within a framework of meaning, and this framework is relative and historically constructed" (also see Shanks and Tilley 1987:43-44; Hodder and Hutson 2003:24-25). The ideology associated with certain material culture cannot be explained only in terms of social strategies and adaptive potential. Instead of relying on ethnographic analogy, Hodder emphasized the importance of archaeological records.

Focusing on the formal similarities[3] between the Neolithic long burial-mounds (or barrows) in Atlantic Europe and the long houses in Central Europe, Hodder searched for the clues in archaeological records to explain the meaning and function of the former, and the social contexts in which they emerged. The long houses emerged earlier, while the long burial-mounds began later, overlapped in the 4th millennium BC, and continued later. Hodder pointed to the diffusional link from the former to the latter and argued that the long burial-mounds in Atlantic Europe evoked symbolically the earlier and contemporary long-houses of Central Europe, but transformed the meanings of ideas and practices that diffused from Central Europe.

During the late 5th and 4th millennia BC in Central Europe, the long houses gradually increased their elaboration in terms of spatial organization, ritual activity, and decoration. Correspondingly, settlement pattern shows a gradual increase in the size of dispersed population units. In small-scale lineage-based societies that are expanding, such as those in the Neolithic Europe, one of the major concerns should have been to increase labor power, rather than to secure land tenure. "Competition between groups would have been in terms of control over reproduction. Productive success would have depended on women as reproducers, and descent groups would compete for the control of the labour power of offspring" (Hodder 1984:62). Hodder interprets the documented increasing significance of domestic contexts in Central Europe as the material manifestations of social strategies to obtain access to human labor and to hold women and descent under men's control. By the late 4th and 3rd millennia BC, however, as the land became more critical resources as a result of the competitions among expanding descent groups, women as reproducers were no longer of symbolic significance and lost their positions to promote competing claims from other groups. The extra-lineage ties established through women diminished their importance, and in turn domestic contexts lost their elaboration. Larger efforts were now made to restrict inheritance to particular descent lines and to confine the range of potential heirs to direct descendants. Competing claims to the inheritance of resources were restricted by de-emphasizing and devaluing (1) the domestic context, (2) the role of women as reproducers, and (3) the extra-lineage ties.

In parallel to the above infilling process and subsequent changes in Central Europe, there began the spread of agriculture from Central Europe and the Mediterranean to Atlantic Europe. Subsequently, there also seems to have been a concern to increase reproduction and labor power in Atlantic Europe. Strategies similar to those in Central Europe were probably adopted and women were highly appreciated; however, just as in Central Europe, domestic contexts (e.g., houses and pottery) gradually lost their elaboration through time, as the land became more critical resources than human labor. Nonetheless, unlike Central Europe, the position of women was continuously emphasized in the non-everyday ritual contexts of ancestors at the long mound-burials. Burials as the *houses of ancestors* were decorated with some depictions of women and female breasts. Only within this ritual sphere secluded from domestic contexts, women as reproducers were communally celebrated and recognized to be the source and focus of the lineage that is legitimated by the ancestral reference. Similarly in his *The Domestication of Europe* (1990), Hodder attempted to explain the changes in plans and locations of houses, settlements, enclosures, tombs, and iconographic elements to structural adjustments in relations among a set of binary contrasts (e.g., nature/culture, male/female, wild/domestic, outer/inner, front/back, light/dark, and life/death). He argues that the primary symbolic emphasis had shifted from house (*domus*; associated with female) to field (*agrios*; associated with male), as prehistory European society became more male-centered.

In contrast to Morris (1991:155) who was quite pessimistic about the efficacy of archaeological contextual data for studying the relations between social context and ancestor cult, Hodder's approach attempted to demonstrate the potential of archaeological data. He concludes:

> "Individuals can only act socially within ideologies which are historically contingent. The particular symbolism of artifacts can be examined by considering associations of form and use, and by showing that the symbolic significances inferred 'make sense' within active social strategies" (Hodder 1984:66).

Although a piercing criticism arose against his arbitrary assignment of universal meanings to the variables of binary contrasts (Trigger 2006:465), I advocate Hodder's stance in that he (1) gives a greater role to archaeological data that had been (and still is sometimes) subservient to ethnohistorical/ethnographic data in the studies of prehistoric religion in general, (2) emphasizes the importance of keeping a sharp lookout for sociocultural contexts and historical contingencies of the study area without being stubbornly attached to cross-cultural anthropological models of ancestor cult, and (3) attempts to explore the symbolic meanings of features and artifacts inferred to be associated with religious beliefs and practices.

3.2.2. <u>Ideological role of ancestors in the society with no private ownership</u>

The processual studies discussed in the previous section have demonstrated that the thirst for additional land resources is a major driving force for developing ancestor cult and maintaining formal disposal areas of ancestral bodies. If ancestor veneration develops only around territorial disputes given demographic pressure and increasingly scarce resources, it follows that no ancestor veneration is practiced in the societies without private ownership of land. However, in the Kachin society of Highland Burma (modern-day Myanmar), in which lineages do not have land tenure, ancestors are indeed venerated and play a significant role for social evolution. The following discussion is based on Friedman's (1984) arguments about the mechanism of social reproduction and the role of ancestors in the course of political transformations of the Kachin society.

The Kachin society is known to have been oscillating between egalitarian (*gumlao*) and hierarchical (*gumsa*) sociopolitical forms (Leach 1954; Maran 1967; Friedman 1998). In contrast to the rigid neoevolutionary vision of sociopolitical forms, Friedman (1984:162) advocates the Marxist approach and argues that one should take a historical perspective that structuralists left out and should investigate the system of reproduction, "a system whose properties can be defined only with respect to time." As opposed to the conventional evolutionist approaches that focused on the "[e]volution … reduced to something that occurs between stages" (Friedman 1984:161), Friedman views it as the outcome of historically contingent processes that are inherent in the sociopolitical forms themselves, and focuses on the relation between social reproduction and differentiation and on the ideological role of the supernatural to explain the above oscillation in the Kachin society.

Ancestors for the Kachin include not only biologically related, dead members of local lineages, but also supernatural ancestor-spirits in the celestial world. The Kachin set out these two types of ancestors as well as themselves in a single genealogical hierarchy of segmentary structure (Figure 3.3). The upper levels of this hierarchy are occupied by three higher ancestor-spirits from above: (1) the supreme earth/sky spirits (*ga/shadip*[4]); (2) the chief celestial spirits (*madai nats*); and (3) the territorial spirit (*mung* *nat*). Among these, *mung nat* plays a particularly important role for the genealogical frame of reference of the Kachin and cosmologically links the terrestrial sphere of the Kachin lineages with the celestial counterpart of the supernatural spirits. Regardless of the political form (whether *gumlao* or *gumsa*), the same hierarchical framework holds through time. The members of *gumlao* social units (e.g., hamlets [*kahtawng*] and villages [*mare*]) have a simple belief in a common descent from a single distant ancestral founder, who is simultaneously the territorial spirit, although the higher orders are not necessarily clearly defined and recognized. Nevertheless, it is very important to note that in the egalitarian *gumlao* society is already present the idea of segmentary structure that hierarchically organizes the ancestor-spirits. This idea will be instrumental in the later evolution of *gumsa* hierarchies.

In the Kachin society, whether *gumlao* or *gumsa*, the ancestral spirits (*nats*) are viewed as the source of all prosperity and wealth. The Kachin believe that they owe social reproduction and well-being to the spirits. Therefore, for example, "[s]urplus is represented not as the product of surplus labour, but as the 'work of the gods'" (Friedman 1984:172). For the purpose of expressing their appreciation to the spirits, a communal feast called *manao* is hosted by a local lineage that produces a substantial surplus. By propitiating those spirits during *manao*, the host intends to increase the wealth and prosperity of the entire lineage group. In addition to the propitiation of ancestral spirits, *manao* has another critical function – the distribution of surplus and subsequent accumulation of prestige. During *manao*, buffalo meat, rice dishes, and a great amount of rice beer are served to the entire village. This act of distributing surplus is converted into prestige for the distributor. The prestige acquired in this manner in turn raises the value of the daughters of the hosting lineage and their brideprice. As a result, first, there takes place a clustering of lineages into more or less closed groups of lineages of approximately equal status that are capable of paying a similar brideprice. The horizontal exchange of wives develops relative, affinal rank among lineages and transforms the egalitarian marriage circles of *gumlao* society into a more asymmetrical relation of wife-givers and wife-takers. The capacity to produce a large surplus and prepare *manao* not only illuminates the important link with the ancestor-spirits, but greatly increases the prestige of the hosting lineage. *Manao* is thus an essential element in the political economy of the tribal system that establishes a crucial link between production and social differentiation.

As it successfully accumulates a substantial amount of prestige by hosting *manaos*, a wealthier lineage inserts itself up into a higher segmentary level of the genealogical hierarchy, one level up closer to the higher *nats* and takes up the previously empty position at which all ancestral lines meet (Figure 3.4). Now, *mung nat* is identified as the direct ancestor of the emerging chiefly lineage. Developing vertical segmentary rank rather than horizontal affinal rank in this manner, the Kachin society gradually conforms structurally to the segmentary hierarchy of the supernatural sphere and eventually brings about the establishment of *gumsa* system. The *gumsa* society takes the form of what Friedman calls "conical clan" that consists of three segmentary ranks: hereditary chief (*duwa*), aristocrats, and commoners. Figure 3.5 illustrates both horizontal and vertical economic flow in *gumsa* hierarchy. S1, S2, and S3 respectively represent the flows of (1) brideprice (to a wealthier lineage), (2) tribute and corvée, and (3) redistributed surplus. In order for the chief to have a greater control over the total social surplus, he needs to increase both degrees of hierarchization (S1/S2; more wealth circulating within the horizontal rank) and of reciprocity (S2/S3; more tribute to the chief and less return to the subordinate local lineages).

In both *gumlao* and *gumsa* societies, each household has an altar to its own lineage ancestors; however, the location of the altars to the higher ancestor-sprits significantly varies between the two political forms. In the *gumlao* society, all of the higher ancestor-spirits are communally honored and venerated at village altars, whereas in the *gumsa* society, the altars to the two of the three major spirits – *mung nat* and *madai nat* – have been moved to the chief's house. Since the chief is the only individual in the society who can have access to and make offerings to *ga nat*, he practically monopolizes the access to all of the three ancestor-spirits. This means that he has secured a position as the "mediator between the community as a whole and the imaginary powers that control its survival" (Friedman 1984:174). As he compounds the degree of social differentiation and climbs further up the ancestral hierarchy, the chief "is no longer the representative of the community to the gods, but descends from the heavens as the representative of the gods to the community" (Friedman 1984:196).

In sum, the emergence of segmentary hierarchy depends upon (1) the differential rate of lineage surplus, (2) the differential accumulation of prestige gained through communal feasts, and (3) the appropriation and monopoly of ritual access to the higher ancestor-spirits. A greater amount of surplus that is accumulated and concentrated at the chief as the representative of the supernatural world will be further converted into the absolute superiority of his rank. It is erroneous to characterize *gumsa* society as feudal, because as mentioned above, the Kachin do not have private ownership of land. However, in this society, the veneration of both lineage ancestors and supernatural ancestor-spirits plays a significant ideological role and promotes a political transformation of an egalitarian society without private ownership of land into a more hierarchical one.

3.2.3. Political integration through ancestor veneration

When one claims for land tenure with ancestral reference, the most important ancestor to be addressed is the most immediate one in his lineage who died recently. Through this most immediate ancestor, his descent from distant ancestors and the continuity of his occupancy in his land can be claimed and demonstrated. Friedman's study of the Kachin discussed above also illuminates that the lineage ancestor serves as the "front man" for the lineage head to make and further monopolize a connection with the higher ancestor-spirits in the celestial world and to tap them for their supernatural power, from which all of the prosperity and wealth derive. However, there seems to be a particular case in which the closeness of biological link and genealogical relation to the ancestors in question has little or no significance at all. Liu's (1996, 1999, 2000) ethnographic and archaeological studies of ancestor cult in China are very important in this regard.

Liu (1999) demonstrates how ancestors were created and modified in China by comparing examples from three different time periods: Neolithic (4500-4200 BC; see Liu 1996), Shang Dynasty (1600-1100 BC), and modern. Liu argues that Chinese ancestor cult originated during the Neolithic period and gradually shifted its focus of veneration from the collectivity of ancestors to particular individual ancestors, which chronologically correlated with the major sociopolitical transformation from an egalitarian society (4500-4000 BC) to a more kinship-based hierarchical social system in a stratified society (2600-2000 BC)[5]. The veneration of individual ancestors came in full bloom during the time of Shang Dynasty (1600-1100 BC). More ancestral temples were built, and ritual offerings continued to be given to the ancestors (e.g., both human and animal sacrifices deposited in 2000 pits near 11 large royal tombs at the Anyang royal cemetery at Xibeigang; 1370-1100 BC). Concurrently, people began to identify their origin in more remote legendary ancestors (or "ultra-lineage/clan deities" in Liu's

[1999:604] terms) who may not have ever existed. This is well compatible with the widely prevalent notion of seniority that is still influential in the modern-day China. The logic is simple: the older those ancestors were, the greater importance they gained. In other words, the genealogically remotest ancestors were considered to be most powerful. In China, the rulers legitimated their reign by strategically linking themselves with very remote legendary ancestors who had hardly any genealogical traceability thereby the rulers successfully incorporated various ethnic groups within their territories into the political hierarchy under their control. These legendary ancestors include a group of mythological rulers called "Three Sovereigns and the Five Emperors" (ca. 2852-2070 BC) and the clan ancestors of the Three Dynasties (ca. AD 220-280). Among these legendary ancestors, the most influential was one of the rulers of the Three Sovereigns and the Five Emperors – the Yellow Emperor (*Xuanyuan Huangdi*). According to traditional written accounts, he was originally no more than a tribal leader, but later became a culture hero credited with a series of inventions (e.g., construction and domestication techniques, mathematics, and astronomy and calendar) and the victory in the Battle of Zhuolu against Chi You (Sima 1993), a monstrous tyrant of the ancient Nine Li tribe who had a bull-like bronze head with four eyes and a human-like body but with six arms holding sharp weapons. The victory of the Yellow Emperor over Chi You is now regarded as the establishment of the Han Chinese civilization. Since the king Ling of the Qin State built the Shangsi Temple in Wuyang to commemorate and honor this leader as a mythical hero king during the Warring States period (422 BC), many temples and tombs[6] began to be constructed and dedicated to this individual ancestor across China.

Many centuries later, the veneration of the Yellow Emperor revived in the early 20th century and was used for a political purpose by the Han people during the time of profound social transformation when they struggled against the aggression of foreign forces and corruption and incompetence of the Manchu imperial court. The governments promoted the veneration of the Yellow Emperor and tried to unite China's multi-ethnic population into a viable political unit, while some radical revolutionaries attempted to raise and inflame the national self-consciousness and nationalism among their people. As a result, the Yellow Emperor has not only acquired his status as the progenitor of the Han Chinese, but also transformed into a national symbol of a racially amalgamated descent group which embraced many non-Han ethnic peoples. Regardless of their genealogical places of origin, all Chinese people including non-Han ethnic groups have come to venerate him. Even the Mongols of the Yuan and the Manchus of the Qing admired him as a great warrior. More elegiacs have been carved on stelae and addressed the Yellow Emperor as the "founding ancestor of human civilization" (e.g., 16 stelae from 1911 to 1949 and 19 stelae from 1949 to 1991). In essence, this situation is a good example of what Anthony Wallace (1966) called "revitalization movement" in which a particularly charismatic individual, real or mythical, serves as the catalyst to unite and mobilize populations to establish a new social order that is perceived to be more satisfactory than what existed earlier. The Yellow Emperor's reputation for his charismatic abilities has increased through time, and the stories about his achievements have became more detailed and sophisticated in more recent texts (Gu 1963:176-184). Mausoleums, not necessarily containing the dead body of the Yellow Emperor, served for those who are unable to return home as a portal to link themselves to their homeland and ancestral kin. Their nostalgia was expressed in their visit to the ancestral burials. The momentum of the veneration practice has been even more escalated. In 1992, the Yellow Emperor Mausoleum Foundation was established, and its fundraising campaign successfully collected the donation of 4 million USD until 1997. The donation was spent to renovate the old mausoleum to build a new massive one.

Based on the revealed characteristics above, Liu (1999:602) concludes that "[a]ncestors can be created and modified, so the nature of the ancestral cult has changed through time." In the face of social unrests such as those due to foreign influences, which are equivalent to the formative conditions for revitalization movements, ancestor veneration in reference to remote legendary culture heroes may serve very well for the purpose of political integration and social consolidation. In this context, the closeness of biological link and genealogical relation between the venerating and the venerated cease to matter very much; inversely, the remoteness takes on more significance based on the notion of seniority (e.g., first-principle ancestor). As this case indicates, some type of ancestor veneration does occur at the supra-lineage level and targets at a wider variety of people, regardless of their genealogical origins. This mythical ancestor again conforms very well to the aforementioned Wallace's (1966) concept of "charismatic individual" who serves as the nexus and catalyst for the revitalization movement. Incidentally, Shimada (1983) proposes a similar scenario for the founding of the Middle Sicán polity.

3.2.4. Political and ideological aspects of Andean ancestor cult

Although much fewer than those concerned with the economic aspects of ancestor cult, some Andeanists do focus attention on its political and ideological aspects as well. For instance, Salomon (1987) points to an overarching, "genealogy-like" organizing scheme of Andean religion that encompasses different people, just as is the case with the Yellow Emperor in the modern-day China. He describes a stiff resistance to the colonial tax administration in the town of Andagua in Arequipa, headed by a native anti-tribute activist/ancestor priest Gregorio Taco. Focusing on the 18th-century criminal trial record in the archive of the Archbishopric of Arequipa (1751-1754) concerning this resistance, he discusses how the resistance crystallized around ancestor-cult priesthood. In so doing, he emphasizes a common structure of Andean religions that allows the multiplicity of humanity:

> "[W]ithin any local belief system Andean deities can be considered as points in a system of segmenting oppositions that ramify downward from the most cosmic or pan-Andean numina through regional gods (volcanos, etc.), to origin-shrines representing self-defined collectivities at descending levels of inclusiveness. Ancestor shrines with mummies manifest the lower, more local branches of the oppositional tree, corresponding to localized kindreds … The overall scheme is one of segmentary opposition, and its implication is that the more distant or different two human groups are, the higher the point in segmentary structure that unites them" (Salomon 1987:158-159, 162; also see Huertas 1970).

In sync with this traditional scheme of the Andean religions, the Andagua defendants felt that indigenous people in Andagua and the Spaniards in Arequipa were given different sets of special legal privileges and jurisdictions (or *fueros*) and held together only at a very high level that represents the whole 'Kingdom of Peru' and encompasses both the natives and the Spaniards (e.g., the viceroyalty in Lima). Therefore, it was quite unreasonable for them to comply with the order for tribute payment made by General Joseph de Arana who was a subject of another *fuero*. Legitimate for them was to admit the chieftainship of the major shrine priest Gregorio Taco who guaranteed the flow of wealth from the earth to them through the mediation of ancestors.

Mummified ancestors were thought of as an important mediator that connected people and the earth, and the past and the present. They were not only the progeny of the earth who resided in the openings of the earth, but also the progenitors of living people and apical members of local society. Through their mediation, consequently, people provided the earth with sacrifices, and the earth provided them with economic wealth in return (e.g., a profitable caravan, success in learning to weave, and so on). The mummy worship and associated practices centering on the ancestral shrines regulated ties of exchange and interdependence among the local people, and "these ties … constituted the major axes of affinity, commerce, and political faction formation" (Salomon 1987:161). In the same light, Nielsen (2008) argues that both the venerating and the venerated (including celestial deities such as the Sun and the Stars) were hierarchically placed in a single genealogical system that defined their obligations and justified the ascribed inequalities among them. All of the obligations and social inequalities will be handed down from generation to generation. In this regard, ancestors served as "points of collective reference" in the production and reproduction of social relations (Dulanto 2002a:97), regardless of the scale and nature of relations.

Some archaeologists, on the other hand, emphasize the ritual activities inferred to be associated with ancestor cult and argue that those activities of the cult followers helped to evoke and boost a sense of solidarity among them. Drawing mostly upon ethnohistorical evidence, de la Vega and Stanish (2002) argue that ancestor cult of the

Colla and Lupaca Kingdoms (or *señoríos*) in the Titicaca Altiplano manifested itself in the form of annual pilgrimage to the mortuary centers of Cutimbo and Sillustani where ancestral bodies rested. Their hypothesis is twofold. First, ancestral bodies and their burials at the mortuary centers served as an economic mechanism to reaffirm the ownership of land and resources (as argued in the previous section) and to create and reinforce the partnerships among neighboring communities. Second, the pilgrimages to those centers served as an ideological mechanism of social and political control. More specifically, the pilgrimages were employed to strengthen the integration and collective identity of pilgrims through the recognition of the links, whether genealogical or mythical, with their ancestors. Underlying their argument is Victor Tuner's vision of social function of ritual performance. De la Vega and Stanish find a parallel between the pilgrimages in the above kingdoms and those in more complex societies such as Tiwanaku and Tawantinsuyu. In the latter, the pilgrimage centers were temples and shrines dedicated to the gods, not burials of ancestors.

Through his archaeological and ethnographic studies of the Chilean Mapuche, Dillehay (1990) argues that ceremonial mound building revolves around burials and associated gatherings and rituals. In contrast to previous theoretical models that emphasize monumentalism as an elite theme, "often reduced to accentuated social hierarchy and elite control of surplus non-elite labour" (e.g., Willey 1962; Rowe 1963; Schaedel 1967 [1951], 1978a; Wright and Johnson 1975), he focuses on the "intricate social and ideological mechanisms that produce different monuments through time and space" within "changing relations and strategies between different social groups" (1990:223). Ethnographically, Dillehay revealed that ceremonial gatherings during the mound constructions and their renewals at the time of burials provided a political arena recruiting marriage and trade partners, legitimating land claims, and regulating the access of affines ("the living Others" in Helm's [1998] terms) to the land use inheritance rights.

Hastorf (2003b:308) sees Connerton's (1989) notion of "social memory" enacted in the bodily performance of Mapuche mound renewals. Connerton (1989) argues that the images and recollected knowledge of the past (or social memories) are transmitted and sustained by bodily ritual performances. Ritual is viewed as a critical set of corporeal activities that construct particular types of meanings and values in specific ways (Turner 1974; Kertzer 1988, 1991). For a greater solidarity of community, fluctuations in people's divergent memories require to be realigned periodically during rituals. Particularly in such non-literate societies as the prehispanic Andes, the bodily experiences and interactions with other people might have been critical media for conveying social memories, and the transmitted values and traditions could have anchored in the tangible forms such as images and bodily acts, which each individual can directly sense (Inomata 2006:805). Acting individuals are viewed as bodies, not just minds. As discussed in the previous chapter, structures never exist concretely in time and space, but exist only as memory traces and are instantiated in action.

3.2.5. Conclusion

The previous chapter illustrated that although ethnological generalizations of ancestor veneration are very helpful to present an overview of the nature, role, and capacity of ancestors, a shift of focus to ritual activities leads us to realize that the veneration practices seem not to be universal in nature but rather highly contingent on their own historical contexts and their relations with social institutions. The contingent nature of ancestor veneration would be even more pronounced, when thinking about why it is/was practiced. Thus, this chapter has comparatively explored the two major theoretical perspectives on this question: that which focuses attention on the economic aspects of ancestor cult and that which on the political and ideological aspects. In this section, I have put a lager emphasis on the latter. Major theoretical implications of the ethnographic, ethnohistorical, and archaeological cases discussed above include: (1) private ownership of land and territorial disputes due to increasing scarcity of natural resources may not necessarily be instrumental to the emergence and development of ancestor cult; (2) in some cases, appropriation and monopoly of ritual access to higher ancestral spirits as well as effective use of socioeconomic strategies (e.g., differential rate of surplus production and prestige accumulation by means of communal feasts) are rather more important for the emergence and development of ancestor cult; (3) those remote ancestors take on larger significance than lineage ancestors when politically integrating diverse people in an overarching hierarchical scheme (e.g., in the face of social unrest and external forces); and (4) remote ancestors may be arbitrarily modified, bedecked with mythical achievements (e.g., technological inventions and victories over strong enemies), and even more greatly honored.

In the next chapter, I will hypothesize that ancestor veneration was indeed practiced in the Middle Sicán society and demonstrate how I should methodologically approach this prehistoric ancestor veneration and what evidence I would need to define it in my archaeological records. Although the approach focusing on the economic aspects of ancestor veneration has gained popularity among archaeologists for explaining why ancestor veneration was practiced, those popular economic models seem not suitable for the inferred Middle Sicán ancestor cult. The major reason for this is that the ancestral burials and temples during the Middle Sicán Period were not constructed in the vicinity of critical resources of the time (to be discussed in Chapter 5). The site location does not conform to the locational principle of disposal areas discussed above. Contrarily, the political/ideological perspective seems to be much more suited for explicating the Middle Sicán ancestor cult. Thus, in favor of the latter perspective, in the next chapter, I will propose a hypothesis about the role of the inferred Middle Sicán ancestor cult.

NOTES

1 These features include priority of the relations between people over the relations to things, lifetime duration of personalized social bonds, concern for reproduction, notions of seniority and of anteriority, respect for age, and fecundity cult.

2 The word *chullpa* is an Aymara word that originally meant "binding a human body into a tightly flexed funerary bundle" (Bertonio 1984 [1612]) but somehow came to refer to the mortuary architecture where those bundles were stored, so widely beyond the region of its origin around Tacna and Lake Titicaca (Isbell 1997:162-163). Doyle (1988:107-108) points out that "the term *culpi* (*chullpa*) appears in only one instance in the documentary collection. The term *machay* was generic, while *chullpa* could well have been site-specific or language-specific or even reserved for a particular southern Peruvian type of circular tower form." *Chullpa* seems to have come into popular use in the southern Peru and the altiplano during the 19th century (e.g., the uses by de Sartiges and von Tschudi referring to the mortuary monuments in 1830s; Isbell 1997:161). Therefore, it is not a prehispanic term, but a modern misuse. This is why Isbell (1997) prefers to using a more generic word "open sepulcher" to refer to the mortuary

architecture where ancestral bodies were kept, particularly those in the areas of Quechua-speaking people to the north.

3 The similarities that Hodder listed include: (1) the rectangular or trapezoidal shape, (2) the ratio between length and width, (3) the location of entrance at the broader end of trapezoid, (4) the southeastward orientation of entrance, (5) the elaboration of entrance (e.g., decorated with large façades and attached to forecourts), (6) the tripartite division of plan, (7) internal decorations (e.g., incised geometric decorations on stones), and (8) the association with ditches flanking the long sides (Hodder 1984:54-59).

4 The supreme earth/sky spirits are a couple of the male spirit *ga nat* and the female spirit *shadip nat*. In rituals, the male spirit is dominant (Friedman 1984:173).

5 According to Liu, during the Neolithic period, ancestor worship evolved through four developmental phases reflected in different ritual practices. First, in an egalitarian society with no hierarchical social organization, ancestor veneration was practiced probably on behalf of and for the common interests of the entire community, as materially manifested in what Liu terms as “group-ancestor worship” mortuary pattern during the early-mid Banpo phase of the Yangshao culture (4500-4200 BC) at Longgangsi cemetery, southern Shaanxi. Second,

women marring outside the village were excluded from ritual transformation to ancestral status during the Shijia phase of the Yangshao culture (4300-4000 BC) (e.g., Shijia site in central Shaanxi). Patrilocality and return burial or re-burial may have been practiced. Third, there took place a major shift from the group-ancestor worship to the worship of individuals in a slightly stratified society during the middle-late Banshan phase of the Majiayao culture (2500-2300 BC) at Yangshan site in Qinghai. Elite individuals came to be worshipped as ancestors. Fourth, the worship oriented towards elite individuals was integrated into a kinship-based hierarchical social system in a stratified society (2600-2000 BC) at Longshan sites.

6 The most authentic one is found at the Mausoleum on Mt. Qiao, Huangling county, Shaanxi, relocated and renovated 14 times from AD 1325 to 1963. The mausoleum consists of various objects: (1) an ancient cypress tree claimed to have been planted by the Yellow Emperor, (2) his footprints on a stone, (3) a horn-shaped cypress tree transformed from the antler of the dragon which carried him to the heaven, (4) his image carved on a stone tablet and housed in the temple, and (5) many elegiacs addressing him carved on stelae (Liu 1999:605-606).

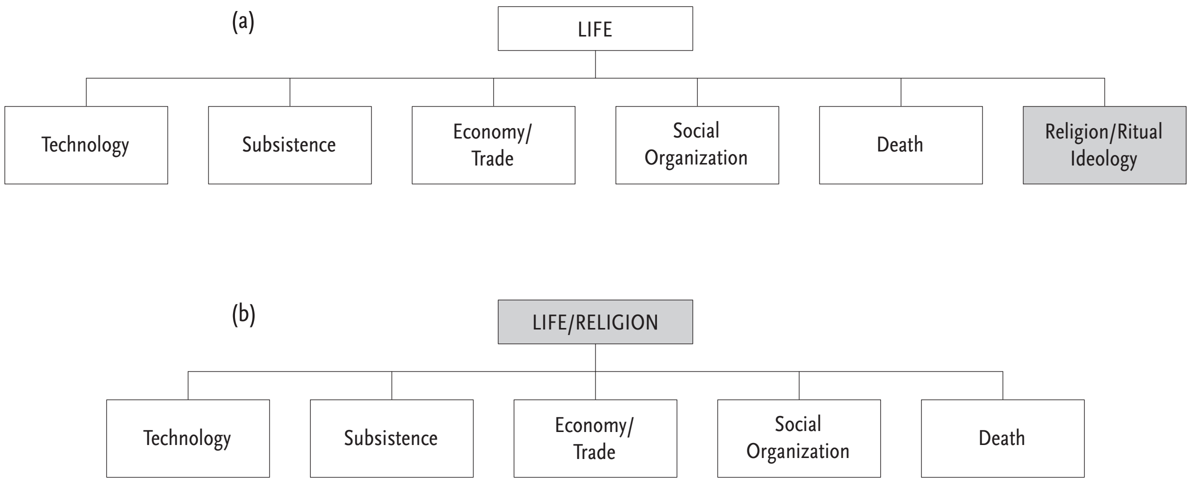


Figure 3.1. Two views of religion: (a) religion as one of the social subsystems that constitute an overall functioning system (subsystems chosen are not meant to be exhaustive) and (b) religion as an omnipresent, influential factor in society that triggers social change and stability (reproduced after Insoll 2004:23, Fig. 2).

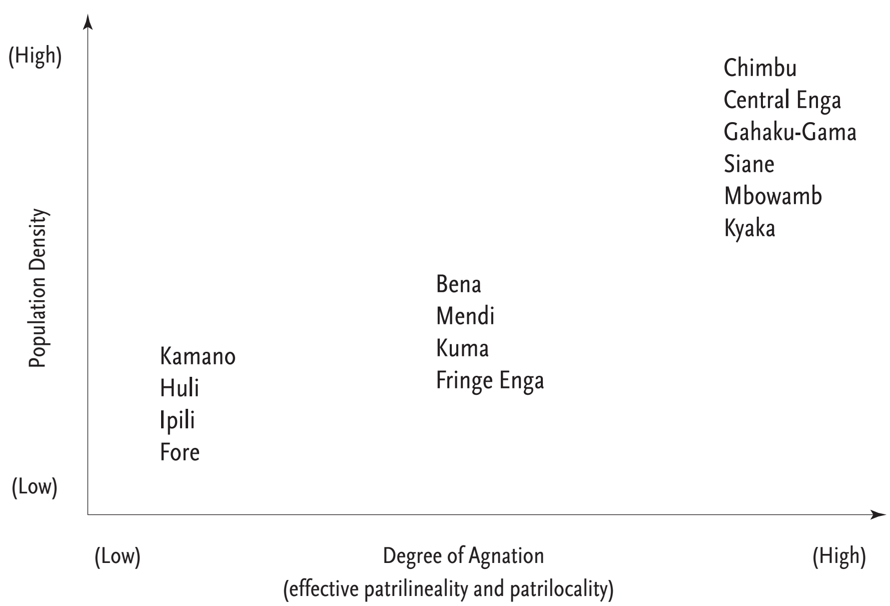


Figure 3.2. Positive correlation between population density and degree of agnation (reproduced after Meggitt 1965:279, Table 92; Saxe 1971:51, Fig. 8).

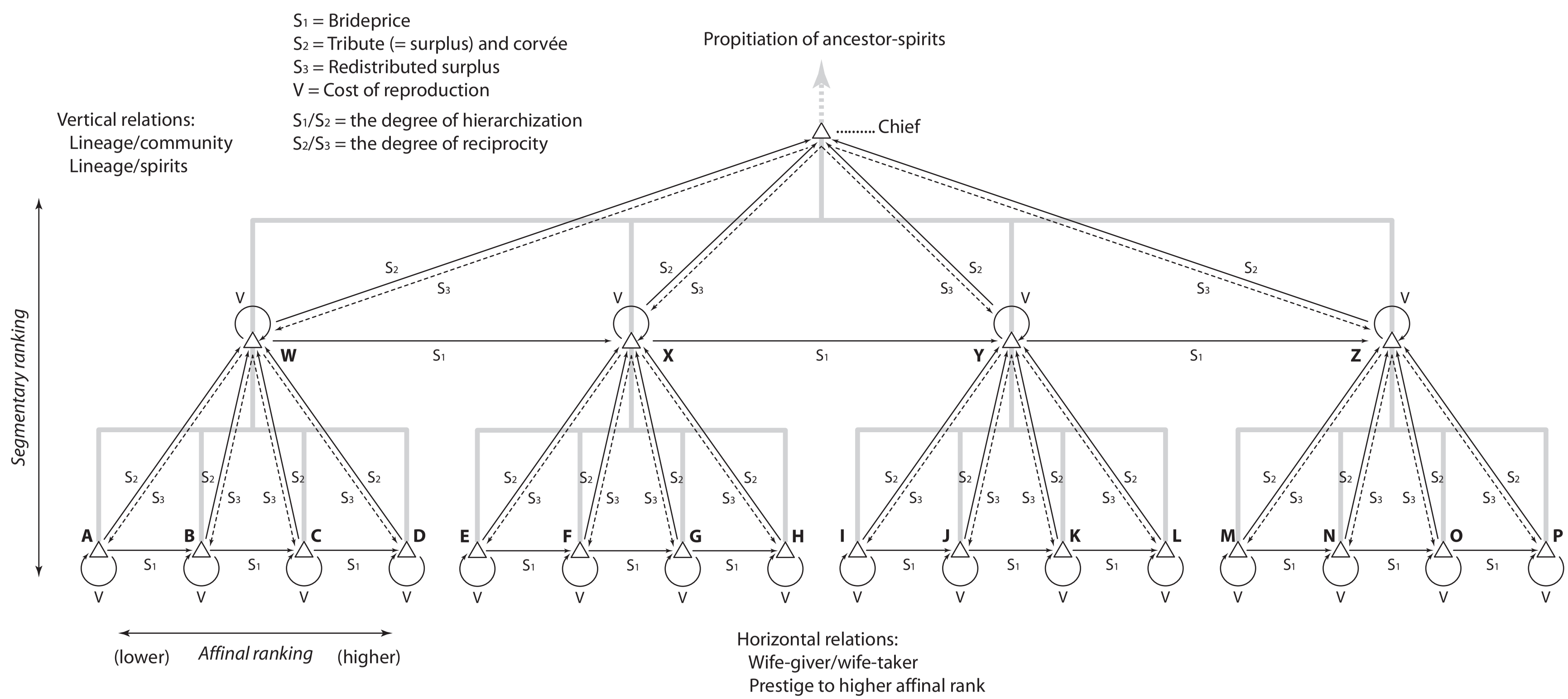


Figure 3.3. Horizontal and vertical economic flows in the gumsa system in the Kachin society (redrawn after Friedman 1984:175, 176, 179, Figures 5, 6, and 8).

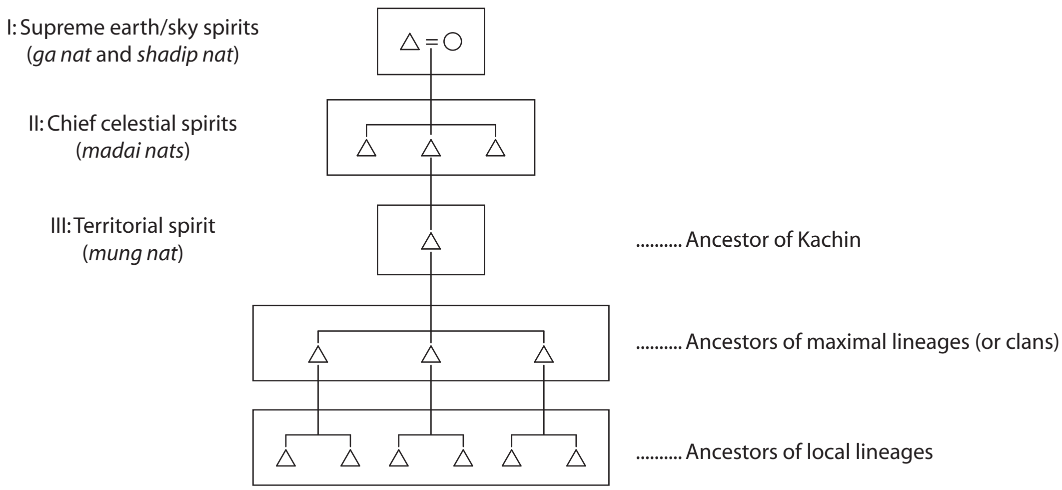


Figure 3.4. Hierarchical organization of lineage ancestors and supernatural ancestor-spirits (*ga/shadip*, *madai nats*, and *mung nats*). Note the focal position of *mung nat* as the common ancestor of the Kachin who connects lineage ancestors with higher ancestor-spirits (redrawn after Friedman 1984:172, Figure 3).

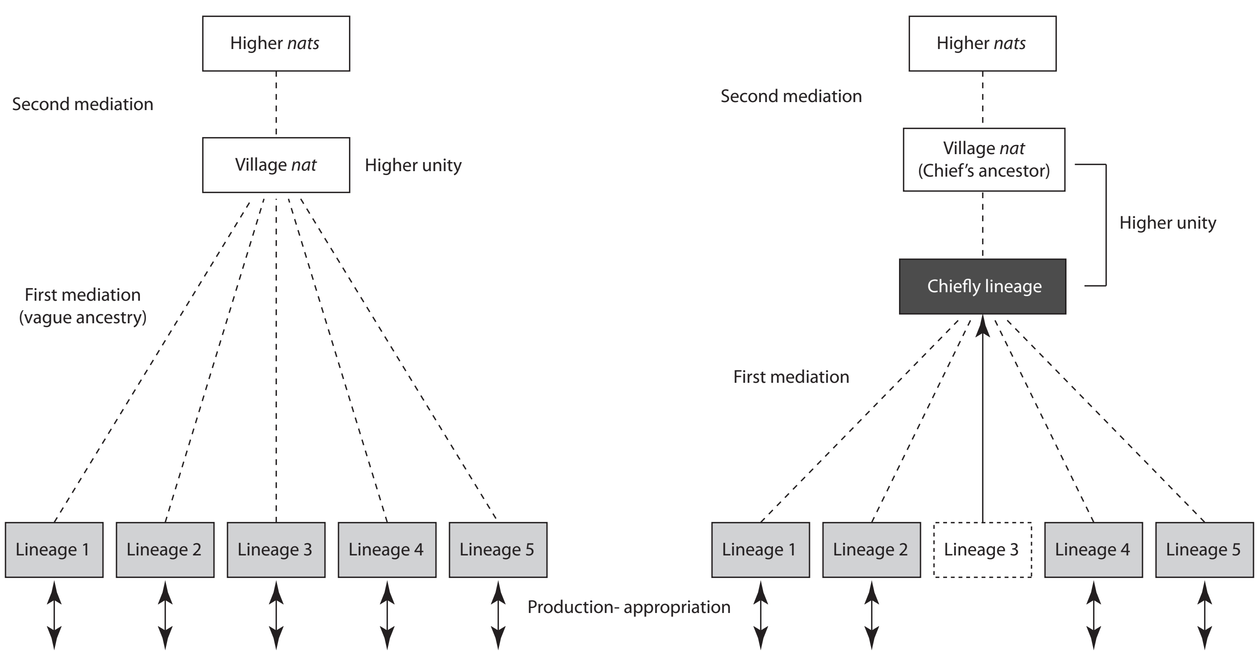


Figure 3.5. Role of ancestral reference for the political transformation. The transformation is triggered by the upward social mobility of a wealthier lineage that intends to become a chiefly lineage and takes up the previously empty position closer to the ancestor-spirits (redrawn after Friedman 1984:173, Figure 4).

CHAPTER 4

RESEARCH HYPOTHESES AND TEST IMPLICATIONS

In this chapter, I present two general hypotheses and discuss their test implications and expected material correlates on the basis of my theoretical arguments in the previous chapters. And, lastly, I also discuss the possibility that excavations and analyses may bear unanticipated results that require additional considerations for alternative scenarios.

4.1. Research hypotheses

4.1.1. Shimada et al.'s (2004) hypothesis

Shimada organized an interdisciplinary research team – Sicán Archaeological Project (called "Batán Grande-La Leche Archaeological Project" until renamed in 1983) – in 1978 and embarked on a decades-long investigation into the prehispanic people and culture in the Lambayeque Complex. The investigation was designed to consists of three stages: (1) establishment of the basic time-space parameters of the Sicán (as well as pre- and post-Sicán) occupation, (2) clarification of their economy and technology, and

(3) reconstruction of their social organization and religion (Shimada 2009a:82). In the early 1990s, Shimada reached the third stage of investigation and started excavating deep elite shaft tombs associated with major platform mounds at the site of Sicán (e.g., Huacas Loro, Las Ventanas, and La Merced; Figure 4.1). The successful excavations and subsequent material analyses of the East and West Tombs of the Huaca Loro temple mound led Shimada and his colleagues to present the above hypothesis that the Middle Sicán elites practiced ancestor veneration.

Shimada et al.'s (2004) hypothesis was based on multiple lines of evidence. First, bioarchaeological studies suggest that those who were interred under and around the Huaca Loro temple mound were elite individuals in the same patrilocal lineage and some attendant personages genetically and culturally identified with preceding Mochica ancestry. Corruccini's inherited dental traits analyses of the human remains excavated from the East and West Tombs revealed a second-order relationship between the male principal individuals of the two tombs, whereas Shinoda's mitochondrial DNA (mtDNA) analysis of the 24 individuals within the West Tomb revealed that 12 of them can be divided into four maternally related groups (Figure 4.2). In other words, the principal personages of the two tombs were perhaps in an uncle-and-nephew relationship but were not maternally related. These inferred elite individuals were also clearly distinguished from other non-elite masses in terms of quality of life (Farnum 2002). The attendant women in the West Tomb were divided into two genetically distinctive groups and found associated with artifacts of different cultural affiliations, e.g., a North Woman with Mochecoid bichrome pottery and a South Woman with a Middle Sicán blackware bottle (Shimada et al. 2004:377, Fig. 374).

Second, the cemeteries in the Sicán society seem to have been an important means to distinguish the selected elite ancestors from other dead, unlike the aforementioned Ch'inan in Taiwan where ancestors are venerated at ancestral halls and neither cemeteries nor ancestral bodies serve as the medium to convey the ideological message concerning ancestor cult and political transmission (see Chapter 3.1.2). Ground Penetrating Radar (GPR) surveys conducted by Watanabe unraveled a series of possibly intact tombs under and around the major temple mounds, which suggest a burial ground of a planned layout associated with each of the ceremonial mounds (Figure 4.3). Many of the tombs detected by GPR surveys have been excavated (e.g., Huaca Loro in 1991-92, 1995-96, 2006, and 2008, Huaca Las Ventanas in 1991-92, Huaca La Merced in 1991-92, Huaca Lercanlech in 2011-12, and Huaca Sontillo in 2003), and some turned out to be largely intact (e.g., East and West Tombs at Huaca Loro).

Third, a representation of the Sicán religious art also seems to lend support to the above hypothesis. A polychrome mural found decorating the interior surface of the enclosure wall of the temple atop Huaca Loro depicted a mythical personage with avian characteristics (e.g., split tail feathers and clawed feet) – what is now known as "Sicán Deity" (Figure 1.6). The face of Sicán Deity is reminiscent of the metal masks that adorned the bodies of the principal personages of the East and West Tombs. Shimada et al. (2004:389) infer that the mural helped to establish not only the sanctity of the ritual space on top of the mound, but also the symbolic connection between the Sicán Deity and the deceased personages interred underneath. The divine connection invoked by this artistic representation might have been instrumental in legitimating and aggrandizing the elite lineage, the ancestry of which was honored at this mound-cemetery complex. As further elaborated in the next chapter and beyond, this image may suggest the transforming abilities of the deified founding ancestor(s) of the Sicán society.

Fourth, some material evidence gained from test excavations within the Great Plaza suggests ritual libations and feastings that may have comprised integral parts of ancestral ceremonies and rituals. During the excavation of a trench located ca. 110 m northeast of Huaca Loro (SAP-HL'90-T7), Shimada exposed two large hearths lined with adobe bricks as well as associated refuse materials and vessel fragments: Hearth 1 associated with Floor 1 and Hearth 2 with Floor 3 (Figure 4.4). Examinations of ceramic sherds in and around the two hearths illuminate that the former probably dates to the early portion of Late Sicán (e.g., the upright angle of the middle portion of double inflection jar rims) and that the layers below it pertain to the Middle Sicán. Particularly notable is the large proportion of serving vessels (Montenegro 1997). Of the sherds collected from Hearth 1, a clear majority (ca. 80-85 %) was bowl and plate fragments, followed by bottle and jar fragments. Montenegro (1997) demonstrated that the bowls and plates from this area were generally well-made. Furthermore, the partially exposed Hearth 1 measured at least 2 × 2-2.5 m and was up to 25 cm deep. The large size, formality of construction, and associated pottery fragments of both hearths suggest their public/ritual rather than domestic/utilitarian use, more specifically, for a certain type of feast. In another test trench SAP-HL'90-T6 located some 50 m east of Huaca Loro, Shimada also discovered a sherd-lined and -covered "canal" running N-S. It measured ca. 30 cm in width, 15 cm in depth, and over 4 m in length. T-6 is one of the several test trenches that were set up for the purpose of testing the information from an interview with a local, old skilled *huaquero* (grave looter) that he saw an "*ushnu*-like" sherd-lined duct in the plaza area. *Ushnu*, as discussed in the next section, is an architectural complex or simply an opening through which the Incas gained access to the imaginary underground water circulation system and poured liquids as sacrifice to ancestors who were believed to travel and reside in the underground canals (Zuidema 1979; MacCormack 1991:66). Since these test excavations are basically quite limited in time and scale, whether the documented architectural features indeed represent the material manifestations of the inferred activities of feastings and ritual libations or not still remained unanswered. Consequently, the current study aims to further explore these food practices and ritual activities in the plaza area.

In sum, genetically close elite individuals, distinguished from the masses in terms of quality of life, are thought to have been interred in the tombs arranged in a planned cemetery associated with the large-scale multi-level pyramidal mound of Huaca Loro and honored and commemorated as ancestors during feasting activities held in the adjacent plaza area. The Huaca Loro temple mound is now known to have increased its size through at least three construction phases (Shimada 2009a:91), although the construction order of the mound and the associated cemetery is not yet very clear. The walled superstructure on top of the mound only accessible by a ramp also seems to have functioned as the locus for commemoration ceremonies for the venerated. A test excavation at the west base of Huaca Loro in 1997, furthermore, exposed a series of occupational surfaces above a nearly intact cemetery ground initially detected by GPR surveys (Figure 4.5). That each of the occupational surfaces had been burnt is indicative of post-interment ritual activities above the cemetery.

4.1.2. Two general hypotheses

For the current study, I present two general hypotheses. The first general hypothesis (General Hypothesis 1) determines whether ancestor veneration was practiced in the Middle Sicán society. In favor of Shimada et al.'s (2004) hypothesis, I argue that ancestor veneration indeed occurred in that society. This general hypothesis focuses on the material aspect of ancestor-making/commemorating rituals and explicitly addresses the question of how ancestors may be found in archaeological records.

General Hypothesis 1: *The deceased Middle Sicán elites achieved ancestorhood through a series of prescribed processes of mortuary program.*

For testing this hypothesis, I cast a spotlight on possible material indicators of Sicán ancestors that are based on the actual burial treatments documented by previous excavations by the SAP during the 1990s. These possible material indicators are spelled out as the following five Tentative Conclusions. These indicators are the possible material vestiges that the processes of making and remembering ancestors may have left in the burials and surrounding areas. The General Hypothesis 1 will be tested against these indicators:

Tentative Conclusion 1: *The bodies of the Sicán elite ancestors were buried in a seated, cross-legged position.*

Tentative Conclusion 2: *The face of the Sicán elite ancestors was covered by a Sicán Deity mask.*

Tentative Conclusion 3: *The bodies of the Sicán elite ancestors were placed in a shaft tomb of varied depth and size.*

Tentative Conclusion 4: *The shaft tombs of the Sicán elite ancestors were built close to the symbolic core (Huaca Loro) in a planned manner.*

Tentative Conclusion 5: *The buried Sicán elite ancestors were periodically revisited in and above their tombs and cared with special food and/or drink by the living descendants.*

The second hypothesis explores the role of the inferred ancestor cult and associated rituals in the Middle Sicán society. As discussed in Chapter 3, in anthropology and archaeology, the question has been explored from broadly two competing theoretical perspectives: that which focuses on the economic aspects of ancestor cult and another on the ideological aspects. It seems to be difficult to explain the inferred Middle Sicán ancestor cult from the economic perspective. It is unlikely that the inferred cult developed around territorial disputes given demographic pressure and increasingly scarce resources. The location of the Sicán ancestral tombs, for example, is not crucial in terms of any of the critical resources that ensured the prosperity of the Middle Sicán society. The thirst for additional land resources should not have been the major driving force for developing ancestor cult and maintaining the formal disposal areas of ancestral bodies. Contrarily, relying on the political and ideological approach, I would discuss the possibility that the inferred ancestor cult was viewed and employed as an ideological and political means to justify the existence and extension of social hierarchies and inequalities. Focusing on the food preparations and consumptions at the Great Plaza documented by the SAP test excavation, I examine the political and ideological aspect of ancestor cult from a perspective of food practice. I hypothesize that by hosting ceremonial feasts, the Sicán elites not only commemorated their ancestors, but also attempted to consolidate the highly stratified, multiethnic Middle Sicán society. Rituals and ceremonies serve a critical role particularly during the time of political and social unrest from one reign to another after the death of a ruler (van Gennep's "ceremonies of incorporation" at the post-liminality stage) and help to restore the disrupted social order. In Chapter 2, I discussed that the area for the commemoration ceremonies and rituals is oftentimes clearly delineated and reserved for that purpose (e.g., *cayan*). In case of the Middle Sicán state capital, a candidate site would be the large public space surrounded by the multi-level platform mounds — the Great Plaza. Ths general hypothesis is broken into three operational hypotheses:

General Hypothesis 2: *The commensal hospitality between the dead and the living in the form of ceremonial feasts helped the ruling elites consolidate the stratified and multiethnic Middle Sicán society.*

Operational Hypothesis 1: *The Sicán elites supplied provisions for the inferred feasts (e.g., special food and drink most appropriate for that purpose, and food vessels).*

Operational Hypothesis 2: *The Sicán elites invited to the feasts people outside their lineage (e.g., the members of other elite lineages and subordinate people under their rule, who are different in social class and even cultural affiliation).*

Operational Hypothesis 3: *During the inferred feasts, the Sicán elites arranged commensality between the dead and the living by devoting camelid crania and limbs to the deceased as offerings and sharing the rest of the body parts among other attendees of the feasts.*

4.2. Test implications and material correlates

The major objective of this dissertation is thus twofold: (1) testing the hypothesis that the prehispanic people in the Middle Sicán society (AD 950-1100) practiced ancestor veneration and (2) elucidating the role of the inferred ancestor veneration and associated rituals in that society. The general hypotheses presented in the previous section address either of these two. In this section, I discuss the test implications and expected material correlates for each hypothesis.

4.2.1. General Hypothesis 1: Processes of making and remembering ancestors

In order to archaeologically support the inferred ancestor veneration, it is essential to capture the material manifestations of ritual activities for making and remembering ancestors. As I discussed in Chapter 2, the cult of ancestors (as opposed to the cult of the dead) goes beyond mortuary practices such as interment and funerary rites and continues to hold protracted and ritualized interactions with the dead for service and tendance (see Chapter 2.1.2.3). The latter may occur not only in the burial location of ancestral bodies, but also in an arbitrary place such as the ancestral hall in Taiwan (Ch'inan) (Freedman 1966, 1979) and even the byre of an abandoned house as an ancestral shrine in northwestern Ghana (LoDagaa) (Goody 1962:384-389). These instances urge us to widen our scope and cover not only burial locations, but also broader contexts in which ancestor-related activities may have taken place.

Salomon (1995:320) argues that "[t]he minimal element of ancestor cult was the veneration of at least one dead person as the source of entitlement among a group of people who shared rights or identity." Taking this into account as well as a series of salient characteristics of ancestors described in Chapter 2, critical defining factors and conditions for the deceased to become an ancestor would include: (1) some beneficial belongings of the deceased that help to gain and maintain the well-being of his/her group (e.g., proprietary or use rights of resources and his/her role as the source and symbol of group identity); (2) the presence of his/her successor(s) who take over those belongings; (3) legitimizable, if not only genealogical, linkage between the dead and the living successor(s); (4) rituals for physically and symbolically transforming the deceased into an ancestor, which may include mummification of the corpse and its curation and display; (5) the place and structure for final disposal (including interment) of the preserved corpse; and (6) periodical or continuous ritual services and tendance, which are to be provided by the living descendants not only at the burial location, but also at some other place(s). By finding out material vestiges of human practices through which these factors and conditions are embodied, it may be possible to define ancestor cult archaeologically. In what follows, I put greater emphasis on the last three of the six above and discuss them in relationship to my hypotheses presented in the previous section. Besides the above general factors and conditions, furthermore, some regional and temporal specificities are also considered and discussed.

In the Andes, the sequence of making ancestor through dead-living interactions is expressed in a complex system of rituals that begin before physical death and are repeated over a long period of time even after the final placement of the deceased bodies. These ritual practices are in turn expressed materially in various contexts such as body treatments, burials in special places, grave goods, and iconographies related to the themes used during the rituals (Kaulicke 1997). Kaulicke (1997) categorizes those contexts into three basic components: (1) individuals (with primary, secondary, and tertiary treatments); (2) structures (natural or artificial, underground or aboveground); and (3) associated objects. I add to this (4) post-depositional ritual services (both in/above and away from the mortuary contexts).

4.2.1.1. Material context 1: Preserving the dead bodies in textile bundles ("individuals"). As seen in the anthropomorphic funerary bundles recovered from the excavations at Huacas Las Ventanas, Chornancap, and Cao Viejo (Figure 4.6; Elera 2009; Franco 2009; Wester 2013), the remains of the select members of Sicán elites seem to have been wrapped as or into textile bundles in a cross-legged and seated position (a.k.a. *fardo*) before final interment, even though the textiles cannot always be well recognized due to variable preservation conditions. The wrapped bodies took a seated posture with the legs crossed under the layers of textile. As discussed later in this chapter, this posture seems to have been a particular burial style allowed only for the higher Sicán elites. These funerary bundles were produced following prescribed procedures. Before they were bundled in textiles, the bodies were (1) either naturally defleshed and cleaned or mummified first and carefully defleshed[1] (Shimada et al. in press) and (2) had their face or head region painted with cinnabar, an intensely red, precious mineralogical material (mercuric sulfide) not available locally in the study area (perhaps imported from Huancavelica [Cooke et al. 2012]). The cinnabar paint was specially prepared by mixing imported mercuric sulfide powder with a binder. From the fact that the cinnabar paint has been found associated exclusively with funerary and associated ceremonial contexts, the application or sprinkling of this paint may have symbolized the idea of imbuing or giving life force or more broadly sanctifying the associated objects and activities. Thus, the presence of this paint may serve as a possible indicator to identify the locations of funerary preparation (e.g., production of funerary bundles and other materials used to decorate and accompany the bundles).

Such a practice to preserve physical persistence of the deceased individual as the preparation of funerary bundle is a critical component of ancestor cult in general. The preserved bodies of the inferred ancestors are inferred to have served as a portal for the living descendants to have a ritual access to the souls (*anymas*) of their ancestors, and perhaps to the Sicán Deity through the ancestors as well. Although it would be difficult to document due to poor preservation state of textiles in the study area, there are some cases reported, in which the textiles of the bundles were renewed periodically[2] (e.g., Segura et al. 2006; Shimada, Matsumoto et al. 2006). We should not ignore the possibility that the preserved bodies were curated and redressed after mummification and before the final deposition. Vestiges of such secondary or tertiary body treatments before the final deposition would be even more compelling evidence for the protracted interactions with the bereaved. Thus, the discovery of funerary bundles of elite bodies in a cross-legged and seated position (Tentative Conclusion 1) suggests a process of making and marking ancestors of the dead and supports the General Hypothesis 1.

Then, the facial region of the funerary bundles of the Sicán elites was covered with a ceremonial metal mask that represents the image of what we call the "Sicán Deity" – the omnipresent, central deity of the Sicán religion presiding over all beings and responsible for maintaining the world order (to be discussed in detail in Chapter 5).

This mask was also painted with cinnabar. I posit that covering the face of the deceased with a Sicán Deity mask was a critical part of ritual processes to transform him/her into a transcendental or supernatural being (equivalent or next to the Sicán Deity) and the subject of worship (Shimada 1995; Elera 2009; Shimada and Samillán 2014). It is inferred that the standardized face image of this mask was the symbol of transgenerational collectivity of ancestors that was completely detached and insulated from the individual idiosyncrasies and peculiarities of the dead as a mortal existence. Given this mask, therefore, the dead elite could join the collectivity and gain a new status as an eternal existence. To borrow Bloch's (1992) terms, the act of masking the idiosyncrasies and peculiarities of the deceased individuals helped to consolidate the supremacy of the transcendental aspects of human life and society over their everyday counterparts (e.g., mutability, ephemerality, and division). Thus, the discovery of a mask accompanying the funerary bundle (Tentative Conclusion 2) suggests another material correlate of ancestor-making and marking process and supports the General Hypothesis 1.

4.2.1.2. Material contexts 2 and 3: Burying the bundles with grave goods in shaft tombs ("structures" and "associated objects"). As with the Huaca Loro East and West Tombs, the masked funerary bundles of the inferred ancestral bodies were then interred and arranged in the shaft tombs of varied depth and size (Tentative Conclusion 3), together with attendant sacrificed individuals and grave goods. I posit that this is another integral process of making and marking ancestral bodies. Like the East and West Tombs, the arrangements of Kaulicke's three categories of burial components ("individuals" and "associated objects" within "structure") may be significantly different. I infer that the symbolic expressions of this particular mortuary program were twofold: masking and highlighting individuality. On one hand, the most personalized parts, faces, of the Sicán dead elites were covered with the metal mask with standardized features (e.g., inverted comma eyes). By masking their individualities, the deceased were able to gain ancestorhood and join the collectivity. On the other hand, their individualities were inversely pronounced and materially expressed by the ways in which Kaulicke's "structures" are organized. The individualities are expressed most frequently in the form of premortem social role by which the living recognized the dead individual and the desires and intentions of the living. From the layout of the West Tomb, for example, Shimada "read out" the overarching role of the principal personage between two different ethnic groups, Sicán and Mochica, in a multiethnic society (Shimada et al. 2004). Nevertheless, there is no prescribed way to know which one of the various roles that the deceased individual played is being represented in the material contexts. We basically have to exert ourselves to "decode" or "decipher" it from a complex ensemble of different funerary and non-funerary components.

The symbolic messages of the Sicán mortuary program seem to have been expressed not only in the intra-burial, but also in the inter-burial configurations. The results of GPR surveys conducted by Shimada and Watanabe around the major platform mounds at the site of Sicán led them to argue that the burial grounds under and around the mounds had a planned layout (Shimada et al. 2004). In this inferred layout, a new tomb or burial should have been constructed in order of precedence without destroying any of the previous ones. Archaeologists have focused attention on the continuous use of the same burial location and mortuary architecture (e.g., *chullpas*) as an indicator of ancestor cult and distinguished ancestors from non-ancestor dead. Although Whitley (2002) pointed to an archaeological case from the Iron-Age Europe that may counter it (see Chapter 3.1.4), this model seems to be applicable to the Sicán burial pattern. Finding new tombs and burials in the expected locations within the inferred layout (e.g., those detected by GPR at the west base of Huaca Loro in 1997) would corroborate the Tentative Conclusion 4 ("*The shaft tombs of the Sicán elite ancestors were built close to the symbolic core (Huaca Loro) in a planned manner*") and support the General Hypothesis 1. Placing tombs in a planned layout around the temple mound as the symbolic core seems to have been an important symbolic means for the associated elite lineage to express their kinship structure and demonstrate its continuity. Taking into account the revealed genetic proximity between the interred elite individuals above, I argue that the plans of the tombs might have been viewed as a physical representation of the family pedigree of an elite lineage. This layout might have made the living descendants aware of their relative positions within the kinship structure every time they buried a new ancestral body or revisited the cemetery for ritual care and tendance.

4.2.1.3. Material contexts 4-1: Visiting and caring for the burials ("post-depositional ritual services"). The elongated ritual interactions between the dead and the living in the form of visitation and tendance of burials and corpses after final depositions serve as a behavioral indicator of ancestor veneration that may have left material correlates in the ground. How were the inferred ancestral bodies in the underground funerary structures revisited and tended? In Chapter 2, I referred to Isbell's (1997) study of highland *chullpas*, in which he contrasted *chullpas* with "*huaca* cemetery burials[3]" and attendant ritual practices on the coastal regions. He argued that the *chullpas* were revisited by the living and functioned to link them with their ancestors, whereas the *huaca* cemetery burials were one-time events and were never revisited or modified once they were sealed. However, as mentioned earlier, some studies have countered his highland-versus-coast model and revealed that the burials on the coast were also revisited and modified after the primary interment (Hecker and Hecker 1992a, 1992b; Nelson 1998; Franco et al. 1998; Millaire 2002; Klaus 2003; Segura et al. 2006; Shimada, Matsumoto et al. 2006; Shimada et al. 2010; Shimada et al. in press).

During their excavation at the *underground* cemetery in front of the Painted Temple at Pachacamac on the Peruvian Central Coast, Shimada and his team discovered a largely intact, roofed chamber tomb that contained over 34 funerary bundles decorated with a false head and placed on two levels separated by woven mats (Segura et al. 2006; Shimada, Matsumoto et al. 2006). The tomb seems to have been used for a relatively long period of time, which coincides roughly with the total span of the Ychsma culture from the end of the Middle Horizon to the Late Horizon (ca. AD 1000-1533). A stratigraphic examination suggests that the top of the tomb roof and an inferred entry were only ca. 15-20 cm below the original ground surface, and perhaps were visible and readily accessible during the long period of its use. Shimada's team also recovered two clay-stone structures in the close vicinity (within a meter or so) which are inferred to have served as receptacles for food offerings or basin for libations for the dead (Figure 4.7; Shimada et al. 2010:141, Fig. 32). Although they were not associated with any opening or underground drain, each of them has a circular concave basin with smooth, superimposed clay linings atop a cylindrical base. Furthermore, radiocarbon dates indicate that funerary bundles had been moved various times within the tomb as new bundles were introduced (Shimada et al. 2010:119-120, Tabla 111; Takigami et al. 2014). One bundle had been partially opened and its cranium removed. Together with the open and shallow structure of the tomb that should have facilitated the reentry and the protracted care of the funerary bundles inside the tomb, these lines of evidence strongly suggest that the descendants revisited the tomb at least a few times during the period of service and carried out libations.

Similar burial structures that allow continuous visitations and ritual cares have also been documented at the site of San José de Moro in the lower Chamán Valley. Based on his analysis of a mass grave (M-U615), Rucabado-Yong (2008) argues that it had housed over generations a group of high-status individuals who were responsible for undertaking ceremonial rituals during the Early Transitional Period[4] (Rucabado-Yong 2008:365-366, Figs. 4-9). His argument is supported by: (1) the entrance attached to the tomb chamber that allows for continuous entry into the interior; (2) at least five sequential depositions of a total of 58 human bodies and attendant grave goods; (3) evidence of intentional movements of the corpses and alterations of their associations; and (4) presence of some burials associated with Mochica ritual paraphernalia. Another smaller burial structure dating to the Late Transitional Period, M-U1221 ("Tomb of Shamans") also illuminates reentry into the burial and modification and addition of the dead bodies. Although the burial finally housed six individuals as well as grave goods (e.g., Cajamarca-style and blackware pottery, spindle whorls, and stone and metal objects), the bodies seem to have been placed during three different phases separated with certain intervals long enough for all the soft tissues to be completely decomposed (Castillo Butters 2012:258-260). An adult male individual interred during the second depositional phase received eight human skulls probably as an offering.

In contrast, until recently, we had not had equivalent amount of fine-grained contextual data for revisitation of and reentry into tombs and burials at the Middle

Sicán state capital. The Sicán mortuary archaeology has suffered from devastating looting activities of long standing in the area. Shimada's excavations of the East and West Tombs in the early 1990s made it clear that the upper portions of the tombs had been badly disturbed by modern-day looters, and thus it was impossible to discuss the post-interment interactions above the burial ground. The only data available until very recently were gained from the aforementioned GPR survey and following test excavation by Shimada and Watanabe in 1997 at the west foot of Huaca Loro (Figure 4.5). The test excavation revealed many layers of burnt surfaces right above the mouth of a seemingly intact tomb. These occupational layers seem to contain some material evidence that suggests periodical visitation and care of the burial ground by the bereaved. As with the cases described above, I argue, "*the buried Sicán elite ancestors were periodically revisited in and above their tombs and cared with special food and/or drink by the living descendants*" (Tentative Conclusion 5). It is argued that the periodic revisitations and ritual cares of the deified ancestors by the living descendants served to maintain the symbolic access to the collectivity of the ancestral spirits and to the Sicán Deity, thereby the living could legitimate and reproduce their sociopolitical identity and power.

4.2.1.4. <u>Material contexts 4-2: Commemorating ancestral spirits away from the burials ("post-depositional ritual services")</u>. Besides the processes of making and remembering ancestors primarily at burial locations, the ancestors seem to have been commemorated and honored by the bereaved nearby or away from the burials in various ways. The colonial accounts of the "Incaic" ancestor cult, for example, report that the post-interment ancestral rituals consisted of some essential components. These include (1) making offerings to the *mallquis*, (2) all night vigil in honor of the *mallquis*, (3) confession, (4) drinking in the plaza, and (5) holding protracted feasts (Doyle 1988). Although it is very likely that the confession derived from the Christian practice, I suspect that others had their roots in the traditional religious beliefs and practices in the prehispanic times. In fact, the major principles of prehispanic ancestor cult apparently conflict with the Christian doctrine, past and present, that Jesus Christ is the only mediator who intercedes between God and human. In other words, the Christianity has nothing to do with any idea of deifying and venerating human predecessors, which made it difficult for the Spaniards to accept and understand the Incaic ancestor cult in its own terms. By examining the material correlates of the above components (except for the confession), we may be able to identify prehispanic ancestral rituals that occurred nearby or away from the formal disposal areas of the ancestral bodies. In this dissertation, I narrow my focus to and discuss the last two of the above components, drinking and eating, and determine from a perspective of food practices the possibility of post-interment ancestral rituals and ceremonies during the Middle Sicán Period.

4.2.1.4.1. Food as a symbolic medium of expressions. Together with drink, food serves as a highly charged symbolic medium of expression on numerous levels ranging from intercultural to individual (Dietler 1996; Twiss 2007). Different foodways may represent cultural distinctions (Sandstrom 1991; Ohnuki-Tierney 1993; Coe 1994) and on the intracultural level, various food-related ideologies and values help to form sub-cultural group identities. Oftentimes they are associated with categories based on age, gender, ethnicity, social status, economic wealth, and religion. Narrowing down to the individual level, particular foods and culinary patterns may be used to assert one's own personal traits and to express his/her identity (Brumberg 1988; Counihan 1992). Some archaeologists draw upon the concepts borrowed from practice-based theories (e.g., Giddens 1976, 1979, 1981, 1984; Bourdieu 1977; Sewell 1992) and stress the active role of individual agency and the importance of the above cultural categories (e.g., Brumfiel 1991; Claassen 1991; Hastorf 1991; Jackson 1991; Watson and Kennedy 1991; Gifford-Gonzalez 1993, 1998; Wadley 1998; Sørensen 2000; Bray 2003). Some share interests in Marxist concepts of status and power, and their relations with feasting (e.g., Dietler 1990, 1996, 2001; McCormick 2002), whereas others take an interpretive approach and explore the symbolic aspects of food and foodways (e.g., Russell 2002; Ray and Thomas 2003; Van der Veen 2003). As cogently expressed by the oft-quoted phrase "we are what we eat", foodways are multifaceted, sociocultural and ideological constructs for self-identification and expression. The sociocultural and symbolic significance of food shapes a particular culinary pattern that may be reflected to and materially visible in the ways of food acquisition, distribution, preparation, consumption, and disposal.

In the Andes, putting greater emphasis on the politico-economic role of ritual ceremonies and associated corporate feasts as a prime mover of social change as much as Hayden (2001, 1996) has advocated, many archaeologists have applied cross-cultural generalizations derived from ethnographic interpretations (e.g., Allen 1988) into pre-Incaic societies, especially those during the earliest stages of social development (e.g., Moseley 1975; Gero 1990; Hastorf 1993; Ikehara and Shibata 2005; Vega-Centeno Sara-Lafosse 2005, 2007; Haas and Creamer 2006; Ikehara 2007). These cross-cultural models have been, implicitly or explicitly, adopted to explain the transition from small-scale egalitarian to complex societies and the emergence of social inequality and differential access to resources, material and non-material. In contrast, few studies stress the culturally specific contexts for food practices and advocate the concept of food/drink as a symbolic medium of expression. I emphasize the latter theoretical perspective and argue that a careful observation and analysis of materially visible patterns of food/drink preparation, consumption, and disposal may allow one to explore the symbolic significance of the food practices in question.

4.2.1.4.2. Food and drink for ancestors. The view of food and drink as a symbolic medium of expressions leads one to consider that the dietary composition may be a telltale sign for the type of food practices. The food and drink devoted to ancestors may show adherence to certain species and/or be prepared and presented in certain manner most appropriate for that purpose. They should have been considered as “special” in the sense that they were clearly distinguished from non-ceremonial ones. These special foods may be defined by quality, rather than quantity.

The polytheistic religion of Shintoism in Japan has a series of rituals and festivals dedicated to multitudinous ancestral spirits and deities during all four seasons. The most critical component of those rituals and festivals is *shinsen*, food offerings for the spirits and deities (Iwai and Niwa 2007; Nanri 2011). The Ise Grand Shrine (a.k.a. Jingū), which enshrines the imperial ancestral goddess of the sun *Amaterasu-ōmikami* as well as other 124 deities, once owned as many as 1,350 territories from the sixth to the ninth centuries. The cooking ingredients for *shinsen* at Jingū were specially cultivated/ procured, brought as tribute from those territories, and cooked and served by exclusive personnel in prescribed manners. According to a Shinto priest, “*shinsen* is viewed as *kami* (God) him/herself and thus treated with the greatest care” (Nanri 2011:24). *Shinsen* can be divided broadly into two types: those served twice a day, mornings and evenings[5] (*higoto-asayū-ōmikesai*) and those during various calendrical ceremonies (e.g., *kannamesai*). Although *shinsen* shows a great variety across Japan, there are five fundamental ingredients, shared in common among all of the food offerings devoted to the 125 deities enshrined at Jingū: (1) rice, (2) salt, (3) water, (4) lotus root, and (5) persimmon (Nanri 2011:31). These foodstuffs were chosen because they have been most beneficial and appreciated in Japanese life since ancient times, and cooked and served in the manners that were preferred most by the people (Iwai and Niwa 2007:2, 19).

What about in the prehispanic Andes on the Peruvian North Coast? In order to archaeologically clarify which foodstuffs were special and most appropriate for ancestors, taxonomic identification of food remains devoted to the deceased is essential. It is Goepfert (2008, 2009, 2010, 2012), Cutright (2005a, 2005b, 2007), and Gumerman (1994) who explored this research question and implemented species identifications in the study area. Goepfert (2008, 2009, 2010, 2011, 2012) has studied zooarchaeological remains excavated at the major Mochica ceremonial sites on the North Coast (e.g., Huaca Rajada, San José de Moro, El Brujo, and Huacas de Moche [Huaca del Sol and Huacas de la Luna]) and demonstrated that camelids (llamas and alpacas) were the major animal offerings most frequently interred with the deceased (181 [93%] out of 194 burials analyzed[6]) among others (e.g., dogs, guinea pigs, bats, deer, sea lions, Peruvian thick-knees, macaws, parrots, owls, amphisbaenae, and snakes). Sixty-six percent of the all camelid remains was immature animals under three years of age, mostly three to nine months old (Goepfert 2011). Cranium and four limb extremities in combination were the most frequent body parts encountered in all Mochica burials (131 [67%] out of 194) (also see Castillo Butters 2000b; Donnan 1995; Millaire 2002). Although smaller in number, there were some cases in which the entire bodies were interred. Interestingly, the crania and limb extremities belonged to younger animals, while the complete camelids were generally older (over 14 years old). Regarding these distinctions in age and body parts selected, Goepfert (2012:109, 113) argues that the complete bodies of older animals were selected for higher elites who were interred in more elaborate burials (e.g., the Lord of Sipán), whereas the crania and limb extremities of younger animals were chosen for lower elites[7]. In the cases of the latter, it is inferred that the remaining body parts – more tender and fleshy – were consumed during funerals (or later in domestic contexts). The whereabouts of such remaining body parts after grave offerings have been a longstanding question for researchers (e.g., Donnan and Mackey 1978; Arsenault 1992, 1994; Shimada and Shimada 1997; Lozada et al. 2004). The combination of camelid cranium and limb extremities has also been excavated in Sicán burials. From the central chamber of West Tomb, Shimada (2009b:50) excavated a series of crania and limbs that should have belonged to at least 25 animals of varying age groups, together with other grave goods such as crowns, scepters, and ceramic bottles. Nevertheless, the central personage of this tomb is considered to have been a member of higher elite, rather than lower elite. Goepfert's explanation above may not apply to the Sicán case.

Cutright's (2005a, 2005b, 2007) reconstruction of ritual foodways during the Middle Sicán Period illuminates that a particular dietary composition can be used as an indicator for addressing special foods for the dead and distinguishing them from those for the living consumed at quotidian meals. She tried to clarify culturally constructed choices of ingredients, preparations, and culinary equipment for the dead from macrobotanical and faunal remains from 31 burials at the site of Farfán in the Lower Jequetepeque Valley. She revealed that the interred food vessels oftentimes contained only one species, primarily maize, and that such species as maize (*Zea mays*), beans (*Phaseolus* sp.), and small whole fish tended to co-occur. The frequency of maize was incomparably high (Table 4.1). Maize and beans occurred either in a cooked or crude form. Gumerman's (1994) study of burial food offerings excavated at the nearby site of Pacatnamú, although focusing on the previous Mochica period, also revealed that maize was the most predominant item among others. More importantly, his study illuminated a deliberate selection of maize of a particular size range reserved for the dead (Table 4.2). Compared to the smaller ones of 8 to 14-row cob found in the midden and fill deposits, which are inferred to have been consumed during daily meals, the maize cobs for the deceased had 8 to 16 rows of kernels with a mean of 13 and a mode of 14 rows. Although the meaning of maize for the dead is yet to be explored, it is clear that the living chose and served maize of larger cob for the dead. The same type of identification study is much needed at the site of Sicán. A comparison of the results from the Middle La Leche Valley with those from the studies by Cutright and Gumerman in the Lower Jequetepeque Valley is of special interest.

4.2.1.4.3. A special place to feed ancestors. As with the protracted interactions with the dead for service and tendance at ancestral halls in Taiwan, the food and drink for ancestral spirits and deities are oftentimes presented at a specially built structure. In the case of the Ise Grand Shrine noted above, preparations and offerings take place at a structure with copper gambrel roof called *Kaguraden* (or *Mikeden*) and located within the Inner Sanctuary of the shrine (Figure 4.8). Similar structures may be found in the prehispanic Andes as well.

I mentioned earlier that the modern-day Kallawaya people in highland Bolivia believe that life is a cyclical sequence that begins and ends at *Uma Pacha*, the mythical underground world of the dead (see Chapter 2.2.1). Similarly, the Incas also believed in a cyclical movement of life. In the course of making an ancestor of the deceased in *Tawantinsuyu*, the dead body was carefully embalmed to be preserved for years (Cobo 1990 [1653]:39-40). The preserved bodies of the dead Incas (*mallquis*) were periodically summoned to major public ceremonies and participated in political negotiations (Gose 1996). The *anyma* of the deceased, on the other hand, was believed to come out of the deteriorating flesh and to enter and reside in *upaimarca*, the ultimate source of life. Because the ancestral spirits were believed to travel through mythical subterranean hydraulic systems that originated in *upaimarca*, they were fed by pouring liquid onto or into the ground (Betanzos 1996 [1551]; Arriaga 1968 [1621]; Cobo 1990 [1653]; Doyle 1988; Duviols 2003). It is in this context that *chicha*, especially those made out of maize, was highly esteemed and critical for ceremonial gatherings, as recorded ethnohistorically in the highlands (Rowe 1946:292-293; Murra 1960:397; Zuidema 1979; Salomon 1987; Lau 2001, 2002) and confirmed archaeologically (Morris 1979).

The locus for pouring *chicha*, which is oftentimes accompanied by an altar-like masonry structure and/or elaborately adorned sacred images of the Sun and ancestors (Guaman Poma de Ayala 1956-66 [1615]; Cieza de León 2010 [1871]; Rowe 1979:74-75; Hyslop 1990:69-101; Moore 1996b:792), has been ethnohistorically and archaeologically well-documented and known as *ushnu* (e.g., those at Haucaypata, Vilcas Waman, Island of the Sun, Huánuco Pampa, and Jauja Tambo). Quoting a Spanish conquistador Juan Ruiz de Arce's chronicle on his visit to *Coricancha* (the most sacred temple dedicated to the Sun placed at the heart of the Incaic Cuzco), MacCormack (1991:66) defines *ushnu* as a "an opening giving access to the underground drains that channeled liquids poured as sacrifice into the earth, thereby sustaining its powers" (also see Zuidema 1979). The fountain is a gateway to the imaginary underground canals that linked water sources (e.g., Lake Titicaca often identified as *upaimarca*) and formed a part of great water circulation systems of the world (Bastien 1978; Urton 1981; Sherbondy 1992). It is important to note that the *ushnu* is not associated with the disposal areas of the ancestral bodies, although it serves as the receptacle of liquid offerings to ancestors.

Ushnu has often been associated with a platform nearby. This is why many archaeologists erroneously call such a platform *ushnu* (e.g., a small platform along the southern edge of the Pilgrims' Plaza at Pachacamac). The construction of multi-level platforms is an architectural tradition prevalent on the North Coast in general. Although highland *Tawantinsuyu* and coastal Mochica and Sicán were geographically separated in addition to the temporal gap between them, it is possible that the Incas integrated this mound construction tradition into the architectural configuration of *ushnu*, after they conquered the coastal polities. Various *ushnus* have been found associated with a platform at administrative and ceremonial centers and prevalent outside of the Valley of Cuzco. Staller (2008:285) points out that archaeologists have maintained that this peculiar configuration of *ushnu* and platform in a plaza may be connected to an ancient coastal tradition (Agurto Calvo 1987:70; Hyslop 1990:72-73). Zuidema (1979:352-357) also emphasizes a close association between *ushnus* and the conquered regions of the Inca realm on the coast (also see Meddens et al. 2008). The discovery of a similar architectural feature for ritual libations, like *ushnu*, and more favorably material residues of the drink inside the feature and other objects that invoke ancestors would be important lines of evidence to discuss the practice of feeding and caring ancestors.

4.2.1.4.4. <u>Food and drink for the bereaved</u>. During the Shinto rituals and festivals, *shinsen* is followed by *naorai*, commensality between people and ancestral spirits and deities (Iwai and Niwa 2007; Nanri 2011). The significance of *naorai* is that the living enjoy the grace and divine protection of the spirits and deities, have their spiritual powers endowed, and create a sense of oneness with them by consuming the same food and drink that the spirits and deities "consumed." Similarly on the Peruvian North Coast, as mentioned above, Goepfert (2012) suggests that after the grave offerings of crania and limb extremities of camelids, the remaining meaty parts were consumed by the bereaved during funerals (or later in domestic contexts) in the prehispanic Mochica society (See Shimada and Shimada 1997 for the Middle Sicán case). Thus, we should not overlook the possibility that the food and drink served for ancestral spirits were subsequently consumed by the living during and/or after the ceremonies. In addition, based on her ethnographic research of the people of Sonqo in the Cuzco region, Allen (1988) insightfully reports on how force-feeding and intoxication open communication between the living and the dead that allows for a flow of energy and support. Hastorf (2003a) points to a similar way of interacting with ancestors. During a libation associated with ancestor veneration, "[f]ermented drink transforms the participants [into the ancestors] so that they can feed the ancestors through their own consumption. One must fill up with drink so that the extra can be transferred to the ancestors" (Hastorf 2003a:547). Food/drink consumptions on the part of the living do carry a symbolic significance and deserve more research attentions.

4.2.2. General Hypothesis 2: Ideological and political role of ancestral rituals

The death of a ruling elite must have introduced a series of confusions into the society. During the transitional period from one reign to another after the demise (equivalent to van Gennep's post-liminality stage), important social agenda, besides transgenerational transmission of resources, privileges, and obligations, will surface to the conscious mind of the heir. To name a few, the social relations altered by the loss of the former ruler have to be redefined, while a broader social order must be restored. I argue that the ceremonial activities that occurred at the Great Plaza during and after the funeral of the former ruler served not only to commemorate and honor the deceased, but also to redefine the social relations among the bereaved (lineage members and cult followers) and incorporate the community back into the normal but new course (e.g., Hertz 1960 [1905-06]; Van Gennep 1960 [1909]). There might have occurred political negotiations among the bereaved and social display by the new ruler and entourage of their legitimacy, material wealth, and prospective view of their reign, addressing especially the cult followers (e.g., Gluckman 1937; Goody 1962). These political interactions are inferred to have taken place over the commensality between the living and the dead. The second general hypothesis thus puts forth an idea that ceremonial feasts sponsored by the Sicán elites for the purpose of commemorating ancestors collaterally had an ideological/political role to consolidate the diversified Middle Sicán society. Based on multiple lines of evidence, the Middle Sicán state is inferred to have been a highly stratified, multiethnic society consisting of rigid social classes as well as different ethnicities, primarily the ruling Sicán and the subordinate Mochica.

4.2.2.1. Diversification of the Middle Sicán state. Shimada's decades-long research in the study area has made it evident that there were, at least, four different social tiers in the Middle Sicán society: higher and lower elites, commoners, and subalterns (or low-status commoners). Within the highest two tiers, men are inferred to have had a higher status than women. For a period of time, anthropologists had uniformly emphasized the positive correlation between funerary elaboration and social complexity. During the two decades since the end of the 1970's, in contrast, misrepresentationist anthropologists overrode this prescribed correlation and began to report the variability in treatment of the dead primarily brought about by the interventions of the living (Hodder 1982; Parker Pearson 1982; Cannon 1989; Metcalf and Huntington 1991). In the Middle Sicán society, however, social attributes seem to have been faithfully reflected in the mortuary programs to some extent. Table 4.3 illustrates that the status distinction can be made in terms of the accessibility to precious metals and other natural resources and craft products of varying quality, and burial positions (Shimada et al. in press). High-karat gold alloy objects accompanied only the high elites who were interred in a seated and cross-legged position, while the low elites who were buried in either a seated or extended position gained access only to low-karat gold alloy (*tumbaga*) and/or gilt copper objects. When the groups of lower status attempted to mimic the mortuary practices of the higher status, they replaced some objects and materials by those similar in appearance but of lesser value (e.g., ocher for cinnabar). This differential access to precious items and resources among different social tiers is clearly represented by a metal model that depicts a scene in which an elaborately attired individual is being carried on a litter by four moderately dressed individuals (Figure 4.9; Shimada 1994a:36, Fig. 12).

Recently, Shinoda's comparative analysis of the Middle Sicán mtDNA samples revealed notable differences in relative frequencies of haplogroups that existed between the Middle Sicán elites and the non-elites, although the sample sizes of the two social statuses are relatively small to be conclusive. The elites were dominated by Haplogroup A (A2), which tends to be more common in the Northern Andes, while the non-elites feature a far greater frequency of Haplogroup D (D1), more common in the Central Andes (Klaus et al. n.d.). Quite notably, this clear distinction between the people from the two social classes appears to have corresponded not only to their biological variability, but also to a distinction in their cultural affiliation. Recall that the aforementioned symmetrical interment of nine women on the north and south sides of the antechamber in the West Tomb simultaneously reflected significant biological, cultural, lifestyle, and status differences (Shimada 2007; Shimada et al. 2004). Corruccini's dental trait analysis unraveled that the North Women, consistently associated with Mochecoid artifacts, are relatively quite heterogeneous among themselves and may represent unrelated (perhaps non-local) people who married into patrilocal context, in contrast to the relative biological proximity and homogeneity of the South Women. The above genetic distinction between the elites and the non-elites is applicable here, and the North and South Women are also characterized by two mutually exclusive sets of haplotypes (Shimada et al. 2004, 2005, 2006). It is possible that the North Women were concubines of the principal personage of the central chamber, who were taken from different areas of Sicán dominance.

I infer that the peculiar configuration of the West Tomb represents a political integration of Mochica people, a major subordinate group in the Middle Sicán society. Other archaeological data suggest that the Sicán elites were tolerant of the distinct cultural identity of the Mochica ethnic group. For instance, Taylor (2002; also see Shimada and Wagner 2007b) points to a concurrent production of the Sicán and Mochicoid ceramics at Huaca Sialupe in the Lower Lambayeque Valley and suggests a good degree of autonomy permitted to the artisans. Klaus' (2003) mortuary analysis at the same site unraveled the persistence of the Mochicoid burial customs under the Sicán administration. A similar stylistic and technological variability has been noted in the Middle Sicán copper alloy production in various smelting sites throughout the Lambayeque region (Shimada and Craig 2013). The persistence of the Mochica ethnicity manifested in burial program has also been reported by Klaus in an area just south of

Huaca Sialupe (Klaus 2008, 2009; Klaus and Tam 2007, in press). These instances strongly suggest that the seemingly monotheistic Sicán rulers seem to have practically given their subordinates cultural and religious autonomy to some extent. Furthermore, Shimada and Maguiña (1994) report that Virú (a.k.a. Gallinazo) style necked jars were excavated from the secure Middle Sicán contexts and allude to the concomitance of the Sicán and Virú ethnic identities in the Middle Sicán society.

4.2.2.2. Strategies for integrating subordinate groups. Based on the aforementioned paucity of archaeological evidence of armed conflicts (e.g., weapons, traumatic features on human remains, artistic representations of armed combats, and defensive architecture such as fortress), the political unification of the Middle Sicán state is inferred to have been based on political and ideological manipulations, rather than military campaigns. A society with complex ethnic and social compositions and inequalities like the Middle Sicán state should have had an inherent tendency toward factionalism or sociopolitical tensions among different groups. In order to mitigate those tensions and to integrate with ingenuity subordinate people primarily of Mochica ethnicity, some kind of ideological system or symbolic device could have been very efficacious. In this regard, mortuary practices – intra-burial configurations and funerary rites in particular – seems to have been a vital means for the Sicán elites to convey their ideologies and other symbolic messages. The symmetrical placement of North Mochica and South Sicán Women surrounding the Sicán principal personage at the center within the same shaft tomb appears to express a conciliatory, rather than belligerent stance that the Huaca Loro elites adopted. In other words, the grave furniture and goods of West Tomb could have served to represent their conscious public display of integrating different cultural identities. In addition, it is important to note that these material expressions should have taken on their meanings and have successfully been conveyed only by being displayed in the eyes of the target audience. Therefore, the constructions of tombs and burials need to be considered and discussed in tandem with the following funerary rites for public displays of the built graves.

Another aspect of Sicán culture where we could get glimpses of the sociopolitical strategies of the Sicán elites is their religious art. Some critical elements of the Sicán religious art, as further explored in the next chapter, were clearly borrowed from the preceding coastal Mochica and highland Wari arts. The Sicán art as a fusion of the selected religious concepts and representations from these old legacies seems to have provided simultaneously prestige and legitimacy for the Middle Sicán religion and elites, and a shared ideological basis for the ethnic Mochica population (Menzel 1977; Shimada 2009b).

What I would like to emphasize in this dissertation is a similar integrative function and inclusive nature of the inferred Middle Sicán ancestor cult. In *Tawantinsuyu*, the Inca royal family invented a false genealogy to politically integrate the diverse people whom they conquered into an encompassing hierarchical framework with themselves on top of it (see Silverblatt 1987 on the use of the idiom of affinal relations by the Inca to their politically subjugated "Others"). I discussed in the latter half of Chapter 3 that unlike those at household and intra-lineage level, some ancestor veneration can be fairly overarching and target at wider populations different in genealogical origins, as with the worship of the Yellow Emperor in China. The lineage ancestors of non-royal landholding corporate groups (*ayllus*) served as important nodes that connected the groups to the above hierarchy. Most remarkable to note here is that the entitlements of these groups were acquired primarily by political or marital alliance rather than simply defined by genealogical tie (Spalding 1984; Salomon and Urioste 1991:23). Consequently, in many cases, the cult followers did not need to be biologically or even affinally related. Economic merits in the form of cultivable land and mutual support based on reciprocity among the members of *ayllus* were gained through political negotiations. In the same light, Zuidema (1973) argues that the Inca ancestor veneration practices provided a ritual space in which different social units ceremonially and politically defined their hierarchical place in the sociopolitical system through the acts of caring and remembering ancestors during commemorative activities.

Consequently, in order to explore the ideological role of ancestor cult, one has not only to interpret the symbolic expressions made at the time of burial as noted above, but also to focus on the political negotiations during the course of elongated post-interment interactions among the dead and the living in and away from the burial location.

Concurrent with increasing efforts to elucidate the role of ideology in societal organization and actions, ancestor veneration and associated activities, especially feasts, have gained an increasing importance in archaeological investigations including in the Andes (e.g., Nachman 1978 ; Lau 2001, 2002; Nelson 2003). The current study stresses the ideological and political functions of feasting. I hypothesize that in a way, the Sicán elites consciously viewed their ancestor cult as a strategic device to consolidate their stratified and multiethnic society during the period of social unrest. Thus, they hosted large-scale feasts and arranged the “commensal hospitality” (Dietler 2001) among the dead and the living. These feasts served as an expressive medium for the desired social integration under the aegis of the Sicán ancestors and the Sicán Deity and provided a ritual arena for political negotiations among people different in social class and even ethnicity. As Shimada’s test excavations in the early 1990’s exposed two large hearths, the most probable area where this type of public feasts could take place would be the large “open” space in the Great Plaza surrounded by the major ceremonial mounds including Huaca Loro. In contrast to the presumably esoteric small-scale rituals that took place within the enclosed temple structure on top of Huaca Loro (Figure 1.6), the activities in the plaza area were meant to be on full display and open to a wider audience.

4.2.2.3. Unity among different people over food and drink. If the above scenario was indeed the case, the feasts should have been hosted by the lineage of the deceased ruler, most probably the next ruler. This inference may be supported, if "*the Sicán elites supplied provisions for the inferred feasts (e.g., special food and drink most appropriate for that purpose, and food vessels)*" (Operational Hypothesis 1). Concurrently, it is hypothesized that "*the Sicán elites invited to the feasts people outside their lineage (e.g., the members of other elite lineages and subordinate people under their rule, who are different in social class and even cultural affiliation)" (*Operational Hypothesis 2*).* The elite sponsors would have gained a greater social prestige from this perceived act of generosity, as is the case with the *manao* communal feasts in the Kachin society. This seems to be an Andean way, as opposed to other ethnographic and archaeological cases in which attendees are reported to have brought food and vessels (e.g., Schmandt-Besserat 2001; Wiessner 2001). Consequently, food vessels used during the feasts would be expected to have been produced at a limited number of ceramic workshops affiliated with each of the associated elite lineages (e.g., the one at the regional multi-craft workshop of Huaca Sialupe, inferred from a combination of Mössbauer spectroscopy and instrumental neutron activation analysis [INAA]; Shimada et al. 2003a, b, c; Shimada and Wagner 2007b). It follows that the production of food vessels on the part of elite sponsors should have reduced compositional variability of the vessels, which represent the differences in paste recipe and thus may suggest those of raw materials and technological choice in the place of production (see Arnold et al. 1991, 2000, and Arnold 2005 for cautionary notes). In order to test this, a compositional analysis (e.g., INAA) is required to see if the vessels were locally produced, in other words, to determine whether it provides compositional signatures similar to those given by previous studies of the documented ceramic production sites (e.g., Huaca Sialupe; Shimada and Wagner 2007b) in the adjacent areas.

Although all food vessels might have been produced locally, their technical and artistic qualities may vary. I assume that these distinctions directly correspond to those in social class of those who used them. As discussed above, it is now known that the four-tier status distinction in the Middle Sicán society can be made in terms of the accessibility to precious items and burial positions (Table 4.3). This materially manifested social inequality clearly reflects the intent and attempt of the Sicán elites to distinguish themselves from non-elite others by their own burial pattern and superior material quality and choices. The same could be true for food vessels, particularly serving vessels (e.g., plates and bowls). The food practices of the Sicán elites are expected to have had a similar hierarchical structure very exclusive in nature, as suggested by the documented differences in skeletal and dental health between the elites and the non-elites (e.g., Farnum 2002; Shimada et al. 2004; Klaus et al. n.d.). Given the aforementioned stylistic distinctions between the pottery associated respectively with the North Mochica and South Sicán Women, it is inferred that the Sicán elites exclusively utilized stylistically Sicán (and technologically high-quality) vessels. Thus, the Sicán elites adopted an *ambipolar* strategy: they clearly differentiated and excluded different people as "Others" by some material expressions; however, concurrently, they attempted to encompass those "Others" within a larger order by welcoming them through commensal hospitality.

In sum, low variability in paste recipe will favor the Operational Hypothesis 1, whereas inversely high variability in style and finish will favor the Operational Hypothesis 2. Furthermore, if the food practices in question were ceremonial in nature as opposed to quotidian daily meals, the proportion of different functional categories (e.g., cooking, storage, serving, and transport) may be different from that of ceramic assemblages from Sicán and non-Sicán residential contexts (e.g., Isbell 1977; Donnan 1990a; Sandweiss 1995; Hayashida 1999). The occurrence of a disproportionately large number of serving vessels different in style and production quality will strongly support the ceremonial nature of the feasts.

4.2.2.4. <u>Special food and drink most appropriate for the settings</u>. The Operational Hypothesis 1 collaterally addresses the dietary composition of the food and drink supplied by the Sicán elites for the inferred feasts. The attendees of the feasts might have been given a privilege of being served the same food and drink normally reserved for ancestral spirits or enjoyed some other delicacy specially prepared for them. The former would be expected to conform to the Middle Sicán ritual foodways that Cutright (2005a, 2005b, 2007) clarified (e.g., maize, beans, and small whole fish either in a cooked or crude form), while the latter would involve something different, not in Cutright's list. Based on ethnographic cases, Hastorf (2003a) notes that the ritual libation of maize *chicha* (a.k.a. *aqha*) and the consumption of meat – both as luxurious items, especially the latter not consumed on a regular basis – were most critical components of ritual ceremonies in the Andes and helped to identify an event as special. When it comes to meat consumptions in ritual settings, as Goepfert (2012) demonstrated, camelids would have been the first choice in the study area. Since their domestication was completely mastered by the Early Horizon (1400-400 BC), camelids have been found frequently associated with funerary and ceremonial contexts and have eventually become a major sacrificial animal throughout the Andes. On the other hand, ethnohistorical documents clearly illustrate the importance of *aqha* widely in the Andes for ceremonial gatherings, particularly those which involve social interactions between parties or individuals of different social positions. Ritual libations of *chicha*, similar to those by the Incas, may actually be traced back into prehispanic times on the Peruvian North Coast as well. Much the same range of vessels and tools used historically (Martínez Compañón y Bujanda 1978; Schaedel 1988b) and today (Shimada 1976; Hayashida 2008) for *aqha* production on the North Coast have been documented by Moore (1981, 1989) and Prieto

(2004) for Chimú, and by Shimada (1978, 1994b), Chapdelaine (2001), and Castillo Butters (2005) for Mochica.

However, archaeological data do not necessarily fall into line with Hastorf's ethnographically derived suggestion above. It rather requires some modifications and should not be taken at face value. Shimada and Shimada (1985) draw upon archaeological, ethnohistorical, ethnographic, and physiological data and point to the possibility that llamas (and perhaps alpacas too) were bred and herded on the prehispanic North Coast and served as a wide range of functions that include transports, sacrifice, tools, and meat. Particularly as meat, camelids replaced deer and had been an important part of the coastal diet among both urban and rural populations since the Early Horizon (1400-400 BC), and by the early Middle Horizon (AD 550-900) they became a critical protein source for inland coastal sites (Shimada and Shimada 1985). What possibly made meat consumption special was perhaps the way to select the meat. In order to attract the attendees of feasts better, juveniles under two years might have been chosen. Since hormonal changes alter meat quality, the individuals that had not attained sexual maturity would be desirable. The fleshier parts of those young animals in particular, e.g., shoulders and rumps, should have been even more desirable. In the prehispanic Andes, where camelids were the only beast of burden but concurrently served for many purposes, killing many of them while young must have been a very special, occasional act affordable only for those of economic power. The discovery of a large number of remains of young animals from feasting contexts would be strong evidence for the inferred consumption of special food.

4.2.2.5. Symbolic connection between ancestral burials and commemoration sites. The inferred feasts are assumed to have taken place in the Great Plaza that is spatially separated from the ancestral burials. Unless this spatial discrepancy between ancestral burials and feasting sites is properly explained and a symbolic link is established between them, the discussions above will lose their explanatory power. The Operational Hypothesis 3 addresses this critical question and posits: "*During the inferred feasts, the Sicán elites arranged commensality between the dead and the living by devoting camelid crania and limbs to the deceased as offerings and sharing the rest of the body parts among other attendees of the feasts.*"

How could we archaeologically determine the occurrence of commensality between the living and the dead? Again, a study of the dietary composition of food and drink consumed by the living and a comparison with those for ancestors may provide a vital clue to clarify this. If the inferred commensality indeed occurred, it follows that the food and drink consumed by the living at a feasting site should be very much analogous to, if not exactly the same as, those served for the deceased at tombs and burials (or at a structure specially built for food offerings) in terms of (1) composition of raw materials and ingredients, (2) quality and quantity, (3) style of preparation, and/or (4) the timing/order in which they were served.

4.2.3. <u>Conclusion</u>

Thus far in this chapter, I have presented and discussed two general hypotheses. I hypothesized (1) that the select members of deceased Middle Sicán elites transformed into an ancestor through a series of prescribed processes of mortuary program and (2) that the commensality among the living and the dead during feasts in an adjacent plaza area served not only to commemorate those ancestors away from their burials, but also to welcome people different in social status and cultural identity and consolidate the highly stratified, multiethnic Middle Sicán society. In order to collect archaeological data and test these hypotheses, I participated in two excavations by the Sicán Archaeological Project (SAP) in 2006 and 2008 at the Middle Sicán state capital. The excavations focused attention on various funerary and ritual contexts in the ceremonial core of the state capital (Figures 1.5 and 4.1). In this dissertation, I focus attention on two of them: (1) the locus of ritual activities unveiled by the aforementioned Shimada's test excavation in 1997 and the underlying nearly intact Middle Sicán burial ground at the west base of Huaca Loro (designated SAP-HL'06-Trenches 1-3); and (2) an inferred ritual ground east of Huaca Loro near the west edge of the Great Plaza (SAP-HL'08-Areas 3-5). Detailed descriptions of the results of the excavations and subsequent analyses of the excavated materials will be given in Chapters 6 and 7 respectively.

4.3. Alternative scenarios

An uncritical acceptance of and/or blind faith in a particular approach and perspective may lead to an entrenched attitude to the study subject and end up with a series of convenient interpretations of archaeological data, looking for the data that meet one's expectations and overlooking those that confound them (See Chamberlin 's [1965] arguments for fully and impartially examining data and thus minimizing biases in scientific endeavor by the method of multiple working hypotheses). Consequently, in this section, I take into account and discuss the possibility that excavations and subsequent material analyses may bear unanticipated results that require additional considerations for alternative scenarios.

4.3.1. <u>Scenario 1: Ancestor cult exclusively for the Sicán elite</u>

New archaeological data may not support either or both of my two general hypotheses. First, with few or no material evidence for the hypothesized defining characteristics of ancestors – post-interment interactions between the dead and the living (Tentative Conclusion 5) in particular – the first general hypothesis may not be supported. This in turn raises the possibility that the Sicán elites formed a cult of the dead, rather than an ancestor cult and that they merely conducted highly elaborate funerary rites but left the tombs and burials untouched after they were sealed. The bodies of the deceased were decorated and cared for only at the time of burial and were not carefully preserved for elongated interactions with the bereaved, whereas their spirits were not commemorated or honored anywhere either. Then, it follows that the partial vestiges of food preparations and consumptions documented during Shimada's test excavation in the Great Plaza should represent something totally different from commemoration feasts for ancestors.

Second, even if it is supported that the Sicán elites indeed practiced ancestor veneration burying and caring for the ancestral bodies in the planned cemetery and hosting feasts on the occasion of the commemoration and/or interment of their ancestors, the participation in the funerary rites and feasts might have been strictly controlled and not open to the general masses of varied social statuses and identities. This would suggest that the Sicán ancestor cult was exclusive and targeted at only the upper strata of the society (Alternative Scenario 1). In this case, more important were the esoteric ancestral rituals that are inferred to have occurred in the enclosed temple structure on top of Huaca Loro, the access to which was strictly controlled by the narrowly ascending ramp (Figure 1.6). Although it is still expected that there took place the commensality between the dead and the living over some special food and drink, the scale of the event could have been relatively small. The expensive food and drink were conspicuously consumed solely for emphasizing the social inequalities. Since the participation was confined to the Sicán elites, or presumably only to the members of the Huaca Loro lineage, the food vessels should not have exhibited variability in style, composition, and production quality (e.g., surface finish and paste sorting). Rather, the majority of them, if not all, should have been stylistically Sicán and technologically well-made (see Table 4.4).

Regardless of the occurrence or non-occurrence of ancestor veneration, it is clear that there were some activities taking place in the Great Plaza (e.g. food preparations with extraordinarily large hearths, rituals using a small canal, and adobe storage and management). Shimada's test excavations in 1990 exposed architectural features and materials such as low thick walls, large hearths associated with food remains and vessel fragments, an adobe-lined small canal-like structure, and neatly stacked adobe bricks most probably for construction and renovation (Izumi Shimada, SAP field notes in 1990). These finds from the plaza and its large size illuminate that it is quite unreasonable to assume that there was only one type of activity occurring in the plaza. The new archaeological data from the plaza may also involve and represent many different activities including or excluding those associated ancestor veneration. Some of the activities may be more ceremonial or non-domestic in nature, while others may be domestic. As insightfully demonstrated in ethnoarchaeological studies (e.g., Kent 1984, 1987), activity areas are multifaceted and multivocal. Different activities may share the same space and take place at different times of the year, month, week, and even the single day. Although it would be difficult to discuss the contemporaneity among different activities in a strict sense with the given chronological resolution, it is very likely that within the Great Plaza, there took place many different activities by the same or different groups of people, sometimes sharing the same activity areas.

4.3.2. Scenario 2: Middle Sicán capital as a pilgrimage center

In case that the food preparations and consumptions addressed by the General Hypothesis 2 were not at all related to the inferred ancestor veneration, what do they represent? For example, Silverman (1994) once characterized the site of Sicán as a pilgrimage center (Alternative Scenario 2). It follows that the food practices in question represent the meals for pilgrims during their temporary stay at the Sicán capital as a pilgrimage site. In this case, food vessels are expected to be variable not only in style and finish, but also in composition, which illuminates non-local pottery productions by different people. Food and drink prepared and consumed should be diverse and reflect different culinary traditions of pilgrim populations (e.g., clustering of comparable signatures of food remains and ceramics within the plaza area).

Pilgrimage is a journey of a follower of religion that leads to the central and sole focus of worship located at the sacred site (e.g., shrines and temples) (cf. Moore

1996b:124). In Pachacamac, historically known as the most powerful pilgrimage site on the Peruvian Coast, the center of worship was at the most sacred Temple of Pachacamac, where oracular practices were taking place at the time of Spanish arrival. The site consists of four major sectors concentrically segmented by wall structures (Matsumoto 2005). The temple was built inside the centermost sector enclosed by the primary wall. Contrarily, the site of Sicán lacks such a sole focus of worship and rather consists of six major ceremonial mounds associated with elite cemeteries, which are slightly different in size and shape but do not show any hierarchical differences among them. This lack of hierarchical differences is in fact the basic idea underlying Shimada's (2009b) most recent hypothesis that the Middle Sicán theocratic state was governed by a federation of six major elite lineages, each associated with a large ceremonial mound and burial ground and metal workshop at the foot of it.

In contrast to my view of pilgrimage sites above, Moore (1996b:124) provides a slightly different view. He categorizes pilgrimage shrines ethnohistorically documented in the Andes into two broad types: (1) ancestral (e.g., *machay* with *mallquis*) and (2) oracular (e.g., Pachacamac and Chavín de Huántar). Both *mallquis* and oracles were consulted, consecrated, and revered by the pilgrims. However, Moore argues that they are clearly distinguished by some striking differences. First, *mallquis* were venerated and honored by *ayllus*, whereas oracles cross-cut the boundaries of kinship, ethnicity, and language and created a wide network of interactions among pilgrimage centers that was equivalent to what Turner (1974:184) calls "ritual topography" (also see Webner 1989 for his notion of "cult regions" as a netwrok of subsidiary shrines that serves as the routes for the pilgrims to the grand shrine). Second, the gathering places for the pilgrims were different in scale. The *Cayan* associated with *machay* is remarkably smaller than the plaza of an oracular shrine. Third, *mallquis* and oracles were honored with a different set of offerings. The former were honored with sacrifices of *chicha*, llama blood, and guinea pigs, while the latter were honored with gold and fine cloth. Fourth, *mallquis* were physically visible to those who visit and honor them, while oracles were not. Furthermore, Moore (1996b:126) points out that "oracles were not passive entities, but active forces who were consulted via their priests and who were rewarded or punished according to the accuracy of their predictions." Cieza de León (1883 [1551]:93) report that the predictions were evaluated in the following year. The oracles who made false or uncertain predictions did not receive any offering (e.g., gold, silver, precious stones, rich clothes, and large flocks of sacrificial animals) and forfeited their reputations.

Was the Middle Sicán capital an *oracular* pilgrimage center? Was it a group of *ancestral* pilgrimage centers, one of which was Huaca Loro? Or, was it something else? It is very important to note that what Moore, Doyle (1988), and MacCormack (1991:59, 157) call "ancestors" all refer to the named ancestors worshiped by the members of households and kin groups and do not include supra-lineage ancestors that have been emphasized and discussed in this dissertation. I would rather emphasize the possibility that the inferred Sicán ancestor cult targeted at wide populations across genealogical and ethnic boundaries and honored the ancestors during ceremonies held in a large plaza area. In ancestor cults, the object of worship is not only the physical bodies of ancestors (*mallquis*), but also their spirits that were commemorated in various places including tombs and burials. Another possibility to consider is that the pilgrimage to the site of Sicán had dual or a nested purpose of paying respect to the Sicán Deity and more specific recently incorporated ancestors of a specific lineage. In this conception, the Great Plaza served the former function. In this case, it does not make any sense to pose the above either-or question. Although available information about the site of Sicán provided above seems to counter the Alternative Scenario 2, I still do not deny the possibility that the Middle Sicán capital functioned as a pilgrimage center at this point.

4.3.3. Scenarios 3 and 4: More quotidian culinary practices

Another possibility would be that the Great Plaza served for non-ceremonial purposes. First, it might have functioned as an urban sector, similar to the one flanked by Huaca del Sol and Huaca de la Luna at Huaca de Moche (Alternative Scenario 3). Second, it is also possible that the documented food practices represent quotidian, daily meals provided by elite sponsors for the maintenance personnel for construction work and the artisans in workshops (Alternative Scenario 4). I also consider the possibility that different types of food practices took place side-by-side in different areas of the plaza. Contemporary or horizontal variability across the plaza requires careful observation for a better characterization of those food practices.

Last but not least, it is also important to acknowledge that these alternative scenarios are not mutually exclusive in that the activities discussed above may have occurred within the plaza to a varying degree.

NOTES

1 Curiously, ligaments were retained so that the entire skeleton remained articulated in a seated and cross-legged position (Shimada et al. in press).

2 Segura et al. (2006) argue that rewrapping of funerary bundles took place, based on the evidence such as the loss of bones and disarticulation of joints inside the bundles and the mixture of decorating objects of chronologically non-contemporaneous styles.

3 Isbell (1997:35) uses this term to refer to the "burial below ground in inaccessible graves, especially in the fill of platform temples." He uses the term *huaca* in a quite limited way, compared to its various meanings reported by Garcilaso de la Vega (1968:115-118). Isbell takes the Mochica burial practices as an example for this type of burial pattern.

4 The "Transitional Period" (ca. 800-1000 C.E.) refers to the time period, defined by the changes in ceramic style and burial practice at San José de Moro, from the political demise of the local Mochica polity (e.g., disappearance of the Moche V fineline painted bottles from burial assemblages and disrupted use of the boot-shaped tombs) and the incorporation of the area into the foreign Sicán polity (Castillo 2000, 2001, 2003; Castillo Butters and Donnan 1994a, 1994b; Rucabado-Yong and Castillo 2003). From the earlier Late Mochica Period well into this

Transitional Period, San José de Moro continued to be an important burial ground for local people. The Transitional Period is characterized by the stylistic heterogeneity of mortuary vessel assemblages that include: Viñaque, Atarco, Pachacamac, Cajamarca Serrano, Cajamarca Costeño, Post-Moche, Proto-Lambayeque (or Early Sicán), and so-called Press-Molded styles (Bernuy and Bernal 2004, 2008; Castillo Butters 2001, 2004; Rucabado-Yong 2006:40, 44, Figs. 15, 16; Rucabado-Yong and Castillo Butters 2003). Drawing upon this heterogeneity, Castillo Butters (2003, 2004; also see Bernuy and Bernal 2004, 2008) argues that it was the time of re-composition of political leadership among the local elite groups in the Jequetepeque-Chamán region, as well as interregional interaction and cultural synthesis with neighboring foreign societies including the southern Mochica polity (e.g., manifested in the distribution of imported sumptuary goods during mortuary rituals).

5 It is said to be because the ancient people including the Emperor had a meal twice a day, mornings and evenings (Nanri 2011:27).

6 This number (194) accounts for 31% of the total 629 Mochica burials ever excavated on the Peruvian North Coast from the Lambayeque to the Casma Valleys since Uhle's seminal work at Huaca de la Luna in the early 20th century (Goepfert 2012:105).

7 Shimada (2014, personal communication) points out that the use of fully mature animals may carry a sexual and power symbols. Such mature animals (particularly if they are males) may have been the dominant (*alpha*) males of herds and thus chosen to accompany similarly dominant male personages.

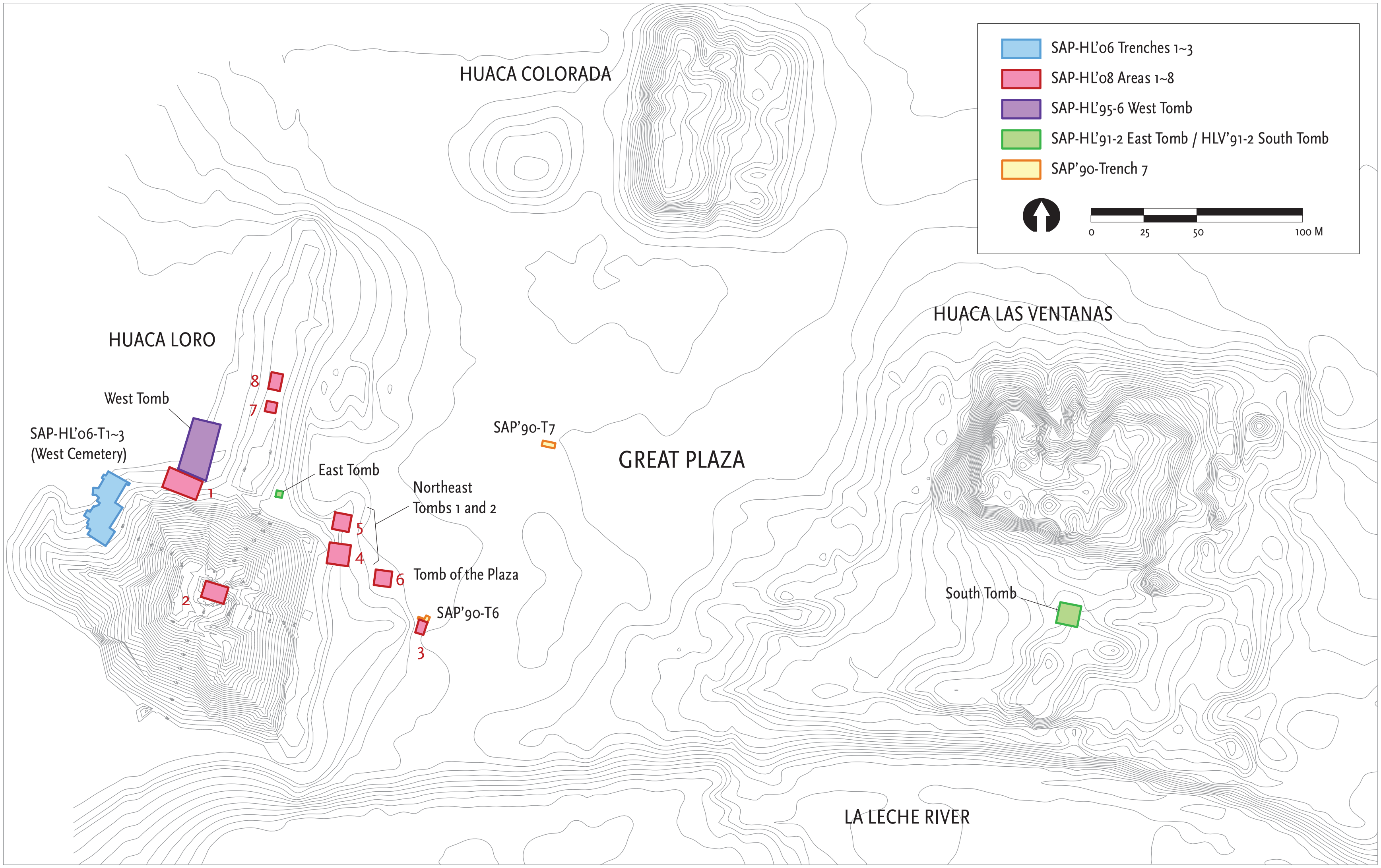


Figure 4.1. Excavation trenches hitherto excavated at the ceremonial core of the Middle Sicán state capital. The original contour map was provided by courtesy of Luis Caceres and Natalia Guzmán (Ministerio de Cultura Perú).

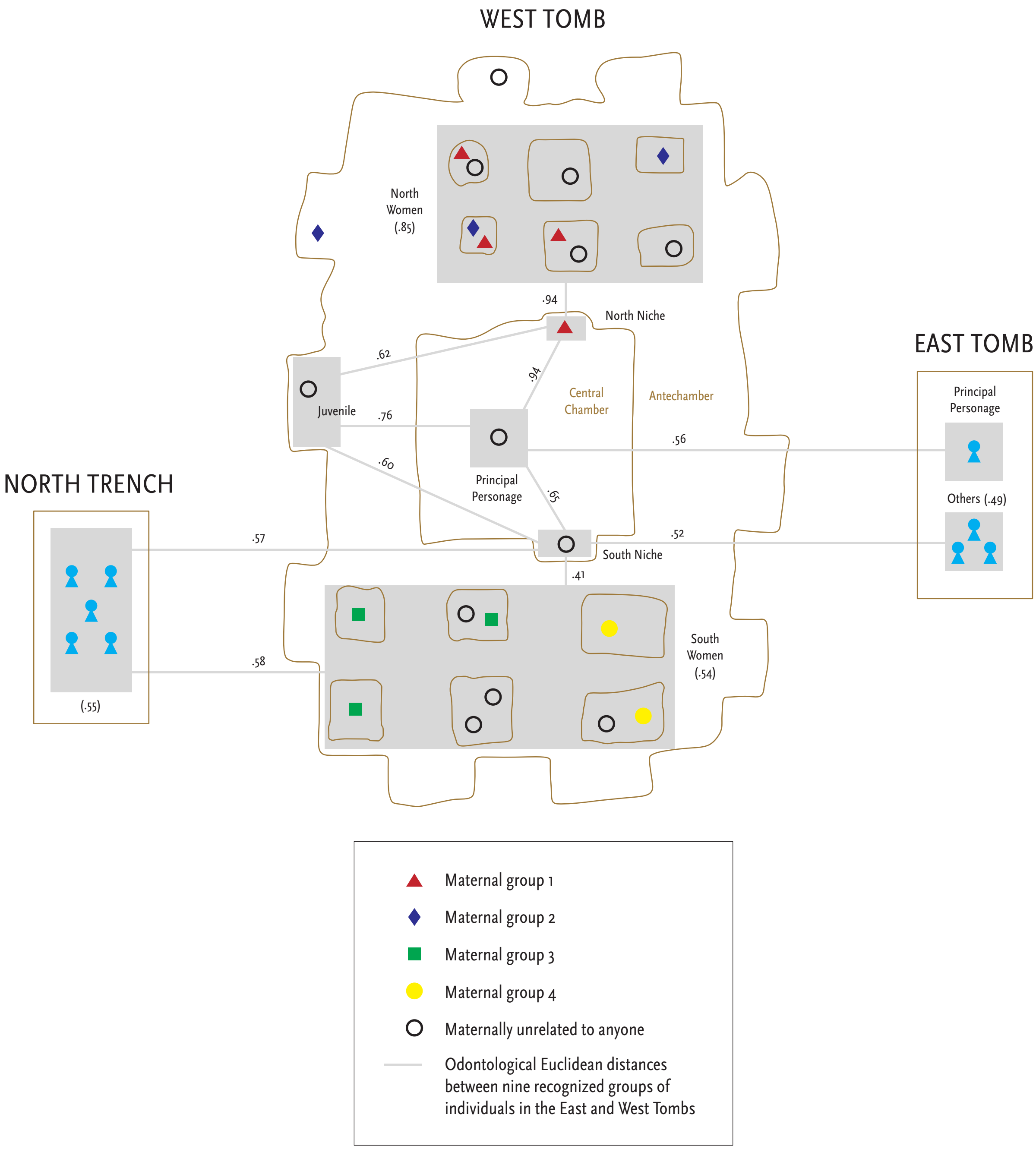


Figure 4.2. Genetic evidence gained from a mitochondrial DNA (mtDNA) analysis and an inherited dental traits analysis of the human remains excavated from the Huaca Loro tombs and burials: (1) distribution of four maternally related groups of individuals (represented by four shapes of different color) within the West Tomb; and (2) odontological Euclidean distances between nine recognized groupings or individuals in the East and West Tombs and the North Trench. Regarding the latter, the minimum distance of 0.71 was taken out as "background noise." Only relatively small distances (0.60 or less) indicate major linkages according to similarity (taken and modified from Shimada et al. 2005: 381, Figs. 5 and 6).

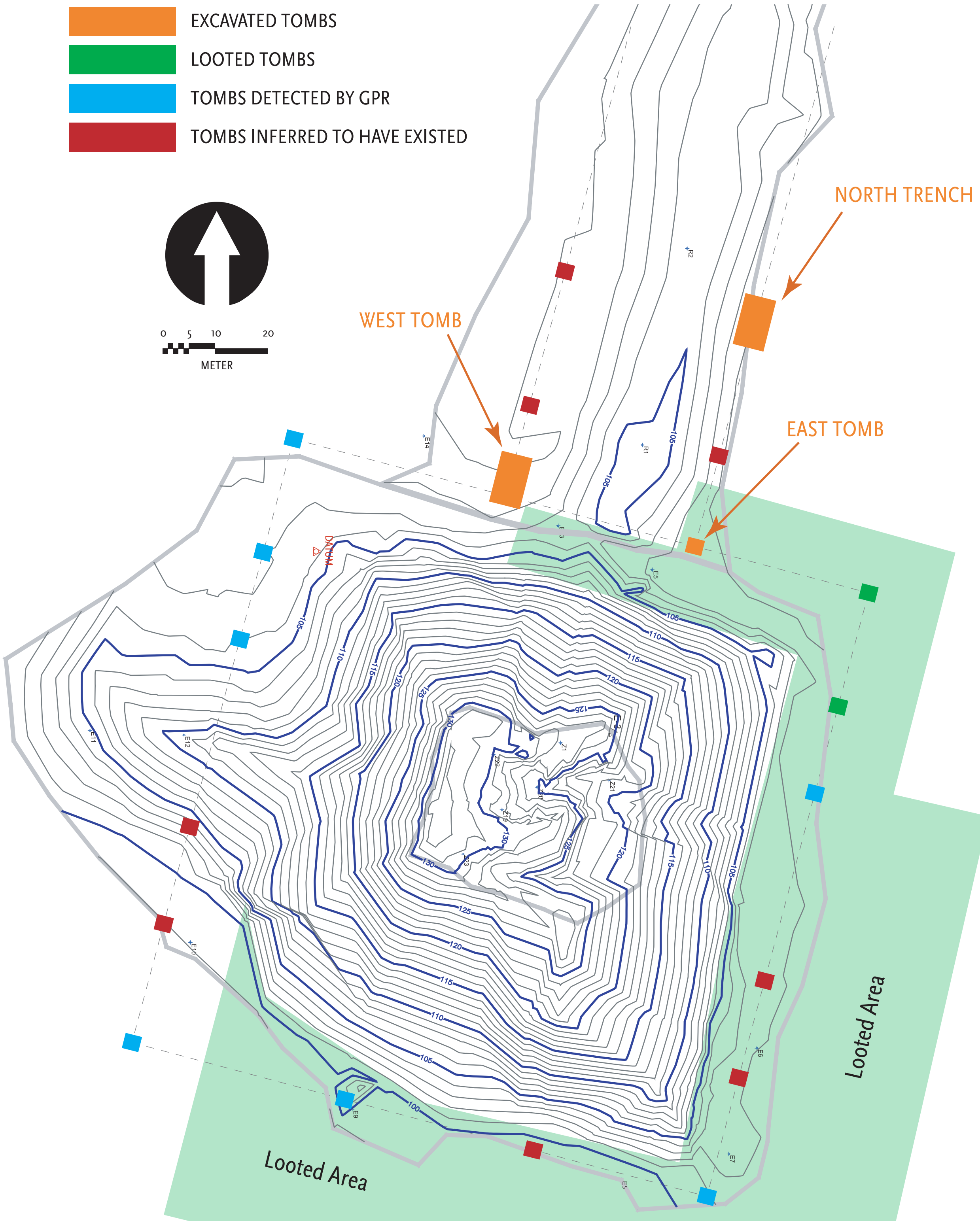


Figure 4.3. The Middle Sicán cemetery ground under and around the Huaca Loro temple mound (Shimada et al. 2000, 2007). It is inferred to have had a planned layout on the basis of the results from previous excavations and a series of Ground Penetrating Radar surveys by Hirokatsu Watanabe.

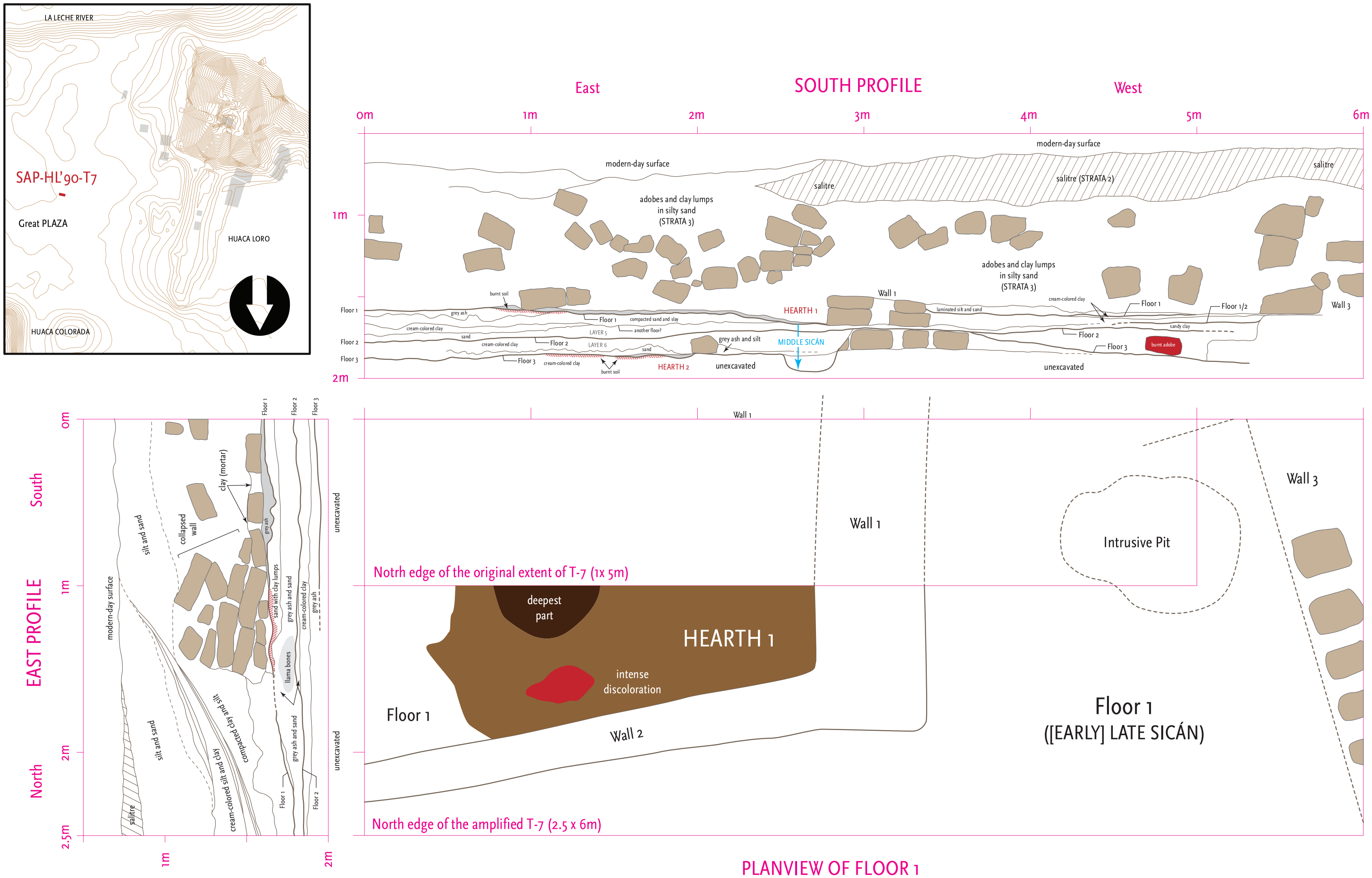


Figure 4.4. A planview and profiles of the test trench SAP-HL-'90-T7 in the Great Plaza (reproduced from the fieldnote by the Sicán Archaeological Project; courtesy of Izumi Shimada).

Figure 4.5. A snapshot of a Ground Penetrating Radar (GPR) survey conducted by Hirokatsu Watanabe in 1997 at the west base of the Huaca Loro temple mound. Photo courtesy of Izumi Shimada.

Figure 4.6. A Sicán funerary bundle (fardo) adorned with a cinnabar-painted copper alloy mask. The bundle was excavated by El Brujo Project (Director: Régulo Franco) on the east slope of Huaca Cao Viejo at El Brujo Archaeological Complex in the Lower Chicama Valley. Photo courtesy of Yutaka Yoshii.

Figure 4.7. A clay-stone structure in the close vicinity to a largely intact, roofed tomb excavated at the cemetery in front of the Painted Temple at Pachacamac on the Central Coast. The tomb contained over 34 funerary bundles decorated with a false head and placed on two levels separated by woven mats. The clay-stone structure is inferred to have served as receptacles for food offerings or basin for libations for the dead.

Figure 4.8. *Kaguraden* (or *Mikeden*) located within the Inner Sanctuary of the Ise Grand Shrine, Japan.

Figure 4.9. A metal model from Museo Oro del Perú that depicts a scene in which an elaborately attired individual is being carried on a litter by four moderately dressed individuals (taken from Shimada 1994a:36, Fig. 12).

Table 4.1. The frequencies of the eight categories of food remains excavated from the 30 Middle Sicán burials at Farfán in the Lower Jequetepeque Valley (reproduced after Cutright 2007:325, Figure 2).

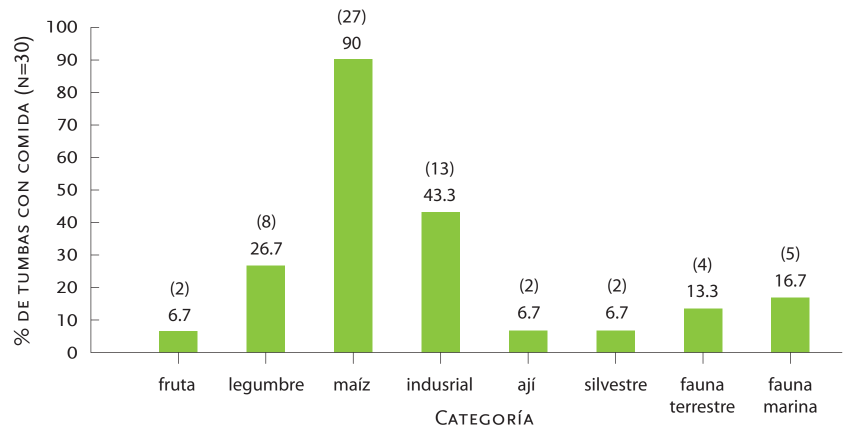


Table 4.2. (a) The frequencies of different food items and (b) a comparison of the size ranges of maize cobs. Data from the Mochica middens and burials at Pacatnamú in the Lower Jequetepeque Valley (reproduced after Gumerman 1994:402, 408, Table 22.1, Figure 22.6).

(a)

	Burials with Food Offerings (n=35)	*Total Burials (n=82)*	*Standardized Samples from Refuse (n=48)*
Maize	57%	24%	79%
Seaweed	26%	11%	2%
Peanut	3%	1%	39%
Squash	3%	1%	25%
Lucuma	3%	1%	21%
Common bean	14%	6%	41%
Lima bean	6%	3%	0%
Shellfish	14%	6%	100%
Fish	17%	7%	90%
Mammal	34%	15%	80%

(b)

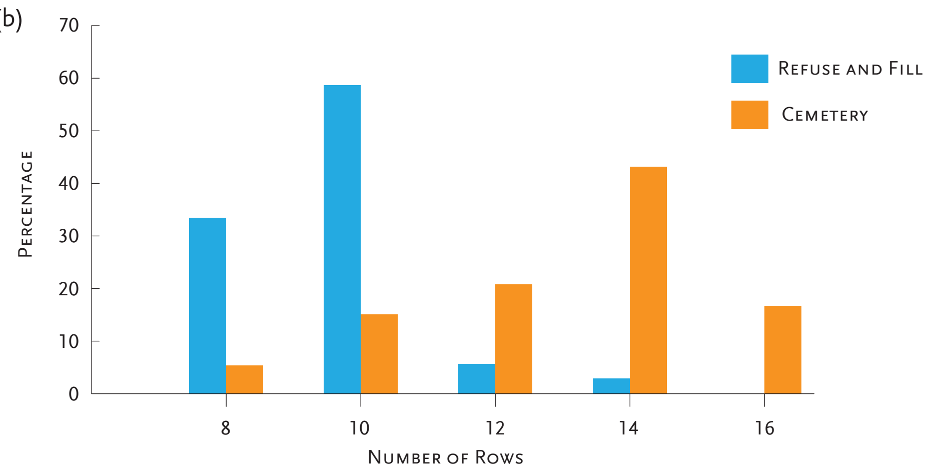


Table 4.3. Inferred social tiers of the Middle Sicán society (reproduced after Shimada et al. 2014:53, Tabla 3).

		First Tier		Second Tier		Third Tier	Forth Tier
		High Elite Males	High Elite Females	Low Elite Males	Low Elite Females	Commoners	Low-Status Commoners
Grave Goods	High-Karat Gold Alloy Objects	●	●				
	High-Karat Silver-Copper Alloy Objects	•	●				
	Low-Karat Gold (Tumbaga) and/or Gilt Copper Objects	●	●	●	•		
	Silver-Gilt Copper Objects		●		●		
	Cinnabar Paint	●	●	●	●		
	Semi-Precious Stone Beads	●	●				
	Amber	●			•		
	Shell Beads	●	●	●	●		
	Spondylus princeps	●	●	•	•		
	Conus fergusoni	●	●				
	Double-Spout Bottles	●	●	•	•		
	Single-Spout Bottles	●	●	●	●	●	
	Copper-Arsenic Objects	●	●	●	●	●	
	Utilitarian Plain and Paleteada Pottery			●	●	●	●
	Ocher Paint					●	
Burial Position	Seated	●	●	●	●	●	
	Extended			●	●	●	●
	Flexed					●	●

Table 4.4. Alternative Scenarios expectable from different combinations of the study results of the food practices in the Great Plaza.

	Food Vessels		Food and Drink	
	Style and finish	Paste recipe	Commensality	Composition
Hypothesized Scenario	High variability	Very low variability	Shared among the dead and the living	Limited in variety (but "expensive")
Alternative Scenario 1 (intra-elite worship)	Low variability	Very low variability	Shared among the dead and the living	Limited in variety (but "expensive")
Alternative Scenario 2 (pilgrimage site)	Very high variability	Very high variability	Not shared	Diverse
Alternative Scenario 3 (urban sector)	Relatively high variability	Relatively high variability	Not shared	Varied
Alternative Scenario 4 (meals for workers)	Low variability	Very low variability	Not shared	Relatively limited in variety

CHAPTER 5

BACKGROUNDS: SICÁN CULTURE AND SOCIETY

The archaeological culture studied by the current research was first recognized and identified by the names of geographic regions, such as "Eten" (by Uhle) and "Lambayeque" (by Larco Hoyle), where the affiliated materials were recovered in abundance. However, at an early stage of archaeological studies of this culture, many materials had not been appropriately recognized but confused with those of other archaeological cultures that had been already known, like Chimú (Uhle 1913:97; Kroeber 1925, 1926), Tallán (Willey 1951a:106), and Inca. As discussed in detail below, Shimada (1981, 1990, 1995) made best efforts to resolve this stylistic and chronological confusion based on his long-term excavations in the Lambayeque area and renamed the culture as "Sicán" after an ancient Muchik word *sican*[1] meaning "the house (or temple) of the moon" (Shimada 1983; cf. Maeda Ascencio 2005)[2]. The word "Sicán" originally refers to a sacred mound or a group of sacred mounds that are known to have existed *at a few places* on the northern North Coast of Peru: one in Pacasmayo (probably Pacatnamú), one in Guadalupe (Huaca Signan; see Kosok 1965:119, 126, Fig.118), both in the Lower Jequetepeque Valley (Figure 5.1), and another one in the Pómac District in the mid-La Leche Valley (Calancha 1974-1982 [1638]). The last is considered as the central place of the Sicán culture and society in its prime during Middle Sicán Period (AD950-1100). Furthermore, recent mitochondrial DNA and inherited dental traits analyses of prehispanic human remains have revealed that people associated with Sicán culture were genetically distinct from those with preceding Mochica culture (Shimada et al. 2004; Shinoda 2009). These people and their society are also called Sicán. Therefore, I use the name of Sicán in this dissertation to refer to (1) the prehispanic archaeological culture that flourished in the Lambayeque region on the Peruvian North Coast (e.g., "Sicán culture" and its chronological designations such as "Middle Sicán Period"), (2) the heartland site in its prime in the mid-La Leche Valley (e.g., "the site of Sicán"), and (3) the people who established the culture and governed their society (e.g., "Sicán elites").

This chapter addresses Sicán culture and society within broader spatiotemporal contexts from which they emerged and developed. It will illustrate the intellectual history of Sicán archaeology and discuss how this prehispanic culture came to be recognized, defined, studied, and integrated into broader discussions of Andean archaeology. The first half of the chapter will focus primarily on the temporal framework of Sicán culture and society and briefly overview the origin and extrication of the said stylistic and chronological confusion of longstanding. At an earlier stage of Sicán archaeology, as discussed below, archaeologists' larger attentions were drawn to iconographic studies of representational arts in both drawn and sculptured forms (e.g., murals and sculptural ceramic vessels) guided by their interpretations of ethnohistorical accounts. The near-total absence of scientific excavations became a major factor of the confusion. The overview in the section will illuminate the importance for archaeologists to be well-balanced between the acts of (1) building new archaeological data by means of excavations and subsequent artifactual analyses, (2) fostering a better understanding of artistic representations through traditional iconographic studies, and (3) supplementing and/or refining archaeological finds with their interpretations of ethnohistorical accounts. The second half of this chapter will focus on the spatial framework of Sicán culture and society and illustrate the major geographic settings and ecological characteristics of the study area on the northern North Coast of Peru. The arguments include a series of questions, the most important of which is why the Sicán people built the site of Sicán or their largest ceremonial center where it is located today. It is because the locational details of the site, which are to be discussed in this section, counter the logic of the approaches that emphasizes the economic aspects of ancestor veneration (e.g., Saxe/Goldstein Hypothesis and its derivative theories) and thus require another explanation.

5.1. Sicán culture and society in the temporal framework

5.1.1. Periodic deficiency in research-oriented excavations

The Lambayeque region, where Sicán culture prospered around the end of the first millennium, has been known for its flamboyant metal objects and decorated vessels recovered primarily from tombs and burials. Not surprisingly, those funerary constructions in the region fell victim to devastating looting activities on a massive scale. Local museums had thus been full of artifacts of unknown provenience, the majority of which were looted somewhere nearby and purchased or donated from private collections. Today, quite a lot of local people still take possession of their own collections of varying scale. The artifacts that flew out the area are now found widely in the capital Lima and outside of Peru. Nevertheless, this area had not received an equal amount of attention from archaeologists for a long time. It is well known among Andean archaeologists that Lambayeque is one of the few regions of Peru in which the famed German archaeologist Max Uhle – one of the founding fathers of Andean archaeology – did not work. In the 1920s, Alfred Kroeber made short visits to the area during the first and second Marshall Field Expeditions organized by the Field Museum (Kroeber 1930:91-94); however, the major geographic focus of the expeditions was the area from the capital Lima to Nasca to the south. In 1930, the American Museum of Natural History (AMNH) launched an expedition sponsored by Myron Granger and sent Ronald Olson to conduct a general survey in the Lambayeque area as well as the Peruvian South Coast, Bolivia, and Ecuador. None of the above was long enough to carry out any field excavations. They all resulted in general surveys and collections of surface materials for museum study and display. In the wake of looters' major discoveries of gold objects in the Middle La Leche Valley during the 1930s, Julio C. Tello – another founding father of Andean archaeology – visited some sites including the major huacas at the site of Sicán and reported 56 objects in his articles ("Los Trabajos Arqueológicos en el Departamento de Lambayeque") in El Comercio on January 29, 30, and 31, 1937 (Bennett 1939:95). Although he made a trench (4.5 × 16.5 m and 4 m deep) near Huaca Las Ventanas (Bennett 1939:121), the excavation aimed simply to gather information concerning the ceremonial metal knife (called *tumi* in Quechua) that was looted from there (Figure 5.2). It was not a research-oriented excavation. Similarly, Heinrich Brüning also conducted some excavations somewhere in the Lambayeque region for the purpose of clarifying the proveniences of looted artifacts that he purchased. Very unfortunately, few published accounts are currently in accessible places.

It was only Wendell Bennett who conducted research-oriented excavations and reported the results in a published form at this early stage. In 1936, Bennett spent nearly two months (from April 1st to May 26th) and excavated 23 sites in three areas: Lambayeque, Túcume, and Chongoyape pueblos (Bennett 1939:95-120; see Appendix

B). His main interests were in the ceremonial mounds and burials. From a small cemetery site called Lambayeque One between the modern-day towns of Lambayeque and San José, he unearthed and recorded major representative forms and decorations of what is now known as the Middle Sicán pottery style: (1) single-spout-and-handle pedestaled blackware bottles with or without a ubiquitous human face image at the spout base (Bennett 1939:100, Fig.120 a, d, and e), (2) double-spout-and-bridge pedestaled blackware bottles (Bennett 1939:100, Fig.120 g), (3) single-spout-and-handle pedestaled blackware bottles with sculptured animal body (Bennett 1939:100, Fig.120 c), (4) pedestaled jugs with a spherical body and a human head at the spout base, (5) pedestaled jugs (or *cantimploras*) usually decorated with pressed designs on the flattened body sides ("Disc-Shape Vessels " in Bennett 1939:100, Fig.120 b), (6) jugs with a modeled animal or human head and loop handles at the spout base (Bennett 1939:100, Fig.120 h), and (7) utilitarian jars (or *ollas*) for cooking and storage called *paleteada*.

One of the main reasons why Lambayeque had not drawn attention from archaeologists for a long time was probably due to the long distance from the capital Lima (ca. 650 km). The only site in the north that attracted archaeologists' attention in an early stage was Huacas de Moche in the Lower Moche Valley, ca. 500 km northwest from Lima, where Uhle conducted excavations during the first decade of the 20th century. Besides, it should not be overlooked that the local plantation owners in the Lambayeque area kept outsiders away from their lands. The aforementioned discoveries of gold objects in the 1930s were made within the hacienda owned by Juan Aurich family in Batán Grande. These discoveries triggered decade-long extensive looting activities that lasted largely until the 1960s, resulting in the major devastation of valuable archaeological contexts of the area. It followed that such a situation produced no archaeological information that could contribute to the critical task of chronology building at pan-Andean scale, which was initiated by early researchers such as Uhle and Kroeber (see below).

5.1.2. Popularity of the Naymlap Legend

The focus of interest for the archaeologists bereft of excavation opportunities inevitably shifted toward stylistic and iconographic studies of looted materials, which could be undertaken without excavations. Central to the Sicán art is the homogeneous and pervasive representations of a central figure currently known as "Sicán Lord" or "Sicán Deity" on various media (e.g., metal objects, ceramic bottles, fine textiles, wooden models, and murals and reliefs) (Figure 5.3). The main subject of the iconographic studies was confined largely to the artifacts depicting this figure, particularly metal objects such as masks, ear spools, beakers, and *tumi* knives. Most typical of this type of approach are the studies by Carrión Cachot (1940), Alva and Alva (1983), and Kauffmann-Doig (1983, 1990) among others. Some researchers strongly believe that this central figure represents Naymlap – the founder of a mythical dynasty described in the so-called "Naymlap Legend," which was first recorded on the North Coast by a Spanish Jesuit Miguel Cabello Valboa (1951 [1586]:327-330) in his *Miscelánea Antárctica* in 1607 (See Appendix C for the original text by Cabello Valboa and the translation by Means [1931:51-53]). An extraneous royal family and entourages led by Naymlap are narrated to have come by a group of balsa rafts, settled at the mouth of the *Faquisllanga* River, and built their palace named *Chot* and housed *Yampallec* – a green-stone sculptural figure representing the image of Naymlap. The legend lists the names of 12 successive rulers and overviews the dynastic history. The researchers above view not only Naymlap as a historical figure, but also the legend itself as a set of historical facts (also see Mackey 2000:112-113). Alva and Alva (1983), for example, speculate that the scene depicted in the polychrome frieze at the site of Úcupe in the Lower Zaña Valley represent the arrival of Naymlap and his entourage in Lambayeque. The legend has gained popularity since the early 20th century (Brüning 1989 [1922]:9-28; García Rosell 1903; Markham 1911:221-223; Beuchat 1912:584; Joyce 1912:50-52; Means 1931:54-56), but it is relatively recent that archaeologists became concerned with the assessment of the validity of interpretations based on the reading of this legend (e.g., Trimborn 1979; Shimada 1985, 1990; Donnan 1990a, 1990b, 1990c, 2011).

One of the major concerns for those who considered the Naymlap Dynasty as historical was to clarify when the dynasty was established. Philip Means (1917:328-329) at first took a cautious stance, as he considered the interpretations based on the legend as “yet mere unsubstantiated theory”; however, he later specified that the dynasty was contemporaneous with Early Chimu or Mochica, albeit without any archaeological evidence (Means 1931:54-55). Assuming that each reign of the 12 rulers lasted about 25 years on the average, Means calculated that the whole dynasty lasted about 300 years sometime during the first six centuries of our era. Contrarily, Wendell Bennett (1939:120) thought that Means’ date was too early. When conducting a brief reconnaissance in the Lambayeque Valley in 1936, he found little archaeological evidence for Mochica occupation. Thus, Bennett inferred that the Naymlap Dynasty occurred during the early part of the domination of Chimú Empire on the North Coast, rather than during the Mochica Period. However, it is important to note that the scarcity of Mochica occupation was simply because of the scarcity of archaeological survey and excavation in the area. Archaeological researches in the Lambayeque Valley during the 1960s and 70s (e.g., Day 1971; Donnan 1972; Shimada 1981, 1994, 1990; Boza Cuadros 2006) brought forth a substantial amount of evidence for the Mochica Period (particularly Phases IV and V). Allowing a 25-year span for each reign like Means did, Paul Kosok (1965:73, Chart II, 80-81) speculated that Naymlap came to Lambayeque around AD 1025. What distinguished his study from previous ones was that Kosok interpreted the distributions of archaeological sites of varying scales and types in the Lambayeque area in relation to the descriptions in the legend. Quoting passages about the local states established by the grandsons of Naymlap, he assumed a kinship-dominated federation of those states such as Patapo (or Cinto), Sipan-Collique, Jayanca, and Túcume in the La Leche, Lambayeque, and Zaña Valleys (Kosok 1959, 1965:178; Shimada 1981:407, Fig. 2). Hermann Trimborn (1979) took a similar approach and attempted to clarify the locations of major sites such as Apurléc, El Purgatorio, and Chotuna and to verify the legend based on radiocarbon dates. He put forth an interesting idea that *Chot* – the name given to the place where Naymlap and his people built their palaces – stands for the archaeological site of Chotuna in the Lower Lambayeque Valley[3].

I do assume that the legend may be studded with a series of important cosmological components and traditional concepts of local people in the area during the prehispanic era, if not during the Sicán Periods. However, since they are all expressed in highly symbolic manners basically in a primordial time frame, there is no point in expecting and searching in great haste for one-to-one matches between mythical descriptions and corresponding historical facts (see various Andean and Amazonian case studies in Hill 1988 of the interrelations between mythic and historical consciousness and their manifestations as "mythic histories"). I do not mean to deny the possibility that one may find many parallels. Nevertheless, it should not be forgotten that the prehispanic people in the Andes had no writing system and thus orally transmitted the story from one generation to another, which should have inevitably had the story altered to some extent. In addition, it is known that there are at least a few different versions of the legend recorded in the same area, which have various important differences[4]. As discussed in the previous chapter (see Chapter 2.3.1), I would rather emphasize the strengths of archaeological excavations and attempt to achieve a more balanced coordination of archaeological fieldworks and studies of historical accounts and iconographic representations, which is expected to facilitate a dialectical relationship among different fields of studies and enrich our understanding of the Andean past.

5.1.3. Conventional chronological confusions in the North Coast archaeology

Artifacts now affiliated with Sicán culture had been known since the very beginning of Andean archaeology. Wilhelm Reiss and Alphons Stübel's (1880-1887; see Willey and Sabloff 1993:78) drawings of pottery from the Ancón cemetery on the Peruvian Central Coast include the hallmark of Sicán ceramic art – the single-spout pedestaled blackware bottle, traditionally known as "Huaco Rey" (Figure 5.3a). It was Uhle, Stübel's student, who first integrated the Sicán pottery style into broad discussions of chronology in the Andes, although he never excavated in the Lambayeque area as mentioned above.

Around the end of the 19th century, Uhle started exploring pre-Inca cultures and societies by employing then current research methods such as seriation based on meticulous stratigraphic excavations and artifact analysis (Petrie 1899; Pitt-Rivers 1887, 1888, 1892, 1898). Uhle first studied a collection of artifacts excavated by Stübel at the site of Tiahuanaco (or Tiwanaku) near the south shore of the Lake Titicaca and then unearthed artifacts of similar stylistic features ("Tiahuanaco style" in his term) under the Inca occupation layers during his own excavations at Pachacamac on the Peruvian Central Coast. Based on these studies, Uhle put forward a hypothesis that the culture and society that flourished centering on the site of Tiahuanaco preceded Inca. In 1899, Uhle (1913) further excavated at Huacas de Moche[5] in the Lower Moche Valley and gained a legitimate chronological control over the pottery style of lifelike representations both in painted and sculptured forms, which later came to be called Mochica[6], particularly through his burial excavations at the west foot of Huaca de la Luna (Menzel 1977:37-41; Shimada 1994:15). He confirmed the stratigraphic position of this style under a group of fine blackware bottles and distinguished the two styles calling the former "proto-Chimu" and the latter "Chimu" (or "Late Chimu") (Uhle 1913:97; followed by Kroeber 1925; 1926). Although the proto-Chimu or Mochica style was distinguished stratigraphically from the "Chimu" blackware bottles, the latter included the Sicán style as well. Primarily due to their similarities in vessel form, color and texture, and production technique (e.g., single-spout pedestaled bottle form, shiny black color from burnishing/polishing and reduction firing, and use of molds), the two styles had not yet been distinguished at this point but considered as the same under the name of Chimu. Nonetheless, Uhle's hypothesis above was further elaborated and placed the "Chimu" blackware bottles *after* Tiwanaku and *before* Inca.

Uhle's chronology was refined by Kroeber (see Menzel 1977). Kroeber studied the limited amount of data collected by Uhle from coastal sites and came to propose a four-phase chronology to explain the sequence of both coastal and highland cultures: (1) "Pre-Tiahuanaco era", (2) "Tiahuanaco and Tiahuanacoid (Epigonal) era", (3) "Pre-Inca era", and (4) "Inca era" (Kroeber 1925:231-232). Although this relative chronology was based on the results of the studies at limited number of sites (e.g., Pachacamac, Huacas de Moche, and sites in the Ica Valley), it was widely employed to understand and explicate cultural developments in the broader Andean regions. In this chronology, the styles that were different from prototypical styles were labeled as "epigonal" (Uhle's term) in the sense that they were viewed as regional varieties or less distinguished successors of those prototypes (Lumbreras 2009:18-21; Shimada 2009:29). The "epigonal" Sicán style pottery was included in the Pre-Inca era and yet confused with the Chimú style. Lumbreras (2009) argues that this chronological confusion had its roots in the uniform applications of the Uhle/Kroeber chronology in wide areas, the materials from which were not previously studied for the chronology building at all.

Shortly after, the "epigonals" or the regional varieties of the prototypal styles became a critical subject of study, and the four-phase Uhle/Kroeber chronology came to be updated in the late 1940s on the basis of the results from the Virú Valley Project

(Strong 1948; Strong and Evans 1952; Willey 1953; Collier 1955)[7] and other studies by Tello (1929, 1938)[8] and Larco Hoyle (1948). Nevertheless, the erroneous denomination of "Chimu" for the Sicán pottery style, or the problem of "chimunization" in Zevallos Quiñones' (1971) term, had lingered for decades (e.g., Tello 1929, 1938; Kroeber and Muelle 1942; Willey 1951a, 1951b; Bennett 1954:91, Fig. 104; Rowe 1954; Canals Frau 1955; Bushnell 1956; Gérol 1961, Laminas XIV, XV, and XX; Mason 1962; Leicht 1963:114, Fig. 117; Meggers and Evans 1963; Lothrop 1964:181, 183) until Shimada (1981) finally started addressing the problem by archaeological excavations. In retrospect, the difficulty to solve this stylistic and chronological confusion was primarily due to the active interregional exchanges on the Peruvian North Coast – both valley-to-valley and coast-and-highland – and subsequent fusions of different cultural styles into Sicán stylistic repertoires within a relatively short period of time (see Larco Hoyle 1948:43; Rowe 1948:36)[9]. Those influential styles include Mochica, Wari, and Cajamarca. Without stratigraphic excavations and artifactual seriations, it was practically impossible to retrace the intricate trajectories of cultural developments in this area. Nevertheless, some early studies, especially those from the late 1930s to the late 1940s, offered a hint of solution to the chronological problem.

German archaeologists became aware of some characteristics of the Sicán art style at a relatively earlier stage (Lehmann and Doering 1975 [1924]). Walter Lehmann and Eduard Seler cautiously observed the artifact collection made by Brüning from 1875 to 1925 and distinguished the blackware and bichrome bottles and gold objects, which were collected from the burial ground on the south slope at the foot of Cerro Zapamé in the Middle La Leche Valley, from those of the neighboring areas to the south (e.g., Chicama and Moche Valleys). Although he does not specify the defining features, Lehman speculates that "Lambayeque … seems to play a special part in the history of Peruvian art and to conceal among its antiquities a hitherto unknown and very early style" (Lehmann and Doering 1975 [1924]:20-21). At approximately the same time, in 1926, Kroeber (1930:91-94) made a short visit to the Lambayeque area during his expedition (the second Marshall Field Expedition) and obtained some ceramic collections. Based on his reconnaissance and ceramic studies, he came up with an idea to divide the North Coast into the southern Santa-Virú-Moche-Chicama subarea, in which both the Early and Late Chimu cultures (or Mochica and Chimu) were recognized, and the northern Jequetepeque-Zaña-Lambayeque-Leche subarea, in which only the ceramics similar to the Late Chimu of the first area were recorded. Kroeber also noticed the distinction in pictorial features of the Chimu style between the northern and southern subareas (Zevallos Quiñones 1971:4). Although those in the north, which he called "North Chimú" and "Chimú Cursive," were actually what are now known as Late Moche bottles with fine-line paintings (see Castillo Butters 2012:17, 77, Figures 1.7 and 2.34 for the Northern Mochica ceramic chronology), Kroeber's distinction as well as Lehmann's clearly illuminate the uniqueness of ceramics in the northern North Coast, including the Sicán style, and suggest that one has to prescind them from those in the southern counterpart.

Bennett was not only aware of the uniqueness of the ceramic styles in the Lambayeque area or the northern subarea of the North Coast, but also attempted to clarify the chronological position of those styles. He was the first archaeologist who attempted to stylistically and chronologically distinguish what is now known as the Sicán pottery style from the Late Chimu and placed it between the Middle Period and Late Chimu ("Middle Lambayeque II") (Bennett 1939:99-100, Figs. 19 and 20; 1946, Plate 42). Incidentally, the Middle Period represents the second phase of the tripartite division of the Uhle Moche Collection – Early, Middle, and Late Periods – which was undertaken by Kroeber and advocated widely by the Andeanists of the time, and refers to the time during which Coastal Tiahuanaco styles A and B (or Wari culture) flourished on the coast. Therefore, the distinguished style follows Mochica, Gallinazo (or Virú), and Epigonal (or Tiahuanacoid) styles during the Early Period and Coastal Tiahuanaco styles (or Wari) during the Middle Period, and precedes Late Chimu (or Chimu) during the Late Period. Bennett suspected that the Mochica style was not eliminated after it declined in the southern subarea of the North Coast, but revived with some external influences from Coastal Tiahuanaco during the Middle Period and eventually developed into the Late Chimu style. In other words, the people who supported the Mochica culture left their core area in the Moche Valley, immigrated into the northern valleys such as Lambayeque and Piura, and eventually developed some new pottery styles during the transitional period. He reserved the term "Middle Chimu" for those styles yet to be isolated and assigned (Bennett 1939:106, 122, 126, 136, 142-143). Not so long ago, Kroeber (1925:221-224) also proposed the notion of Middle Chimu, when he discussed some transitional styles from the proto-Chimu (or Mochica) to Late Chimu – a pottery style that corresponds exactly to neither of the two styles but sill shares general Chimoid (or Chimucoid) characteristics. What he recognized as the Middle Chimu style does not perfectly correspond to today's Sicán style, and he did not pinpoint its heartland in the Lambayeque region. Nevertheless, the notion itself was quite relevant.

The chronological and geographic positions of the Sicán style identified by Bennett and other researchers were further examined by Larco (1948), Kosok (1959, 1965), and Zevallos (1971). Rather than acceding to Bennett's and Kroeber's notion of Middle Chimu, Rafael Larco Hoyle preferred to using the term "Lambayeque" to refer to the Sicán style after the name of the valley where affiliated artifacts had been recovered in abundance. Unlike Bennett's use of "Lambayeque" as a geographic area, he utilized the term as the name of culture and its art style. Larco illuminated the elements that, in his opinion, distinguished the Lambayeque ceramic style and located the style within his seven-epoch ceramic chronology (Larco Hoyle 1948:10, 43-45). He placed Lambayeque in the middle period of Fusional Epoch that is sandwiched between

Mochica and Chimu. What distinguished Larco's work was that he clearly defined the Lambayeque style in terms of its form and sculptural and pictorial motifs. The defining features include (1) conical base, (2) sculptural handles and bridges, (3) sculptural representation of a new anthropomorphic divinity with winged eyes (Sicán Lord or Deity), and (4) fine and motley decoration that covers bichrome vessels among others. The forth suggests some connection or affinity with Cajamarca ceramics in the Northern Highlands. Paul Kosok, on the other hand, divided the millennium from AD 500 to 1530 into five periods (A to E) and placed the Sicán style in the Period C (AD 1000-1200) (Table 5.1). The Period C pottery is contemporaneous with Bennett's Middle Lambayeque II pottery and is characterized by the decline of Tiahuanacoid features and the high percentage of non-Chimu blackware. He also revealed that the Period C was the time when the three valleys on the northern North Coast – the La Leche, Lambayeque, and Zaña Valleys – were interconnected with irrigation canal systems. Jorge Zevallos (1971) studied the Sicán style pottery that he called "Lambayeque I" (Table 5.1) and classified it into six types (Types A to F): (a) Huaco Rey (single-spout-and-handle pedestaled bottles with the Sicán Lord/Deity image at the spout base), (b) single-spout-and-handle pedestaled bottles with no Sicán Lord/Deity image (Figure 5.3a), (c) double-spout-and-bridge pedestaled bottles, (d) bottles with animal or human effigy, (e) jars and urns, and (f) figurines. He also studied the paste of blackware and bichrome bottles in Type A and concluded that they are not different in paste recipe.

Advocating Bennett's theory, Zevallos argued that the Lambayeque I is a derivative of the Mochica pottery style, which independently developed on the northern North Coast with some influences from the highland cultures (Wari and Cajamarca) during the Middle Horizon.

5.1.4. Shimada's three-stage chronology

Although it was significant that the Sicán pottery style eventually came to be recognized and distinguished both stylistically and chronologically from Mochica and Chimu, some of its stylistic features were still confused with those of Chimu (e.g., Larco Hoyle 1948:51). This persistent confusion had not been resolved until Shimada undertook a seriation of abundant diagnostic sherds that he excavated from secure contexts at the residential-craft production site of Huaca del Pueblo Batán Grande (HPBG), located further inland some 15 km from the site of Sicán (Figure 1.4). The deep stratigraphic sequence spanning over 1000 years of prehistory (ca. AD 500-1532)[10] enabled him to observe and record long-term changes in pottery styles from Late Mochica (late Early Intermediate Period) to Chimu-Inka and Provincial Inka (Late Horizon) and to establish a three-stage chronology for the Sicán pottery style based on stylistic and morphological seriation: Early (AD 850-950), Middle (AD 950-1100), and Late Sicán Periods (AD 1100-1375) (Shimada 1990, 1995). Some defining features and changes for the Sicán pottery style were best observed on the single-spout pedestaled blackware bottles, as shown in Figure 5.4.

This relative chronology has been independently confirmed and verified by architectural features and changes at HPBG and Huaca La Merced Mound II, which spans from Early to Late Horizons. The size and form of adobe bricks used for construction changed significantly through time (Figure 5.5). The architectural technique during the Sicán Periods was also distinct from those of the preceding and following cultures. The platform mounds during the Middle Sicán Period were built by a construction technique called *chamber-and-fill*. In contrast to the solid and segmentary construction during the Mochica Periods (Hastings and Moseley 1975; Moseley 1975), this technique involves "the construction of continuously bonded walls, arranged to form a lattice of empty chambers," and "[t]he chambers then are filled with a wide range of readily available rubble and refuse (e.g., sand, camelid dung, sherds, stones, and kitchen garbage), held in place by the adobe brick and mortar walls" (Cavallaro and Shimada 1988:76; also see Horkheimer 1944:41). The contiguous chambers sealed with cane (or *algarrobo*[11] logs) ceiling and clay mortar are stacked in tiers to form a multi-level platform. This architectural technique facilitated efficient and rapid constructions of a dozen large-scale platform mounds at the site of Sicán in a relatively short period of time.

The established Sicán relative chronology has also been tested and supplemented by well over hundred radiocarbon and computer-calibrated dates. In Figure 5.6 that shows the dates available for sites in the Lambayeque and La Leche Valleys, the dates from the monumental platforms at the site of Sicán show a tight cluster around AD 1050-1100. Together with these absolute dates, some meticulous observations of stylistic changes for the above ceramic seriation made a very useful find for archaeologists. The increasing number of and greater elaboration of some features on the single-spout pedestaled blackware bottle[12] as well as the change in the proportion of its component parts (e.g., spout, body, and pedestal base) enabled Shimada (1990:328-329) to subdivide the middle period into three subphases of about 50-year range: early- (AD 950-1000), middle- (AD 1000-1050), and late-Middle Sicán Periods (AD 1050-1100)[13]. This find makes it possible for archaeologists to more precisely date documented features and artifacts than the radiocarbon dates that are always provided as age ranges.

Shimada's research efforts to resolve the persistent chronological confusion in the Lambayeque area clearly suggest that the resolution was impossible without excavations and subsequent artifactual seriations. However, when archaeologists attempted to isolate and identify archaeological cultures in the Lambayeque area, they focused too much attention on ethnohistorical accounts (e.g., the Naymlap Legend recorded by Cabello Valboa), which in turn guided their interpretations of stylistic features of artifacts of unknown provenience. Those accounts not only supplemented their interpretations based on visual examinations of stylistic distinctions in artifacts, but oftentimes came before archaeological finds and formed a priori assumptions. Kosok (1965:73, Chart II), for instance, reconstructed in the form of chart the dynastic genealogies of the Naymlap Dynasty, Chimu, and Tawantinsuyu based on some historical accounts (e.g., Sarmiento de Gamboa 2007 [1571]; Cabello Valboa 1951 [1586]; Feyjóo de Sosa 1763; an anonymous Trujillano in Vargas Ugarte 1936) and proceeded to discussions of archaeological finds and relationships between the dynasties, assuming that those accounts recorded historical facts. Shimada's chronological work above reminds us of the importance of building new archaeological data by means of excavations and subsequent artifactual analyses.

5.1.5. Sicán religious art as a fusion of preexisting concepts and motifs

After the decades-long endeavors of establishing the local chronology in the Lambayeque region, many archaeologists came to share an idea that the Sicán culture is best characterized as "fusional" or "syncretic" in that it blended well-known concepts and motifs from preceding cultures into a new overall configuration. The denomination of "epigonal" once given by Uhle and Kroeber has now turned out to be quite inappropriate. It is now inferred that the concepts and motifs borrowed from previous cultures were *strategically* selected, reconfigured, and spliced by the Sicán rulers to build and marshal the rationale for legitimizing their political and religious power and status. Central to this manipulation of concepts and symbols were the Sicán Lord/Deity images. Although the distinction between the supernatural/mythical Sicán Deity and the earthly Sicán Lord is not very clear in the images themselves, Shimada (2014) differentiates them by focusing on the presence of accompanying supernatural features and/or contexts. Menzel (1977:61) argues that these images ("Chimu God" in her term) were the fusion of the concepts of the Mochica Lords (e.g., so-called "Wrinkle Face" and other mythical beings) and the single male Wari Deity (a.k.a. "staff deity") and that the similarities between the Wari and Mochica religions particularly in the representations of these mythical beings provided the basis for the rapid but selective syncretism by the Sicán. Thus, the Sicán Lord/Deity images did not simply represent a ruler himself or a supernatural being, but were a highly charged symbol imbued with various meanings of ideological importance.

When his whole body is portrayed in the frontal view, the Sicán Lord often holds at least one staff in either hand (Figure 5.3b, c, d). As Menzel points out, this image clearly resembles the full-length portraits on various media (e.g., ceramic and textile) of a front-facing deity that holds a staff in each hand, widely known as "staff deity" in the preceding Wari religious art (e.g., polychrome urns and faceneck jars from Pacheco and Conchopata; Bergh and Jennings 2012:4, 9, Figures 1 and 5; Cook 2012:104-107, 117, Figures 75a-f, 76a-b, 77a-b, 88a-b). The Wari staff deity is recognized as a supernatural being by some defining features: (1) radiating halo from its head, (2) vertically divided eyes, and/or (3) fangs. The deity is depicted in a large scale in the center of the scene and often appears in a group (referred to as "staff deity complex" by Cook [2012:103]) together with its flanking attendants, such as winged profile figures that hold a staff (known as "profile staff bearers") and figures in mixed profile that hold a head in one hand and a *tumi*-like blade in the other (known as "sacrificers"). Staffs are "a potent Andean symbol of authority" (Bergh and Jennings 2012:8). The Wari staff deity complex provided a strong politico-religious message across linguistic and ethnic boundaries within the Wari Empire and helped to affirm the authority of the Wari elites (Cook 2012:103). The same composition of a front-facing central figure and profile attendants was also imitated in a Sicán mural (Schaedel 1978:30; Bonavia 1985, Plate 20). The integration of the most prestigious, central icons of the preceding Wari religion should have provided prestige and legitimacy to the emergent Sicán religion (Shimada 2009:30-31).

As with the Wari sacrificers above, the Sicán Deity is painted in a bust image, especially on murals, to have a severed head in one hand and a *tumi* knife in the other. From an elite shaft tomb (designated "South Tomb") of Huaca Las Ventanas were found two polychrome murals that are painted on a clay-plastered cloth and portray the Sicán Deity with a severed head and a *tumi* in either hand. He is placed in the center of the scene and flanked by natural and supernatural phenomena and creatures. One of them shows the Deity flanked by zoomorphized Waves on both sides, the anthropomorphized Sun on his right, and the Moon on his left (Figure 5.7; Shimada 1995:136-137, Fig. 120). It provides one with an impression that Sicán Deity rules and controls the worlds, subordinating the Sun and the Moon (symbols of the celestial world) as well as the Waves (those of the terrestrial world) (cf. Maeda Ascencio 2005). In the other mural, the Sicán Deity holding a head and a *tumi* is painted under an arc-shaped serpent-like creature with two heads and flanked by a pair of mythical feline creatures (Figure 5.8; Shimada 1995:138, Fig. 121). The bicephalous serpent-like creature is a motif commonly seen in the Mochica art (e.g., Kutscher 1983, Plate 125) and may be interpreted as the representation of either diurnal or nocturnal arc of the sky. The concept of "sacrificer" already existed in the Mochica religious art as well. The act of beheading sacrificial victims is inferred to have symbolized death and regeneration at the same time. The supernatural creatures who beheaded sacrificial victims thus probably controlled the cyclical sequence of life and death. I suspect that these well-known ideas and icons clearly identifiable for the eyes of the Mochica ethnic group were strategically integrated into the Sicán religious art and helped this emergent religion gain consensus from the subordinate Mochica people.

Shimada (1990:321; 2009) defines the Sicán Lord as a collective designation of living rulers and characterizes its representations in the Sicán art as having a wide, flat, *mask-like*, semicircular face characterized by all or most of the following details: (1)

"comma-" or "almond-shaped" eyes with upward pointing outer corners, (2) below the eyes, paired vertical lines or "bands" containing regularly spaced dots, (3) pointed ears often with concentric lines on the upper portion and pierced round lobes from which tiered triangular earrings hang, (4) a pointed or hooked beak-like "nose," (5) a closed mouth (at times with parallel lines perpendicularly closing it) or, rarely, a partially open mouth showing saw-like lower and upper teeth (fangs rarely ever shown), (6) a wide 'collar' in low relief, and (7) a large, elaborate fan-shaped headdress (Figure 5.3). The Sicán rulers were depicted to have a mask-like face of standardized features above, probably because it was *not the true face of the rulers*, but it did represent a *mask* that they wore in public. In fact, the inferred masked face of the Sicán Lord shows a good contrast to his human face without any mask on it in other representations.

This contrast is most clearly demonstrated in the decoration of backrest of wooden litter (Figure 5.3c; Carcedo Muro 1990:251; also see Shimada et al. 2009:199, 203, 273, Plates 99-101, 104, 178). The masks put on the faces of wooden human figurines are clearly separate components. As mentioned earlier, metal masks were indeed excavated archaeologically by Shimada in the early 1990s from East and West Tombs at the north foot of Huaca Loro. Stylistically, they are identical to the "masked face" of the Sicán Lord. The principal personages of the tombs were shrouded in a seated and cross-legged position and wore the mask over the facial region. Moreover, from the East Tomb a few layers above the principal personage, Shimada also excavated a wooden litter. These finds invoke and correspond exactly to the aforementioned representation of a scene in which the Sicán Lord is being carried on a litter by four entourages (Figure 4.9; also see Shimada 2009:260, Plate 162). The Lord is dressed in special garments and adornments suggestive of his high status and clearly distinguished from those of the moderately-dressed entourages depicted in a smaller scale. This suggests that the ruling elites such as the principal personages of East and West Tombs wore a mask and were carried on a litter, while they were alive.

Although the Sicán Lord/Deity image was strictly defined with highly standardized features mentioned above, it often exhibits feline and/or avian characteristics (e.g., fangs, claws, beak, feathers, and wings) in varying degrees. The polychrome Sicán Deity images found at Huaca Loro and Huaca Pintada[14] have split tail feathers and clawed feet (Figure 1.6 redrawn after Florián 1951:9; a partial photo seen in Bonavia 1974:109, Plate 57; another photo in Narváez and Delgado 2011:65, Fig. 43-G; Figure 5.9 redrawn after Carrión Cachot 1940:585, Fig. 17), while his effigies on *tumi* knives have wings (Figure 5.2; e.g., "Tumi de Illimo" inferred to have been looted from Huaca Las Ventanas; see Kauffmann-Doig 1990:173-175). The avian representations in particular are so prominent from the embryonic stage of Sicán culture and seem to have been rooted in the preceding Mochica art. For instance, an earlier form of the Sicán Deity at the spout base of the Early Sicán fine blackware bottle has a bird face with a beak instead of nose and mouth (Figures 5.4 and 5.10; Shimada 2009:30,

Fig. 5). Profile attendant figures with a pointy beak flanking the Sicán Deity in a polychrome mural found at Huaca Pintada bear a strong stylistic resemblance to anthropomorphized "Humming Birds"[15] in the Mochica fineline ceramic art (Bonavia 1985, Plate 20; Schaedel 1978:30; Kutscher 1983, Figures 282, 284-285, and 294-297), while the Sicán Deity image with wings and feathers in the profile view on a section of tapestry from the site of Pachacamac highly resembles the "bird warriors" on Moche V polychrome double-spout-and-bridge bottles most probably from San Jose de Moro (Figure 5.11 redrawn after Carrión Cachot 1940:585, Fig. 516; Donnan and McClelland 1999:160, Figure 5.37). These feline and/or avian characteristics of the Sicán Deity seem to represent his transformational ability into the earthly beings. Furthermore, it is likely that the Sicán Deity was believed to transform into other things as well. On the polychrome murals on the west façade and Platform A of Huaca de la Ola Antropomorfa at Chotuna (Wester La Torre 2010:113, Láminas 79, 82), his cephalic portion is represented as the breaking crests of waves. A very similar design can also be seen on the edges of two painted textiles, one sealing the mouth of the Tomb of Priestess at Chorcancap (Wester 2013:36-37) and the other in the collection of Brüning National Archaeological Museum (Figure 5.12). I argue that the transformational ability of the Sicán Deity depicted in these representations suggests his omnipresence in this world.

In sum, the image of the Sicán Deity was a highly charged icon based on very strategic symbolic manipulations of preexisting prestigious religious concepts and icons. The mask depicting this image was an integral part of ritual paraphernalia for the Sicán rulers during their lifetime and then interred with them at the time of death. What was the significance of wearing the mask before and after one's death? While they were alive, the Sicán rulers probably wore the mask from time to time during rituals and ceremonies to demonstrate their exclusive access to the Sicán Deity. As Shimada (2009:32) argues, the Sicán rulers might have been viewed as a vicegerent or "an earthly alter ego" of the Sicán Deity and linked this world and the world of the Deity. In this regard, the role of the Sicán rulers might have been very similar to that of the head of the chiefly lineage in the Kachin society who seizes and monopolizes the ritual access to the territorial spirit (*mung nat*) that plays a particularly important role for the genealogical frame of reference of the Kachin and cosmologically links the terrestrial sphere of the Kachin lineages with the celestial counterpart of the supernatural spirits (Chapter 3.2.2). Shimada (2009:32-33) further hypothesizes that the Sicán rulers, upon death, were believed to become a transcendental existence, equivalent to the Sicán Deity, and achieve the lasting status of mythical ancestor to be venerated. Similarly, in the previous chapter, I hypothesized that the mask was the symbol of ancestral collectivity and helped a deceased ruler transform into an ancestor and join the ancestral collectivity. It is inferred that the deified ancestors (with their bodies preserved in the form of funerary bundle) enduringly served as a portal or a "middle man" that helped their descendants have a ritual access to the Sicán Deity. In that both spiritual viability and political legitimacy of the Sicán rulers were reproduced and maintained through their exclusive connections with the Sicán Deity, I characterize the Middle Sicán state as theocratic. The ordinary definition of theocracy, nevertheless, may not be applicable to the Sicán case, in that the head of the state was not the Deity himself, but his vicegerent and in that the rule or government had a strong secular character, rather than was based on the purely divine guidance (also see Shimada 2009b). As mentioned in Chapter 1, it is inferred that the political unification of the Middle Sicán state was derived from the political and religious allegiance from the subordinate in return for a series of pragmatic merits (e.g., access to precious resources and high-quality craft products).

5.2. Sicán culture and society in the spatial framework

5.2.1. Meteorological characteristics and physiographic divisions of the Peruvian North Coast

The Peruvian coastal region is one of the driest places in the world. It is a narrow strip of desert stretching north to south along the west side of the Andean mountain ridges. The region is climatically categorized as a subtropical zone. Nevertheless, because the trade wind (or the southeasterly wind) blowing westward near the equator prevents warm air and water and rain-bearing clouds that come from the offshore of the Tropical Pacific Ocean, it hardly rains on the coast throughout the year. The nature and extent of human existence on this desert coast is largely dependent on the amount of rainwater available from some 50 rivers that originate in the Andean mountains. Therefore, major ecological boundaries often closely correspond to the boundaries of socioeconomic developments, past and present. Fully aware of this, in the late 1940s, Paul Kosok and Richard Schaedel attempted to explicate the societal developments on the coast in relationship to hydrological advancements and explored by means of large-scale surveys the role of irrigation agriculture in the transformation of "primitive" coastal societies into early stages of civilization (Kosok 1965).

Although it hardly rains on the coast, an exception occurs during the periodic, climatic phenomenon so-called El Niño-Southern Oscillation (ENSO). This phenomenon literally consists of two separate but closely associated events. When the trade wind weakens every four to five years, the sea-level pressure correspondingly reverses like a seesaw in the eastern and western South Pacific – getting higher in the east and lower in the west (Southern Oscillation). This in turn reverses the Equatorial Current from westward to eastward and allows the warm and nutrient-poor water in the west to flow into the east and to replace the surface water of the cold and nutrient-rich Humboldt Current running northward along the coastal line of South America (El Niño). When the variations in atmospheric pressure and water temperature are very large, the strong ENSO will bring about a series of drastic ecological changes primarily on the Ecuadorian and northern Peruvian coasts. The reduced upwelling of the nutrient-rich water of the Humboldt Current will disrupt the food chain of marine animals, while the warm and wet weather often cause major floods during April to October and turn the pale desert into a green land. In addition, the warming of the eastern South Pacific came to be called "El Niño" meaning "the Christ Child" in Spanish, because it usually starts around Christmas. I assume that the importance of water as a fundamental necessity of life and the devastating but life-generating floods have exerted some fundamental influences over the development of people's worldview (e.g., the circulation of cosmological water and the concept of life and death as a cyclical, transformational sequence discussed in Chapter 2).

Traditionally, the strip of the desert land is divided roughly into North, Central, and South Coasts. The northern-most of this tripartite zone is further divided into four different sub-regions based upon physiographic and cultural affinities: (1) far north, (2) northern, (3) central, and (4) southern[16] (Nolan 1980:6). The study area of the current research is located in the middle La Leche Valley on the northern North Coast (Figure 1.1). The valley, with its neighbors, comprises a macro-regional complex of five river valleys interconnected by highly elaborate irrigation canal systems – Motupe, La Leche, Lambayeque, Zaña, and Jequetepeque Valleys from north to south (Kosok 1959; 1965;

cf. Eling 1987). This physiographic and cultural unit was first recognized by Kroeber (1930:55-57) and labeled by Kosok (1965:147) as "Lambayeque Complex" or "Lambayeque Sphere." Nonetheless, the components of the Complex are somewhat controversial. More recently, Eling's (1987) survey indicates that the southern-most Jequetepeque canal system was not connected to the rest of the Complex, nor to the Chicama Valley to the south. According to Eling (1987:468-475), consequently, (1) Motupe-La Leche-Lambayeque-Zaña, (2) Jequetepeque, and (3) Chicama(-Moche) should be dealt with separately as three independent areas (cf. Ortloff et al. 1982:573). In this dissertation, I follow Eling's definition of the Lambayeque Complex (Figure 1.4). However we divide the valleys on the northern North Coast, it is clear that underlying the socioeconomic developments of prehispanic societies in this area was a solid subsistence base on the strength of the multi-valley canal systems.

5.2.2. Origin of prehispanic irrigation systems in the Lambayeque Complex

When were the canal systems in the Lambayeque Complex constructed? How long were they used? It is very difficult to date canal systems accurately. Many of the existing canals follow the ancient course and are still in use. Consequently, many researchers have attempted to date them by dating the settlements associated with canals. Based on his pioneering work on irrigation systems and associated settlements, Kosok (1965) believed that the Lambayeque Complex was built immediately before or during the Middle Period (or "Periods B and C" [AD 700-1000, 1000-1200] in his terms; see Table 5.1) and later conquered and incorporated by the Chimú Empire. More recent researchers took a closer look at individual canal systems within the Complex, and recorded and discussed them in greater details. Hayashida (2006) surveyed the Racarumi canal system on the Pampa de Chaparrí that straddles the La Leche and Lambayeque (or Chancay as it is called in its upper portion) Valleys (Figure 1.4) and suggests its construction during the Middle Sicán Period. She recorded two large Middle Sicán residential sites (81F15 and 256A01), each associated with a distributional canal (Racarumi IIa and c). These sites are thought to represent the second tier of the inferred site hierarchy of this area during Middle Sicán Period, with the largest mound center of Campamento de Paredones (see Yokoyama et al. 1999) associated with the main canal of the Racarumi system (Racarumi I) on top of the hierarchy. Tschauner (2001) surveyed on the north bank of the Lambayeque Valley and points to an earlier construction of the ancient Taymi canal system (Figure 1.4). The distribution of the Moche V settlements around all nodal points of the system suggests its Late Moche date (ca. AD 800-850). Shimada (2014, personal communication) suggests an even earlier date AD 600-700/750 for HPBG and other Moche V occupations in the Lambayeque Complex. Similar distributions of later settlements suggest that the system was continuously used through Late Intermediate Period and Late Horizon. Decades earlier, Nolan (1980) studied the canal systems on the south bank of the Lambayeque Valley and the north bank of the Zaña Valley (Figure 1.4). He similarly argues that the first construction of the systems was started during the Mochica Period (AD 450-700) and that they were continuously used during Sicán Periods up until Late Horizon.

The construction and use of canal systems during the Sicán Periods has also been documented in the adjacent Jequetepeque Valley. Eling (1987) studied the canal systems on both banks of the Jequetepeque River and argues that the systems were first built before the Moche V Period and abandoned (due to sand drifts primarily on the lower south bank) or extended and modified during the Early to Middle Sicán Periods (or "Period 3" [AD 750-1000] in his term). The systems that were not abandoned were transformed from plot irrigation to field systems for the purpose of maximizing the cultivable area. Eling stresses that the canal systems on the northern North Coast are the result of cumulative trial and error processes inaugurated during the Mochica Period, in which different construction plans and techniques were employed and examined (Eling 1987:460-462).

It is important to note that the focus of most of the above studies was confined largely to the middle valley portion and that earlier occupations associated with irrigation canals may be found in the upper valley (see Kosok 1959:60-61). For example, Wilson's (1988) settlement pattern analysis in the Santa Valley clearly demonstrates that the pre-Mochica settlements such as Salinar and Gallinazo (Virú) were established more favorably in the upper valley portions. In fact, all but one prehispanic irrigation canal

(Huaca Santa System) were found associated with pre-Mochica settlements, and five out of 11 canals were recorded in the upper valley (Wilson 1988:43-51). Consequently, it is possible that canal systems dating earlier than the Sicán and Mochica Periods occurred in the upper valley portions of the Lambayeque Complex (see Hayashida 2006:246).

5.2.3. Geomorphological and hydrological characteristics of the Lambayeque Complex

How suitable and productive was the Lambayeque Complex for irrigation agriculture? Craig and Shimada's extensive geomorphological and hydrological survey in the Lambayeque Complex during the late 1970s revealed that the Complex constitutes a huge and shallow abrasion platform between the valleys of Piura to the north and Zaña to the south, which was initially formed during the late Tertiary. The subsequent Quaternary alluvium made this platform nearly horizontal (Shimada 1981:430). In the Lambayeque Valley, the gradient measures only 1.1 % for the range from 0 to 1000 m above sea level, and the 150m-elevation point is located far more inland, 58 km from the river mouth, compared to other valleys on the North Coast (e.g., 51 km for Zaña, 30 km for Jequetepeque, 19 km for Moche, and 27 km for Santa; See Moseley 1983:785, Table 1). Moreover, the annual discharge volume ranges from 414 to 1,305 million m^3, which is more stable than that varying from 254 to 2,570 million m^3 in the Chicama River (Kosok 1959:50; cf. 700–900 million m^3 per year, according to

Shimada et al. 1991:263; also see Shimada 1982). In modern times, the irrigated area of the Lambayeque Valley reaches nearly 75,000 ha (750 km^2), and the total cultivated area is calculated to be at least 50,000 ha (500 km^2) and exceeds 35,000 ha (350 km^2) of the Chicama Valley (Kosok 1959:51). Although Moseley (1983:785, Table 1) provides different figures for the irrigated areas of different valleys on the North Coast (e.g., 523.42 km^2 for Lambayeque and 403.71 km^2 for Chicama), that of the Lambayeque Valley is the largest, and the relative differences among valleys seem to be quite consistent. According to Collin Delavaud (1968:128, Tableau 25), at the present time, the Lambayeque Valley and the adjacent La Leche Valley together have a total of 136,000 ha of cultivable land, over 63 % of which (86,000 ha) is under cultivation. In prehispanic times, the irrigated area of the Lambayeque Valley seems to have been even larger. According to Kosok's (1959:56) estimation, in the Lambayeque Valley, the area of 96,700 ha was irrigated, and 71,700 ha cultivated (as opposed to the aforementioned 50,000 ha in modern times) sparing an area of 25,000 ha for fallow and drainage. He concluded that the Lambayeque Complex, including the Jequetepeque canal system, embraced up to a third of the estimated total population and estimated cultivable land of the whole Peruvian coastal region (Kosok 1965:147).

Given the very flat and large, gently sloping valley floors with relatively abundant and stable discharge volume, the Lambayeque Complex – especially the Lambayeque Valley – has been perfectly suitable for irrigation agriculture from prehispanic times (Shimada 1981:430). Inheriting and further developing the legacy from the previous society, the Sicán people realized intensive irrigation agriculture, which together with fishery and domestication of camelids became a fundamental component to establish a firm subsistence economy and support the large population of the Middle Sicán society.

5.2.4. The Middle Sicán settlement systems

How was the Lambayeque Complex occupied? Drawing upon the documented spatiotemporal distributions of different types of settlements against the background of the above rich natural resources, archaeologists have made efforts to outline and explain the developmental sequences of settlements in relation to their functions and to reconstruct the cultural institutions, which are assumed to be reflected in the settlement configurations. The aforementioned survey by Tschauner (2001, 2014) on the north bank of the Lambayeque River revealed a centripetal distribution patterns of the Middle Sicán settlements classified in to five tiers (Classes 1 to 5). The enormous mound complex of Vista Florida occupies the top rank of the settlement hierarchy and is located in the heart of the valley, surrounded by a ring of second-rank satellites on the margin (Tschauner 2001:611, Figure 619.624). This network of mound centers probably integrated the entire valley including the south bank. Separated by a thinly settled corridor running E-W near the modern-day town of Ferreñafe, there is a similar concentration of settlements documented to the north. Tschauner finds a parallel between these archaeologically documented settlement systems and Kosok's (1965:178) model of a federation of kinship-based local polities (Pátapo-Cinto, Sipán-Collique, Jayanca, and Túcume). The multiple settlement systems in the Lambayeque Complex, representing local polities, were probably subordinated by the massive religious center or the site of Sicán in the adjacent La Leche Valley. Tschauner (2001:329) concludes that "[a] shared belief system focused on such a center could have integrated a federation of semiautonomous polities, which broke down with the collapse of the religious center at the end of the Middle Sicán period." His conclusion is also in line with Netherly's (1977, 1984, 1990) ethnohistorical reconstruction of separate polities organized in a nested structure and loosely subject to a paramount lord.

In contrast, Schaedel (1967 [1951]) argues that different valleys of the Lambayeque Complex might have had different roles for broader social, economic, and political contexts. He points to a clear distinction in land use between the Motupe-Leche and Lambayeque Valleys. The former have two elite urban centers (Apurléc in Motupe and Túcume in La Leche) but few residential sites, whereas the latter has a large number of residential sites but no urban center. Schaedel (1967 [1951]:240) explains this distinction by speculating that the larger Lambayeque Valley might have been utilized for agricultural exploitation in order to support the populations of higher status who resided in the smaller Motupe and La Leche Valleys and served for urban developments. He assumes that the same scenario may explain the similar relation between the Chicama and Moche Valleys to the south. Concerning the location of the later Chimú capital, Chan Chan, Kosok (1965:88) also poses a similar question: "Why did this small to medium-sized Moche Valley, and not the larger and richer Chicama Valley, become the political-military center?" He argues that "*[s]maller* valleys like the Virú … may have been able to achieve an earlier political unity, but would *not have had the strength* to conquer the larger neighboring valleys. On the other hand, *larger* valleys, like the Chicama and, even more so, the Lambayeque, *may have been too large* to have become more than loose political federations" (1965:88; emphases in the original texts). Kosok's idea seems to be well compatible with his collaborator Schaedel's; the Lambayeque might have been too large to consolidate and thus better served as a bread basket for urban developments in neighboring valleys.

Based on their geomorphological and hydrological studies, Craig and Shimada (1981:430) argue that the mid-valley portion of the La Leche River (or the study area) was not appropriate for agricultural exploitation without enough water available on a regular basis. During their intensive surveys in the valley in 1978 and 1979, no prehispanic irrigation agriculture was documented. All of the observed field systems and irrigation canals were found to be modern and dated to the short time immediately after the major flood in 1925. They could not find any soil characteristic that derives from repeated irrigations of furrows or other forms of agricultural practices (e.g., subsurface hardpans of illuvial silica and calcium carbonate) at any point in the profile of a modern-day canal (Poma Canal), which crosscuts ca. 5 km north to south the mid-valley portion of the river. In fact, Shimada's later excavations of the Initial Period-Early Horizon ceramic kilns along the Poma Canal revealed the existence of buried cultivation furrows dating to sometime after the Early Horizon. There were indeed agricultural activities in the area; however, they seem to have lasted only for a certain period of time and may not have persisted until the late prehispanic times. In the La Leche Valley, there are three points of gradient change. The area zoned as the Pómac Forest National Historical Sanctuary today, in which the site of Sicán is located, fits between the second and third points. The area has a relatively steeper gradient, which is not ideal for irrigation agriculture. Irrigation is considered more suitable for the less steep areas upstream from the second point of gradient change with more abundant water available. Consequently, the upper valley region was used for agriculture, while the middle valley was occupied by the site of Sicán of ca. 2 km^2 or 200 ha (ca. 1 [N-S] x 2 km [E-W]) and reserved primarily for *non-agricultural*, ceremonial purpose.

5.2.5. Intra-site organization of the site of Sicán

Narrowing down to the intra-site level, how was the site of Sicán organized? The site has long been considered as a ceremonial center (or a cult place), drawing upon Schaedel's (1967 [1951]:232) definition of it as a cluster "of huacas (pyramid-temples) usually with some minor construction in the immediate vicinity which may have served as living quarters for a limited population" (also see Rowe 1963:4-5). In the same light, Helaine Silverman (1994) characterized Sicán – together with other sites like Chavín de Huántar, Cahuachi, Tiwanaku, and Pachacamac – as a pilgrimage center (a type of ceremonial centers) and assumed that it was usually empty but crowded with cult followers only during periodic ceremonies. Pilgrimage is a journey of a follower of religion that leads to the central and sole focus of worship located at the sacred site (e.g., shrine and temple). In Pachacamac, historically known as the most powerful pilgrimage site on the Peruvian coast, the center of worship was at the most sacred Pachacamac Temple (a.k.a. Painted Temple), where oracular practices were taking place at the time of Spanish arrival. The site consisted of four major sectors concentrically segmented by major streets and walls (Matsumoto 2005). The most sacred temple was built inside the inner- and center-most sector enclosed by the primary wall. Contrarily, the site of Sicán lacks such a sole focus of worship and rather consists of six major platform mounds that are different in size and shape but do not show any hierarchical differences among them. Thus, available information about the site clearly counters the idea that it was a pilgrimage center with a sole shrine of centripetal force like Pachacamac.

Rather, six major mounds at the Middle Sicán state capital (Huacas Loro, Las Ventanas, La Merced[17], El Corte, Lercanlech, and Sontillo), three of which surround the Great Plaza, share three common components in the same concentric organization to form an architectural complex, which I designate "Middle Sicán Mortuary Complex" or MSMC: (1) a temple mound, (2) an immediately associated elite cemetery ground and craft workshop(s) for funerary preparations (metals and perhaps ceramics) around the mound, and (3) an open space around the cemetery for public activities. This architectural configuration underlies Shimada's (2009:55; 2014:73) latest hypothesis that the Middle Sicán state was governed by a federation of six elite lineages, each associated with a large ceremonial mound with burial ground at the foot of it. The complex of cemetery, mound, and open space provided the associated elite lineage with the place for (1) burying, (2) enshrining, and (3) honoring and commemorating their dead respectively. The six Mortuary Complexes are therefore inferred to have been somewhat similar to Moore's (1996:124) "ancestral pilgrimage site", although how one views the concentration of such ancestral shrines in the close proximity to each other will significantly affect one's interpretation of the site function as a whole.

5.2.5.1. <u>Temple mound</u>. The truncated mounds of the Middle Sicán Mortuary Complexes had a ritual space on top of them. The best-documented Huaca Loro is reported to have had a temple-like superstructure that was only accessible by a narrow slope attached to the west side of the mound. It is likely that only a limited number of people, most probably the members of the associated elite lineage and priests, were given access to the temple. The temple structure was surrounded by a wall of at least man's height, the interior surface of which was decorated with a polychrome mural depicting the Sicán Deity or the deified Sicán Lord with supernatural features (Figure 1.6). The ritual activities that occurred within the wall could not be seen from the ground level. This architectural style might have enabled the Huaca Loro elite lineage to keep others (e.g., other elite lineages and the general masses of Mochica cultural identity) away from their esoteric ritual performance and knowledge. The immediate association between the mound and the cemetery around it leads me to infer that the ritual space on top of the mound was reserved for death rituals.

5.2.5.2. Cemetery ground. A series of GPR surveys and subsequent excavations by Shimada and his colleagues around the base of Huaca Loro since the early 1990s have pointed to a possible planned layout of elite tombs including the two deep elite shaft tombs of great material wealth, East and West Tombs. The traces of shroud found in tombs and burials suggest that the bodies might have been preserved in the form of funerary bundle as with those excavated at Huaca Las Ventanas and El Brujo (Elera 2009; Franco 2009; Wester 2013) (Figure 4.6). Preserving the corpses for protracted ritual interactions (e.g., re-visitations and cares) is a salient feature of Andean ancestor veneration (Shimada et al. in press). The principal personages of elite tombs were interred with a metal mask in a cross-legged, seated position, conforming to the Sicán burial custom.

5.2.5.3. Open space for public activities. The outermost open spaces or buffer zones around the cemeteries of the Complexes seem to have been used for some public activities during the Middle Sicán Period (Montenegro 1997, 1994; Montenegro and Shimada 1998; Matsumoto and Shimada 2011; Elera 2013, personal communications). As insightfully demonstrated in ethnographic and ethnoarchaeological studies (e.g., Kent 1984, 1987; Low 2000; Hara 2003), we should keep in mind that activity areas are multifaceted and multivocal. Hara's (2003) historical study of the Imperial Palace Plaza in Tokyo, for instance, illuminates the drastic changes in its function through time. The Plaza served not only for the imperial ceremonies for the sake of the Emperor himself and his imperial families, but also for various other purposes. In case of emergency (e.g., the Great Kanto Earthquake in 1923), it functioned as a major evacuation site and was open to the general public. In another time, it accommodated political demonstrators who were actually against the imperial regime that holds the emperor as a symbol of the unity of the people of Japan. It is also known that during a certain period, the plaza served as a place for couples to whisper their love during the night. Different activities for different purposes may share the same space and take place at different times of the year, month, week, and even a single day, although it would be difficult to discuss the (un)contemporaneity among different activities in a strict sense with the given chronological resolution in archaeological studies.

5.2.6. The location of the site of Sicán viewed from economic perspective

The concentration of the Middle Sicán Mortuary Complexes was built in an agriculturally unsuitable area right by the La Leche River. This site location counters the logic of the approaches that emphasizes the economic aspects of ancestor veneration (e.g., Saxe/Goldstein Hypothesis and its derivative theories) and thus requires another explanation. A possible scenario below is based on a series of assumptions including one that the Middle Sicán elite indeed practiced ancestor veneration.

Existing data suggest that the ruling elites in the Sicán society belonged to localized patrilocal lineage groups subordinating local agriculturalists, the territories of which were clearly defined in relation to associated irrigation systems (e.g., genetic studies by Corruccini [Corruccini and Shimada 2002] and settlement pattern studies by Tschauner [2001] and others). The increased number of settlements from the Early Sicán Period alludes to the population growth; however, it is not clear if there was any dispute among the lineage groups over the rights for land and other natural resources. As already mentioned, there has been hardly any archaeological evidence that suggests the occurrence of armed conflicts during the Middle Sicán Period (e.g., weapons, traumatic features on human remains, artistic representations of armed combats, and defensive architecture such as fortress). Nonetheless, a resource-holding principle based on some inheritance relation, if not agnation, might have served to mitigate socioeconomic tensions among them and contributed to the ease of inheritance process and subsequent social stability. It is possible that the inferred ancestor cult not only enhanced the internal cohesion within each of the elite groups, but also reinforced this inheritance principle by affirming the continuity of each lineage.

As discussed in Chapter 3, however, anthropologists and archaeologists who stress the economic aspects of ancestor cult have argued that within a society that practices ancestor cult, people make ancestral burials at a particular locale within the disputed land and strategically utilize them to demonstrate the regular presence of their lineage (Saxe 1970; Glazier 1984). If the site of Sicán was an aggregation of complexes of ancestral burials and shrines, those complexes were detached from the territories of the associated lineages and consolidated in a “neutral” area in the mid- La Leche Valley, which was not appropriate for irrigation agriculture. The aforementioned geomorphological and hydrological studies by Craig and Shimada (1981) illuminate that the major accumulation of alluvium from the inferred “Fellempec (or Naymlap) Flood” of the 11th century AD raised the surface level to the point its irrigation was essentially impossible without building a major canal from farther inland. Therefore, the site location cannot be explained in terms of land claim. If the site was located at a more strategic locale, such as an intake or watershed where the water control was possible (e.g., Pampa Grande at the valley neck of the Lambayeque River and Campamento de Paredones at the headwater of the Racarumi canal system[18]), it could have been plausible to argue that the site was constructed to stake a claim to water.

Furthermore, the local mines and metallurgical sites (e.g., Cerros Huaringa, Blanco, Mellizo, and Barranco Colorado), which supported the Middle Sicán mass-production of arsenical bronze, are located some 15-20 kilometers more inland from the site of Sicán (Shimada and Craig 2013:7, Figure 3), while any nodal points or major routes for long-distance trade have not been reported near the site. A section of the Inca Road has been documented, but at least several kilometers inland from the site. Thus, the site location of the Middle Sicán capital is not crucial in terms of any of the critical resources that ensured the prosperity of the Middle Sicán society. It should be explained by something else other than economic factors. I will return to this issue in Chapter 8.

NOTES

1 The word may be transcribed also as *sian* or *signan*.

2 Maeda Ascencio put forward another idea that the word should be spelled as "Cicán" that derives from a prehispanic Sechuran language Sec and implies a greater importance given to the sun, rather than the moon.

3 In collaboration with a geologist Alan Craig, Shimada (1981:434) conducted geomorphological and hydrological analyses of the lower Lambayeque Valley and revealed that the solitary pyramid of Chornancap on the north bank of the partially sand-filled ancient course of the Lambayeque River corresponds better to the "Temple of Chot" mentioned in the legend. Chotuna, which has been considered as Chot, is located further inland and east of any ancient river.

4 For example, the name of the founder is spelled differently in different versions. It was first spelled as "Ñaimlap" in Cabello Valboa's original manuscript conserved and reposited at the University of Texas, Austin, and as "Naimlap" in its 1951 edition published by Universidad Nacional Mayor de San Marcos in Lima (Cabello Valboa 1951 [1586]:327). Trimborn (1979:10) argues that the same personage was referred to by Rubiños (1936 [1782]) with the name of "Ñamla" or "Namla" which means "bird of the water." More recently, he is also known as "Naylamp."

5 This site has recently been renamed as "Huacas de Moche." At the time Uhle excavated there, it was called "Moche."

6 The first name "Proto-Chimu" for this archaeological culture was later replaced by "Early Chimú" (Kroeber 1930:54; Rowe 1954) and then "Mochica" (Larco Hoyle 2001a [1938], 2001b [1939]; Kroeber 1944).

7 The surface surveys, settlement pattern study, and stratigraphic excavations conducted by the members of the Virú Valley Project enabled them eventually to propose eight-phase ceramic chronology: (1) Cerro Prieto (coastal pre-ceramic), (2) Guañape (Cupisnique), (3) Puerto Moorin (Salinar), (4) Gallinazo (Virú Negative), (5) Huancaco (Mochica), (6) Tomaval (North Coast Tiahuanaco), (7) La Plata (Chimu), and (8) Estero (Inca influence). It was unfortunate that the study area was out of the core area of the Sicán cultural developments in the northern North Coast, and therefore the Sicán style, which Larco Hoyle (1948) considered as contemporaneous with the sixth (Época Fusional), was not included in this chronology.

8 Tello (1929:21) put forth a five-phase chronology for the coast cultures that, he believed, had their origins in the highlands: (1) the culture of the primitive coastal fishermen, (2) the cultures known as "protoides" (e.g., Proto-Chimú, Proto-Lima, Proto-Nazca, and Chavín), (3) the culture of Tiwanako and its

derivatives or epigones, (4) the local cultures on the coast (e.g., Chimú, Chancay, Ica or Chincha, and Atacameña), and (5) the Inca culture. He identified as "Chimú" a blackware pedestaled double-spout-and-bridge bottle with the Sican Lord image on the upper portion of the carinated body (Tello 1938:30, Fig 19).

9 Regarding the difficulty to distinguish the Mochica and Chimu ceramic styles, Shimada (1994:263-264) adds, "a substantial portion of the territory controlled by Chimú overlapped that of the Mochica … Chimú artisans often used Mochica ceramics for artistic inspiration. They not only replicated Mochica forms in black or gray reduced wares, but also imitated the diagnostic red-on-cream finish. This 'archaism' confused early students of North Coast prehistory."

10 The HPBG stratigraphy also covered much of the historical era right up to the modern era.

11 *Algarrobo* is the common name for a group of thorny trees (genus *Prosopis*) in the pea family (Fabaceae), found widely in the subtropical and tropical regions of the South America. The Pómac Forest National Historical Sanctuary, in which the site of Sicán is located, is known for the dense vegetation of *algarrobo* among others.

12 They include (1) greater details of incised facial features of the Sicán Lord, (2) the addition and elaboration of the adornments decorating the Lord (e.g., headdress

and ear ornaments), and (3) the increasing number of auxiliary figures accompanying the Lord.

13 Shimada (1990:312) also argues that the Late Sicán Period may be divided into two subphases (AD 1100-1250?) and B (AD 1250?-1350?) based on a preliminary analysis of changes observed in the style, technique, and form of funerary ceramics from HPBG.

14 The mural at Huaca Loro was recorded on the interior surface of the East Façade around the southeast corner of the temple atop the mound (Figure 4.4 redrawn after Florián 1951:9; a partial photo seen in Bonavia 1974:109, Plate 57; another photo in Narváez and Delgado 2011:65, Fig. 43-G). The Sicán Lord image found at Huaca Pintada ("Ave-Lunar Fresco" in Carrión Cachot's [1940] terms) might have been the central figure that was partially recorded in another large mural that consists of the central figure and profile "bird warriors" (Carrión Cachot 1940:585, Fig. 17).

15 In the Wayana society in the Guiana highlands, affines arriving in ceremonial feasts are symbolically equated with humming birds and simultaneously associated with death and fertility (Brightman 2011).

16 The far northern North Coast includes (1) Tumbez, (2) Chira, and (3) Piura Valleys (from north to south); the northern includes (1) Motupe, (2) La Leche, (3)

Lambayeque, (4) Zaña, and (5) Jequetepeque Valleys; the central includes (1) Chicama, (2) Moche, (3) Virú, and (4) Chao; and the southern includes (1) Santa, (2) Nepeña, (3) Casma, and (4) Huarmey Valleys (Nolan 1980:6).

17 Huaca La Merced and another amorphous mound (once located at the southeast corner of the Great Plaza) have been completely washed away by a relatively recent massive flood and are now invisible (Shimada 2014, personal communication).

18 Hayashida (2006:246) suspects that two crops a year were possible in this area.

Figure 5.1. Pacatnamú and Huaca Signan in the Lower Jequetepeque Valley on the North Coast of Peru.

Figure 5.2. A ceremonial gold knife called Tumi in Quechua and decorated with the standing image of Sicán Deity (MNAAHP; INC/65158). Photo courtesy of Yutaka Yoshii.

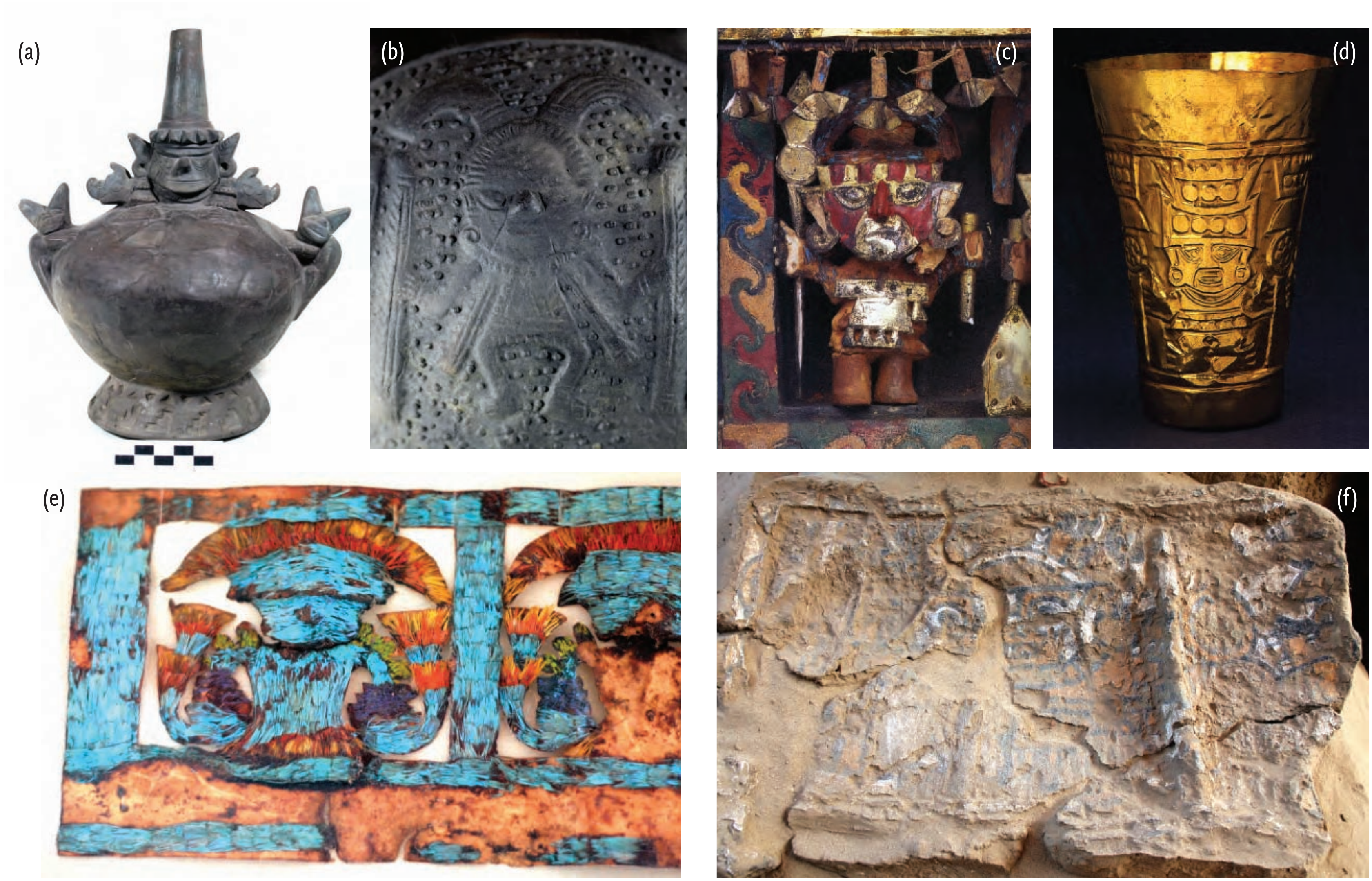


Figure 5.3. Sicán Lord/Deity images depicted on various media: (a) a single-spout pedestaled blackware bottle, traditionally known as "Huaco Rey" (or Type A in Zevallos' term), (b) a press-molded image on the body of a blackware jug, (c) a wooden model decorating the back of a litter (Gold Museum of Peru; photo courtesy of Yutaka Yoshii), (d) a gold beaker or kero (Banco Central de Reserva del Perú; photo courtesy of Yutaka Yoshii), (e) a feather work (Pachacamac Site Museum), and (f) a painted cloth excavated at Huaca Las Ventanas.

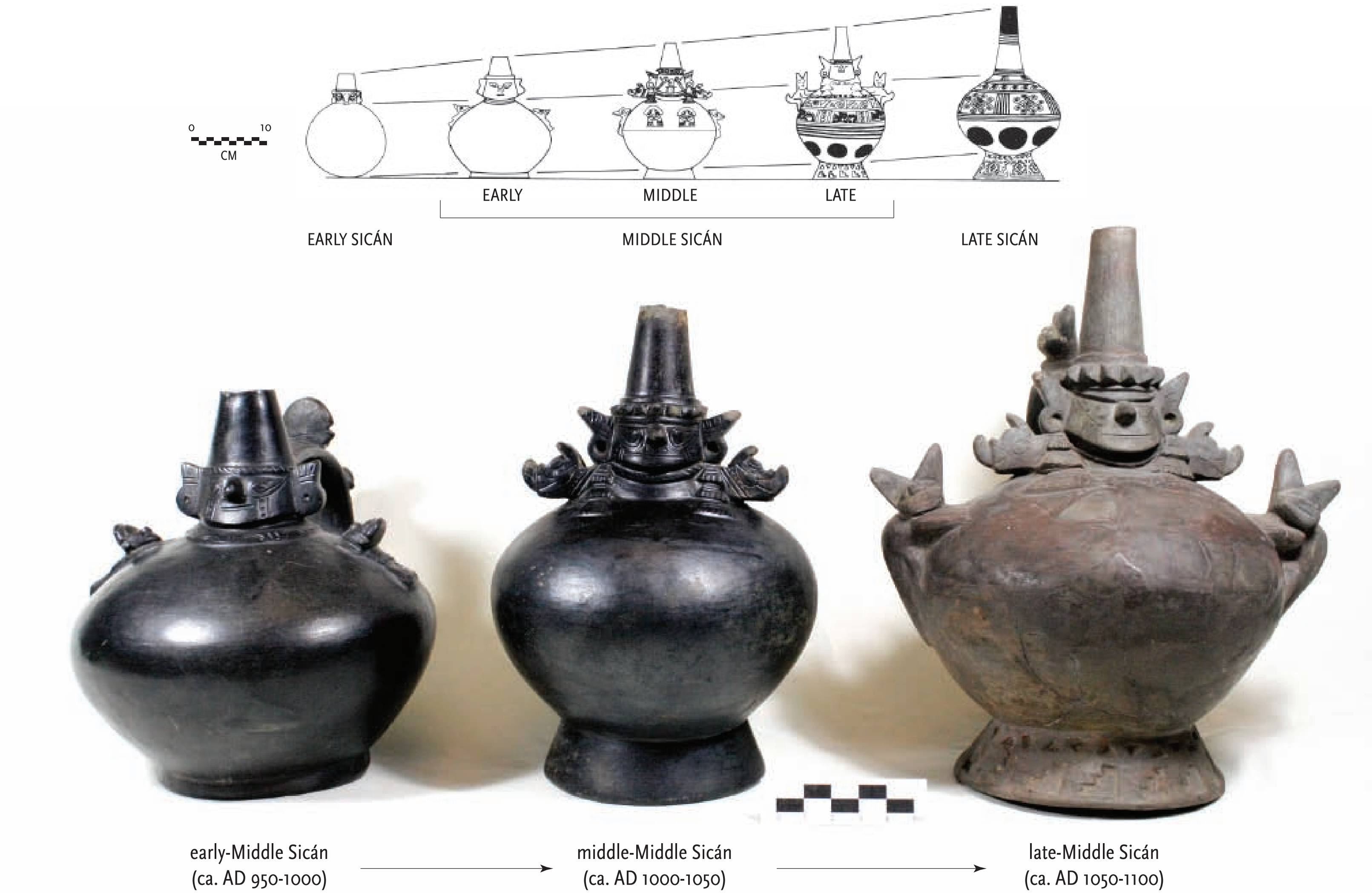


Figure 5.4. Three-stage chronology of the single-spouted pedestaled blackware bottles (reproduced after Shimada 1990:328, Fig. 18). The Middle Sicán Period is divided into three phases: early-, middle-, and late-Middle Sicán Periods. Note the increasing number of and greater elaboration of some features as well as the change in the proportion of the component parts (e.g., spout, body, and pedestal base).

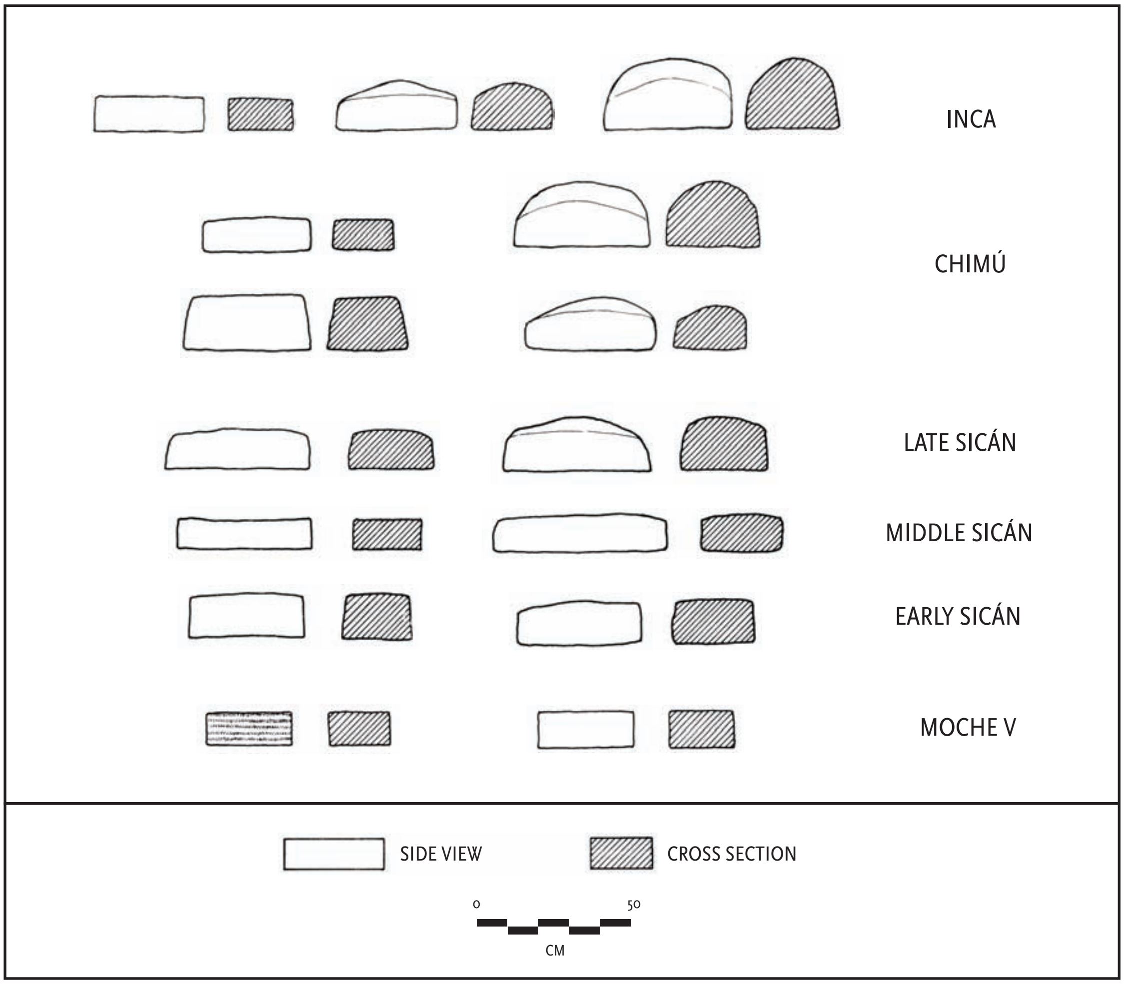


Figure 5.5. Stratigraphically ordered adobe forms of Sican architecture. The relevant information is derived from Huaca del Pueblo Batán Grande and Huaca La Merced, Mound II (reproduced after Shimada 1990:348, Fig. 29).

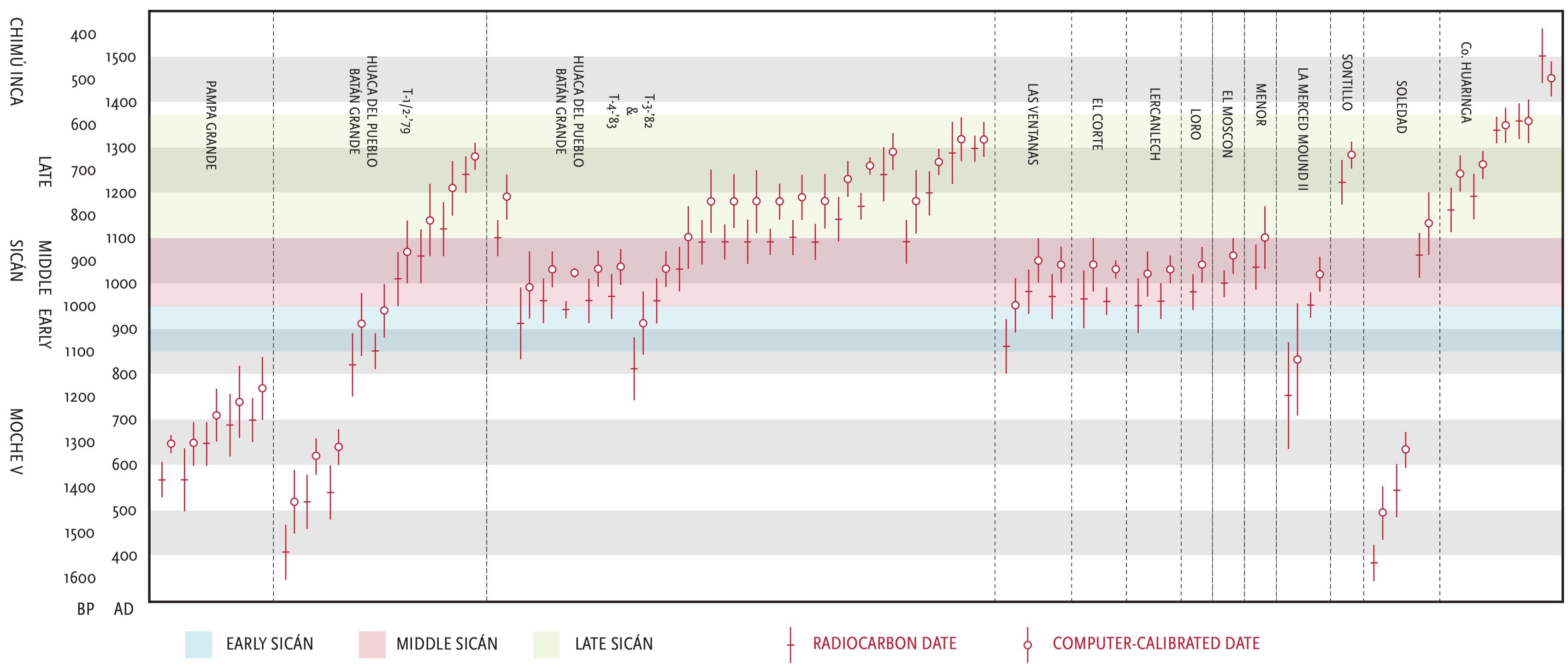


Figure 5.6. Graphic representation of radiocarbon and calibrated dates available for sites in the Lambayeque and La Leche Valleys (modified and redrawn after Shimada 1990:309, Fig. 4). The dates from Huaca del Pueblo Batán Grande (HPBG) served as the backbone of the regional chronology. The dates from the monumental architectural sites in the Poma District show a tight cluster around AD 1050-1100, the rage of Late Middle Sicán Period.

Figure 5.7. Reconstruction of the Sicán worldview painted on a metal plate and found ca. 4 m below the mouth of the South Tomb at Huaca Las Ventanas (redrawn after Shimada 1995:136-137, Fig. 120).

Figure 5.8. Reconstruction of the Sicán worldview painted on a metal plate and found ca. 8 m below the mouth of the South Tomb at Huaca Las Ventanas (redrawn after Shimada 1995:138, Fig. 121).

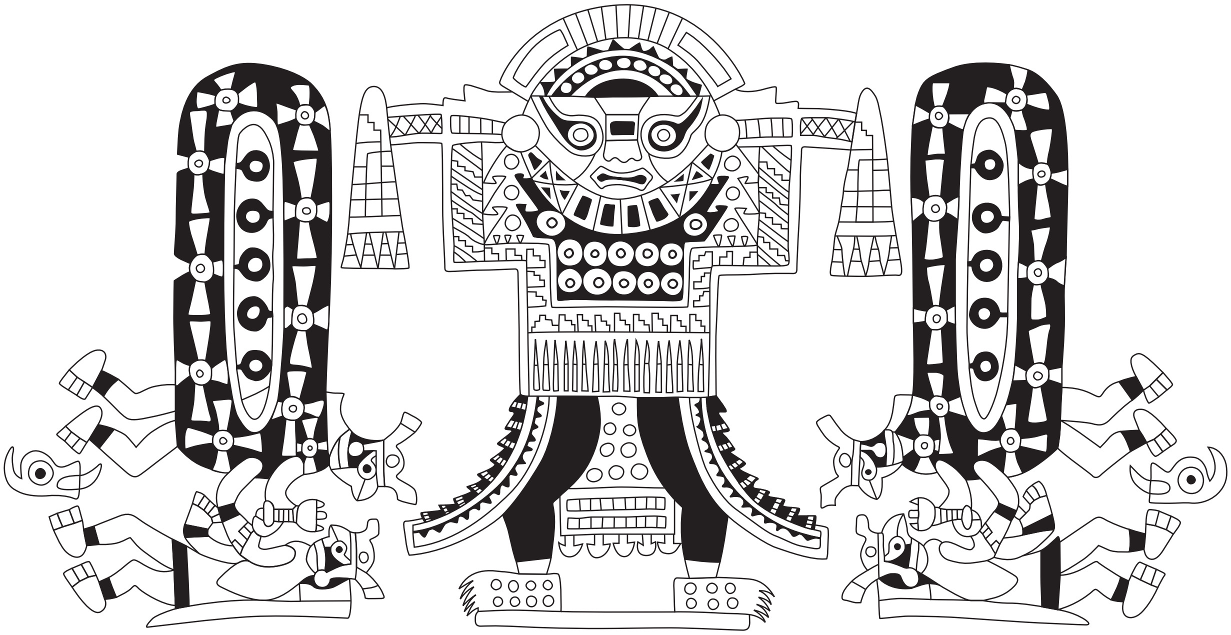


Figure 5.9. The Sicán Deity depicted on a mural ("Ave-Lunar Fresco" in Carrión Cachot's terms) found at Huaca Pintada, nearby the modern-day town of Illimo (redrawn after Carrión Cachot 1940:585, Fig. 17).

Figure 5.10. The bird-like face of Sicán Deity at the spout base of the Early Sicán fine blackware bottle (Brüning National Archaeological Museum).

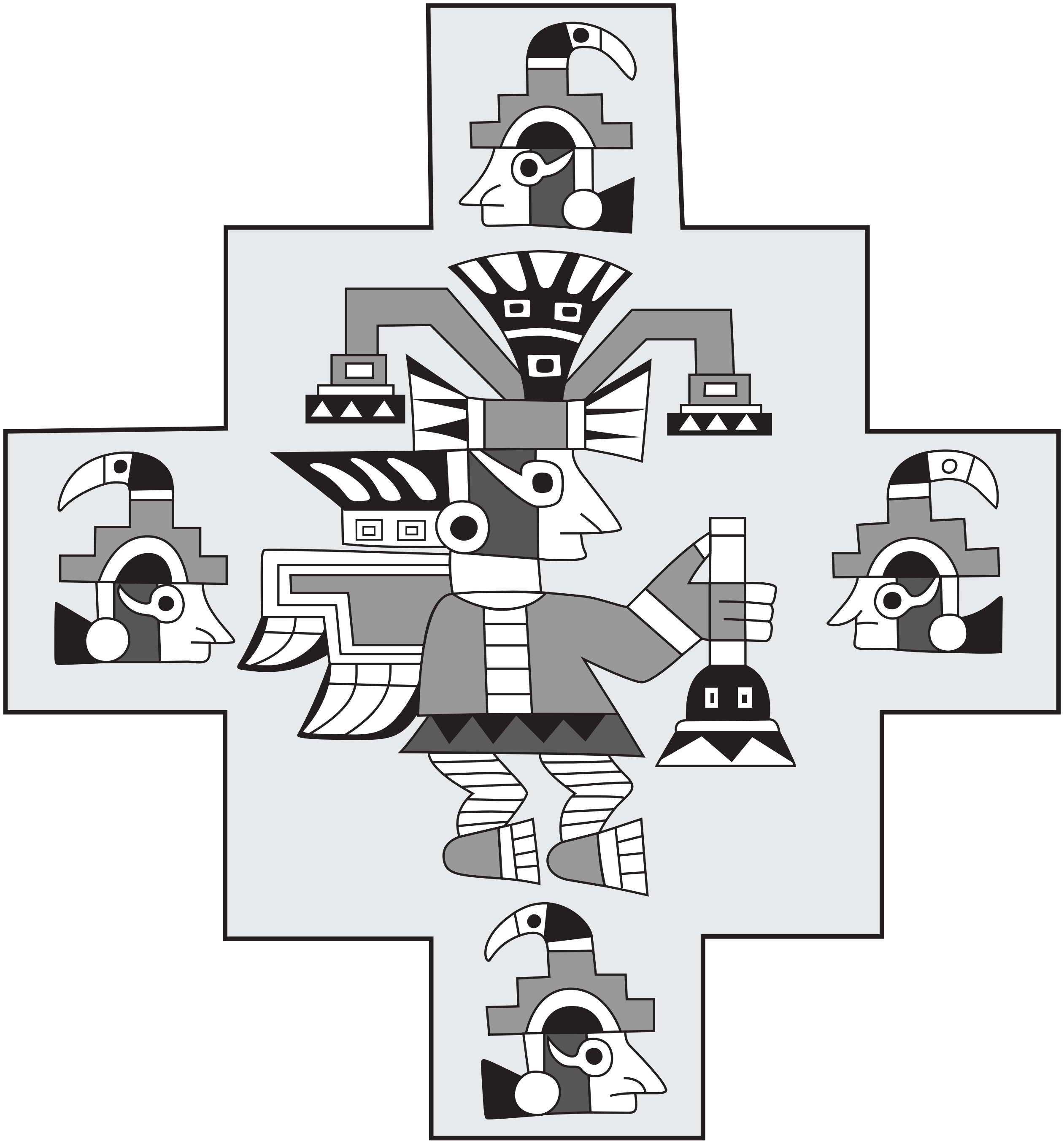


Figure 5.11. The Sicán Deity image with wings and feathers in the profile view on a section of tapestry from the site of Pachacamac (redrawn after Carrión Cachot 1940:585, Fig. 516).

Figure 5.12. A painted textile in the collection of Brüning National Archaeological Museum in Lambayeque, Peru. Rows of the cephalic regions of Sicán Deity decorated with a semi-circular headdress and an ear ornament are painted on the edges and represented as the breaking crests of waves.

Table 5.1. Chronological chart for the Lambayeque Complex and the surrounding areas to the north and south.

Other Regions (to the south)						Peruvian Referent Chronology		Lambayeque Complex					Other Regions (north)	
Central Coast	Santa	Virú	Moche	Chicama	Jequetepeque								Cajamarca Basin	Upper Piura
Uhle (Shimada 1991)	Santa Valley Project (Wilson 1988)	Virú Valley Project (Willey 1955)	San Jose de Moro (Castillo 2012)	San Jose de Moro (Castillo 2012)	San Jose de Moro (Castillo 2012)	(Rowe and Menzel 1967)		Sicán Archaeological Project (Shimada 2009:99)	Zevallos (Zevallos 1971)		Kosok-Schaedel (Kosok 1959:61)	Bennett (Bennett 1939)	Japanese Scientific Expedition to Nuclear America (Terada and Onuki 1982)	Bats (Bats 1990, 1991)
Inka Influence Pachacamac IV	Late Tambo Real	Estero	Chimú-Inka (AD 1476-1532)	Chimú-Inka (AD 1476-1532)	Chimú-Inka (AD 1476-1532)	Late Horizon (AD 1476-1532)	1500	Inka (AD 1476-1532)	Lambayeque Tardío	Inca Regional	E (AD 1450-1530)	Late Lambayeque II	Cajamarca-Inka (AD 1476-1532)	Inca (AD 1460-1532)
					Chimú			Chimú (AD 1375-1476)			D (Chimu Invasion) (AD 1200-1450)			Chimú (AD 1375-1460)
Chancay Pachacamac III	Early Tambo Real	La Plata			B Lambayeque	Late Intermediate Period (AD 900-1476)		Late Sicán (AD 1100-1375)	Lambayeque Medio (Fusional)	Cajamarca Lambayeque II Estillo Serrano-Costeño Tricolor Crema/rojo - Rojo/crema Serie Caballito (AD 900-1476)		Late Lambayeque I	Final Cajamarca	Piura (AD 1000-1375)
					A			Middle Sicán (AD 1050-1100) (AD 1000-1050) (AD 950-1000)			C (Naymlap Dynasty?) (AD 1000-1200)		Late Cajamarca	
	Late Tanguche (Sicán Influence)		Early Chimú ?	Transitional ?	Viñaque Transitional		1000	Early Sicán (AD 850-950)			B (AD 700-1000)	Middle Lambayeque II		Campana (AD 700-1000)
Wari-derived Pachacamac II Pachacamac B A	Early Tanguche (Wari Influence)	Tomaval	IV	Moche V IV	Late Moche Polychrome Nievería Chaquipampa Late	Middle Horizon (AD 550-900)		Moche V		Mochicoide (Influencia Serrana) "Cachacos" (Lambayeque I Transform)			Middle Cajamarca	
Nievería			Moche III	IV III	Middle Moche			IV			A (AD 500-700)	Middle Lambayeque I		
Lima (Maranga-Interlocking) Pachacamac I	Guadalupito (Moche II-IV)	Huancaco	II	Early Moche	Early Moche		500		Lambayeque Clasico	Lambayeque I				Vicús (AD 300-700)
	Late Suchimancillo (Late Gallinazo)	Gallinazo L M E	I					Gallinazo-like (or Virú)					Early Cajamarca	
Baños de Boza Miramar (White-on-Red)	Early Suchimancillo (Early Gallinazo)	Late Puerto Moorin				Early Intermediate Period (400 BC-AD 550)	AD BC	Salinar-like Vicús?	Lambayeque Preclasico	Tránsito Mochica (Posibilidad de Vicús)			Initial Cajamarca	Chapica (300 BC-AD 300)
	Vinzos	Early Puerto Moorin												
		Late Guañape					500						Layzón	La Encantada (500-300 BC)
Ancón (Chavín)	Cayhuamarca	Middle Guañape						Cupisnique-like		Chavín Bicromo Policromo Monocromo (Formativo)			Late Huacaloma	Panecillo (700-500 BC)
						Early Horizon (1400-400 BC)	1000		Lambayeque Temprano	(1400-400 BC)				Ñañañique (1100-700 BC)
													Early Huacaloma	
Haldas		Early Guañape				Initial Period (2100-1400 BC)	1500		Lambayeque Preceramico	Preceramico				

CHAPTER 6

EXCAVATIONS AT THE MIDDLE SICÁN STATE CAPITAL

With the research hypotheses presented in Chapter 4, I focus attention on two ritual contexts in the ceremonial core of the Middle Sicán capital (Figures 1.5 and 4.1): (1) the locus of ritual activities unveiled by the aforementioned Shimada's test excavation in 1997 and the underlying nearly intact Middle Sicán burial ground at the west base of Huaca Loro – designated "West Cemetery" – and (2) an inferred ritual ground east of Huaca Loro near the west edge of the Great Plaza, which is circumscribed by the four major monumental structures: Huaca Loro to the west, Huaca Colorada (a.k.a. El Moscón) to the north, Huaca Las Ventanas to the east, and Huaca La Merced to the southwest. This chapter describes the results of the two field excavations at the West Cemetery in 2006 and at the Great Plaza in 2008. These two excavations were conducted by the Sicán Archaeological Project or SAP (directed by my academic advisor Izumi Shimada) and focused primarily on the Sicán mortuary program that is hypothesized to reflect the structure and organization of the Middle Sicán society. Shimada kindly gave me the opportunity to participate in both excavations to collect data for my dissertation research. Consequently, my dissertation research is nested in the project's broader objectives outlined below.

The 2006 excavation of the West Cemetery at the west base of Huaca Loro aimed:

1. To determine how the Middle Sicán tombs related to each other and what the variability in burial treatments mean by documenting the temporal and spatial distributions and the variations in size, shape, content, and other aspects of the tombs and burials in the intact cemetery;
2. To understand how and how long the dead and the living (or, more specifically, the direct descendants and subjects of the dead) kept interacting with each other after the final depositions of the dead bodies and for what purposes by focusing on the material traces of those post-interment interactions (e.g., rituals and offerings); and
3. To fully document the intact Middle Sicán shaft tombs, particularly the mouths of the tombs and associated offerings.

The subsequent excavation of the Great Plaza in 2008 was guided by the results of the SAP-HL-2006 excavation as well as other previous nearby excavations. It aimed:

1. To determine if the deep feature detected by a ground-penetrating radar (GPR) survey at the central part of the summit of Huaca Loro would be a tomb or not (Excavation Area 2);
2. To test a working hypothesis that the Middle Sicán society had a dual social organization by excavating three inferred elite tombs located by GPR surveys on the east and west sides of the major (north-south) axis of the North Platform of Huaca Loro (Excavation Areas 1 [west], 4, 5, and 6 [east]);
3. To document the construction history of the North Platform and its association with the main platform of Huaca Loro (Excavation Areas 7 and 8);
4. To expand our knowledge of the nature and range of activities in the Great Plaza that is circumscribed by Huaca Loro and three other ceremonial mounds (Excavation Area 3); and
5. To clarify the traffic of people who had access to the temple on top of Huaca Loro by excavating the base of ramp attached to the west side of the mound (Unfortunately, this was not achieved due to time constraints).

Out of these five objectives directly relevant to my dissertation research were the second and the forth. The Excavation Areas (EAs) 3, 4, 5, and 6 provide critical information for the arguments of post-depositional, ceremonial gatherings in the Great Plaza. Since I supervised the excavation of the EA3, concerning the descriptions about the excavations at the Great Plaza, I confine my focus to the EA3 and do not go beyond presenting some general information for EAs 4 and 5.

6.1. Field procedures

The first excavation at the West Cemetery was carried out from July 26 to December 6, 2006, and the second at the Great Plaza (Excavation Area 3) from July 7 to August 5, 2008.

6.1.1. Setup of excavation units and datum

The selection of excavation location for the first season was guided by the results of previous GPR surveys and a test excavation in 1997. Two trenches were placed 1 m apart at the west base of Huaca Loro so as to pin down precisely where the two intact tombs were inferred to be located (Figure 6.1). The excavation area was covered with trees and bushes (e.g., *algarrobo*) that had to be cleared prior to setting up the trenches. The trenches – designated as Trenches 1 (T1) and 2 (T2) from north to south – both measure 10 × 10 m and were divided into quadrangles for the purpose of registration of materials (Figure 6.3). As shown in the Figure 6.3, each trench has different configuration of quadrangles. The size of the central four quadrangles in each trench was determined according to the inferred size of the tomb. Based on the results of GPR surveys, the tomb in T1 (Tomb 1) was inferred to measure less than 5 × 5 m, whereas the tomb in T2 (Tomb 2) less than 4 × 4 m. The sixteen quadrangles were respectively named from the NW to the SE corner as Quadrangles A through P. When it later turned out that the locations of both T1 and T2 were a few meters off the mark and that the whole extent of Tomb 2 could not be exposed in T2, Trench 3 or T3 (10 [E-W] × 8 [N-S] m) was added immediately south of T2 (Figure 6.2). The amplified area between and around T2 and T3 is designated and referred to as Trench 2/3 (or T2/3) hereafter. Eventually, a total of ca. 320 m^2 was excavated.

The excavation locations for the second season in 2008 were precisely pinpointed and confirmed by an additional GPR survey (Figures 4.1). The EA3 was set up 54 m east of Huaca Loro to expand a test trench excavated by Shimada in 1990 (Figure 6.4). The EA3 expands the T-shaped test trench toward the southwest. A total of ca. 32.5 m^2 was excavated (Table 6.1). The quadrangle grid of 50 cm squares was applied for a more precise recording, as the excavation proceeded.

For the elevation measurement, a datum (103.80 m asl.) was placed around the northwest corner of Huaca Loro and set in concrete. This was used for both excavations in 2006 and 2008. The ground surface of the excavation trenches at the west base of Huaca Loro was undulating (ranging from 97 to 105 m asl.) and gently sloping down toward the west. The heavily eroded sides of Huaca Loro clearly indicate that a substantial amount of soil and refuse fills have crumbled down from Huaca Loro and deposited around it. As mentioned in 5.1.4, the platform mounds during the Middle Sicán Period are known to have been built by the chamber-and-fill technique. Therefore, once a part of the adobe brick and mortar walls comes apart, for example, due to an occasional torrential rain during the ENSO, the fill inside flows out of the chamber, and the whole chamber will collapse. The excavation areas around Huaca Loro should have experienced episodes of heavy rains and floods in the past, if not very remote.

6.1.2. Procedures for digging, recording, and bagging

Depending on the contexts, different tools were used for digging. Thick alluvial layers that contained very few cultural materials were quickly removed using pickaxes and shovels. Sieves were not used for these layers. Artifacts and ecofacts visible in the backdirt were handpicked and bagged. As we approached the contexts that showed a hint of vestiges of human activity, we swiftly switched to use trowels, brushes, and blowers. The soil matrices around the important contexts such as offerings and burials were treated with great care and sieved by 1/8- and 1/16-inch mesh. Whatever tools were used, the excavation proceeded based on natural layers.

For detailed on-site descriptions of archaeological contexts, we used four recording forms prepared by the SAP: (1) feature, (2) burial, and (3) layer (floor/ occupational surface) recording forms. Recovered features and artifacts as well as excavation processes were photographed as detailed as possible, using Canon® EOS

Digital Rebel XT DSLR Camera with 8.0-megapixel CMOS sensor. Photos were taken in the raw-plus-JPEG mode and saved in both raw and high-quality JPEG files. Features and occupational layers were also drawn in plan views. The former was typically drawn with 1:20 or 1:25 scale to show as much details as possible.

The recovered artifacts and ecofacts were classified into different material types and registered following the coding format below. The abbreviations of the material categories are followed by consecutive numbers given to the artifact bags (and to the artifacts inside the bags, if they can/need to be counted). Subsequently, registered materials were carefully measured, observed, and recorded with detailed descriptions in the spreadsheets of Microsoft® Office Excel. For limited types of materials, separate analyses were conducted. The results of those analyses are discussed in detail in Chapter 7.

Format: [Abbreviations of material categories] [Consecutive numbers given to the artifact bags] – [Consecutive numbers give to the artifacts inside the bags]

Example: CE532-12, T-89

Material categories:

C (Carbón)	Charcoal
CE (Cerámicas)	Ceramic sherds
H (Huesos Humanos)	Human bones (and teeth)
HA (Huesos Animales)	Animal bones (and teeth)
L (Lítico)	Stones
M (Metales)	Metal objects
MA (Malacológicos)	Remains of marine animals
OE (Objetos especiales)	Special objects (e.g., chalks, shell beads, spindle whirls)

P (Pigmentos)	Pigments
T (Tierra)	Soil/ash samples
TE (Textiles)	Textiles
V (Vegetales)	Botanical remains

6.2. Excavations at the Huaca Loro West Cemetery

As expected on the basis of previous GPR surveys and a test excavation, our excavation in 2006 uncovered an intact Middle Sicán burial ground at the west base of the Huaca Loro temple mound. The burial ground was designated as the West Cemetery. We documented a total of 26 tombs and burials containing 30 human remains within the excavated area of the cemetery, although the cemetery seems to have extended a little further to the west. Above the West Cemetery were a minimum of 14 occupational surfaces together spanning over 500 years – well into the Late Horizon. The occupational surfaces revealed evidence of various forms of offerings (a total 127 features), many of which evidence the use of fire. This section provides detailed descriptions of these findings. The major focus is placed on (1) stratigraphic sequence, (2) features excavated and recorded on the occupational layers, and (3) tombs and burials in the West Cemetery. Many details in this section are based on the results of collaborative work of various specialists in the project and on the final report submitted to the Ministerio de Cultura in 2007 (Shimada and Elera 2007).

6.2.1. Stratigraphic sequence

Documentation of the stratigraphic sequence of occupational surfaces was a critical task to examine the suspected post-interment ritual activities above the West Cemetery (Tentative Conclusion 5). Most important question relevant to the major objectives of this study was when and how often the burial ground was revisited.

Since the major objective of the SAP 2006 Field Season was to excavate the intact Middle Sicán tombs and burials in the West Cemetery, the layers below the burial ground were basically left unexcavated. The stratigraphic sequence above the cemetery is best illustrated in the profile of the south wall of Trench 1 (SAP-HL'06-T1) (Figures 6.5 and 6.6 and Tables 6.2 and 6.3). Overall, as revealed by Shimada's test excavation in 1997, the profile shows a series of relatively thin layers of alluvial sediments (ca. 5-15 cm) and very few architectural features (Figures 6.7 and 6.8). The sediments seem to have been derived from the Huaca Loro temple mound that eroded by occasional torrential rains and subsequent floods. They contained a wide range of rubble and refuse, such as ceramic sherds, stones, kitchen garbage, animal dung, and metallurgical residues, which once filled the chambers of the mound. Many of the surfaces of the alluvial layers were burnt, and thin layers or lenses of burnt soil and ash were observed immediately above those burnt surfaces. The minimal discoloration of these surfaces, except for some limited areas (e.g., the OS-6 in T3), indicates that the fire was not intense. The major purpose of this ground burning act could have been to give off smoke, rather than to burn the surface. Close-up observations revealed that what was burnt on at least some of these surfaces was *algarrobo* tree litter (largely branches and leaves, locally known as *poña*) (Figure 6.9). In some portions of the profile, alternating sequences of burnt surfaces and alluvial sediments are quite notable.

The soil layers recorded above the West Cemetery, together with the burnt occupational surfaces, are broadly divided into four groups. The first (lowest) group includes several layers from the Layer 34, to which the tombs and burials pertained, up to the Occupational Surface (OS) 8 or 7 (Table 6.2). These layers are characterized by the alternating sequence of alluvial sediments and burnt occupational surfaces. On all of the seven or eight burnt surfaces (from the OS-14 all the way up to OS-8 or 7) were similarly observed ash, burnt soil (reddish and blackish), and/or *poña* (Figures 6.10 to 6.14). None of the features similar to the fire pits and hearths documented on the upper layers was found on these layers.

The second group of layers is characterized by various types of offerings made on the occupational surfaces (largely from the OS-7 or 6 to 4) (Figures 6.15 to 6.18). Major types of offerings include vessel offerings and fire pits, in which animal bones, *algarrobo* pods, and/or marine shells were burnt. These features are discussed in detail in the next subsection (6.2.2. Features). The activities of burning ground surface still took place on this group of layers, but they were not as frequent or extensive as on the lower layers.

On the third group of layers from the OS-3 to1, the offering features decreased in number, and inversely burning activities became predominant again. Exceptions are some bones of a small animal (perhaps guinea pig) on the OS-1 and a whole baby llama body on the OS-2 in Trench 1. These burnt surfaces were sandwiched between alluvial sediments. On all of the three burnt surfaces were similarly observed ash, burnt-reddish soil, and/or *algarrobo* tree litter.

The fourth group of layers above the OS-1 (all the way up to the current ground surface) is characterized by the relatively recent depositions of soil and refuse from the eroded mound and the disturbances by modern-day looters. Huaca Loro, among other platform mounds at the site, has been badly eroded by the major ENSO events during the last few decades. Shimada recalls that the temple structure on top of Huaca Loro was still partially preserved and observable, when he first visited the site in the late 1970s (Shimada 1999, personal communication). In the early 1970s, as mentioned in Chapter 4, a polychrome mural was photographed by Bonavia (1974:109, Plate 57) on the interior surface of the East Façade of the mound-top temple. The mound was destructed by the devastating ENSO events in 1982-1983 and 1997-1998. The damages were immense. Thus, it is inferred that the thick depositions in the upper-most portion of the Trench 1 south profile were attributed to the mound erosions as well as the floods triggered by those two ENSO events. Nonetheless, that the ceramic sherds from the chamber fill of the eroded mound included those of the Sicán or Chimú blackware bottles caused an ephemeral chronological confusion. However, the fill of a deep pit in Trench 1 (Feature 16), most likely made by a modern-day resident[1], contained a complete cranium of adult horse. Since horses (genus *Equus*) should not have inhabited in this area during the Middle Sicán Period before the Spaniards reintroduced them to the Americas in the early 16th century, the cranium resolved the confusion and served as an important chronological indicator to suggest a later date at least after the Spanish Conquest.

Regarding the chronology, unfortunately, the documented layers above were not readily datable. On many of the occupational layers were associated with very few artifacts and ecofacts. The ceramic sherds recovered from features were primarily those of utilitarian vessels (e.g., body sherds of cooking jars and urns) and did not show any defining stylistic features that could serve as a chronological marker. In this regard, the horse cranium mentioned above was a good fortune. Besides this cranium, a group of four Chimú-style blackware vessels (one bottle and three jars) was excavated between the OS-3 and 4 in Trench 2. A series of offerings made on the occupational surfaces bracketed together as the second group (from the OS-7 or 6 to 4) may date to the Chimú Period.

Although the date for each occupation layer is unclear, it became evident that people intermittently visited the former burial ground immediately after the Middle Sicán Period up until the Late Horizon and engaged in certain type of activities (to be discussed below). It is also evident that the activities occurred during and/or after major fluvial events generated by heavy rains and subsequent floods. The repeated, close associations between human activities and fluvial events are particularly remarkable. It is not surprising that rainfalls and comings of water from the highlands had a symbolic significance in the area where it hardly rains.

6.2.2. Features

Documentation of the features is important to determine what types of offerings were made on the occupational surfaces and whether they changed over time. The spatial distribution of the recorded features is also instrumental to examine the use of ritual space.

A total of 127 features[2] were registered and documented widely on the layers from the Layer 1 to the OS-7/8 (Table 6.4). As mentioned above, the majority of the documented features were found associated only with the three or four layers that were bracketed together and may date to the Chimú Period. Over sixty-eight percent of them distributed on the OS-4, 5, and 6. Tables 6.5, 6.6, and 6.7 provide detailed descriptions of the features in each excavation trench (also see Figures 6.19-33).

The features are categorized into 14 different types: (1) looter's pit, (2) sherd cluster, (3) burnt woods, (4) burnt area (localized spots, as opposed to the extensive ones), (5) fill refuse (from the collapsed chamber of eroded Huaca Loro), (6) hearth, (7) fire pit, (8) refuse pit, (9) earthen pit, (10) offering pit, (11) animal sacrifice, (12) vessel offering, (13) metal offering, and (14) stone offering (Table 6.8). Across the three excavation trenches, well over a half of the features above suggests a fire use in the form of either hearth, fire pit, burnt area, or burnt woods (72.0% in T1, 57.7% in T2, and 88.0% in T3). Out of these fire-related features, most abundant were fire pits (44.0% in T1, 38.5% in T2, and 68.0% in T3). Together with the extensive and persistent ground burning activities discussed above, the ritualistic use of fire is quite significant above the West Cemetery.

The fire pits are generally of circular or oval shape and relatively shallow (ca. 5-25 cm). All of the fire pits were filled with ash and burnt soil containing a lot of charcoal bits but relatively few other materials (e.g., marine shells and ceramic sherds). A large amount of charcoal bits (i.e., combustion residues) and the minimal discoloration of the pit edges suggest that the fire should not have been intense at all. These fire pits were probably used only for a short period of time, e.g., for heating something in a jar.

Offering pits also contained a fair amount of ash and burnt soil, but were distinguished from fire pits in that they contained some other offerings in them, e.g., animal bones, fish bones, marine shells, seeds, maize cobs and husks, *algarrobo* pods, and/or an ochre lump. The ochre lump found in Feature 11 in Trench 1 showed signs of use. Like the fire pits above, the fire in these offering pits should not have been intense, judging from the large amount of charcoal bits and the minimal discoloration of the pit edges. It appears that the materials were thrown into the smoldering pits but were not meant to be burnt out.

What is notable in relation to the ritualistic use of fire is one of the two animal sacrifices – a complete puma (*Felis concolor*) body (Figures 6.29 to 6.33). The disarticulated bones of a puma were found scattered over the OS-5 and intruding into 6 in Trench 3. The determination of the sampled bones by the zooarchaeologist Melody Shimada revealed that they represent an entire intact body of puma with no cut mark. Some of the bones were partially burnt, although the intent of this burning act is unclear. The irregular distribution of the bones may be explained by the fluvial events that could have disturbed their articulations and scattered the bones over the occupational surfaces. The fact that the bones had no cut marks denies the possibility that the intact body was disturbed by scavengers and makes it unclear how the animal was killed.

A comparison of the dimensions (diameter and depth) of the fire pits revealed a vague clustering of certain size range(s) among contemporary ones (i.e., among those associated with the same occupational surfaces) (Figure 6.34). This result does not conflict with the spatial distributions of the fire pits plotted over the plan views of different occupational surfaces (Figure 6.35). Although the features in Trench 3 could not be plotted due to the time constraints, those in Trenches 1 and 2 clearly illuminate distinctive patterns of tight clusters on different occupational surfaces. These results together may indicate that those who visited the former burial ground clustered together in relatively small groups and made offerings and sacrifices.

The documented alternating sequence of fluvial events and ritual activities using fire for a long period of time above the West Cemetery suggests an intermittent visitation of the former burial ground at the time of rainfalls and comings of water from the highlands. It also alludes to symbolic links among water, fire, and the inferred ancestors buried in the cemetery. I will return to this point in Chapter 8. The data gained from the above of the West Cemetery seem to partially support the Tentative conclusion 5 ("*The buried elite bodies were periodically revisited in and above their tombs and cared with special food and/or drink by the living descendants*"). The traces of visitation within the tombs as well as the other material correlates of ancestors (Tentative Conclusions 1 to 4) were sought during the burial excavations discussed below.

6.2.3. <u>Tombs and burials</u>

Below many layers of alluvial depositions and occupational surfaces described above (ca. 4 m below the present-day ground surface), our excavation in 2006 at the west base of Huaca Loro discovered and documented an intact Middle Sicán cemetery, as expected on the basis of previous GPR surveys and a test excavation. Within the excavated area of the West Cemetery were recorded 31 burial structures: (1) 26 tombs and burials of varying size and shape that contained a total of 30 human bodies, (2) three pits of cache offerings with no human remains, and (3) one empty shaft that contained neither human remains nor cache offerings (Figure 6.36). The sub-section below describes in detail the contexts and organizations of these burial structures. In order to examine the presence of ancestors in archaeological records, it is essential to capture the expected material correlates that may represent the unique characteristics of the inferred Sicán ancestors. The Tentative Conclusions 1 to 4 were examined by documenting (1) the treatments, posture, and orientation of the interred bodies, (2) the grave goods accompanying the bodies in the tombs and burials, and (3) the locations, dimensions and structure of grave furniture.

6.2.3.1. Trench 1 (SAP-HL'06-T1). In Trench 1, we excavated and recorded ten burial structures. These structures were arranged in a seemingly planned layout that centered on an elite shaft tomb (Tomb 1) without destroying each other. Except for the Burial 7 that had no human remains, nine out of the ten structures contained at least one human body as well as various grave goods. A total of ten human bodies were documented.

6.2.3.1.1. A shaft tomb: Tomb 1. Tomb 1 is a shaft tomb of a nearly square shape measuring 3.6 (N-S) × 3.0 (E-W) m and ca. 5 m in depth (Figures 6.37 and 6.38). It was made cutting into the natural surface of compact sand, on the south side of Trench 1. From the morphological features of the associated blackware bottles, the tomb is dated to the early-Middle Sicán Period. The tomb had two niches at the bottom level on the north and south walls, and a false niche on the west. The space within the burial chamber was delineated and organized by panels of tri-color painted cloth supported by cane frames (Figures 6.39 to 6.41). The panels on the north and south sides depict the scenes of procession of profile figures with an elaborate headdress, while the one on the east depicts a front-facing figure with a trophy head and a staff on either hand.

The tomb contained two individuals, Individuals 1 and 2, as well as various grave goods. The Individual 1 is a young female about at age 20 and the principal personage of this tomb. This individual was placed in the center of the U-shaped organization of the three panels of painted cloth, facing the west in a cross-legged, seated position. Judging from the imprints of textile found around her body and the volume that the textile encompassed, it is inferred that Individual 1 was wrapped in the layers of textile. On the frontal part of her cranium, fragments of mineralized metal foils were found. Since the positions of these fragments conformed to the anatomical shape of the face, it is probable that the metal foils covered the nasal and maxillary regions. The upper incisors showed greenish discoloration due to the product of the oxidized metal. An onsite analysis of these foils by Anikó Bezúr with the portable X-ray Fluorescence Spectrometry (pXRF), Brucker Trace III unit, revealed that they were made of alloy of copper, silver, and gold (a.k.a. *tumbaga*).

The Individual 2 is also an adult female at age 25-35, an attendant probably sacrificed to accompany Individual 1. The body was found in a very small rectangle "box" or coffin measuring 70 × 50 cm and aligned with the orientation of the tomb chamber. A series of long depressions of regular thickness of about 2 cm suggest that the box was probably made of canes with two pieces of reinforcement in the form of cross. The exterior surface of the box was covered with three layers of textile of different colors, white, black, and red from the outermost to the innermost. The Individual 2 was placed in this textile-lined box in a tightly flexed position on her left side facing the north with the head oriented toward the west.

The grave goods placed on the chamber floor, largely west of Individual 1, may be grouped in terms of type and density of materials. The Group 1, placed closest to the textile bundle of Individual 1, includes the objects of the finest quality: (1) metal objects (e.g., a copper mask, a copper-silver *tumi* knife, and copper-silver and *tumbaga* sheets), (2) four reduced and oxidized ceramic bottles, (3) four fragments of chalk of white and gray colors, and (4) four spindle whirls. Interestingly, these objects formed pairs (or possibly trios) and were wrapped in a red cloth. An analysis by the pXRF revealed that the mask was made of copper. The Group 2 consists of (1) metal points of arsenical copper, (2) five bottles without decoration, one bottle decorated with a monkey effigy, and about 80 miniature vessels, (3) two complete Spondylus shells and two halves, and (4) animal bones. The Group 3 includes one small jar with soot on the exterior surface and one medium-sized decorated jar. The three niches on the chamber walls also contained some objects. From the South Niche were recovered a cranium of a young camelid and eight limb extremities. This selection of particular body parts for burial offerings conforms to the aforementioned working hypothesis by Shimada and Shimada (1997) and Goepfert (2011, 2012) (See 4.2.1.4.2. Food and drink for ancestors). At the mouth of the North Niche were found fragments of metal sheets. The West Niche was a false one but contained a metal point (arsenical copper).

Regarding the social status, the Individual 1 is inferred to have been a high elite female, based on her cross-legged and seated position and associations with gold, *tumbaga*, silver-rich objects, and Spondylus shells (See Table 4.3), while the Individual 2 is considered to have been a personal retainer of Individual 1 of commoner status. Although she was not found with any offerings, the placement of her corpse in a cane coffin covered with fine cloths close to Individual 1 suggests that she may have been a commoner who enjoyed certain privileges.

6.2.3.1.2. <u>Attendants for the female elite in Tomb 1: Burials 2 and 3</u>. The Burials 2 and 3 were excavated immediately above the mouth of Tomb 1 (Figure 6.37). These burials both contained the body of an infant, who might have been sacrificed at the time of burial of Individual 1 in Tomb 1. The flat and short body shape of associated ceramic bottles (Huaco Rey) suggests that both of the burials date to the early-Middle Sicán Period.

The Burial 2 is a burial pit dug into the natural surface of compact sand, which contained an infant, of course, of unknown sex (Figure 6.42). The pit was probably associated with the OS-14, which was ca. 50 cm below the base of the Basal Terrace of Huaca Loro and measured 95-110 cm in diameter, if it was circular. The depth is unknown, because the mouth and bottom surface of the pit could not be identified. The infant body was placed in a supine, extended position with the head oriented toward the southeast. The preservation state of the body was poor, partially due to the intrusion by *algarrobo* roots. The lower portion of the body (below the femur) could not be seen at all. Some of the ribs, upper limbs, and cranium were barely identified. Nonetheless, it was clearly observable that the body was decorated with some ornaments. Several pierced shell pieces with a serrated edge were found in a row around the neck region. In the area of each hand was found a cylindrical copper foil, which seems to have been a bracelet. On both sides of the body, two ceramic vessels were recovered. On the right side (or east side) were found a red-on-cream effigy bottle of two chambers that most probably represents a pair of *pepinos dulces* or sweet cucumbers (*Solanum muricatum*), and a decorated blackware jug with small loop handles on the shoulders. A press-molded anthropomorphic design was identified on the body of the jug. On the left side (or west side) were found two spout-and-handle blackware bottles. Based on its extended position and association with shell beads, the infant in the Burial 2 is inferred to have belonged to the low elite.

The Burial 3 is an oval pit that also contained an infant (Figure 6.42). The body was placed in a supine, extended position with the head oriented toward the south. The preservation state of the body was very poor. Except for the relatively well-preserved tibias, only traces of bones were observed. The cephalic region could be barely recognized and identified by the presence of several teeth. Associated grave good were not many. Over the right chest of the body was found a medium-sized Spondylus shell, and immediately right side of the shell was found a blackware lizard-effigy bottle. A metal object, most probably a tweezer, was also found below the mouth of the individual. Judging from its extended position and association with a Spondylus shell, the infant in the Burial 3 was probably a member of low elite as with the Burial 2 individual.

6.2.3.1.3. Offering pit without human remains: Burial 7. The Burial 7 is a pit of a nearly square shape found along and under the west edge of the Basal Terrace of Huaca Loro (Figure 6.43). It measured 135 (E-W) × 155 (N-S) cm. The mouth of the pit was exposed ca. 120 cm below and immediately west of the Basal Terrace. The pit was roughly aligned with the cardinal directions and was made cutting into the yellowish cream clay floor, as with the Burial 8 to the west. The east side partially ran in under the Basal Terrace.

No human remain was recovered from this pit. The burial chamber had a split-level structure. On the upper level (ca. 75 cm below the mouth of the pit) were found a total of 26 fine ceramic bottles of varying style, size, and color, which include 15 black/redware miniatures. A miniature redware human effigy bottle had a small spot of very bright red pigment (cinnabar?) on the facial portion, while the flat and short body shape of a spout-and-handle blackware bottle (Huaco Rey) suggests that this burial dates to the early-Middle Sicán Period. Interestingly, these vessels were placed in two lines along the N-S axis: larger bottles in the line to the west and smaller ones (mostly miniatures) in the other to the east (Figure 6.44). The larger vessels to the east were associated more closely with black color, the Sicán Lord image, and human motifs, whereas the smaller ones to the west with reddish brown or orange color and animal (or anthropomorphic) motifs. This parallel division of ceramic distributions may indicate a dualism pertaining to the Middle Sicán religion and ideology. Furthermore, some of the miniatures in the west group formed pairs of the same size and shape (Figure 6.45). Similar grouping and pairing were also observed in Burial 3 in Trench 2, which is to be discussed below.

On the lower level, immediately underneath of these ceramic vessels, were found two crania and three pairs of lower limbs of camelid, as well as a set of five rows of *naipes*. Incidentally, *naipe* is the local name for the I-shaped portable and durable product of varying size and thickness (ranging from 2.8 × 4.5 cm to 7.0 × 9.5 cm; 0.1-1.0 mm in thickness) made out of arsenical copper, which is inferred to have served as a means of standardized exchange, in other words, as a primitive currency (Shimada 2014:51-52).

It is important to note that careful observations of stratigraphic sequence raised the possibility that the construction of Burial 7 and the placement of the objects might have been intrusive to an earlier and larger pit (Figure 6.46). The earlier pit had been cut into extremely compact dark brown clay soil (probably natural deposition) and half filled with gray sand soil including a lot of small cream clay lumps and charcoal bits. This fill was covered with a 5-cm thick gray ash layer involving charcoal bits. The soil difference between the fill of the earlier pit and that of the later pit (Burial 7) was not very clear, presumably because the later pit was filled with a mixture of different soil from the multiple layers of the earlier one. Nonetheless, the fill of the Burial 7 was relatively consistent in type and compactness, which suggests one single episode of construction. The function and content of the earlier pit is unknown.

On the west wall of pit was found a niche that contained various objects: (1) six small dishes of Coastal Cajamarca style, (2) two ovoid-shaped red vessels, (3) one canteen miniature, (4) six black figurines, (5) seven whistles, (6) a large number of small square foils of gilded copper, (7) a funerary mask made of gilded copper sheets with red pigment (cinnabar?) (Figure 6.47), (8) two crowns of gilded copper sheets, (9) a decorated copper cup, packs of *naipes*, (10) two large bundles of arsenical-copper points, (11) a small shell spoon, and (12) shell beads and necklaces.

6.2.3.1.4. Bodies in an extended position: Burials 4-6 and 8-10. The remaining six burials excavated in Trench 1 (Burials 4, 5, 6, 8, 9, and 10) contained a body in a supine, extended position.

Burial 4 is an unusual case. It is a rectangular pit containing a particularly tall (ca. 180 cm in height) adult individual at age 25-35 (Figure 6.48). The sex of the individual remains uncertain as this individual displays both masculine and feminine features and the critical pubic region was not well-preserved. The body was exposed about 160 cm below the mouth of the pit. The body was in a supine, extended position with the head oriented toward the east. Although the state of preservation was not good, partially preserved imprints of canes and textile suggest that the body was placed in a caned-framed coffin, the interior surface of which was covered with a painted textile. The burial pit contained various grave goods. Most of the objects were placed mainly in the east side of the burial pit, in other words, around the upper part of the body. The objects include six fine ceramic bottles, a dense concentration of beads, and various metal objects such as (1) two *tumi* knives, (2) a funerary mask made of copper and silver alloy, (3) a “swagger stick”, (4) cast arsenical copper, (5) a small gold bar, (6) two conical objects made of copper and silver alloy and placed over the breast of the body, which appear to be brassieres. In addition to the aforementioned objects, the individual wore an elaborate headdress with fine gold and *tumbaga* components. The copper-and-silver-alloy mask was placed about 20 cm above the chest of the body (Figure 6.49). The presence of this mask, as well as the careful treatment of the body and the elaborate construction of the burial, suggest that the individual in Burial 4 probably belonged to the higher elite class, although his/her body was placed in an extended position, which usually serves as the indicator of lower statuses (low elites and commoners). Nearly at the same altitude as this mask, around the SE corner of the pit was found a single-spout black/brownish-gray bottle with the Sicán Lord/Deity image at the spout base flanked by an auxiliary individual on either side. The stylistic features of this bottle suggest the middle-Middle Sicán Period for this burial.

Burial 5 is an adobe-lined rectangular burial pit found along the north profile of Trench 1 and ca. 70 cm west of the Basal Terrace of Huaca Loro (Figure 6.50). It was likely to be associated with the OS-14. Since the north side of the pit ran into the north profile of the trench, the whole extent of the pit was not clear. The E-W side measured ca. 70 cm. About 70-80 cm below the mouth of the pit was exposed a child's body placed in an extended position on the back with the head oriented toward the south. Although the overall preservation state of the body was poor, well-preserved small deciduous teeth suggest a young age of the individual (< 6 years old). The body was decorated with a pectoral of shell beads and gilded-copper discs and then wrapped in a shroud, which left grayish dark brown imprints all over the body. The wrapped body was flanked by two groups of offering items (east and west). The east offering group consists of (1) three small ceramic vessels, (2) four limb extremities of camelid, and (3) a group of cast metal points of arsenical copper, while the west group includes (1) a group of cast metal points made out of arsenical copper, (2) three small ceramic vessels put in a row (E-W), and (3) what appears to have been a folded textile that might have wrapped something in it. The stylistic features of a single-spout blackware bottle miniature with the Sicán Lord image at the spout base clearly suggest the middle-Middle Sicán date. The better construction of the burial pit and the presence of shell-bead necklace allude to the relatively high social status of this individual. He/she probably belonged to the lower elite class.

Burial 6 is a rectangular burial pit found near the west wall of Trench 1 (Figure 6.51). The pit contained the body of an adult male at age 30-35 placed in a supine, extended position with the head oriented toward the south. Although the bones were moderately porous, the overall preservation state of the body was relatively good. It is notable that on the left orbital part of frontal bone were traces of cinnabar paint. Cinnabar paint was also observed on the right maxillary, although small in extent. The imprints of red textile observed all over the body, especially around the cranium and legs, suggest that the body was wrapped in a shroud before the final deposition. The burial pit also contained various grave goods. Most relevant to the current study is the metal mask recovered near the SE corner of the pit. The mask was place facing downward. As is the case with the mask found in Tomb 1, it was not worn by the buried individual. Other grave goods include: (1) a copper-alloy *tumi* knife on the left arm, (2) two tweezers (one circular and the other triangular) found on the right chest, (3) a necklace of shell beads (probably Spondylus) and sodalite located around the neck region, (4) a cluster of ten ceramic bottles on the left side of the body, and (5) a concentration of five limbs extremities of camelid found at the NE corner of the burial pit. A high-pedestaled bottle in the vessel cluster suggests a late-Middle Sicán date, and the presence of a semi-precious stone (sodalite), Spondylus beads, and cinnabar paint alludes to a relatively high status (e.g., low elite) of the buried individual.

Burial 8 is a rectangular burial pit found between Burials 6 and 9 (Figure 6.51). The pit contained the body of an adult male at age 35-40 placed in a supine, extended position facing eastward with the head oriented toward the south. The state of preservation of the body is fair. The bones were moderately porous, and there was little evidence of root intrusions. Partially preserved imprints of textile suggest that the body was wrapped in a shroud. The pit contained a relatively few number of grave goods. They include (1) a copper alloy *tumi* knife and a round piece of chalk on the right arm, (2) a metal spoon along the right femur, (3) three ceramic vessels near the upper part of the body, (4) a wooden spatula placed between two adjacent vessels of the right side of the body, and (5) some extremities of camelid limbs located SW of the body. The stylistic features of a single-spout blackware bottle suggest the early-Middle Sicán date for the burial pit. Regarding the social status of the buried individual, no defining characteristic (in terms of grave goods and burial position) was identified. By the elimination method, however, it is inferred that the individual in Burial 8 was either the member of the lower elite class or a commoner.

Burial 9 is a rectangular burial pit found abutting west on the Burial 8 (Figure 6.51). The pit contained the body of an adult female at age about 30, placed in a supine, extended position with the head oriented toward the south. The state of preservation of the body was fair to poor. The bones had been disturbed by root intrusions and were quite porous and fragile. The imprints of reddish textile observed all around the body suggest that the body was wrapped in a shroud before the final deposition. The grave goods contained in this burial were relatively few. They include (1) a stone spindle whirl, (2) seven small metal objects (found on the north side of the pit), and (3) four ceramic vessels, three bottles placed around the upper part of the body (at the height of the top of the body) and one *paleteada* necked jar immediately north of the feet. The stylistic features of the spout-and-handle blackware bottle or Huaco Rey (e.g., elongated body portion, tall pedestal, and feline animals flanking the Sicán Lord at the spout base) suggest the late-Middle Sicán date for the interment of the body. Since her body was placed in a supine, extended position and buried with a *paleteada* jar, the individual was probably a member of either the low elite class or the commoner classes.

Burial 10 is a rectangular burial pit found immediately east of Tomb 1 and along the west edge of the Basal Terrace of Huaca Loro. The east half of the pit was under the Basal Terrace, which suggests an early date for the construction of the burial, as is the case with the Burial 7. The pit contained the body of a child of unknown age and sex, placed in a supine, extended position with the head oriented toward the north.

The state of preservation of the body was fair to poor. The bones had been disturbed by root intrusions and were quite porous and fragile. Partially preserved imprints of textile suggest that the body was wrapped in a shroud. The grave goods were relatively rich. What drew attention most was the small metal mask made of arsenical copper and placed over the face of the child (Figure 6.52). This was the only case during the SAP2006 Field Season in which the Sicán funerary mask was "worn" by the buried individual. Other grave goods include six fine decorated ceramic bottles and jugs, two spindle whirls, small bundles of *naipes* (arsenical copper), a Spondylus shell, and some limb extremities of camelid. The presence of the Spondylus shell and the mask suggests that the child belonged to low elite classes. The flat and short body of the single-spout-and-handle bottle (Huaco Rey) suggests the early-Middle Sicán date for the interment of the body.

6.2.3.2. Trenches 2, 2/3, and 3 (SAP-HL'06-T2, 2/3, 3). In Trench 2, 2/3, and 3, we excavated and recorded 21 burial structures (Figure 6.36). Most of the burial structures are arranged basically around a large elite tomb (Tomb 2); however, some intruded partially into other(s). As with the Burial 7 in Trench 1, there were two square pits that contained only cache offerings, but no human remains. Overall, 20 human bodies as well as associated grave goods were recorded in 17 burial structures (two bodies left unexcavated).

6.2.3.2.1. A large two-level tomb: Tomb 2. Tomb 2 is a large rectangular pit of split-level structure, measuring 7.2 (N-S) × 3.5 (E-W) cm and 1.5 m in depth and straddling the area from the southwest corner of Trench 2 to the west side of Trench 3 (Figure 6.53). The Tomb 2 had a very complex structure that is divided broadly into the Upper and Lower Levels. At the different phases of construction sequence, there seem to have taken place various ritual activities as well as the internments of the dead bodies. Gabriela Cervantes meticulously recorded this construction sequence and identified seven major phases of burial construction and ritual activities within Tomb 2 (Cervantes et al. 2014:223, Fig. 4; Cervantes 2010, Figuras 5.1-5.18). It was revealed that the Lower Level was constructed and elaborated during the first five phases, while the Upper Level was added and modified during the last two phases.

The Lower Level was found only at the NE corner of the tomb (Sector A). On this level, three nested burial chambers were found: Chambers 1, 2, and 3. The Chamber 1 was constructed first. It was a relatively shallow rectangular pit with no lining or decoration, measuring 210 (N-S) × 90 (E-W) cm and 40 cm in depth. Shortly thereafter (before placing any objects), another smaller chamber (Chamber 2) was constructed within the Chamber 1 and lined with plain white textile (Textile 3). Further within this chamber was built a rectangular coffin-like structure that deformed after burial, measuring 180 × 60 cm and 20 cm in depth (Chamber 3) (Cervantes 2010, Figura 5.5). This coffin contained partial remains of a child of unknown sex (Individual 1), which is inferred to have been the principal personage of the Tomb 2 (Figure 6.54). The interior walls of the coffin were lined with metal sheets made probably of gilded copper and then covered with white textile (Textile 5). Right by the coffin, on its west side, was placed another piece of textile (Textile 4).

The incomplete, most probably disturbed body of Individual 1 included only the cranium with the vestiges of deformation by the fronto-occipital flattening[3] and a limited number of disarticulated postcranial bones. Therefore, the orientation of the body is indeterminate. Based on the dental eruption and formation, this individual is estimated to have been approximately four years old. Osteological examinations of the body by Haagen Klaus revealed a relatively healthy condition with no stress indicator (e.g., porotic hyperostosis). The incomplete body of the Individual 1 suggests that this might have been a secondary burial. In other words, the body is inferred to have been exhumed together with grave goods from its original (or primary) burial, which is unknown, and reburied in the Chamber 3 coffin. A few but precious grave goods, which accompanied the Individual 1, also showed the vestiges of disturbance due to the inferred exhumation and reburial. They include an openwork metal sheet, fragments of an incomplete mask (only right side) made of gilded copper, two circular medium-sized ear spools, and piles of small white and red beads of two different sizes. The openwork metal sheet depicts three frontal wing-eyed figures with a headdress and a staff in each hand (Sicán Lord?). It is likely that the beads originally formed a pectoral and were worn by the Individual 1. The adherence of reddish materials to the fragments of an incomplete mask and piles of pectoral beads suggests that the mask was painted with red pigment (perhaps cinnabar). Based on the elaboration of the coffin, the quality of the associated grave goods and materials, and the inferred health condition, it is tentatively concluded that the Individual 1 belonged to the higher elite class.

After the Chamber 3 was sealed, an adult female at age about 25 (Individual 2) was sacrificed and interred at the NE corner of the Chamber 1 together with various grave goods (Figure 6.55). The body was placed in a seated and flexed position with the legs crossed, facing the SE. The cranium had fallen from its anatomical position down to the front of the right shoulder. The accompanying grave goods include fine ceramic bottles and jugs and five bundles of cast arsenical copper points. The internment of the

Individual 2 and associated grave goods was immediately followed by seven episodes of grave offerings in the form of fine ceramic vessels, a large number of miniature vessels (949 vessels in total; 754, 108, and 87 deposited during the Micro-events 7, 10, and 11 respectively; Figure 6.56), limb extremities of camelid, and a large textile (Textile 2) (Cervantes' "Microeventos 6-12"; See Cervantes et al. 2014:223, Fig. 4). The small vessels are so diverse in shape and size but uniformly fired very poorly, or even unfired. Although any of the associated grave goods does not serve as a defining status indicator, it is tentatively inferred that she belonged to the lower elite class.

The Tomb 2 was then expanded toward the SW to build the Upper Level (7.2 [N-S] × 3.5 [E-W] m). The surface of the Upper Level was covered with a white cloth painted with figurative and geometric designs (Textile 1). This cloth could have been a large single piece or separate pieces of textile. Its surface showed the imprints of cane frames that should have supported the textile(s). The Upper Level had two sublevels (or sequential depositions) of offerings and grave goods. No human remain was recovered from these sublevels. On the upper sublevel was found a concentration of 43 miniature vessels placed largely on the north side of the tomb (Sectors A and B). The lower sublevels contained various grave goods such as fine ceramic bottles, *naipes*, a small gold ingot, and other metal objects, pigments of different colors, and crania and limb extremities of camelid. The stylistic features of the fine ceramic bottles suggest the middle-Middle Sicán date for the construction of the Upper Level.

6.2.3.2.2. Burials without human remains: Burials 3, 12, 16, and 18. Two out of 21 burial structures excavated in Trenches 2, 2/3, and 3 contained no human remains, as with the Burial 7 in Trench 1. One burial contained neither human remains nor grave goods.

Burial 3, a rectangular pit, is distinguished by the fact that it contained an elaborate cane coffin lined with a painted cloth and in place of a human skeleton housed carefully arranged fine ceramic vessels and other offerings. The coffin was placed in an unlined pit filled with pure sand and located along the west wall of Trench 2 (Figure 6.57). The box was supported by cane frames and covered with white cloth painted with figurative and geometric designs (Figure 6.58). Inside and immediately by the box was found a group of 70 high-quality ceramic vessels with diverse thematic representations. These ceramic vessels were arranged in a certain order that may represent the Sicán cosmology – a dualistic division of black/gray vessels with human and divine representations on one hand and red/orange vessels with animal representations (e.g., birds, mammals, and Spondylus shells) (Figures 6.59 and 6.60). Underneath these vessels in the center of the box were found two pairs of limb extremities of camelid and two small *paleteada* jars. At the east end of the box was found a group of 16 fine miniature bottles and jugs with various representations, while on the south edge of the box were found two traces of red and yellow textile as well as two ceramic spindle whirls and some small pieces of mineralized copper. When removing the box, immediately under the box, we also recovered (at least) five layers of copper sheets embossed with Spondylus design and pendants of copper cones. Original functions of these objects are unknown.

Burial 12 is a square offering pit measuring ca. 90 (N-S) × 100 (E-W) cm and located along the north wall of Trench 2, under the Basal Terrace of Huaca Loro. The pit had a semicircular niche (East Niche) on the east wall that served as a repository for a number of valuable offerings (Figure 6.61). In the center of the East Niche was found a large circular pectoral of shell and sodalite beads measuring ca. 26 (N-S) × 33 (E-W) cm. The beads of different size, shape, and color are arranged to form a pattern with blue radial bands of sodalite beads interleaved with smaller white shell beads (Figure 6.62). Immediately around this pectoral were found various objects: (1) a large green cluster of corroded "metal chips" (copper alloy; ca. 45 × 18 cm) on the east side of the pectoral, (2) small deposits of pigments of different colors (white, pink, yellow, and orange) and wires of gilded copper, located on the west side of the pectoral, (3) a single-spout-and-handle blackware bottle (Huaco Rey) by the SW corner of the niche, and (4) a group of deformed metal objects, located ca. 30 cm below the pectoral, which included four metal beakers each with rattling bottom (copper-and-silver, copper, and gold-and-silver alloys), a cylindrical crown of gilded copper, and a gilded mask. The mask was stacked on top of the crown, which was placed over the beakers laid horizontally. The "metal chips" above refer to the small scraps derived from the production of metal objects. The flat and short body of Huaco Rey suggests the early-Middle Sicán date for this offering pit.

Burial 16 is a square shaft located on the west edge of Tomb 2. It contained neither human remains nor grave goods.

6.2.3.2.3. Bodies in an extended position: Burials 1, 5, 8, 10, 13, 14, 17, and 19. The seven burials described below largely took a rectangular form and contained a body placed in a supine, extended position.

Burial 1 is an unlined rectangular burial pit located in Trench 2, ca. 1 m west of the Basal Terrace of Huaca Loro. The pit contained a coffin lined with white cloth. Within this box was found the body of a young adult female at age 15-21, placed in a supine, extended position with head oriented toward the south (Figure 6.63). The preservation state of the body was fair to poor. Some root intrusions were observed, and the bones were quite porous. The body seems to have been wrapped in a reddish textile, the imprints of which were identified all around the body. Grave goods were found both inside and outside the coffin. Arsenical copper points and other metal sheets were found within the coffin right by the body, while two ceramic vessels were found on either side of the coffin (two blackware bottles on the left and a small blackware jug and a medium-sized round jar on the right), and four pairs of limb extremities of camelid were placed around the SE corner of the coffin. The stylistic features of the blackware bottles suggest the middle-Middle Sicán date for the burial construction. Judging from the associated grave goods, the social status of this individual is inferred to have been relatively low. She probably belonged to the commoner class.

Burial 5 is an unlined oval pit measuring 65 (N-S) × 30 (E-W) cm. The pit contained the body of a child of unknown sex. The lower body was very poorly preserved and thus could not be identified clearly. The fragmented left femur was found on the vertebrae, and a fragment of tibia was found near the right humerus. The location of these bones raised the possibility that the lower body was flexed and tilted to the right. The upper body was in a supine, extended position, with the head oriented toward the south. The lower jaw was painted with cinnabar. The reddish textile imprints observed all around the body suggest that the entire body was wrapped in a red shroud. Within the shroud, some ornaments accompanied the body: (1) a concentration of turquoise and shell beads, which probably formed a necklace, around the neck region, (2) a piece of chalk near the left shoulder, (3) an arsenical copper cast point by each hand, and (4) a rectangular copper alloy plate near the right shoulder. The presence of the necklace and other objects alludes to a low elite status of this individual. More grave goods were found outside the shroud. On the right side of the body were found three ceramic vessels placed in a row, while on the left side was found a gray ceramic figurine with its face painted with cinnabar. Although the overall impression was different from the typical Sicán Lord image, the face of the figurine shared many characteristics of Sicán Lord such as inverted-comma eyes with vertical lines down to the chin, broad nose, closed mouth, pierced ear lobes, and head band. The different impression of the resultant image might derive from the roundish and exaggerated expressions of facial parts such as smiling mouth, disproportionately large ears and nose, and rounded face edge as opposed to the flat, mask-like face with a pointed nose and ears (Figure 6.64). Additionally, one of the most critical characteristics of Sicán Lord image, semicircular headdress, was missing. Instead, the figurine wore a semispherical cap like Judaic cap.

Burial 8 is a rectangular burial pit located butting east to Tomb 2 or partially cut when the tomb was constructed. This association between the two burial structures suggests that Burial 8 was constructed before Tomb 2 that was built during the middle-Middle Sicán Period. Thus, it is inferred that the burial was built during the early-Middle Sicán Period. The pit contained the body of an adult male at age 40 or over placed in a supine, extended position with the head toward the south. The preservation state of the body is fair to good with very little disturbance by root intrusion. The grave goods were relatively few. A copper plate was held in each hand, while a copper *tumi* knife and a piece of chalk were placed along the upper left arm. Around the neck region was found a concentration of shell beads and a copper disc, which probably formed a pectoral. The presence of shell pectoral suggests the status of the individual as elite. It is inferred that he was a member of the low elite class.

Burial 10 is a rectangular burial pit located near the SW corner of Trench 2. The pit contained the body of a young adult female at age 25-35, placed in a supine, extended position with the head oriented toward the south (Figure 6.65). The preservation state of the body is poor. All bones but the cinnabar-painted cranium were very porous and fragmentary. The imprints of red textile observed all over the body suggest that the body was wrapped in a shroud before the final deposition. The wrapped body was accompanied by several grave goods: (1) ceramic vessels around the head region, (2) elongated arsenical copper objects (cast metal points?) along or over the upper arms, and (3) three pairs of limb extremities of camelid along the south and west walls of the burial pit. The ceramic vessels include a cluster of small jars along the west wall of the burial pit, a Huaco Rey blackware bottle immediately south of the cranium, and a redware painted jug around the SE corner of the pit. The stylistic features of the Huaco Rey bottle suggest the middle-Middle Sicán date. The cinnabar paint on the face suggests the low elite status of the individual.

Burial 13 is a rectangular burial pit located at the SW corner of Trench 2 and partially disturbed by the NW corner of Tomb 2. This association with Tomb 2 suggests that Burial 13 was constructed prior to the tomb. It is inferred that Burial 13 was made during the early-Middle Sicán Period. The pit contained the body of an individual of indeterminate sex at age about 7 or 8, placed in a supine, extended position with the head oriented toward the south. As seen on the fragmented cranium, the preservation state of the body was not good. The pit also contained some grave goods. Two long cast points made out of arsenical copper were placed on the chest region, while a bundle of *naipes* was placed on the right and left sides of the pelvis. On the right chest were two pieces of mineralized copper. Furthermore, four small blackware jugs were placed at the SW corner of the pit, and two larger blackware jugs at the SE corer. Although there was no defining status marker in the grave goods, it is inferred that the individual was a privileged commoner.

Burial 14 is a rectangular pit partially disturbed on its east side by the construction of the Chamber 1 of Tomb 2. The pit contained the body of an adult female at age 25-30 in a supine, extended position with the head oriented toward the south. The cranium was basically facing up, but slightly tilted to the west. The preservation state of the body was fair to good, although some of the bones were porous. The individual had lost the entire right arm that was apparently cut off during the construction of Tomb 2. The body was adorned with a necklace of small turquoise and shell beads and a ring found on the left hand, and accompanied by three fragmented ceramic vessels. It is quite probable that these vessels were destroyed by Tomb 2. The presence of the necklace of semi-precious stone and shell beads alludes to the low elite status of this individual. This burial did not have any grave good that could serve as a chronological marker.

Burial 17 is an unlined burial pit (perhaps of rectangular shape) located over the south side of the Tomb 2 Sector C. The pit seems to have been built by cutting into the fill of Sector C. The pit contained the incomplete body of an adult individual of unknown age and sex presumably placed in an extended position with the head oriented toward the south. The cranium was not articulated with postcranial bones, which were separately found about 10 cm north of the cranium. The incomplete body and its disarticulation suggest that this was a secondary burial, as is the case with the Individual 1, the principal personage of Tomb 2. A metal mask was found above the cranium (Figure 6.66). The date of the burial construction is indeterminate. Regarding the social status of the buried individual, it is inferred that he/she belonged to the low elite class, based on his/her association with the copper alloy mask.

Burial 19 is a rectangular burial pit located near the east edge of the Chamber 1 of Tomb 2 and immediately below Burial 2. This association suggests that the pit was built during the early-Middle Sicán Period, prior to the construction of Burial 2. The pit contained the incomplete body of an adult individual at unknown age (perhaps female) placed in a supine, extended position with the body oriented E-W. The cranium and the upper right arm were missing (Figure 6.67). These bones are inferred to have been exhumed intentionally during the prehispanic times. The pit also contained some grave goods around the body. A *tumi* knife made out of copper alloy was placed in the area where the missing cranium should have been located. On top of the *tumi* knife was found a piece of chalk. A group of three fine ceramic jugs were found right side of the right leg (one blackware and two redware jugs), while a redware jug was found between the legs. Although there was no defining status marker in the grave goods, the individual was probably either a low elite or a commoner.

6.2.3.2.4. Bodies in a seated position: Burials 2, 4, and 7. The four burials described below largely took a square form and contained a body placed in a seated position.

Burial 2 is a rectangular burial pit located on the east edge of the Chamber 1 of Tomb 2 and partially disturbed by the construction of the chamber. The pit contained the body of a female at age 15-21. The body seems to have originally been placed in a cross-legged, seated position facing the north and the arms resting on the legs (Figure 6.68). It is inferred that the posture became off-balance and collapsed post-interment. The grave goods include (1) cast arsenical points found along the east edge of the burial pit, (2) a concentration of small shells placed in rows and two pieces of star-shaped copper bells found along the south edge of the pit, (3) a pectoral of shell beads near the neck region, (3) two pieces of white chalk, (4) four ceramic vessels. The lines of shells were united by some kind of string, which seems to suggest that they formed another pectoral. The four ceramic vessels include a blackware bottle below the cranium, a decorated redware jug behind the right shoulder, and two more blackware vessels near the pelvic region (a single-spout-and-handle bottle [Huaco Rey] and a round jug). The flat and short body of the Huaco Rey, as well as the disturbance by the construction of Tomb 2, suggests that the pit was built during the early-Middle Sicán Period. The presence of shell beads and the seated position of the body allude to the low elite status for this individual.

Burial 4 is a square pit containing the body of a young adult female at age 20-25. The preservation state of the body was very poor. All bones were very porous and fragmentary. The body is inferred to have originally been in a cross-legged, seated position, facing the west. Since the burial ran into the west wall of Trench 2, the excavation could not be completed. Grave goods were very few. A concentration of marine shells and corroded copper plates were found in the upper NE portion of the pit. This burial was located right above Burial 3. It is possible that Burials 3 and 4 together formed a single burial complex.

Burial 7 is a square pit, measuring ca. 1 × 1 cm and located under the Basal Terrace of Huaca Loro, near the south wall of Trench 2. The pit had a large niche on its east wall (East Niche), and the niche contained the body of an adult male at age 40-50, placed in a cross-legged, seated position (Figure 6.69). Although the cranium had fallen from its original position, it should have been articulated with the postcranial bones and faced east. The buried individual was adorned with a cylindrical crown made out of silver-and-copper alloy and a pectoral of turquoise and shell beads, and was flanked by a copper *tumi* knife on each side. The larger *tumi* knife measures 34 cm in length and has a sculptural representation of Sicán Lord/Deity executed by the embossing-repoussé technique from a single metal sheet (Figure 6.70). On the niche floor immediately east (or in front) of the individual was found a cup of gilded copper decorated with a repoussé image of Sicán Lord holding a staff in each hand, the same image as that which repeatedly appears on the Middle Sicán blackware bottles (Figure 6.71). Three Huaco Rey bottles were found near the right knee of the individual, and a relatively small rounded orange jar at the back. The stylistic features of the Huaco Rey bottles suggest the middle-Middle Sicán date. The pectoral of turquoise and shell beads together with the aforementioned objects alludes to the low elite status of this individual.

6.2.3.2.5. <u>Bodies in an indeterminate position: Burials 9, 11, and 15</u>. The four burials described below contained human remains, the original body positions of which were indeterminate.

Burial 9 was found on the west wall of the amplified area west of Trench 3 (Trench 2/3), while Burial 18 was found in the south wall of Trench 3 (Figure 6.36). Since large portions of these burial pits ran into the walls, they were left unexcavated. The details about the buried individuals are not available.

Burial 11 is a small unlined burial pit of oval shape, located under the Basal Terrace of Huaca Loro. The pit contained the body of a neonate of indeterminate sex.

Except for a few fragments of the cranium, the body was not preserved. The reddish textile imprints observed around the cranium indicate that the body was wrapped in a red shroud. The only grave goods that accompanied this individual were corroded metal objects. The cinnabar paint observed on the face suggests a relatively high status of this individual. It is inferred that this individual belonged to the low elite class. The date for the burial is indeterminate.

Burial 15 is a burial pit of irregular shape, found below and in the center of the Sector C of Tomb 2. That this burial was built under the Lower Level of Tomb 2 suggests a date earlier than the construction of the tomb. The pit contained an incomplete body probably of an adult male mixed with grave goods (Figure 6.72). The articulations among the bones had completely been disturbed, which clearly suggests a secondary burial. The accompanying grave goods include two ceramic vessels and a miniature funerary vessel. The social status of the individual is indeterminate.

6.2.3.2.6. Two sacrificed bodies: Burial 6. As mentioned above, the burial pits excavated at the West Cemetery were arranged in a planned layout centering on the two elite tombs (Tombs 1 and 2) without destructing each other. However, there was an exception, which is Burial 6. Burial 6 is a group of (1) depositions of two sacrificial bodies on the Upper Level (Individuals 1 and 2) and (2) two burials disturbed by the sacrificial depositions on the Lower Level (Burials 6A and 6B).

The two burials had been badly disturbed. Within the fills of both Lower and Upper Levels, the fragmentary bones of the disturbed bodies were mixed with various objects, complete or fragmented, which are inferred to have originally been grave goods placed in the burials. They included ceramic vessels (e.g., fine blackware bottles and painted dishes of so-called Coastal Cajamarca style), camelid bones (a cranium, a scapula, thoracic vertebrae, and some toe bones), shell beads, metal objects (e.g., cast arsenical copper metal points and a thin strip of metal sheet folded and tied with strings), and stone objects (e.g., a spindle whirl and a figurine) (Figure 6.73). At the West Cemetery, it was only the Burial 6 that contained the Coastal Cajamarca dishes and the stone figurine. Moreover, quite interestingly, it was also only the Burial 6 that contained the camelid body parts other than cranium and limb. Although most of them were found completely disarticulated and scattered in the pit fill, some vertebra were still articulated.

Careful observations of the Lower Level fill revealed that the soils on the north and south sides were different in type, compactness, and inclusion. The soil on the north side was sandier and softer with fewer inclusions, while that on the south side was more compacted with a lot of small lumps of adobe bricks. This N-S soil distinction seemed to correspond to the stylistic distinction between the ceramic vessels found on the north and south sides. The Huaco Rey bottles found on the north side had longer spouts, taller bodies, higher and decorated pedestals, and more grayish color, which all suggest a later date. Consequently, the Burial 6 is inferred to have consisted of two separate burial pits abutting to each other and pertaining to a different time period: an early-Middle Sicán burial on the north side (Burial 6A) and a late-Middle Sicán burial on the south side (Burial 6B) (Figure 6.74).

The body interred in the Burial 6A (Individual 3) was disturbed and fragmented too much to reconstruct and infer the original body treatments. Nevertheless, some of the body parts were found articulated with each other (e.g., humerus and scapula found at the corner of the north wall of the burial pit and the west wall of Trench 2) (Figure 6.75a). This suggests that the disturbance took place before the flesh around the bones had been completely decomposed. The bright red pigment adhering to the face (from the supraorbital region to the maxillary) seems to be cinnabar, which serves as an indicator of elite status (Figure 6.75b).

A group of poorly preserved bones found immediately south of the inferred border between the Burials 6A and 6B were identified as parts of tarsal and metatarsal bones. Based on the locations of the cranium to the south and feet to the north (Figure 6.76), the body interred in the Burial 6B (Individual 4) seems to have been in a supine, extended position. The body seemed to have been placed over or wrapped in a red textile. It was likely that the camelid limbs recovered on the inferred left side of the body would be still *in situ*. Some of the camelid bones were burnt before the interment.

The face of the Individual 4 was also painted with bright red pigment (perhaps cinnabar) (Figure 6.76b).

Right underneath the Burial 6B was also found an offering pit measuring 18-20 cm in diameter and 28 cm in depth. The pit was filled with two different types of soil (yellowish brown sand in the west half and dark yellowish brown chunky clay soil in the east half) and contained at the bottom four inverted metal bowls stacked over another (silver-rich copper alloy?) (Figure 6.77). These bowls varied slightly in size and shape, measuring 13-15 cm in diameter and 6-8 cm in height.

The two burials were later disturbed when depositing two bodies of sacrificed individuals (Individuals 1 and 2). Both of the sacrificed bodies were not carefully placed, but thrown in a random fashion into an unlined simple pit of L shape. The Individual 1 is an adult female at age 30-35 (Figure 6.78a). Her body was deposited in an extended position. The lower body was facing up, and the upper body was twisted to the left with the right arm extended to the other side of the body, the face down, and the occipital region up. The preservation state of the body was fair, although some parts were quite porous.

The Individual 2 is a decapitated individual at age 35-45, found immediately below the Individual 1 (Figure 6.78b). Based on the oval shape of the perfectly preserved obturator foramen, the individual is inferred to have been male. The body was deposited in a supine, extended position with the left arm extended outward, and tilted slightly to the south. Over the legs were found imprints of reddish textile, which might have been used to tie the legs up. The consistency of soil matrices around the two sacrificed bodies suggests that they were consecutively thrown and buried in a single depositional event. These two bodies were covered with thick alluvial sediments and then with a burnt surface (OS-14) (Figure 6.79). Like the sacrificed bodies excavated by Steve Bourget in the Plaza A at Huaca de la Luna, the Individual 2 also seems to have been buried during or shortly after rain. Right underneath the left shoulder and the right leg were observed vestiges of water holes. Given the thick rain-deposited layers seen in the profile, this inference seems to be plausible.

6.2.4. Conclusion

The excavation of the West Cemetery in 2006 resulted in broadly two important findings: (1) a minimum of 14 burnt occupational surfaces sandwiched between fluvial layers, some associated with various types of offerings and (2) an intact Middle Sicán elite cemetery of 26 burial structures containing 30 human remains. The former provide the evidence of intermittent visitations of the former burial ground at the base of Huaca Loro, while the latter provide the information for determining the existence of ancestral bodies in the cemetery. Table 6.9 sums up the detailed descriptions presented above in terms of the major biological and social parameters of the 30 individuals excavated from the West Cemetery. The Tentative Conclusions 1 to 5 will be examined in Chapter 8 with reference to this list.

6.3. Excavations at the Great Plaza

This section provides detailed descriptions of the findings from the excavations at the Great Plaza in 2008. The major objectives of these descriptions are (1) to provide the information for clarifying what types of activities took place in the plaza area in relation to the inferred ancestor veneration practices, and (2) to present additional information for determining material correlates of ancestor-making/remembering processes and examining the existence of ancestral bodies in the burial ground on the east side of the Huaca Loro temple mound, near the west edge of the Great Plaza. The major focus is placed on (1) stratigraphic sequence, (2) features excavated on occupational surfaces, and (3) tombs and burials near the edge of Huaca Loro. Like the previous section, many details in this section are based on the results of collaborative work of various specialists in the project and on the final report submitted to the Ministerio de Cultura in 2010 (Shimada and Elera 2010).

6.3.1. Stratigraphic sequence in the EA3

The stratigraphic sequence at the Great Plaza was recorded in four excavation areas (EA3, 4, 5, and 6). The current study focuses only on the three of them, EA3, 4, and 5, with particular emphasis on the EA3 (Figures 6.80 to 6.83). As with the excavation of the West Cemetery in 2006, one of the major objectives of the SAP 2008 Field Season was to excavate the suspected elite tombs previously detected on the east and near the northeast corner of the Huaca Loro temple mound. Therefore, the layers below the Middle Sicán burial ground were again basically left unexcavated, although the profile recorded in a looter's trench in the EA4 (over 5 m deep) clearly illustrates a deep stratigraphic sequence below the middle-Middle Sicán burial, Northeast Tomb 1 (T-NE-1) (Figure 6.82).

What were documented uniformly in all excavation areas at the Great Plaza were a series of burnt areas on the upper layers and thick ash depositions accompanied by hearths of varying size with or without adobe lining on the lower layers. Like at the West Cemetery, on many layers were documented burnt surfaces that were accompanied by very few cultural objects. Locally collected *algarrobo* tree litter seems to have been burnt. Small amount of ash and moderate discoloration of the ground surfaces indicate that the fire use was not intensive. It is notable that the burnt surfaces were sandwiched between fluvial depositions of sand and clay. The activities of burning ground surface occurred not only above the cemetery, but more extensively around the Huaca Loro temple mound, and probably during and/or immediately after heavy rains and subsequent floods (Shimada and Matsumoto 2011; Matsumoto 2014a). The ash depositions and associated hearths on the lower layers suggest large-scale food preparations and consumptions widely in the Great Plaza. The stylistic features of the recovered fragments of Huaco Rey bottles suggest the Middle Sicán date. These Middle Sicán occupations were recovered, on average, ca. 1.5-2.0 m below the present-day ground surface. In what flows, I provide detailed descriptions of the sediment layers observed in the EA3 (from the top of the profile).

The first meter and a half below the present-day ground surface was the top soil consisting of recent fluvial deposits of sand and clay, which were divided into two layers, Layers 1 and 2. These two layers were subdivided into six levels (three levels for each) in terms of differences in soil type and color. Material inclusions were relatively scarce in these layers, as opposed to the uppermost layers at the West Cemetery, which included a substantial amount of refuse (e.g., cultural objects) from the eroded Huaca Loro. A glass fragment recovered from the Layer 2 Level 3 (the lowest of the said six levels) confirmed the inferred recent date for these layers (Figure 6.84). Above these thick fluvial layers was eventually exposed the first occupational surface (OS-1).

The OS-1 is the surface top a thin (ca. 2 cm thick) compact clay layer gently sloping down to the west. The soft clay surface was covered with a very thin layer (or patchy lenses) of whitish sandy soil (Figure 6.85). The surface pattern of this sand layer clearly showed that it was a water-lain deposition made by a fluvial event. Similarly, the OS-1 was sandwiched between a series of thin water-deposited clay layers slightly different in color. The OS-1 was accompanied by several burnt areas and fire pits, Features 1 to 7 (Figures 6.86 and 6.87). These burnt areas were very similar in appearance to those documented above the West Cemetery in 2006. About 5-10 cm below the OS-1 was recovered the next occupational surface, OS-2.

The OS-2 is the burnt surface atop a very compact clayish sand layer (Figure 6.88). The surface was recognized only in the south side of the EA3 and was sloping down to the SW corner of the EA3. Some burnt areas (Features 8 to 11) concentrated primarily in the SE Quad. They were not accompanied by any cultural objects. Around the SW corner of the EA3, which is the lowest in elevation, the (unburnt) surface was found to have been cracked probably due to a dry spell of the time. The light-colored pure clay that fed into those cracks makes them quite visible, suggests an alternate sequence of wet and dry spells.

The OS-3 is the surface of a water-deposited pure clay layer (ca. 10 cm) accompanied by two adjacent features on the east side of the EA3: a line of burnt areas (Feature 12) and a pair of fire pits (Feature 13) (Figure 6.89). The occupational surface was the highest in elevation on the east side, and again sloping down to the west. However, the inclination was steeper than on the OS-2. The vertical gap between the highest and the lowest points was ca. 25 cm. The numerous horizontal lines and subtle changes in soil color within the layer suggest that the depositions had been made through multiple episodes of fluvial events. Along the east profile of the EA3 and near the border between the NE and SE Quads were observed some cracks on the surface similar to those recovered on the OS-2. One of the features, Feature 12, consisted of eight small burnt areas, and all of the burnt areas were neatly aligned with the N-S axis. A line that was observed along the east wall of the EA3 and distinguished soils different in color alluded to an underlying structure.

The OS-4 is the surface of a compact chunky mixture of clay soils slightly different in type and color (Figure 6.90). The inclination of the surface of this layer became even steeper than on the OS-3. The vertical interval was now over 35 cm. The line observed on the elevated east side of the OS-3 turned to continue toward the north, and on the east side of the line were exposed some adobe bricks. This structure was interpreted as a part of wall running N-S, designated as the Wall 1. The steep inclination of the OS-4 was attributed to the clay deposition from the collapsed Wall 1 (Figure 6.91). The deposition ended ca. 1-2 m east from the west profile of the EA3. The only burnt area found on this surface was a small hearth, Feature 14, located along the south profile of the EA3, where the down slope from the east ended. Several ceramic sherds were associated with the feature. Compared to the upper layers, the clay soil under the OS-4 (especially in its lower portion) was much more abundant in material remains (e.g., charcoal, shells, ceramic sherds, and animal bones). Many of the materials had been burnt. For example, we collected 52 diagnostics out of 312 sherds as opposed to 11 out of 39 from the layer between the OS-3 and the OS-4. This seems to suggest that during the time of occupation on the next level, Floor 1[4], there took place activities different in type, scale, frequency, and/or duration from those of later times.

The Floor 1 is a well-prepared clay floor sandwiched between the layers of ashy soil containing a lot of cultural materials. Although it was partially preserved, its associations with the Wall 1 and four features were clearly observed (Figure 6.92). It was eventually confirmed that the steep inclinations observed on the upper occupational surfaces had been made by the clay deposition from the collapsed Wall 1. The preserved portion of the Wall 1 was ca. 20 cm tall above the Floor 1. As opposed to those sloping upper layers, the Floor 1 was nearly horizontal (Figure 6.93). Although the floor surface was basically clean and very few material remains were directly associated, as mentioned above, the soil layers immediately above the Floor 1 contained abundant ceramic sherds and other material remains (Figures 6.80 and 6.81).

The OS-5 is an extensively and intensively burnt surface of relatively compact clay soil layer (Figures 6.94 and 6.95). Individual burnt areas were registered as separate features, Features 19 to 22. However, The OS-5 could not be well defined in the entire area of the EA3. The burnt areas might have been associated with sub-layers slightly different in elevation. Features 19 and 20 were separated from other two features and recorded to have been associated with the OS-5A and OS-5B respectively. The layer immediately below the OS-5 involved a lot of small clay lumps different in color (e.g., bright orange and whitish gray) but relatively few cultural remains (e.g., ceramic sherds).

Underneath a layer of very fine brown sand was exposed the OS-6 (Figure 6.96). The OS-6 is the surface of a relatively loose clayish soil layer that contained a large number of small adobe lumps and few cultural objects. On the OS-6 were found a small fire pit (Feature 23) and the cuts of two canal channels converging in the SE Quad of the EA3 (Canals 1 and 2). On the NW side of the EA3, two groups of adobe bricks were found lining on the surface. The OS-6 was not defined in the area between and around these adobe groups. In this area, slightly lower than the OS-6, were found articulated animal bones, a fragmented ceramic plate, and white ash concentrations in a loose sandy soil (Feature 24 A through I). This area corresponds to a large adobe-lined hearth (Feature 26) that was later found associated with the lower OS-7. Adobe groups on the OS-6 vertically overlapped the lining of this hearth on the OS-7. That the OS-6 was not defined in the area around the hearth may suggest that the hearth was left unsealed during the occupation on the OS-6. The ash concentrations by the adobe groups seem to indicate that the hearth was still in use. Thus, the indistinct layer between the OS-6 and 7 in the area around the Feature 26 was separately registered as the OS-6/7.

The OS-7 is the surface of a thick layer of ash (ca. 20-25) that contained a substantial amount of food remains and fragmented vessels (Figure 6.97). The ash is inferred to have derived from the cooking activities using the large adobe-lined hearth nearby, which measured > 1.3 × 3.0 m (Feature 26). The thickness of the ash layer indicates the long-term or heavy use of this hearth. Unlike the upper layers, the OS-7 did not show any well-defined, hardened surface; therefore, the ash layer was arbitrarily divided into three levels of about the same thickness (ca. 7-8cm) for finer recording. The construction phases of the hearth gradually became clear through the excavation. It was revealed that the hearth was built over the OS-7 Level 3. The adobe lining around the hearth was not built in a single construction phase, but in multiple, at least three, construction phases. As clearly shown in the west profile of the EA3, the hearth decreased in size through the construction phases (from ca. 3.0 to 1.6 m). Additionally, at the very end of the last construction phase, a thick (ca. 15 cm at the thickest portion) concentration of small univalve shells (later identified as *Olivella columellaris*) was deposited over the north edge of the hearth (Feature 27). It appears that they were discarded and accumulated over the edge of the hearth, as they were cooked. Their close association with this large hearth that seems oversized for domestic cooking purposes alludes to a possibility that they were a part of the menu for ceremonial food.

The Floor 2 is a floor of yellowish brown clayish soil found under the thick ash layer of the OS-7. This is the lowest occupational surface that we could reach, although we identified at least one more occupational layer underneath (OS-8?) during the excavation of Test Pit 3. Due to the time constraints, we could excavate and recover the floor only on the north side of the EA3 (north of the Canal 2). Nonetheless, two additional test pit excavations revealed the same clay floor on the south side (SE and SW Quads). On the Floor 2, surface materials were relatively few (e.g., 7 diagnostics out of 55 sherds). The east edge of the adobe lining that demarcated the large hearth on the OS-7 (Feature 26) turned out to have been a thin wall (ca. 10-12 cm) that was associated with the Floor 2 and later reinforced with some additional adobe bricks to the east to build the hearth on the OS-7 Level 3. No post hole was found along this wall. Along the west side of this wall was found a small ash concentration, while immediately south of the end of the wall was found an adobe-lined hearth of an elongated oval shape, measuring ca. 40 x 100 cm and accompanied by a thick concentration of white ash and ceramic sherds (Figure 6.98). On the interior and bottom surfaces of the hearth were observed burnt-reddish brown soil. Abutting to this hearth was a thick ash concentration with a hardened surface, which most probably derived from the fire use in the hearth.

6.3.2. <u>Features in the EA3</u>

A total of 29 features were registered and documented on the ten occupational layers from the OS-1 to the Floor 2. The majority of the features found on the layers above the OS-6 (72.7%) were burnt areas. In other words, all of the 16 burnt areas documented were found above the OS-6. The first feature other than burnt areas or fire pits was Feature 16 found on the Floor 1. Feature 16 is a cluster of large utilitarian urn fragments. The fragments were piled up in a shallow ditch right by the Wall 1. What drew attention were bits of cinnabar paint observed within the soil matrix surrounding the sherd pile (Figure 6.99). As discussed in Chapter 4, cinnabar paint is inferred to have been considered as the material that symbolized the idea of giving life force or more broadly sanctifying the associated objects and activities, and thus is not the material used in the domestic sphere. Although the cinnabar paint bits were not directly adhering to the vessel fragments, the use of this special ritual paint during the occupation on the Floor 1 is evident and suggests a connection to the funeral-related activities. Under the intensively burnt OS-5 (below Floor 1), the occupational layers began to demonstrate a more ritualistic character compared to the upper layers. Small ritual canals and a large adobe-lined hearth oversized for domestic cooking purposes were recovered on the OS-6 and 7, respectively. These two finds are separately described in detail below.

6.3.2.1. Small canal channels (Canals 1 and 2). The two canal channels found on the OS-6 were dug in a T shape (Figure 6.100). The Canal 1, which runs N-S, is the southward continuation of the canal excavated by Shimada in 1990 (See Chapter 4.1.1. Shimada et al.'s [2004] hypothesis). It comes from the direction of Huaca Colorada and seems to continue further toward the direction of the La Leche River. The west side of the Canal 1 was slightly lower than the east side. The Canal 2, which was smaller and shallower and running E-W, comes from the direction of Huaca Loro and converges with the Canal 1 in the SE Quad. The Canal 1 measured 22-48 cm in width (E-W), > 645 cm in length (N-S), while the Canal 2 measured 25-30 cm in width (N-S) and >300 cm in length (E-W). Three test pits were excavated for the purpose of clarifying the depth and structure of the two channels. We could not define the interior walls and the base in many parts of the channels. The distinction between the clay mortar plastered on the interior walls and the sandy fill oftentimes became blurry ca. 10 cm below the cut edge on the OS-6. The form of the channels could be barely recognized by a subtle change in the compactness of the soil. Nevertheless, it was eventually revealed that both of the channels were ca. 20-30 cm deep. They were partially lined with adobe bricks, and the interior surfaces were partly plastered with clay mortar. On the inferred base of the channels were observed circular shallow depressions distributed with intervals of ca. 50-80 cm. Although these depressions initially raised the possibility that this structure might have been a ditch to support a temporary wall like *quincha* (a mud-and-daub wall with cane supports), remains of *quincha* or any other architectural constructions were not found. The fill of the two channels involved various material objects such as ceramic sherds, animal bones, stones, and marine shells. What were most remarkable among others were tiny bits of cinnabar paint scattered in the fill of the Canal 1. As with the Feature 16 above, this find alludes to the ritualistic use of the canal.

Some elevation measurements we took on the cut edges and the inferred bottom surfaces of the two channels allowed us to infer the direction of the liquid flow in the channels. The elevation readings were not always unidirectionally gradual; however, overall, the west and north sides were higher than the east and south sides (Figure 6.101). The liquid in the channels should have flown from the directions of the Huacas toward the La Leche River or what was likely to have been a canal before it became a "river" we see today[5] (Figure 6.102). More specifically, the Canal 1 flows from the north (most probably from Huaca Colorada) toward the river, and the Canal 2 flows from the west (most probably from Huaca Loro) to the east and converges with the Canal 1. These directions are totally opposite from the direction expected for the ordinary canals. In the ordinarily functioning canals (i.e., irrigation canals), the water should flow from water source to use areas, although there are indeed irrigations canals that drain excess or saline water from agricultural fields into a river. Based on the inferred flow direction and the absence of agricultural fields nearby, as well as the scattered cinnabar bits contained in the sandy fill, it seems to be quite difficult to infer that the two channels functioned as a regular canal supplying water to use areas, but rather more reasonable to assume a ritual use.

In an interview in 1978 by Shimada, Mr. Oswaldo Aurich (a member of the family, former owner of the Hacienda Juan Aurich of Batán Grande) said that their laborers found a "canal" similar to the Canals 1 and 2 in dimension and construction techniques near the EA3. In order to trace the canal, they set up test pits at certain intervals and excavated them. According to Oswaldo, the north end of the canal extended to the south base of Huaca Colorada, while the south end terminated in a rectangular container made of green stone. It is quite probable that what they described was the Canal 1 that we documented.

6.3.2.2. A large adobe-lined hearth (Feature 26). The large adobe-lined hearth (Feature 26) was found on the OS-7 along the west wall of the EA3 (Figure 6.103). Although the west part of the hearth ran into the west wall of the EA3, the exposed part measured ca. 3.0 (E-W) × 1.3 (N-S) m. A GPR prospection by Hirokatsu Watanabe revealed that the hearth was probably even larger, perhaps 3 × 3 m, based on the archaeomagnetism (typically caused by burnt soil) detected in the area adjacent to the west wall of the EA3. As I mentioned in Chapter 4, the SAP has previously found similar adobe-lined hearths in the plaza, associated with abundant food remains and vessel fragments (SAP'90-T7). The excavations of other areas of the Great Plaza in 2008 (EA4, 5, and 6) also made similar findings, as will be discussed shortly. The Great Plaza thus seems to have been dotted with large hearths used to prepare a fair amount of food at a time.

In and around the hearth we found a thick ashy soil deposition (> 20 cm) containing a whole variety of food remains (e.g., animal and fish bones, marine shells, and seeds), fragmented serving and cooking vessels, exotic items (e.g., cinnabar bits and a *Conus fergusoni*; Figure 6.104), craft production tools (e.g., spindle whirls and sewing needles), and perhaps some human bones. The marine shells were particularly abundant among others. A disproportionally large number of plates and bowls suggest that more food consumptions took place in this area. What is also notable is the perceived high frequency of camelid vertebrae that were still articulated, in contrast to the predominance of crania and limb extremities devoted to burial offerings at the West Cemetery and the West Tomb (Shimada and Shimada 1997). Compared to the meaty parts like the gluteal to femoral regions, the spinal column does not have much meat to eat. When slaughtering an animal for food, the spinal column is one of the body parts that are often left out. The documented vertebrae may suggest that slaughtering occurred in this area.

The materials and objects other than food remains and fragmented vessels may imply that there took place a wider range of activities other than food preparations and consumptions. For example, spindle whirls and sewing needles suggest the handicraft production of textile, while shell beads and a *Conus fergusoni* (with its outer lip cut off) are indicative of the production of necklaces and pectorals. On top of all these, cinnabar paint bits imply a process of funerary preparations, in other words, painting of the dead bodies. Considering that many of the tombs and burials excavated at the West Cemetery contained a human body painted with cinnabar on the face, decorated with a shell bead necklace or pectoral, and wrapped in a shroud or textile bundle, all of the materials and objects above may suggest that there took place the preparation and/or repair of funerary bundles in the area. Incidentally, as will be discussed below, an extensive Middle Sicán metalworking area (over 8 × 8 m in extent) was found in another excavation area at the northeast corner of Huaca Loro, EA5. The metal objects placed in the burials as grave offerings also seem to have been produced near the burial ground. Furthermore, although very fragmentary and poorly preserved, some human bones were also identified. Shimada similarly excavated some burnt bones of children during his excavation in 1990 of the SAP-HL'90-T6, the southward amplification of which was the EA3. What appeared to be secondary burials of incomplete bodies documented at the West Cemetery suggest the acts of exhumation of dead bodies from tombs and burials. It is quite probable that the dead body part were handled in this area for some purposes.

In addition to the materials and objects listed above, we also recovered a ceramic Sicán Lord icon from the ashy soil deposits immediately east of the hearth. The face with the inverted-comma eyes, typical of the Sicán God/Lord representations, had been cut out most likely from a face-neck jar and neatly trimmed (Figure 6.105). The top of the pointy nose and the surface of the central portion of the semicircular headdress had been worn off. Although it is nothing more than a speculation, this face icon may have functioned as a mnemonic device that revived memories of a certain individual or a group of Sicán elite and have been carried to display one's social/religious identity.

6.3.3. Major findings in other excavation areas

In the sections above, I have described the stratigraphic sequence of the occupational layers documented in the EA3 and the features associated with those layers. The SAP2008 excavations also made some important findings in other excavation areas in the Great Plaza. These findings are briefly discussed below.

6.3.3.1. Burnt surfaces and hearths. As with the EA3, a long sequence of burnt occupational surfaces was documented in three excavation areas (EAs-4, 5, and 6). Under these burnt layers, on the lower occupational surfaces were encountered large hearths, both with and without adobe lining. In and around the hearth was found a thick ashy soil deposition containing fragmented serving and cooking vessels and a variety of food remains. Most of the hearths were associated with post holes that probably held simple roofs to create shades, while some were built within areas partially enclosed by a row of adobe bricks. These lines of evidence indicate that the hearths were placed in an area protected, but well ventilated and lighted. Based on these lines of evidence, the majority of the hearths were inferred to have been used for cooking purposes.

6.3.3.2. A metal workshop. In the EA5 were documented several lines of evidence of a metal workshop that is inferred to have manufactured copper-and-gold alloy objects. First, numerous intensively burnt and dispersed patches were found on the two consecutive occupational surfaces, the OS-10 and OS-11. These burnt areas were accompanied by concentrations of white ash and hardwood charcoals, which indicate a use of intensive, high heat. It was evident that the charred pieces derived from large firewood, rather than small branches. Metallurgical works require sustained high temperature without generating smoke, which cannot be achieved by burning small branches.

Second, recovered objects include a wide range of tools, raw materials, and scrap and other metalworking debris (Figure 6.106). More specifically, they include (1) a fragment of tuyere with the egressing airhole of diameter smaller (ca. 6 mm) than tuyeres for smelting (ca. 8 mm), (2) a chisel with the proximal end deformed probably due to repeated hammering, (3) numerous limps of metal and slag, (4) fragments of copper alloy ingots, (5) small scraps from sheets of gold and gilded copper, (6) broken fragments of copper-alloy needles, and (7) ceramic sherds with slags and prills on the interior surface. However, smelting furnaces, ores, large anvil and companion rocking stones for crushing ores and slags (locally known as *batanes* and *chungos*), and ground slag were conspicuously missing, suggesting that this workshop was used for finer metal working processes rather than smelting processes.

Third, a structure in the form of L (measuring > 4.32 m [N-S] x 3.47 m [E-W]) was found associated with the OS-10 and OS-11 in the central part of the southern half of the EA5 (Figure 6.107). The structure had a post hole in the middle of the wall, which is inferred to have held a roof. This superstructure should have provided protection and shade for fine metalwork.

Last but not least, it is worth noting that inside the workshop (on the OS-10) were encountered organic or food remains such as marine shells and camelid bones with cut marks. These suggest that metal workers ate their meals inside the workshop.

6.3.3.3. Three tombs and a burial. In the EAs4, 5, and 6, three shaft tombs and one small burial were excavated, and a total of eleven individuals were identified. The three shaft tombs had one or two niches in the walls at the level of the chamber floor and contained three to four individuals – including the principal personage of the tomb wearing a metal mask and/or an elaborate headdress – as well as various grave goods. In what follows, I describe the details of the burial structures in the EAs 4 and 5. Since the EA6 has been and will be excluded from the main arguments of this dissertation, the Plaza Tomb (T-PL) in the EA6 is not mentioned. The determinations of age and sex of the recovered individuals have been verified by the physical anthropologist Sarah Muno (Table 6.10). The detailed descriptions below will provide additional information for determining the existence of ancestral bodies in the burial ground around the Huaca Loro temple mound.

6.3.3.3.1. Northeast Tomb 1 (T-NE-1) in the EA4. The Northeast Tomb 1 (T-NE-1) is a shaft tomb, measuring 3.0 × 3.6 m and associated with the OS-11 (99.16-99.21 m asl. and ca. 1.9-2.1 m below the present-day surface) (Figures 6.82 and 6.108). The west side of the tomb had been completely destroyed by a deep bulldozer cut made by modern-day looters. The T-NE-1 had two symmetrical niches on the north and south walls (North and South Niches), which were aligned with the N-S axis. If these niches were placed along this N-S axis, the tomb should have originally measured 3.6 × 3.6 m and had a square shape. It is possible that the destroyed west wall had another niche. The pit walls were not straight and not cut with care; consequently, the shape of the pit floor was not as rectangular as the mouth was, but irregular. The northern part of the principal chamber floor was covered with a long cloth painted with the Sicán God image. It measured > 30 × 150 cm and was oriented E-W. The back of the cloth was lined with a thin sheet of gilded copper. Besides this painted cloth, a series of grave goods were found on the chamber floor. They include seven bundles of cast point of arsenical copper, a total of 48 small pieces of chalk, and copper alloy objects.

Near the SE corner of the principal chamber floor was found the body of a young female at age 16-18 (Individual 1). The majority of the body, except for the cranium and right arm, was covered with a grayish layer, which might have been a shroud. On top of the shroud was found two flutes made of camelid tibia. The body was placed in a seated position with the legs crossed and the arms open on the sides of the body, leaning over on the sloping base of the east wall of the pit. It is probable that the body originally sat upright facing the west. The entire face was painted with cinnabar, which suggests the elite status of this individual. The body was accompanied by several grave goods: a concentration of yellow pigment and four ceramic vessels (a single-spout-and-handle blackware bottle [Huaco Rey], a blackware bottle modeled in the form of llama, a small jar, and a miniature jug). The stylistic features of the Huaco Rey bottle suggest the middle-Middle Sicán date. A fragmented miniature funerary vessel was found immediately north of the upper right arm. It appears to have been formed quickly by hand and have not been fired at all.

The North Niche measured 77 (N-S) × 92 (E-W) cm and contained the body of a young male (Individual 2) in the center of the niche, placed in a seated position with the legs crossed facing the south. The poor preservation state of the body hampers the precise determination of age and sex. The body was wearing a gilded copper mask and a gilded-copper headdress and accompanied by two miscellaneous copper-alloy objects. Judging from his location in the center of the niche and the fact that he was wearing the mask, it is inferred that he was the principal personage of this tomb. Worthy of special mention in this tomb is an L-shaped duct that was found at the SE corner of the niche and perhaps connected the niche and the ground level. At the base of the inferred duct were found soil matrix of ovoid form that seemed to shows signs of deposited food. These are strong lines of evidence for the protracted visitations and cares of an important deceased individual. The inferred duct is inferred to have functions as a communication conduit between the principal personage and the living descendants, or something equivalent to the Incan *ushnus*.

The South Niche measured 81 (N-S) × 88 (E-W) cm and contained the body of an individual of unknown sex at age 18-21 (Individual 3) found in a flexed position, but inferred to have originally been in a seated position with the legs crossed and arms crossed in front of the torso. The upper body had been collapsed after the deposition. The body was accompanied by a single-spout-and-handle blackware bottle (Huaco Rey), small pieces of chalk, and camelid bones.

6.3.3.3.2. Burial 2 in the EA4. The Burial 2 is a roughly rectangular burial pit measuring 71 (N-S) × > 100 (E-W) cm and approximately 60 cm in depth. As with the T-NE-1, the mouth of the Burial 2 was found on the OS-11, and the west side had been completely destroyed by the bulldozer trench. The burial seems to have been disturbed during the prehispanic times. An intrusive cut was found at the SE corner of the pit, associated with the OS-10. The prehispanic disturbance had left only a good part of cranium painted with cinnabar, three rib fragments, and one partial fragment of vertebra jumbled together with other grace goods and dumped at the east side of the pit. The osteological features of these bones suggest that the individual was an adult at age 18-22. The relatively prominent mastoid process suggests an adult male. The accompanying grave goods include two face-neck blackware jugs, a small *paleteada* jar, and three redware jars. All ceramic vessels found in the burial pertain to the middle-Middle Sicán Period.

6.3.3.3.3. <u>Northeast Tomb 2 (T-NE-2) in the EA5</u>. The Northeast Tomb 2 (T-NE-2) is a roughly square pit measuring 4.04 (N-S) × 3.60 (E-W) m, found in the west side of the EA5. The mouth of the pit was found between the OS-10 and OS-11 (Figure 6.109). Since the pit walls were all leaning outward, the sides of the principal chamber floor were about 30-40 cm shorter than at the pit mouth. A large portion of the west wall of the pit had been destroyed by the aforementioned bulldozer cut, and almost 40% of the chamber had been desecrated by looters. The pit had a small niche on the south wall (South Niche), and a partially preserved rectangular niche on the west wall (West Niche). The South Niche measured 80 cm wide, 99 cm high, and 30 cm deep. Strictly speaking, it is nothing more than a shallow concavity without any ceiling. Although the tomb had been badly disturbed, the bodies of three individuals, painted clothes, and concentrations of grave goods were identified.

Along the east wall of the principal chamber was found the body of a young adult female at age 16-18 (Individual 1). Although the body had been partially disturbed by the modern-day looters, it is inferred to have originally been in a seated position with legs crossed. Before the modern-day disturbance, the upper body seems to have already been collapsed during or after the deposition. Immediately south of the Individual 1 and at the SE corner of the principal chamber was found an adult female at age 25-35 (Individual 2). The flat auricular surface with numerous pores of the pelvis and the wide sciatic angle suggest that it was an adult. The body had been extensively disturbed by looters, leaving *in situ* only the left leg, the right femur, and a part of the pelvis. Nevertheless, the position of the femur indicates that the body was in a seated position facing the SW to the direction of the South Niche. The incomplete body of an elder individual of unknown sex (Individual 3) was found in the South Niche. The disturbance by looters was quite severe, and only some ribs and vertebrae were left. There was no way of determining the age, sex, and body position and orientation. Right by the Individual 3 was found a poorly preserved copper mask. The mask was placed on the niche floor looking up. The left half of the mask had been cut off by looters. Based on the presence of this mask, it was tentatively concluded that the Individual 3 was the principal personage of this tomb.

On the north side of the principal chamber, a large painted cloth (measuring > 1.2 [N-S] × 2.0 [E-W] m) was found. It and was supported by a cane or wooden frame and painted with the Sicán God image and other geometric designs. The cloth was divided into three panels bordered by stylized waves. Some patches of orange, yellow, and gray paintings found this cloth indicate that there was another cloth with polychrome paintings. Shimada (1996) hypothesizes that these clothes that carried sacred and venerated images served as screens or portable and replaceable partitions to create ritual spaces appropriate for an individual when he/she lived and made his/her ceremonial roles. At the death of the individual, the clothes would have been placed into his/her tomb to continue serving for the same purposes symbolically.

In the central part of the chamber floor were found two dense concentrations of fragmented ceramic vessels: mostly bottles with high pedestals and tall spouts (suggesting the late-Middle Sicán date) and miniature funerary vessels. In one area of the concentrations, the number of original bottles was estimated by counting the large diagnostic fragments (e.g., pedestal bases, spouts, and bridge handles). It revealed that there were at least 160 bottles of various types and colors. More interestingly, from the fact that two *articulated* lower limbs of camelid were found *completely mixed within* the concentration of vessel fragments, it is inferred that at least some of the vessels were *intentionally smashed*. It might have been a ritual act of offering. Very few metal objects were recovered from this tomb. It is not clear if this was typical in the late-Middle Sicán period or due to the disturbance by looters.

6.3.4. Conclusion

The excavations of the Great Plaza in 2008 resulted in three major findings: (1) two tombs and one burial on the east side of the Huaca Loro temple mound and near the west edge of the Great Plaza (Plaza Tomb in the EA6 excluded), (2) traces of activities that occurred side by side during the Middle Sicán Period (e.g., large-scale food preparations and consumptions and craft production for funerary preparations), and (3) a series of burnt occupational surfaces just as those documented during the excavation in 2006. The two General Hypotheses proposed in Chapter 4 will be fully examined against the detailed descriptions of these findings together with the findings from the West Cemetery and the results of material analyses presented in the next chapter.

NOTES

1 A local family lived at the north base of Huaca Loro for a few decades and had a number of horses (Shimada 2014, personal communication). It is quite possible that the cranium pertained to one of their horses.

2 Some features that were give the identification number but later turned out not to be a feature are excluded from this total number.

3 The fronto-occipital flattening was a widely common style of cranial deformation among the Sicán people across the social classes (Muno 2009:306).

4 Strictly speaking, Floor 1 is also an occupational surface. What I designated as floors were distinguished from other occupational surfaces in that they were widely well-prepared, clay-lined surfaces, as opposed to those partially trodden through the period of occupation.

5 A geomorphological and hydrological study by Alan Craig in 1979 revealed that the present channel of the river had diverged from the original southwestward channel of the Túcume Canal likely during a massive flood sometime in the past, and had begun flowing westward along the new channel. Alan and Shimada infer that today's La Leche channel was originally a small canal that served to bring water to the Illimo area. Incidentally, furthermore, before Huaca La Merced was washed away in 1983 and 84, Shimada observed an amorphous mound on

the south bank of the river. It follows that the Great Plaza should have extended towards the south, and its south edge was bordered by Huaca La Merced, La Leche River, and the mound that Shimada observed. This would increase the total area of the plaza from 7.5 ha at least to 12.5 ha (Matsumoto 2014b).

Figure 6.1. The Excavation Trenches 1 and 2 set up at the west foot of the Huaca Loro temple mound (SAP-HL’06-T1 and T2).

Figure 6.2. The Excavation Trench 3 as an amplification of Trench 2 toward the south (SAP-HL’06-T3).

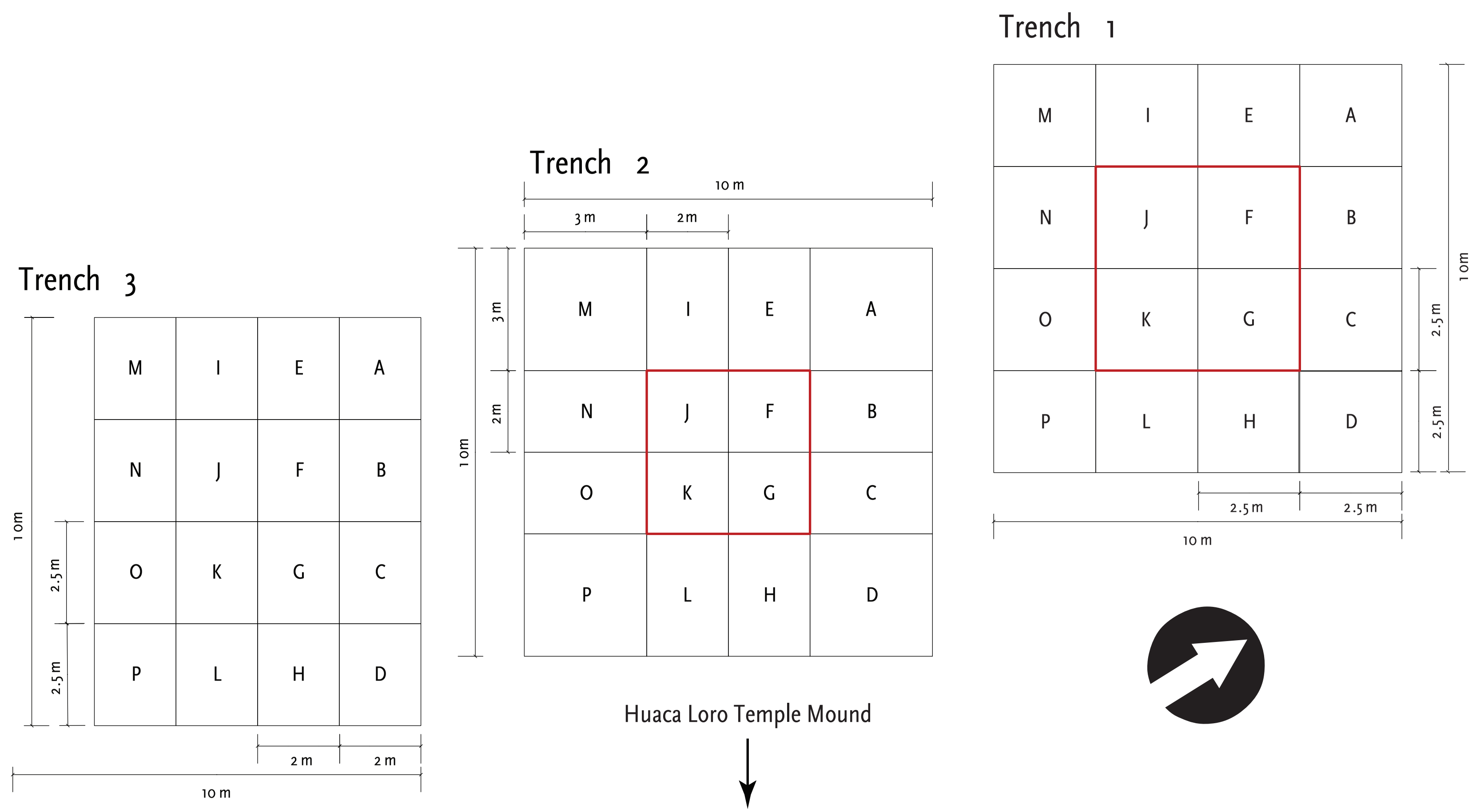


Figure 6.3. The quadrangle grid system used for the excavations of the SAP-HL'06-Trenches 1 to 3.

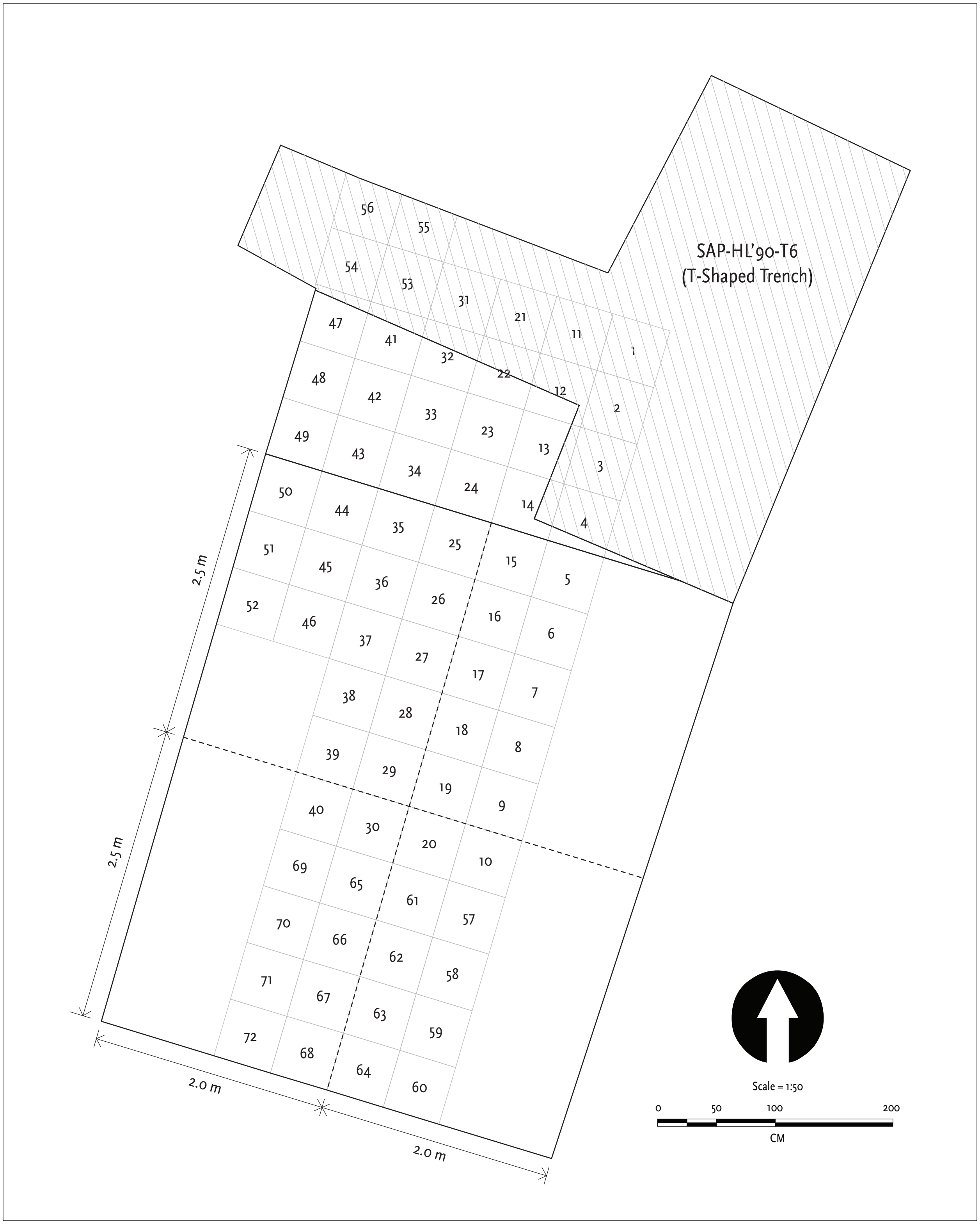


Figure 6.4. Shape and dimension of the Excavation Area 3 in the Great Plaza (SAP-HL'08-EA3). It is the southwestward expansion of the test trench (SAP-HL'90-T6). The quadrangle grid of 50 cm squares was applied for a more precise recording, as the excavation proceeded.

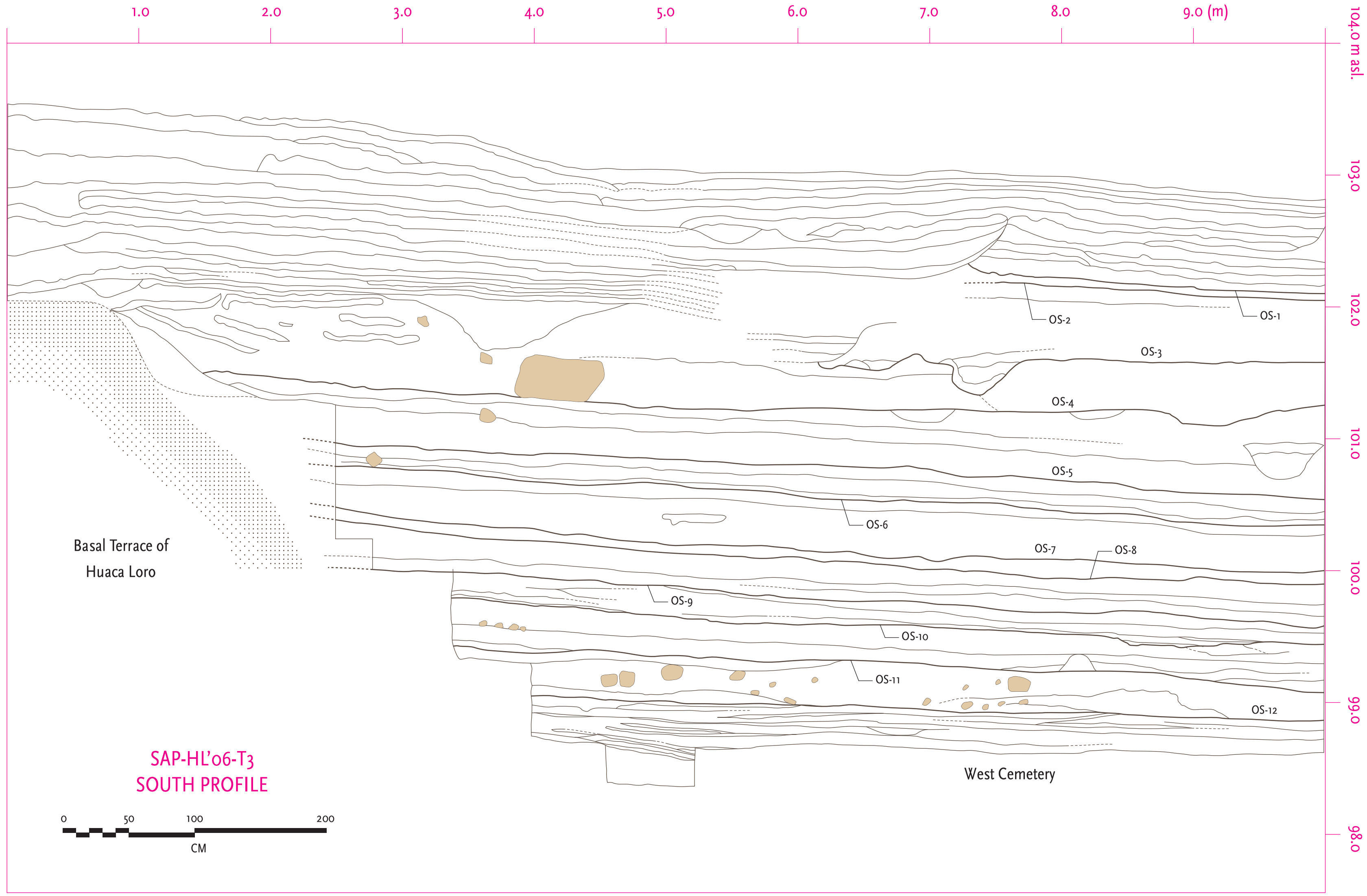


Figure 6.6. The South Profile of the SAP-HL'06-T3.

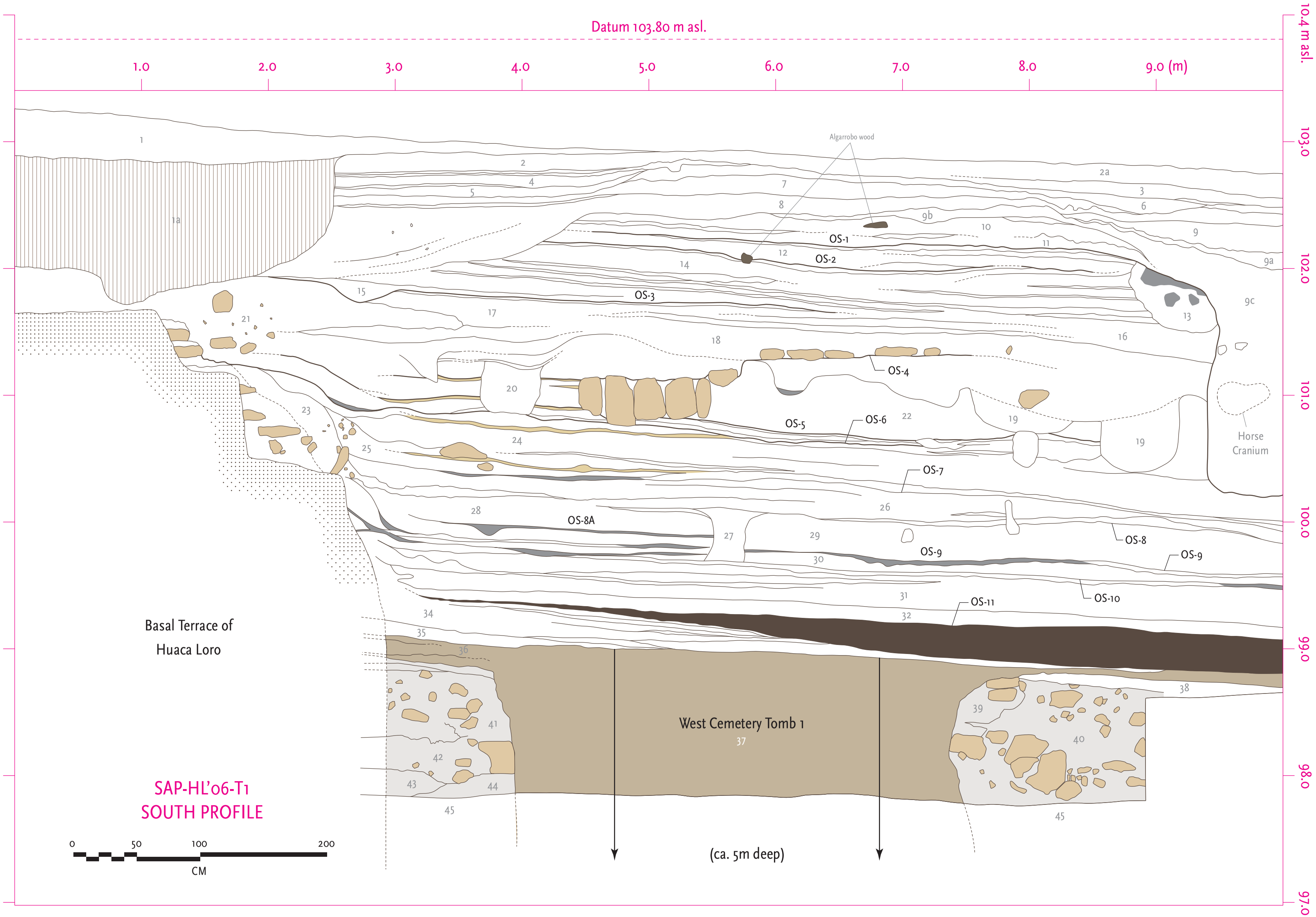


Figure 6.5. The South Profile of the SAP-HL'06-T1.

Figure 6.7. Alluvial layers (below the OS-6) observed on the south profile of the SAP-HL'90 Test Trench.

Figure 6.8. An adobe enclosure found on the OS-4 in the SAP-HL'06-T1.

Figure 6.9. Close-up shots of the burnt OS-6 in the SAP-HL'06-T3.

Figure 6.10. Occupational Surface 10 in the SAP-HL’06-T1.

Figure 6.11. Occupational Surface 8 in the SAP-HL'06-T1.

Figure 6.12. Occupational Surface 12 in the SAP-HL'06-T1.

Figure 6.13. Occupational Surface 9 in the SAP-HL'06-T1.

Figure 6.14. Occupational Surface 8 in the SAP-HL’06-T2.

Figure 6.15. Occupational Surface 6 in the SAP-HL'06-T1.

Figure 6.16. Occupational Surface 5 in the SAP-HL’06-T2.

Figure 6.17. Occupational Surface 4 in the SAP-HL'06-T2.

Figure 6.18. Occupational Surface 6 in the SAP-HL’06-T3.

Figure 6.19. Feature 7 (a nearly complete body of camelid) found on the OS-2 in the SAP-HL'06-T1. Note that the right ribs, the distal ends of which were chopped off, were raised all the way up to the upper side of the spine. The rib cage seems to have been opened up for some unknown purpose.

Figure 6.20. Feature 18 (a large adobe-lined furnace) cutting into the slope of the Basal Terrace of Huaca Loro in the SAP-HL'06-T1.

Figure 6.21. Feature 23 (a large pointy-bottomed reddish brown urn) found on the OS-6 in the SAP-HL’06-T1.

Figure 6.22. Features 37-41 found on the OS-5 in the SAP-HL’06-T1.

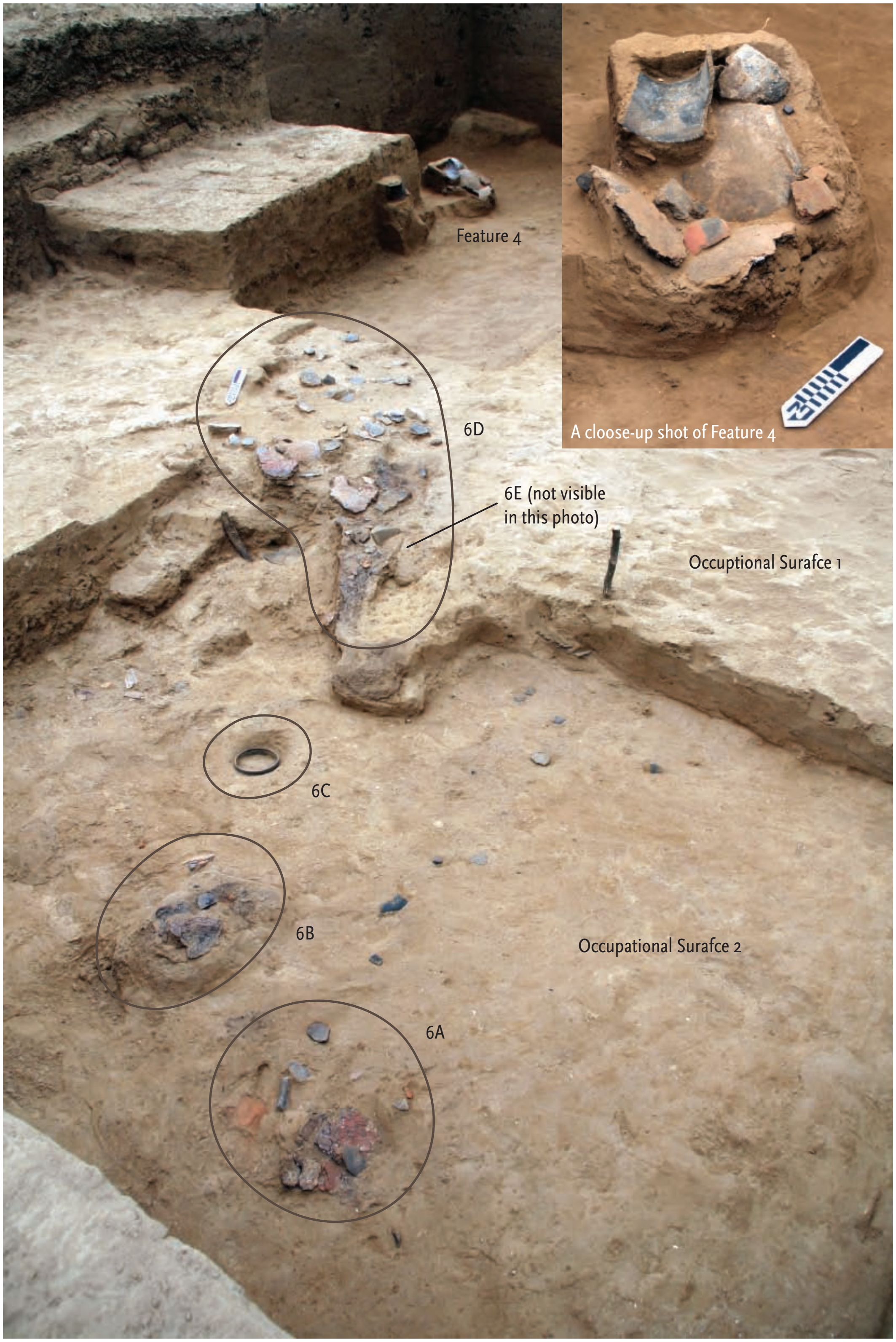


Figure 6.23. Features 4 and 6 (A-E) in the SAP-HL’06-T2. These features (except for Feature 6C) are typical examples of rain-deposited refuse that flowed out and crumbled down from the collapsed chamber of eroded Huaca Loro.

Figure 6.24. Feature 5 (a very large D-shaped earthen pit) associated with the OS-1 in the SAP-HL′06-T2.

Figure 6.25. Feature 6E found on the OS-1 in the SAP-HL′06-T2.

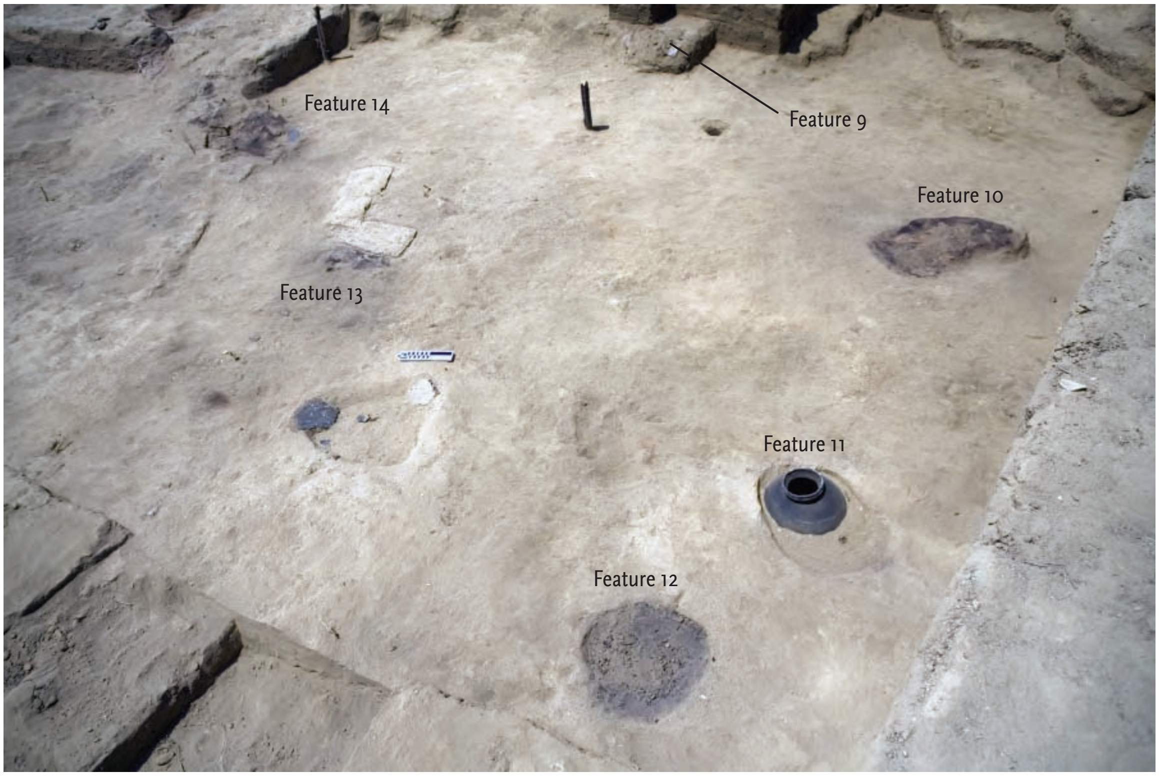


Figure 6.26. Features 9-14 found on the OS-2 in the SAP-HL'06-T2.

Figure 6.27. Feature 33 (a group of four Chimu-style blackware bottle and pots found stacked over another) found between the OS-3 and 4 in the SAP-HL'06-T2.

Figure 6.28. Feature 3 (a husked maize wrapped in a piece of folded textile) found on the OS-4 in the SAP-HL′06-T3.

Figure 6.29. Feature 6 (mandible of puma) found between the OS-5 and 6 in the SAP-HL′06-T3.

Figure 6.30. Feature 6 (disarticulated puma body) found between the OS-5 and 6 in the SAP-HL'06-T3.

Figure 6.31. Feature 6 (maxillary of puma) found between the OS-5 and 6 in the SAP-HL’06-T3.

Figure 6.32. Feature 6 (burnt postcranial bones of puma) found between the OS-5 and 6 in the SAP-HL'06-T3.

Figure 6.33. Features 11 and 12 found on the OS-5 in the SAP-HL'06-T3. Feature 11 is a relatively large circular hearth of split-level structure, while Feature 12 is an oval unlined pit.

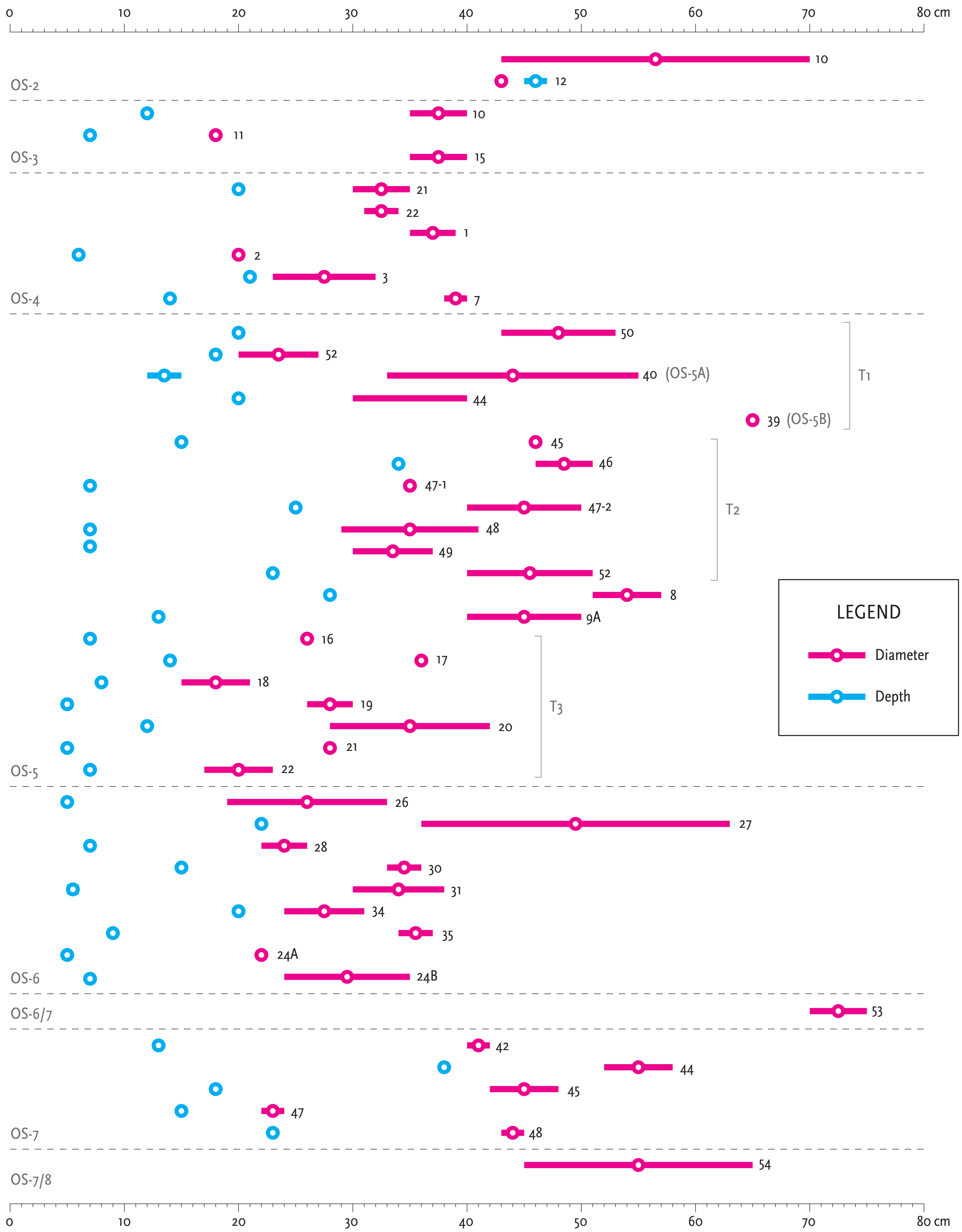


Figure 6.34. Dimensions of the fire pits excavated in the SAP-HL'06-T1, 2, and 3.

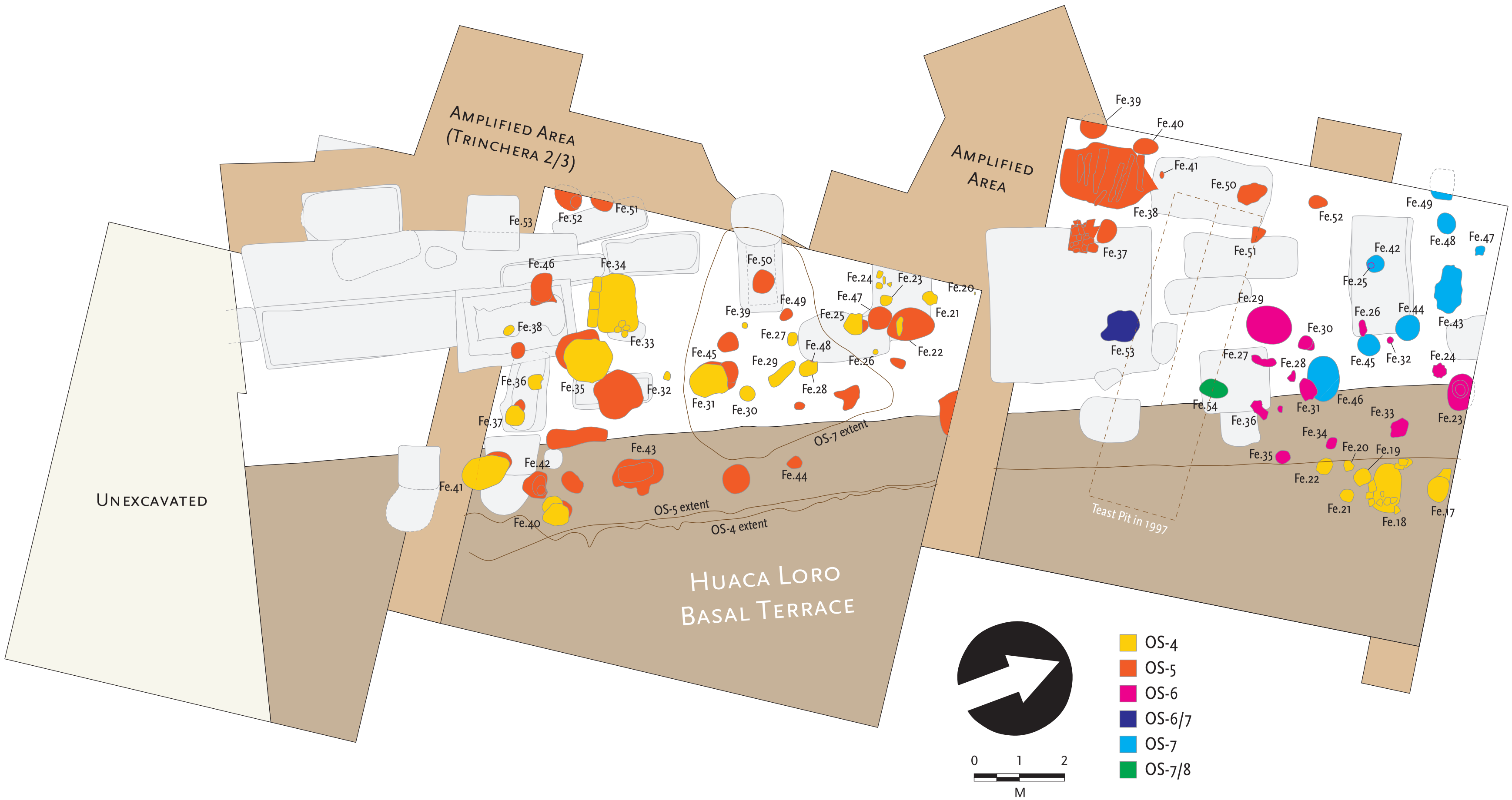


Figure 6.35. Spatial distribution and temporal sequence of the features excavated above the West Cemetery.

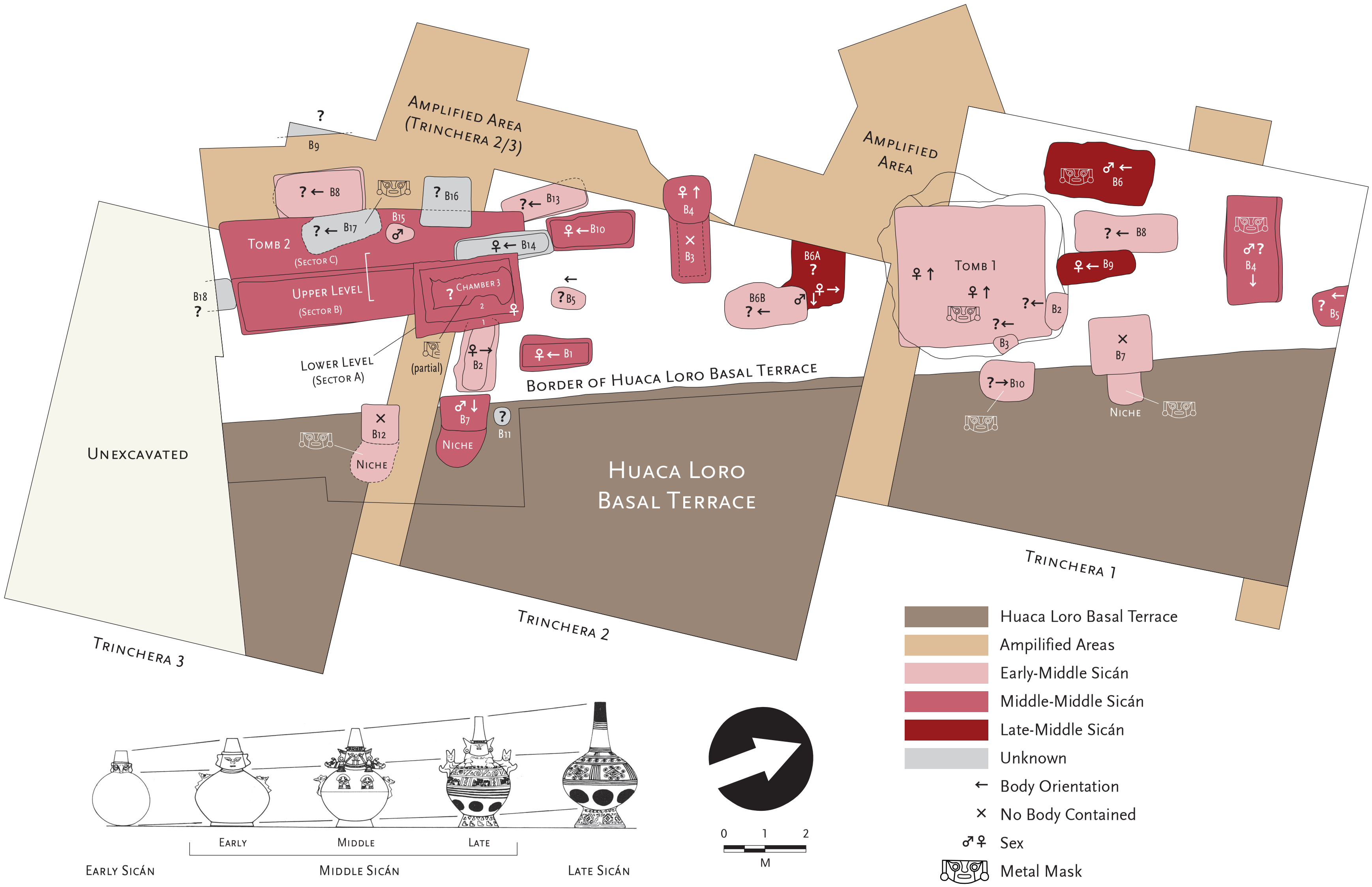


Figure 6.36. Spatial distribution and temporal sequence of the tombs and burials (West Cemetery) found in SAP-HL'06-T1, T2, 2/3, and 3 (ceramic chronology reproduced after Shimada 1990:328, Fig. 18).

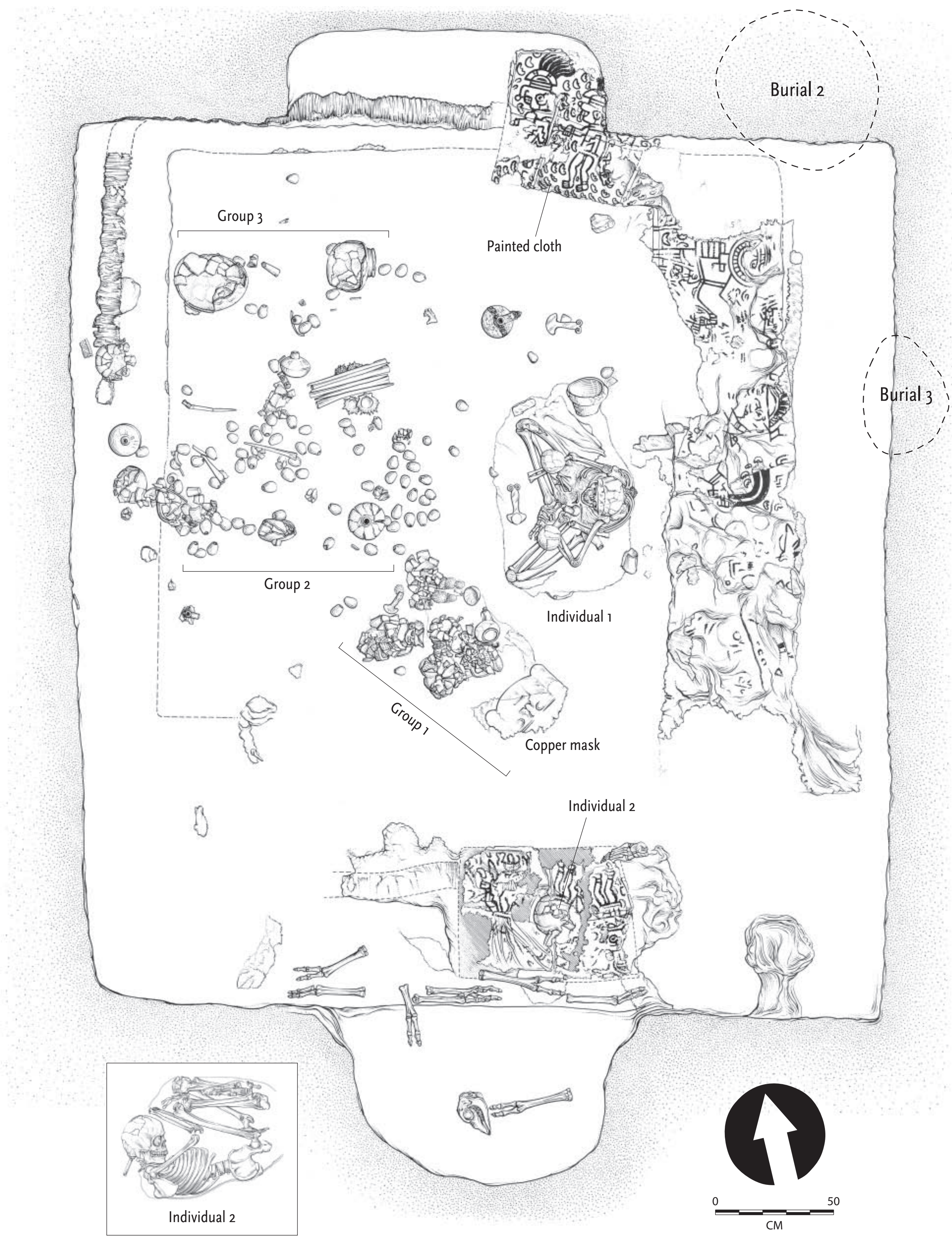


Figure 6.37. Tomb 1 in the SAP-HL'06-T1. Drawing by Izumi Shimada and César Samillán.

Figure 6.38. Tomb 1 in the SAP-HL'06-T1.

Figure 6.39. Tri-color figurative and geometric painting copied from the painted cloth that delineated the north side of the funerary context of Individual 1 in Tomb 1 (SAP-HL'06-T1). Drawing by Izumi Shimada and César Samillán.

Figure 6.40. Tri-color figurative and geometric painting copied from the painted cloth that delineated the east side of the funerary context of Individual 1 in Tomb 1 (SAP-HL'06-T1). Drawing by Izumi Shimada and César Samillán.

Figure 6.41. Tri-color figurative and geometric painting copied from the painted cloth that delineated the south side of the funerary context of Individual 1 in Tomb 1 (SAP-HL′06-T1). Drawing by Izumi Shimada and César Samillán.

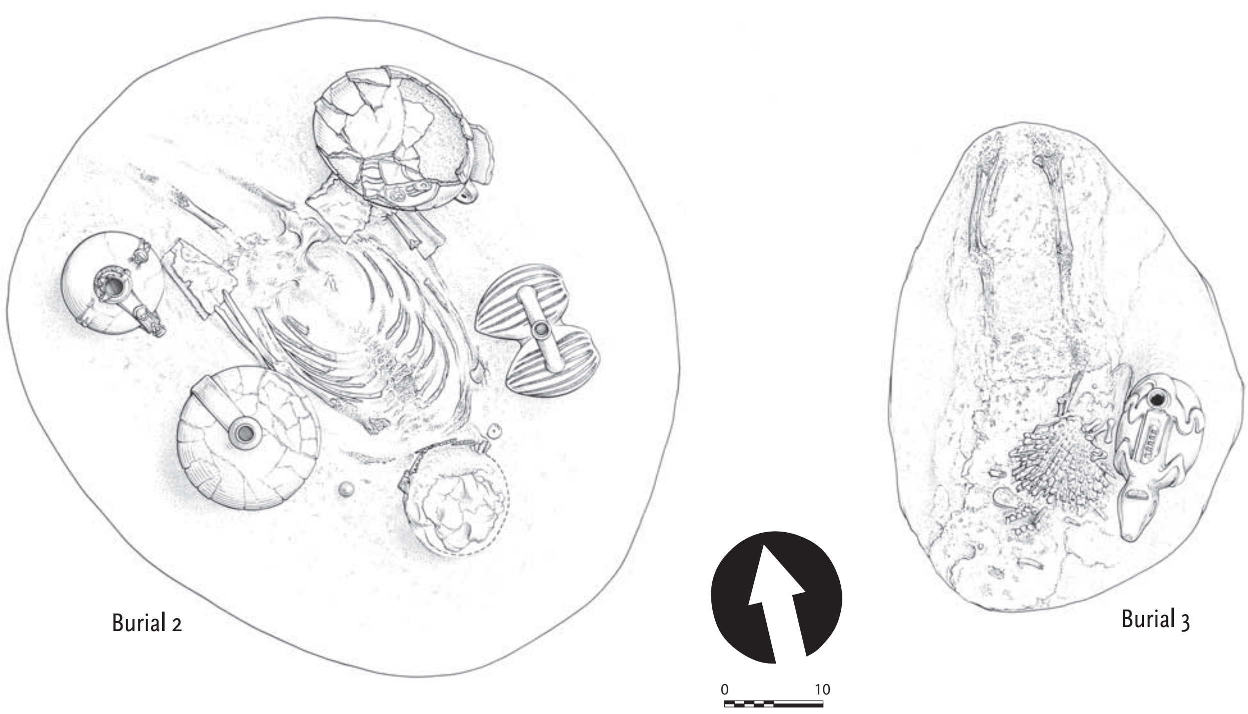


Figure 6.42. Burials 2 and 3 in the SAP-HL′06-T1. Drawing by Izumi Shimada and César Samillán.

Figure 6.43. Burial 7 in the SAP-HL'06-T1. Drawing by Izumi Shimada and César Samillán.

Figure 6.44. A total of 26 ceramic vessels arranged in two lines in the Burial 7 in the SAP-HL'06-T1.

Figure 6.45. Vessels 17 (left) and 21 (right) in the Burial 7 in the SAP-HL′06-T1.

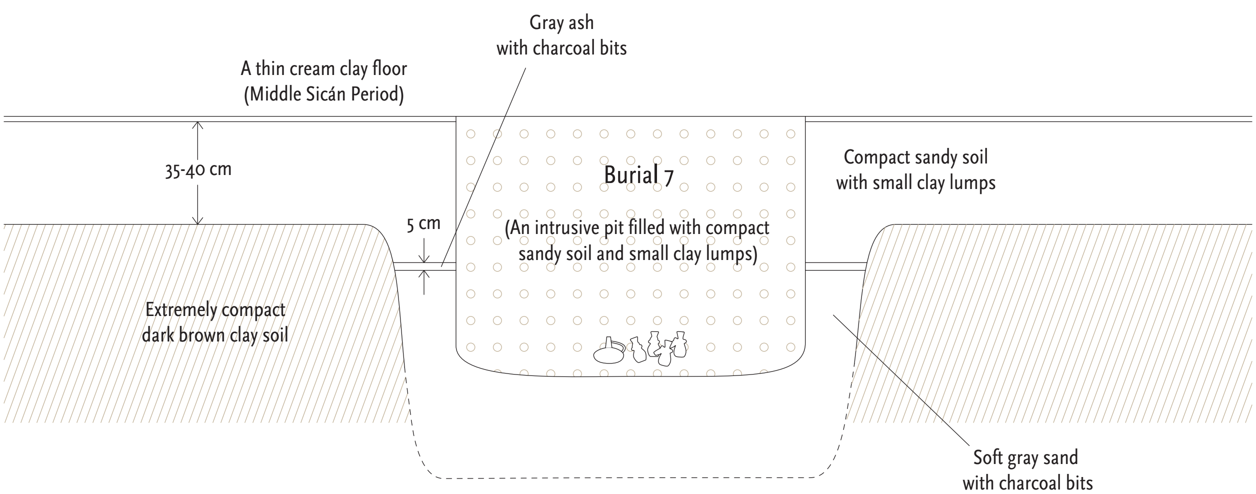


Figure 6.46. A diagram of stratigraphic sequence around Burial 7 in the SAP-HL′06-T1. Careful observations of stratigraphic sequence raised the possibility that the construction of the burial and the placement of the cache offerings might have been intrusive to an earlier and larger pit.

Figure 6.47. A metal mask found in the East Nich of Burial 7 in the SAP-HL'06-T1.

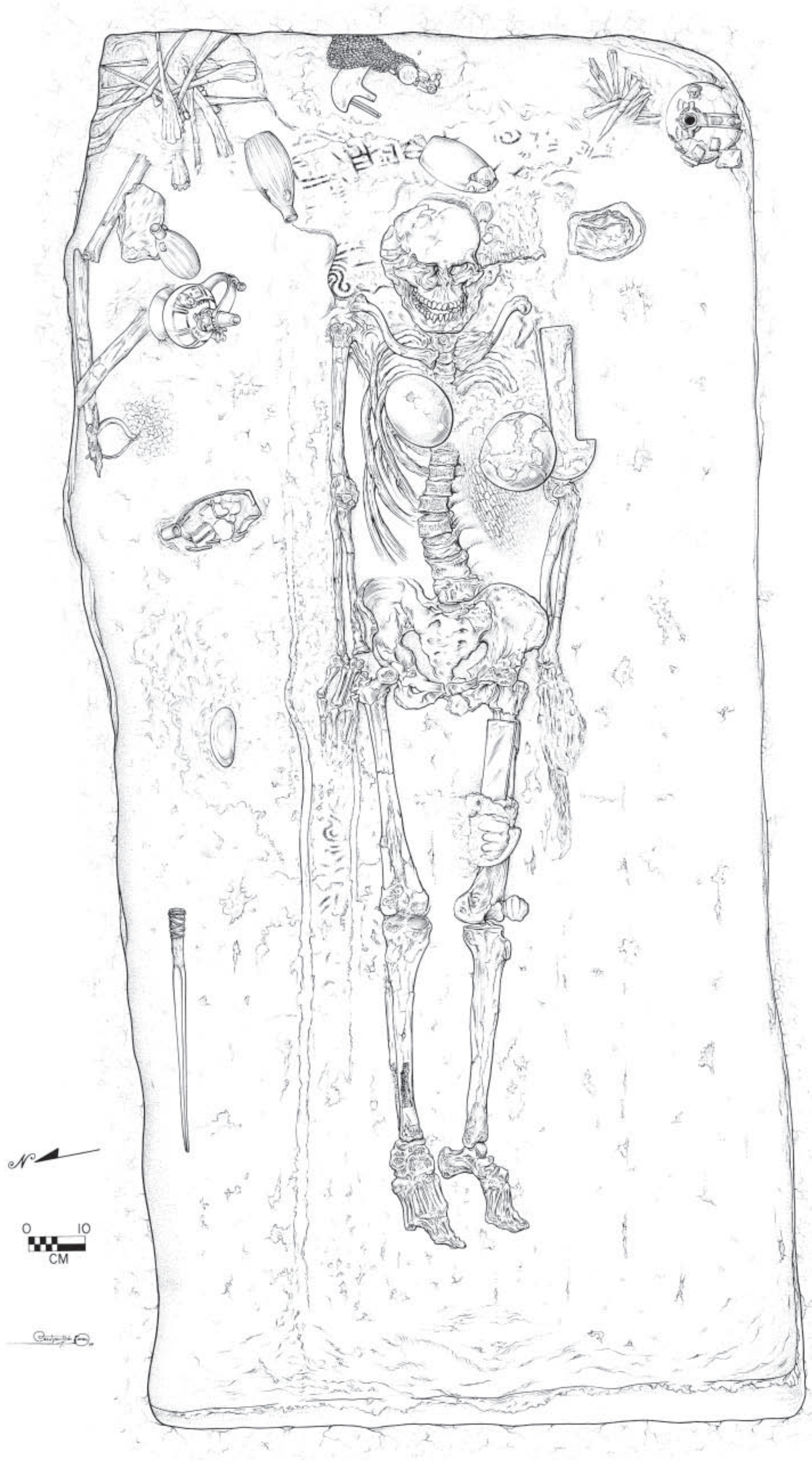


Figure 6.48. Burial 4 in the SAP-HL’06-T1. Drawing by Izumi Shimada and César Samillán.

Figure 6.49. A metal mask found in Burial 4 in the SAP-HL'06-T1.

Figure 6.50. Burial 5 in the SAP-HL'06-T1.

Figure 6.51. Burials 4, 6, 8, and 9 in the SAP-HL'06-T1.

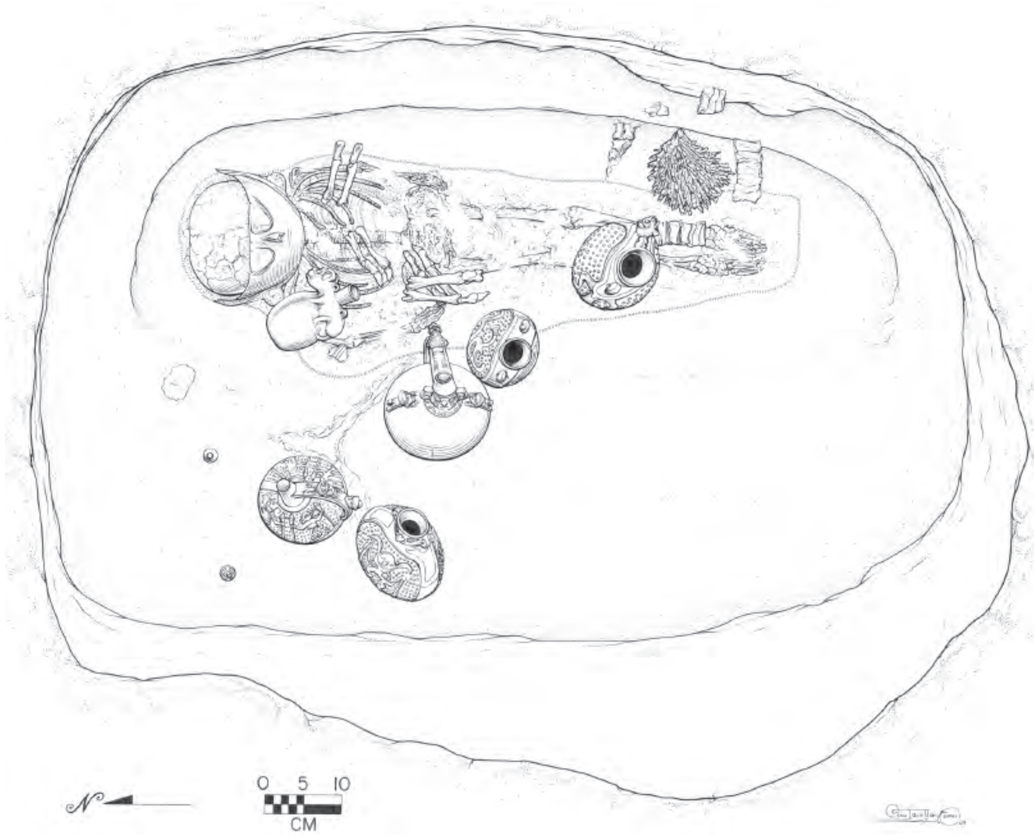


Figure 6.52. Burial 10 in the SAP -HL'06-T1. Drawing by Izumi Shimada and César Samillán.

Figure 6.53. Tomb 2 in the SAP-HL'06-T2/3.

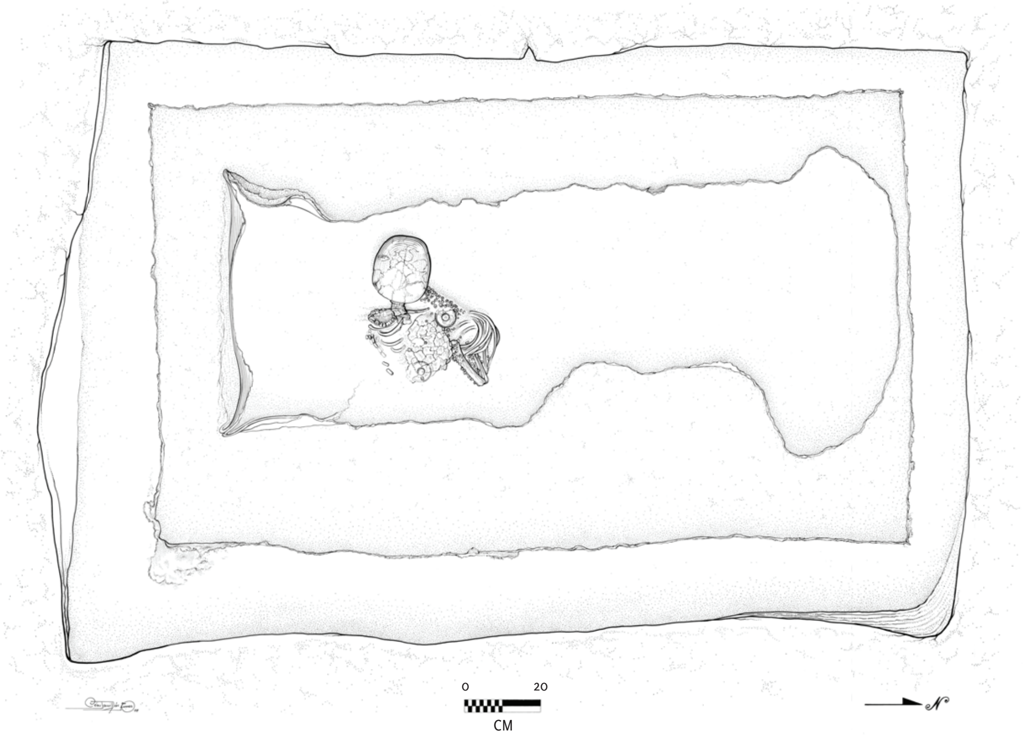


Figure 6.54. The incomplete body of the Individual 1 placed in the Chamber 3 (metal-lined coffin) of Tomb 2 in the SAP-HL′06-T2/3. Drawing by Izumi Shimada and César Samillán.

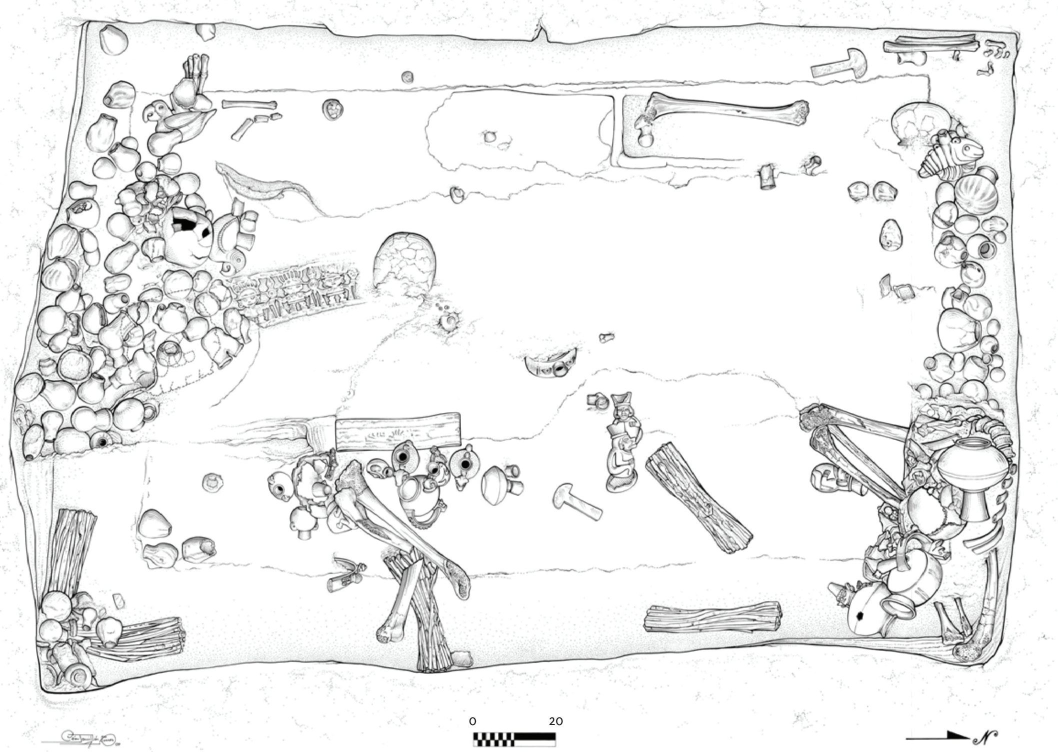


Figure 6.55. The Individual 2 (at the NE corner of the chamber) and accompanying grave goods found in the Chamber 1 of Tomb 2 in the SAP-HL′06-T2/3. Drawing by Izumi Shimada and César Samillán.

Figure 6.56. Dense concentrations of miniature funerary vessels in Tomb 2 in the SAP-HL'06-T2/3.

Figure 6.57. A cane coffin lined with painted cloth and placed in the Burial 3 in the SAP-HL'06-T2. The coffin contained 70 high-quality ceramic vessels.

Figure 6.58. The coffin supported by cane frames and covered with white cloth painted with figurative and geometric designs, placed in an unlined pit (Burial 3) filled with pure sand and located along the west wall of the SAP-HL′06-T2.

Figure 6.59. Blackware bottles with human representations in Burial 3 in the SAP-HL'06-T2.

Figure 6.60. Redware bottles with animal representations in Burial 3 in the SAP-HL'06-T2.

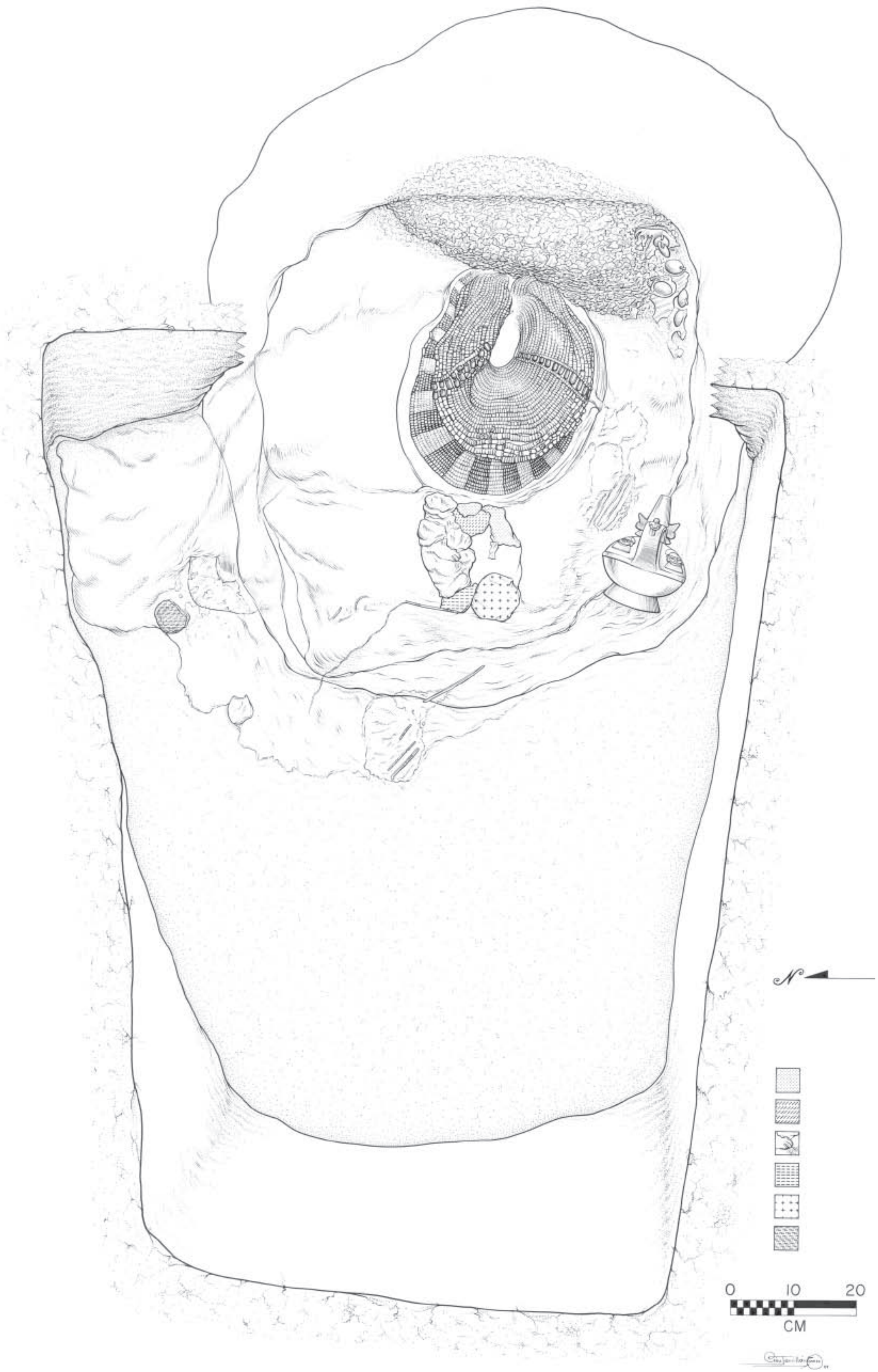


Figure 6.61. Burial 12 in the SAP-HL′06-T2/3. Drawing by Izumi Shimada and César Samillán.

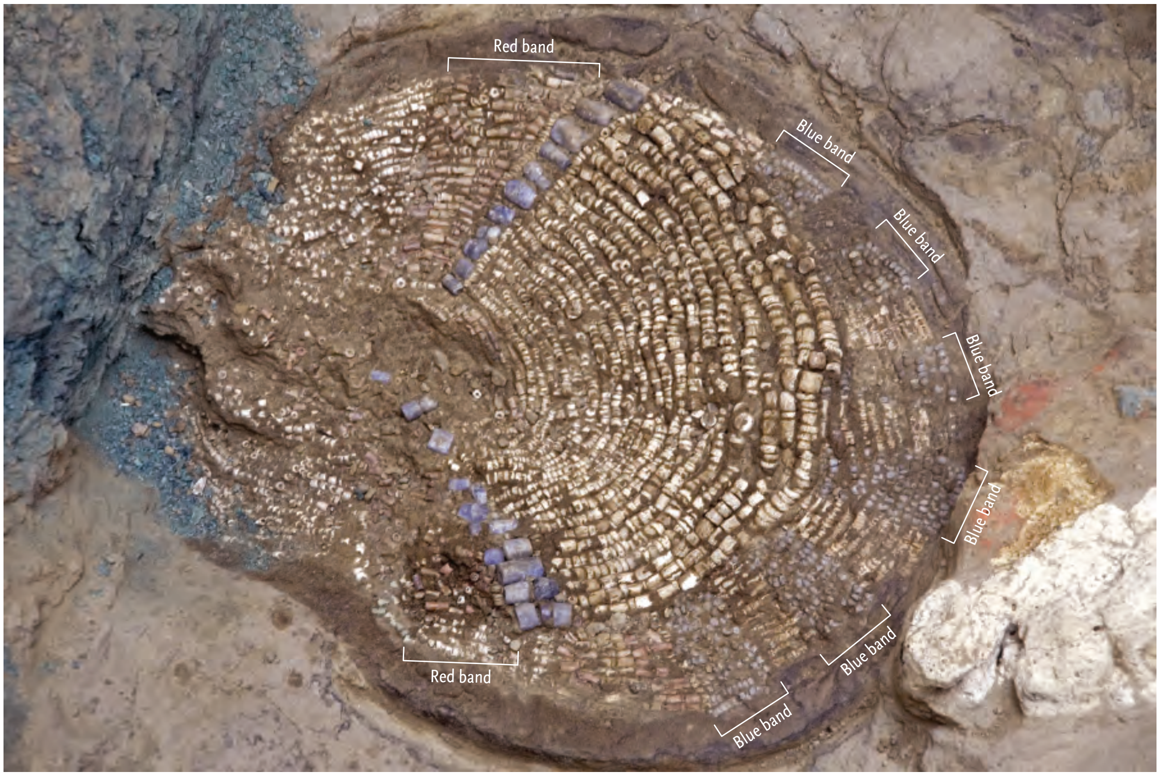


Figure 6.62. A large pectoral placed in the center of the East Niche of Burial 12 in the SAP-HL'06-T2/3.

Figure 6.63. Burial 1 in the SAP-HL'06-T2.

Figure 6.64. A ceramic figurine found in Burial 5 in the SAP-HL′06-T2.

Figure 6.65. Burial 10 in the SAP-HL′06-T2.

Figure 6.66. Burial 17 in the SAP-HL′06-T2. Photo courtesy of Izumi Shimada.

Figure 6.67. Burial 19 in the SAP-HL′06-T2. Photo courtesy of Izumi Shimada.

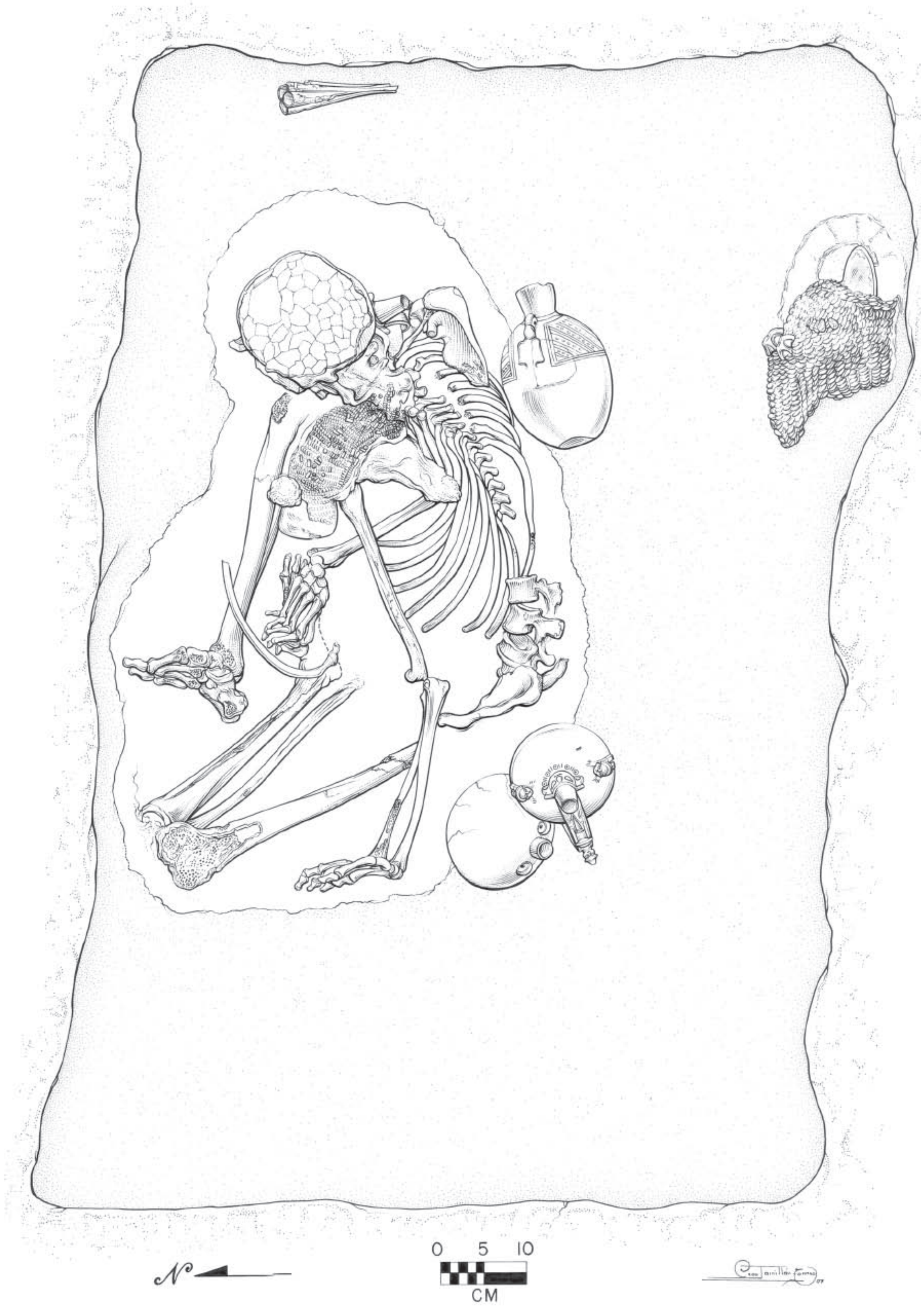


Figure 6.68. Burial 2 in the SAP-HL’06-T2. Drawing by Izumi Shimada and César Samillán.

Figure 6.69. Burial 7 in the SAP-HL’06-T2/3. Drawing by Izumi Shimada and César Samillán.

Figure 6.70. *Tumi* knife excavated from Burial 7 in the SAP-HL′06-T2.

Figure 6.71. (a) A *Tumi* knife and (b) a cup of gilded copper excavated from the Burial 7 in the SAP-HL'06-T2/3. Both objects are decorated with a repoussé image of Sicán Lord. The Lord on the cup is holding a staff in each hand.

Figure 6.72. Burial 15 in the SAP-HL′06-T2. Photo courtesy of Izumi Shimada.

Figure 6.73. Grave goods excavated only from the Burial 6 in the SAP-HL′06-T2: (a) painted dishes of so-called Coastal Cajamarca style and (b) a stone figurine found at the same level as the Individuals 1 and 2.

Figure 6.74. Disturbed and scattered body parts of the Individuals 3 and 4 found together with disturbed grave goods in the Burials 6A and 6B in the SAP-HL'06-T2.

Figure 6.75. (a) The fragmented cranium painted with bright red pigment (perhaps cinnabar) and (b) the articulated right humerus and scapula probably of the Individual 3 found in the Burial 6A inthe SAP-HL′06-T2.

Figure 6.76. (a) The fragmented mandible and (b) a part of the cinnabar-painted cranum probably of the Individual 4 found in the Burial 6B inthe SAP-HL′06-T2.

Figure 6.77. Four inverted metal bowls stacked over another in a small earthen pit made under the Burial 6B in the SAP-HL'06-T2.

Figure 6.78. Sacrificed (a) female (Individual 1) and (b) male individuals (Individual 2) found above the Burials 6A in the SAP-HL'06-T2. The Individual 2 had been decapitated, and the cranium was not found during the excavation.

Figure 6.79. A burnt area found above the Burials 6A and 6B on the Occupational Surface 14 in the SAP-HL’06-T2.

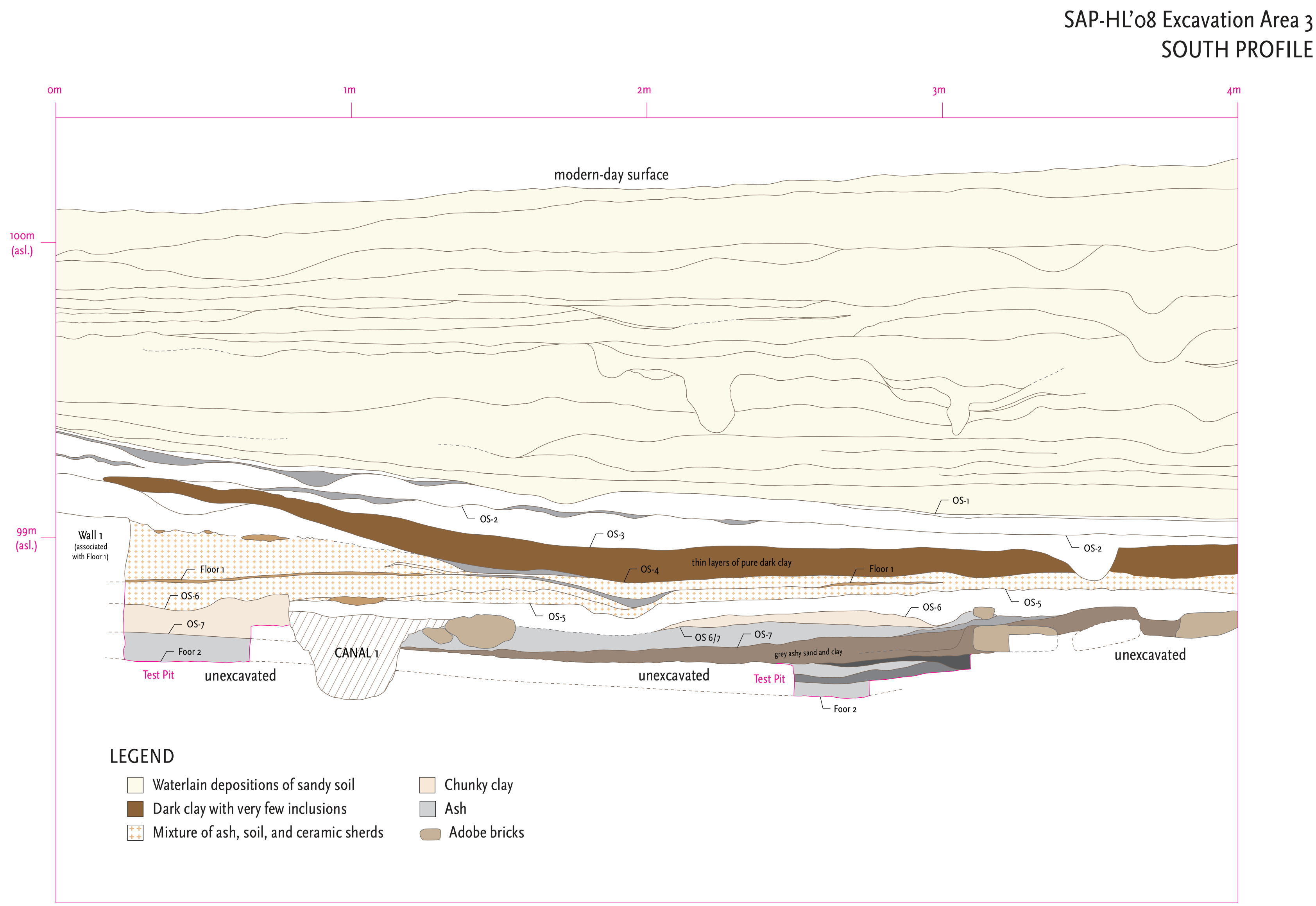


Figure 6.80. The south profile of SAP-HL'08 Excavation Area 3.

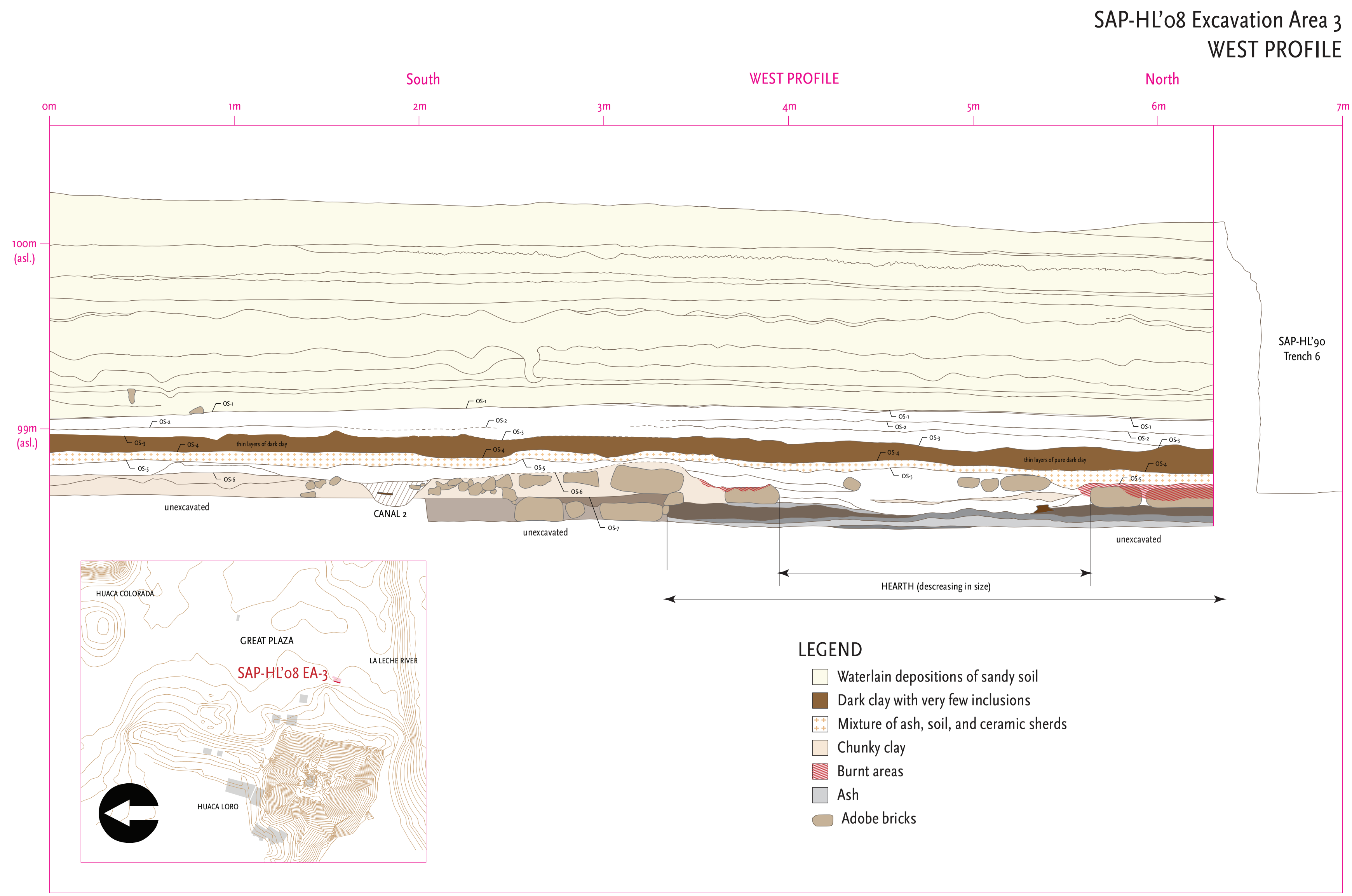


Figure 6.81. The west profile of SAP-HL'08 Excavation Area 3. Note that the size of the hearth reduced significantly over time.

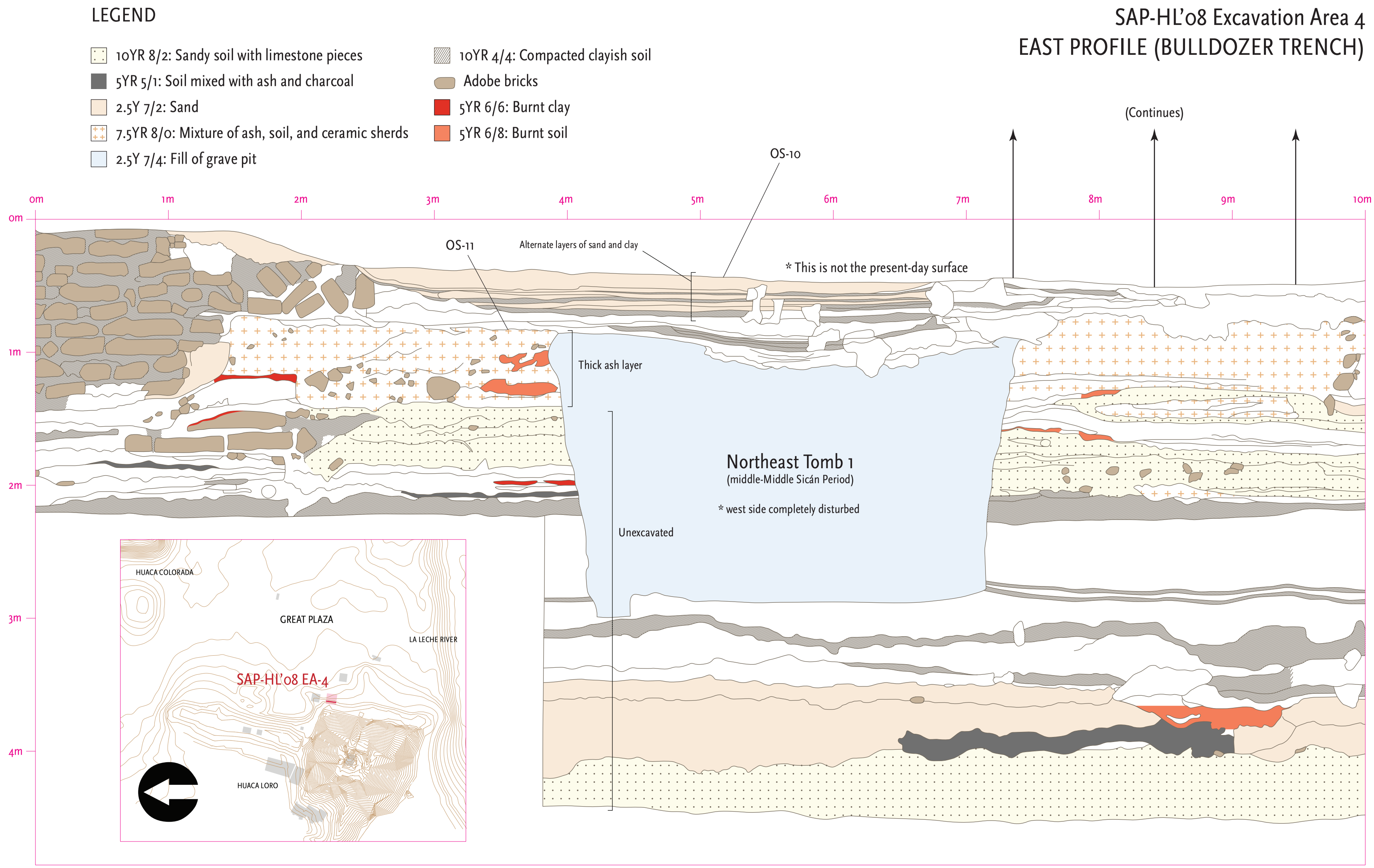


Figure 6.82. The east profile of the bulldozer trench made by modern-day looters in SAP-HL'08 Excavation Area 4, showing the stratigraphic context of the Northeast Tomb 1 (T-NE-1). The low adobe platform on the north side of the trench is notable.

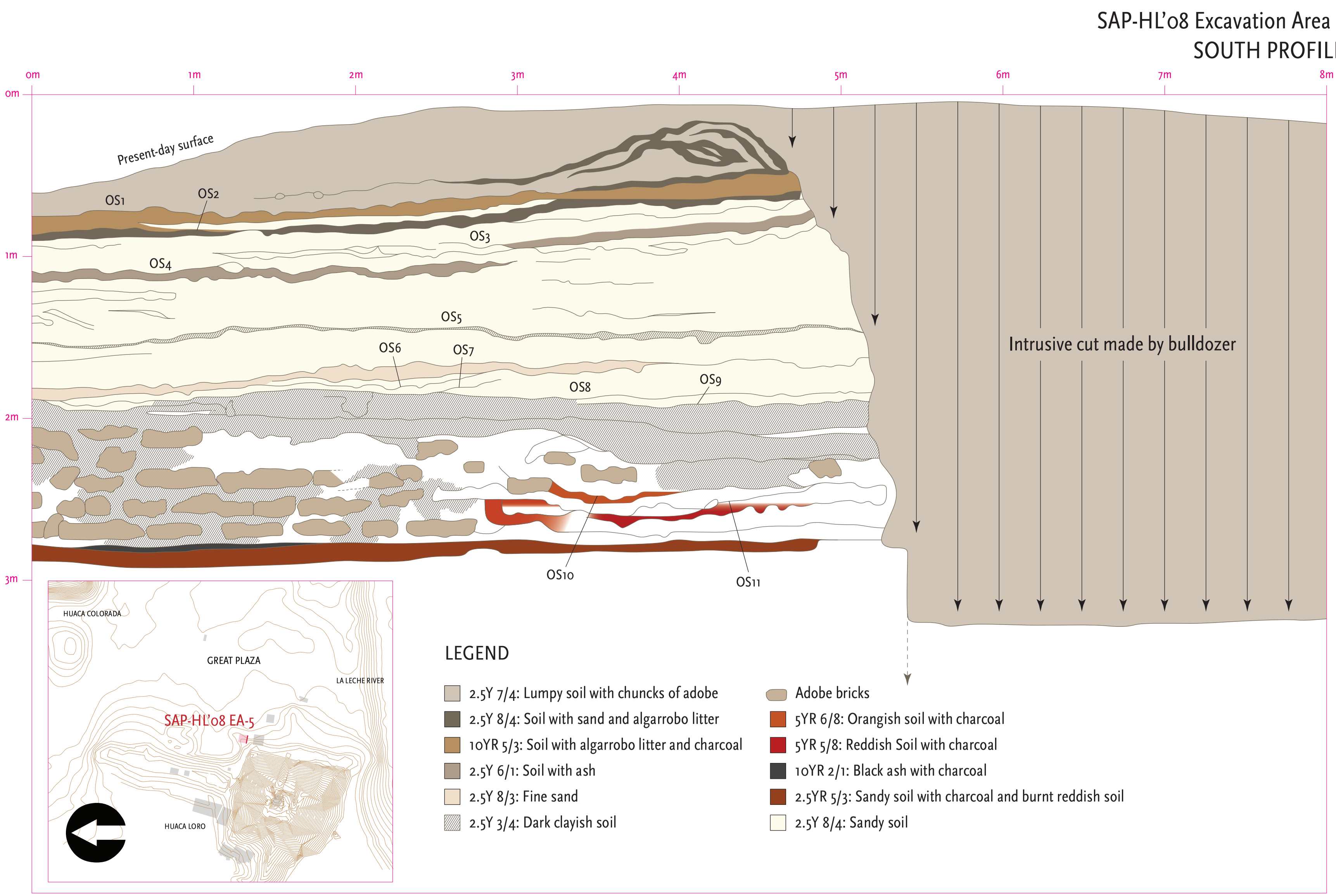


Figure 6.83. The south profile of SAP-HL'08 Excavation Area 5 showing the looter's pit made by the bulldozer (right half). Adobe layers form the platform that separated Northeast Tombs 1 and 2 (T-NE-1 and 2).

Figure 6.84. A glass fragment recovered from the Layer 2 Level 3 in the SAP-HL’08-EA3.

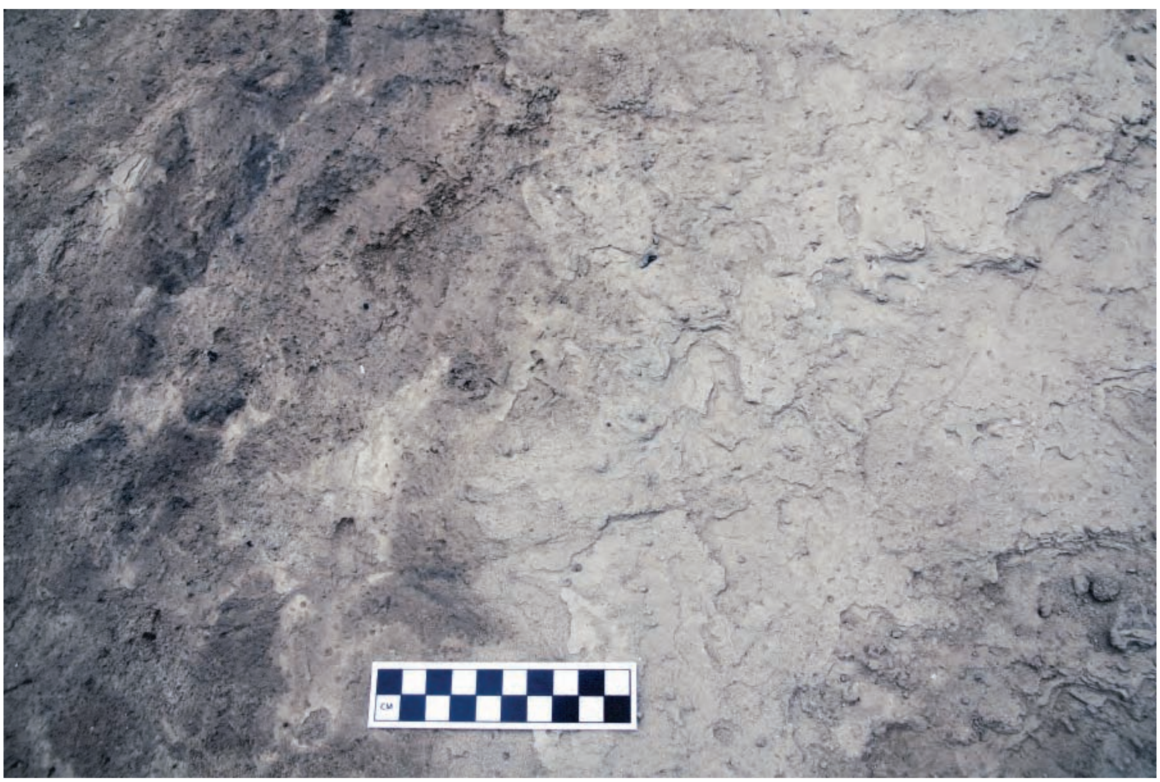


Figure 6.85. The water-lain deposition of whitish sandy soil over the OS-1 in the SAP-HL’08-EA3.

Figure 6.86. The plan view of the OS-1 in the SAP-HL'08-EA3.

Figure 6.87. The burnt areas (Features 1 to 7) on the OS-1 in the SAP-HL'08-EA3.

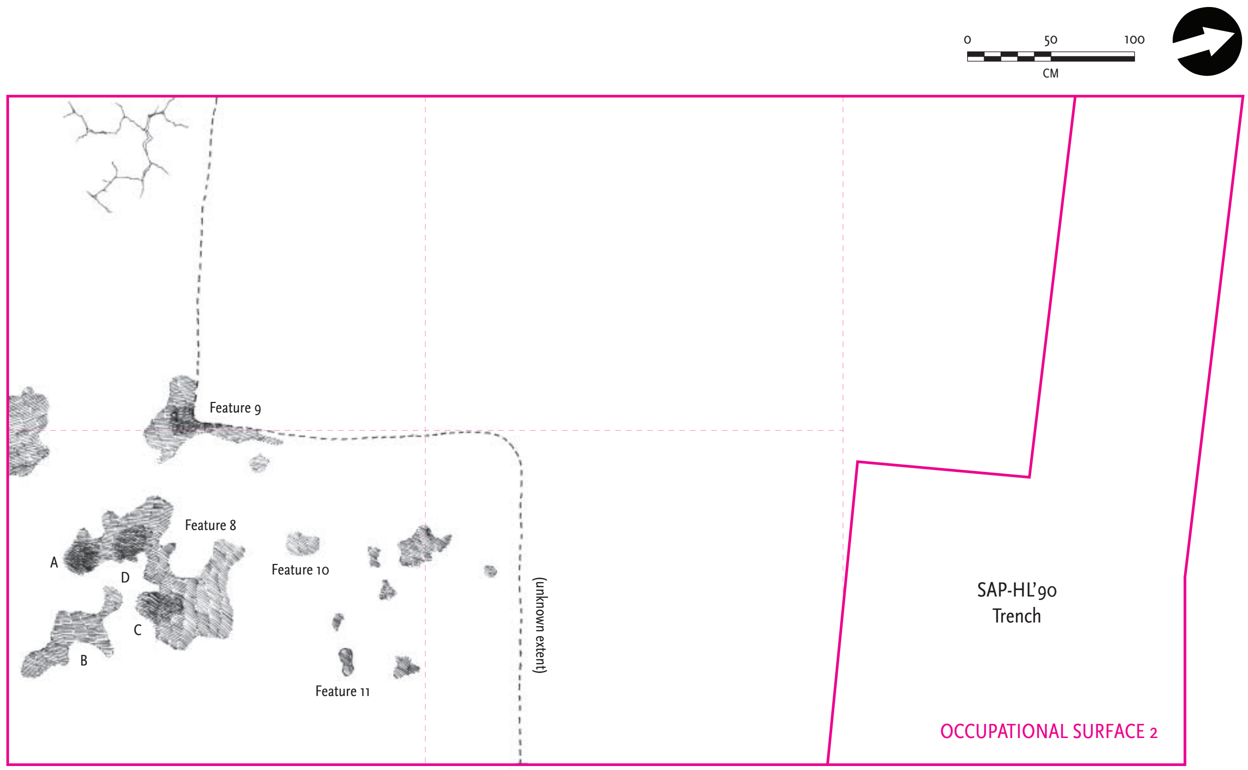


Figure 6.88. The plan view of the OS-2 in the SAP-HL'08-EA3.

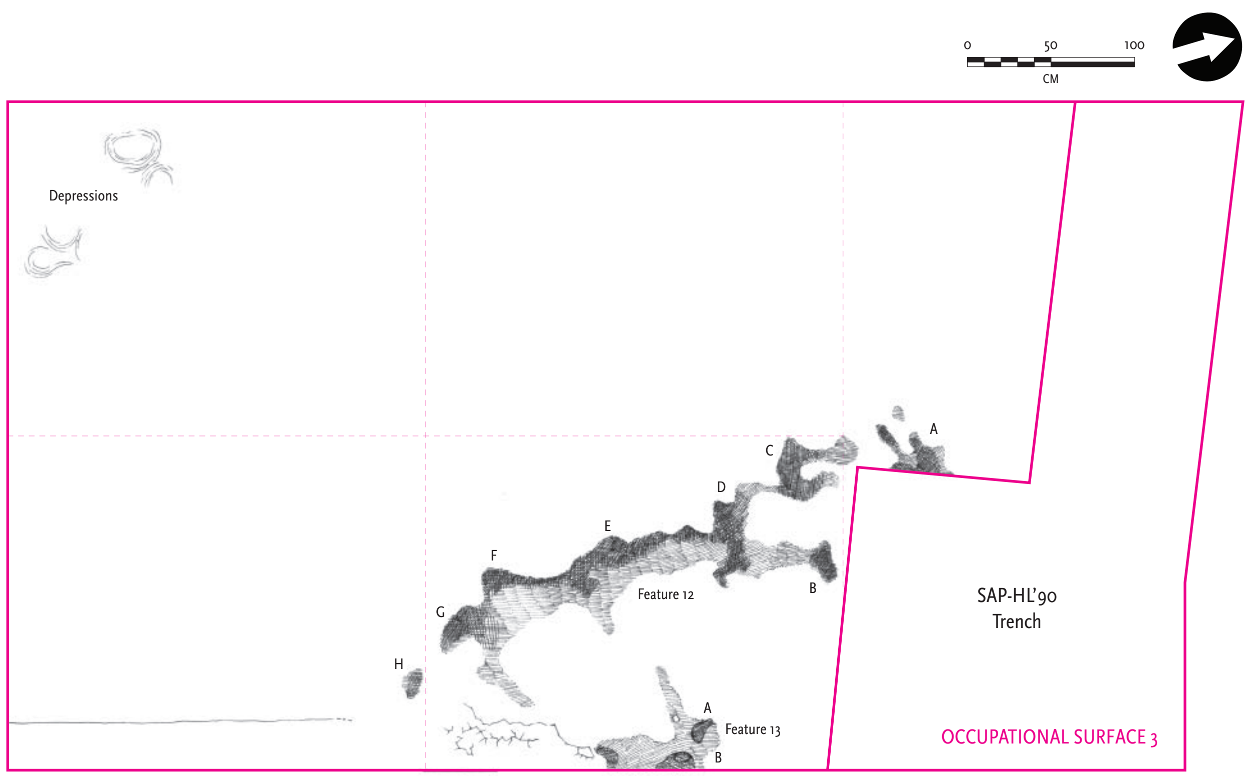


Figure 6.89. The plan view of the OS-3 in the SAP-HL'08-EA3.

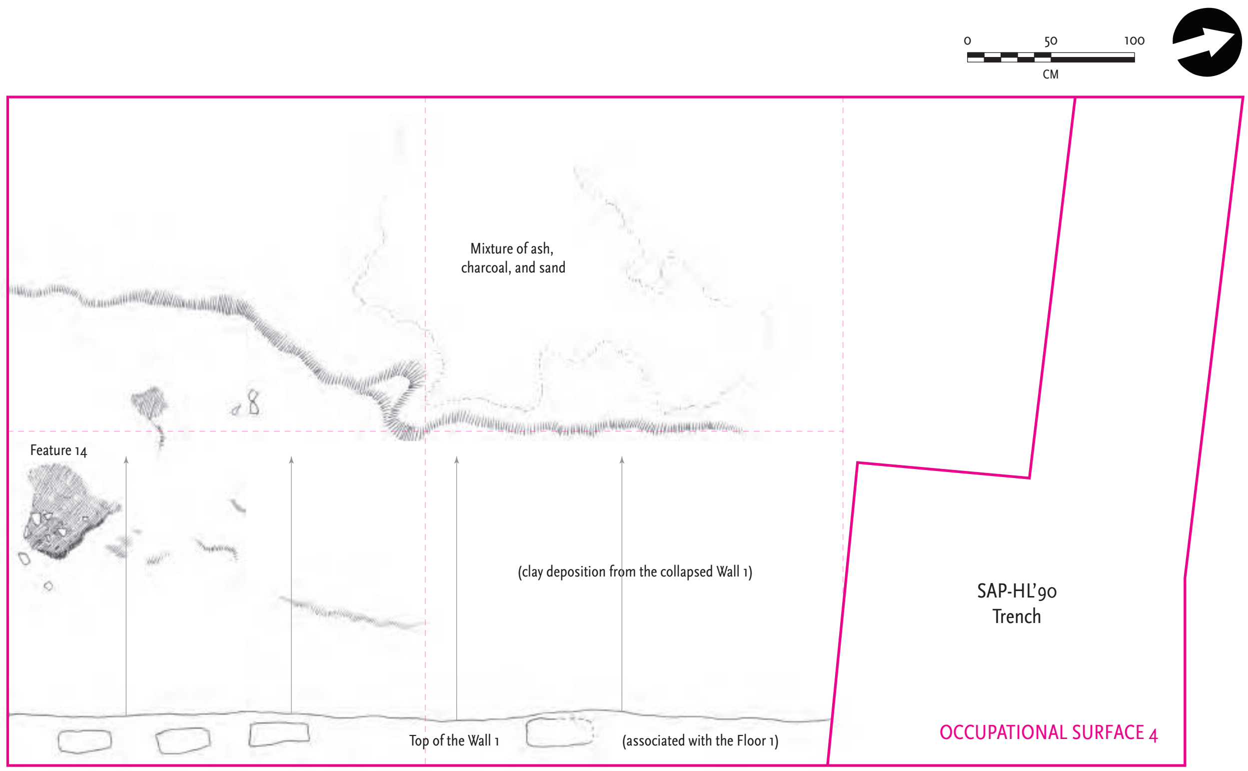


Figure 6.90. The plan view of the OS-4 in the SAP-HL'08-EA3.

Figure 6.91. The clay deposition of the collapsed Wall 1 on the OS-4 in the SAP-HL'08-EA3.

Figure 6.92. The plan view of the Floor 1 in the SAP-HL'08-EA3.

Figure 6.93. The horizontal surface of the Floor 1 in the SAP-HL'08-EA3.

Figure 6.94. The plan view of the OS-5 in the SAP-HL'08-EA3.

Figure 6.95. The intensively burnt OS-5 in the SAP-HL'08-EA3.

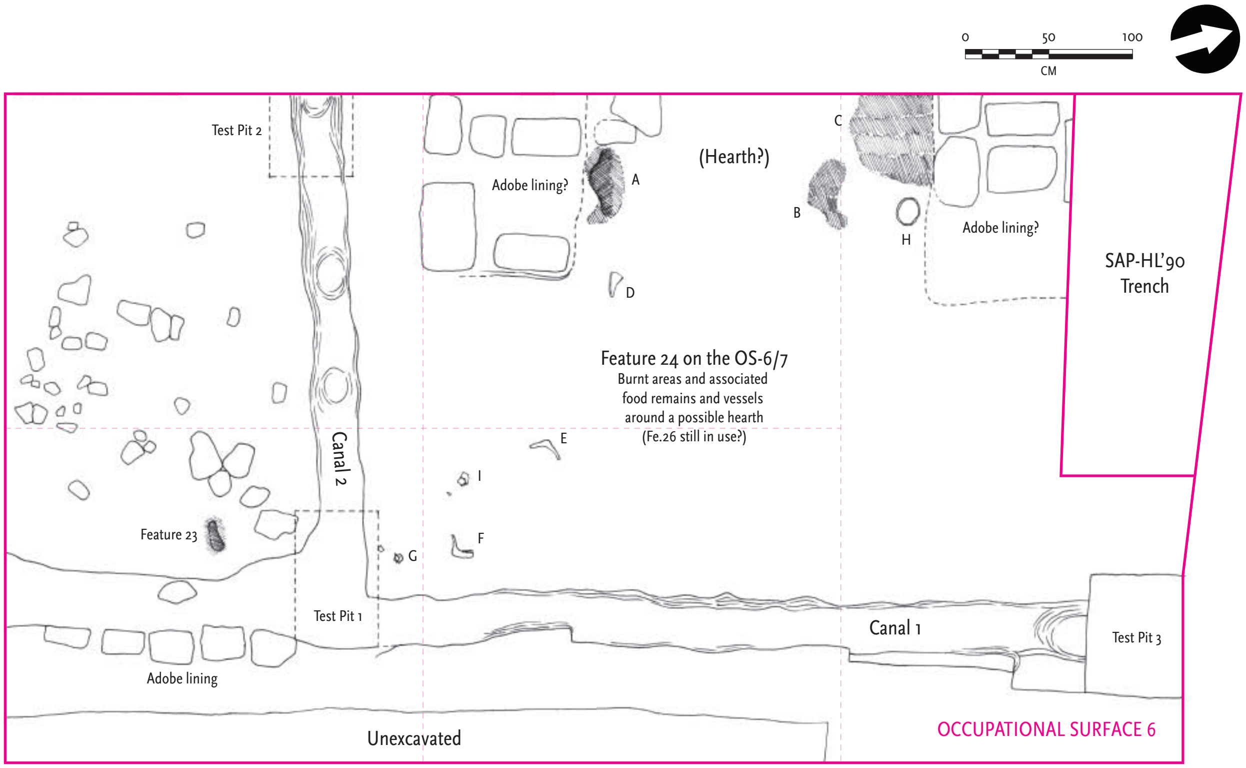


Figure 6.96. The plan view of the OS-6 in the SAP-HL'08-EA3.

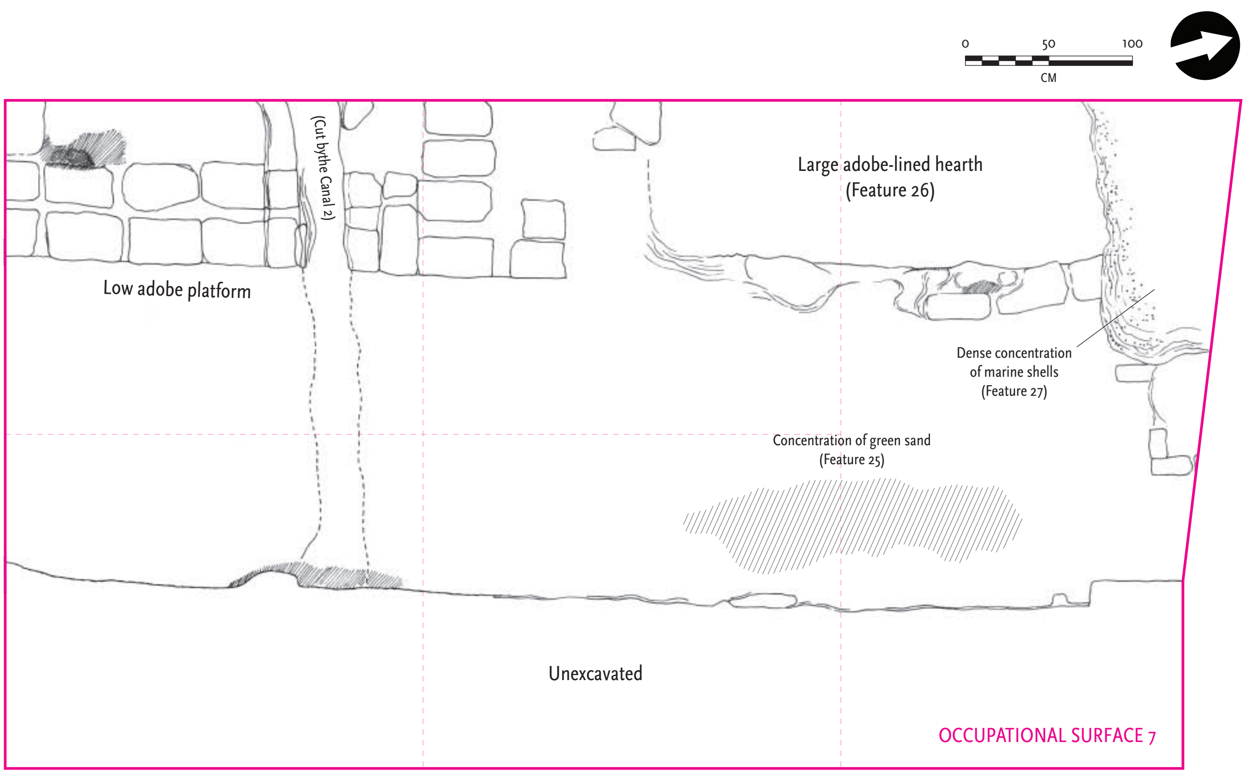


Figure 6.97. The plan view of the OS-7 in the SAP-HL'08-EA3.

Figure 6.98. A adobe-lined hearth associated with the Floor 2 in the SAP-HL’08-EA3.

Figure 6.99. Cinnabar bit observed in the Feature 16 on the Floor 1 in the SAP-HL’08-EA3.

Figure 6.100. Canals 1 and 2 associated with the OS-6. Viewed from the north.

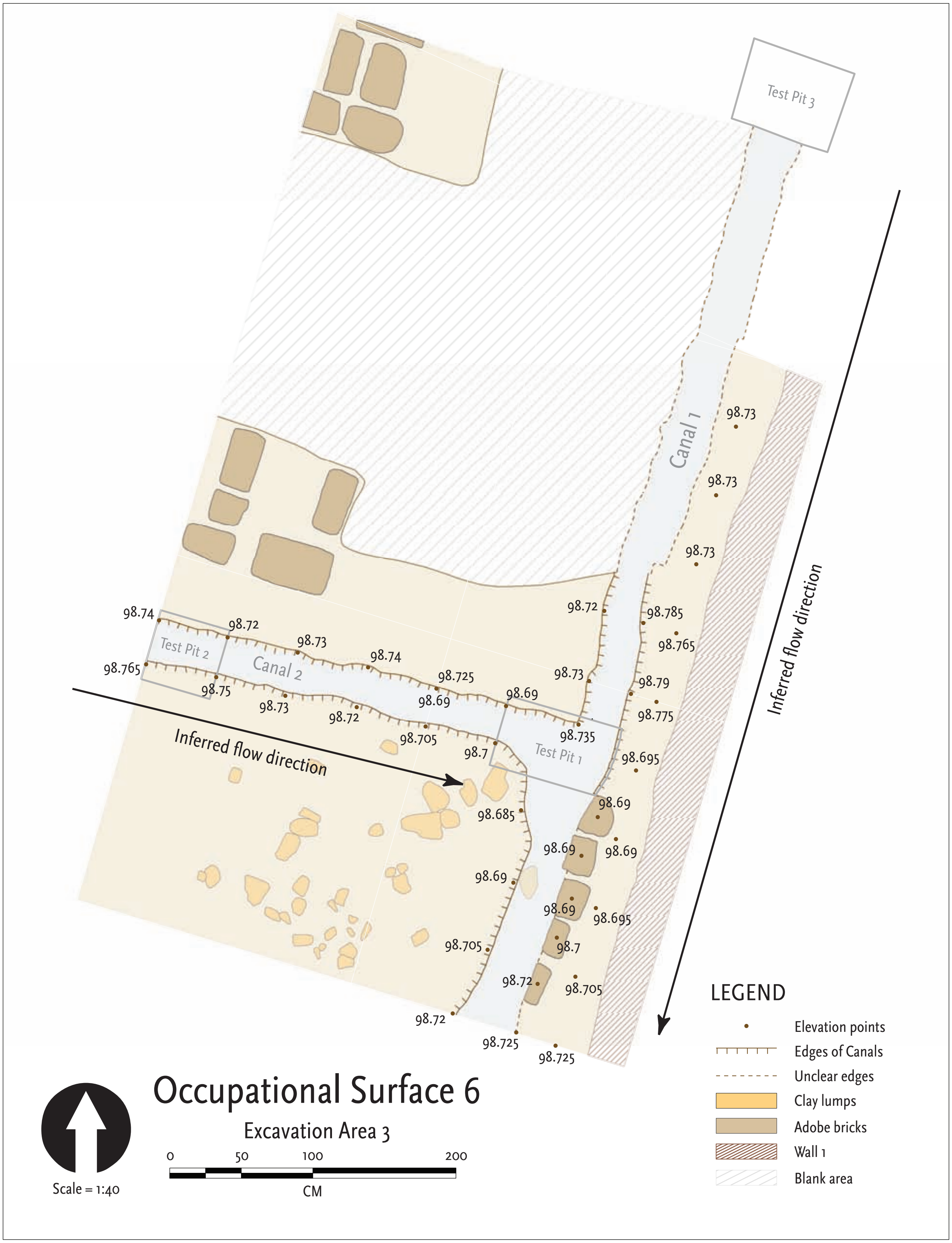


Figure 6.101. Elevation measurements at the cut edges of the Canals 1 and 2 on the OS-6 in the SAP-HL'08-EA3.

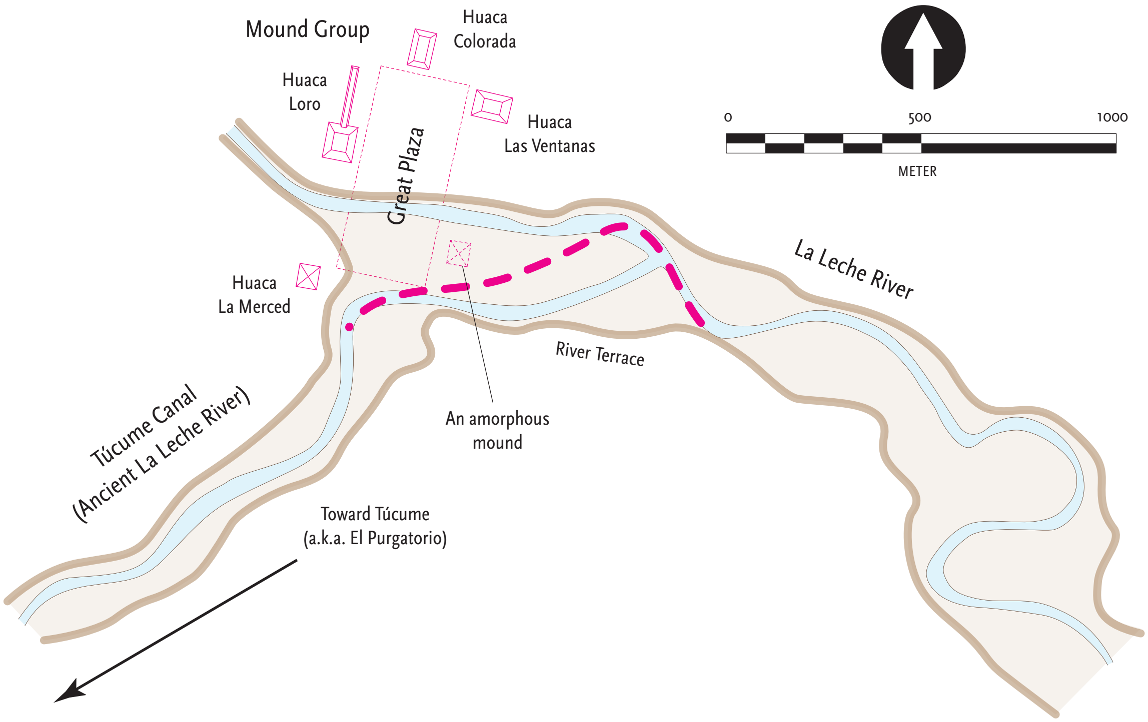


Figure 6.102. The courses of ancient and recent La Leche River in respect to the mound group and the Great Plaza at the ceremonial core of the Middle Sicán capital (redrawn after Shimada 1981:431, Figure 32). The dotted line is the inferred ancient course of the river. There seems to have been a canal running through the plaza before it became a "river" we see today.

Figure 6.103. A large adobe-lined hearth found on the OS-7 in the SAP-HL'08-EA3.

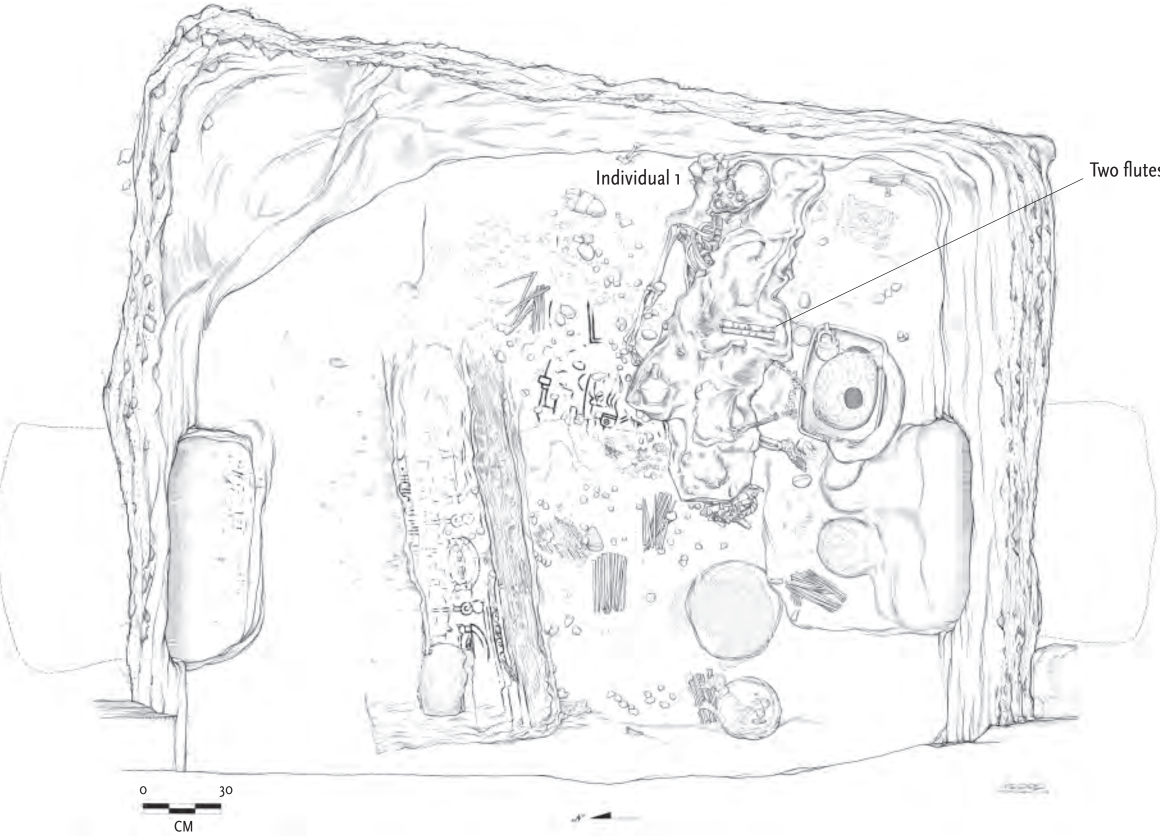
Figure 6.104. A cone shell (*Conus fergusoni*) found on the OS-7 in the SAP-HL'08-EA3.

Figure 6.105. A ceramic Sicán Lord icon most likely removed from a face-neck jar, found on the OS-7 in the SAP-HL'08-EA3.

Figure 6.106. Metal artifacts (e.g., scraps of gold sheets, chisels, and slag lumps) associated with a Middle Sicán metalworking area found in the PAS-HL’08-EA5. Photo courtesy of Izumi Shimada.

Figure 6.107. A metal workshop found associated with the OS-10 and OS-11 in the central part of the southern half of the SAP-HL'08-EA5. Photo courtesy of Izumi Shimada.

UPPER LEVEL



LOWER LEVEL

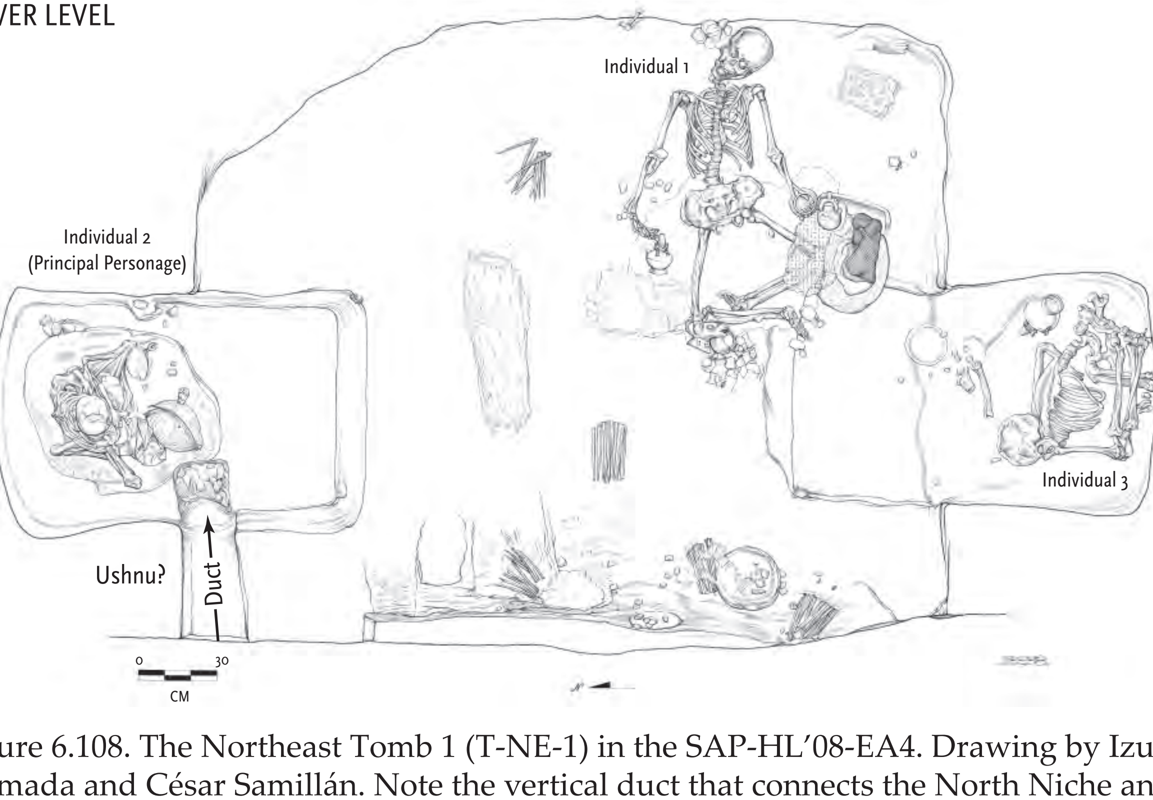


Figure 6.108. The Northeast Tomb 1 (T-NE-1) in the SAP-HL'08-EA4. Drawing by Izumi Shimada and César Samillán. Note the vertical duct that connects the North Niche and the ground surface.

Figure 6.109. The Northeast Tomb 2 (T-NE-2) in the SAP-HL'08-EA5. Drawing by Izumi Shimada and César Samillán.

Table 6.1. Locations and dimensions of the eight areas excavated in 2008.

Area	General location	Form/Dimension	Area (m^2)	Notes
1	Around the northeast corner of the Huaca Loro temple mound	L shape/25.0 (E-W) x 10.0m (N-S)	191.5	
2	Central portion on top of Huaca Loro	L shape/11.0 (E-W) x 8.0 m (N-S)	74.2	
3	Ca. 50 m east of Huaca Loro and near the west edge of the Great Plaza	Nearly rectangular/4.0 (E-W) x 6.5 m (N-S)	32.5	
4	Around the northeast corner of Huaca Loro	Square/10.0 (E-W) x 10.0 m (N-S)	100	The western third of the area had been destroyed by a bulldozer used by looters.
5	Around the northeast corner of Huaca Loro	Rectangle/8.0 (E-W) x 9.0 m (N-S)	72	A quarter of the western third of the area had been destroyed by a bulldozer used by looters.
6	Ca. 25 m east of Huaca Loro and near the west edge of the Great Plaza	Square/8.0 (E-W) x 8.0 m (N-S)	64	
7	Top of the southern part of the North Platform attached to Huaca Loro	Square/5.0 (E-W) x 5.0 m (N-S)	25	
8	Top of the southern part of the North Platform attached to Huaca Loro	Rectangle/5.5 (E-W) x 8.0 m (N-S)	44	

Table 6.2. Sequence and descriptions of the stratigraphic layers drawn in the South Profile of the SAP-HL'06-T1 (continued).

Layer	Description
Layer 1	A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 6/4); It includes pieces of adobes.
Layer 1a	A fill of an intrusive pit (looter's pit?) composed of earth and fine sand with inclusions of charred firewood pieces and adobes, and some ceramic fragments.
Layer 2	A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 6/4).
Layer 2a	A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 6/4); It contains fair amount of charred firewood pieces and adobes.
Layer 3	Similar to the Layer 2a; A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); It contains substantial amount of charred firewood pieces and adobes.
Layer 4	Similar to the Layer 2; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4). Top of the layer is a fine clay layer (Munsell 2.5Y 6/3).
Layer 5	Similar to the Layers 2 and 4; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4). It contains a small amount of adobe pieces. Top of the layer is a fine clay layer (Munsell 2.5Y 6/3).
Layer 6	A layer of fine sand and semi-compacted soil of light gray color (Munsell 2.5Y 6/1).
Layer 7	Similar to the Layers 4 and 5; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); It contains a small amount of adobe pieces.
Layer 8	A layer of relatively coarse and compacted mud and clay with of adobe pieces; Its texture is irregular with a greater amount of small pieces of adobe towards the East (Munsell 2.5Y 5/3).
Layer 9	A sandy layer (Munsell 2.5Y 5/3); Its surface superior; however, it is argillaceous and compacted.
Layer 9a	A layer of the mud and clay that forms the upper part of a looter's pit (Munsell 2.5Y 5/3).
Layer 9b	A layer of sand and mud mixed with gravel; It forms the upper part of a looter's pit (Munsell 2.5Y 5/3).
Layer 9c	Fill of a looter's pit and composed of a mixture of sand and mud (Munsell 2Y5/4); It is connected with the Layer 9b but contains substantial amount of charcoal pieces and burnt-red soil; Within the fill was recovered a skull of adult horse.
Layers 10, 11	A homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) that consisted of two sub-layers (upper = Layer 10; lower = Layer 11) distinguished by a discontinuous, thin clay layer in between.
OS-1	Occupational Surface 1: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 12	Similar to the Layers 10 and 11; A layer of fine sand and mud (Munsell 2.5Y 5/3), formed by a fluvial process; It is the layer that separates the Occupational Surfaces 1 and 2.
OS-2	Occupational Surface 2: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 13	A concentration of charred *algarrobo* woods and burnt-reddish soil (Feature 1).
Layer 14	A relatively coarse and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) formed by a fluvial process; It consists of some thin clay sub-layers.
Layer 15	A thin layer of fine sand mixed with gray ash (Munsell 2.5Y 6/1) and covering the Occupational Surface 3.
OS-3	Occupational Surface 3: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 16	A relatively coarse and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3), formed by a fluvial process; Perhaps, it consists of three discontinuous, thin clay sub-layers.
Layer 17	Similar to the Layer 16 in color, composition, and texture; It can be a continuation of Layer 16.
OS-4	Occupational Surface 4: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 18	A relatively coarse layer of soft clayish soil (Munsell 2.5Y 6/4) that covers two rows of adobes associated with the Occupational Surface 4.
Layer 19	Fill of two intrusive pits (perhaps cutting the Occupational Surface 4); It is a mixture of fine sand, mud, and substantial amount of small pieces of burnt adobes; The concentration of the adobe pieces decreases in the area above the holes.

Table 6.2. Sequence and descriptions of the stratigraphic layers drawn in the South Profile of the SAP-HL'06-T1.

Layer	Description
Layer 20	Similar to the Layer 19; Fill of an intrusive hole that is perhaps related to the Occupational Surface 4.
Layer 21	A mixture of sand, mud, clay, and pieces of adobe (Munsell 2.5Y 6/2-6/3) eroded from the base of Huaca Loro.
Layer 22	A compacted mixture of fine sand and mud (Munsell 2.5Y 5/3) deposited by water on the Occupational Surface 5, that is slightly colored (burnt).
OS-5	Occupational Surface 5: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-6	Occupational Surface 6: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 24	A relatively coarse and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3), formed by a fluvial process; Towards the east, near the the base of the Huaca Loro mound, is a small amount of adobe pieces; Perhaps, the layer consists of three sub-layers distinguished by the presence of two discontinuous thin clay layers.
Layer 25	Similar to the Layer 24 in color (Munsell 2.5Y 5/3), texture, and composition, except for the presence of a greater amount of adobe pieces; It covers the Occupational Surface 7, that is a burnt clayish surface associated with a small amount of ash and small pieces of charred branches.
OS-7	Occupational Surface 7: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 26	A relatively coarse and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) between the Occupational Surfaces 7 and 8; Formed by a fluvial process; Perhaps, it consists of three sub-layers distinguished by the presence of two discontinuous thin clay layers.
Layer 23	A compacted clayish soil of light brown color (Munsell 10YR 6/4) with inclusions of small pieces of adobe; Formed by the eroded base of the Huaca Loro mound.
Layer 27	Fill of sand and mud (Munsell 2.5Y 5/3) of a small nearly cylindrical intrusive pit (a post hole or where a tree grew).
OS-8	Occupational Surface 8: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 28	Similar to the Layers 24, 25, and 26 in color (Munsell 2.5Y 5/3), texture, and composition; Formed by the same type of fluvial process that transported soil from the eroded western slope of the Huaca Loro mound; It covers the Occupational Surface 8 that, like other occupational surfaces, shows a reddish coloration by using fire and is associated with a small amount of ash (especially near the base of the Huaca Loro mound).
OS-8A	Occupational Surface 8A: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 29	Similar to the Layer 28 in color (Munsell 2.5Y 5/3), texture, and composition; It can be a continuation of the Layer 28, separated solely by an intrusive pit (See the Layer 28).
OS-9	Occupational Surface 9: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 30	A thin layer of fine sand and mud (Munsell 2.5Y 5/3) of fluvial formation between the Occupational Surfaces 9 and 10.
OS-10	Occupational Surface 10: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 31	A thin layer of fine sand and mud (Munsell 2.5Y 5/3) of fluvial formation between the Occupational Surfaces 10 and 11.
Layer 32	A thin layer of fine sand and mud (Munsell 2.5Y 5/3) of fluvial formation between the Occupational Surfaces 10 and 11.
OS-11	Occupational Surface 11: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 33	A thin layer of fine sand and mud (Munsell 2.5Y 5/3) of fluvial formation.
OS-12	Occupational Surface 12: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
OS-13	Occupational Surface 13: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
OS-14	Occupational Surface 14: A relatively coarse and homogenous layer of ash, burnt-reddish soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree).
Layer 34	Substantially compact clayish soil mixed with sand that corresponds to the mouth of Tomb 1.

Table 6.3. Sequence and descriptions of the stratigraphic layers drawn in the South Profile of the SAP-HL'06-T3 (continued).

Layer	Description
Layer 1	A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 6/4); It includes pieces of adobes.
Layer 2	A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 6/4).
Layer 3	Similar to the Layer 2; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); It contains substantial amount of charred firewood pieces and adobes.
Layer 4	Similar to the Layer 2; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); Top of the layer is a fine clay layer (Munsell 2.5Y 6/3).
Layer 5	Similar to the Layers 2 and 4; A layer of fine sand and compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); It contains a small amount of adobe pieces; Top of the layer is a fine clay layer (Munsell 2.5Y 6/3).
Layer 6	A layer of fine sand and semi-compacted soil of light gray color (Munsell 2.5Y 6/1).
Layer 7	Similar to the Layers 4 and 5; A layer of fine sand and semi-compacted soil brought by fluvial event from the western slope of the Huaca Loro mound (Munsell 10YR 5/4); It contains a small amount of adobe pieces.
Layer 8	A relatively coarse and compacted layer of mud and clay that contains adobe pieces; Its texture is irregular with a greater amount of small pieces of adobe towards the east (Munsell 2.5Y 5/3).
Layer 9	A sandy layer (Munsell 2.5Y 5/3); Its upper surface, nevertheless, is clayish and compacted.
Layer 10	A layer of mud and clay that forms the upper part of a looter's pit (Munsell 2.5Y 5/3).
Layer 11	A layer of sand and mud mixed with gravel; It comprises the upper part of a looter's pit (Munsell 2.5Y 5/3).
Layer 12	Fill of a looter's pit that is composed of a mixture of sand and mud (Munsell 2Y 5/4); It contains substantial amount of charcoal pieces and burnt-red soil.
Layer 13	A homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) by the presence of a discontinuous thin clay layer.
Layer 14	A homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) by the presence of a discontinuous thin clay layer.
Layer 15	A layer of fine sand and ash.
Layer 16	A homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) by the presence of a discontinuous thin clay layer.
OS-1	Occupational Surface 1: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-2	Occupational Surface 2: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 17	A homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) by the presence of a discontinuous thin clay layer.
OS-3	Occupational Surface 3: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-4	Occupational Surface 4: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-5	Occupational Surface 5: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 18	A lump of fine soil and mud (Munsell 2.5Y 5/3).
Layer 19	A lump of fine soil and ash.
Layer 20	A relatively coarse and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) formed by a fluvial process; Perhaps, it consists of two sub-layers (upper and lower) distinguished by a discontinuous thin clay layer.
Layer 21	A thin layer of fine sand mixed with gray ash (Munsell 2.5Y 6/1).
OS-6	Occupational Surface 6: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
Layer 22	A relatively fine and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) formed by a fluvial process; Perhaps, it consists of three parts distinguished by two discontinuous, thin clay layers.
Layer 23	A relatively fine and homogenous layer of fine sand and mud (Munsell 2.5Y 5/3) formed by a fluvial process; Perhaps, it consists of three parts distinguished by two discontinuous, thin clay layers.
Layer 24	A relatively coarse layer of soft clayish soil (Munsell 2.5Y 6/4).

Table 6.3. Sequence and descriptions of the stratigraphic layers drawn in the South Profile of the SAP-HL'06-T3.

Layer	Description
OS-7	Occupational Surface 7: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-8	Occupational Surface 8: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-9	Occupational Surface 9: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-10	Occupational Surface 10: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-11	Occupational Surface 11: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).
OS-12	Occupational Surface 12: A relatively coarse and homogenous layer of ash, burnt soil, and *algarrobo* litter (branches and leaves of *algarrobo* tree and burnt-reddish soil).

Table 6.4. List of the 127 features excavated in the SAP-HL'06-T1, 2, and 3.

Trench	Layer	Feature
1	N/A	5 (sherd cluster)
	N/A	6 (looter's pit)
	Layer 1	3 (looter's pit)
	Level 2	4 (looter's pit)
	OS-1	1 (burnt woods)
		2 (burnt area)
		16 (looter's pit)
	OS-2	7 (baby camelid)
		8 (burnt area)
	OS-3	9 (refuse pit)
		10 (fire pit)
		11 (fire pit)
	OS-4	17 (hearth)
		18 (hearth)
		19 (offering pit)
		20 (offering pit)
		21 (fire pit)
		22 (fire pit)
	OS-5	50 (fire pit)
		51 (sherd cluster)
		52 (fire pit)
	OS-5A	37 (hearth)
		38 (burnt woods)
		40 (fire pit)
		41 (jar neck)
	OS-5B	39 (fire pit)
	OS-6	23 (pot offering)
		24 (pot base)
		25 (pot offering)
		26 (fire pit)
		27 (fire pit)
		28 (fire pit)
		29 (earthen pit)
		30 (fire pit)
		31 (fire pit)
		32 (pot offering)
		33 (offering pit)
		34 (fire pit)
		35 (fire pit)
		36 (burnt areas)
	OS-6/7	53 (fire pit)
	OS-7	42 (fire pit)
		43 (hearth)
		44 (fire pit)
		45 (fire pit)
		46 (hearth)
		47 (fire pit)
		48 (fire pit)
		49 (hearth)
	OS-7/8	54 (fire pit)
2	Layer 1 Level 2	1 (looter's pit)
		2 (looter's pit)
		3 (burnt areas)
	L1L2/OS-1	4 (fill refuse)
	OS-1	5 (earthen pit)
	OS-1/2	6 (fill refuse)
		7 (sherd cluster)
	OS-2	6D (pot offering)
		8 (hearth)
		9 (offering pit)
		10 (fire pit)
		11 (pot offering)
		12 (fire pit)
		13 (burnt area)
		14 (burnt areas)
	OS-3	15 (fire pit)
		16 (offering pit)
		17 (fire pit)
	OS-3/4	33 (Chimu vessels)
	OS-4	20 (metal ingot)
		21 (hearth)
		22 (fire pit)
		23 (fire pit)
		24 (worked stones)
		25 (earthen pit)
		26 (fire pit)
		27 (earthen pit)
		28 (earthen pit)
		29 (earthen pit)
		30 (pot offering)
		31 (earthen pit)
		32 (fire pit)
		34 (earthen pit)
		35 (earthen pit)
		36 (fire pit)
		37 (earthen pit)
		38 (fire pit)
		39 (pot offering)
		40 (fire pit)
		41 (fire pit)
		53 (hearth)
	OS-5	42 (pot neck)
		43 (hearth)
		44 (fire pit)
		45 (fire pit)
		46 (fire pit)
		47 (fire pits)
		48 (fire pit)
		49 (fire pit)
		50 (fire pit?)
		51 (offering pit)
		52 (fire pit)
3	OS-4	1 (fire pit)
		2A (fire pit)
		2B (offering pit)
		3 (fire pit)
		4 (hearth)
		7 (fire pit)
	OS-5	5 (metal point)
		8 (fire pit)
		9A (fire pit)
		9B (fire pit)
		10 (fire pit)
		11 (hearth)
		12 (a part of Fe. 11?)
		13 (pot offering)
		14 (hearth)
		16 (fire pit)
		17 (fire pit)
		18 (fire pit)
		19 (fire pit)
		20 (fire pit)
		21 (fire pit)
		22 (fire pit)
	OS-5/6	6 (puma sacrifice)
	OS-6	24A (fire pit)
		24B (fire pit)

Table 6.5. Features documented above the West Cemetery in the SAP-HL'06-T1 (continued).

Feature	Description
1	Feature 1 is a group of several charred *algarrobo* woods randomly distributed over the Occupational Surface 1. It was found in the Quads M-N of Trench 1. The feature consisted of at least two sub-layers. The uppermost layer involved four burnt areas accompanied by charred *algarrobo* woods (A through D from north to south) and distributed along the east edge of a slight depression around the border of the Quads M and N. The lower layer involved two separate concentrations of charred *algarrobo* woods (E and F from east to west).
2	Feature 2 is a burnt area associated with the Occupational Surface 1 and straddling the Quads G, K, and L of Trench 1.
3 and 4	Features 3 and 4 are looter's pits running into the north and east profiles of the trench, respectively. They were both associated with the Layer 1 Level 2. Feature 3 was located in the Quads B-C, and Feature 4 in the Quads D-H of Trench 1. The south side of Feature 3 measured ca. 2 m, and the cut edge was very straight as if it was made by an archaeologist.
5	Feature 5 is a circular concentration of ceramic sherds measuring ca. 36 cm in diameter. The feature was recovered in the Quad L of Trench 1. The sherds were placed over the surface of the Basal Terrace of Huaca Loro.
6	Feature 6 is a roughly rectangular-shaped looter's pit located in the Quad P of Trench 1. Although its stratigraphic association was unclear, the pit cut into the Basal Terrace of Huaca Loro. The cut showed a very sharp edge on its west side. It is most likely to have been made by a bulldozer. The cut was shallow. The bottom surface was exposed just about 25 to 30 cm below the mouth of the cut. Since the cut ran into the east and south profiles of the trench, the whole picture of the feature was unknown.
7	Feature 7 is an offering of a baby camelid (presumably llama) body carefully placed in an irregularly lined pit associated with the Occupational Surface 2 and located in the Quad A of Trench 1 (Figure 6.19). Accompanied by some burnt ceramic sherds, the camelid was laid down on its left side and facing to the north. The neck had been twisted so that the cranium sat upright. Some of the bones on the right side of the body (e.g., the right os coxae and the distal ends of the right ribs) were missing. The right femur was found disarticulated and fragmented. The right ribs seemed to have been cut very sharp in a single sweep. The half-cut ribs had been moved upward over the vertebrae and were still articulated. Given all of these facts, it is inferred that the right half of the camelid body had been opened up before decayed or skeletonized. In addition, the preservation state of the bones was not consistent. The post-cranial bones were better preserved, whereas the cranial and a part of the neck had been more eroded. The whitened and rough surfaces of the latter may suggest that the head portions had been exposed to the sun for certain period of time after the skeletonizaion of the body.
8	Feature 8 is a burnt-reddish area on the clay surface of the Occupational Surface 2. It was located in the Quad I of Trench 1. The surface of the feature was covered with charcoal and white ash.
9	Feature 9 is a circular refuse pit measuring ca. 45 cm in diameter and ca. 20 cm in depth. It was associated with the Occupational Surface 3 and located in the Quads K-L of Trench 1. Inside the pit was found a dense concentration of sherds of utilitarian pots and jars different in size and color, as well as shells and charcoal pieces. At least five layers of large neckless urn fragments were identified. It is inferred that the pots were discarded after used for cooking.
10	Feature 10 is a circular fire pit measuring 35-40 cm in diameter and 12 cm in depth. It was associated with the Occupational Surface 3 and located in the Quad G of Trench 1. The pit was filled with reddish gray ash containing charcoal pieces, shells, clay lumps, and ceramic sherds.
11	Feature 11 is a small circular fire pit measuring ca. 18 cm in diameter and 7 cm in depth. It was associated with the Occupational Surface 3 and located in the Quad G of Trench 1. The pit was filled with ashy soil that contained charcoal pieces, an ochre lump that showed signs of use, and a burnt small bone. The ochre measured ca. 3 cm in diameter.
16	Feature 16 is a looter's pit measuring ca. 180 cm in depth. It was associated with the Occupational Surface 1 and located in the Quad M of Trench 1. About a meter below the pit mouth, a complete cranium of adult horse was recovered.
17	Feature 17 is a circular clay-lined hearth measuring ca. 45 cm in diameter and 23 cm in depth. It was associated with the Occupational Surface 4 and located in the Quad C of Trench 1. The feature consisted of two adjoining pits. The linings of both pits had been burnt-red. Along the perimeter of the larger pit were found two large ceramic sherds, ash, and charcoal. A neckless urn seems to have been used for cooking. The pit fill consisted of three layers: (1) an uppermost thick compact clay soil layer, (2) a reddish gray ashy soil containing a few ceramic sherds, and (3) a black ash concentration at the bottom. The bottom surface had been burnt-red. Charcoal pieces were relatively scarce in the ashy layers.

Table 6.5. Features documented above the West Cemetery in the SAP-HL'06-T1 (continued).

Feature	Description
18	Feature 18 is a large oval hearth measuring ca. 60 (N-S) × 110 (E-W) cm and ca. 40 cm in depth at the deepest portion (Figure 6.20). It was associated with the Occupational Surface 4 and located in the Quad C of Trench 1. The hearth cut into the slope of the Basal Terrace of Huaca Loro. The hearth was lined with burnt-red adobe bricks and filled with sandy soil containing small pieces of burnt adobe. Associated with a thin ash layer on the bottom, a large univalve shell (broken on either end) was recovered close to the west edge of the hearth.
19	Feature 19 is a circular ash concentration accumulated in a shallow depression of irregular shape, ca. 21 cm in diameter. It was associated with the Occupational Surface 4 and located in the Quad C of Trench 1. The feature contained charred cotton seeds (?) and *algarrobo* pods. This may be an offering pit.
20	Feature 20 is an ash concentration accumulated in a shallow oval-shaped depression, measuring 32 x 27 cm in extent and 4 cm in depth. It was associated with the Occupational Surface 4 and located in the Quad C of Trench 1. The feature included a fair amount of marine shells (*Donax obesulus*) and univalve shells, most of which had been burnt and cracked. Fragments of charred *algarrobo* pods were also observed. This may also be an offering pit, just Feature 19.
21	Feature 21 is a circular shallow fire pit measuring 31-35 cm in diameter and 20 cm in depth. It was associated with the Occupational Surface 4 and located in the Quad C of Trench 1. The pit fill had a three-level structure: (1) gray ash on top, (2) compacted clay in the middle, and (3) dark grayish brown ashy soil at the bottom. The lowest thick fill contained charred *algarrobo* bits, ceramic sherds, and stone.
22	Feature 22 is a circular shallow fire pit measuring 32-34 cm in diameter. It was associated with the Occupational Surface 4 and located in the Quad G of Trench 1. The pit was filled with gray ashy soil containing charcoal bits, marine shells (*Donax obesulus*), and small ceramic sherds.
23	Feature 23 is a large pointy-bottomed reddish brown urn that has an appliqué anthropomorphic figure on the shoulder (Figure 6.21). The anthropomorphic figure has a ring-shaped body but no head. Two arms extend laterally from the sides of the body with the elbows bent. The top surface of the ring-shaped body had been worn. Although the urn seems to have originally had a neck, it had been broken off. The urn measured ca. 50 in diameter around the widest portion of the body and 83 cm in height. It was slightly inclined to the west and placed in a deep fire pit associated with the Occupational Surface 6 and located in the Quad B of Trench 1. The pit was covered with chunky compact clay soil. The space between the urn and the pit was filled with adobe bricks and clay mortar to stabilize the vessel. Around the bottom tip of the urn was recovered a thick deposit of gray ash that contained charcoal bits (*algarrobo*), ceramic sherds, burnt marine shells (*Donax obesulus*), and a stone.
24	Feature 24 is the fragmented base of a large urn measuring ca. 35 cm in diameter. It was associated with the Occupational Surface 6 and located in the Quad B of Trench 1.
25	Feature 25 is a shallow circular earthen pit measuring ca. 30 cm in diameter and ca. 10 cm in depth. It was associated with the Occupational Surface 6 and located in the Quads E-F of Trench 1. Within the pit was found a pot, and on the rim part of the pot was a concentration of ceramic sherds. The matrix around the ceramic sherds was a pure clay soil containing only one small charcoal piece.
26	Feature 26 is an oval shallow fire pit measuring 33 × 19 cm and 5 cm in depth. It was associated with the Occupational Surface 6 and located in the Quads B-F of Trench 1. A concentration of charred *algarrobo* was observed near the center of the feature surface. The fill of ashy reddish gray soil involved a few ceramic sherds and charcoal bits.
27	Feature 27 is a fire pit of oval shape, measuring ca. 63 (N-S) × 36 (E-W) cm and ca. 22 cm in depth. It was associated with the Occupational Surface 6 and located in the Quads F-J of Trench 1. The pit consisted of two levels: upper gray ashy soil of 5 to 7-cm thickness containing charred *algarrobo* bits and lower chunky clay with ceramic sherds and charcoal bits. Although the edge of the pit was not very clear, approximately on the east edge was a concentration of badly preserved bones of a small animal (perhaps guinea pig). When the area immediately west to this pit was removed, furthermore, a relatively large rectangular-shaped stone was found (14 [L] × 8 [W] × 5 [H] cm).
28	Feature 28 is an irregular-shaped shallow fire pit measuring 26 (N-S) × 22 (E-W) cm and ca. 7cm in depth. It was associated with the Occupational Surface 6 and located in the Quad F of Trench 1. The pit was filled with ash containing charred *algarrobo* bits and a burnt marine shell (*Donax obesulus*). A bone fragment was recovered on the south edge. No ceramic sherds were encountered.
29	Feature 29 is an earthen pit measuring 40 × 45 cm and 20 cm in depth. It was associated with the Occupational Surface 6 and located in the Quads F-J of T1. It contained ceramic sherds and a marine shell along its west edge.

Table 6.5. Features documented above the West Cemetery in the SAP-HL'06-T1 (continued).

Feature	Description
30	Feature 30 is a circular fire pit measuring 33-36 cm in diameter and 15 cm in depth. It was associated with the Occupational Surface 6 and located in the Quad F of Trench 1. The pit was filled with sand containing ash and charcoal bits.
31	Feature 31 is a shallow oval fire pit measuring 30 × 38 cm and 5-6 cm in depth. It was associated with the Occupational Surface 6 and located in the Quad F of Trench 1. The pit was filled with ashy soil containing charred *algarrobo* and shells. Only the west side of the bottom surface had been burnt. No ceramic sherds were encountered.
32	Feature 32 is an offering of a cooking pot buried in the Occupational Surface 6 all the way up to its neck portion, and located in the Quad B of Trench 1. The pot measured ca. 20 cm in diameter at the widest part of the body and the upper portion above the neck had been broken off. The clay soil touching the exterior surface of the pot had been burnt. Additionally, immediately west of this feature (ca. 20 cm) was found a concentration of bones of a small animal.
33	Feature 33 is a shallow circular offering pit measuring ca. 40 cm in diameter and 7-8 cm in depth. It was associated with the Occupational Surface 6 and located in the Quad B of Trench 1. The pit was filled with ashy soil containing ceramic sherds and burnt material such as marine shells, animal bone fragments, and *algarrobo* pods and twigs.
34	Feature 34 is a circular fire pit measuring 24-31 cm in diameter and 20 cm in depth. It was associated with the Occupational Surface 6 and located in the Quads C-G of Trench 1. The pit was filled with sand and ash as well as ceramic sherds and marine shells.
35	Feature 35 is a shallow circular fire pit measuring 34-37 cm in diameter and 9 cm in depth. It was associated with the Occupational Surface 6 and located in the Quad G of Trench 1. The pit was filled with ashy soil containing charred cotton seeds, burnt marine shells, small clay lumps, and calcined animal bones.
36	Feature 36 is a group of two burnt areas of irregular shape (A to the east and B to the west). It was associated with the Occupational Surface 6 and located in the Quads F-G of Trench 1. Charred *algarrobo* bits were found from the burnt area B.
37	Feature 37 is a roughly rectangular clay-lined hearth accompanied by a circular fire pit (Figure 6.22). The former measured ca. 65 × 75 cm, while the latter measured ca. 45-50 cm in diameter. The feature was associated with the Occupational Surface 5A and located near the SW corner of Trench 1 (Quad M). The lining of the hearth had been intensely burnt-red. The hearth was filled with ashy soil containing burnt pieces of adobe brick, charcoal, and ceramic sherds. The fire pit was filled with reddish dark brown ashy soil and charcoal pieces.
38	Feature 38 is a group of seven *algarrobo* logs placed parallely and plastered by clay mortar in a low adobe platform (Figure 6.22). The feature was associated with Occupational Surface 5A and located near the SW corner of Trench 1 (Quad M).
39	Feature 39 is a circular fire pit measuring ca. 65 cm in diameter (Figure 6.22). It was associated with Occupational Surface 5B and located near the SW corner of Trench 1 (Quad M). The pit was filled with ashy soil topped with charcoal bits.
40	Feature 40 is a shallow oval-shaped fire pit measuring 55 (N-S) × 33 (E-W) cm and 12-15 cm in depth (Figure 6.22). It was associated with the Occupational Surface 5A and located in the Quad M of Trench 1. The pit was filled with ash containing charred *algarrobo pods* and twigs, marine shells (*Donax obesulus*), and burnt clay lumps. Abundant charcoals bits covered the upper part of the pit. This feature and the three adjacent features above (Features 37-39) might have composed a group that served for the same function.
41	Feature 41 is the upper portion of a large jar from the neck all the way to the rim (Figure 6.23). It was buried in the chunky clay of the Occupational Surface 5A and found in the Quad M of Trench 1.
42	Feature 42 is a circular fire pit measuring 40-42 cm in diameter and 13 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad A of Trench 1. The pit was filled with ash, charcoal bits, ceramic sherds, and shells. A boulder was also found in the fill.
43	Feature 43 is a lined hearth of oval shape measuring 105 (E-W) × 50 (N-S) cm and 8 to 15 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad A of Trench 1. The pit was filled with reddish ashy soil containing charred *algarrobo* pods, burnt marine shells (*Donax obesulus*), stones, and ceramic sherds. The hearth had a split-level fire pit on its west end that measured ca. 40 cm in diameter and 17-18 cm in depth (ca. 10 cm deeper than the rest of the area).

Table 6.5. Features documented above the West Cemetery in the SAP-HL'06-T1.

Feature	Description
44	Feature 44 is a circular fire pit or offering pit measuring 52-58 cm in diameter and 38 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad B of Trench 1. The pit was filled with ashy gray soil containing ceramic sherds, marine shells (*Donax obesulus*), stones, animal bone fragments, burnt clay lumps, and charred *algarrobo* pods. Ca. 25 cm below the OS-7 was observed a charcoal concentration of 5-cm thickness.
45	Feature 45 is a circular lined fire pit or offering pit measuring 42-48 cm in diameter and ca. 18 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad B of Trench 1. The pit was filled with gray ash containing burnt marine shells (*Donax obesulus*), charred *algarrobo* pods and twigs, ceramic sherds, burnt clay lumps, and a vertebra and tooth of an animal (at the bottom surface). The lining that had been burnt-red/orange and hardened suggested an intensive use of fire. What was remarkable was that the *algarrobo* pods found in this feature were more abundant and better preserved compared to those recovered in other features.
46	Feature 46 is a circular clay-lined hearth measuring ca. 80 cm in diameter. It was associated with the Occupational Surface 7 and located in the Quad K of Trench 1. The lining, especially the west side, had been intensively burnt-red.
47	Feature 47 is a circular fire pit measuring 22-24 cm in diameter and 15 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad A of Trench 1. The pit was filled with loose sand and ash.
48	Feature 48 is a circular fire pit or offering pit measuring 43-45 cm in diameter and 23 cm in depth. It was associated with the Occupational Surface 7 and located in the Quad A of trench 1. Underneath a thin layer of ash and charcoal over the surface, the pit was filled with a mixture of loose soil, sand, ash, and charcoal. The fill also contained animal bones, marine shells, seeds, and ceramic sherds.
49	Feature 49 is a roughly rectangular adobe-lined hearth (ca. 20 cm in depth). The dimensions were unknown, because the west half of the feature ran into the west profile of the trench. It was associated with the Occupational Surface 7 and located in the Quad A of Trench 1. Ash and charcoal bits filled the hearth. The charcoal found on the south side of the bottom surface contained a charred maize husk.
50	Feature 50 is an oval clay-lined fire pit measuring 43 × 53 cm and 20 cm in depth. It was associated with the Occupational Surface 5 and located in the Quad I of Trench 1. The lining had been intensively burnt-red. On the north side of the pit was observed a high concentration of ash and a small amount of charcoal. The pit was filled with burnt soil and charcoal. At the base of the pit was a dense concentration of ash, charcoal, and pieces of burnt adobe bricks.
51	Feature 51 is a concentration of ceramic sherds. It was associated with the Occupational Surface 5 and located in the Quad I of Trench 1.
52	Feature 52 is an oval clay-lined fire pit measuring 20 × 27 cm and 18 cm in depth. It was associated with the Occupational Surface 5 and located in the Quad E of Trench 1. The lining had been intensively burnt and turned bright red. The pit was filled with loose soil, ash, and charcoal.
53	Feature 53 is a fire pit of irregular shape measuring ca. 75 × 70 cm. It was associated with the Occupational Surface 6/7 and located in the Quad N of Trench 1. The pit was filled with reddish burnt soil and charcoal bits.
54	Feature 54 is an oval fire pit measuring ca. 65 × 45 cm. It was associated with the Occupational Surface 7/8 and located in the Quad K of Trench 1. The pit had a V-shaped cross-section. The pit fill contained some charcoal bits, but no ash.

Table 6.6. Features documented above the West Cemetery in the SAP-HL'06-T2 (continued).

Feature	Description
1	Feature 1 is a roughly rectangular-shaped looter's pit made on the Basal Terrace of Huaca Loro. It was associated with the Layer 1 Level 2 and located in the Quads D-H in Trench 2. The west end of the pit had a very irregular line as if the looters finished their work halfway. The opposite, straight east edge measured ca. 220 cm. The bottom surface of the pit was found some 140 cm below the present-day surface. A large charred *algarrobo* root (ca. 3 cm in diameter) and two large ceramic sherds were recovered on the bottom surface.
2 and 3	Feature 2 is another looter's pit of rectangular shape, cutting into the Basal Terrace of Huaca Loro. It was associated with the Layer 1 Level 2 and located in the Quads L-P in Trench 2. On its bottom surface within an area of 30 × 30 cm was Feature 3 – two burnt areas accompanied by concentration of charcoal pieces and burnt ceramic sherds. They were designated as A and B from north to south.
4	Feature 4 is a concentration of large ceramic sherds found in the Quad P. Most of them were fragments of large neckless urn. The largest one measured 30 cm in length and 4 cm thick around the rim. The feature was found between Layer 1 Level 2 and Occupation Surface 1 and was not associated with any occupational surface. It is most likely that they were a part of rain-deposited refuse that flowed out of the collapsed chamber of eroded Huaca Loro (Figure 6.23).
5	Feature 5 is a very large D-shaped earthen pit straddling the Quads E, F, I, J, M, and N in Trench 2 (Figure 6.24). It was associated with the Occupational Surface 1. The pit was first thought to be a grave, but turned out to be an empty earthen pit filled with chunky clay soil and small clay lumps. The original intended use of this pit is still unknown.
6	Feature 6 is a group of material concentrations over burnt areas on the clay mortar of an adobe structure (Enclosure 1) (Figure 6.23). The feature straddled the Occupational Surfaces 1 and 2 (ca. 120 cm below the modern-day surface) and located in the Quads C-G in Trench 2. It consisted of three concentrations of partially burnt ceramic sherds (6A, 6B, and 6D), a vessel offering (6C), and a small worked piece of turquoise (6E) (Figure 6.25). Feature 6B involved an animal vertebra (llama?) and smaller bone fragments. The whole feature stretched N-S and sloped down to the north. Between 6B and 6D, a lot of ceramic sherds were found mixed in a chunky clay deposit, and underneath them was found a cooking pot. As is the case with Feature 4, Features A, B, D, and E are considered as the refuse that flowed out and crumbled down from the collapsed chamber of eroded Huaca Loro. Consequently, Feature 6C (a vessel offering), which is associated with the Occupational Surface 2, is separated from other refuse materials. Incidentally, the Enclosure 1 is a short segment of adobe wall (over 1 m) recovered immediately underneath Feature 6D.
7	Feature 7 is a concentration of ceramic sherds accompanied by an animal vertebra, located along the South Profile of Trench 2 (Quad P). The feature straddled the Occupational Surfaces 1 and 2 (ca. 135-140 cm below the modern-day surface). The ceramic sherds were different in type and size and concentrated over and around a burnt area measuring 15 × 35 cm. Only the sherds distributed over the burnt area were burnt. Around the burnt areas (underneath the ceramic sherds) was observed a thin layer of whitish materials (organic?).
8	Feature 8 is an oval-shaped, clay-lined hearth associated with the Occupational Surface 2 and located in the Quad G in Trench 2. It measured 38 [N-S] x 53 [E-W] cm in area and ca. 17 cm in depth. Although the fill contained ash and charred *algarrobo* twigs and pods, the majority concentrated in the west part of the hearth. This side seemed to have been burnt to its bottom. This may suggest the direction of the wind during the time of use. The east part, in contrast, involved ash and charcoal only in its upper level, and instead its lower level was filled with a mixture of relatively hard yellowish clay and charcoal pieces. It was very clear that this lower-level clay had not been burnt. Additionally, the west side of the hearth was raised and lined with clay.
9	Feature 9 is a circular offering pit associated with the Occupational Surface 2 and located in the Quad L in Trench 2 (Figure 6.26). It contained charred *algarrobo* twigs and pods as well as a charred textile fragment and ceramic sherds.
10	Feature 10 is a shallow fire pit of twisted circular form that measured 70 cm in length and 43 cm in width (at the widest portion) and sloped down to the north (Figure 6.26). It was associated with the Occupational Surface 2 and located in the Quads O-P in Trench 2. Charcoal concentrations were observed around the north edge and on the southern tip of the pit. The pit was lined with clay like Feature 8. The fill contained charred *algarrobo* twigs and pods. From the south side of the feature were recovered a copper stick (measuring ca. 22 cm), a bone fragment, and a burnt ceramic sherd nearly at the bottom. The bottom surface was covered with a thin layer of charcoal and ash.
11	Feature 11 is an offering of a complete black cooking pot placed in an unlined pit. The pit was associated with the Occupational Surface 2 and located in the Quad O in Trench 2 (Figure 6.26).

Table 6.6. Features documented above the West Cemetery in the SAP-HL'06-T2 (continued).

Feature	Description
12	Feature 12 is a relatively deep fire pit measuring ca. 43 cm in diameter at its mouth and 45 to 47 cm in depth (Figure 6.26). It was associated with the Occupational Surface 2 and located in the Quad N in trench 2. It consisted of three vertical levels: (1) uppermost ash and charcoal (*algarrobo* and cotton seeds) layer, (2) grayish clay soil layer (ca. 20 cm deep), and (3) gray ashy soil layer (ca. 20 cm deep). Each of the layers also involved ceramic sherds and marine shells.
13	Feature 13 is a burnt area immediately west of two adobe bricks lined in the form of letter L (Figure 6.26). It was associated with the Occupational Surface 2 and located in the Quad K in trench 2.
14	Feature 14 is a group of two burnt areas (A and B) accompanied by several ceramic sherds (Figure 6.26). It was associated with the Occupational Surface 2 and located in the Quads G-K in trench 2. The burnt areas were covered with ash containing charcoal pieces and a small bone fragment (guinea pig?).
15	Feature 15 is a shallow and circular fire pit (or textile offering pit) associated with the Occupational Surface 3 and located in the Quad K in Trench 2. The surface of the feature was covered with a burnt clay soil and a concentration of ceramic sherds over it. The burnt soil contained charred *algarrobo* and maize. As this uppermost burnt clay soil layer was removed, it became clear that a hardened chunky clay layer covered a circular shallow pit sloping down to the south and measuring 35 to 40 cm in diameter. Some charred textile fragments were recovered from this clay layer.
16	Feature 16 is a shallow and oval-shaped, unlined offering pit, measuring 70 (N-S) × 130 (E-W) cm and just a few cm in depth. It was associated with the Occupational Surface 3 and located in the Quads F-G in Trench 2. The feature had a three-level structure: (1) pure sand bedded in an unlined depression of elongated round shape on the ground, (2) reddish and/or black burnt clay lumps stretching over the sand E-W, and (3) ashy soil and charcoal pieces covering the burnt areas. The upper two layers contained (1) a fair amount of charred maize and *algarrobo* pods, (2) ceramic sherds, many of which were very large, (3) animal bones of varying size (perhaps guinea pig and llama), and (4) a round stone (size and shape of *pan moiete*). From the west edge of the burnt area was recovered a part of burnt maize cob.
17	Feature 17 is the bottom part of a large urn left in a relatively shallow circular pit that measured 30-34 cm in diameter and 16-17 cm in depth. It was associated with the Occupational Surface 3 and located in the Quad N in Trench 2. A thin clay soil, as well as ceramic sherds and charcoal pieces, had been accumulated over the depression of the cracked urn. The urn was so poorly preserved that it was broken into pieces very easily when removed. From underneath the urn was exposed a thick ashy soil layer of whitish gray color that involved round and burnt-reddish clay lumps, marine shells (donox), charcoal pieces, ceramic sherds, and an unknown white object that looked like a chalk or a burnt bone fragment.
20	Feature 20 is a small greenish metal ingot (copper alloy?) found near the NW corner of Trench 2. It was associated with the Occupational Surface 4.
21	Feature 21 is a shallow hearth flanked by burnt-reddish clay enclosure and sloping down to the west (ca. 30 [N-S] x 50 [E-W] cm). It was associated with the Occupational Surface 4 and located in the Quad A in Trench 2. The hearth was filled with white ash of ca. 6-cm thickness and charred *algarrobo* bits.
22, 23, and 26	Features 22, 23, and 26 are fire pits of varying shape, associated with the Occupational Surface 4 and located in the Quad A of Trench 2. They were all filled with gray ash.
24	Feature 24 is a group of worked stones, associated with the Occupational Surface 4 and located in the Quad A of Trench 2.
25, 27, 28, and 29	Features 25, 27, 28, and 29 are relatively small earthen pits of varying shape, associated with the Occupational Surface 4 and located near the NW corner of Trench 2 (25 in the Quad A and 27-29 in the Quad E).
30	Feature 30 is an offering of a necked cooking pot buried in the relatively soft sandy soil of the Occupational Surface 4, located in the Quad F in Trench 2. Only the neck portion of the pot was exposed. The pot measured ca. 15 in diameter at the rim and ca. 25 cm at the widest portion of the body. Immediately around the rim was found a charred maize cob and *algarrobo* twigs. The pot itself and surrounding soil matrix did not suggest the use of fire. The entire body was decorated with a goose-skin-like "warty" design.
31	Feature 31 is a roughly circular earthen pit, associated with the Occupational Surface 4 and located in the Quad J in Trench 2.
32	Feature 32 is a fire pit filled with burnt soil and charcoal, associated with the Occupational Surface 4 and located in the Quad J in Trench 2.

Table 6.6. Features documented above the West Cemetery in the SAP-HL'06-T2 (continued).

Feature	Description
33	Feature 33 is a group of four blackware vessels found in the Quad M of Trench 2. One of the vessels is a stirrup-spout blackware bottle, while other three are rounded pots with a simple neck (Figure 6.27). From the stylistic characteristics (e.g., angular spout and molded design of birds), the stirrup-spout bottle may be dated to Chimú Period (AD 1375-1476). The vessels were located between the Occupational Surfaces 3 and 4 and found stacked over another. The pot with a handle lowest in elevation was located a few cm above the east edge of Feature 34.
34	Feature 34 is an earthen pit (or an offering pit) measuring 100 (N-S) × 130 (E-W) cm and 43 cm in depth. It was associated with the Occupational Surface 4 and located in the Quad M in Trench 2. The earthen fill involved bone fragments of small animal (perhaps guinea pig) and ceramic sherds.
35	Feature 35 is a circular earthen pit (or an offering pit) measuring ca. 120 cm in diameter and 20 cm in depth. It was associated with the Occupational Surface 4 and located in the Quad N in Trench 2. The pit is filled with three layers of earth. The uppermost layer was a well-compacted cream clay seal of 3-5 cm thickness. Right underneath this layer was a very thin sand lens of less than 1 cm. This sand lens covered relatively soft brown clay soil containing chalk, charcoal pieces, and marine shells (*Donax obesulus*).
36	Feature 36 is a small fire pit of irregular shape filled with gray ash. It was associated with the Occupational Surface 4 and located in the Quad N in Trench 2.
37	Feature 37 is a circular earthen pit associated with the Occupational Surface 4 and located in the Quads N-O in Trench 2.
38	Feature 38 is a small fire pit associated with the Occupational Surface 4 and located in the Quad N in Trench 2. The overall shape is unknown shape, because the southern half ran into the South Profile of the trench. The pit was filled with gray ash.
39	Feature 39 is an offering of a necked cooking pot buried in the Occupational Surface 4, located in the Quad E in Trench 2. Only the neck portion of the pot was exposed, as with Feature 30. However, unlike Feature 30, the pot was sealed by very compact clay. The burnt clay soil on the exterior surface of the lower portion of the pot body clearly suggests the use of fire. The pot measured ca. 12 cm in diameter at the rim and ca. 19 cm at the widest portion of the body. It was decorated with a stamped design of parallel lines.
40	Features 40 and 41 are fire pits associated with the Occupational Surface 4 and located on the south side of the trench.
42	Feature 42 is a neck portion of a large gray pot, associated with the Occupational Surface 5 and located in the Quad B in Trench 2.
43	Feature 43 is an adobe-lined oval-shaped hearth measuring 80 (N-S) x 36-40 (E-W) cm and ca. 30 cm in depth. It was associated with the Occupational Surface 5 and located in the Quad F in Trench 2. The hearth had a split-level structure, and the lower level was filled with gray ash containing charred *algarrobo* pods and twigs, ceramic sherds, and burnt marine shells (*Donax obesulus*). The north side of the hearth seemed to have been intensively burnt.
44	Feature 44 is an oval fire pit measuring 40 (N-S) × 30 (E-W) cm and ca. 20 cm in depth. It was associated with the Occupational Surface 5 and located in the Quad K in Trench 2. The pit was filled with burnt soil and an ash concentration at the bottom. The ash contained charcoal pieces, shells, and ceramic sherds.
45	Feature 45 is a circular fire pit measuring 46 cm in diameter and 15 cm in depth. It was associated with the Occupational Surface 5 and located on the west side of Trench 2 (Quads G, H, and K). The pit was filled with a fair amount of ash and soft soil that contained a small amount of charcoal pieces, charred *algarrobo* pods, animal bones, a stone, a ceramic spindle whirl, and pottery sherds.
46	Feature 46 is a fire pit measuring 46 × 51 cm and 34 cm in depth. It was associated with the Occupational Surface 5 and located near the SW corner of Trench (Quad D). A fragmented, incomplete black pot was placed in the fill of soft soil that contained ash, charcoal, animal bones, marine shells, and ceramic sherds.
47	Feature 47 is a twin fire pit consisting of a shallow circular one to the south (ca. 35 cm in diameter and 7 cm in depth) and a medium deep oval one to the north (40 [N-S] x 50 [E-W] cm and 25 cm in depth). Both were associated with the Occupational Surface 5 and located in the Quad P in Trench 2. The circular pit was filled with gray ash containing charred *algarrobo* bits and ceramic sherds, whereas the oval pit was filled with a mixture of pure yellow sand, cream clay soil, and gray ash containing charcoal pieces (an unknown seed or fruit recognized), ceramic sherds, burnt marine shells (*Donax obesulus*), animal bones, and unburnt clay (a part of vessel?).

Table 6.6. Features documented above the West Cemetery in the SAP-HL'06-T2.

Feature	Description
48	Feature 48 is an oval fire pit measuring 29 × 41 cm and 7 cm in depth. It was associated with the Occupational Surface 5 and located on the west side of Trench 2 (Quad L). The pit fill was loose soil mixed with ash, charcoal, marine shells, and ceramic sherds.
49	Feature 49 is a shallow circular fire pit measuring 30 (E-W) × 37 (N-S) cm and 7 cm in depth. It was associated with the Occupational Surface 5 and located in the Quad L in Trench 2. The pit was filled with gray ashy soil containing ceramic sherds (all small), marine shells (*Donax obesulus*), charred *algarrobo* bits, and a fragile animal bone fragment.
50	Feature 50 is a circular pit associated with the Occupational Surface 5 and located in the Quad L in Trench 2.
51	Feature 51 is a circular offering pit measuring ca. 40 cm in diameter and 29 cm in depth. It was associated with the Occupational Surface 5 and located near the SW corner of Trench 2 (Quad D), immediately north of Feature 52. The pit fill contained sand, soil, ash, charcoal, small pieces of burnt adobe bricks, animal and fish bones, marine shells, charred *algarrobo* pieces, and ceramic sherds.
52	Feature 52 is a circular fire pit measuring 40-51 cm in diameter and 23 cm in depth. It was associated with the Occupational Surface 5 and located on the SW side of Trench 2 (Quad D), immediately south of Feature 51. The pit was filled with loose soil containing ash, charcoal, and ceramic sherds.
53	Feature 53 is a clay-lined hearth associated with the Occupational Surface 4 and located in the Quad M in Trench 2. The hearth was filled with ash and charcoal. On the east edge was found a few wooden pieces (*algarrobo*?) that had not been burnt. Since this feature ran into the west and south profiles of the trench, the whole picture was unknown and thus immeasurable.

Table 6.7. Features documented above the West Cemetery in the SAP-HL'06-T3 (continued).

Feature	Description
1	Feature 1 is a circular fire pit measuring 35-39 cm in diameter. It was associated with the Occupational Surface 4 and located on the Basal Terrace of Huaca Loro, 175 cm west from the east and 11 cm north from the south wall of Trench 3 (Quad P). The upper portion of the pit was burnt-reddish/blackish and covered with a superficial layer of ash with no cultural objects. The remaining lower portion of the pit was filled with a mixture of soil and compact grayish clay that contained charcoal pieces and marine shells.
2A	Feature 2A is a shallow circular fire pit measuring 6 cm in depth and 20 cm in diameter. It was associated with the Occupational Surface 4 and located in the east side of Trench 3, very close to the Basal Terrace of Huaca Loro. The upper portion of the pit was covered with a dense concentration of fragile charcoal pieces. Some charred maize husk and *algarrobo* twigs were also identified. The remaining fill was primarily loose sand mixed with charcoal pieces and ash.
2B	Feature 2B is a circular animal offering pit measuring 12 cm in depth and 17 cm in diameter. It was associated with the Occupational Surface 4 and located on the east side of Trench 3. The unlined pit with bleary border contained the bones of two small animals of unidentified species, perhaps a rodent (guinea pig?) and a bird (burrowing owl?). The bones were found in the loose sandy soil fill of the pit.
3	Feature 3 is an oval fire pit measuring 21 cm in depth and 23 × 32 cm at the mouth of the pit. It was associated with the Occupational Surface 4 and located on the NE side of Trench 3, very close to the Basal Terrace of Huaca Loro. The surface of the feature is burnt-reddish and covered with a mixture of ash and small charcoal pieces. On the NE side of the feature were found a piece of charred textile and maize husk (Figure 6.28). It is likely that whole husked maize was wrapped in a piece of folded textile. The pit was filled with loose sand and soil mixed with ash and small charcoal pieces.
4	Feature 4 is a relatively large circular hearth measuring 50 cm in diameter and 34 cm in depth. It was associated with the Occupational Surface 4 and located on the SE side of Trench 3, on the Basal Terrace of Huaca Loro. The border was lined with compact clay. The mouth of the hearth was covered with a substantial amount of gray ash that was fairly compacted. The inside of the hearth was filled with a mixture of soft soil, ash, small charcoal pieces, and marine shells. Near the bottom of the hearth was found a large ceramic fragment that corresponds to the bottom portion of a vessel, most probably a rounded cooking pot.
5	Feature 5 is a cast metal point. It was associated with the Occupational Surface 5 in Trench 3 and located immediately west of Feature 20.
6	Feature 6 is a concentration of animal bones scattered over the Occupational Surfaces 5 and 6 (Figures 6.29 to 6.32) on the SE side of Trench 3. Some of the bones were partially burnt. The determination of the sampled bones by the zooarchaeologist Melody Shimada revealed that they represent an entire intact body of puma (*Felis concolor*) with no cut mark. It is inferred that the puma was sacrificed at this ritual space right by the Huaca Loro temple mound, and the sacrificed body was left there. However, the bones were found disarticulated and irregularly distributed. The irregular distribution of the bones may be explained by the fluvial events that could have disturbed their articulations and scattered the bones over the occupational surfaces. The fact that the bones had no cut marks denies the possibility that the intact body was disturbed by scavengers and makes it unclear how the animal was killed.
7	Feature 7 is a circular fire pit measuring 38-40 cm in diameter and 14 cm in depth. It was associated with the Occupational Surface 4 and located on the SW side of Trench 3. The mouth of the pit was covered with a concentration of ash and small charcoal pieces mixed with soft soil. The inside of the pit was filled with burnt-blackish soil containing charcoal pieces, ceramic sherds, and marine shells.
8	Feature 8 is a relatively large, circular unlined fire pit measuring 51 × 57 cm in diameter and 28 cm in depth. It was associated with the Occupational Surface 5 and located on the SW side of Trench 3. The upper portion of the pit was filled with a mixture of ash, charcoal pieces, and soft sand and soil, which contained ceramic sherds, marine shells, and animal bones. The lower portion hardly showed any use of fire and was filled with semi-compact yellowish sand containing a very small amount of ash and charcoal pieces. In addition, just SW of this feature was found a small concentration of ash, on which some burnt-reddish adobe bricks were observed. This ash concentration is also considered as a part of Feature 8.
9A	Feature 9A is a shallow unlined fire pit of irregular shape, measuring 40 × 50 cm and 13 cm in depth. It was associated with the Occupational Surface 5 and located on the SW side of Trench 3, near the West Profile and right next to Feature 8. The pit was covered with ash and some burnt adobes and filled with a substantial amount of ash and loose sand. The bright red discoloration of the pit base and walls, especially east and south sides, suggests intensive use of fire.

Table 6.7. Features documented above the West Cemetery in the SAP-HL'06-T3 (continued).

Feature	Description
9B	Feature 9B is a large semi-circular fire pit, associated with the Occupational Surface 5 and located on the SW side of Trench 3, along the West Profile, and immediately south of Feature 9A. The entire form of the feature was unknown, because one half continued into the West Profile. Nonetheless, it measures at least 79 cm in diameter. On the surface of the feature was observed a large amount of ash with a burnt-reddish adobe brick. The pit was filled with ash, charcoal, and pieces of burnt adobes.
10	Feature 10 is a concentration of gray ash in and around a shallow quasi-circular pit made on the Occupational Surface 5, measuring 21 cm in diameter and 9 cm in depth. The ash fill of the pit involved small pieces of charred *algarrobo* twigs and pods and very small reddish brown clay pieces. On the east edge was observed a circular depression that was filled with gray ash. The depression seems to have been made by the base of a vessel, perhaps a rounded cooking pot.
11	Feature 11 is a relatively large circular hearth of split-level structure, measuring 60 cm in diameter and 30 cm in depth (Figure 6.33). It was associated with the Occupation al Surface 5. The interior surface of the lower-level semi-circular pit was covered with a thick (7 to 8 cm) dark brown ashy soil containing a large number of charred materials as well as ceramic sherds, animal bones, stones, and marine shells. The charred materials included various kinds of botanical remains such as a horsebean-like large seed, *algarrobo* twigs and pods, a maize cob, and unidentifiable small seeds. The round depression on the ashy soil seems to suggest that it was made by a large pot and the pot was removed after used. The upper portion of the pit fill was a mixture of the dark brown ashy soil and soft cream sandy soil of the OS-5.
12	Feature 12 is an oval unlined pit measuring 40 (N-S) × 60 (E-W) cm and 35 cm in depth (Figure 6.33). It was associated with the Occupation Surface 5. The pit contained at least three medium-sized pots. Although one of them to the east was nearly complete, other two pots had been broken before buried. The lower part of the pit on the west side was filled with gray ash containing charcoal bits, ceramic sherds, and a limb bone of small animal (perhaps guinea pig). The adjacent two features, Fe. 11 and 12, might have served for the same purpose.
13	Feature 13 is an offering of a large ceramic vessel with *paleteada* designs stamped on the shoulder. It was associated with the Occupational Surface 5 and located on the NW side of Trench 3. The vessel was placed in a pit. Between the vessel wall and the pit wall was observed a large amount of ash, especially on the north side. In addition, a large fragment of urn was found on top of the buried vessel. This could have been used as a lid.
14	Feature 14 is a hearth consisting of a circular lined pit (45 to 50 cm in diameter and 40 cm in depth) and a large *paleteada* pot (40 cm in diameter around the body and 35 cm in height) placed in it. The feature was associated with the Occupation Surface 5. The space around the pot in the pit was filled with white ash containing several ceramic sherds and a few charcoal pieces. The fair amount of relatively pure ash with very few inclusions suggests an intensive use of fire.
16	Feature 16 is a shallow fire pit measuring 26 cm in diameter and 7 cm in depth. It was associated with the Occupation Surface 5 and located on the NW side of Trench 3. The upper portion of the pit was filled with a concentration of gray ash mixed with loose soil and charcoal pieces. The remaining fill was soft soil mixed with a small number of charcoal pieces.
17	Feature 17 is a circular fire pit measuring 36 cm in diameter and 14 cm in depth. It was associated with the Occupation Surface 5 and located on the NW side of Trench 3. The upper portion of the pit was filled with a concentration of ash and a small amount of charcoal pieces mixed with semi-compact soil. The remaining soil fill contained pieces of burnt adobe bricks, charcoals, ceramic sherds, and marine shells. Immediately NE of Feature 17 was found a copper object. This was considered as a separate feature and labeled as Feature 17A.
18	Feature 18 is a shallow and circular fire pit measuring 15-21 cm in diameter and 8 cm in depth. It was associated with the Occupation Surface 5 and located on the NW side of Trench 3. The pit had a semi-circular shape, because it was cut by a looter's pit. The upper-most level of the pit fill was characterized by a concentration of ash and small pieces of burnt adobe bricks. The remaining fill was a mixture of ash and soft soil that contained charcoal pieces and ceramic sherds.
19	Feature 19 is a shallow and roughly circular fire pit measuring 26-30 cm in diameter and 5 cm in depth. It was associated with the Occupation Surface 5 and located on the NW side of Trench 3. The pit was filled with gray ash and charcoal pieces.

Table 6.7. Features documented above the West Cemetery in the SAP-HL'06-T3.

Feature	Description
20	Feature 20 is an oval fire pit measuring 28 × 42 cm and 12 cm in depth. It was associated with the Occupation Surface 5 and located on the NW side of Trench 3. The upper portion of the fill was a high concentration of ash, charcoals, and ceramic sherds mixed in soft soil and sand, while the lower portion was loose soil of yellowish brown color that contained neither ash nor charcoal.
21	Feature 21 is a shallow and circular fire pit measuring 28 cm in diameter and 5 cm in depth. It was associated with the Occupation Surface 5 and located very close to a looter's pit on the NW side of Trench 3. The upper part of the fill was a mixture of ash, charcoal pieces, and loose soil, while the lower part was ash containing charcoal pieces, marine shells, and ceramic sherds.
22	Feature 22 is a shallow, oval fire pit measuring 17 × 23 cm and 7 cm in diameter. It was associated with the Occupation Surface 5 and located very close to a looter's pit on the NW side of Trench 3. The upper portion of the pit was filled with ash and small amount of charcoal pieces, and the lower portion was filled with a mixture of loose soil, ash, and some charcoal pieces. The pit edge was burnt-reddish.
24A	Feature 24A is a shallow circular fire pit measuring 5 cm in depth and 22 cm in diameter (at the mouth of the feature). It was associated with the Occupational Surface 6 and located on the NW side of Trench 3, immediately south of Feature 24B. The edge of the pit is lined with yellowish semi-compact clay. The pit was filled with a substantial amount of gray ash containing small charcoal pieces, marine shells, and ceramic sherds, and covered with a superficial layer of ashy soil and charcoal pieces.
24B	Feature 24B is a shallow oval fire pit measuring 24 × 35 cm at the mouth of the feature and 7 cm in depth. It was associated with the Occupational Surface 6 and located on the NW side of Trench 3, immediately north of Feature 24A. The pit was filled with a substantial amount of ash containing many charcoal pieces and ceramic sherds, and covered with a superficial layer of blackish gray ashy soil and charcoal pieces.

Table 6.8. Types of features documented on the occupational surfaces in the SAP-HL'06-T1, 2, and 3.

Types	Trench 1	Trench 2	Trench 3
Looter's pit	4 (8.0%)	2 (3.8%)	0
Sherd cluster	2 (4.0%)	1 (1.9%)	0
Burnt woods	2 (4.0%)	0	0
Burnt area	3 (6.0%)	3 (3.8%)	0
Fill refuse	0	2 (3.8%)	0
Hearth	6 (12.0%)	4 (7.7%)	4 (16.0%)
Fire pit	22 (44.0%)	20 (38.5%)	17 (68.0%)
Refuse pit	1 (2.0%)	0	0
Earthen pit	1 (2.0%)	9 (17.3%)	0
Offering pit	3 (6.0%)	3 (3.8%)	1 (4.0%)
Animal sacrifice	1 (2.0%)	0	1 (4.0%)
Vessel offering	5 (10.0%)	6 (11.5%)	1 (4.0%)
Metal offering	0	1 (1.9%)	1 (4.0%)
Stone offering	0	1 (1.9%)	0
TOTAL	50	52	25

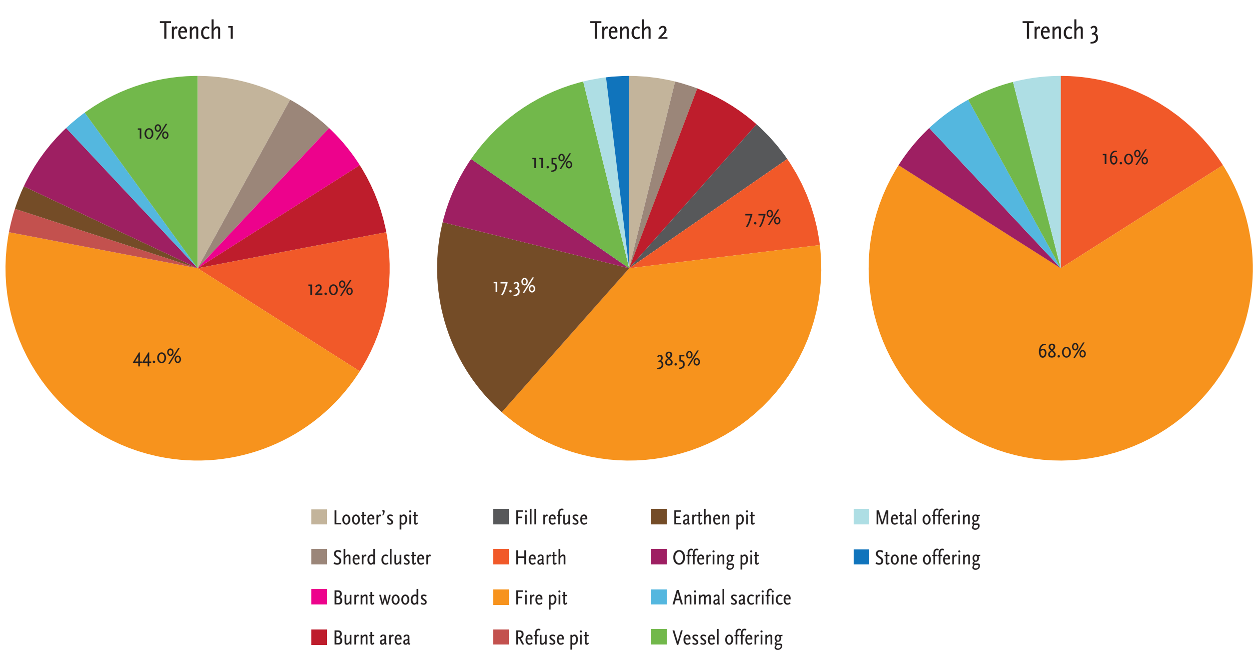


Table 6.9. List of the individuals excavated from the tombs and burials at the West Cemetery.

Trench	Date	Tomb/Burial	Mask	Body Position	Orientation	Sex	Age	Social Status
1	EMS	Tomb 1 Individual 1	X	Seated	West	Female	20	High elite
1	EMS	Tomb 1 Individual 2		Flexed	West	Female	25-35	Privileged commoner
1	EMS	Burial 2		Extended	Southeast	Indeterminate	Infant	Low elite
1	EMS	Burial 3		Extended	South	Indeterminate	Infant	Low elite
1	MMS	Burial 4	X	Extended	East	Indeterminate	25-35	High elite
1	MMS	Burial 5		Extended	South	Indeterminate	Child	Low elite
1	LMS	Burial 6	X	Extended	South	Male	30-35	Low elite
1	EMS	Burial 7	X	(No Body)	N/A	N/A	N/A	N/A
1	EMS	Burial 8		Extended	South	Male	35-40	Low elite or commoner
1	LMS	Burial 9		Extended	South	Female	30	Low elite or commoner
1	EMS	Burial 10	X	Extended	North	Indeterminate	Child	Low elite
2/3	MMS-LMS	Tomb 2 Individual 1	X	Indeterminate	Indeterminate	Indeterminate	Child (ca. 4)	High elite?
2/3	MMS	Tomb 2 Individual 2		Flexed/seated	Southeast	Female	25	Low elite or commoner
2	MMS	Burial 1		Extended	South	Female	15-21	Commoner?
2	EMS	Burial 2		Seated	North	Female	15-21	Low elite
2	MMS	Burial 3		(No Body)	N/A	N/A	N/A	N/A
2	MMS	Burial 4		Seated	West	Female	20-25	Low elite?
2	EMS?	Burial 5		Flexed/ Extended	South	Indeterminate	Child	Low elite
2	LMS	Burial 6 Individual 1		Extended	North	Female	30-35	Commoner?
2	LMS	Burial 6 Individual 2		Extended	East	Male	35-45	Commoner?
2	EMS	Burial 6A Individual 3		Indeterminate	Indeterminate	Indeterminate	Adult	Low elite?
2	LMS	Burial 6B Individual 4		Extended	South	Indeterminate	Adult	Low elite?
2	MMS	Burial 7		Seated	East	Male	40-50	Low elite
2/3	EMS	Burial 8		Extended	South	Male	> 40	Low elite?
2/3	EMS	Burial 9		Indeterminate	Indeterminate	Indeterminate	Indeterminate	Indeterminate
2	MMS	Burial 10		Extended	South	Female	25-35	Low elite
2	N/A	Burial 11		Indeterminate	Indeterminate	Indeterminate	Neonate?	Low elite
2/3	EMS	Burial 12	X	(No Body)	N/A	N/A	N/A	N/A
2	EMS	Burial 13		Extended	south	Indeterminate	Child (7-8)	Privileged commoner
2	N/A	Burial 14		Extended	South	Female	25-30	Low elite
2/3	EMS	Burial 15		Indeterminate (reburial)	N/A	Male?	Indeterminate	Indeterminate
2/3	N/A	Burial 16		(No Body)	N/A	N/A	N/A	N/A
2/3	N/A	Burial 17	X	Extended? (skull only)	South	Indeterminate	(adult)	Low elite
2/3	N/A	Burial 18		(No Body)	N/A	N/A	N/A	N/A
3	EMS	Burial 19		Extended	North	Female?	Indeterminate	Low elite?

Table 6.10. Estimated age and sex of the individuals recovered from the excavated tombs and burials in the Great Plaza. The determinations have been verified by the physical anthropologist Sarah Muno.

Context	Designation	Estimated age (Criteria for determination)	Sex (Criteria for determination)	Preservation state and other comments	Pertaining archaeological period
AE-4 / SE corner of the principal chamber floor of T-NE-1	Individual 1	At least 16-18 years old (from the third molar eruption) or 30 years old (from tooth wear)	Probably female (from the mandible angle more than 90 degrees)	Fair for the cranial; poor for the post-cranial	Middle-Middle Sicán (ca. AD 1000)
AE-4 / North Niche of T-NE-1	Individual 2	Juvenile?	Male?	Very bad, mostly disintegrated	Middle-Middle Sicán (ca. AD 1000)
AE-4 / South Niche of T-NE-1	Individual 3	Probably 18-22 years old or more (from the fusion of the distal end of the femur)	Unidentifiable	Very bad, mostly disintegrated	Middle-Middle Sicán (ca. AD 1000)
AE-4 / NE of T-NE-1	Burial 2	Probably 18-22 years old or more (from the fusion of different bones)	Unidentifiable	Previously disturbed; partial skeleton	Middle-Middle Sicán (ca. AD 1000)
AE-5 / SE corner of the principal chamber floor of T-NE-2	Individual 1	At least 16-18 years old (from the third molar eruption)	Probably female (from the mandible angle more than 90 degrees)	Poor; extensively fragmented and disturbed by looters	Late/Final-Middle Sicán (ca. AD 1050-1100)
AE-5 / Along the east wall of the principal chamber of T-NE-2	Individual 2	25-35 years old (from the smooth surface of pelvis with numerous pores	Probably female (from the mandible angle more than 90 degrees)	Fair but fragmentary	Late/Final-Middle Sicán (ca. AD 1050-1100)
AE-5 / South Niche of T-NE-2	Individual 3	Indefinable	Indefinable	Poor; disturbed by looters; only ribs and vertebrae left	Late/Final-Middle Sicán (ca. AD 1050-1100)
AE-6 / SE corner of the South Niche of T-PL	Individual 1	At least 16-18 years old (from the third molar eruption), teeth heavily worn	Probably female (from low curvature of sacrum)	Fair; teeth and sacrum under relatively favorable conservations	Late-Middle Sicán (ca. AD 1050)
AE-6 / Fill of the South Niche of T-PL	Individual 2	Adult (from the first molar heavily worn)	Probably male (from cranium and mandible)	Fair, but fragmented and partial remains	Late-Middle Sicán (ca. AD 1050)
AE-6 / SE corner of the South Niche of T-PL	Individual 3 (Principal)	Elderly (from the well-fused suture)	Indeterminate	The whole skeleton still in matrix and its skull partially exposed	Late-Middle Sicán (ca. AD 1050)
AE-6 / SE corner of the South Niche of T-PL	Individual 4	At least 16-18 years old (from the third molar eruption)	Unidentifiable	Extremely bad, only a few teeth left	Late-Middle Sicán (ca. AD 1050)

CHAPTER 7

LABORATORY ANALYSES OF ARTIFACTS AND ECOFACTS

The previous chapter focused primarily on the first of the two research questions of this dissertation: *Was ancestor veneration indeed practiced in the Middle Sicán society?* In this chapter, I switch my focus to the second question: *What was the role of the inferred ancestor cult and associated rituals was in the Middle Sicán society?* In order to answer this question, I confine my focus to the documented food preparations and consumptions and explore the question from a perspective of food practices.

The role of the inferred Middle Sicán ancestor cult may be explored by answering the question of (1) *who* prepared and consumed (2) *what*, (3) *when* and (4) *how*. The first question of *who* prepared and consumed is addressed primarily by the studies of food vessels (e.g., plates and bowls for serving and consumption, and jars and urns for cooking and storage), based on the assumption that in the Sicán society where status distinction and social structure are reflected directly upon the variability in material wealth of grave goods, a similar correlation may be found for the objects within more mundane spheres such as food vessels. The second question of *what* was prepared and consumed is answered by directly studying food remains (e.g., the remains of terrestrial and marine animals). The third question of *when* the food preparations and consumptions took place is addressed primarily by stratigraphic examinations and radiocarbon dating of charred botanical remains sampled from activity areas. The question may be further explored by reconstructing paleoenvironments and looking into the timing(s) of the targeted activities through meticulous analyses of microethnobotanical remains such as starch grains and pollens. The fourth question of *how* people ate and drank is answered by the spatial distributions of food remains and fragmented food vessels. In this regard, the study of relief designs stamped on the shoulders of jars and urns is particularly important.

In what follows, I discuss the results of the laboratory analyses of artifacts and ecofacts excavated from the activity areas within the Great Plaza. The analyses focused on (1) radiocarbon dating, (2) food vessels, and (3) food remains. These groups of analyses are discussed in separate sections.

7.1. Radiocarbon dating

The reconstruction of trajectories of the activities documented at the Great Plaza within broader sociopolitical and ecological contexts requires a clarification of *who* did *what*, *when*, and *in what order*. In order to answer the last – *in what order* – and to establish temporal linkages between various events and activities in different areas, careful stratigraphic observations and stylistic examinations of the excavated fine blackware bottles were critical. As I discussed in Chapter 5, the ceramic chronology based on Shimada's excavation at HPBG successfully captures subtle stylistic changes of about 50-year range and thus is more precise than radiocarbon dating that provides age ranges usually of broader span. However, the majority of the ceramics excavated at the Great Plaza were food vessels that are lacking of clear chronological markers. Although some stylistic features observed on a few fragments of fine blackware bottles did serve as a chronological marker (See Figure 5.4), the supplement by means of radiocarbon dating was necessary.

7.1.1. Sampling

I selected three charred *algarrobo* samples (woods and pods) excavated from the inferred Middle Sicán contexts in the EAs 3, 4, and 5. The EA3 sample is an aggregate of pieces of charred *algarrobo* wood taken from an ash/charcoal concentration inside the large adobe-lined hearth associated with OS-7 Level 1. The EA4 sample is a large piece of charred *algarrobo* fruit. For this sample, detailed context information is not available, except for the associated occupation surface (OS-11) and the date of excavation (Nov. 13, 2008). The EA5 sample is a set of pieces of charred *algarrobo* wood collected inside the south wall of the inferred metal workshop (Wall 1). The samples were sent to and analyzed by Gregory Hodgins and his team at the NSF-Arizona Accelerator Mass Spectrometry (AMS) Lab.

7.1.2. Results and interpretations

Table 7.1 lists the resultant, uncalibrated BP and computer-calibrated dates for the three samples. The calibration of the BP dates was carried out using OxCal v.4.2.3 (Bronk Ramsey 2009) and SHCal13 atmosphere curve (Hogg, et al. 2013) (Figure 7.1). Surprisingly, it was only the EA5 sample (AA103771) that provided the result in line with my expectation. AA103771 was unearthed from the OS-10, ca. 10-15 cm above the mouth of the NE-T-2 that contained late-Middle Sicán bottles (Figure 6.83). Therefore, this sample was expected to date to no earlier than the late-Middle Sicán Period. The calibrated date of AD 1030-1202 covers the expected span from AD 1050 to 1100. On the other hand, I expected the date for the EA3 sample (AA103769) to be a little earlier. The stylistic features observed on a few fragments of the associated fine blackware bottles include smaller and less pointy ears of the Sicán Lord and relatively low pedestals without embossed designs, which suggest the early-Middle Sicán Period (AD 950-1000). Although the uncalibrated BP date (954 ± 38 BP) well corresponds to this range, the calibration sets the date slightly forward: AD 1034-1206 (late-Middle to early-Late Sicán). The EA4 sample (AA103771) was assigned an even later date, cal AD 1482-1658. The age range from the Late Horizon to the early Colonial Period was totally unexpected, because the NE-T-1 associated with the same layer contained middle-Middle Sicán bottle fragments. This large discrepancy may be due to either a contamination or an intrusion of later materials into the sample. Another possibility would be that the sample bag was tagged with a wrong stratigraphic information.

7.1.3. Conclusion

The stylistic features used as chronological makers above were observed only on a few fragments of fine blackware bottles, rather than entire bottles. In contrast to the entire bottles buried within the NE-T-1 and 2 as a grave good and used similarly as a chronological marker, those fragments could have simply been intrusive sherds from the broken early-Middle Sicán bottles. In fact, the observed features involve not only those of the early-Middle Sicán bottles, but also medium-high pedestals that suggest most likely the middle-Middle Sicán Period. Therefore, the priority is placed on the calibrated radiocarbon dates, rather than on the stylistic features of the possibly intrusive sherds. Based on the proximity of the dates provided for the EA3 and 5 samples, the OS-7 Level 1 in the EA3 and OS-10 in the EA5 are now considered to be contemporaneous. The EA4 sample is discarded by virtue of the probable contamination. The resultant temporal linkages among the excavation areas are shown in Figure 7.2.

7.2. Analyses of food vessels

This section discusses the results of three ceramic analyses that were aimed at addressing the aforementioned question of *who* prepared and consumed *what* and *how*, using *what kinds of food vessels* at the Great Plaza. The first analysis of morphological and technical variability clarifies what kinds of food vessels were used. The morphological variations and characteristics shed light on what was prepared and consumed (Operational Hypothesis 1), while the technological variations illuminate distinctions in production costs, which may suggest distinctions in social status of the user and provide clues to presume who attended the inferred ceremonial feasts (Operational Hypothesis 2). The second analysis of compositional variability by means of instrumental neutron activation (INAA) provides signatures of paste recipe that may suggest differences of raw materials and technological choices in the place of production. These signatures help to explore who supplied provisions for the feasts (food and drink, and vessels to prepare and consume them) and examine the Operational Hypothesis 1. If the analysis reveals non-local origins of the food vessels, for example, provenience of the participants of the feasts could have been correspondingly diverse. Thus, this analysis also addresses the question of who participated in the inferred feasts (Operational Hypothesis 2). The third analysis of relief designs stamped on the shoulders of jars (or *ollas*) could illuminate how those participants were spatially organized; in other words, who sat and ate together in which area. The analysis will thus address and further elaborate the above question of who participated in the inferred feasts (Operational Hypothesis 2). The three analyses are discussed in separate sections below.

7.2.1. Morphological and technological variations

The first analysis was implemented primarily to infer the vessel functions from morphological features and the vessel users from technical features. In this subsection, first, I describe the stylistic and technological features of different vessel form groups that were documented through visual examinations of fragmentary sherds. Second, I confine my focus to the serving vessels (e.g., bowls, dishes, and plates) and verify the hypothesized variability in form and production cost of those vessels. In Chapter 4, I argued that it may be possible to infer the status distinction among the users of food vessels by studying the variability in style and production quality of the vessels. All of the statistic analyses were carried out using IBM® SPSS® Statistics Version 20.

7.2.1.1. Data collection and input. The data collection and input were undertaken at the Sicán National Museum with the help of five archaeological volunteers: Fukutaro Kudo, Rie Maruyama, Taro Takashima, Yuko Nakasone, and Hiroko Kawasaki. The SAP 2008 field excavation at the Great Plaza recovered a total of 4,805 diagnostic ceramic sherds from the EAs3 to 6. These sherds were considered to be diagnostic in that their morphological, technological, and/or decorative features enable one to infer their original vessel forms and functions to some extent. We recorded all 4805 sherds in a relational database created using Microsoft® Office Access. Out of the recorded 4,805 sherds, 830 were excavated from the EA3, 2,541 from the EA4, 1,019 from the EA5, and 415 from the EA6, respectively. The 415 sherds from the EA6, although classified in terms of their sherd types and original vessel forms, were not included for further detailed analyses due to time constraints. The elimination of this group of sherds may help the distinctions between other areas stand out more clearly. The 4,390 diagnostic sherds from the EAs 3 to 5 were observed and documented in terms of a series of morphological and technological features that account for stylistic variations and production costs (e.g., paste preparation and surface finish) (Table 7.2).

7.2.1.2. <u>Stylistic and technological features of different vessel forms</u>. For the identification of sherd types, I employed Tschauner's (2001:673) coding scheme. Out of his 39 types, 15 were identified in the recorded sherds: (1) A (Appliqué/adorno), (2) B (Base), (3) BO (Base-to-body), (4) C (Carination), (5) F (Figurine), (6) H (Handle), (7) L (Lug), (8) N (Neck), (9) O (Body), (10) R (Rim), (11) RB (Rim-to-base), (12) S (Spout), (13) SR (Spout rim), (14) TYR (Tuyere) and (15) W (Whole vessel). Table 7.3 shows the frequencies of the identified 15 sherd types. These sherd types were then examined in terms of their original vessel forms and functions and categorized broadly into six groups: (1) BDP (Bowl/Dish/Plate), (2) BJ (Bottle/Jug), (3) JU (Jar/Urn), (4) M (Miniature Vessel), (5) F (Figurine), and (6) T (Tuyere). The first three groups are subdivided into smaller groups (Tables 7.4, 7.5, and Figure 7.3). The BDP Group vessels are predominant in the EAs3 and 6, while the JU Group vessels in the EAs4 and 5. Tables 7.6 to 7.9 show the distributions of the six vessel form groups in the stratigraphic layers in each excavation area. The majority of the BDP vessels in the EAs3 and 5 were found associated with the late-Middle Sicán occupation layers, whereas those in the EA4 with the middle-Middle Sicán.

7.2.1.2.1. BDP Group (Bowl/Dish/Plate). The BDP Group consists of serving vessels mass-produced primarily by the use of molds. The vessels in this group take the form of either bowls, dishes, or plates (*cuencos*, *tazones*, or *platos*) with a ring or annular base. A total of 2,364 sherds were identified as BDP by three diagnostic morphological and technical features: (1) rim and/or base forms, (2) vestiges left from the forming process by molds, and/or (3) relatively better finish on the interior surface (e.g., burnishing and/or polishing, and painting) than other vessel groups. It is important to note that 18 BDP sherds from the EA5 were observed to have metal prills and small ingots on the interior surfaces. Some rim sherds had been swollen and changed in color probably due to the exposure to high heat (Figure 7.4). These lines of evidence indicate that a small number of BDP vessels or their fragments were (re)used for metallurgical processes, although it is not clear whether they were produced exclusively for that purpose or initially produced as food vessels but then diverted for metallurgy.

The distinctions between bowls, dishes, and plates have been defined by Montenegro (1997:234, Table 222) who measured and studied the rim angles and diameters of a relatively large number of serving vessels excavated thus far by Shimada in and around the Great Plaza. Bowl rims are the steepest (range = 50-70°; mean = 62.5°), whereas plate rims are the least abrupt (range = 24-33°; mean = 26.8°). Dish rims fall in between the two (range = 40-50°; mean = 43.5°). Dishes are the largest in diameter, while plates and bowls fall in a similar range of diameter. Following Montenegro's definitions, I classified 1282 rim sherds (sherd types R and RB), the profile views of which were drawn. Nonetheless, it is very difficult to measure rim angles precisely, because rim walls have curvature of varying degree. The angle becomes largest when measured near the lip, while smallest near the base. Most critical was to retain a consistency in the measuring method. Therefore, the measurements were uniformly taken by the five degrees (e.g., 15°, 20°, and 25°) at 2 cm below the horizontal lip line on the top- and right-aligned sherd profiles. A cluster analysis of the resultant values for rim angle revealed four clusters as opposed to Montenegro's tripartite classification (Table 7.10 and Figure 7.5). All in all, the measurements of BDP Group vessels corresponded to the quantitative criteria of dishes and plates as defined by Montenegro;

however, the rim angles of bowls occurred in a much wider range (50-95°) compared to those of Montenegro's bowl group and were classified into two clusters that I designated the "dish/bowl" and "bowl" groups. The varying rim angles are assumed to have a strong correlation with the functionalities of the vessels. Deep bowls of greater rim angle should be more suitable for serving liquids. When serving solid materials, plates and dishes not only suffice, but also are oftentimes more serviceable. Figure 7.6 illustrates that more of the deeper vessels (dish/bowl and bowl) were found in the EAs3 and 4, while the number of shallow plates is predominant in the EA5. This seems to suggest that more liquids were consumed in the EAs3 and 4, and more solid materials in the EA5.

Stylistically, the BDP vessels are divided into four types: (1) plainware (BDP-PLN), (2) Sicán Painted Dish or SPD (BDP-SPD), (3) white-slipped (BDP-WHT), and (4) white-on-red (BDP-WNR). The plainware BDP is a group of non-decorated utilitarian vessels, while the other three types are characterized by different decorative features. The SPDs are a regional variant of a broader pottery type known as Coastal Cajamarca (or Cajamarca Costeño), in contrast to the Highland Cajamarca (or Cajamarca Serrano) dishes. These dishes as well as other Coastal Cajamarca variants in the neighboring valleys are considered to have been produced using local clay on the northern North Coast in stylistic imitation of the Highland Cajamarca dishes made with kaolin in and around the Cajamarca basin (perhaps, including the area around Cascas on the upper cis-Andean slope regions). The typical decorative feature of SPDs is the painting of logographic and/or geometric motifs in red or reddish color against a white slipped background. The white-slipped BDP vessels may be a subtype of SPD. Both interior and exterior surfaces are covered with white slip, but has no red paint typical of SPD. The white-on-red decoration was found on only one sherd (CE415-326) from the EA4 (Figure 7.7). A curvilinear geometric design painted in white is partially identifiable on the red background of rim interior.

Montenegro (1997) divides the regional variants of the Coastal Cajamarca broadly into two groups: Sicán Painted Dishes (SPD) in the La Leche and Lambayeque Valleys and Coastal Cajamarca Variants (CCV) in the neighboring valleys to the south such as Zaña and Jequetepeque. These two variants can be distinguished by surface treatments (Montenegro 1997:107-114). Slipping, smoothing/burnishing, and painting are the main types of surface treatment applied to both the SPDs and CCVs. According to Montenegro (1997:107-114), crucial differences between them are seen in (1) the carefulness of craftsmanship, (2) the color and thickness of the slip painting, (3) the portion of the vessel burnished, and (4) the color and line thickness of the curvilinear designs painted on the interior surface.

Generally, the slip painting and burnishing were more carefully applied on the CCV vessels. For instance, on all Coastal Cajamarca vessels is observed a distinctive white band slip-painted on the upper portion of the exterior rim; however, this band is very clearly defined on the CCVs, while it is often very diffuse with no clear edge on the SPDs. Furthermore, the slip applied on the interior is thicker and more yellowish (the hue of 2.5Y in Munsell Soil Color Book) on the CCVs, whereas the slip color of the SPDs tends to cluster around a less yellowish hue (10YR). Regarding the burnishing process, it is generally applied to both surfaces on the CCVs, but it occurs only on the interior surface of the SPDs. It is very common that the rough exterior surfaces of the SPDs are left untouched without any treatment or sometimes treated with only a simple smoothing or wiping. It is an exclusive feature of the SPDs that the exterior surfaces are decorated by molded designs (Figure 7.8). The red paints used for the CCVs tend to be more yellowish, whereas those for the SPDs are redder or more brownish with the hue values of 7.5R and fugitive black. The lines of curvilinear designs painted on the interior surface are finer on the CCVs.

Within our studied assemblage of the BDP vessels, we observed and documented all of the exclusive features of the SPDs above (e.g., less carefully applied slip painting and burnishing, thinner and more yellowish slip paint, molded designs on the exterior surface, redder or more brownish paint, and thicker lines of painted curvilinear designs). The documented paint colors were classified into seven groups: (1) red, (2) brownish red, (3) brown, (4) purplish red, (5) dark gray to purplish gray, (6) bright orange to reddish orange, and (7) fugitive black (Figures 7.9 and 7.10). A half of the seven groups basically fall into what Montenegro categorizes as the SPD colors. The orange color of the remaining groups may suggest that the studied sherds include those of foreign CCV vessels. It is not clear at this point whether the purplish and grayish colors indicate foreign origins or intra-regional varieties in the Lambayeque area.

7.2.1.2.2. BJ Group (Bottle/Jug). The vessels in BJ Group are fineware bottles and jugs, the complete vessels of which are usually found in funerary contexts (Figure 7.11). The BJ sherds found at the Great Plaza were so fragmentary that the inference of original vessel forms was quite challenging. Nonetheless, a total of 347 sherds were identified as BJ by four diagnostic morphological and technical features: (1) spout, handle, bridge, lug, and/or base forms, (2) well-smoothed or burnished/polished exterior surface, (3) sculptural appendages (or Appliqué/Adorno) at the spout base and/or on the shoulders (e.g., Sicán Deity/Lord and auxiliary personages) and human/animal effigies, and/or (4) relatively thinner body wall and finer and better sorted paste. As seen in Figure 7.11, the fineware bottles and jugs during the Middle Sicán Period show significant variability in form and color, other than *Huaco Rey* (single-spout blackware bottles with the Sicán Deity/Lord effigy at the spout base). Most distinct among others are the Mochecoid stirrup-spout bichrome (or cream-on-red) sculptural bottles with an effigy of living form (e.g., human, animal, fruit, or vegetable) that were excavated at the West Cemetery. The BJ fragments found at the Great Plaza were primarily those of black/redware *Huaco Rey* (BJ-HR) and jugs with press-molded designs on the body (BJ-

IMP). Reduction-fired “blackware” bottles and jugs are actually different in blackness, ranging from jet-black to brownish gray color, which suggests varying degree of reduction. There are also many sherds that could not be identified very precisely and thus provisionally classified as miscellaneous (BJ-MISC).

7.2.1.2.3. JU Group (Jar/Urn). The vessels in JU Group are utilitarian jars (*ollas* or *cantaros*) and urns (*botijas*, *tinajas*, or *porrones*) of globular body and rounded bottom most probably for cooking and storage purposes (Figure 7.12). The vestiges of usage such as the soot observed on the exterior surface strongly support this inference. The JU vessels from the Great Plaza take the form of either (1) necked jars and *ollas* (JU-NCK), (2) neckless urns (JU-NLS), or (3) neckless oversized urns (a.k.a. *porrones*; JU-PRN). Some jars have lug handles on the shoulders (JU-HL). The JU Group was defined by four diagnostic morphological and technical features: (1) rim and neck forms, (2) relatively rough, non-burnished/polished exterior surface, (3) *paleteada* designs stamped on the exterior surface, and/or (4) depressions on the interior surface left by the anvil stone during forming/decorating process by the paddle-and-anvil technique. In addition to the above three vessel form subgroups, the rim/neck sherds with *paleteada* designs, although very few in number, were separately counted (JU-NCK-PLT and JU-NLS-PLT; see Table 7.5). A total of 2,087 sherds were identified as belonging to this vessel form group.

Many, if not all, of the JU vessels seem to have been produced by a combination of molds, paddling, direct shaping using potter's plates, and/or paddle stamping (Shimada 1998:8). The paddle stamping technique for forming/decorating called "paddle-and-anvil" literally utilizes a decorated paddle of varying material (e.g., ceramic, wood, and stone) and an anvil stone (Figure 7.13). After the base is molded or formed, coils of clay strings are solidified to form the vessel wall by applying the anvil stone on the interior surface and hitting from the exterior with the paddle. The relief deigns on the paddle are stamped on the exterior wall during this paddling process. The paddling process leaves not only the relief designs on the exterior, but also a series of depressions made by the slightly concave exterior of anvil on the rough interior surface (Figure 7.14). This utility pottery type produced by the procedures above is called *paleteada*. The JU body sherds (JU-PLT), on which the *paleteada* relief designs are stamped, were also regarded as diagnostic and all collected, because I received the impression that these designs occurred in clusters and that the distributions of the same designs never straddled the boundaries of the excavation areas. This perceived distribution of the *paleteada* designs deserved attention and were examined by a further analysis, which is to be discussed in detail in the section 7.2.3.

The necked jars or *ollas* on the North Coast after Middle Horizon came to show a particular neck-to-lip silhouette called "double inflection" (Cleland and Shimada 1998). The necks of these vessels generally constrict, stand upright, or flare out with inflection twice all the way up to the lip. It is not difficult to identify a rim sherd of necked jar; however, in order to further clarify and categorize different silhouettes of double-inflection jars, one has to have a vertically long neck sherd that demonstrates the entire silhouette with two inflections. Therefore, although we identified 488 sherds from the EAs3-5 as necked jars (JU-NCK and JU-NCK-PLT), only 125 out of 488 retained the entire neck silhouette. The remaining 363 sherds that had lost the lower half of the silhouette were set aside as ambiguous pieces.

The 125 neck silhouettes were grouped using Tschauner's (2001:675-679) pottery codebook as a reference, and put in a chronological order. First, the entire neck was considered as a composite that consists of three portions: (1) convex lower, (2) concave middle, and (3) convex upper portions in a profile view. What is known as double inflection corresponds to the convex lower and upper portions, and the middle portion connects the two and makes a rounded constriction. Sometimes, the upper and/or middle portions are absent. Second, each portion was characterized and coded by degree of inflection and angle. The inflection of the upper and lower portions was categorized into either (1) convex (coded as "X" or "x"), (2) concave ("C" or "c"), or (3) straight ("G" or "g"), while the angle into (1) inverted ("I" or "I"), (2) upright ("u" or "U"), or (3) everted ("e" or "E"). When degree is minute, "H" or "h" (meaning "slightly") was attached (e.g., "slightly inverted" as "HI" or "hi"). Coding letters were spelled in uppercase for the upper portion and in lowercase for the lower portion (e.g., “XE” and “xhe”) and then connected with a plus sign when the middle portion is present (e.g., “xhe+XE”). When representing certain characteristic as a range, two groups of codes were connected with a hyphen (e.g., “straight-sided to convex inverted” as “g-hxi”). Third, the vertical proportion of the lower and upper portions was categorized by four codes: (1) “=1” (equal), (2) “~” (nearly), (3) “>“ (the lower portion is larger), and (4) “<“ (the upper portion is larger) (e.g., “the lower portion is larger than or equal to the upper portion” as “>=1”). When the length difference is very disproportionate, inequality signs were repeated (e.g., “the lower portion is much larger” as “>>1”). Fourth, the combinations of the coded characteristics were compared and eventually classified into 15 silhouette types (Figures 7.15 to 7.24). Lastly, the frequencies of the 15 types were counted by the stratigraphic layers and placed in a chronological order (Table 7.11). As a result, it became clear that during the middle-Middle Sicán Period, the middle portion was pronounced, and the upper portion was equal to or larger than the lower portion. During the late-middle Sicán Period, on the other hand, the middle portion became less prominent and was oftentimes absent, and the lower portion stood upright and became longer than the upper portion (Figure 7.25).

As an aside, the major change in neck profile during the Middle Horizon might have not simply been stylistic, but also closely associated with or triggered by a functional change. Visual examinations of the drawn profiles of the double inflection jars led me infer that regardless of the presence/absence of the middle portion, the connecting point between the upper and lower portions, which protruded inward, might have been the ledge to place a lid and cover the vessel. In the light of diameter size and ease of grip, inverted BDP vessels with an annular base would be the best fit and best serve as the lid. It was very interesting to find two holes on the annular base of a complete SPD from excavated the West Cemetery (Figure 7.26). On the bottom of the same base was also observed an elongated depression on the diameter line that connects the two holes. When placed upside down over the ledge inside the jar neck, the inverted lid vessel may be secured in place by passing a string through the perforated base and tying its either end to the lug handle on the vessel shoulder (Figure 7.27). Nonetheless, this is nothing more than a speculation at this point and thus requires further comparisons of the JU ledge diameters and the BDP rim diameters and awaits more of such holes to be found on the annular bases.

7.2.1.2.4. Miniature Vessels. Miniature vessels refer to what has traditionally been known as "*crisoles* (or crucibles)." This conventional denomination is very erroneous and misleading, because there has been no archaeological evidence that suggests a metallurgical use of these miniature vessels. In this regard, the BDP vessels found containing small prills and slag on their interior surface should rather be called as crucibles. Miniature vessels were found in the EAs3, 4, and 5, one from each area. The one from the EA4 is a whole vessel. These are identical in size and form to the miniature funerary vessels unearthed during the excavation of Tomb 2 at West Cemetery in 2006, which are indicative of ritual offerings and/or libations made to the deceased. Cervantes et al.'s (2011; 2014) pyro-technological and micro-ethnobotanical analyses of these vessels all suggest that they were either hastily or poorly made and fired in various locations and contained chicha-like drink and stew-like substance containing maize, chili pepper, and/or certain kind of root crop. Because of poor firing, they were not able to hold liquids of any sort for a long time. The fact that the miniature vessels were fired in various locations suggests that the people who participated in the funeral came from different places. Therefore, it is inferred that people presumably of different social groups coming from different locations made these vessels to symbolically place offerings in the tomb. It is possible that the miniature vessels found in fragments or a complete form at the Great Plaza were also brought in from somewhere else and awaited the food or drink to be served inside them.

7.2.1.3. Variability in form and production quality of BDP vessels. As discussed in Chapter 4, I infer that during the documented food consumptions, the Sicán elites exclusively utilized stylistically Sicán and technologically high-quality vessels, thereby differentiating themselves from the general masses. In this subsection, I focus attention on the BDP Group and detail the morphological and technical features of this group of vessels. The major objective of this subsection is to test the aforementioned hypothesis that the variability in style and production cost of those vessels may reflect the distinctions in sociocultural categories (e.g., social status and cultural affiliation) among the vessel users.

7.2.1.3.1. Molding vs. hand-forming. It has been known that the BDP vessels were mold-made, just as with the fine bottles and jugs (BJ Group) (see Montenegro 1994, 1997; Montenegro and Shimada 1998). If these mold-made bowls, dishes, and plates were indeed produced at a limited number of workshops as hypothesized in Chapter 4, not only a high degree of standardization for overall size, but also a relatively limited number of size variations would be expected (Tschauner 2001:243; also see Arnold and Nieves 1992; Benco 1988; Blackman, et al. 1993; Costin and Hagstrum 1995; London 1991; Longacre, et al. 1988; Longacre 1999; Rice 1991a; Stark 1995). That is to say, the values for the rim diameter and angle of the vessels produced with the same mold are expected to concentrate on a limited number of narrow ranges with minimal deviations, although there may be some measuring errors that will make these ranges wider. Thus, it would be unlikely that the distribution of the values conforms to a normal curve, when shown in a histogram. The histograms of the rim diameters and angles of the BDP vessels during the middle- and late-Middle Sicán Periods are shown in Figure 7.28. The histograms for the rim diameters show a distribution that clearly counters my expectation. Rather than concentrating on disaggregated, narrow size ranges, the values continuously distribute and fit within the normal curve although showing a high peak centering on the mean. On the other hand, the histograms for the rim angles show a distribution of the values closer to my expectation with two peaks that suggest two size ranges. The deviation within each size range, however, is too large to be attributed to measuring errors.

In order to infer the number of possible size variations of molds, I also conducted two-step cluster analyses of the rim diameters and angles during the middle- and late-Middle Sicán Periods (Figure 7.29). Rim diameters were classified into three and two clusters respectively during the middle- and late-Middle Sicán Periods, while rim angles into four and three clusters respectively during the middle- and late-Middle Sicán Periods. Between rim diameters and angles, the numbers and sizes of clusters do not correspond to each other. This also suggests the high variability in size and shape of the BDP Group vessels. How should I interpret the lack of the expected standardization? Does it suggest that not all of the BDP vessels were produced with molds? Were many of them hand-formed by multiple potters?

Our findings are in agreement with Shimada and Wagner's (2007b) data from the multicraft production site of Huaca Sialupe. Their data also show a good range of variability in size and shape of vessel types produced there. At Huaca Sialupe, molds were extensively used; however, their use did not result in standardized sizes and forms. Shimada and Wagner argue that potters working side by side had their own molds that varied in size and shape, even though they were producing the same general form types. In other words, their data serve to counter a widely held assumption of a high degree of correlation between standardization and mold-based production. Our findings may further support their argument. Nonetheless, any definitive conclusion should not be made for our data at this point, since we have no evidence for molds that were used to produce the studied BDP vessels.

7.2.1.3.2. Evidence of crude and careless work. In contrast to the small numbers of size varieties discussed above, the high variability in lip forms and rim thickenings were notable. Even within a single bag containing the pottery fragments excavated from the same stratigraphic layer, various lip forms and rim thickenings were observed (Figure 7.30). Some ethnoarchaeological studies argue that the works of individual potters may be identified by measuring very carefully and accurately morphological features if hand-formed vessels, such as rick/neck form, wall thickness, rim angle, overall vessel proportions, and so forth (Longacre 1991:102–103, 1999:48–49; Arnold 1993:193; Nicholson and Patterson 1992:33; London 1991:193). In keeping with this assertion, the documented variety of lip forms and rim thickenings may suggest many individuals involved in the hand-forming process or many small-scale production sites that involve multiple potters.

However, some complete BDP vessels reveal that the same morphological and technological characteristics may not be consistently observable on the entire lip or rim. Depending on which section of the lip or rim was measured and observed, the interpretations of how the vessel was produced and used may possibly be very different. In other words, the observed section does not necessarily represent the characteristics of the whole vessel. The high variability in lip forms and rip thickenings may rather illuminate the hastiness and/or crudeness of the forming task that does not retain the consistency of production quality. We have other lines of evidence that support this idea.

It has been known that the molding process for the BDP vessels employed only one piece of mold to shape the interior. We have some interesting evidence that may raise the possibility that the BDP vessels were produced with a pair of molds, each to shape the interior or exterior surface. When two pieces of clay mass in the molds were put together, the joint parts had to be tightly bonded, and the gaps needed to be filled and then smoothed. A poor alignment and agglutination of the two should have left grooves or bulges on the vessel lip and/or irregular bumps on the rim. Such grooves were actually observed partially (not on the entire lip) on some complete BDP vessels as well as on the lip top of many sherds. On the fracture cross-sections of those grooved sherds, we also observed a vertical thin line that is most likely the joint surface between the interior and exterior pieces of clay mass. Furthermore, while being washed before measurements and visual examinations, some sherds with and without grooves were split vertically into two, interior and exterior pieces. It was probably due to the poor bonding of the two pieces of clay mass during the molding/forming process.

To give another example of crude and careless work, we observed and documented a series of deformations and morphological irregularities on the BDP fragments, which should have generally been made before the vessels were dried. As shown in Figure 7.31, lip tops were pinched or punched in, sections of ring or annular bases were partially crushed down, and rim walls were significantly ragged. Some sherds of mold-made BDPs show on their exterior rim walls a number of very small gaps left unfilled after the molding process (Figure 7.32). It is likely that clays were not pressed and squeezed tightly enough onto the mold surfaces during the molding process. Moreover, we also observed very poorly fired sherds (Figure 7.33). Some of them were hardly fired and still so soft that we could easily break them into pieces with fingers and nails. The inconsistency of production quality demonstrated in these morphological and technological irregularities appears to suggest the hastiness and/or crudeness of production of this pottery type. Interestingly, other vessel types in BJ and JU Groups did not show such a significant level of morphological and technological irregularities.

7.2.1.3.3. Variability in production cost. In order to explore the variability in production quality, I developed a scale to quantify and compare the workloads required for the pottery production. The workload was calculated for each surface of sherd from the documented morphological and technological features (Table 7.2). Since most of the features are qualitative ones saved as string data (e.g., SURFTREAT_INT/EXT, SLIP_INT/EXT, and DEC_TEC_INT/EXT), they had to be converted into numeric data (Table 7.12). In case of the BDP Group, the vessels are inferred to have been produced by a combination of the six consecutive processes: (1) preparing the paste, (2) forming, (3) swiping or smoothing, (4) slipping, (5) burnishing or polishing, and (6) painting (cf. Montenegro 1997:108). The production cost for each surface was calculated by counting each of the latter five processes as a score and saved as COST_INT and COST_EXT in a scale from 1 to 7. Since sorting the grain size of clay was considered as an additional workload before forming the vessel, the well-sorted paste was counted as a score and added to the sum of COST_INT and COST_EXT. The total cost score was then saved as COST_TOTAL in a scale from 2 to 15. For example, some vessels were left unslipped, unsmoothed, and unpainted after forming process, whereas others were slipped, burnished/polished, and painted. The former are the lowest (Cost = 1; 1 for forming), and the latter are the highest in production cost (Cost = 7; 1 for forming, 1 for slipping, 4 for burnishing/polishing, and 1 for painting). The occurrence of slipping, swiping or smoothing, and painting, and the location and degree of smoothing gave rise to the differences between these vessels of the lowest and the highest production cost.

A two-step cluster analysis of a total of 1,443 sherds based on the total production cost (COST_TOTAL) revealed three clusters – Clusters 1, 2, and 3 (Figure 7.34). The means of the costs are 4.35, 6.46, and 8.99 respectively. The sherds categorized into Cluster 1, which were produced with the lowest cost, account for 36.6% of the total sherds (528 sherds). In terms of style, 99.6% of the Cluster 1 sherds are plainware. The remaining .4% are one SPD sherd and one white-slipped sherd, both with the total production cost of 5. The SPD sherd scored 3 for the unsmoothed interior surface, straight from the mold, with a reddish paint and 2 for the unsmoothed exterior surface with a white slip. The white-slipped sherd scored 3 for the incompletely smoothed interior surface with a white slip and 2 for the unsmoothed exterior surface with a white slip. As Montenegro (1997:108) points out, the interior surface tended to have been better finished. Some BDP vessels had their interior surface well-polished and neatly painted, while the exterior surface was left untouched after forming and thus very rough. It is likely that the priority was placed over the appearance when looking from the above rather than the feel when holding the vessel on the exterior. The Cluster 2 sherds with the medium production cost account for 38.5% of the total sherds (556 sherds), and 98% of them are also plainware. In contrast, the Cluster 3 sherds with the highest production cost are either painted or plainware. They account for 24.9% of the total sherds (359 sherds). The majority of the painted vessels fell into this cluster. In sum, in terms of production quality, the BDP vessels are divided into three groups. Although the smallest group of the highest quality overlaps with the painted vessels (SPD, WHT, and WOR), it is notable that the stylistic distinction between the undecorated plainware and painted BDP vessels roughly correspond to the technological distinctions between them. In other words, the painted vessels are clearly distinguished from the unpainted vessels by their production quality. Taking into account the inferred four social tiers of the Middle Sicán society discussed in Chapter 4 (Table 4.3), the painted vessels categorized into Cluster 3 might have been used by the upper two tiers of the Sicán elites, while the vessels in Clusters 1 and 2 might have been used by the lower two tiers of commoners.

7.2.1.4. <u>Conclusion</u>. The analysis of morphological and technical variability discussed above clarified what types of food vessels were used during the inferred ceremonial feasts. The distributions and frequencies of different vessel forms provided clues to infer what was prepared and consumed when and where. During the middle-Middle Sicán Period, some kind of liquid seems to have been consumed in abundance with relatively small individual dishes and bowls in the EA4. Similar liquid consumptions seem to have occurred in the EA3 during the late-Middle Sicán Period. In the EA5, contrarily, more cooking and consumption of solid food are likely to have occurred (JU

= 62.9%). The study of rim diameters and angles raised the possibility that the BDP Group vessels were produced not only by molding, but also by hand-forming. The morphological variability in lip forms and rim thickenings, which sometimes serve as identifiers of individual potters' works, may suggest that many potters were involved in the vessel production. A series of deformations and morphological irregularities on the lip, rim wall, and base also illuminate that the hand-forming processes by the potters were fairly crude and careless.

The study of the technical features of the BDP Group vessels revealed that the variability in production cost roughly corresponds to the stylistic distinction. The painted vessels (e.g., SPD) are produced with higher cost and better finished particularly on the interior surface. They are distinguished from undecorated plainware vessels with low production cost. A cluster analysis classified the BDP vessels produced with varying costs into three clusters. The plainware vessels belong to the Clusters 1 and 2, while the painted ones to the Cluster 3. I tentatively conclude that these distinctions suggest status differences of the vessel users, namely, between the subordinate Mochica people in the lower two echelons (Clusters 1 and 2) and the Sicán rulers in the upper two echelons (Cluster 3) of the four-tier hierarchy of the Middle Sicán society.

7.2.2. Compositional variations

The vessels used during the documented food consumptions at the Great Plaza are expected to have been regionally[1] produced at a limited number of ceramic workshops affiliated with each of the associated elite lineages. It follows that the production of food vessels on the part of elite sponsors should have reduced compositional variability of the vessels, which represent the differences in paste recipe and thus may suggest those of raw materials and technological choice in the place of production (see Arnold 2005; Arnold, et al. 1991; Arnold, et al. 2000 for cautionary notes). In order to test this hypothesis (Operational Hypothesis 1), the bowls, dishes, and plates used during the food consumptions were studied by a compositional analysis by instrumental neutron activation (INAA) at the Archaeometry Laboratory at the University of Missouri Research Reactor (MURR). I submitted to MURR a total of 225 sample sherds (Appendix D) consisting of 75 pottery sherds from each of the three excavation areas in the Great Plaza – the EAs3, 4 and 5. The analysis was aimed at determining whether or not it provides compositional signatures similar to those given by previous studies of the documented ceramic production sites in the study area.

7.2.2.1. Specimen preparation. Specimen preparation employed the procedures established at MURR (Glascock 1992; Glascock and Neff 2003). First, fragments of about 1cm^2 were removed from each sample sherd and abraded using a silicon carbide burr in order to remove adhering sediments and surface treatments (e.g., slip and paint), thereby reducing the risk of measuring contamination. Specimens were then cleansed with deionized water and dried in the laboratory. Once dried, they were ground into powder in an agate mortar and homogenized for bulk compositional data. An archival portion was taken from each specimen and will be retained at MURR for future research.

From each of the 225 sample sherds, two analytical specimens were prepared. Portions of approximately 150 mg of powder were placed into high-density polyethylene vials used for short irradiations, and 200 mg of powder were encapsulated in high-purity quartz vials for long irradiations. Both vials were sealed under vacuum prior to irradiation. Individual specimen weights were recorded to the nearest 0.01 mg using an analytical balance. Together with these pairs of specimens as “unknowns”, two standard reference or “known” materials of SRM-1633b (Coal Fly Ash) and SRM-688 (Basalt Rock) – distributed and certified by the National Institute of Standards and Technology (NIST) – were similarly prepared, as were quality control samples (e.g., standards treated as unknowns) of SRM-278 (Obsidian Rock) and MURR’s internal check-standard New Ohio Redart Clay.

7.2.2.2. Irradiation and gamma-ray spectroscopy. The procedures used for the irradiation and gamma-ray spectroscopy also followed the protocol established at

MURR Archaeometry Laboratory (Glascock 1992; Glascock and Neff 2003; Neff 2000). Neutron activation analysis of ceramics at MURR, which consists of two irradiations and a total of three gamma counts, constitutes a superset of the procedures used at most other NAA laboratories (Glascock 1992; Glascock and Neff 2003; Neff 2000). As discussed in detail by Glascock (1992), a short irradiation is carried out through the pneumatic tube irradiation system. Specimens in the polyvials were sequentially irradiated, two at a time, for four seconds by a neutron flux of 8×10^{13} n cm^{-2} s^{-1}. The 720-second count yields gamma spectra containing peaks for nine short-lived elements: (1) aluminum (Al), (2) barium (Ba), (3) calcium (Ca), (4) dysprosium (Dy), (5) potassium (K), (6) manganese (Mn), (7) sodium (Na), (8) titanium (Ti), and (9) vanadium (V). The specimens encapsulated in quartz vials were subjected to a 24-hour irradiation at a neutron flux of 5×10^{13} n cm^{-2} s^{-1}. This long irradiation is analogous to the single irradiation utilized at most other laboratories. After the long irradiation, specimens decayed for seven days, and then were counted for 1800 seconds (the "middle count") on a high-resolution germanium detector coupled to an automatic sample changer. The middle count yields determinations of seven medium half-life elements: (1) arsenic (As), (2) lanthanum (La), (3) lutetium (Lu), (4) neodymium (Nd), (5) samarium (Sm), (6) uranium (U), and (7) ytterbium (Yb). After an additional three- or four-week decay, a final count of 8500 seconds was carried out on each specimen. The latter measurement yields the following 17 long half-life elements: (1) cerium (Ce), (2) cobalt (Co), (3) chromium (Cr), (4) cesium (Cs), (5) europium (Eu), (6) iron (Fe), (7) hafnium (Hf), (8) nickel (Ni), (9) rubidium (Rb), (10) antimony (Sb), (11) scandium (Sc), (12) strontium (Sr), (13) tantalum (Ta), (14) terbium (Tb), (15) thorium (Th), (16) zinc (Zn), and (17) zirconium (Zr).

The element concentration data from the three measurements as well as other descriptive and contextual information for the specimens were tabulated in parts per million (ppm)[2] using Microsoft® Office Excel (Table 7.13). Additional copies of these raw data are available in digital format upon request to MURR Archaeometry Laboratory (ATTN: Matthew T. Boulanger and Michael Glascock). Following the Data Management and Sharing Plan of the laboratory (Boulanger and Stoner 2012), the data will be also posted on the Archaeometry Laboratory's data-sharing portal. For the analyses of the raw data, I used the version 8.8b of the MURRAP Statistical Routines home-built at the MURR Archaeometry Laboratory and executed using the GAUSS Run-time module for Windows (Kernel Rev. 8.0.3, build 1012), as well as IBM® SPSS® Statistics Version 20.

7.2.2.3. <u>Results and further analyses</u>. The above analyses produced elemental concentration values for 33 elements. Nickel (Ni) was present, but at or below the detection limits for neutron activation using the procedures currently available. Consequently, it is excluded from the analyses and interpretations that follow.

A principal components analysis (PCA) of all 225 specimens suggests that 90.03% of the cumulative variance in the entire dataset can be explained by 11 components or PCs (Table 7.14). The first PC is loaded positively on U (0.7111) and As (0.6079) and negatively on Sb (-0.0789), while the second PC is loaded positively on Ca (0.6223) and Sr (0.4437) and negatively on As (-0.3833). Figure 7.35 is the biplot of the first two of the 11 PCs that account for a total of 48.2% of the cumulative variance. The length of vector arrows within the biplot represents the power of influence of the elements measured. The concentration of the plotted points is pulled out by a few long vector arrows primarily in two directions (Ca/Sr and U/As). This particular distribution of the points is similarly pronounced by the biplot of U and Ca (Figure 7.36). The biplot illuminates two clusters of points besides the main concentration of points circled by the ellipse drawn with a 90% confidence interval, which suggests that there may be at least three clusters in the dataset. In what follows below, this preliminary interpretation is tested by comparing it with the results of hierarchical cluster analysis and by calculating the Mahalanobis distance and group membership probability for each specimen. However, it is important to note that the above three clusters may be the product of the existence of some outliers within the dataset. Before further analyses, therefore, those outliers need to be eliminated from the dataset.

7.2.2.3.1. Elimination of outliers. In order to get a general idea of how I could define outliers in the dataset, I utilized SPSS® and created boxplots of the measurements for the 32 studied elements. In 29 out of the 32 boxplots created, "outliers" were singled out (Figure 7.37). If all of the 225 measurements for each element are normally distributed, 50% of them should lie within the blue box and approximately 95% should fall between the inner fences or whiskers. The circles and asterisks (or stars) represent respectively outliers and extreme outliers (with a value more than three times the height of the box). However, it is unknown whether the measurements are normally distributed, or how many clusters might be included in the dataset. These determinations of outliers therefore should not be taken at face value, but rather used as a reference. The final decision of what is considered as an outlier should probably be made by examining *how often* a measurement was determined as an outlier. For instance, the specimen GMP225 was singled out as an outlier for its measurements of as many as 14 elements (*Ca*, *Ce*, Eu, *Hf*, La, Lu, *Nd*, Rb, *Sm*, Sr, *Ta*, Ti, Yb, and *Zr* [extreme outliers in italic]), while GMP084 for 12 elements (Ce, Fe, Hf, La, Lu, Sc, Ta, *Th*, *Ti*, *V*, *Yb*, and Zr [extreme outliers in italic]). Table 7.15 lists 10 specimens that were most frequently determined as outliers. For the moment, I consider the first four specimens (GMP225, 084, 224, and 007) as outliers and segregate them from the main body of the dataset for the further analyses that are discussed below.

The PCA of the remaining 221 specimens devoid of the four outliers suggests that 91.32% of the cumulative variance can be explained by 12 components (Table 7.16). The first two PCs are plotted in Figure 7.38. The eliminated outliers are also superimposed over the biplot and displayed in red. Note that the elimination of the four outliers does not affect the aforementioned distributions of the possible two clusters of specimens higher respectively in Ca/Sr and U/As (Figure 7.39), but rather provides a greater explanatory power to the PCs (from 48.22% to 49.74% of the cumulative variance explained).

7.2.2.3.2. Hierarchical cluster analysis. I then conducted an average linkage cluster analysis based on mean Euclidean distances, using the hierarchical cluster analysis function of MURRAP. This analytical function illuminates the nested structure of clusters that possibly exists within the sample collection and provides the results in the form of dendrogram. Figure 7.40 shows the clusters found in the assemblage of 225 specimens including four outliers (GMP007, 084, 224, and 225). The four outliers, together with GMP030, are calculated to be most distinct and distant from other specimens. GMP030, which was segregated in the boxplots as an outlier three times for the measurements of Nd, Hf, and Zr, is now also added to the group of outliers. The remaining 220 specimens are classified into 12 groups (Clusters 1 to 12), based on their measurements of 32 elements and/or their positions within the dendrogram. The aforementioned two clusters of specimens high respectively in Ca/Sr and U/As are clearly recognized as such in the dendrogram. It appears that they can be defined as two distinct compositional groups. Here I label them as *Sicán BDP (Bowls, Dishes, and Plates) Groups* 1 and 2. Fourteen specimens are classified into the Ca/Sr-high *Group* 1 and ten specimens into U/As-high *Group* 2. The first two components from PCA of the 220 specimens devoid of five outliers are plotted in Figure 7.41 (also see Table 7.17), and the biplot of U and Ca is shown in Figure 7.42.

In order to better understand and characterize the convergence of Clusters 1 to 10, I implemented another PCA of the assemblage of 196 specimens that belong to Clusters 1 to 10 (Table 7.18). The first PC is loaded positively on As (0.7681) and U (0.5425), while the second PC is loaded negatively on Sr (-0.4362), Ca (-0.2615), U (-0.2473), and Zr (-0.2024). The strong influence of Sr is attributed to the extremely high measurements of GMP147 (511.79) and GMP114 (359.87) in Cluster 1 as well as GMP217 (373.26) in Cluster 5. As Figure 7.43 illustrates, high rates of As and U are still evident among some clusters even without *Sicán BDP Group* 2 in the assemblage. It is particularly prominent in Clusters 5 and 6, the distributions of which are slightly detached from the dense concentration of other clusters in the biplot of As and U (Figure 7.44). The Cluster 6 specimens are also rich in Sr, Zr, and Na, which makes this cluster stand out. In terms of the rate of As and U, Cluster 7 is intermediate between Clusters 5 and 6, and everything else. The Cluster 7 specimens are also characterized by high rates of Mn, Na, and some rare earth elements (REEs) such as Nd and Lu. In contrast to these As/U-high clusters, Clusters 2, 4, and 8 are characterized by high rates of Ca, K, Zn, Hf, and/or REEs. Cluster 2 contains more K and Zn, while Cluster 4 contains more Ca. Cluster 8 is distinct in that it contains Sb, Co, and many REEs (Sc, La, Ce, Nd, Sm, Eu, Tb Dy, and Yb). Unlike the specimens in the clusters mentioned above, those in Clusters 3 and 9 are plotted evenly around the origin of the vector arrows (Figure 7.43). These clusters are most difficult to characterize.

The abundance of As and U in Clusters 5 to 7 is quite obvious. However, compared to the clearly isolated *Sicán BDP Group* 1, the spatial distributions of these clusters in biplots are more continuous and gradually tied into the concentration of other clusters, rather than showing disjunctions among them and from other clusters (Figure 7.45). It appears to be difficult to isolate and define Clusters 5 to 7 as separate compositional group(s). For the same reason, Clusters 2, 4, and 8 that are overlapping each other in biplots are also difficult to isolate. In sum, since no clear separation is recognized in the spatial distributions of Clusters 1 to 10, all the clusters are put together into one large compositional group (*Sicán BDP Group* 3) at this point.

7.2.2.3.3. Mahalanobis distances and group membership probabilities. The broad classification of three compositional groups discussed so far – *Sicán BDP Groups* 1, 2, and 3 – was then tested by means of the Group Membership Probabilities function of

MURRAP. Considering these three groups as "known" reference groups, the 220 specimens devoid of five outliers were retreated as "unknowns" and reclassified into the three groups using Mahalanobis distances. The calculations of group membership probabilities were based on the first eight components from the principal components analysis, which account for 83.6% of the cumulative variance in the assemblage of the studied 220 specimens (See Table 7.17). The calculated membership probabilities and the best group for each specimen are listed in Table 7.19. Figure 7.46 shows the best groups examined by the group membership probabilities. Many specimens formerly categorized as either of Clusters 1 to 10 are now reclassified as either *Sicán BDP Group* 1 or 2. Particularly, those in Clusters 5 and 6, which are high in U, are reclassified into Compositional Group 2. These results support the above-mentioned idea that the distributions of Clusters 5 to 7 are so continuous that it is difficult to spatially separate them very clearly (Figure 7.45). As I finalized the definition of the compositional groups, I selected only 122 specimens that showed more than 60% of membership probability for any of the three Compositional Groups (Table 7.19) and conducted another PCA with them (Table 7.20). The remaining 98 specimens with less than 60% of group membership probability were left unassigned and put aside for the moment. The biplots of the first two components from the PCA and of the two most prominent elements, U and Ca, are shown in Figures 7.47 and 7.48. Figure 7.49 show the nested structure of the 122 specimens belonging to the three *Sicán BDP Groups*. The three groups are now more clearly isolated from each other.

Lastly, I examined possible correlations between the defined compositional groups and other archaeological descriptive information such as provenience and pottery type. Figures 7.50a and b show the biplots of 122 specimens sorted respectively by provenience (EAs 3 to 5) and by pottery type (SPD and Plainware). It is likely that there is no correlation between the compositional groups and provenience. Each of the three *Sicán BDP Groups* contains the specimens from all three excavation areas. On the other hand, SPDs are found only in the *Sicán BDP Groups* 1 and 3. The same distribution pattern is observed when plotting the entire dataset including those specimens left unassigned and the five outliers eliminated early on (Figure 7.51).

7.2.2.3.4. <u>A comparison with the results of previous studies</u>. Now that I tracked down and defined three *Sicán BDP Groups* in the pottery samples from the Great Plaza, I return to my original question of whether or not these compositional groups are similar to those given by previous studies of the documented ceramic production sites in the study area. The most relevant dataset that has been published thus far is Shimada et al.'s (2003) study by NAA of 194 pottery samples from Huaca Loro West Tomb and Huaca Sialupe. Their study revealed that the funerary vessels excavated from the West Tomb (ca. 50 m west from the Great Plaza) were produced at Huaca Sialupe. However, due to the lack of standard samples shared between MURR and the laboratory of the Department of Physics at Technical University of München (TUM) in Germany, an appropriate comparison of the results from these laboratories turned out to be currently impossible. The time constraints for my dissertation research does not allow me to wait for the completion of another round of sample shipping, specimen preparation, irradiation, and gamma-ray spectroscopy. The two laboratories are still in the process of exchanging and sharing some standards (e.g., GSP-1 certified by National Institute for Standards and Technology [NIST], MAN [Manchester Podmore Clay], and New Ohio Redart Clay). A comparative study will surely be feasible and published in the near future, but will take a while. Unfortunately, therefore, the only dataset from the same area readily available at MURR is 40 pottery samples found associated with formative kilns at the Poma Canal (Kiln Clusters 1 and 2) (Shimada, et al. 1998).

The Poma Canal is a modern-day canal running north to south through the middle of the site of Sicán (within the Pómac Forest National Historical Sanctuary). It was machine-excavated in 1978 by Peru's Ministry of Agriculture to take the water from the Pacora River to the Túcume Canal (Shimada, et al. 1998:27-28). Its poor construction in unconsolidated floor deposits, however, did not allow a stable water passage. After the enormous 1983 ENSO rains that destroyed the canal beyond the repair, the canal was eventually abandoned with its north intake sealed off. This abandoned canal measuring ca. 4.7 km long and 3-5 m deep unexpectedly served as a long trench for archaeological observations during Shimada's 1984 inspection. During his excavation in 1989, a total of 57 kilns were partially or fully exposed in a 500-m-section of the canal located ca. 3 km northeast from the Great Plaza. He also revealed that the kilns occurred in tight clusters every 4-5 m and were superimposed in at least four distinct stratigraphic positions with the three oldest levels dating to ca. 500-1200 BC (Shimada, et al. 1998:32). These stratigraphic layers coincide with flat and extensive clay-rich slack floor deposits, which should have provided readily exploitable clay beds for constructing kilns and making pottery (Craig and Shimada 1986). Shimada's excavation shed light on the technological and organizational aspects of Cupisnique-style ceramic production during the formative era in the study area.

Neff and Glascock analyzed by neutron activation 40 pottery sherds found associated with Kiln Clusters 1 and 2 and defined three compositional groups, *Kiln Groups* 1 to 3 (Shimada, et al. 1998:50-54). Out of 40 specimens, 17 were classified into *Kiln Group* 1, another 17 into *Group* 2, and 6 into *Group* 3. Figure 7.52a plots the 40 specimens relative to the first two components of the PCA, while Figure 7.52b illuminates the nested structure within the sample assemblage. They concluded that *Kiln Group* 3 is best regarded as a subset of *Group* 1, because the two groups are indistinguishable on some of the elements that separate *Groups* 1 and 2 (e.g., Hf, Zr, La, and Ce) (Figure 7.53a and b). Based on the distinction between *Kiln Groups* 1/3 and 2, Neff and Glascock (1990:18) suggest that there are two basic resource procurement patterns at compositionally distinct clay pits, one which gave rise to *Kiln Groups* 1 and 3, another which gave rise to *Group* 2.

For a comparison purpose, I conducted a PCA and a hierarchical cluster analysis with the combined assemblage of 162 specimens from the Poma Canal (n = 40) and the Great Plaza (n = 122). Each of the six compositional groups from two different archaeological contexts was clearly distinct from each other both in the biplot of the first two components of the PCA (Figure 7.54 and Table 7.21) and in the dendrogram showing the nested structure of the assemblage (Figure 7.55). In contrast to the *Kiln Groups* that are all characterized by the predominance of Mn, Sr, Ba, and Co, the three *Sicán BDP Groups* are much higher respectively in Ca, U/As, and many REEs (e.g., La, Nd, Sm, Tb, and Dy). In bivariate plots, the *Sicán BDP Groups* are most clearly distinguished from the *Kiln Groups* on feldspar-related elements such as K, Na, and Ca (Figure 7.56). These results suggest that the food vessels from the Great Plaza were compositionally distinct from the Cupisnique ceramics from the Poma Canal.

7.2.2.4. <u>Discussions and conclusion</u>. What factor(s) contributed to the high concentrations of particular elements, which made the *Sicán BDP Groups* distinct? The principal element that defined the *Group* 1 was Ca. The Ca values within the *Group* 1 range from 27,370 (GMP160) to 43,770 (GMP086) ppm (mean = 37,560 ppm), as opposed to the twice lower rates in the three *Kiln Groups* ranging from 9,500 to 18,230 ppm (mean

= 14,710 ppm). Although the documented Ca rate is prominent, 3.7% Ca is not in the range of limestone-, calcite-, dolomite-, and/or shell-tempered pottery – where the range is oftentimes 5% or higher (Boulanger 2014, personal communication). It is unlikely that the documented Ca rate is attributed to Ca-related inclusions added as temper. Killick (1990), on the other hand, argues that the sherds from the study area could be "self-tempered," that is, inclusions are naturally involved, not added by the potters. Montenegro (1997:91) points out that this might well be the case of his *Paste Groups* 1 and 3, and perhaps 2 as well. Based on his visual examinations and petrographic analysis of a large number of the BDP vessels excavated at the Great Plaza (SPD and Plainware) and some additional site in the adjacent Zaña and Jequetepeque Valleys (CCV), Montenegro (1997:81-87) identified and defined 11 paste groups of various inclusions (*Paste Groups* 1 through 11; see Figure 7.57). He observed in his sample sherds a series of calcium carbonate ($CaCO_3$) minerals and rocks such as calcite, limestone, and oolite (sedimentary rock formed from ooids), dolomite ($CaMg(CO_3)_2$), and calcined bone. I suspect that the use of "self-tempered" clay rich in these Ca-related materials may be a major factor of the high Ca rate in the *Sicán BDP Group* 1 sherds. Furthermore, the *Sicán BDP Groups* are also higher in Na and slightly in K, compared to the *Kiln Groups* from the Poma Canal (Figure 7.56). This may suggest that feldspar and/or mica best characterized by these elements are also included. Montenegro observed mica in *Paste Groups* 1, 7, and 10, but both mica and feldspar only in the *Group*

7 (Figure 7.57). It is important to note here that the majority of the SPD and Plainware sherds from the Great Plaza fell into either of the *Group* 1, 2, or 3, while the *Groups* 7 through 11 inclusions were recorded only in the non-regional CCV sherds. If the paste of the *Sicán BDP Group* 1 sherds is classified into either of the *Paste Groups* 7 to 11, it will raise the possibility that the *Sicán BDP Group* 1 sherds are non-regional (i.e., outside the regional production sphere centering on Huaca Sialupe within the same river valley). On the other hand, however, it is also notable that the compositional characteristics of the *Sicán BDP Group* 1 sherds other than calcium are fairly similar to those of the *Kiln Group* 2 sherds from the Poma Canal. When plotting these two groups *with calcium excluded* in bivariate plots, they almost always overlap each other. In order to test the above working hypothesis, a petrographic analysis of the *Sicán BDP Group* 1 sherds is essential.

The *Sicán BDP Group* 2 sherds are quite distinct in their high rates of U and As. The U values range from 4.0 (GMP162) to 22.41 (GMP110) ppm (mean = 11.62), whereas the As values range from 24.3 (GMP077) to 72.3 (GMP174) ppm (mean = 41.06). Both U and As are naturally occurring elements. Soils normally contain < 5 ppm of U and 1-10 ppm of As. Although high U in ceramics is generally attributed to glaze, none of the ceramic assemblages, from which the studied specimens were taken, is decorated with glaze. The high rate of U in the *Sicán BDP Group* 2 sherds seems to require further research to account for. Regarding the As rate, the *Kiln Groups* contain 11.0-26.5 ppm, which is slightly higher than the normal range. A higher content rate of As in the soils of Peru may not be surprising, if we consider the fact that the country was the world's third largest producer of arsenic compounds, as of 2003. Nevertheless, the high rate of As in the *Sicán BDP Group* 2 sherds may be explained by the multi-craft setting of Middle Sicán craft workshops. Interdisciplinary collaborative research efforts by Shimada and his colleagues have revealed that Huaca Sialupe in the Lower Lambayeque Valley was a multi-craft workshop during the Middle Sicán Period where ceramic and metal productions took place side by side (Shimada and Wagner 2001, 2007a, 2007b). The southernmost and highest area of this multi-craft workshop (Mound II) was reserved for metalworking. Clusters of elaborate furnaces[3] in the area were utilized for smithing of copper-arsenic alloys (or arsenical bronze) and gold alloys. I suspect that some arsenic for the production of arsenical bronze at the metalworking area of a site like Huaca Sialupe was somehow incorporated in the clay and/or temper for pottery production at the adjacent ceramic workshop of the same site. It is possible that the *Sicán BDP Group* 2 ceramics were produced at such a multi-craft production site, or perhaps Huaca Sialupe. In order to clarify the details of production environment, another petrographic analysis of *Sicán BDP Group* 2 sherds as well as the comparison with Shimada et al.'s (2003) samples from Huaca Sialupe are essential.

In conclusion, 122 out of the 225 specimens were classified into three compositional groups (*Sicán BDP Groups* 1 to 3), and the remaining 103 were either eliminated as outliers or left unassigned this time. This limited number of compositional signatures supports my hypothesis that the food vessels were regionally produced at a limited number of workshops affiliated with each of the associated elite lineages (e.g., funerary vessels in the Huaca Loro West Tomb produced at Huaca Sialupe); however, the thorough verification of the hypothesis awaits the sharing and subsequent analysis of standards between MURR and the TUM and the comparative study with Shimada's samples from Huaca Sialupe. Tentatively, I suspect that the *Groups* 2 and 3 sherds were produced at the multi-craft workshop of Huaca Sialupe, while the *Group* 1 sherds were produced and brought from the "outside" (i.e., CCVs from the adjacent Zaña or Jequetepeque Valley). We should not preclude the possibility, however, that there are additional workshops within the Lambayeque region during the Middle Sicán Period. For example, Based on his excavation of the Chimú ceramic workshop at Pampa de los Burros, Tschauner (2001) argues that the workshop was also operational during the Middle Sicán Period. It is also important to note that the possibly foreign, Ca-rich Sicán BDP Group 1 sherds increased from the middle- to late-Middle Sicán Periods (from five to nine sherds).

7.2.3. Variations in *paleteada* design motifs

During the morphological and technological analyses of the food vessels discussed earlier in this chapter, I had an impression that the same *paleteada* designs were found in clusters, and their clustered distributions did not cross the boundaries of excavation areas. In order to verify this impression, I took ink impressions from *paleteada* sherds, reconstructed original designs from fragmentary ink images, and studied their spatial distributions.

7.2.3.1. Background information. *Paleteada* is a utility pottery type for cooking and storage, produced with decorated paddles and known archaeologically and historically. It first appeared in the Lambayeque area during the post-Moche V (AD 800-850) or the Early Sicán Period (AD 850-950) and has persisted to the present day (Lanning 1963; Day 1971; Cleland and Shimada 1998). Ancient *paleteada* was widespread from the Pariñas to the Jequetepeque Valley. Ethnoarchaeological studies emphasize the vast continuity of production techniques and labor organization (e.g., Collier 1967; Shimada 1976, 1994b; Bankes 1985). The pottery production has been supported by self-supporting potting households as part-time tasks articulated with agriculture and fishery, rather than full-time tasks (Cleland and Shimada 1998; Tschauner 2001). *Paleteada* vessels usually take the form of either (1) rounded jars with incurving rims most probably for cooking, (2) small jars with outflaring rims, or (3) neckless urns that are finished with a simple lip (Cleland and Shimada 1998:135). They are produced by the base-mold technique to form their base and by the paddle-and-anvil technique that forms and decorates the upper portion of the vessels. What distinguishes this pottery type from other preexisting types produced by the paddle-and-anvil technique (e.g., those during the Early Horizon) is the use of *decorated* paddles. The relief deigns on the paddle are stamped on the exterior wall of vessel during the paddling process. During the prehispanic times, the paddle-and-anvil technique was predominant to the north, as opposed to the press-mold production technique to the south (Lothrop 1948; Kroeber 1925; Lanning 1963; Kroeber and Muelle 1942). The technological and stylistic continuity of this pottery type for hundreds of years has allowed archaeologists to apply direct historical analogy and led them to carry out ethnographic research in modern-day workshops for ethnoarchaeological implications.

The prehispanic distributions of *paleteada* vessels had been known widely on the northern coastal areas early on (e.g., Kroeber 1925; Kroeber and Muelle 1942; Lothrop 1948). Nonetheless, they had not received so much attention in archaeological research. One of the major reasons would probably be that the noted continuity made it difficult for archaeologists to establish and develop a solid chronology for this pottery type. In general, ceramic type without chronological control does not prove its merits for archaeological purposes. However, a major breakthrough came in, when Shimada and his colleagues searched into various relief designs stamped with paddles primarily on the vessel shoulder and pointed to their availability as chronological markers (Cleland and Shimada 1998; Shimada 1990). Based on the samples from the sites in and around the Middle Sicán capital in the mid-La Leche Valley, they categorized the paddled design motifs into three groups: (1) logographic (Class L), (2) large-geometric (Class L-G), and (3) geometric (Class G) (Kroeber and Muelle 1942 for other typologies; also see Ishida 1960). Logographic motifs are defined as "representations of themes or objects that relate directly to Sicán ideology and reflect beliefs, symbols, valued objects, and sociopolitical offices in material remains of ceremonial activities" (Cleland and Shimada 1998:130), whereas geometric motifs (both Classes L-G and G) refer to abstract elements curvilinear or quadrilinear in form. Shimada's excavation at HPBG revealed that the logographic designs are found only in the Middle Sicán contexts, while the geometric ones are predominant and become smaller during the later periods. The analysis of the stamped designs discussed below not only tests their role as the chronological marker, but also explores their function in the sociopolitical contexts. As a part of the broader stylistic and compositional analyses of the same ceramic assemblage discussed in the previous sections, the study explores the relationships among the vessel producers and users and sheds light on the use of activity area within the plaza.

7.2.3.2. <u>Data collection and analysis</u>. For data collection, I employed a traditional ink impression technique that has been used among numismatists and archaeologists in the East Asia. This technique was chosen because it helped to significantly uprate time efficiency, compared to drawing stamped designs sherd by sherd. What distinguishes the technique is to use extremely thin papers specially prepared in China (less than

30μm [or 0.03 mm] in thickness). Thinner papers allow one to copy more precisely subtle reliefs on the paddled surface. In addition to the Chinese thin papers, the technique requires: (1) a cup of water, (2) a piece of sponge, (3) oil-based Chinese black ink, (4) cotton-stuffed bags (a few different in size), and (5) dermatograph (Figure 7.58). With the help of two of my archaeology volunteers, Fukutaro Kudo and Rie Maruyama, I took ink impressions of a total of 1,046 *paleteada* sherds from the EAs3 to 6. Due to time constraints, the arguments below focus on the 865 sherds from the first three areas that pertain to either the middle- or late-Middle Sicán Period (AD 1000-1100). Step-by-step procedures that we followed are inserted in Appendix E.

The studied *paleteada* sherds are parts of food vessels used most probably for cooking and storage vessels in JU Group. They are very fragmentary, and so were the rubbed ink images. Hardly any of the images showed the full picture of the paddled design that was carved on the paddle (Figure 7.59). The original designs therefore had to be reconstructed from the fragmentary images. The basic principle of reconstruction was quite the same as dactyloscopy or fingerprint identification. The reconstructed design motifs were then categorized into groups. When defining a motif group, it had to be kept in mind that there should be a certain range of variability made by the same paddle (e.g., subtle differences in line width, interval, and curvature), which resulted from the manner and angles of paddle impacts and the plasticity of the paddled surface.

Nonetheless, there are indeed some differences that help to distinguish one design motif from another (e.g., overall motif size and organization) (Figure 7.60).

7.2.3.3. Results and interpretations. Out of 865 *paleteada* sherds, 657 sherds (76%) were classified into 127 design motifs belonging to either of the three classes (L, L-G, and G) (Figure 7.61). The 127 motifs were classified into 28 motif groups and put in a chronological order. Tables 7.22 to 7.25 show the frequencies of each motif subgroup in different time periods: (1) Before MMS (middle-Middle Sicán), (2) MMS, (3) LMS (late-middle Sicán), and (4) after LMS.

The results provide some interesting facts that deserve attention. First, the documented higher frequency of the Class L motifs during the first two periods above and the gradual decline through time conform to the aforementioned tendency revealed by Shimada that the geometric motifs became predominant and smaller (Table 7.22). It is likely that the geometric motifs became not only smaller, but also further stylized and simplified. For example, the Class L-G Wave motif (or a stylized representation of wave in the form of R) was first drawn larger in a defined rectangle space, but then more simplified during the middle-Middle Sicán Period. During the late-Middle Sicán Period, the number of "thorns" or crests of the waves was reduced, and the form of R was no longer retained (Figure 7.60).

Second, the number and spatial distribution of the Class L motifs are limited. They were recovered only from the EAs4 and 5. The majority came from the EA4 (Figure 7.62). Given that the ideologically charged symbols of Class L are stamped on the humblest group of vessels, Cleland and Shimada (1998:132-133) point to the possibility that large Class L *paleteada* vessels – mainly large ones known as *tinajas* or *porrones* – were used for the preparation of food and drink prior to offering them in smaller vessels in ritual contexts. Advocating this idea, I argue that the abundance of Class L motifs in the EAs4 and 5, especially those related directly to Sicán ideology and religious beliefs, suggests the preparations of ceremonial food and drink and the involvement of the Sicán elites during the consumptions in the area very close to Huaca Loro and associated tombs and burials (e.g., ritual libations). In the same light, the abundance of geometric motifs and the inverse scarcity of the Class L motifs in the EA5 may represent more mundane food practices and support my initial impression that food and drink were prepared for and consumed by the artisans working in the metal workshop. It is important to note that the number of the JU Group vessels in the EA5 is about half as large as that in the EA4 (Table 7.5), but the number of identified *paleteada* motifs in the EA5 is inversely 1.5 times that in the EA4 (Table 7.26).

Third, *paleteada* sherds were significantly scarce in the EA3 (Figure 7.62 and Tables 7.27 to 7.29). Inversely, the aforementioned morphological analysis of the same ceramic assemblage revealed that the BDP vessels for serving and consuming were predominant in this area. These differences in frequency strongly suggest more consumption activities in the EA3 during the late-Middle Sicán Period. As Figure 7.62 illustrates, furthermore, the majority of the identified motifs in the EA3 fall into the Class G Waves subgroups (C, D, AA, AB, and AD). Given that similar R-shaped Waves motifs were found largely in the EA4 (except for only one subgroup in the EA5), the EA3 motifs may have a closer relationship with those in the EA4, rather than the EA5 (See Figure 7.60).

Fifth, such geometric motifs as Concentric Circles, Waves, Spirals, and Zigzags have various subgroups that are subtly different in overall motif size and minor configurations of composing elements. Such variability is particularly pronounced among the Concentric Circles subgroups in the EA5 (Figure 7.62). Based on the lack of uniformity in rim form, Cleland and Shimada (1998:135) suggest that the production of this type of pottery was out of state control and individual potters were free to decide vessel forms. The documented variability in stamped designs on the same pottery type seems to support their assertion. Taking into account the morphological and technical variability of the BDP vessels, it is likely that the Middle Sicán pottery production in general was neither centralized nor strictly controlled by the Sicán elites, but handled perhaps at the household level. Shimada and Wagner (2007b) argue that artisans working at Huaca Sialupe had a good deal of technical and artistic autonomy and that there were no readily identifiable indications of on-site supervision.

This analysis was implemented to verify my impression that the same or similar motifs were found in clusters, and their clustered distributions did not cross the boundaries of excavation areas. The results appear to support my impression (Figure 7.62). For instance, the Class G Rhombuses, Lattice, Zigzags, Serrated Lines, and both Circular and Rectangular Spirals motifs were found exclusively in the EA5. Although some subgroups of the same motif group were very similar in design layout, they could be clearly differentiated (Figure 7.60). The Class L-G Three Concentric Circles motif group involves 17 subgroups (A-Q) that are distinguished from each other in terms of their overall size, line width, line interval, and composing design elements. One out of the 17 subgroups (H) was found in the EA4, and the remaining in the EA5 (see Table 7.28). These distinct subgroups were never found across the area boundaries.

7.2.3.4. <u>Discussions and conclusion</u>. Although the EAs4 and 5 are just 5.4 m apart from each other, *paleteada* motifs showed a very clear pattern of clustering. This patterned distribution of motifs stamped on the cooking and storage vessels suggests the congregation of the people who produced and/or used the vessels. Incidentally, it may be relevant to note that during the excavations in 2006 and 2008 we observed very similar clusters of local workers who came from the same family sat together and shared the same food and drink during the lunchtime. From his field experience over 30 years in the study area, Shimada (2009:81) looks back and points out that things always went better and more efficiently if the local workers were organized in terms of their blood relations. In the prehispanic times, the metal workers might have similarly clustered and consumed their meals while at work in their workshop in the EA5.

Can we expect one-to-one association between design motifs and vessel producers/users? Kosok (1965:167) illustrated a clay paddle that was found from Huaca Colorada bordering the north edge of the Great Plaza and has two designs on each side, four in total (also see Figure 7.13). The two designs on each may have been stamped on the same *paleteada* jars and urns. In fact, one *paleteada* sherd (CE289-29) excavated from the EA5 seems to have two different designs on it (Class L-G Circular Spiral and Class G Waves). Shimada (2014, Personal Communication) has witnessed, however, a Morrope potter decorating his flower pots with a decorated paddle with multiple designs. He points out that the potter clearly differentiated different designs so that no more than one design was used on one type of vessel. Given the scarcity of sherds that have two designs (n = 1), it is more probable that ancient potters also had a set of different designs on their paddles to choose from and clearly differentiated them knowing which design to be used for which vessel.

Based on the stylistic variability in *paleteada* design motifs and their patterned distributions discussed above, I argue that those motifs served as an identification mark like emblem or insignia, the similarity and difference of which may be considered as the proximity and remoteness of the shared group identities of the vessel producers and/or users. They might have been similar in function to the markings on adobe bricks used for building public architectures from the Early Intermediate Period to the Late Horizon on the North Coast. The size of the studied sample (127 motifs identified on 657 *paleteada* sherds from three excavation areas) may receive criticism that it is too small to discuss such a patterned distribution. Although the time constraints did not allow me to analyze the samples from another excavation area, the EA6, where food preparation and consumption were also documented, it is already known that there are some motifs that are unique and different from those in other excavation areas (Appendix F). Especially the Sicán Lord motif, which has been found thus far only within the sacred precinct of the capital (Shimada 2013, personal communication), is of particular importance. The amplification of sample size is one of my future tasks.

7.3. Analyses of food remains

This section discusses the results of analyses of food remains that were aimed at addressing the aforementioned questions of (1) *what* was prepared and consumed and (2) *how* they were prepared and consumed at the Great Plaza. The studied samples include the bones and teeth of terrestrial and marine animals and macro and microbotanical remains such as seeds, pollens, and starch grains. The zooarchaeological and paleoethnobotanical analyses of the two groups of remains are discussed in separate subsections below.

7.3.1. Zooarchaeological remains

Zooarchaeological remains were studied by Nicolas Goepfert (Le Centre National de la Recherche Scientifique) and Elberth Edevaly Puse-Fernández (Sicán National Museum).

7.3.1.1. Terrestrial fauna. The excavations in 2006 and 2008 provided some findings that seemingly support the Operational Hypothesis 3. Sets of crania and limb extremities were found interred with the dead in the tombs and burials, while the remaining body parts were found around the hearths at the Great Plaza. The possibility that the camelid meats from the same animals were shared among the dead and the living was planned to be fully examined by a zooarchaeological analysis of camelid bones and teeth[4]. This analysis was designed to examine the symbolic connection between the food consumptions under study and the acts of remembering and caring the ancestors. It required (1) the taxonomic identification, (2) the determination of age, sex, and body region of each remain, and (3) the comparison of those variables between the two groups of specimens, one from the tombs and burials and the other from the plaza area. If the hypothesis holds, the relative proportions of age and sex should show a strong resemblance between the two groups, and the identified body parts or regions should be, if not completely, mutually exclusive between the two groups. The contrary results will raise another possibility that the camelid meats for offerings to the dead and those consumed by the living were chosen from different sources by different food rules. This analysis could have provided new data, based on which we could more confidently argue about the whereabouts of the camelid bodies after they had their crania and limb extremities removed. It also could have shed light on why certain parts of the body were selected for the offerings.

7.3.1.1.1. Revised plan and procedures. A total of 227 bags of sample remains (Table 7.30) were studied by the zooarchaeologist Nicolas Goepfert with his assistants at the private laboratory of the archaeologists Segundo Vásquez and Belkys Gutiérrez in Trujillo. Due to the aforementioned artifact/ecofact management problem at the museum (see endnote), however, it turned out that the analysis could not be implemented, as it was designed. Consequently, I made some changes to the original plan by simplifying it. First, the taxonomic identification and the determination of body region were conducted as planned, but the determination of age and sex was relinquished. Then, the identified body regions between the specimens from the West Cemetery and the Great Plaza were compared. In what follows, I basically discuss the results of this comparison. In addition, within the sample were included some other taxa besides camelids. Thus, I also list and describe those taxa.

7.3.1.1.2. Llamas (*Lama glama*). Andean camelids are divided into two genera, *Lama* and *Vicugna*. The former include guanacos (*L. guanicoe*) and llamas (*L. glama*), while the latter include vicuñas (*V. vicugna*) and alpacas (*V. pacos*). Guanacos are parent species of the domesticated llamas. All of the camelid remains analyzed for the current study belong to the genus *Lama*, most probably *L. glama*.

In 15 out of 34[5] tombs and burials excavated under and around Huaca Loro in 2006 and 2008 were found llama bones. The majority of the anatomical parts of those llama bodies were either a cranium and/or limb extremities, more specifically, sets of phalanges oftentimes accompanied by metacarpal/tarsal and additional carpal/tarsal bones (Table 7.31; Figures 7.63 and 7.64). The determination of the remains missing in the repository was based on the field examinations of the original remains as well as the fieldnotes and photographs taken during the excavations. Most of the bones analyzed in the laboratory did not have any cut mark or pathological feature on them. Figure 7.65 illustrates the anatomical body parts excavated from the South Niche of Tomb 1 in the SAP-HL'06T-1 (the only case in which all of the excavated remains could be located in the museum repository). Andean camelids do not have hooves like horses, cattle, sheep, or goats. Each foot has two toes of digits that have a toenail and pad. Each toe consists of three phalanges as with humans' fingers and toes. The proximal of the first phalanx meets the metacarpal/tarsal at the fetlock joint. Thus, the toe bones recovered from tombs and burials usually appear in pairs (of three phalanges) (Figure 7.64).

Although almost all of the toe bones excavated from the tombs and burials were found articulated, only one exception occurred in the Burial 4 in the SAP-HL'06-T1. Besides sets of articulated phalanges, a concentration of fragmented limb bones (tibia?) was recovered. The fragments had grooves and perforations (Figure 7.66). The location and orientation of the grooves and the interval of the perforations are quite similar to those of the two flutes (made of llama tibias) excavated from the Northeast Tomb 1 in the SAP-HL'08-E A4. The weathered sections of the cracked bones suggest that they had already been fragmented before the interment. It is most likely that they are the fragments of flutes failed during the production process.

Unlike all other tombs and burials containing llama bones, there was only one burial that contained anatomical parts other than cranium and limb bones – the disturbed Burial 6A in the SAP-HL'06-T2. As already mentioned in the previous chapter, the unlined pit of irregular surface (most probably dug up for throwing the two sacrificed human bodies) contained at least a scapula and vertebrae in addition to a cranium and toe bones. From the fact that these bones were found mixed together with other seemingly disturbed objects, it was inferred that they were originally a part of grave offerings for the late-Middle Sicán burial underneath. However, for reasons described below, it is also possible that they were newly sacrificed and thrown into the pit at the time of depositions of the two sacrificed human bodies. First, some of the vertebrae were still articulated. Second, there was a substantial vertical gap (ca. 40 cm) between the groups of objects in the Upper and Lower Levels. The original burials, both Burials 6A and B, might not have contained llama bones other than groups of phalanges, which were found directly associated with or 10-15 cm above the inferred burial floors.

With a peculiar exception of the Burial 6A in the SAP-HL'06-T2, all of other llama bones were either a cranium and/or limb extremities. Although phalanges were offered across the status boundaries, more proximal parts (metacarpal/tarsals) seem to have been restricted to those of elite status or to the offering pits that contained sumptuary goods indicative of the involvement of elites (T1-Burial7 and T2-Burial 3) (Table 7.31). The cutoff points were thus either at the joint of the first phalanges and metacarpal/ tarsal or between the metacarpal/tarsal and radius/tibia. Crania were also restricted to the elite burials. This distribution pattern seems to suggest that the rule stringently determining what was appropriate to be interred with the deceased was also applied to the llama body parts devoted to burial offering. The same or similar rule might have been applied to the inferred feasts at the Great Plaza as well.

If the anatomical parts of llama bones excavated from the Great Plaza exclusively, or nearly exclusively, correspond to the remaining body parts other than cranium and limb extremities, it would be an important line of evidence to support the Operational

Hypothesis 3. Goepfert conducted the taxonomic identification and the determination of anatomical part for a total of 3,389 remains excavated from the seven occupational surfaces, on which hearths and ashy soil deposits were documented, in the three excavation areas at the Great Plaza (the OSs-6, 6/7, and 7 Levels 1 to 3 in the EA3, the OS-11 in the EA4, and the OS-10 in the EA5)[6].

Since many of the studied remains had been significantly burnt and/or fragmented, only a 60.2% of them could be identified as *L. glama* (2,041 out of 3,389 remains; See Table 7.32 and Figure 7.67). The MNI (minimum number of individuals; 4) for the remains from the OS-11 in the EA4, which is disproportionately small for the large NR (number of remains; 1,939), clearly suggests the high degree of fragmentation in the EA4, compared to the ratios in other EAs. On some of the remains (less than a dozen, although not counted precisely) were observed cut marks in different regions of the llama body (Figures 7.68, 7.69, and 7.70). These cut marks as well as the fragmented and burnt state and the provenience in and around the hearth all suggest that they were processed and cooked in the areas.

Figures 7.71 to 7.77 illustrate the distributions and frequencies of the anatomical parts of the identified llama bones. They did not exhibit any noticeable pattern of selections of particular anatomical regions for llama consumptions. The remains from six out of the seven occupational surfaces included both crania and limb extremities, while those from only three occupational surfaces included the meatiest femoral region

(Table 7.33). The results clearly counter the expectation that the identified anatomical parts be mutually exclusive between the remains within the burials and those from the plaza area. Therefore, the Operational Hypothesis 3 is not supported. The llama bodies seem to have been consumed at the Great Plaza, without any preference of particular body regions.

What became clear from this analysis is that the Operational Hypothesis 3 may be too simplistic, expecting a clear-cut “eating or funerary offering” differentiation. Although the obtained results do not completely rule out the possibility of the ritual commensality between the dead and the living, the situations seem to have been more complicated in any scenario and thus require additional considerations. First, Table 7.31 shows that llama limb extremities were not always accompanied by cranium (or crania). When only the limbs were removed and devoted to burial offering, where did the limbless llama body go? If it was consumed at the Great Plaza as I hypothesized, it is nothing contradictory to find (fragments of) crania in the feasting contexts. Furthermore, it should be taken into account that the llama crania might have had diverse usages, as Weismantel (in press) and Shimada et al. (in press) argue, and thus have been used in some other contexts.

Second, even though the high rate of fragmentation posed an impediment to Goepfert’s identification process, the low MNI is quite remarkable. Does this suggest a small number of mouths to feed? If the inferred feasts were held by the elites to demonstrate their generosity and gain prestige in return, the elites were expected to kill as many animals as possible. Underlying the Operational Hypothesis 3, however, is my idea that the prestige of the elites was not derived from their economic power that enabled them to host large fests and serve a copious amount of food and drink, but rather from the exclusive ritual access to the Sicán Deity through their inferred ancestors that provided them with legitimacy. In this regard, the commensality was of significance. Thus, what received more attention during the feasts was not the quantity, but the quality of meats served and the ways in which they were subtracted and served. The cranium from Tomb 1, the only case in which the age determination was possible, was estimated to have been one year and three months to two years. An immature animal that had tender meat might have been consciously selected and shared with the bereaved.

7.3.1.1.3. Other mammals and birds. The sample remains also included some other taxa besides camelids. A total of 138 remains were identified as either (1) rodent (some determined as guinea pig [*Cavia porcellus*]), (2) dog (*Canis familiaris*), (3) deer (Cervidae), (4) bird, or (5) what appears to be bat (Tables 7.34 and 7.35 and Figures 7.78 to 7.82). Rodents were most abundant (total = 113) and documented on the five occupational surfaces in two excavation areas. The majority of them (98.2%) were found in the EA3, while no rodent was identified in the remains from the EA5. It is notable that the number of rodent remains gradually increases from the Floor 2 to the OS-7 Level 1 in the EA3. The second most abundant was dogs. A total of 13 dog remains were identified in the remains from all three excavation areas. They were most frequent in the EA5 (9 remains; 60%). The remaining three animals (birds, deer, and bats) were very small in number: 2, 6, and 2 remains respectively. They were all identified in the remains from the EA3, later than the OS-7 Level 3. Although no cut marks were observed on the remains of these five animals, their very fragmentary state indicates that many of them were also consumed as with llamas.

As discussed above, I argue that the inferred feasts were aimed not at simply serving a conspicuous amount of food, but rather emphasizing the ritual connection to the important deceased individuals and the status distinctions by selectively serving different types and qualities of food. The presence of animal remains other than llamas supports this inference. Deer was initially a critical food source on the Peruvian North Coast. Since the onset of llama domestication during the first millennium BC, it had lost its economic significance; however, deer regained its importance for non-domestic purposes later in Mochica culture (Shimada 1999:116). During Shimada's excavation at Pampa Grande, two large, complete sets of deer antlers were found still articulated to their crania in a ritually important space (Upper Courtyard) (Shimada 1994a:208). It is also reported that the base of a shed antler found from a refuse deposit in the elite compound (Sector A) had been hollowed out to form a small container, perhaps that which holds lime for the coca leaf chewing shown in fineline paintings on the Mochica stirrup-spout bottles (Shimada 1994a:213, Figure 8.31). The Mochica fineline paintings also depict the scenes of ritualistic deer hunt organized by elite warriors. These multiple lines of evidence suggest the ritual significance of deer, the access to which might have been strictly confined to the elites. The presence of deer bones and antler in the faunal remains from the Great Plaza, although small in number, may indicate a similar significance of deer during the Middle Sicán Period. The deer meat might have been used for a special meal that was only served for elites. Such a meal should have been significantly appealing in the eyes of those who had ones' origin in the Mochica noble families.

In contrast, dogs were much more accessible animals, together with other domesticated animals such as guinea pigs and muscovy ducks, during the Mochica Period. They are frequently encountered during the excavations of domestic refuse contexts. Inversely fewer depictions of dogs in the Mochica ceramic art also seem to indicate the importance of dogs in the domestic sphere. The presence of dogs in the faunal remains from the Great Plaza may suggest that they were served for those of lower statuses and of Mochica origin, most likely commoners.

7.3.1.1.4. <u>Conclusion</u>. Although all of the remains could not be retrieved in the museum repository, the hypothesis testing could be achieved in a simpler manner. It was revealed that the body parts devoted to the deceased in the burials and those consumed in the Great Plaza were not anatomically exclusive. This result does not support the Operational Hypothesis 3. Nonetheless, the zooarchaeological analysis provided some interesting findings. It raised the possibility that a few more animals might have been consumed at the Great Plaza, besides llamas.

All in all, the sample remains were so fragmentary that the determinations of taxa and anatomical parts became challenging tasks. The poorly preserved animal remains oftentimes broke into pieces, when they were bagged in the field. I have to admit that even though all of the remains could be located in the museum repository and properly studied, the high rate of fragmentation could have been a huge obstacle after all. A similar study in the future requires a careful research design and planning. Although it is not peculiar to zooarchaeological analysis, it would be ideal to have specialists, if not for the entire field season, who could work onsite collaboratively with archaeologists, excavating, observing, recording, and taking samples for laboratory analyses by themselves.

7.3.1.2. Marine fauna. The remains of marine fauna excavated from the Great Plaza were studied largely by Elberth Edevaly Puse-Fernández and his assistants at the Sicán National Museum, Ferreñafe, Peru.

7.3.1.2.1. Sampling method and analytical procedures. The studied remains consist of all marine faunal remains sampled from the three excavation areas in the Great Plaza, the EAs3-5. The remains were either hand-picked during the excavations or extracted by dry-screening the ash and burnt soil recovered from the inferred feasting contexts in the EAs3-5, using 1/8- and 1/16-inch mesh. The ash and soil deposits also contained many other remains that were studied by other specialists and discussed in other sections of this chapter. It was apparent that the sampled remains included abundant marine shells and inversely very few fish bones. This disproportion might have been due to the different rate of preservation among different species. Shells and crab chela, for example, were probably better preserved compared to fragile fish bones.

The sampled remains weigh as much as 74.16 kg in total (Table 7.36). Since it was difficult to study all of them due to time and budget constraints, we combined a simplified, shortcut analysis based on random sampling for a portion of the entire sample assemblage and a more comprehensive study for the remaining portion. Regarding the materials from the EAs 4 and 5, we only partially studied them and went no further than making summary reviews. We employed the so-called "grab bag" sampling method and randomly selected about 10% (15-20 bags) of all sample bags. Then, we identified the specimens to the level of genera and species and clarified the compositions and proportions of the identified genera and species. Only for the materials from the EA3, all of the remains in 194 bags were studied thoroughly. We not only conducted taxonomic identification and calculated the proportion of the identified species, but also explored the details of the identified species and studied morphological features observed on the remains, such as the vestiges of anthropogenic alterations.

The taxonomical determinations are based on comparisons with reference collections and digital photographs that Puse-Fernández has established and developed at the Sicán National Museum. I follow the nomenclature used by Ramirez et al. (2003) and the World Register of Marine Species or WoRMS (www.marinespecies.org/aphia.php?p=taxdetails&id=494717). For instance, although there are several species names under the genus *Donax*, such as *D. marincovichi* (Coan 1983), *D. obeslulus* (Reeve 1854), and *D. peruavianus* (Deshayes 1855), I refer to them together as *Donax obeslulus*, following the denomination by the WoRMS that unifies them as a single species based on their distributions. Additionally, Carstensen et al.'s (2007) study of the morphological similarity of sperms between *D. marincovichi* and *D. obeslulus* revealed that there is no morphological difference between them. This find supports Carstensen's earlier hypothesis that they are one same species of genus *Donax* (Carstensen, et al. 2006).

7.3.1.2.2. <u>Overview of the results</u>. A total of 52,426 from the three excavation areas were identified at least to the level of order (Figures 7.83 and 7.84). They belong to either of three phyla: Chordata, Arthropoda, or Mollusca. Almost all remains (NR = 52,421) belong to Mollusca, while only five remains excavated from the OS-7 in EA3 were identified as belonging to Chordata or Arthropoda: one remain in the superorder Batoidea (cartilaginous fish commonly known as ray and skate), two remains in the family Portunidae (crabs known as "swimming crabs"), and two remains in *Plathyxanthus orbignyi* (crabs commonly known as mud crabs, pebble crabs or rubble crabs). In addition, 29 very fragmentary fish bones were identified by Goepfert (the zooarchaeologist who studied terrestrial faunal remains; see Chapter 7.3.1.1. Terrestrial fauna) during his analysis (1 from the OS-6 in the EA3, 27 from the OS-11 in the EA4, and 1 from the OS-10 in the EA5). Although they most probably belong to Osteichthyes, the taxa could not be identified no further than the superclass level. The distributions of the identified genera and species on different stratigraphic layers in the three excavation areas are shown in Tables 7.37 and 7.38. The 29 fish remains are not included in these tables.

Figure 7.85 shows the proportions of the identified genera and species by the excavation areas. For the remains from the EA4 were identified nine mollusk genera/species. One of the nine species, *Donax obesulus* (wedge clam) alone accounts for over 98% of the entire sample assemblage. The second most frequent is *Polinices uber* (moon snail), which accounts for only 1.37%. On the other hand, for the remains from the EA5 were identified seven mollusk genera/species. *Donax obesulus* and *Olivella* *columellaris* (olive shell) account for 76.46% and 22.69% respectively. What are considered to have been purposefully collected and consumed are primarily these two species. In contrast, for the remains from the EA3, which were thoroughly studied, many more genera and species were identified. They include 34 mollusk genera/species including one chiton species (*Chiton sp.*), as well as the aforementioned five non-mollusk specimens (four in the two crustacean families [e.g., *Callinectes sp.* and *Platyxanthus orbygni*], and one in the cartilaginous superorder Batoidea). Nonetheless, the proportion of the species is similar to that in the EA5, and *Donax obesulus* and *Olivella columellaris* account for 68.1% and 31.12% respectively.

The identified mollusks are from three conchological provinces: (1) the warm northeastern Pacific, (2) the tropical eastern Pacific, and (3) the warm southeastern Pacific. The first province extends from the northern California to the Gulf of California, the second from the southern Gulf of California to Tumbes in the northern Peru, and the third from the northwestern Peru to the central Chile (Keen 1971). The majority of the identified mollusks including both *Donax obesulus* and *Olivella columellaris* came from the third. The habitats of the identified species of mollusks in this study are diverse: rocky shores, sandy beaches in the range of tide, sandy and muddy seabeds, rivers, mangroves, and coastal lagoons, from shallow areas near the shore to deeper waters far from the shore. In some cases, these diverse ranges of habitats have allowed archaeologists not only to identify where the shells came from, but also to infer the areas of collection and the routes from and to archaeological sites. The site of Sicán is located in the area that facilitated a relatively easy access to the Pacific Ocean. A possible area of collection of the identified mollusks would be the beaches of the Chiclayo Districts.

7.3.1.2.3. Predominance of *D. obesulus* and *O. columellaris*. The two prominent mollusk species of *Donax obesulus* and *Olivella columellaris* deserve particular attention. Both of them have been important food sources in the study area since early in the prehistoric era, and particularly *D. obesulus* is always seen in the local markets and sold for daily consumptions. The people from Mórrope in the Lower La Leche Valley (or Morropanos) call them “conchitas palabritas” (*Donax obesulus*) and “caracolitos” (*Olivella columellaris*) respectively (Elera 2010). When harvesting these shells, the Morropano fishermen use a traditional tool called “cafán” – a semicircular cotton net rimmed with an *algarrobo* blade and connected with a long and narrow bag (Elera 2010:42, Figura 3). Nowadays, the *algarrobo* blade and cotton net have been replaced respectively by a toothed steel blade and rope and nylon net. Both *conchitas palabritas* and *caracolitos* approach the beach as the moon is waxing, and thus that it would be most efficient to harvest them under the full moon (Elera 2010:42-43). Once harvested, the shells are pickled with salt for preservation and transferred inland. *Conchitas palabritas* have traditionally been consumed in cebiche and soup, while *caracolitos* are removed from the shell with a thorn and eaten with lemon and pepper.

The measurements of *D. obesulus* or *O. columellaris* revealed the size ranges of the collected individuals (10.5-31.0 mm for *D. obesulus* and 8.17-14.21 mm for *O. columellaris*; See Figure 7.86). The distributions of size ranges that conform largely to the normal curve appear to suggest that the fishermen were not selective about the size of the mollusks that they harvested. It is most likely that they harvested as many as they could, regardless of the size. If *caracolitos* were eaten in the same way as noted above, the removing process should have been very labor-intensive due to their small size (< 14 mm). For the time and effort required for processing, they do not have much meat to eat. A large concentration of *caracolitos*, however, was found associated with the north edge of the adobe-lined large hearth in the EA3. It appears that these gastropods were discarded and accumulated over the adobe edge of the hearth, as they were cooked. This suggests that *caracolitos* were consumed in a cooked form. Their immediate association with this hearth oversized for domestic cooking purposes alludes to the possibility that they were a part of the menu for non-domestic settings.

7.3.1.2.4. <u>Anthropogenic alterations</u>. Although few in number, some species show the vestiges of anthropogenic alterations, which may suggest craft production (Figure 7.87). A *Conus fergusoni* excavated from the OS-7 in the EA3 shows at least four cut marks that removed its outer lip. The detached outer lip was not found during the excavation. This highly valued, exotic shell, together with Spondylus (*Spondylus princeps*), have been found primarily associated with elite tombs and associated ceremonial contexts in the form of pectorals or entirety during both Mochica and Middle Sicán Periods on the North Coast (e.g., Alva and Donnan 1993:59-64, Figs 56-58; Shimada 1995:64, 94, Figs. 37, 82). Thus, it would not be probable that those cuts were made to take out and consume the meat inside. A more probable use of this precious shell would be to make beads for necklaces and pectorals for elites. Another example of anthropogenic alteration is perforation. It was observed on one specimen of *Conus fergusoni.*, one specimen of *Stramonita sp.*, and nine specimens of *Polinices uber*. Although the last two species are edible, the very small numbers of remains suggest some purpose other than consumption. Nonetheless, the intended purpose of perforation is unknown.

7.3.1.2.5. <u>Conclusion</u>. The identification of the remains of marine animals revealed two major edible species of mollusks, *D. obesulus* or *O. columellaris*, as well as a very small number of other mollusks, crabs, and ray. These two mollusk species have comprised an integral part of the traditional cuisine on the Peruvian North Coast. From their immediate association with the inferred cooking hearths, it is inferred that they were cooked, rather than eaten raw like at the present day.

7.3.2. Paleoethnobotanical remains

Paleoethnobotanical analyses help archaeologists answer various ecological and anthropological questions by studying the plant-human interactions (e.g., paleoenvironments, paleodiets, trade networks for agricultural produce, and strategies for resource management). For the current study, three separate analyses were implemented. The taxonomic identification of macrobotanical remains aimed to determine what plants were used for what purposes during the inferred ceremonial gatherings at the West Cemetery and in the Great Plaza. Starch grain analysis was conducted to examine the possibility that *aqha* was consumed during the inferred feasts and libations in the Great Plaza. Palynological analysis was carried out to examine whether the acts of revisiting the former burial ground at the base of Huaca Loro and making offerings (e.g., layers of burnt surfaces and various types of offerings) were seasonal or not. All three analyses were conducted by the paleoethnobotanist Luis Huamán Mesía and his team at the Palynology and Paleobotany Laboratory of the Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru.

7.3.2.1. Macrobotanical remains.

7.3.2.1.1. Procedures for specimen preparations. The specimens for the analyses of macro-remains and pollen were sub-sampled from the same original sediment samples taken from the features and the occupational surfaces during the excavations in 2006 and 2008 (Table 7.39). These original sediment samples were taken basically by scraping the occupational surfaces or scooping the sediment fill of the associated features near the inferred base. In order to cover the wide and deep contexts, I selected 19 sediment samples pertaining to different occupational layers (from the OS-1/2 to the OS-14) in the three excavation trenches at the West Cemetery (eight for the T1, seven from the T2, and four from the T3). For the Great Plaza, the same sampling method could not be employed due to time and budget constraints. Consequently, I confined my focus to the EA3 and chose 14 sediments samples pertaining to 10 different occupational surfaces (from the OS-1 all the way down to the Floor 2).

From each sediment sample bag, I scooped out one specimen of 250-g sediment for palynological analysis, and then sieved the remaining sediment of the entire bag by 0.5-mm mesh to extract macro-remains for taxonomic identification. Some of the sediment samples were too small to take two specimens. In such a case, the whole sediment sample was examined by palynological analysis without any handling. As a result, a total of 61 specimens were prepared: (1) 33 sediment specimens for palynological analysis (19 from the West Cemetery and 14 from the Great Plaza) and (2) 28 macrobotanical specimens for taxonomic identification (18 from the West Cemetery and 10 from the Great Plaza). Additionally, I added to the 28 specimens above 13 additional small bags of large macro-remains (containing primarily seeds hand-picked during the excavation at the Great Plaza) for taxonomic identification.

7.3.2.1.2. Analytical procedures. Each prepared specimen included various materials besides macro-remains. Only about a 30% portion of the entire specimen was observed and examined for macro-remains, using stereoscopic microscopes with incident light and magnification range of 10X-40X. Identified macro-remains were separated in eppendorf tubes for further observations. The taxonomic determinations of the identified macro-remains were based on comparisons with reference collections at UPCH, literatures (Cronquist 1981; Mostacero León, et al. 2002; Sagástegui Alva and Leiva González 1993), and digital photographs available at the website of US Department of Agriculture (USDA 2014).

7.3.2.1.3. Results 1: Large hand-picked remains. The 13 bags of large hand-picked remains from the EA3 at the Great Plaza contained a total of 58 individual plant remains that took the form of either seed or fruit (or pod) (Table 7.40). Seven out of 58 remains were indeterminate. These remains had been charred, and their diagnostic characteristics were gone. The remaining 51 remains were identified at least to the genus level and classified into six genera in five families: (1) *Schinus molle* ("molle"), (2) *Annona* sp. ("cherimoya"; edible fruit), (3) *Cucurbita* sp. ("zapallo" or gourd/squash), (4) *Cordia* sp. ("overo"), (5) *Prosopis* sp. ("algarrobo"), and (6) *Acacia* sp. ("huarango") (Table 7.41 and Figure 88). Most abundant was *algarrobo* (n = 33). *Algarrobo* is a very hard wood that produces high-quality charcoal (Goldstein 2014). It was and still is a major resource of fuel; however, it should not be forgotten that the remains took the form of either seed (bean) or fruit (bean pod) – locally known as *algarroba*. *Algarroba* is the source of very nutritious black carob syrup called *algarrobina*, as well as an important food for llamas. It is more likely that the *algarrobas* were used to extract the syrup, although the number of remains is low.

Table 7.42 lists the known usage of the principal species in the five families that the identified remains belong to. All but *overo* are used as a food source. It is known that the Incas used the sweet exterior part of the ripe fruit of *molle* to make a drink (Coe 1994:186-187). Goldstein and Coleman (2004) reports an archaeological case (during the Middle Horizon) in which *molle* was used to brew chicha. To this day, *molle* is used for the same purpose. The fruits of *zapallo* (or squash) are apparently edible in various ways. Although the seeds of *cherimoya* and *zapallo* can be used as a pediculicide or antiparasitic (Brack 1999; Ugent and Ochoa 2006), I suspect, it is more likely that the recovered remains at the Great Plaza were largely food sources.

7.3.2.1.4. <u>Results 2: Smaller dry-sieved remains</u>. From the 28 macrobotanical specimens (18 from the West Cemetery and 10 from the Great Plaza) were found a total of 600 individual plant remains that primarily took the form of seed and fruit. No botanical remains were identified in 12 out 28 specimens (Table 7.43). The 600 macro-remains were classified into 18 taxa in 11 families (Tables 7.44 and 7.45 and Figure 7.89). Some remains were identified barely to the family level, due to the absence of diagnostic characteristics and their poor preservation status. As with the results of the study of large hand-picked remains, most abundant was *Prosopis* sp. in the form of *algarroba*. This species must have been the easiest food resource to obtain. The study area is located within the so-called Equatorial Dry Forest that is characterized by the predominance of the species in the legume family Fabaceae and the genus *Capparis* (Ferreyra 1983). The taxa identified in the studied macro-remains also include a total of four genera: *Prosopis* (*algarrobo*), *Acacia* (*huarango*), *Desmodium* (*pega pega*), and *Mimosa* (common name unknown). The Pómac Forest National Historical Sanctuary, in which the site of Sicán is located, consists primarily of the dense growth of *Prosopis* sp. (Figure 7.90).

Table 7.46 lists the known usage of the identified species with reference to Brack (1999), Fernández and Rodríguez (2007), Mostacero et al. (2002), and Sagástegui and Leiva (1993). Compared to the species of the larger remains (Table 7.42), the usage as food source is very scarce. Wild species that may not be edible or more suitable for other usage (e.g., medicinal purpose) is predominant. What draws attention is that two of the taxa known to be used for medicinal purposes, *artemisa* (or ragweed) and tobacco, are also used for magico-religious purposes. It may be relevant to note that Wilbert (1985, 1987, 1994) and Reichel-Dolmatoff (1985) report the use of tobacco smoke in both actual rituals and myths of modern-day Amazonian villagers. It is believed that the smoke helps to open up a communicative channel with ancestors and supernatural beings and/or to connect this world with the world of the dead and the supernatural. Two remains of tobacco in the form of fruit (See Figure 7.89) were recovered from the burnt areas on the OS-10 in the SAP-HL'06-T1.

7.3.2.1.5. Discussions and conclusion. The macrobotanical remains recovered from a series of occupational surfaces were characterized by the higher frequency of the species in the family Fabaceae, particularly *Prosopis* sp. in the form of *algarrobas* (bean pods). Although small in number, their presence was widely documented on various occupational surfaces and in different excavation trenches and areas. It is possible that in the areas associated with hearths and other material vestiges of cooking processes (e.g., the OS-7 in the EA3), the bean pods were processed to extract the nutritious black syrup, alternatively or in addition to their use to feed llamas and guinea pigs. *Molle*, *cherimoya*, and *zapallo* also suggest the usage as food sources. In contrast, from many occupational surfaces above the West Cemetery were recovered the species that were more suitable for medicinal and magico-religious purposes, rather than as food sources. The acts of burning ground surfaces and making offerings in and on the ground, documented on many occupational surfaces, were interpreted as ritual activities in the previous chapter. The results of macrobotanical analyses above seem to support this inference.

7.3.2.2. Starch grains. In archaeology, starch grain analysis has been widely employed for: (1) identifying the dietary composition of a study population (Ugent, et al. 1982, 1984; Logan 2006; Cervantes 2009); (2) clarifying interregional interactions in terms of exchange network of starchy plants (Perry, et al. 2006; Logan 2006); (3) illuminating the use of a particular tool for processing starchy plants (Barton, et al. 1998; Perry 2004, 2005; Haslam 2004; Zarrillo and Kooyman 2006; Loy 1994; Loy, et al. 1992; Piperno and Holst 1998); and (4) tracing the origins of domesticated cultivars (Ugent, et al. 1987; Ugent, et al. 1986). For the current study, starch grain analysis was conducted for the purpose of determining the possibility that *aqha* was consumed during the inferred feasts and libations in the Great Plaza.

Starch is the main energy source for plants and is divided into two types: transitory starch and storage starch. Starch grain analysis focuses on the latter, primarily because it is tolerant of adverse climatic conditions (e.g., heat, cold, drought, and flood) and continues to survive even after the plant itself had rotted away. Storage starch forms in grains, varies in size and shape, and is stored in different organs such as seeds, fruits, tubers, roots, corms, rhizomes, and other fleshy structures. A starch grain has an optically anisotropic quasi-crystalline structure and generally shows layers growing around a nucleation point called hilum. Through a microscopic observation under cross-polarized light, an interference figure, a.k.a. “extinction cross,” is visible at the hilum. Some changes in morphology and property observed on starch grains, such as a fissure observed on the hilum and the disappearance of the extinction cross point to the processes during food preparation (e.g., milling, drying, and boiling). It has to be kept in mind, however, that taphonomic processes such as wet-dry cycle and oxidation may also alter the morphology and property of starch grains, regardless of their tolerance of adverse climatic conditions. Our starch grain analysis aimed to identify and count starch grains within the sediment specimens, determine the plant sources of the identified starch grains, and observe morphological characteristics for anthropogenic influences.

7.3.2.2.1. Procedures for specimen preparations. A total of 14 sediment specimens were prepared and analyzed. The specimens were sub-sampled from the 14 sediment samples originally taken from the inferred bottom surface of the canal in the EA3 (Specimens 1 and 2) and from the interior surfaces of body sherds found in the EAs 4 and 5 (Specimens 3-14). Regarding the former, because the bottom surface of the canal was not very clear, two separate samples were taken by way of precaution. The latter were residues found on the interior surfaces of relatively thin body sherds, the original vessel shapes of which were not readily known due to their fragmentary nature. However, technological characteristics, such as (1) non-molded, non-burnished surfaces with striations, (2) coarse and poorly sorted paste grains, (3) oxidization firing technique, and most importantly (4) traces of anvil left on the interior surface when forming the vessels, all helped me infer that they were either necked cooking jars or restricted storage urns in the JU Group.

For the residues adhering to ceramic sherds, a surface cleaning by means of ultrasonic brushes with abundant distilled water was necessary to extract sediments. The obtained sediments were then left in the containers or centrifuged so as to remove the water. Once the water was removed, density separation was implemented for recovering starch grains. All 14 sediment samples were processed following Horrocks' (2005) combined procedure by means of zinc bromide (1.8 g/ml). In order to avoid contamination, the samples were all processed in an extraction hood with powder-less gloves and sterilized materials. Starch grains were observed on the mounting medium of glycerin and with a common light microscope with the polarizing filter of 400 x magnification. For the species identification, starch grains were photographed and compared with the reference to the specimen catalogs of the laboratory and some literature (Babot 2004; Pearsall, et al. 2004; Perry, et al. 2006).

7.3.2.2.2. <u>Predominance of *Zea mays*</u>. The analysis revealed only two taxa, *Zea mays* (maize) and another indeterminate taxon. *Zea mays* was highly predominant. Eleven out of 14 specimens contained almost exclusively maize starch grains (Table 7.47). The maize starch grains were fairly well-preserved and clearly showed the diagnostic features of maize (Figure 7.91). Many of them also showed some changes in morphology and property, such as fissure and loss of visibility under normal and polarized light. These changes point to the processes during food preparation such as milling, drying, and boiling. The abundance of starch grains found in the specimens was graded on a four-point scale: abundant (* * * * *), medium (* * *), scarce (*), and none (–). The large number (and exclusiveness) of maize starch grains in Specimens 2, 3, and 8 as well as the fissures observed at their hilums suggest not only a constant and exclusive use of maize, but also acts of cooking maize, consuming cooked maize in the EA4 (Specimens 3 and 8), and pouring cooked maize into the canal in the EA3 (Specimens 2). Maize starch grains were less abundant in Specimens 4 (EA4), 10 and 12 (EA5). This appears to suggest an occasional use of maize. Many of the grains in these specimens also showed some characteristics that suggest cooking processes. In contrast, the scarcity of the maize starch grains in Specimens 1, 5, 6, 11, and 14 may be due to the accidental interfusions of the grains into the sampled sediments. No starch grains were found in the remaining three specimens taken from jars and urns (Specimens 7, 9, and 13).

7.3.2.2.3. Discussions and conclusion. The quasi-exclusive presence of maize starch grains and their changes in morphology and property observed in the specimens suggest the importance of maize in a cooked form for the activities within the plaza area. Based on these results, I conclude that the cooked maize was *aqha*, and that it was consumed in the EAs 4 and 5, and poured into the canal in the EA3. Although there was no residue available for this analysis on the sherds from the EA3[7], the large proportion of deeper BDP Group vessels (dishes/bowls and bowls) discussed earlier in this chapter alludes to relatively large consumption activities in the area. It is quite possible that *aqha* was consumed in the EA3 as well. The maize starch grains were found in the specimens sampled from various occupation layers in all three Excavation Areas spanning from the middle-Middle to the end of the late-Middle Sicán Periods. This suggests the longevity of *aqha* production and consumption for the ceremonial gatherings at the Great Plaza during the major part of Middle Sicán Period.

7.3.2.3. Pollen. The excavation at West Cemetery exposed a series of occupational surfaces that span over four centuries up until the Colonial Period. Each surface was associated with ground burning activities and different forms of offerings. These finds appear to suggest that after the final depositions of the dead bodies at the cemetery, people kept visiting the burial ground and making offerings and/or burning ground surfaces for many years. Very similar burning activities were documented on the east side of Huaca Loro in the Great Plaza as well. I observed that those occupational surfaces were sandwiched between thick alluvial layers, and some of the burning activities clearly took place over a water-lain muddy layer. Given these contextual data and concurrently inspired by Goldstein's paleoethnobotanical study at the Pilgrims'

Plaza of Pachacamac (Shimada, et al. 2010:127), I came to have an idea that the revisitations of the inferred ancestral tombs and associated commemorative ceremonies nearby might have been seasonal. The dried-up La Leche River becomes full of water coming down from the highlands during the early months of the year. Particularly in the years of ENSO, higher discharge of the river causes flooding and inundation in the areas along the river, while torrential rains erode architectural structures of sun-dried mud bricks. The documented waterborne deposits that alternate with the occupational surfaces strongly suggest the ENSO-related fluvial events.

Information about the location, timing, and frequency of human activities may provide a clue to explore the meanings and symbolic backgrounds of those activities. The palynological analysis discussed here focuses on the timing of the documented activities above the cemetery and in the plaza and was aimed at testing the working hypothesis that the activities were seasonal. It was hypothesized that the pollen grains drifting in the air and landing on the ground were stepped on (or trapped and covered in archaeological features [e.g., offering pits]) by those who gathered and engaged in the activities. By retrieving those trapped pollen and comparing the reproductive seasons of identified taxa, it may be possible to infer or deduce the timing of the activities.

7.3.2.3.1. Procedures for specimen preparations. I selected thirty three sediment samples that were collected either by scraping the hardened occupational surfaces or by scooping out the sediments at the inferred bases of features (Table 7.48). Prior to the analysis, the sediment samples were stored in a refrigerator at 5°C. From each sample, five grams of sediments were sub-sampled to make two or three analytical specimens. This was done to compare the results from the multiple specimens and to gain more representative data. All of the specimens were processed following the methodology proposed by Traverse (2007:465-470) for the extraction of palynomorphs.

First, *Lycopodium* spore tablets are added to specimens as markers that allow the calculations of pollen concentration and pollen influx[8]. The number of the spores added to each specimen in the current study is ca. 3715. Since different plant species have different rates of pollen production and dispersal, it is critical for palynologists to calculate and compare the rates and to determine how far the identified pollen traveled. Incidentally, the *Lycopodium* spores also served as an indicator of accidental destruction of pollen during the laboratory procedure. The specimens then go through treatments with chemical solutions, sieving, and centrifugalization to destroy or separate unwanted inclusions within the sediments (e.g., siliceous minerals, colloidal materials, calcium carbonate, and cellulose and cellulose derivatives) from the target palynomorphs for better examinations of their exines (Traverse 2007:467-468). For example, the dilute (10-20%?) hydrochloric acid (HCl) is used to destroy calcium carbonate and to free the *Lycopodium* spores from matrices, while the acetolysis solution (nine parts acetic anhydride and one part concentrated sulfuric acid) and the lye (KOH) are used to remove cellulose and cellulose derivatives in peaty sediments. Siliceous minerals can be removed by a mixture of hydrochloric acid (HCl) and hydrofluoric acid (HF). The residual materials including the target palynomorphs are eventually embedded in glycerin jelly and mounted on the slides. The completed slides are analyzed by identifying spores and pollen and calculating spores/pollen percentages and concentrations per gram of sediment, and annual pollen influx per area (cm^2) of sedimentary surface.

Regarding the palynological count, however, the abundant presence of charcoal in the specimens was anticipated to hinder the count in the usual method. Thus, microfiltration was implemented, and the inclusions within each specimen were filtered and divided into two portions: those less than the size of 100 μm and those greater than 100 μm. The count was carried out only for the portion of smaller materials, since pollens larger than 100 μm are rare. The number of spores and pollen was counted either until it reached 200, or until the number of *Lycopodium* indicator spores reached 1000.

7.3.2.3.2. <u>Identified pollen taxa and their characteristics and frequencies</u>. The palynological study of the slides identified a total of 36 pollen taxa (33 determinate and

3 indeterminate) (Table 7.49), as well as spores of some ferns, equisetum, and fungi. Table 7.50 shows the apparition frequencies of the identified palynomorphs. Seventeen out of the 36 pollen taxa are known to be cultivated. Since some traces of agricultural cultivation were documented by the earlier excavations along the Poma Canal (Shimada, et al. 1998) as discussed in Chapter 5, the possibility of airborne origin of pollen of cultivated plants should not be ignored. Another possibility is that the identified cultigens could have been related to human activities such as movement of people into the site and use of the plants at the site. For example, the existence of *Zea mays* seems to suggest that the reproductive parts with pollen attached to them were brought to the site and utilized there (perhaps for *aqha* production), rather than that the pollen were carried by the wind to the site. It is important to point out that maize pollen is known to stay close to the originating plant (Winsborough, et al. 2012). As opposed to the plants found locally in the vicinity of the site (e.g., Cheno/Am and *Schinus molle*), some cultigens are apparently of foreign origin and grow in the areas out of the possible travel range of the airborne pollen. *Alnus acuminate* (alder trees) and the species of *Podocarpus* (fern pine trees) are known to grow in the areas of high humidity on the western slope of the Andes over 3500 m asl. or in the high jungle on the eastern slope up to 1000 m asl. Their pollen seem to have been carried by the alluvial geodynamic movements or the movement of people, rather than by the wind. *Campomanesia linearifolia* (commonly known as *palillo*), a tree of the Myrtle family currently growing in

the Peruvian jungle, should have required human interventions to be brought into the site. The humid environment is also indicated by the spores of ferns.

The results of the palynological counts are presented in the pollen diagrams produced using Tilia*Graph and TGView (Grimm 1991, 2004) (Figures 7.92 and 7.93). None of the numbers of spores and pollen reached 200, before the number of *Lycopodium* indicator spores reached 1000. This made it impossible to count spores and pollen in the usual methods and perform a series of subsequent calculations including pollen influx. In other words, quantitative analysis is infeasible and meaningless. Therefore, the only option to choose is to perform a qualitative analysis based on the presence and absence of spores and pollen (Figure 7.93). The small diagram attached to the pollen diagrams shows the reproductive seasons of the identified taxa. The reproductive seasons of 21 taxa either overlap or fall within the range from February to July.

7.3.2.3.3. Discussions and conclusion. Based on the results presented above, I point out the possibility that the documented intermittent visitations of the former burial ground at Huaca Loro and ritual activities (e.g., burning ground surfaces and making offerings in fire pits) were seasonal, occurring some time from February to July. During these months, as mentioned above, the La Leche River receives the highest discharge and causes floods especially in the years of ENSO. Some of the identified taxa that grow in the highlands might have been brought by those floods of the river. The scarcity of spores and pollen may be explained by their immediate associations with fire use. Since palynomorphs are sensitive to high temperatures and pressures (Traverse 2007:52), the exposure to the heat might have carbonized or destroyed the spores and pollen, which otherwise should have been found in the specimens.

NOTES

1 What I mean by "regionally" is that I deal with two distinct possibilities: (1) that many vessels were produced at major ceramic workshops such as Huaca Sialupe and (2) that some vessels were produced *locally and hastily in or near the Great Plaza*. Therefore, the extent that the word "local" refers to in this section is strictly confined to the extent of the site of Sicán.

2 Parts per million (ppm) is a unit of measurement used when quantifying very small concentrations of substances. 1 ppm is equivalent to 1 mg of a substance per liter of liquid (mg/L) or per kilogram of solid matter (mg/kg). For example, the sample GMP001 (prepared from the specimen sherd CE037-001) has 117.7 ppm of vanadium (V). This means that it contains ca. 117.5657 mg of V per kilogram.

3 The furnaces were comprised of large, inverted ceramic urns typically measuring ca. 45-55 cm and 45 cm in diameter and height respectively. Their bottom tips were chopped off to make openings ca. 20-25 cm in diameter at the top, and their bodies were covered with a insulating layer of adobe bricks and clay mortar and had a round ventilation hole ca. 8-9 cm in diameter near the floor level, facing the direction of the wind. The furnaces also had two short adobe walls extending in a radial fashion from their bodies and flanking the ventilation hole, which

probably helped to harness the wind and maximize the natural draft (Shimada and Wagner 2001:27; Goldstein and Shimada 2007:53).

4 It is important to note here the challenges and difficulties that I suffered when preparing for my material at the Sicán National Museum. Primarily due to the poor management system of the repository, many bags of artifacts disappeared and could not be located. Although I spent a few weeks and strived to find them with the help of my assistants and the in-charge museum staff (Juan Carlos Santoyo) through the length and breadth of the storage facilities, our efforts ended up in vain. Zoorachaeological remains suffered most from the problematical management. For instance, no camelid remains from the burial excavations in 2008 could be found, and almost all crania from the West Cemetery (but the one from the South Niche of Tomb 1) could not be located. The observation of crania was imperative, because the age determination of the animal bodies depends upon the osteological features of crania and pelvises as is the case with human bones. As I discussed in Chapter 4, the determination of the age and the body parts of the animals that were selected and consumed is an integral part of my planned zooarchaeological analysis to test the Operational Hypothesis 3 (*During the inferred feasts, the Sicán elites arranged commensality between the dead and the living by devoting camelid crania and limbs to the deceased as*

offerings and sharing the rest of the body parts among other attendees of the feasts). However, the analysis could not be implemented, as it was designed. Given that the museum staff has not engaged in similar zooarchaeological analyses, this problem has not been recognized or steps taken to address it. Neglecting and leaving this serious problem will surely pose a significant impediment for future research in the area.

5 The tombs and burials that are not the major subject of this dissertation (e.g., those in the EAs1 and 6) are not included in this number.

6 The OS-6 and OS-6/7 were included just in case, because it was not clear whether the large hearth (Feature 26) was still in use during the time of these occupational surfaces.

7 This may be primarily because the JU sherds excavated from Area 3 are much lower in frequency (15.3%). Thus, I shifted my focus to the BDP vessels and looked for residue that might have left on their interior surfaces. It was fortunate that I encountered a nearly complete SPD in immediate vicinity to the large adobe-lined hearth in Area 3. I sampled it together with sediments adhering to the interior surface for the purpose of taking samples for starch grain analysis. However, I missed the opportunity to study it. This is another problem of the artifact management system at the Sicán National Museum, which may

significantly hamper research activities. Although the information tag attached to the bag clearly stated not to wash the content clearly stated in Spanish, the bag was opened without asking, and the dish was washed completely by a museum staff who was working in the repository.

8 Pollen influx (PI) is "a mathematical expression for the amount of *pollen* (and/or *spores*, or other *palynomorphs*, as specified) sedimented/accumulated/deposited per year, per square centimeter, of a surface of deposition" (grains cm-2 year-1) (Traverse 2007:692). The PI is calculated by the formula, PI = PC/DT or PI = PC × SR, where PC (Pollen Concentration) is the number of pollen grains per unit volume of sediment, DT (Deposition Time) is the time elapsed during the accumulation of the sediment expressed in years per cm, and SR (Sedimentation Rate) is the observed growth of sediment expressed in cm per year.

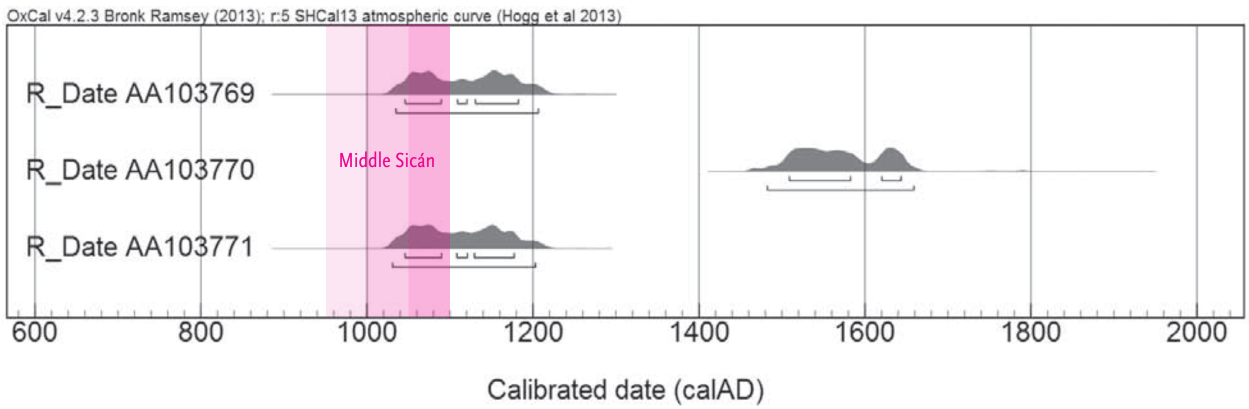


Figure 7.1. A multiple plot of calibrated radiocarbon dates (calAD) for the charred *algarrobo* wood and fruit samples from the SAP-HL'08 Areas 3 to 5.

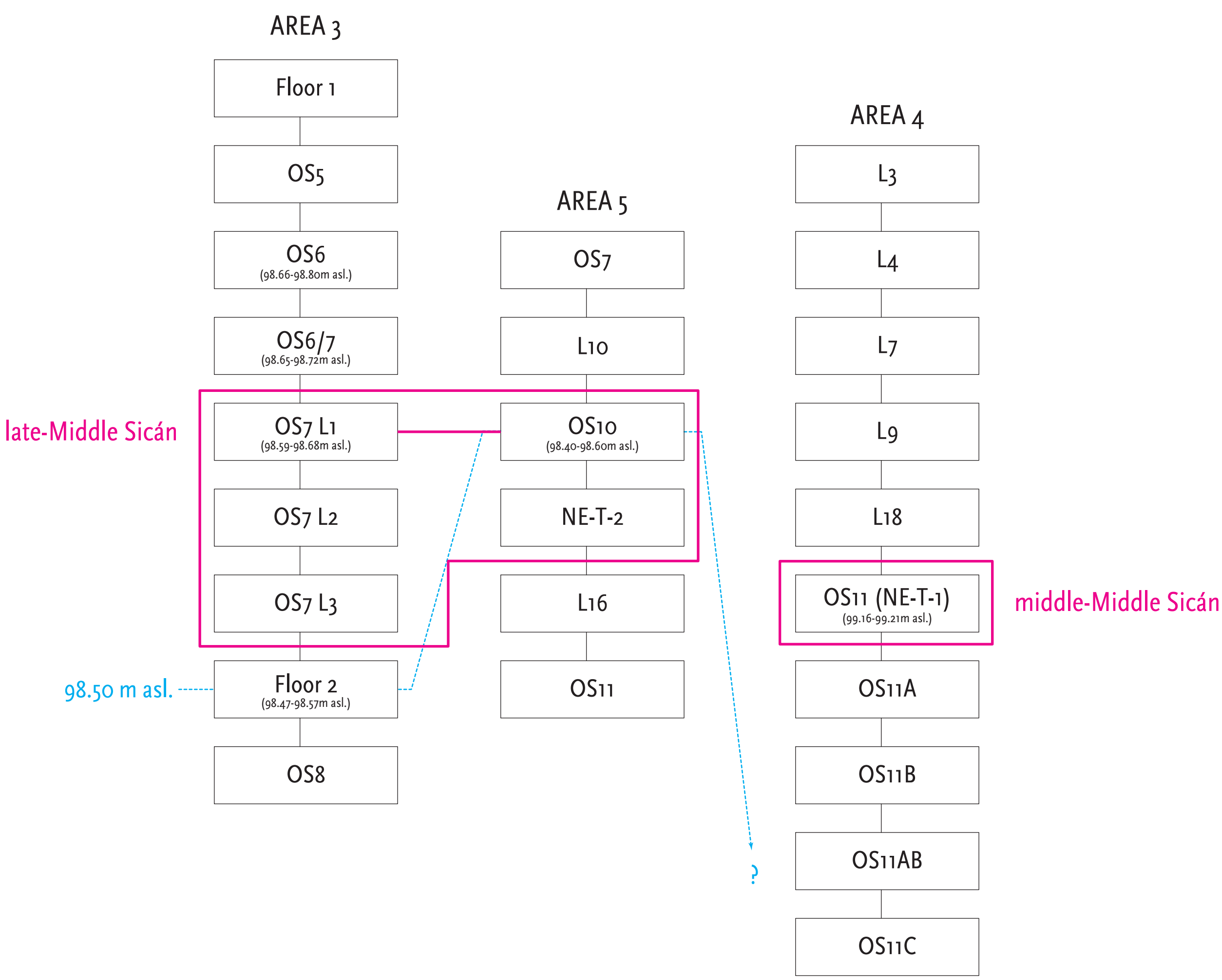
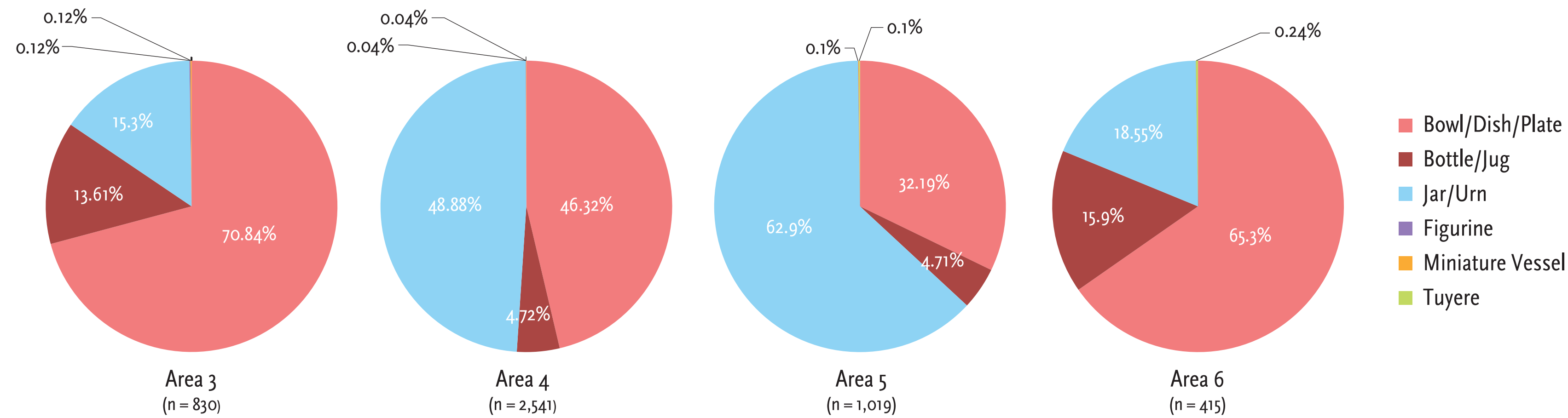


Figure 7.2. Temporal linkages among the SAP-HL'08 Areas 3 to 5, inferred based on the calibrated radiocarbon dates and the examinations of stylistic features of fine blackware bottles.



	Area 3	Area 4	Area 5	Area 6	Total
Bowl/Dish/Plate	588	1177	328	271	2364
Bottle/Jug	113	120	48	66	347
Jar/Urn	127	1242	641	77	2087
Figurine	1	1	0	0	2
Miniature	1	1	1	0	3
Tuyere	0	0	1	1	2
Total	830	2541	1019	415	4085

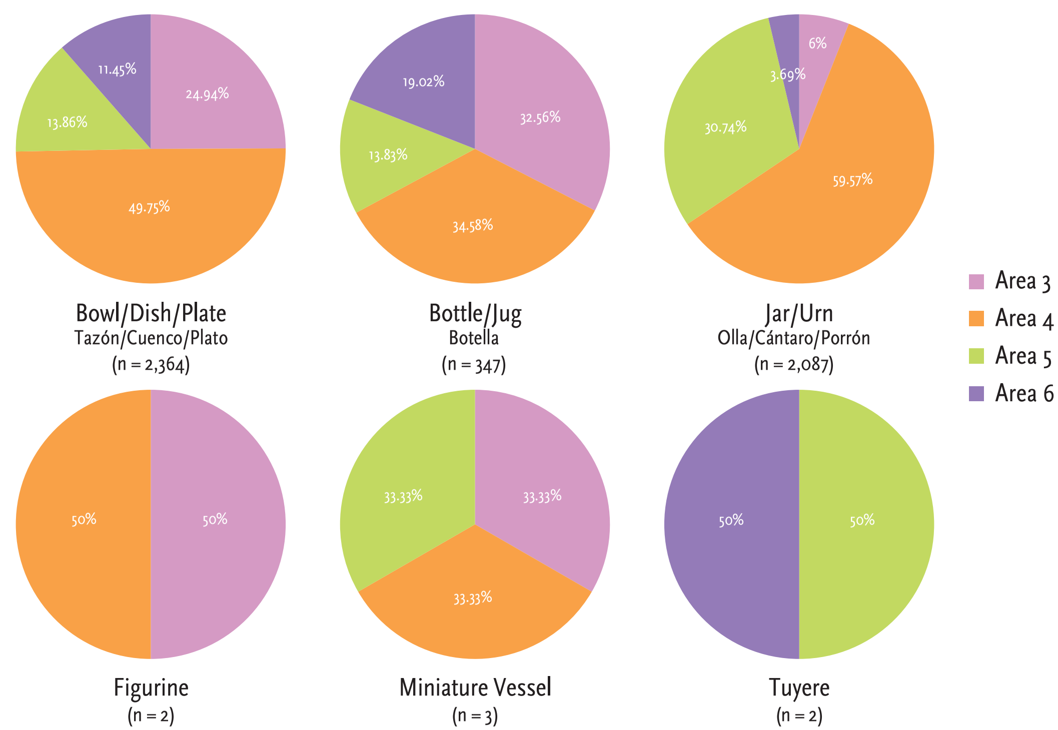


Figure 7.3. Percentages of different vessel forms. Note the predominance of serving vessels (Bowl/Dish/Plate).

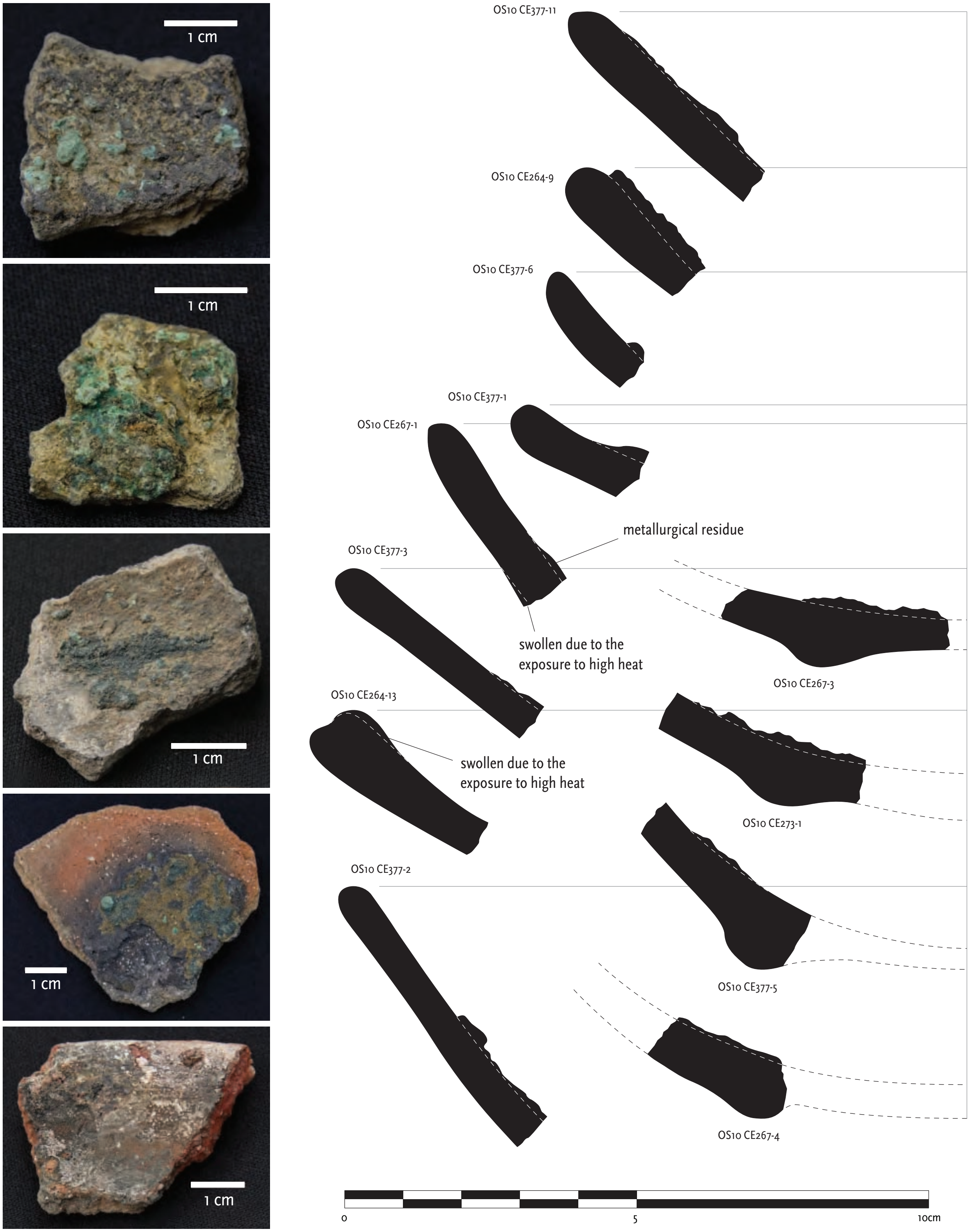


Figure 7.4. Morphological deformations of dish rims due to the exposure to high heat and metallurgical residues (prills and slag) left on the interior surface of serving dishes excavated from the SAP-HL'08-EA5.

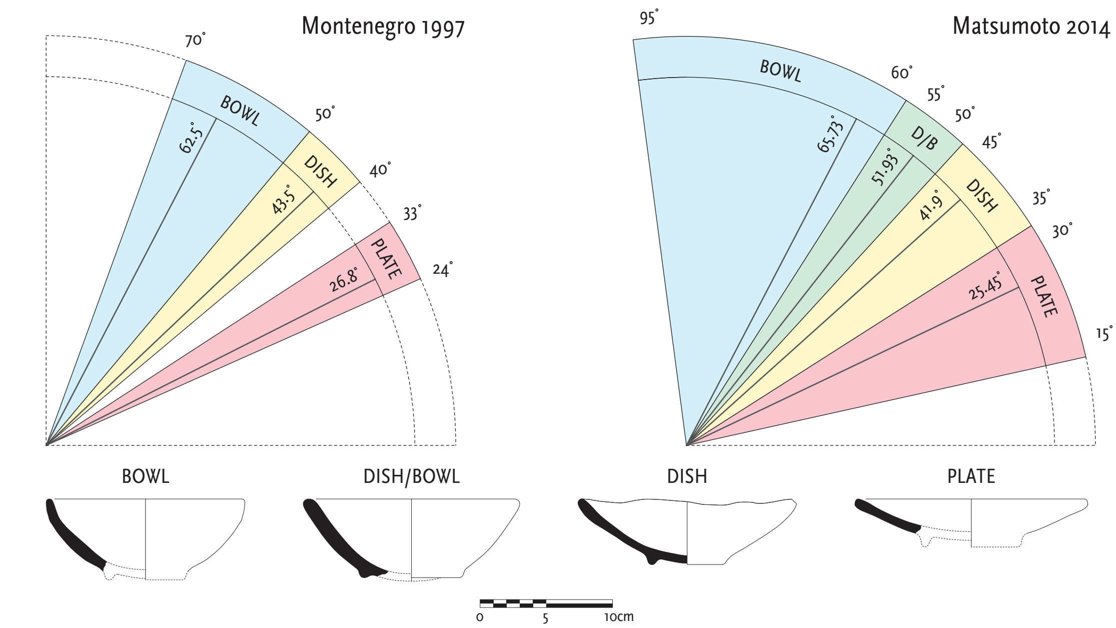


Figure 7.5. Distinctions between bowls, dishes, and plates defined by the frequencies of rim diameters and rim wall angles. As opposed Montenegro's (1997) tripartite classification, the BDP vessels analyzed by the current study were classified into four clusters: (1) Bowl, (2) Dish/Bowl, (3) Dish, and (4) Plate.

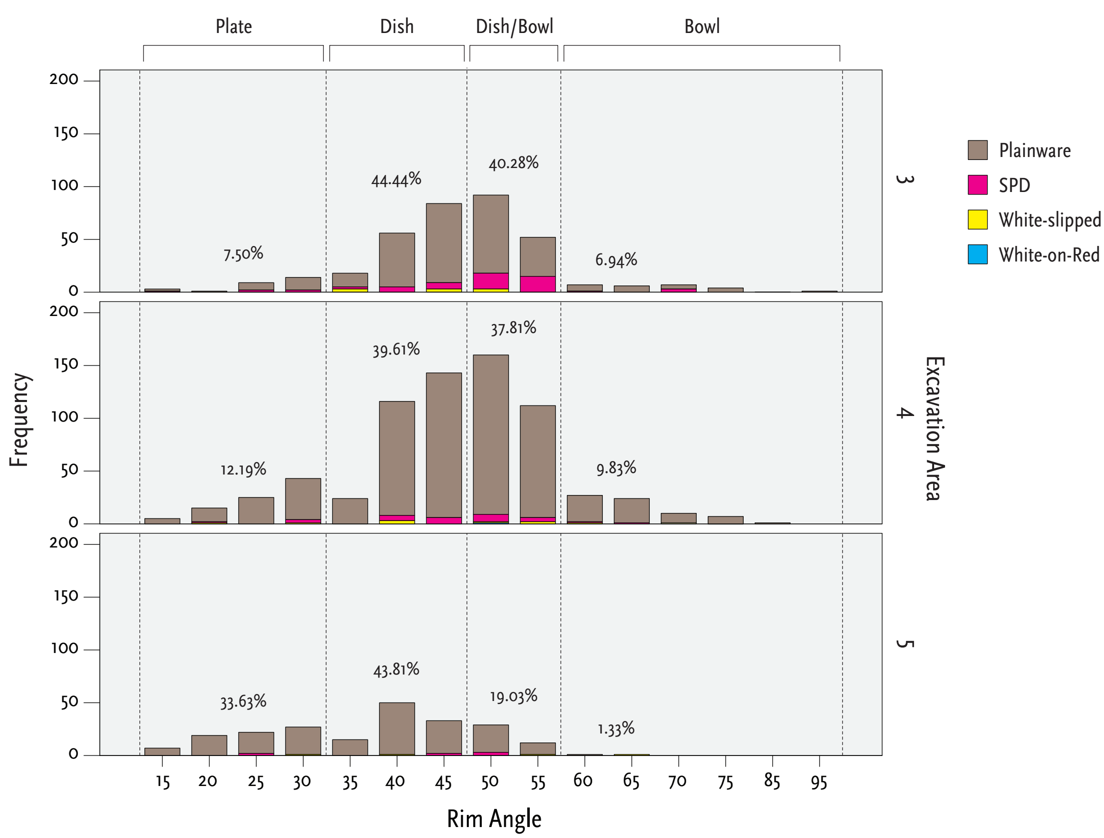


Figure 7.6. Frequencies of rim angles (15-95°) in the four types of BDP vessels (Plainware, SPD, White-slipped, and White-on-Red).

Figure 7.7. A white-on-red sherd with a curvilinear geometric design on the rim interior.

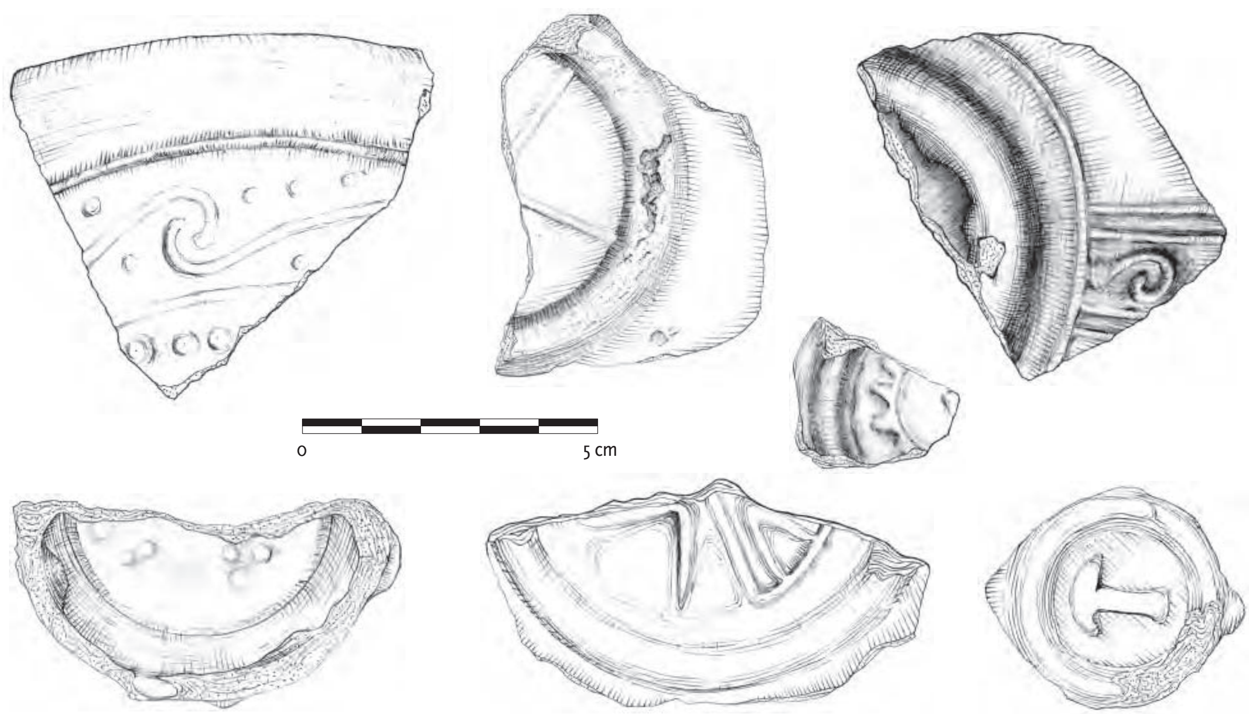


Figure 7.8. Molded designs on the exterior surface of the BDP vessels.

SAP-HL'08 Area 3

Figure 7.9. A variety of paint colors observed on the interior surfaces of the BDP vessels from the EA3.

SAP-HL'08 Area 4

SAP-HL'08 Area 5

Figure 7.10. A variety of paint colors observed on the interior surfaces of the BDP vessels from the EAs4 and 5.

Figure 7.11. The BJ (Bottle/Jug) Group vessels from the West Cemetery.

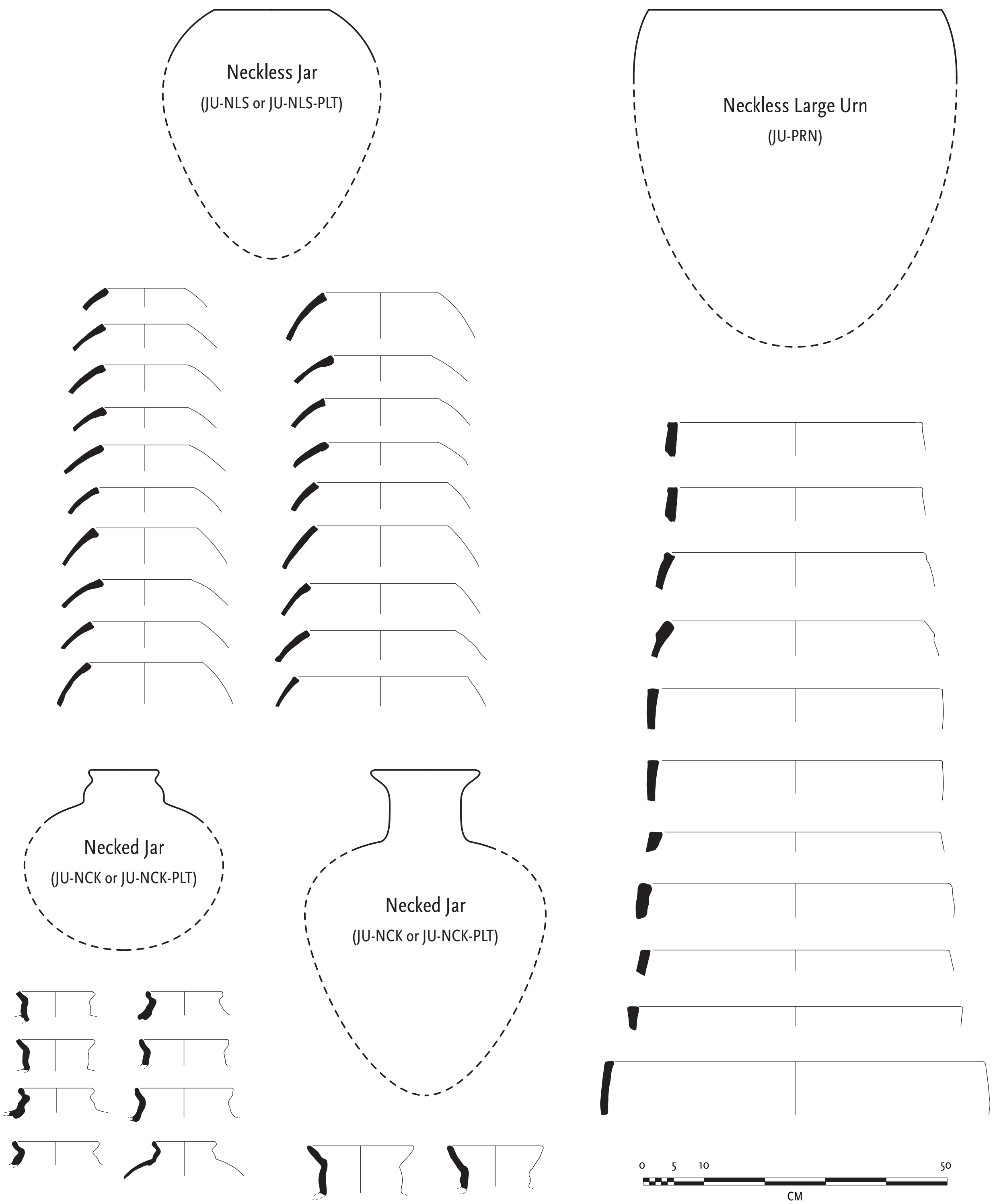


Figure 7.12. Vessel forms in the JU (Jar/Urn) Group.

(a) Ceramic

(b) Wooden

(c) Stone

Figure 7.13. Paddles of different materials used to form and decorate paleteada vessels: (a) a Chimú ceramic paddle with four different designs (two on either side) excavated by Tschauner (2001) at Pampa de Burros in the Middle Lambayeque Valley (Sicán National Museum, MNS-443/LS-92-866-94); (b) wooden and (c) stone paddles respectively with only one design on one side (Brüning National Archaeological Museum).

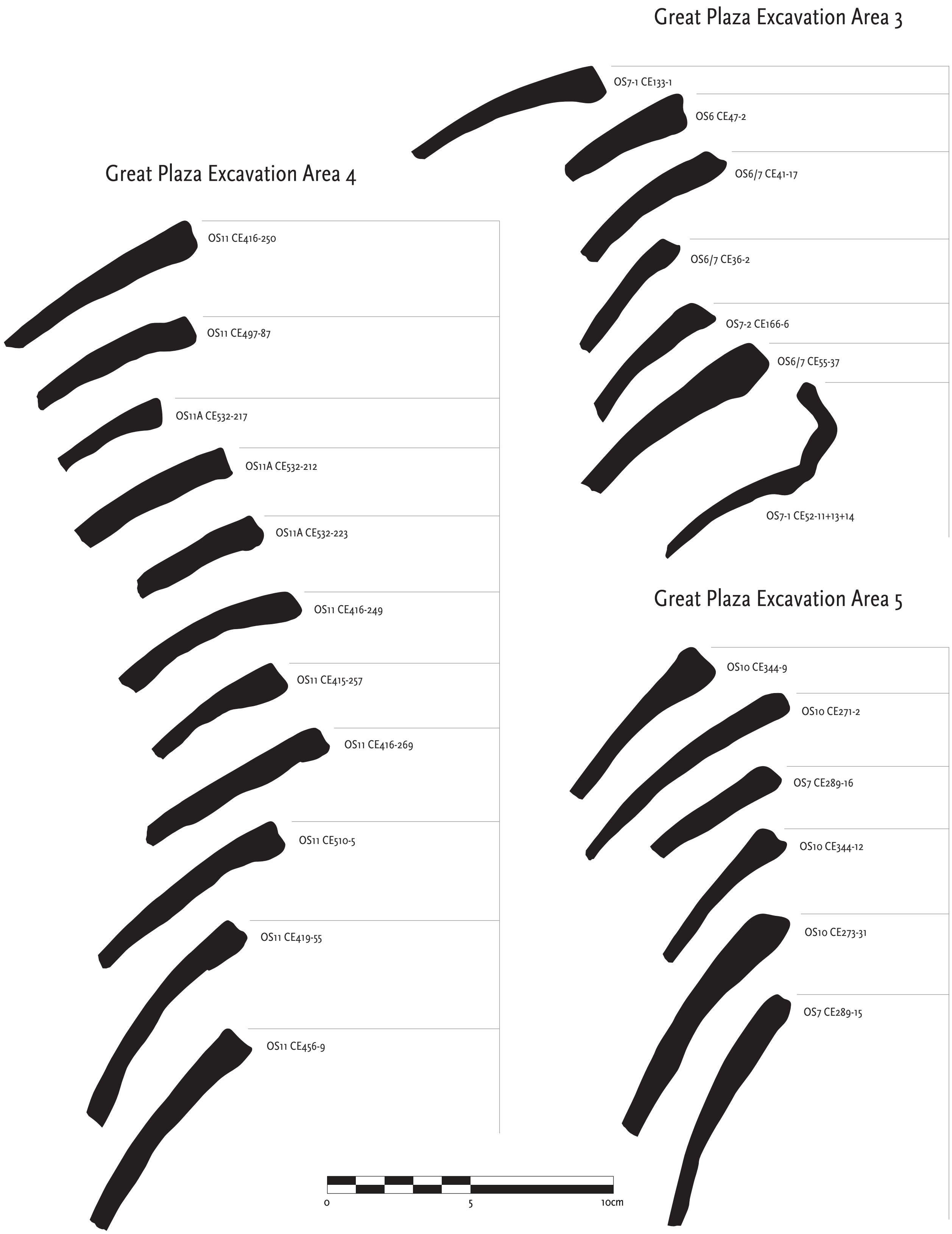


Figure 7.14. Depressions left on the interior surface of the JU cooking and storage vessels (*paleteada*) by the anvil stone during forming/decorating process.

xi+XI/U/E~1 (TYPE I-a/b/c)

Silhouette: Composite
Lower portion: Convex inverted (xi)
Concave middle portion: Present (+)
Upper portion: Convex inverted to upright to everted (XI/U/E)
Vertical proportion lower/upper portion: Around 1 (~1)

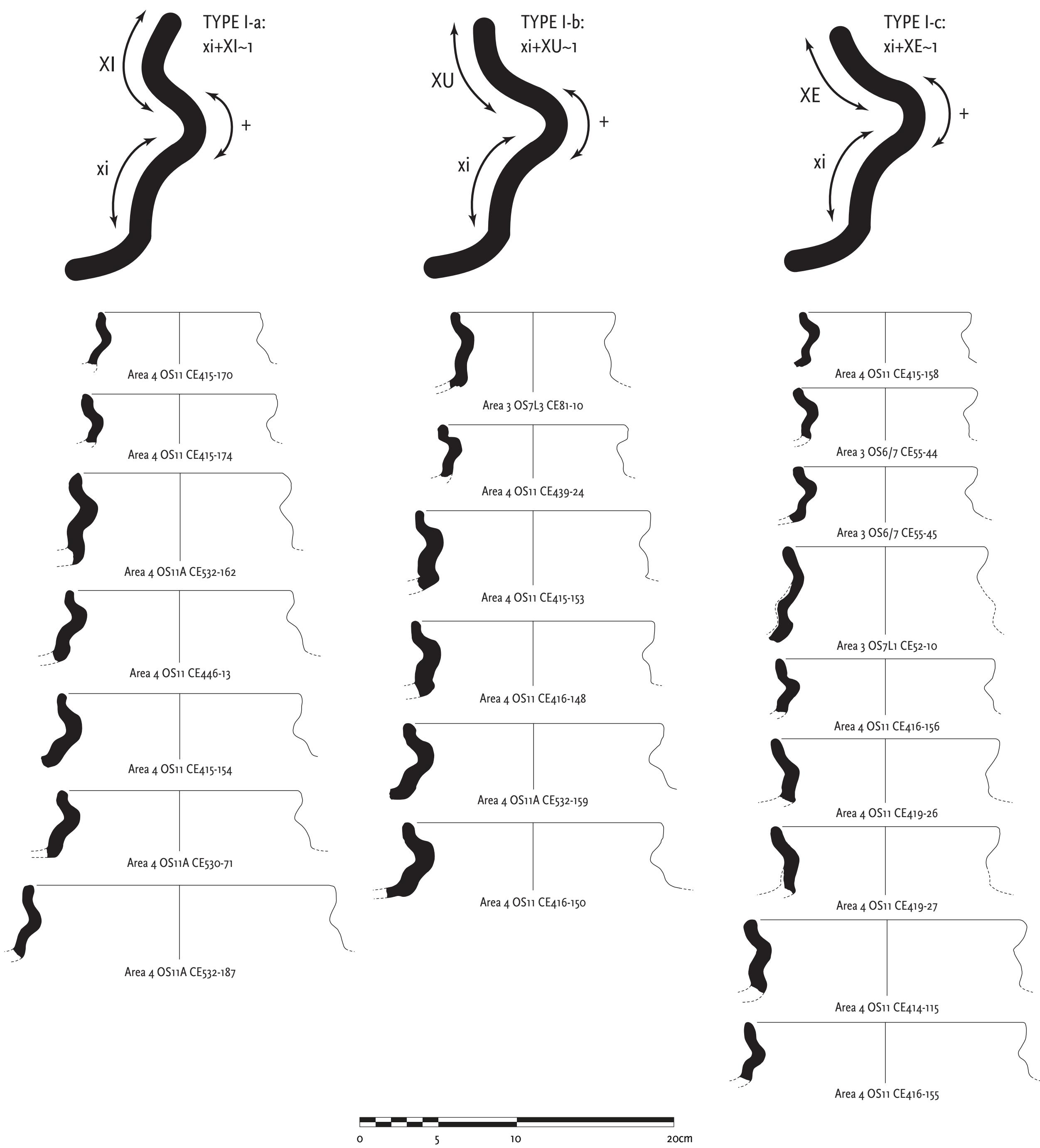


Figure 7.15. Rim/neck profiles of necked jars (or *ollas*): TYPE I-a, b and c.

xi+XCU/E~1 (TYPE I-b2/c2)

Silhouette: Composite
Lower portion: Convex inverted (xi)
Concave middle portion: Present (+)
Upper portion: Convex and concave upright to everted (XCU/E)
Vertical proportion lower/upper portion: Around 1 (~1)

xi+XE<1 (TYPE I-c3)

Silhouette: Composite
Lower portion: Convex inverted (xi)
Concave middle portion: Present (+)
Upper portion: Convex everted (XE)
Vertical proportion lower/upper portion: <1

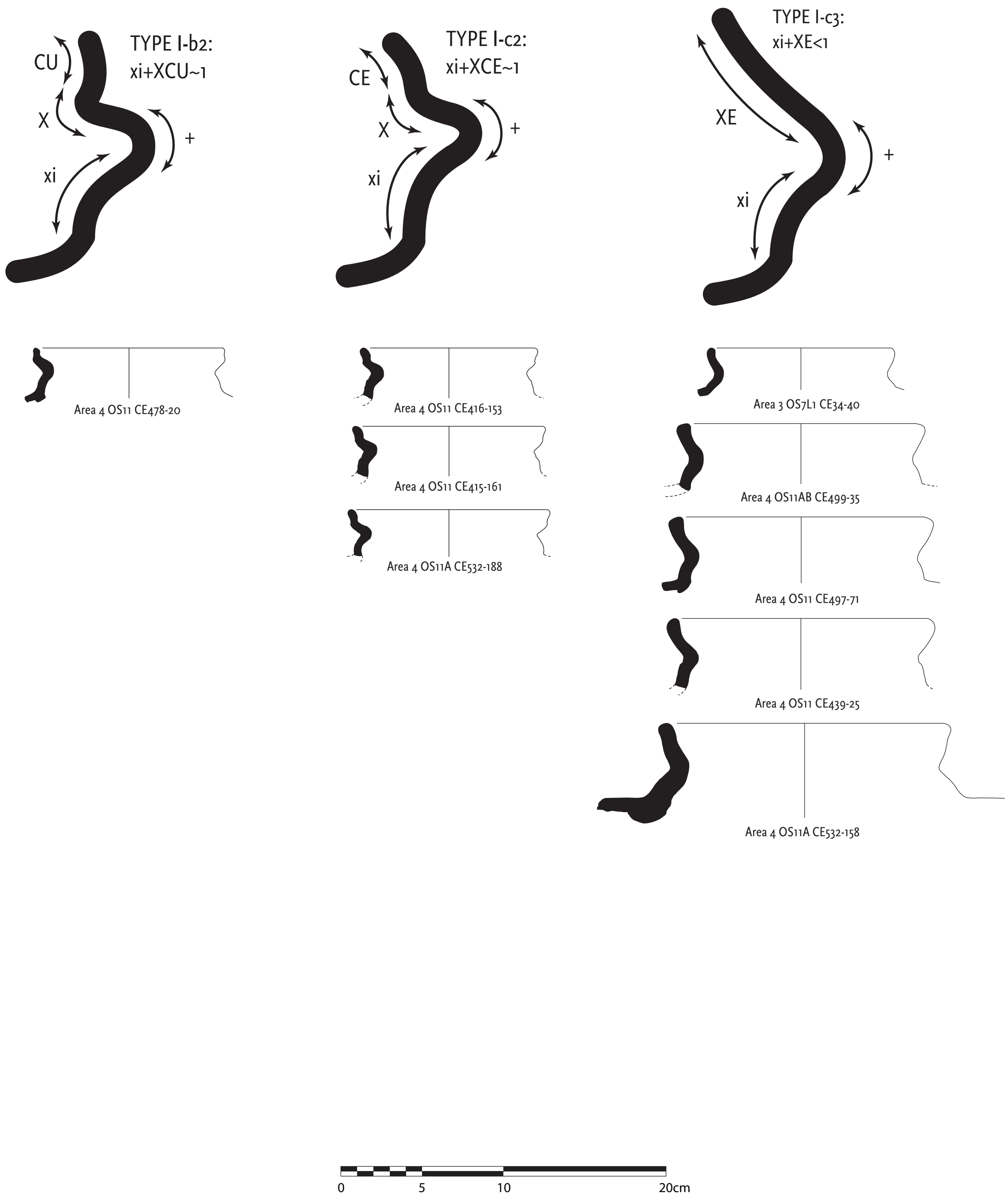


Figure 7.16. Rim/neck profiles of necked jars (or *ollas*): TYPE I-b2, I-c2, and I-c3.

g-hxi+GI/GU/HXE>=1 (TYPE II-a/b/c)

Silhouette: Composite
Lower portion: Straight-sided to convex inverted (g-hxi)
Concave middle portion: Present (+)
Upper portion: Straight-sided upright to inverted to slightly convex everted (GI/GU/HXE)
Vertical proportion lower/upper portion: >=1

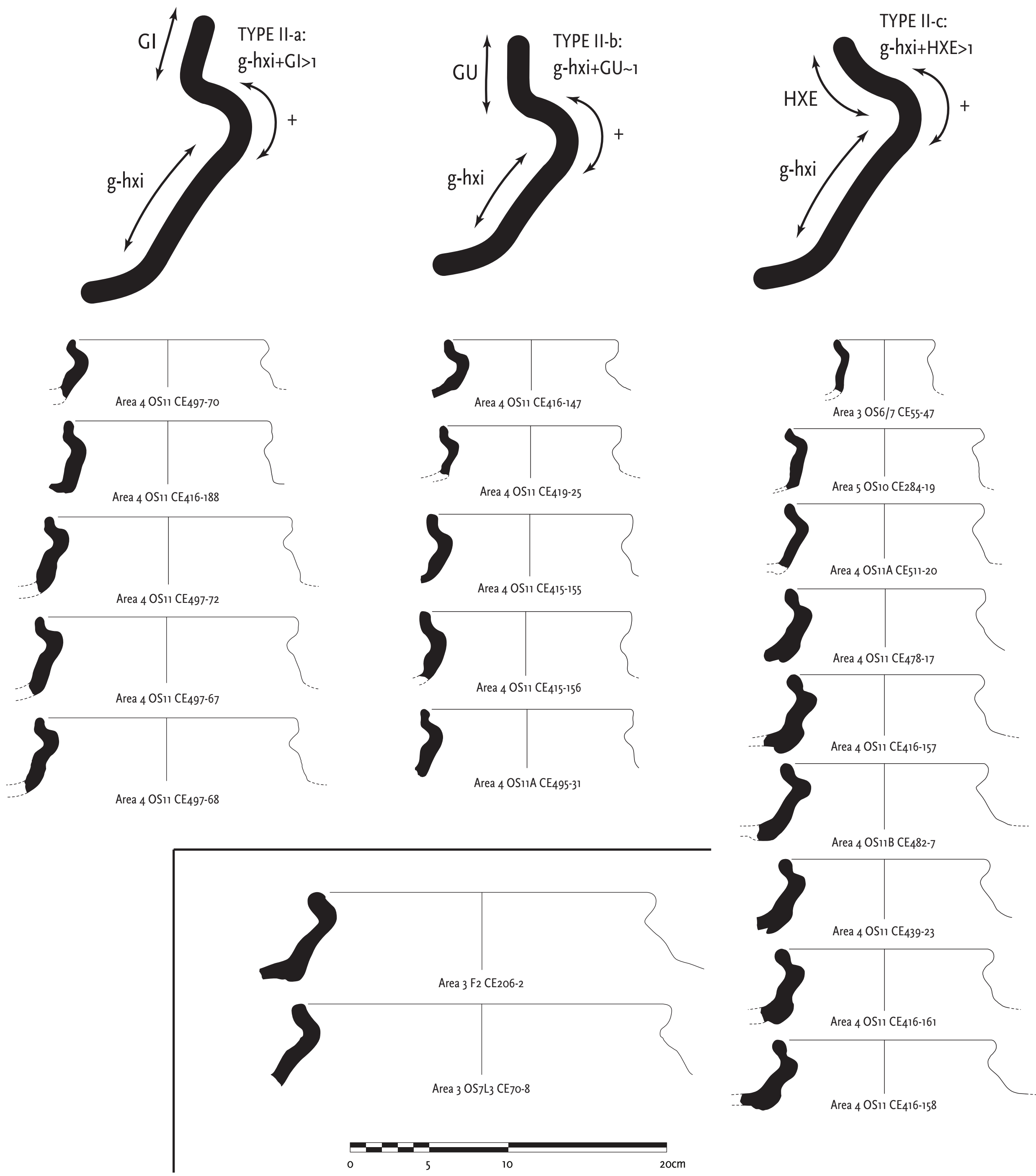
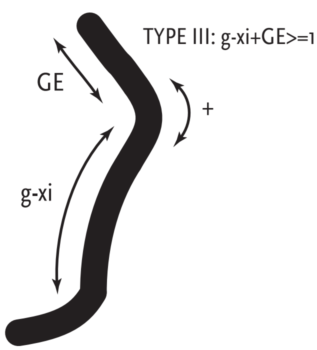
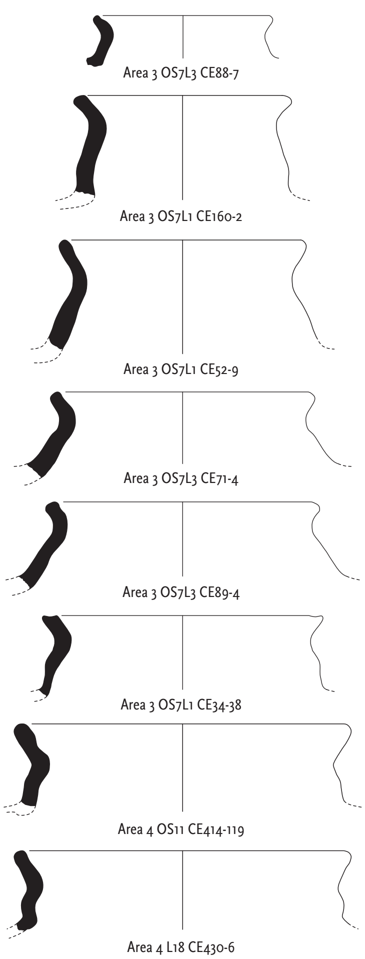


Figure 7.17. Rim/neck profiles of necked jars (or *ollas*): TYPE II-a, b, and c.

g-xi+GE>=1 (TYPE III)

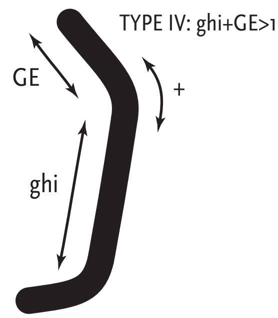
Silhouette: Composite
Lower portion: Straight to convex inverted (g-xi)
Concave middle portion: Present (+)
Upper portion: Straight-sided everted (GE)
Vertical proportion lower/upper portion: >=1

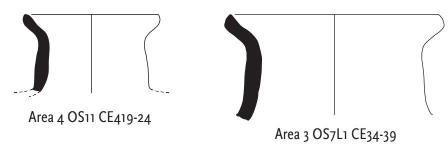




ghi+GE>1 (TYPE IV)

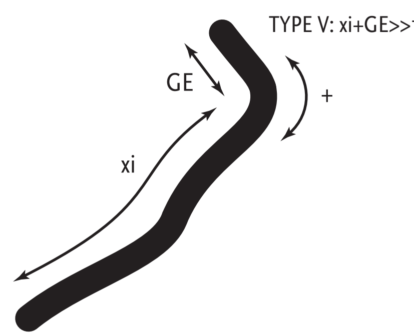
Silhouette: Composite
Lower portion: Straight-sided slightly inverted (ghi)
Concave middle portion: Present (+)
Upper portion: Straight-sided everted (GE)
Vertical proportion lower/upper portion: >1





xi+GE>>1 (TYPE V)

Silhouette: Composite
Lower portion: Convex inverted (xi)
Concave middle portion: Present (+)
Upper portion: Straight-sided everted (GE)
Vertical proportion lower/upper portion: >>1



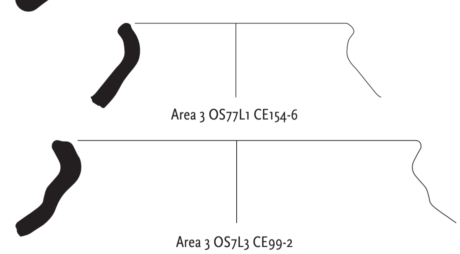


Figure 7.18. Rim/neck profiles of necked jars (or *ollas*): TYPE III, IV, and V.

xiXI/U/E/~1 (TYPE VI-a/b/c)

Silhouette: Composite
Lower portion: Convex inverted (xi)
Concave middle portion: Absent
Upper portion: Convex inverted to upright to everted (XI/U/E)
Vertical proportion lower/upper portion: Around 1 (~1)

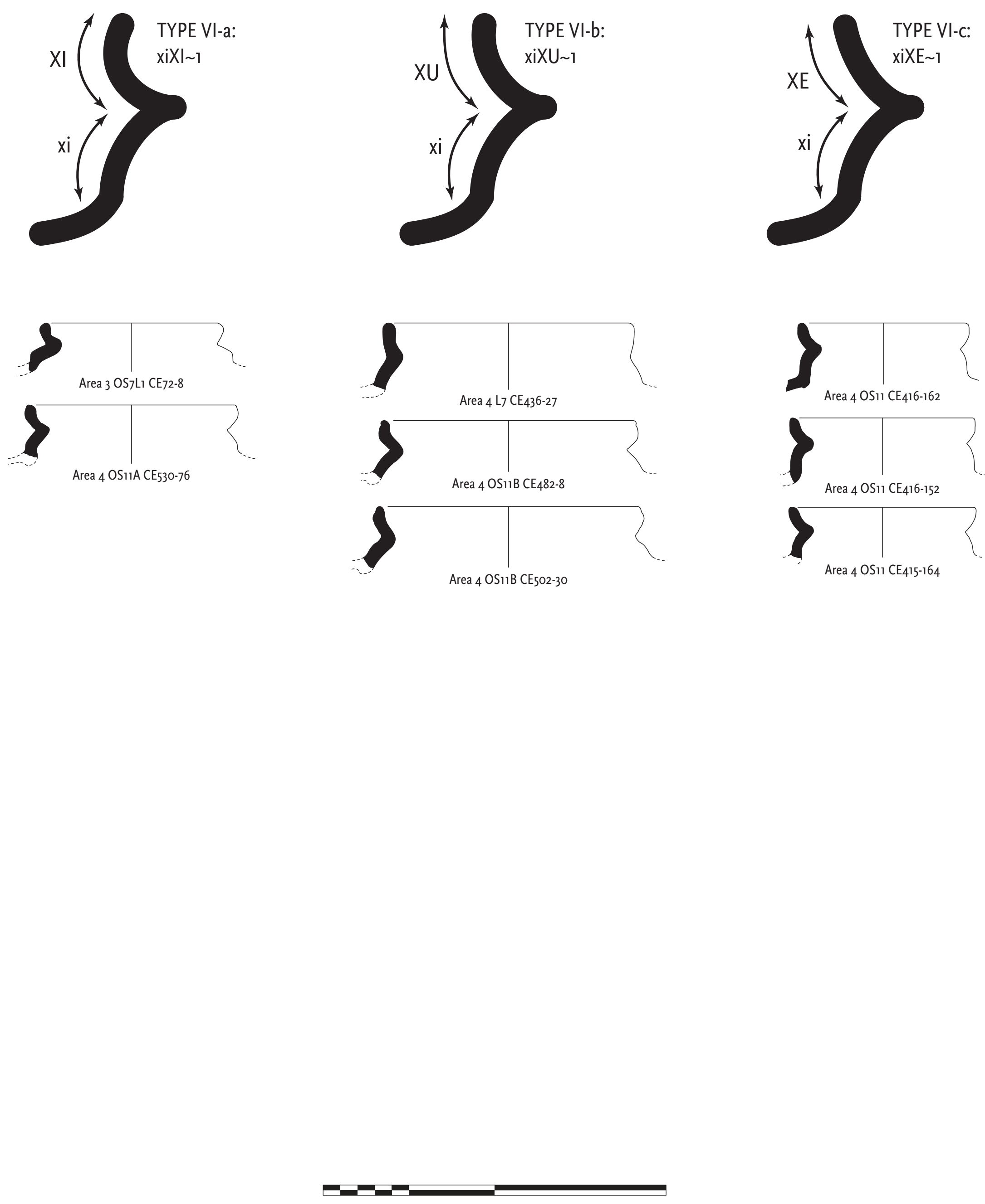


Figure 7.19. Rim/neck profiles of necked jars (or *ollas*): TYPE VI-a, b, and c.

g-hxiXI/U/E~1 (TYPE VI-a2/b2/c2)

Silhouette: Composite
Lower portion: Convex inverted (g-hxi)
Concave middle portion: Absent
Upper portion: Convex inverted to upright to everted (XI/U/E)
Vertical proportion lower/upper portion: Around 1 (~1)

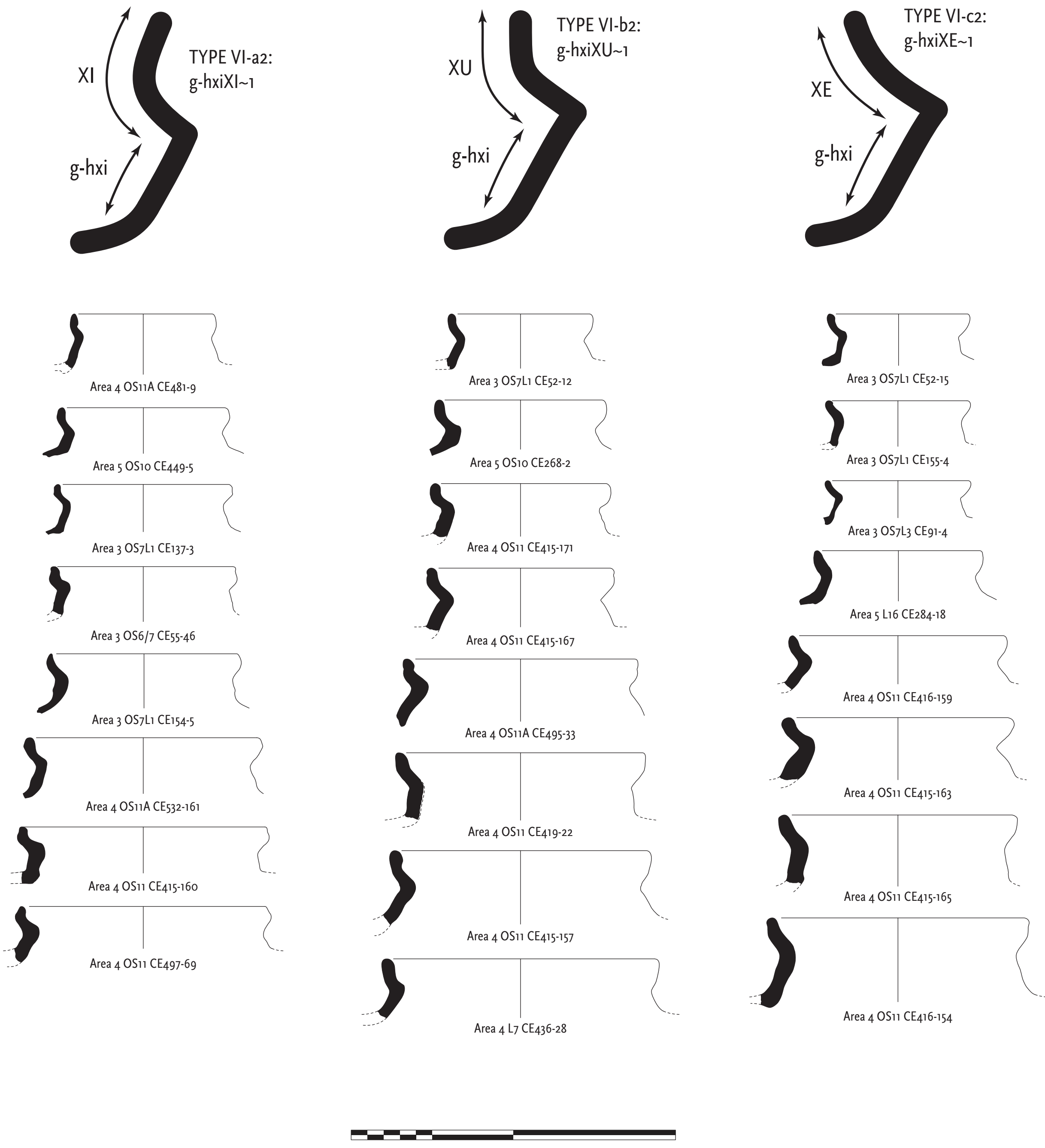
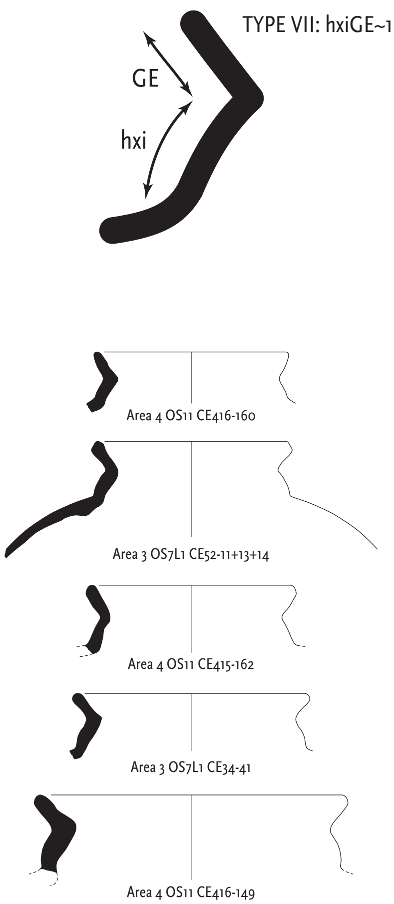


Figure 7.20. Rim/neck profiles of necked jars (or *ollas*): TYPE VI-a2, b2, and c2.

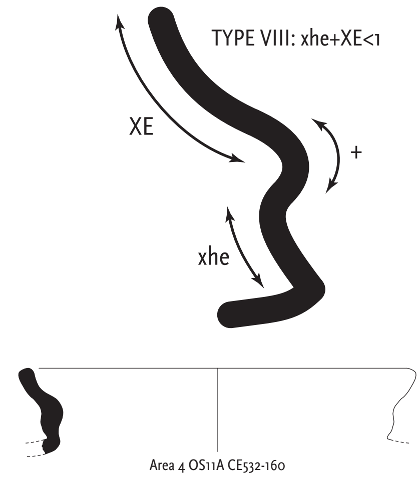
hxiGE~1 (TYPE VII)

Silhouette: Composite
Lower portion: Slightly convex inverted (hxi)
Concave middle portion: Absent
Upper portion: Straight-sided everted (GE)
Vertical proportion lower/upper portion: Around 1 (~1)



xhe+XE<1 (TYPE VIII)

Silhouette: Composite
Lower portion: Convex slightly everted (xhe)
Concave middle portion: Present (+)
Upper portion: Convex everted (XE)
Vertical proportion lower/upper portion: <1



ghe+XE>1 (TYPE IX)

Silhouette: Composite
Lower portion: Straight-sided slightly everted (ghe)
Concave middle portion: Present (+)
Upper portion: Convex everted (XE)
Vertical proportion lower/upper portion: >1

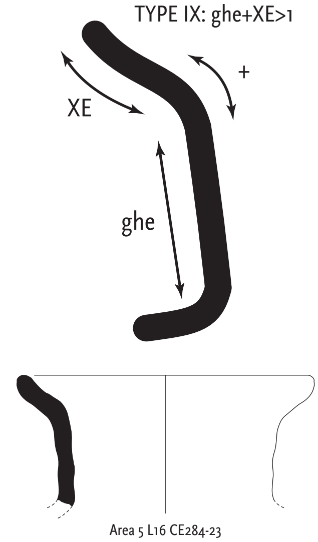


Figure 7.21. Rim/neck profiles of necked jars (or *ollas*): TYPE VII, VIII, and IX.

guCE>1 (TYPE X)

Silhouette: Composite
Lower portion: Straight-sided upright (gu)
Concave middle portion: Absent
Upper portion: Concave everted (CE)
Vertical proportion lower/upper portion: >1

xux-HXE>=1 (TYPE XI)

Silhouette: Composite
Lower portion: Convex upright (xu)
Concave middle portion: Absent
Upper portion: Convex to slightly convex everted (X-HXE)
Vertical proportion lower/upper portion: >=1

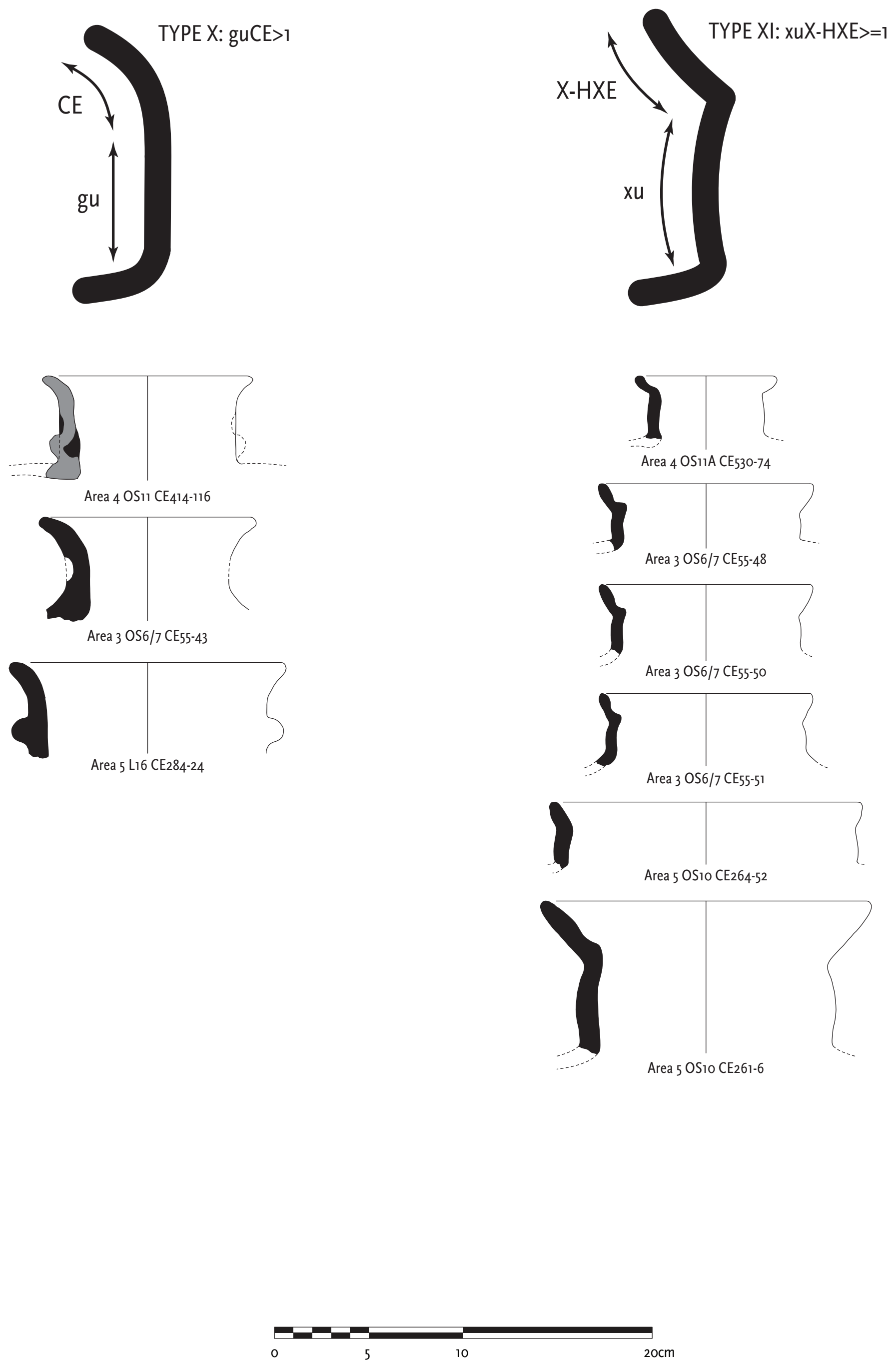
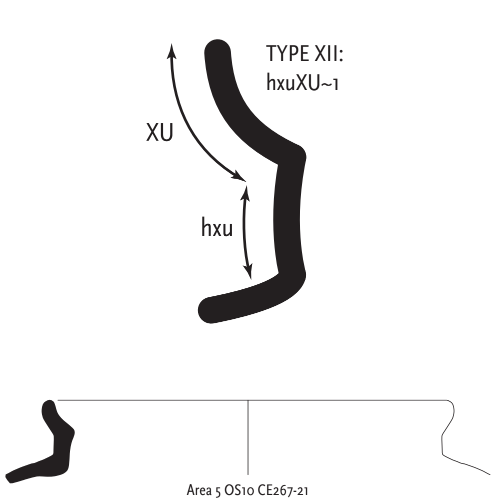


Figure 7.22. Rim/neck profiles of necked jars (or *ollas*): TYPE X and XI.

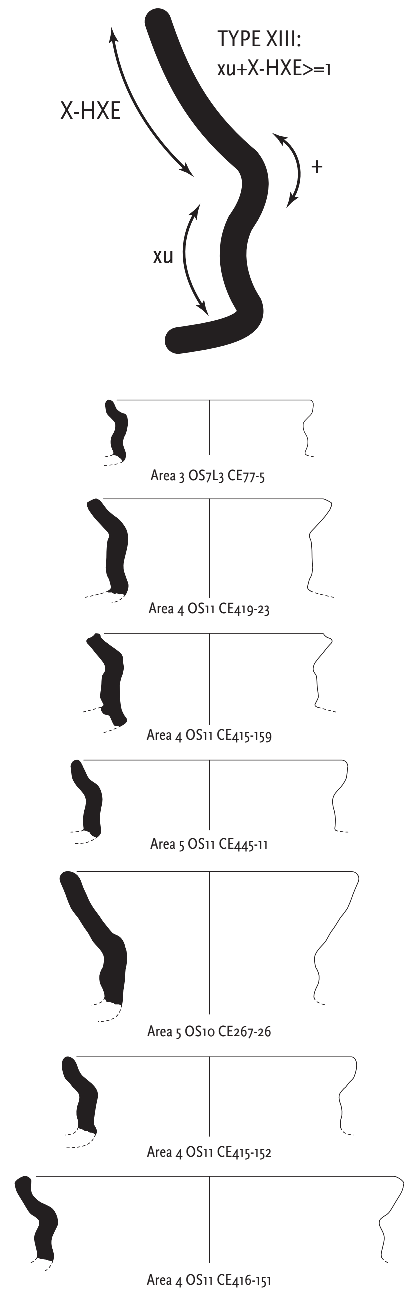
hxuXU~1 (TYPE XII)

Silhouette: Composite
Lower portion: Slightly convex upright (hxu)
Concave middle portion: Absent
Upper portion: Convex upright (XU)
Vertical proportion lower/upper portion: Around 1 (~1)



xu+X-HXE<=1 (TYPE XIII)

Silhouette: Composite
Lower portion: Convex upright (xu)
Concave middle portion: Present (+)
Upper portion: Convex to slightly convex everted (X-HXE)
Vertical proportion lower/upper portion: <=1



cuXU<1 (TYPE XIV)

Silhouette: Composite
Lower portion: Concave upright (cu)
Concave middle portion: Absent
Upper portion: Convex upright (XU)
Vertical proportion lower/upper portion: <1

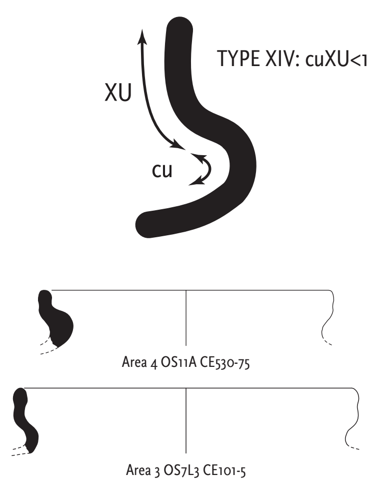
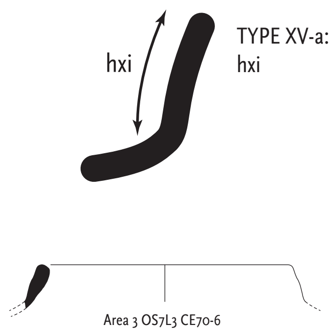


Figure 7.23. Rim/neck profiles of necked jars (or *ollas*): TYPE XII, XIII, and XIV.

xhi (TYPE XV-a)

Silhouette: Simple (upper portion only)
Lower portion: Slightly convex inverted (hxi)
Concave middle portion: Absent
Upper portion: Absent



hxe (TYPE XV-c)

Silhouette: Simple (upper portion only)
Lower portion: Slightly convex everted (hxe)
Concave middle portion: Absent
Upper portion: Absent

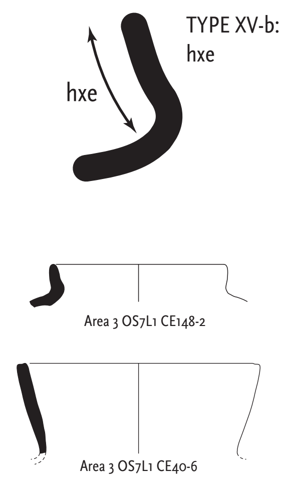


Figure 7.24. Rim/neck profiles of necked jars (or *ollas*): TYPE XV.

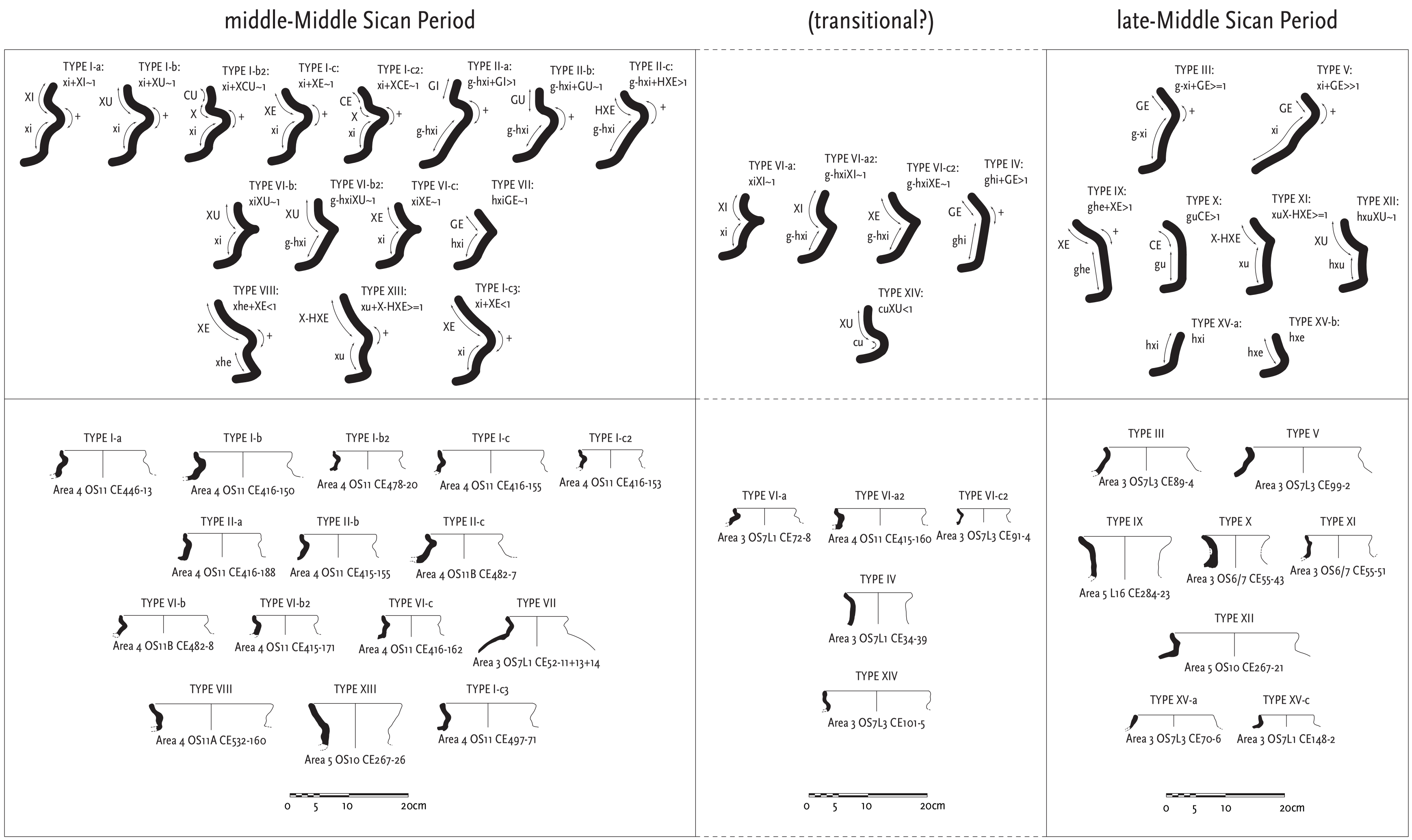


Figure 7.25. The 15 silhouette types of the necked jars (or *ollas*) put in a chronological order.

Figure 7.26. Two holes observed on the annular base of a complete dish. Note the elongated depression on the bottom of the base, which corresponds to the diameter line of the base ring that connects the two holes. The holes seem to have been made by an elongated and tapered object.

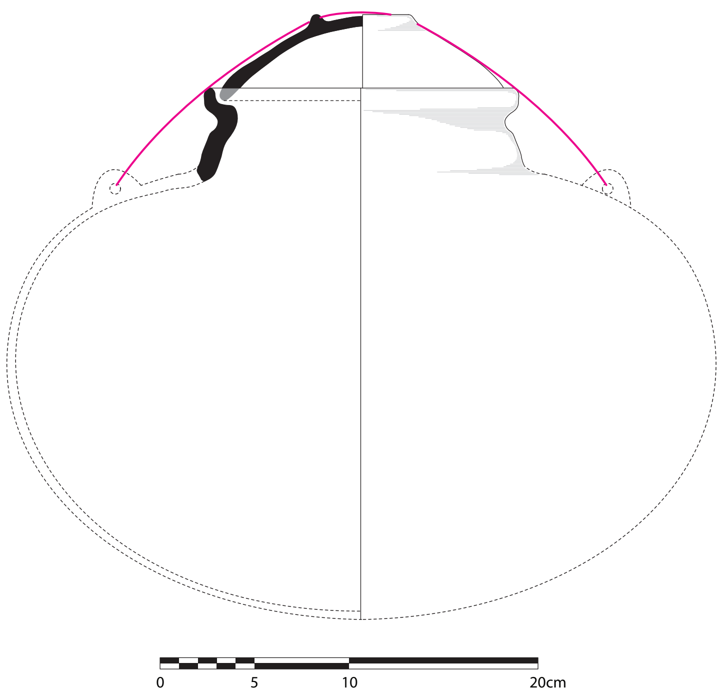


Figure 7.27. A hypothetical way to seal the necked pot with an inverted dish as a lid. The lid dish may be secured in place by passing a string through the perforated base and tying its either end to the lug handle on the vessel shoulder.

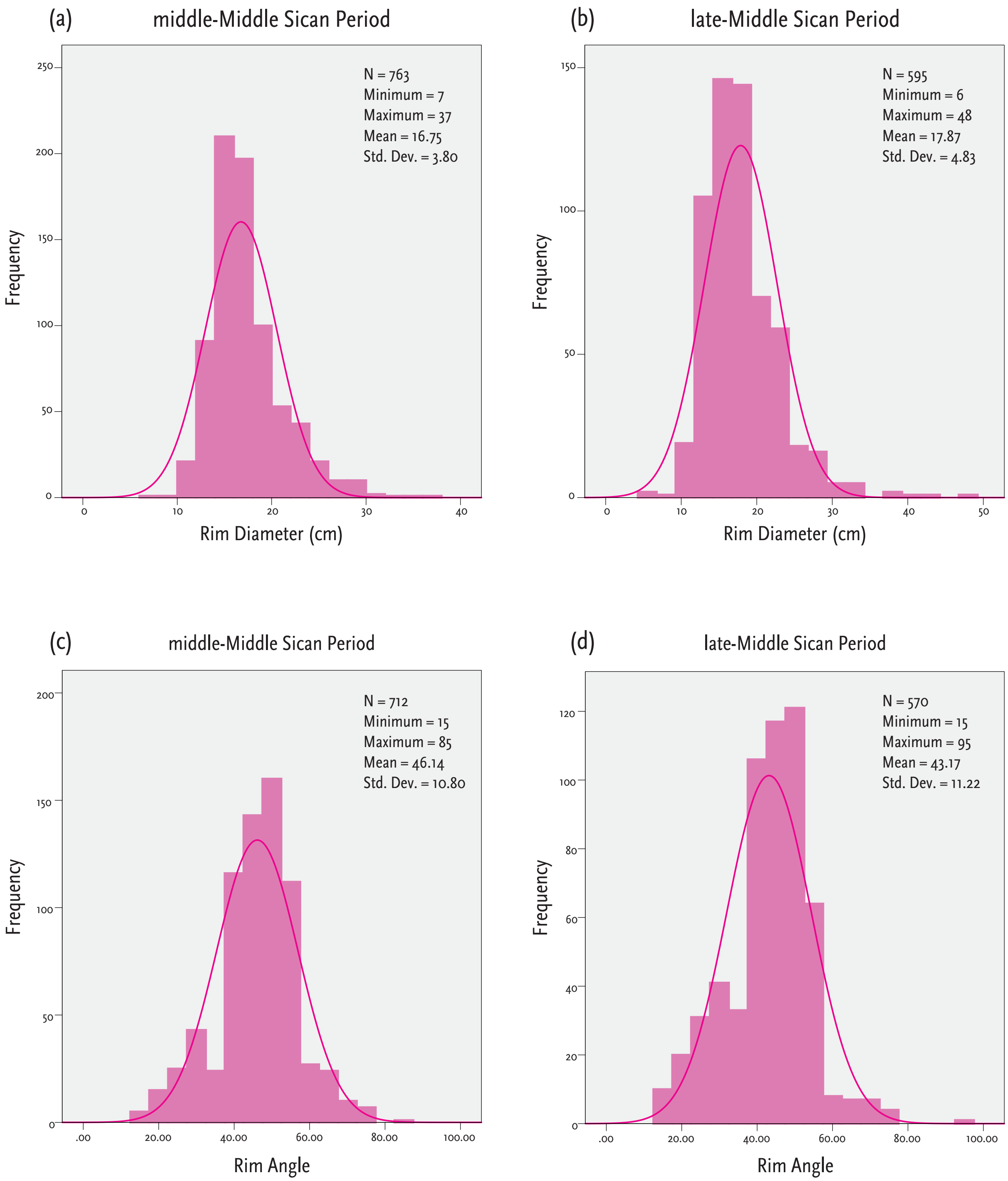


Figure 7.28. Histograms of rim diameter (a-b) and rim angle (c-d) of the BDP vessels during the middle- and late-Middle Sicán Periods.

Figure 7.29. Two-step cluster analyses aimed at inferring the numbers of possible size ranges of the rim diameter of the BDP vessels during the middle- and late-Middle Sicán Periods.

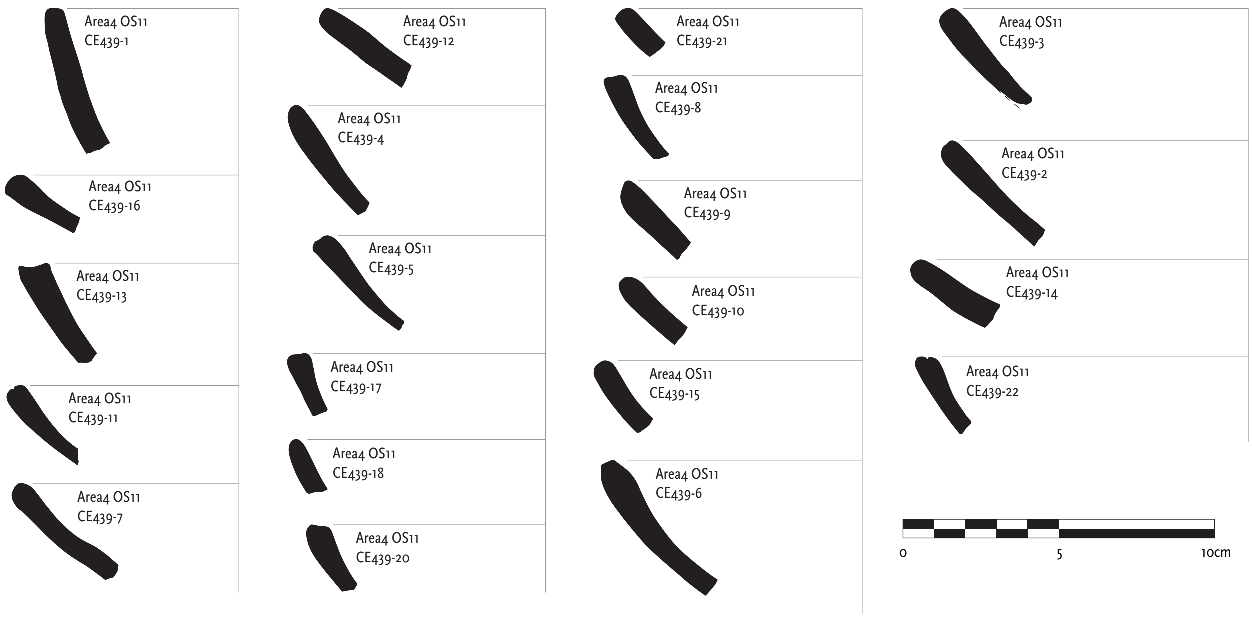


Figure 7.30. Various lip forms and rim thickenings observed on the BDP fragments within a single ceramic bag (CE439 the OS-11 in the EA4).

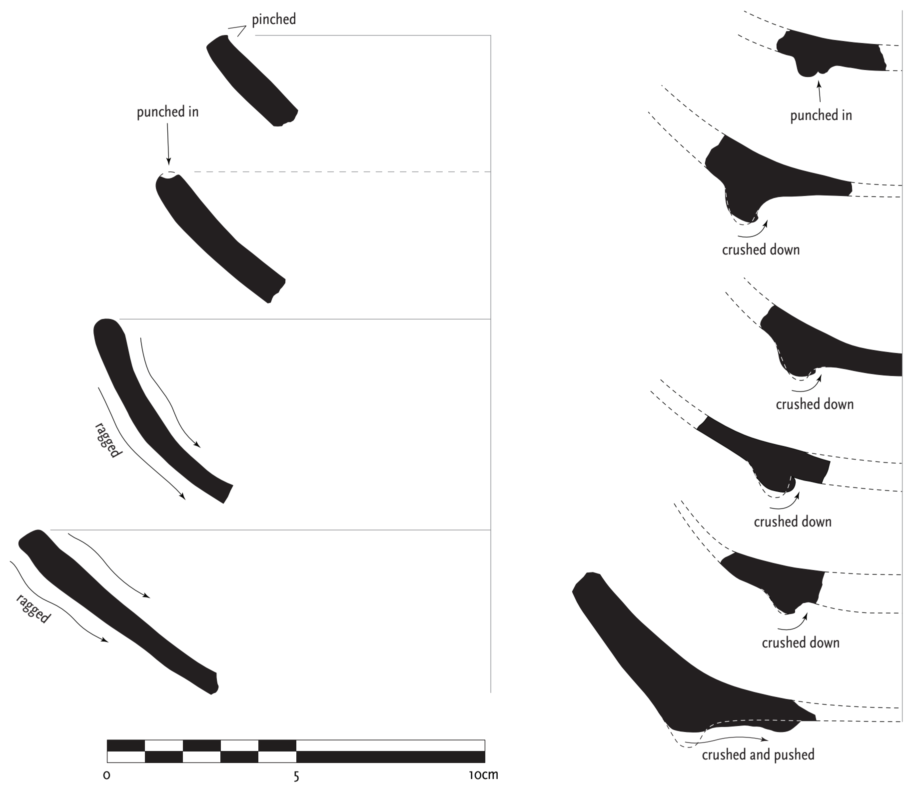


Figure 7.31. Deformations and morphological irregularities observed on the rim and base sherds of the BDP vessels.

Figure 7.32. Poorly molded exterior surfaces of the BDP vessels.

Figure 7.33. Poorly fired BDP sherds.

Figure 7.34. Three clusters of total production cost of the BDP vessels.

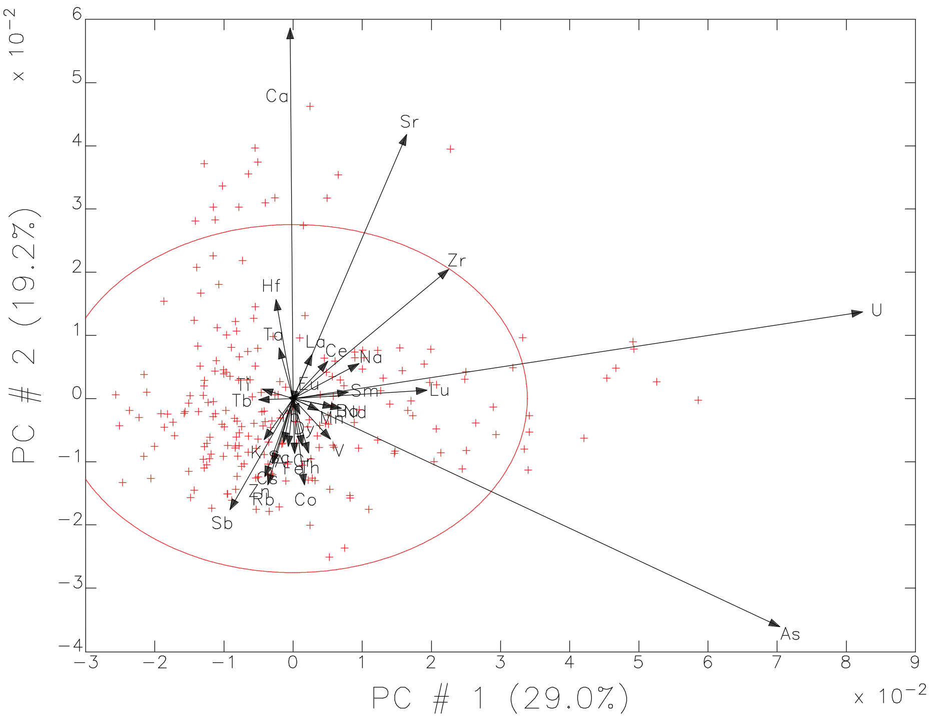


Figure 7.35. Biplot of the first two components (PCs) from the principal components analysis of the 225 specimens. Note that the vector arrows are displayed with the the scale factor of 0.5, and the ellipse is drawn with a 90% confidence interval.

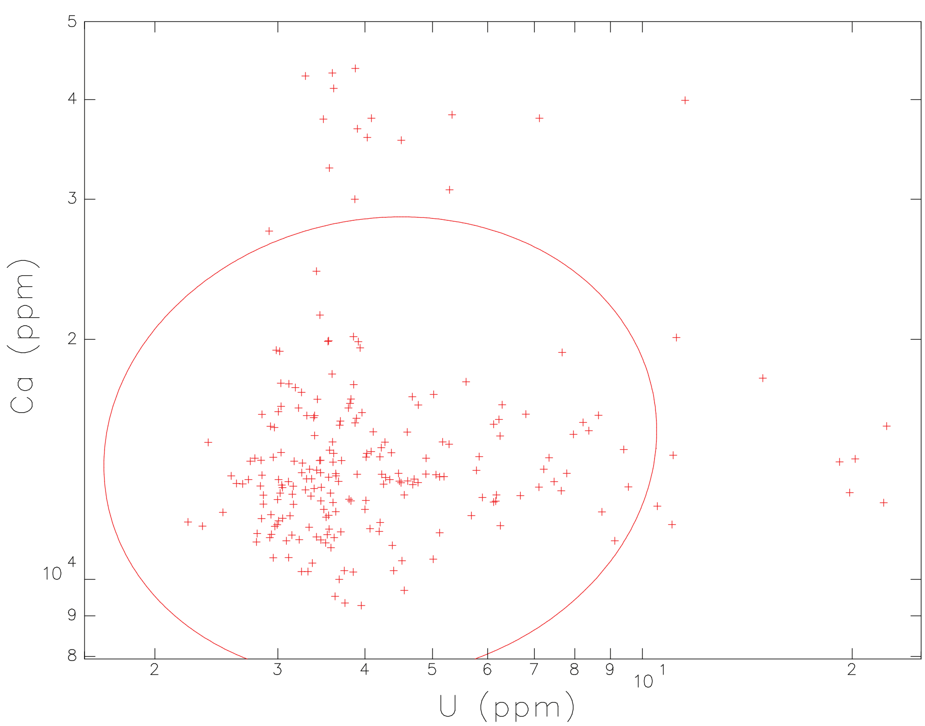


Figure 7.36. Biplot of uranium (U) and calcium (Ca) contained in the 225 specimens. The ellipse is drawn with a 90% confidence interval. The distributions of the specimens outside the ellipse suggest that there may be two more clusters besides the major concentration, one higher in U and the other higher in Ca.

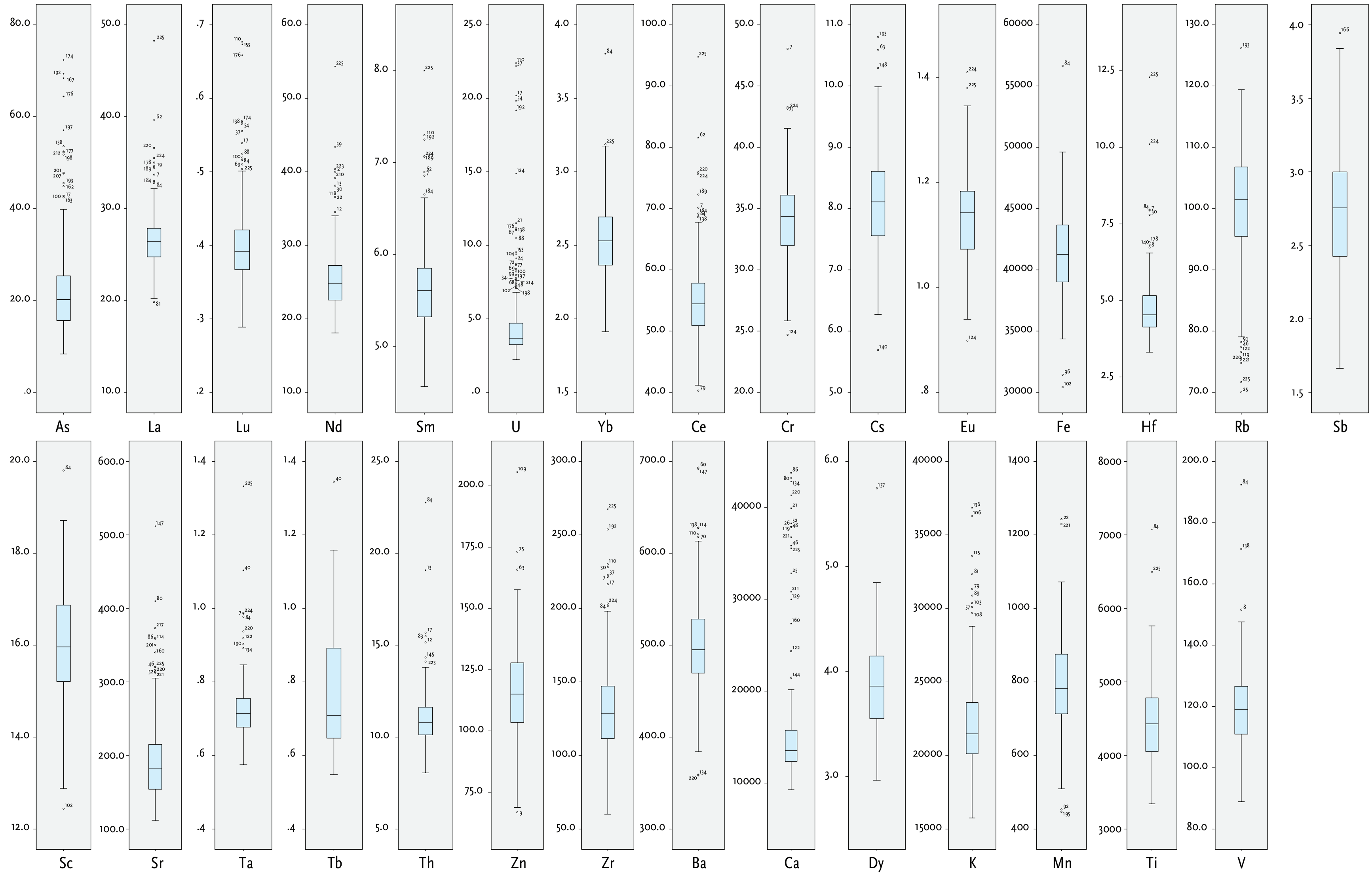


Figure 7.37. Twenty-nine boxplots of the measurements for the recorded elements. If all of the 225 measurements for each element are normally distributed, 50% of them should lie within the blue box and approximately 95% should fall between the inner fences or whiskers. The circles and asterisks (or stars) represent respectively outliers and extreme outliers (with a value more than three times the height of the box).

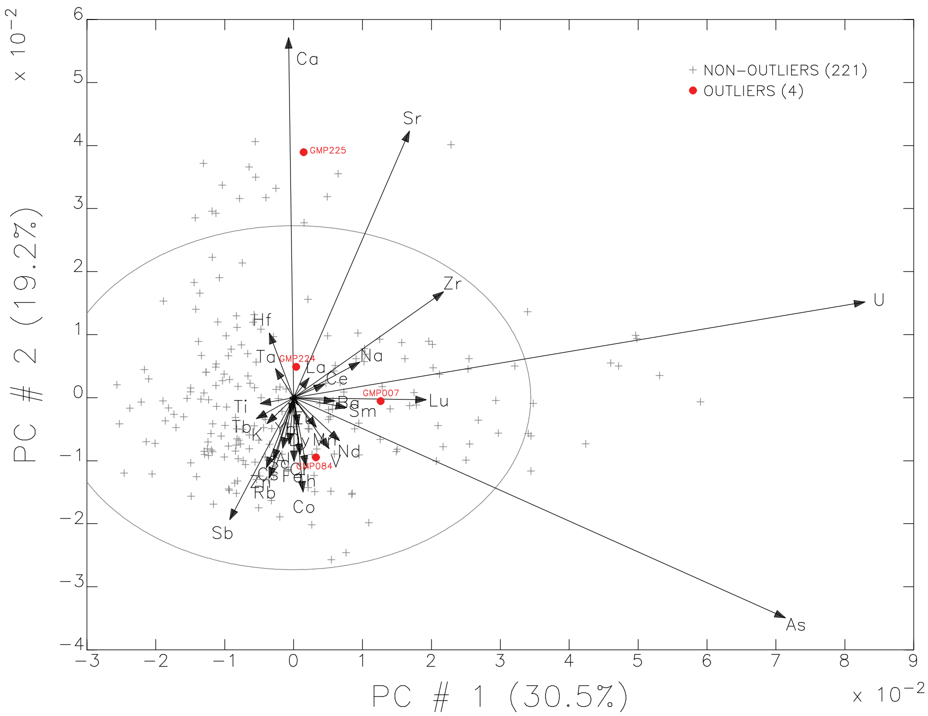


Figure 7.38. Biplot of the first two components (PCs) from the principal components analysis of 221 specimens devoid of four outliers. The eliminated outliers are also superimposed and displayed in red. The vector arrows are displayed with the the scale factor of 0.5, and the ellipse is drawn with a 90% confidence interval.

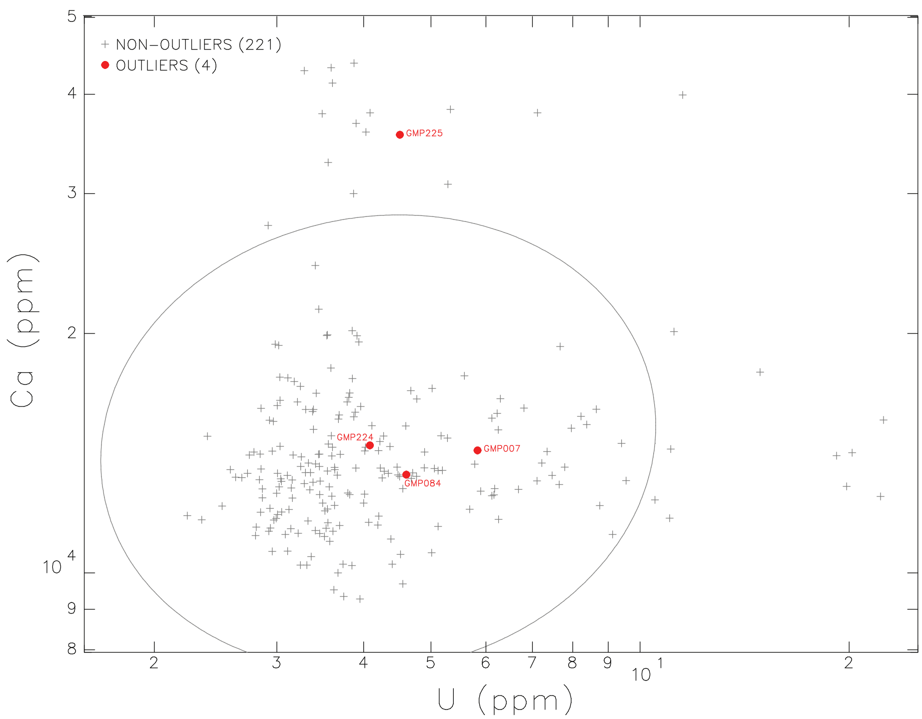


Figure 7.39. Biplot of uranium (U) and calcium (Ca) contained in the 221 specimens devoid of four outliers. The eliminated outliers are also superimposed and displayed in red. The ellipse is drawn with a 90% confidence interval.

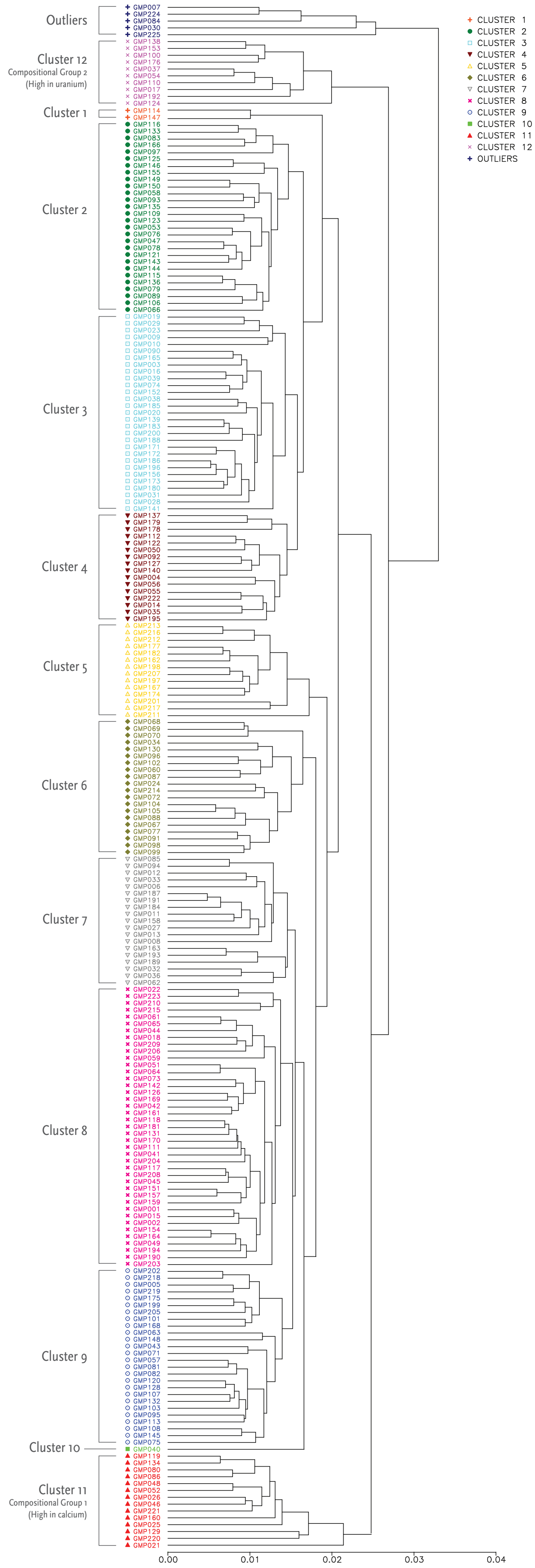


Figure 7.40. Dendrogram showing the results of hierarchical cluster analysis of the 225 specimens. The non-outliers are classified into 12 clusters based on their measurements of 32 elements and/or their positions within the dendrogram.

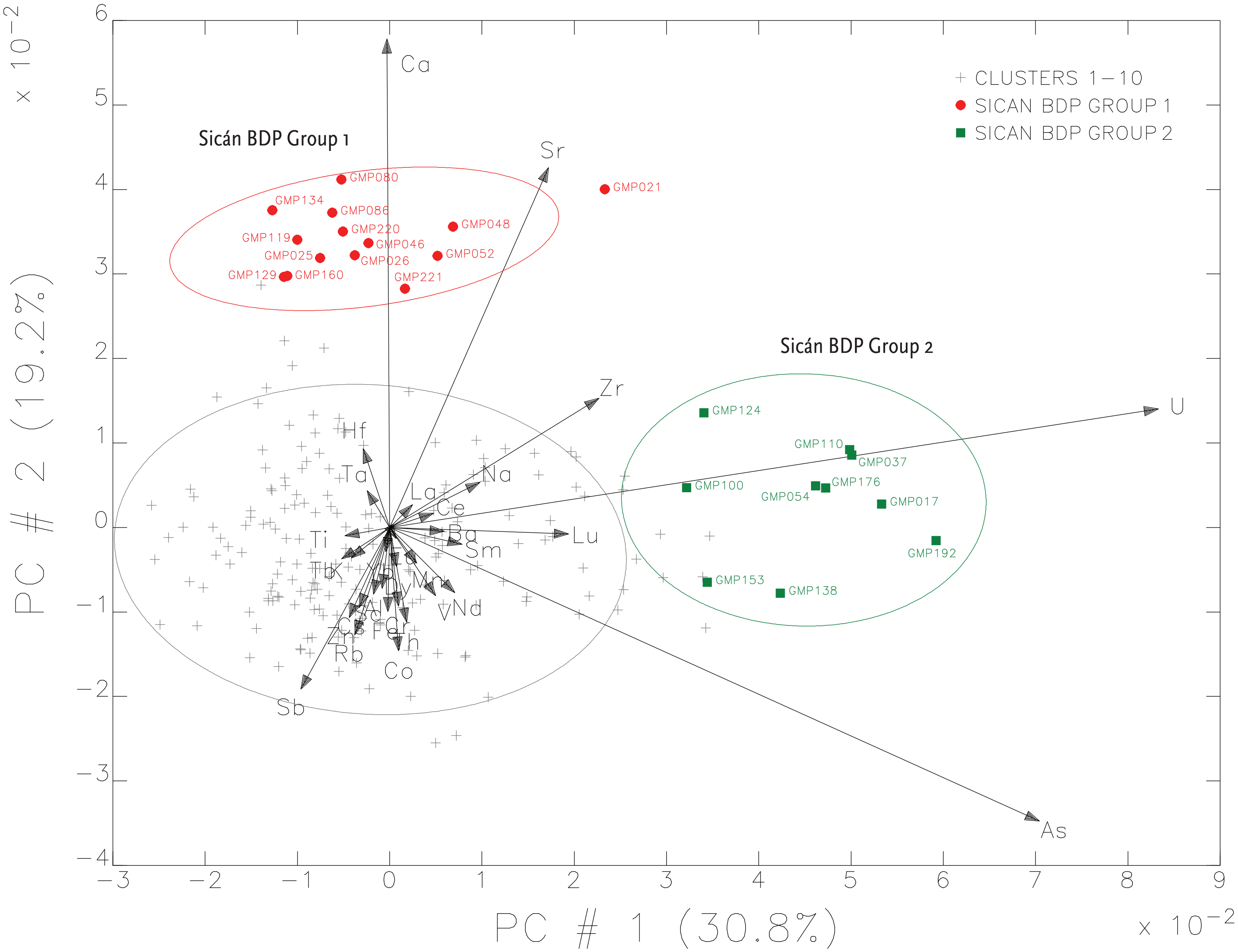


Figure 7.41. Biplot of the first two components from the principal components analysis of 220 specimens devoid of five outliers. The vector arrows are displayed with the the scale factor of 0.5, and the ellipse is drawn with a 90% confidence interval.

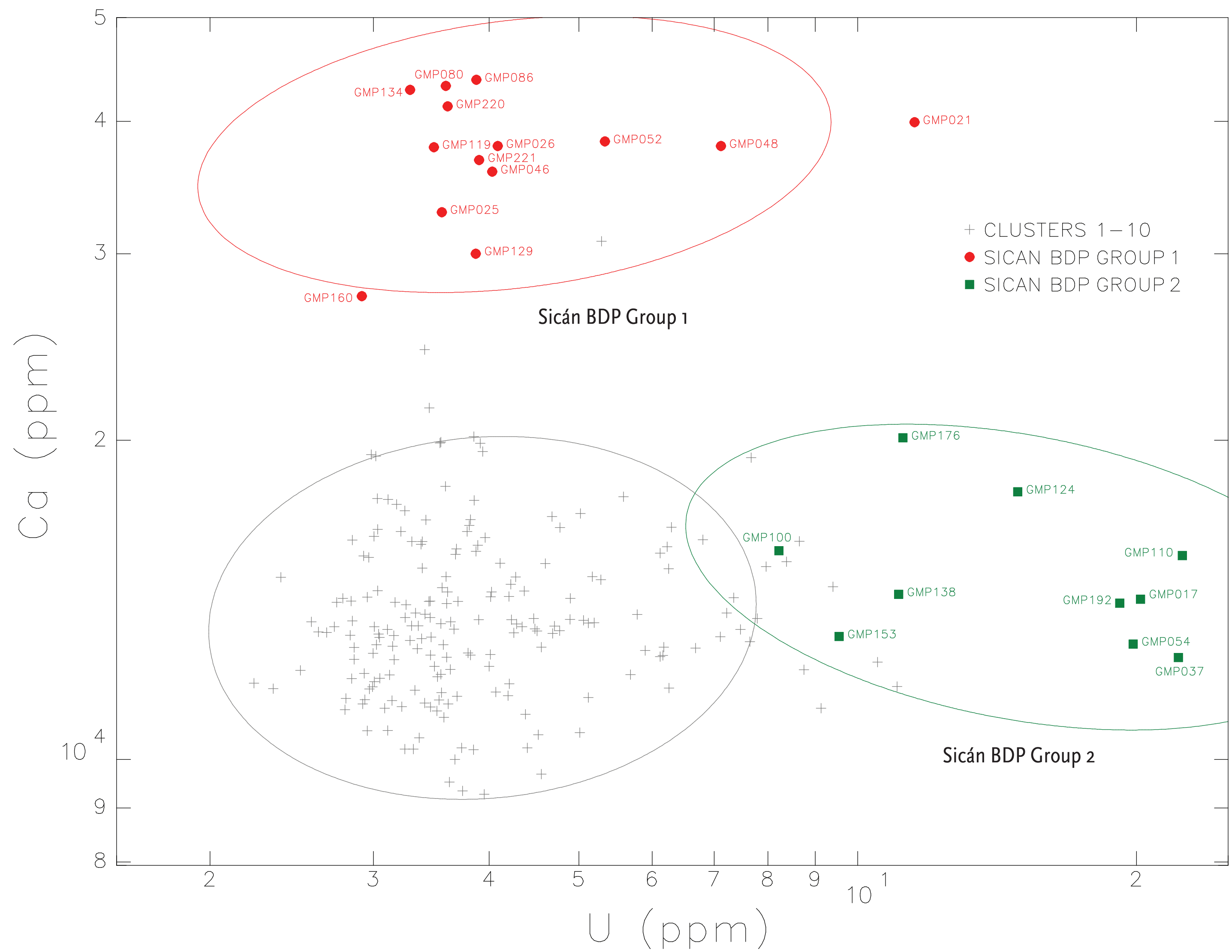


Figure 7.42. Biplot of uranium (U) and calcium (Ca) contained in the 220 specimens devoid of five outliers. The ellipse is drawn with a 90% confidence interval.

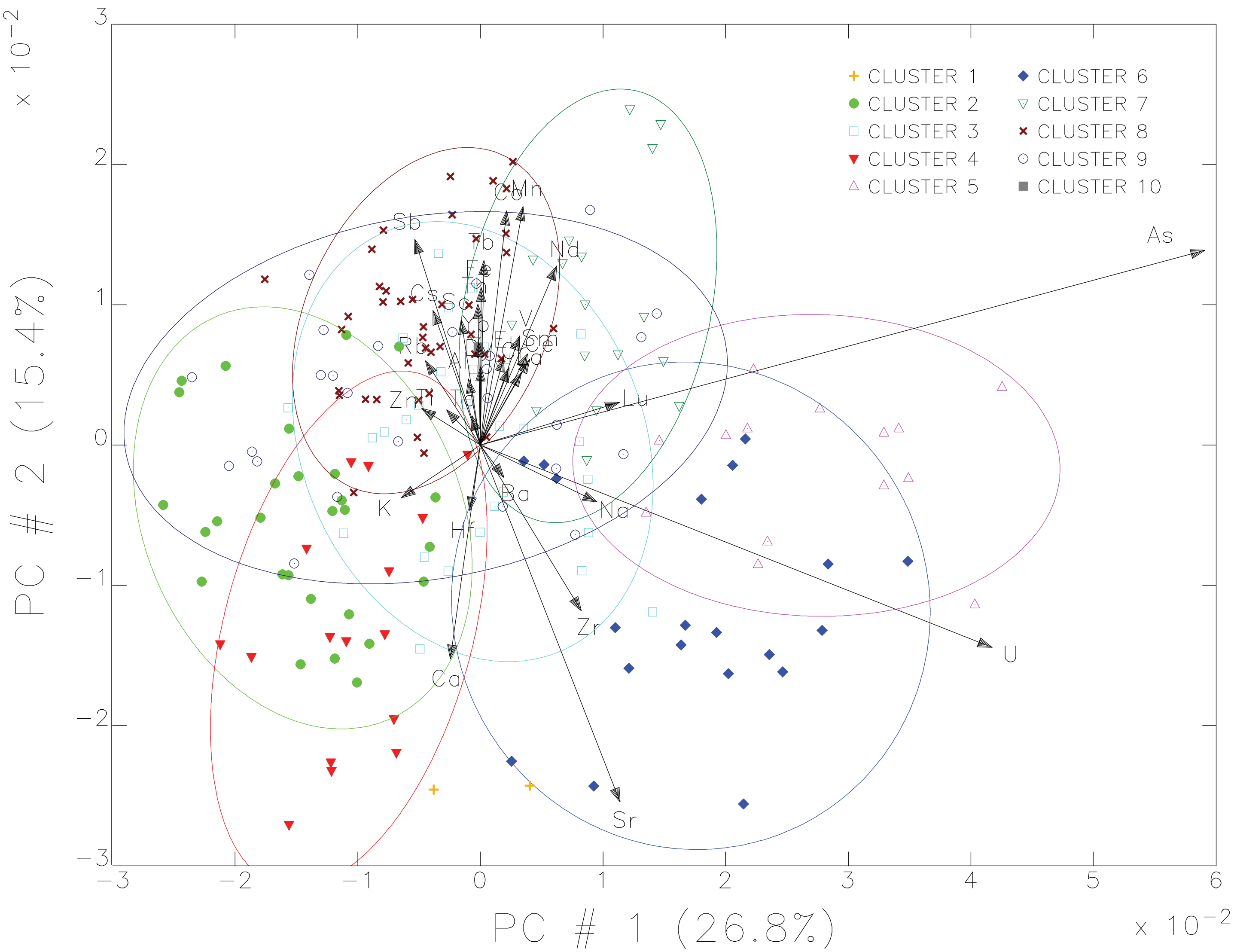


Figure 7.43. Biplot of the first two components (PCs) from the principal components analysis of 196 specimens in Clusters 1 to 10. The vector arrows are displayed with the the scale factor of 0.4, and the ellipse is drawn with a 90% confidence interval.

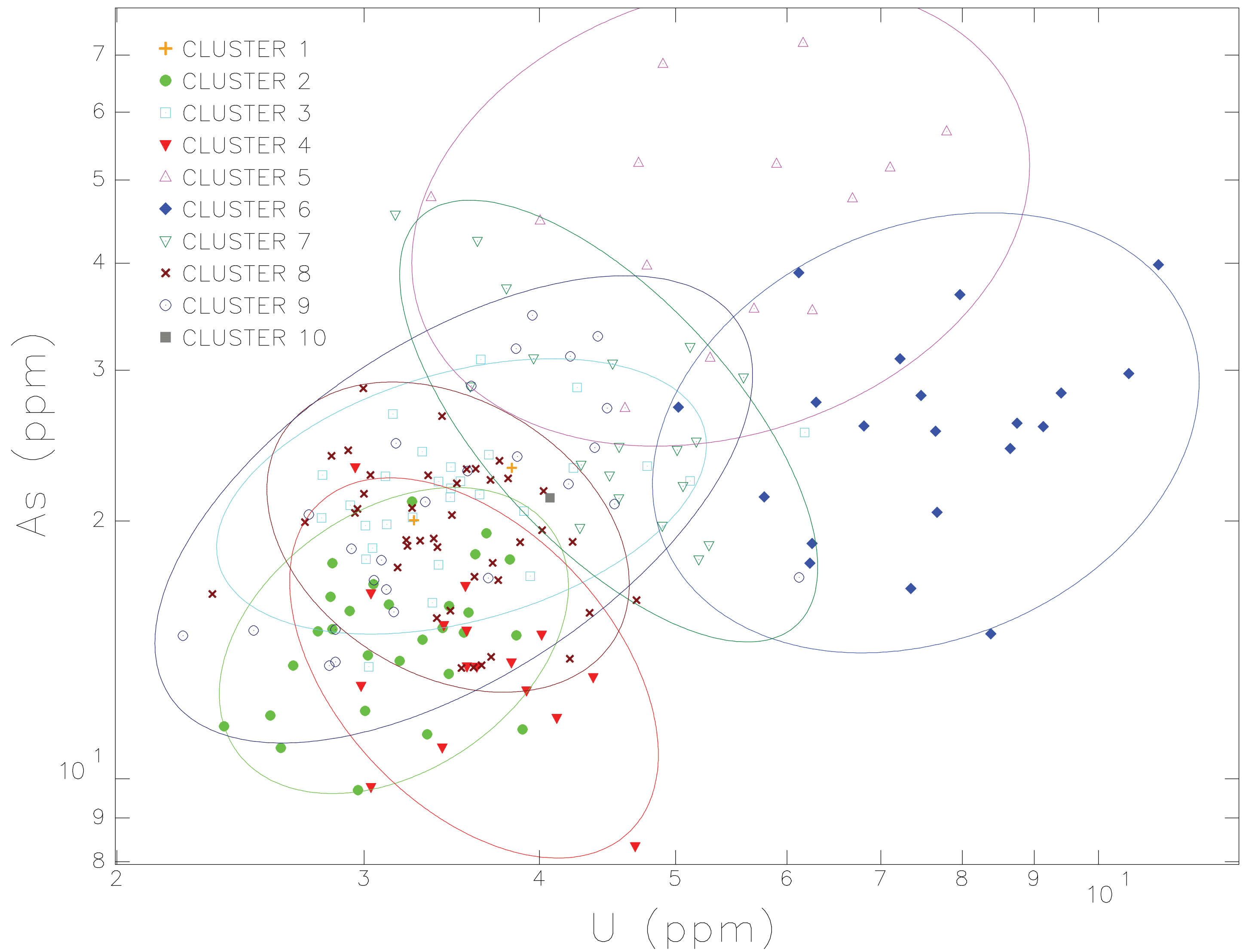


Figure 7.44. Biplot of arsenic (As) and uranium (U) contained in the 196 specimens in Clusters 1 to 10. The ellipse is drawn with a 90% confidence interval.

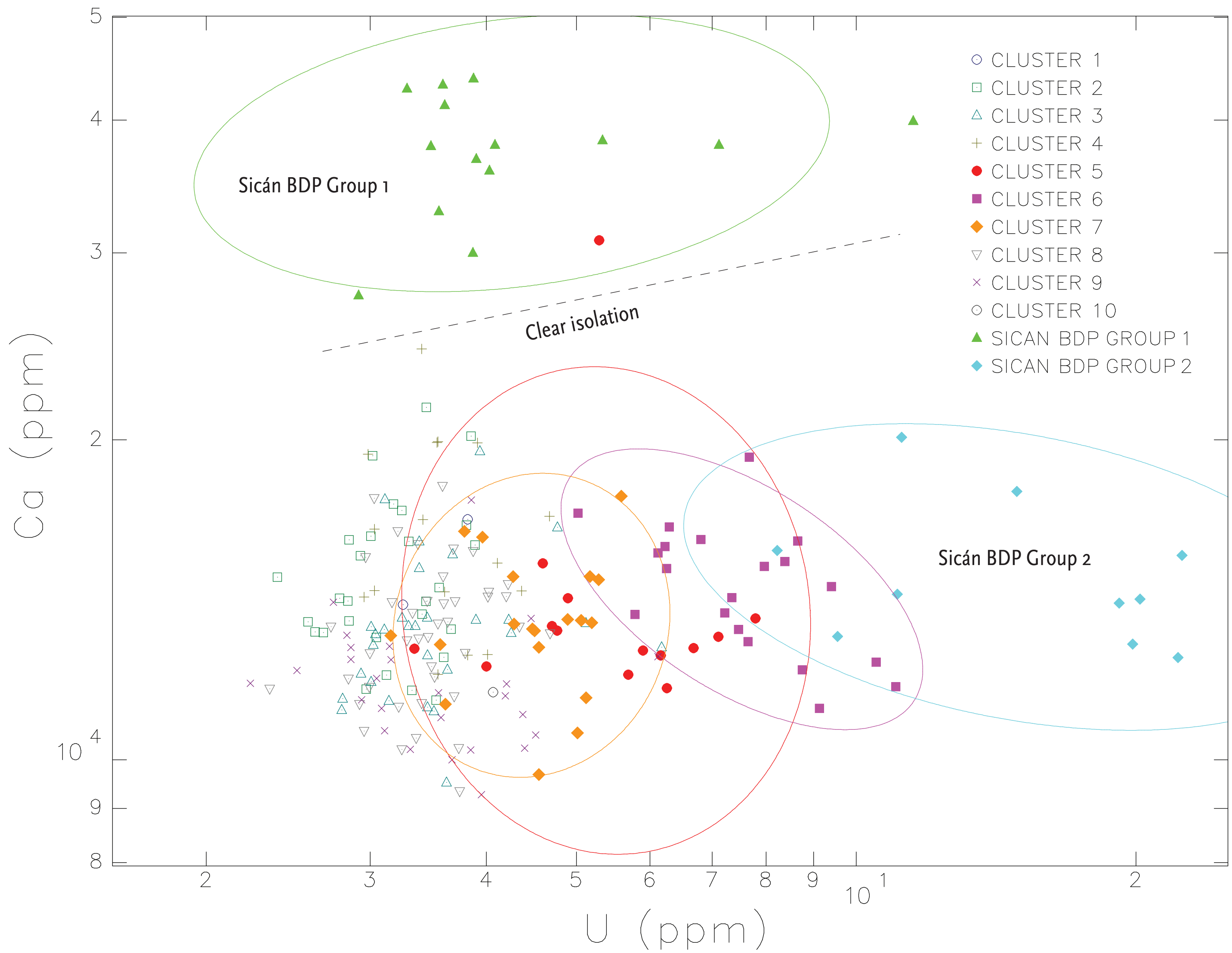


Figure 7.45. Biplot of calcium (Ca) and uranium (U) contained in the 220 specimens belonging to 10 Clusters and the two Sicán BDP Groups. The ellipses are drawn with a 90% confidence interval. Note that the sample clusters high in U are not spatially isolated from each other, but rather more continuously distributed.

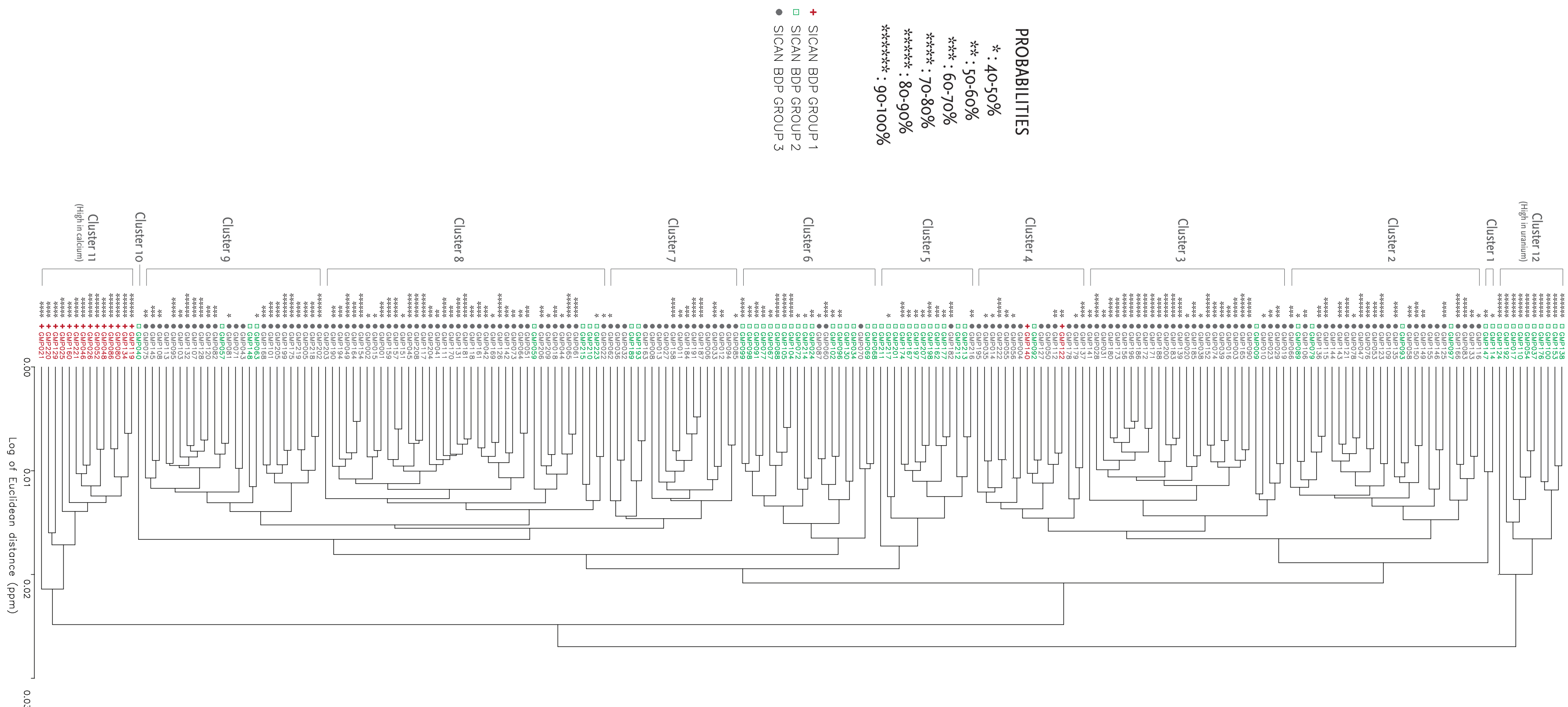


Figure 7.46. A comparison of the 12 Clusters based on the dendrogram and the best groups (Sicán BDP Group 1, 2, or 3) defined by group membership probabilities. See Table 7.22 for the detailed list of group membership probabilities. The specimens in Clusters 11 and 12 are well isolated and identified as belonging respectively to the Sicán BDP Groups 1 and 2, with high probabilities. Note that many specimens formerly categorized as Cluster 5 or 6 in the dendrogram are now reclassified as he Sicán BDP Group 2. This is due to the high rate of uranium in the specimens of Clusters 5 and 6.

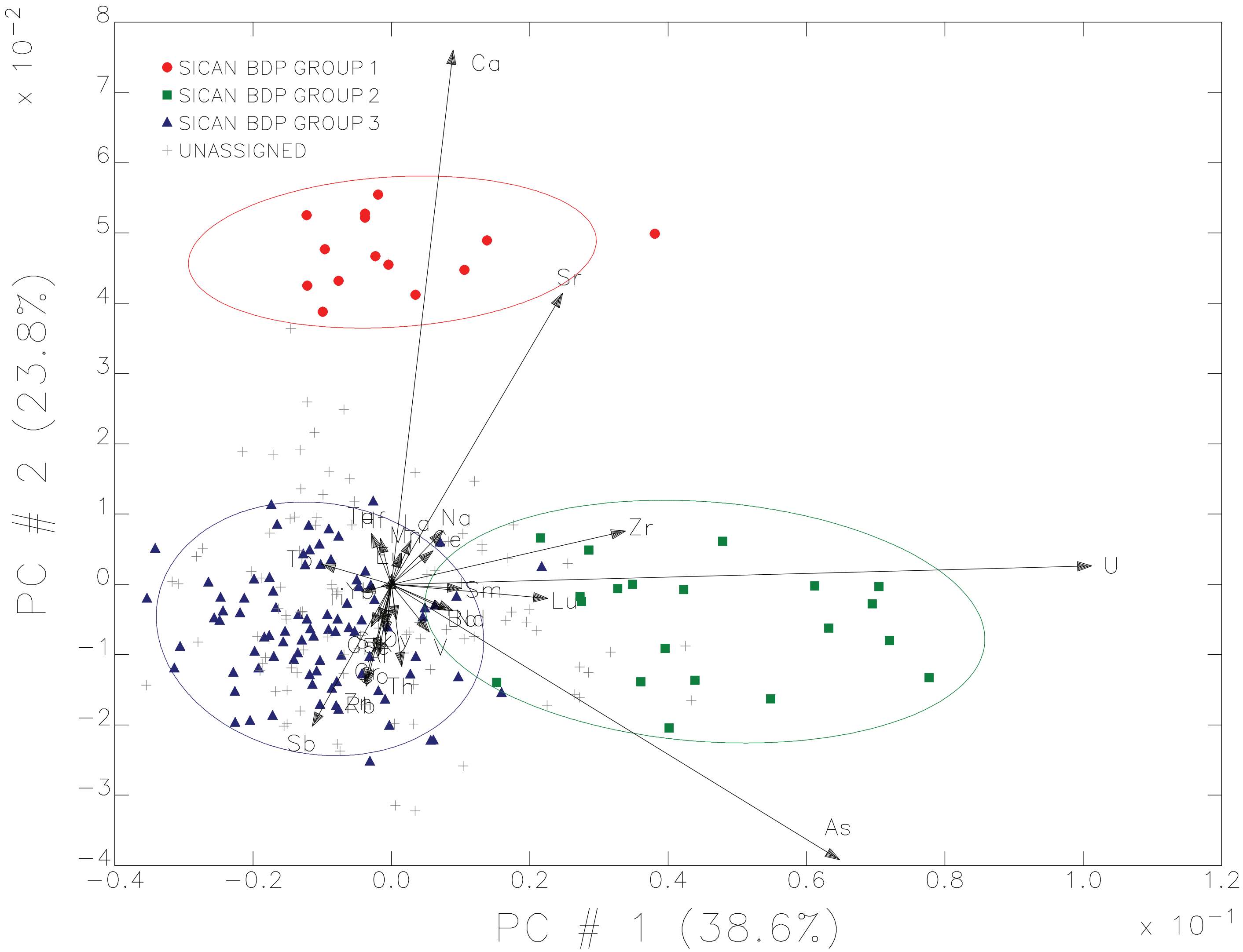


Figure 7.47. Biplot of the first two components from the PCA of the 122 specimens belonging to the three Sicán BDP Groups 1 to 3. The 98 unassigned specimens are also superimposed and displayed in grey crosses, just for reference (not included in the PCA). The vector arrows are displayed with the the scale factor of 0.5, and the ellipses are drawn with a 90% confidence interval. Note the ever greater explanatory power of the two PCs (62,4%).

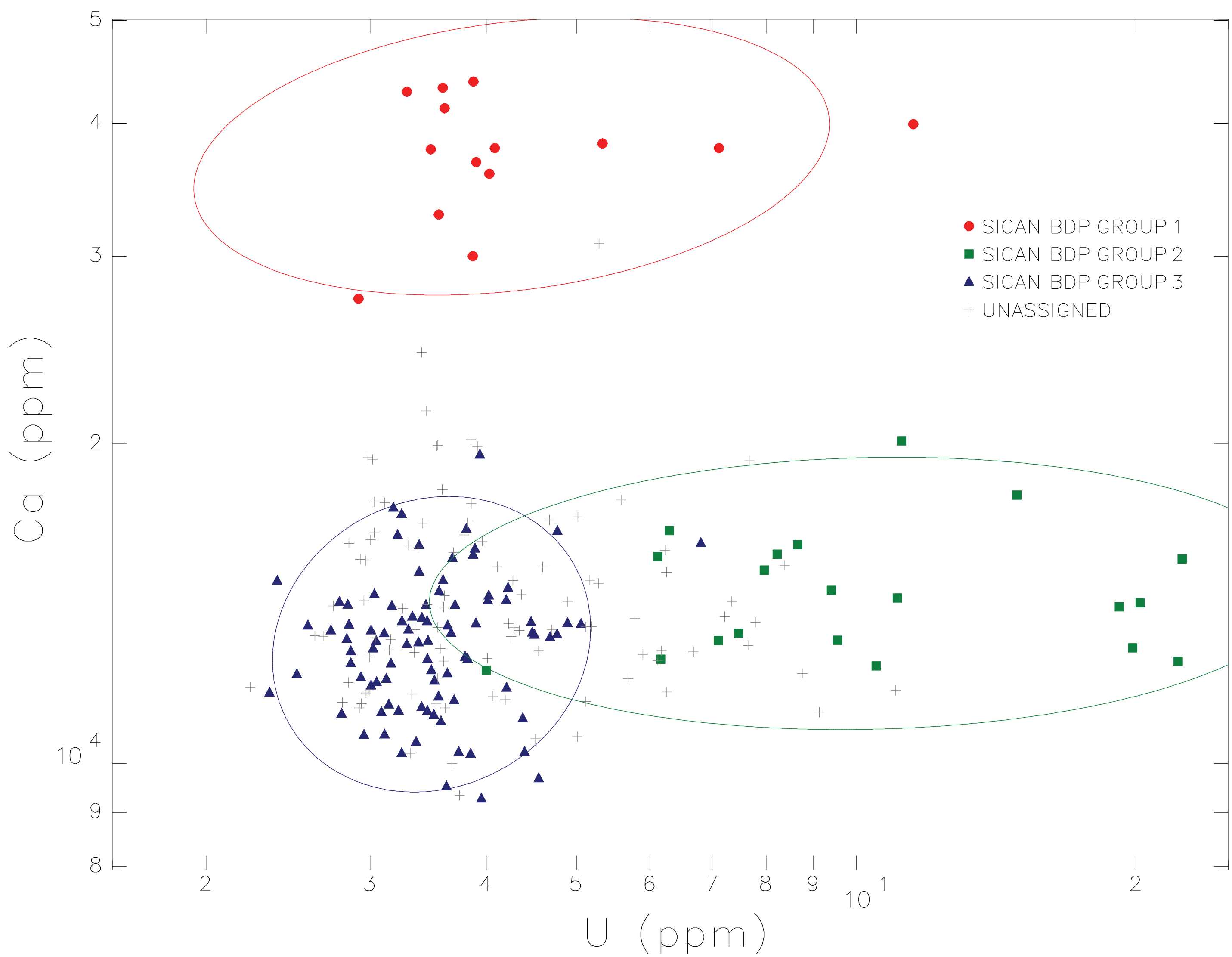


Figure 7.48. Biplot of uranium (U) and calcium (Ca) contained in the assemblage of 122 specimens belonging to the three Sicán BDP Groups 1 to 3. The 98 unassigned specimens are also superimposed and displayed in grey crosses, just for reference. The ellipses are drawn with a 90% confidence interval.

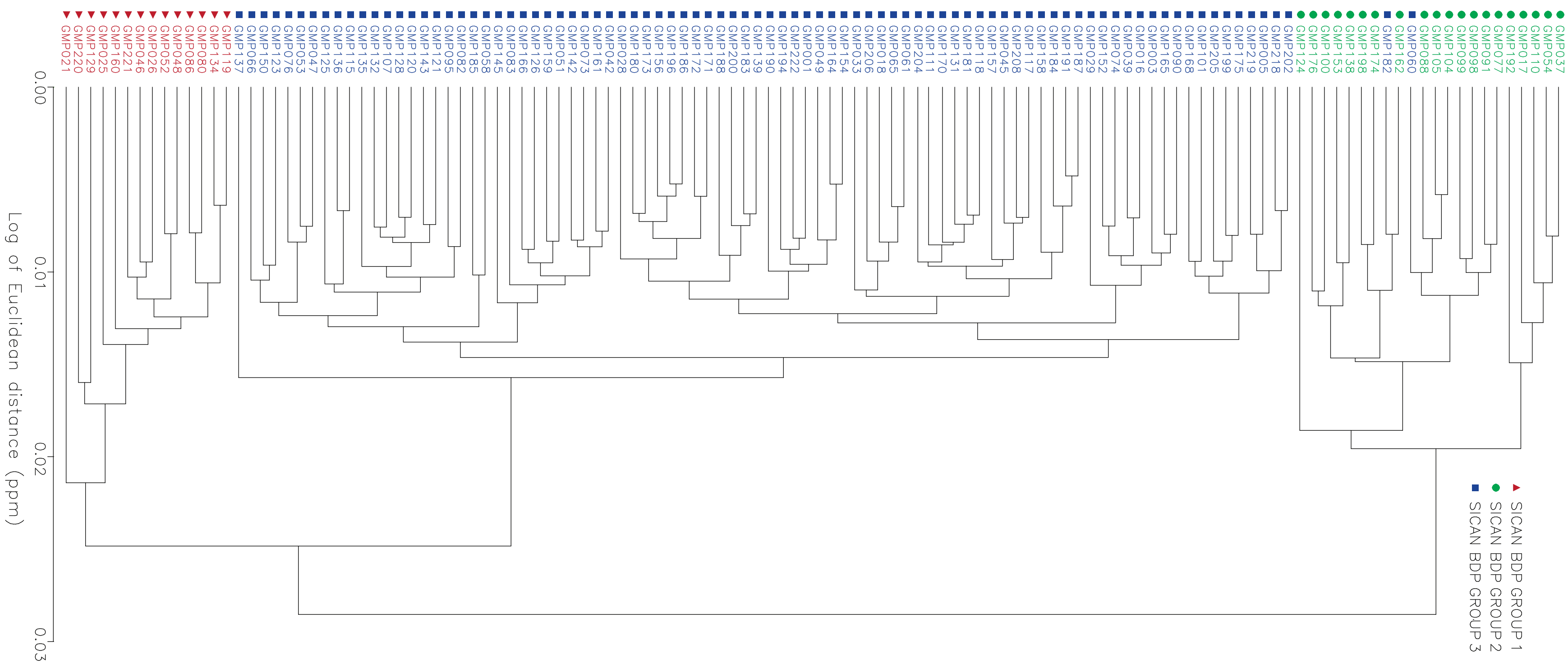


Figure 7.49. Dendrogram showing the nested structure of the assemblage of 122 specimens that belong to the three Sicán BDP Groups 1 to 3. This dendrogram includes only the specimens that showed more than 60% of group membership probability for any of the three groups in Table 7.22. The remaining 98 specimens with less than 60% of group membership probability were left unassigned and put aside for the moment.

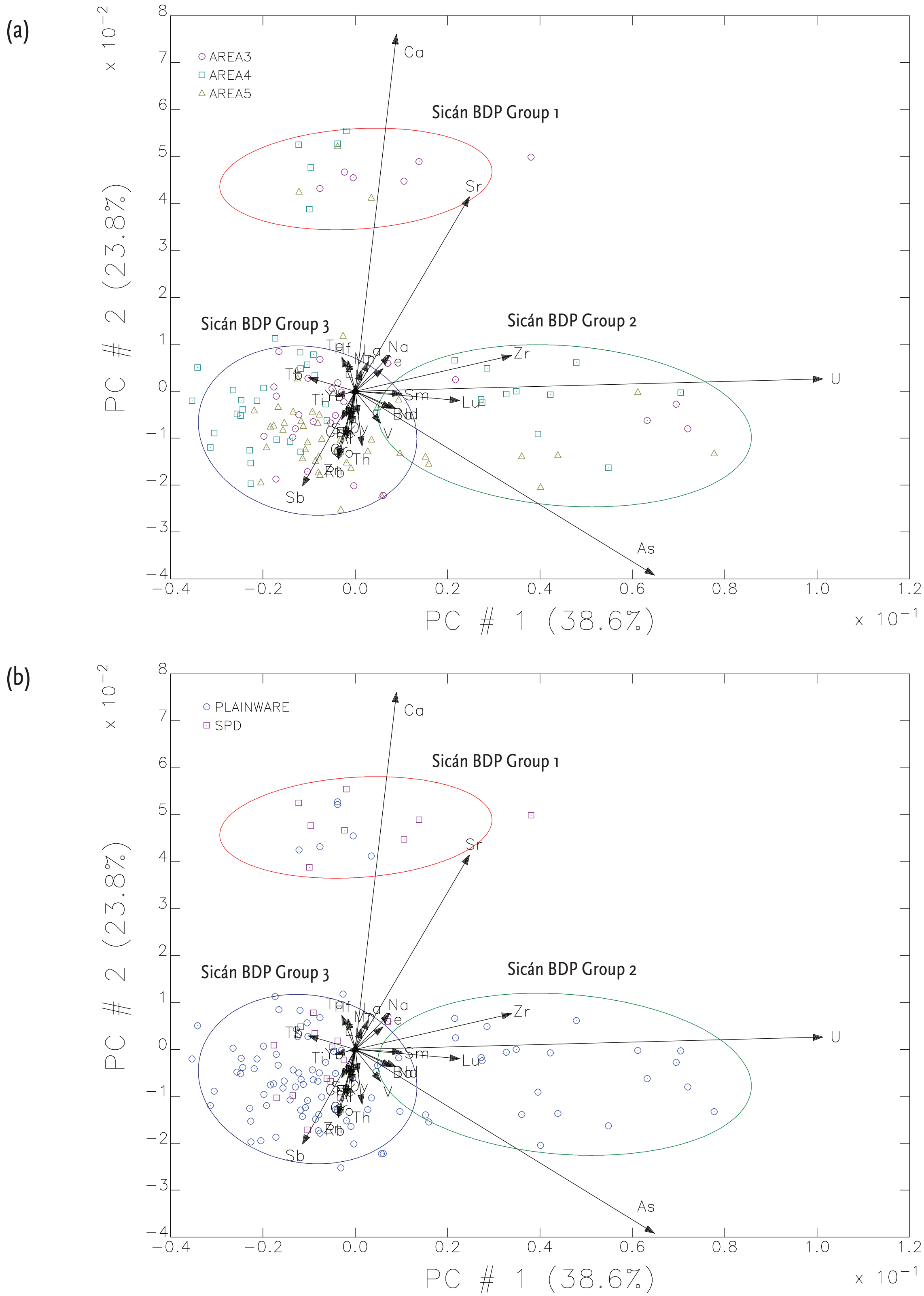


Figure 7.50. Biplots of the first two components from the PCA of the assemblage of 122 specimens sorted (a) by prvenience (EAs3 to 5) and (b) by pottery type (Sicán Painted Dish and Plainware).

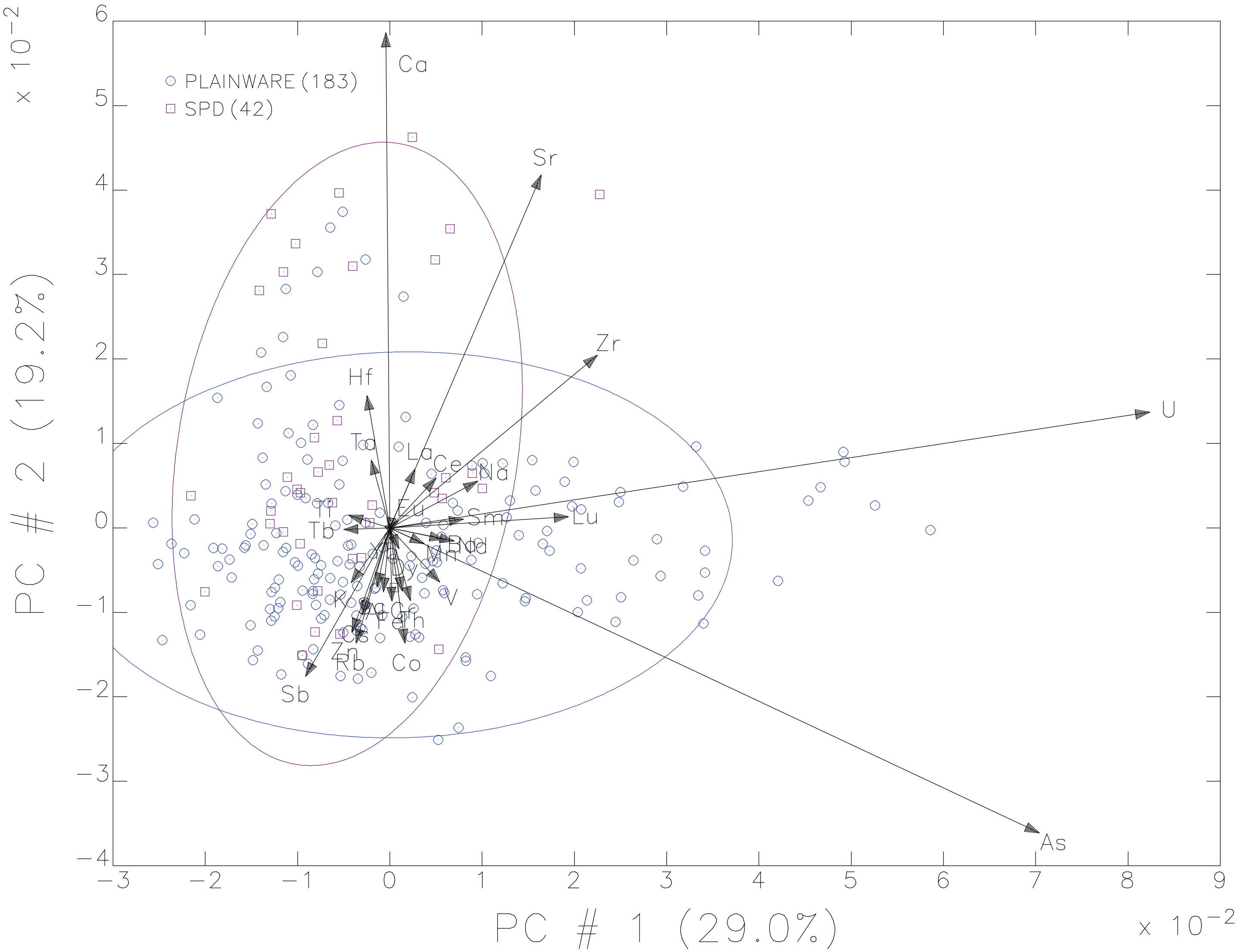


Figure 7.51. Biplot of the first two components from the PCA of the 225 specimens sorted by pottery type. The vector arrows are displayed with the the scale factor of 0.5, and the ellipses are drawn with a 90% confidence interval.

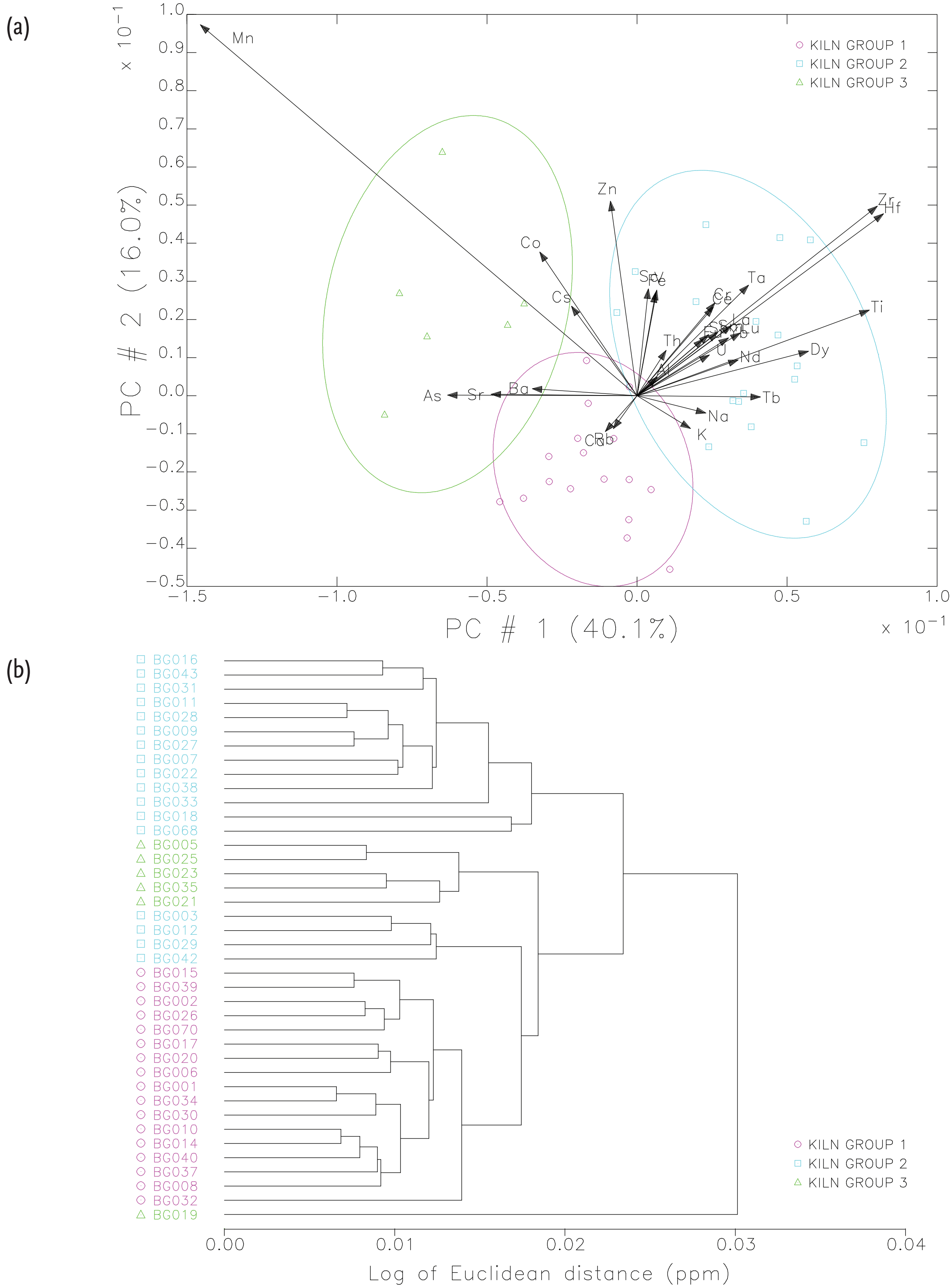
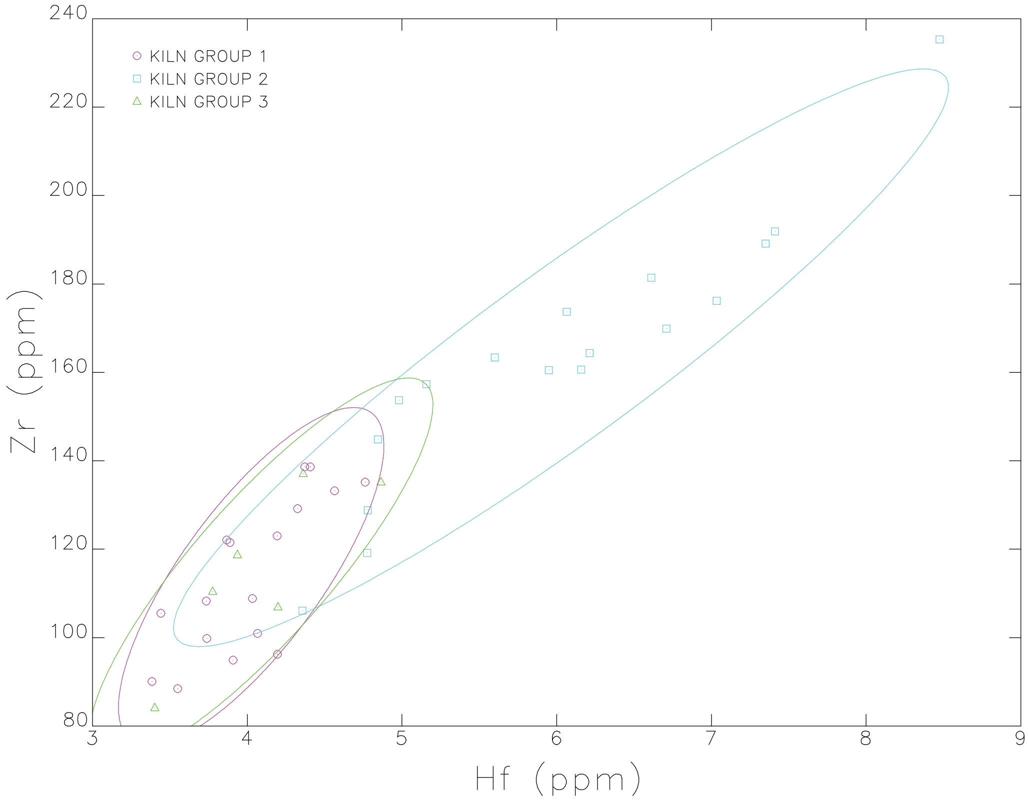


Figure 7.52. (a) Biplot of the first two components from the PCA of the assemblage of 40 specimens belonging to Shimada et al.'s (1998) Kiln Groups 1 to 3, and (b) dendrogram of the nested structure within the assemblage. In the biplot, the vector arrows are displayed with the the scale factor of 1.0, and the ellipse is drawn with a 90% confidence interval.

(a)



(b)

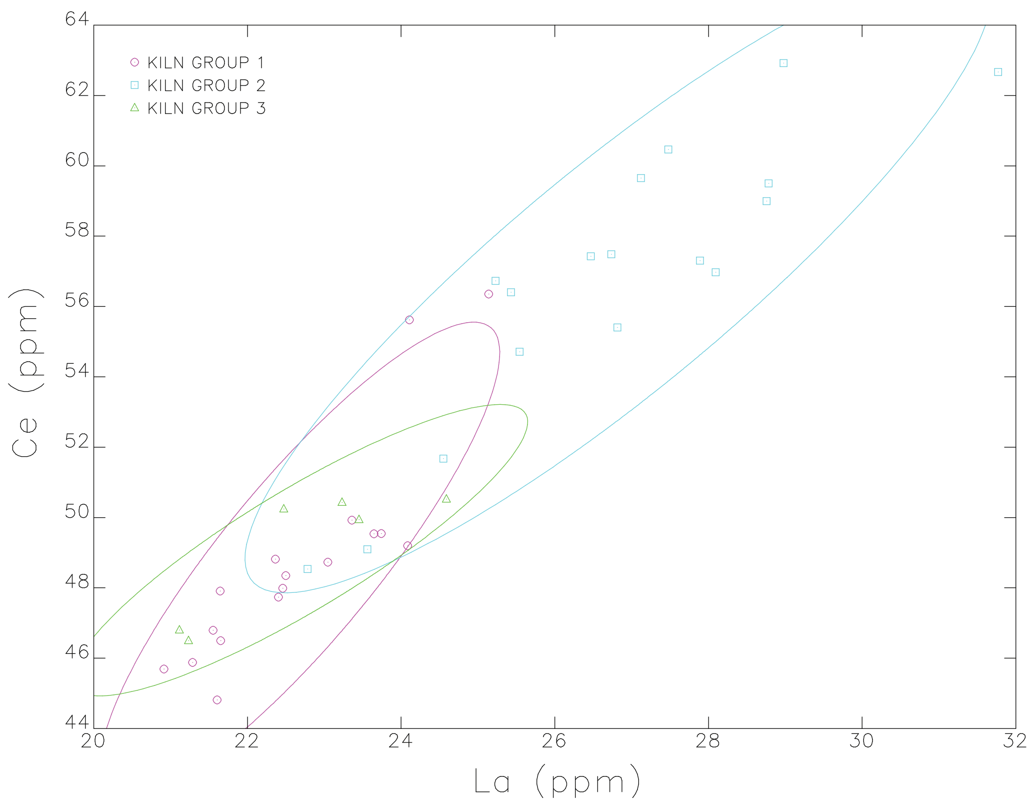


Figure 7.53. Biplots of (a) Hf and Zr and of (b) La and Ce in Shimada et al.'s (1998) three Kiln Groups. The ellipses are drawn with a 90% confidence interval.

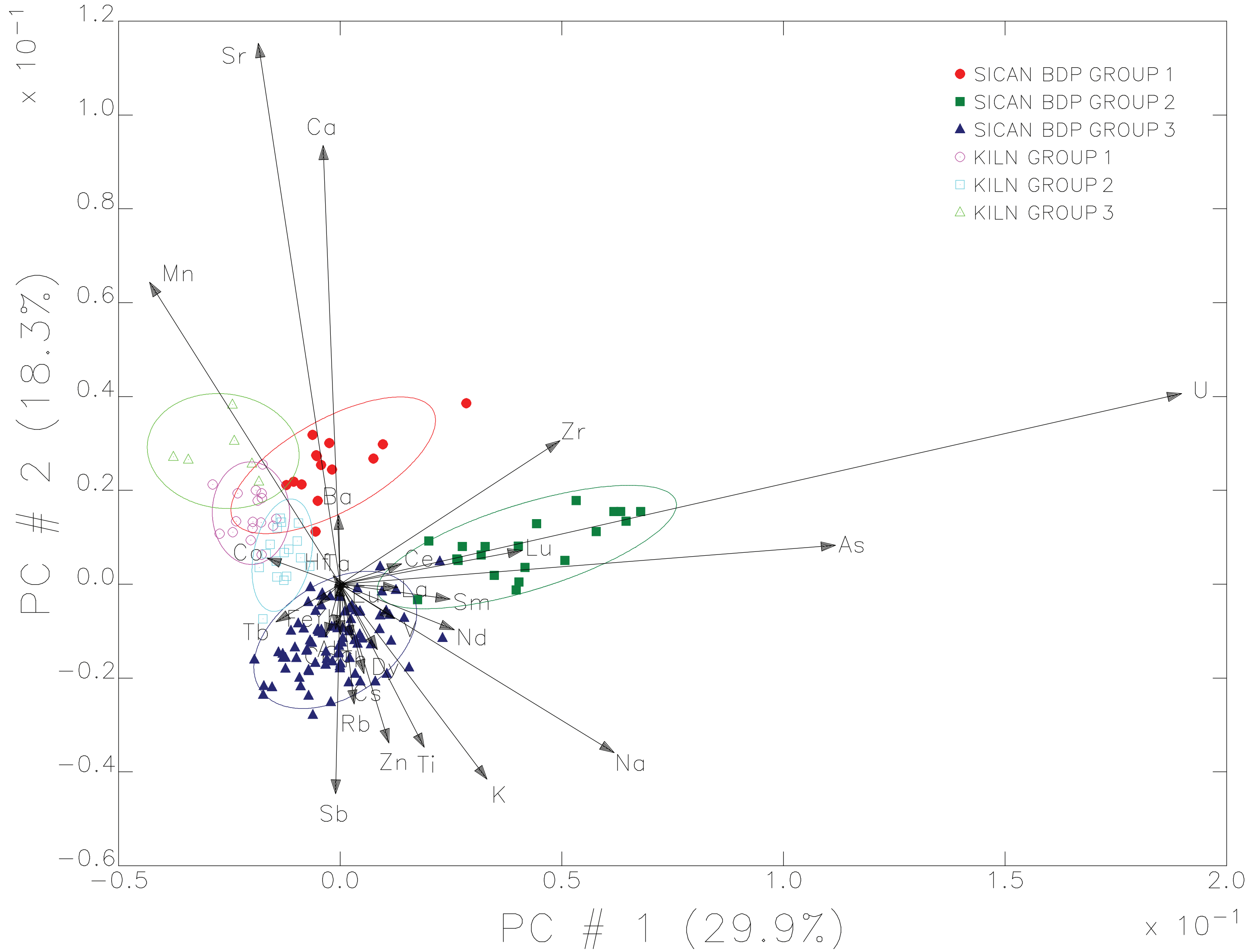


Figure 7.54. Biplot of the first two components from the PCA of the assemblage of the combined 162 specimens from Poma Canal (Shimada et al. 1998) and Great Plaza. The vector arrows are displayed with the the scale factor of 1.0, and the ellipses are drawn with a 90% confidence interval.

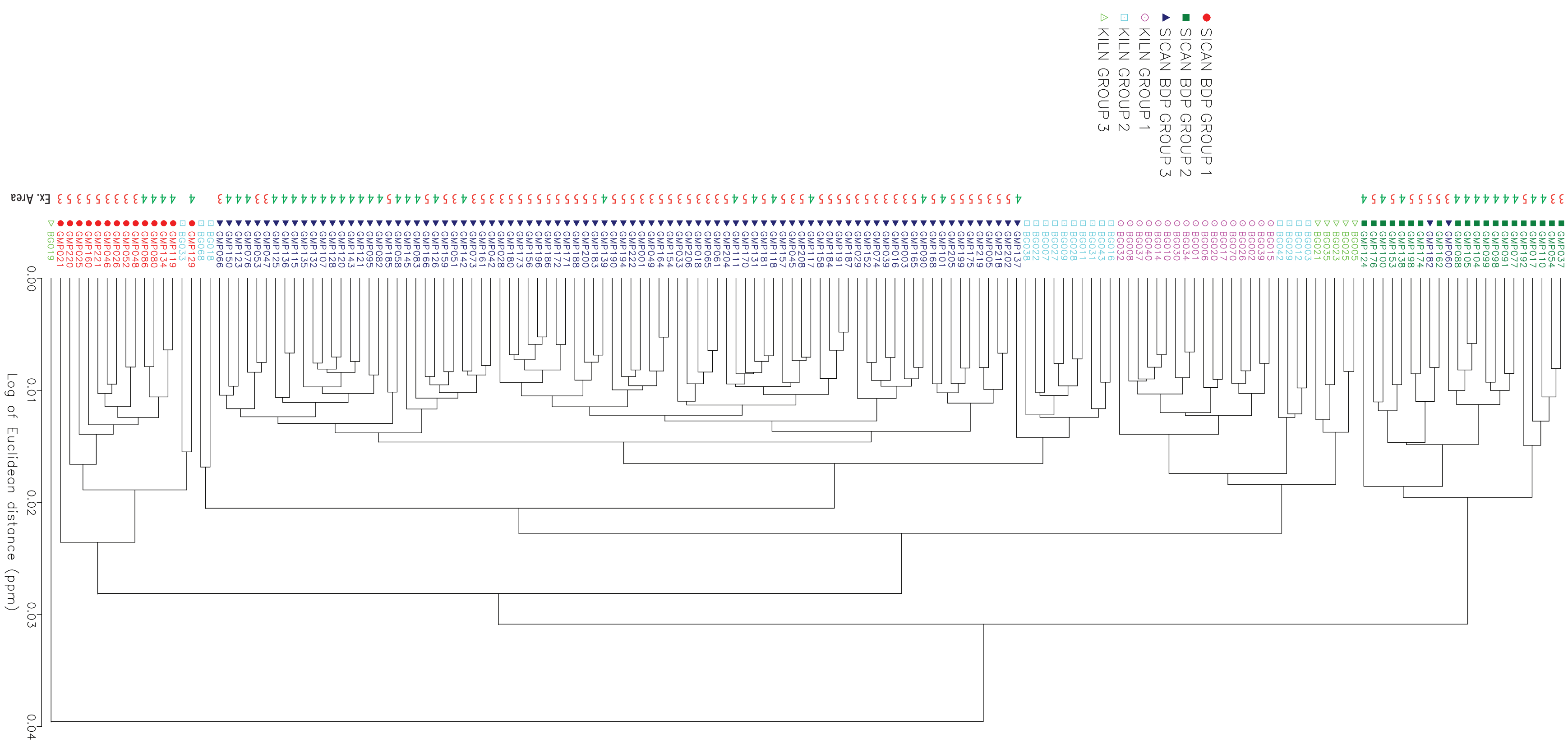


Figure 7.55. Dendrogram showing the nested structure within the assemblage of the combined 162 specimens from Poma Canal (Shimada et al. 1998) and Great Plaza.

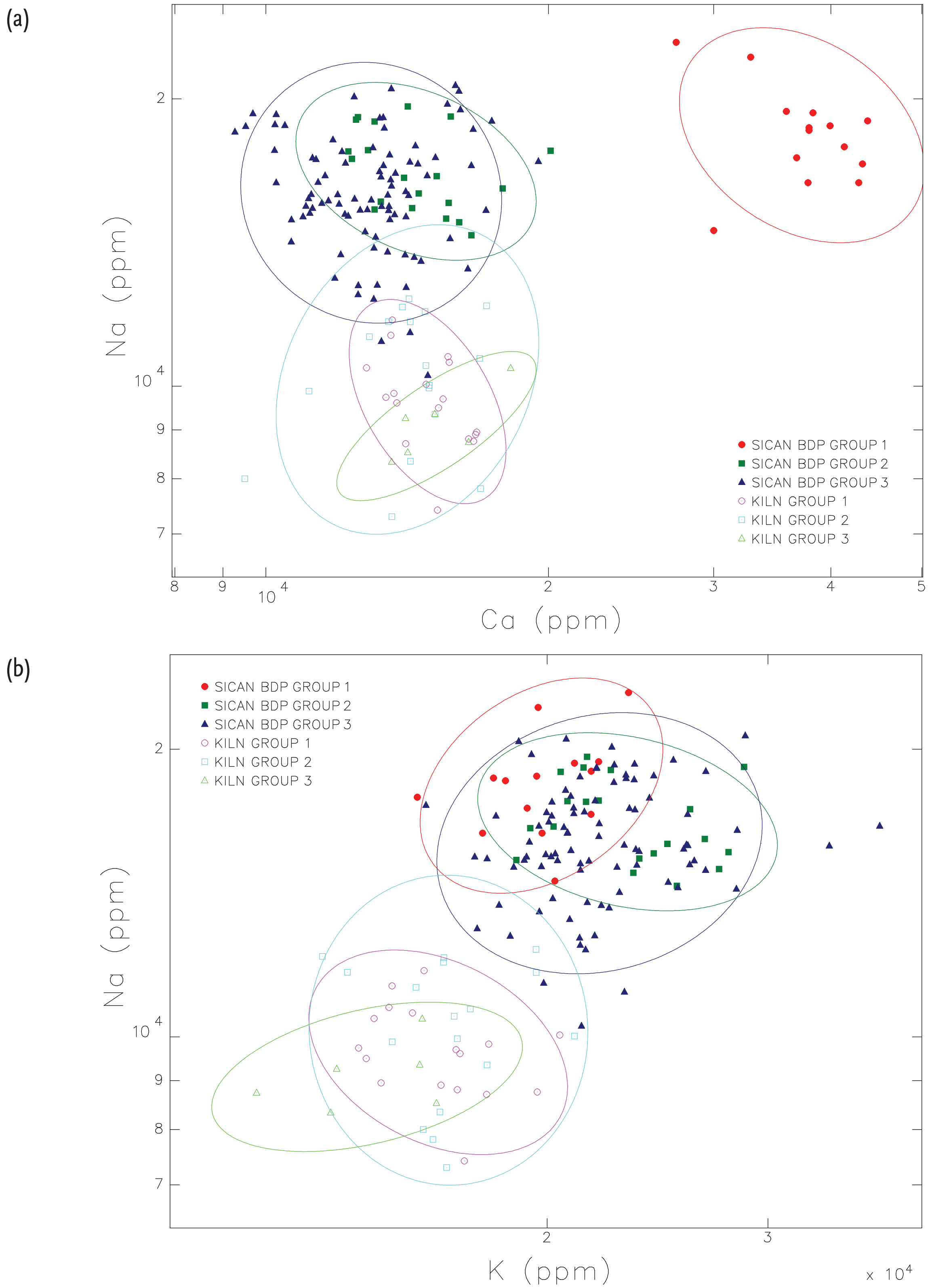
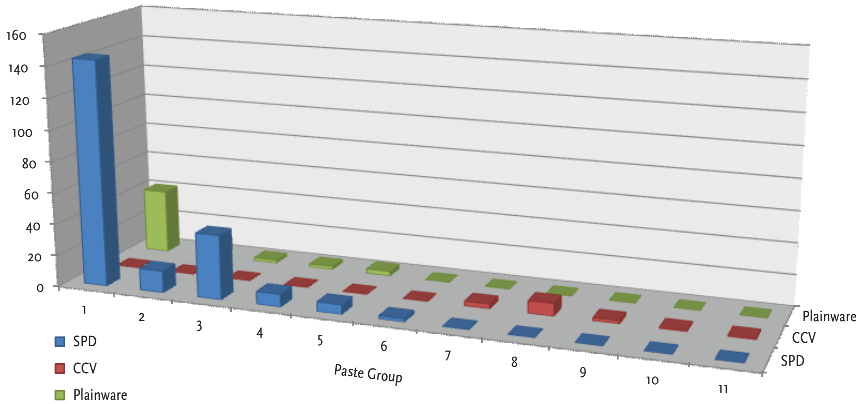


Figure 7.56. Biplots of (a) Ca and Na and of (b) K and Na in the compositional groups from the Great Plaza and Poma Canal. The ellipses are drawn with a 90% confidence interval.



Group	SPD	CCV	Plain	Total
1	144	0	41	185 (64.46%)
2	14	0	9	23 (8.01%)
3	41	0	2	43 (14.98%)
4	8	0	2	10 (3.48%)
5	6	0	3	9 (3.14%)
6	2	0	0	2 (0.70%)
7	0	3	0	3 (1.05%)
8	0	8	0	8 (2.79%)
9	0	2	0	2 (0.70%)
10	0	1	0	1 (0.35%)
11	0	1	0	1 (0.35%)
Total	215	15	57	287

Paste Group	Variables	Descriptions
1	Inclusions (roundness)	Quartz (angular), quartzite (angular), dolomite or calcined bone (sub-rounded), red iron ore (angular or well rounded), black iron ore (well rounded), clay pellets (rounded), limestone (angular), limestone that reacted with hydrochloric acid (well rounded), voids that may reflect the presence of limestone or oolite, and few white mica
	Frequency	30%
	Sorting	4 (good)
	Size	Fine sand (1/8-1/4 mm) and medium sand (1/4 -1/2 mm)
2	Inclusions (roundness)	Quartz (angular), quartzite (angular), red iron ore or metasediment (well rounded), and limestone that reacted with hydrochloric acid (well rounded)
	Frequency	30% *Distinguished by the higher frequency of quartz and quartzite compared with other inclusions in this group and with those in Groups 1 and 3
	Sorting	4 (good)
	Size	Fine sand (1/8-1/4 mm) and medium sand (1/4 -1/2 mm)
3	Inclusions (roundness)	Quartz (angular), black iron ore (rounded), probably ferromagnesian minerals (sub-angular), transparent or translucent hard grains (probably quartz or quartzite; sub-rounded), limestone that reacted with hydrochloric acid (well rounded), and voids that may reflect the presence of limestone or oolite
	Frequency	35%
	Sorting	4 (good)
	Size	Very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm)
4	Inclusions (roundness)	Red iron ore (angular), probably ferromagnesian minerals (very angular; abundant), quartz (angular), calcite (rhombus voids), oolite or limestone (oval or spherical voids), and grass or straw (elongated voids)
	Frequency	35%
	Sorting	4 (good)
	Size	Very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm)
5	Inclusions (roundness)	Quartz (angular), black iron ore (rounded), probably ferromagnesian minerals (sub-angular), and transparent or translucent hard grains (probably quartz or quartzite; angular)
	Frequency	40%
	Sorting	5 (very good)
	Size	Very fine sand (1/16-1/8 mm)
6	Inclusions (roundness)	Quartz (angular), red iron ore (angular), grass or straw (elongated voids), calcite (rhombus voids), limestone (irregular voids), dolomite (rhombus), and probably ferromagnesian minerals (sub-angular or sub-rounded)
	Frequency	30%
	Sorting	4 (good)
	Size	Very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm)
7	Inclusions (roundness)	Abundant red or dull-brown earthy grains (probably grog or clay pellet; rounded, sub-rounded, or sub-angular), quartz or quartzite (angular), dark mica, and green-yellowish feldspar (rectangular or sub-rectangular)
	Frequency	40%
	Sorting	4 (good)
	Size	Between very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm)
8	Inclusions (roundness)	Red iron ore (rounded), dolomite (rhombus) * Similar to Group 7 but no feldspar and large grog included
	Frequency	30-40%
	Sorting	3-4 (fair-good)
	Size	Between very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm) * Some of the larger inclusions are of medium sand size (1/4 -1/2 mm), though very few
9	Inclusions (roundness)	* Same as Paste Group 8 above in terms of inclusions, but different in frequency, sorting, and size
	Frequency	30-40%
	Sorting	2-3 (poor-fair) or 1-2 (very poor-poor)
	Size	Between very fine sand (1/16-1/8 mm) and medium sand size (1/4 -1/2 mm) * One grog and quartzite inclusions and some of the red iron ore inclusions are very coarse, ca. 1.0-2.0 mm and 1/2-1.0 mm respectively
10	Inclusions (roundness)	Grog, red iron ore, mica, and dolomite or calcined bone
	Frequency	30%
	Sorting	4 (good)
	Size	Very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm)
11	Inclusions (roundness)	Grog, quartz and quartzite (angular), quartz sandstone, black iron ore (angular), ferromagnesian minerals (elongated rods), and black particles (possibly metallurgical slag; angular)
	Frequency	40%
	Sorting	2 (poor)
	Size	Very fine sand (1/16-1/8 mm) and fine sand (1/8-1/4 mm) * Most of the dark inclusions are of medium sand size (1/4 -1/2 mm)

Figure 7.57. The 11 Paste Groups defined by Montenegro (1998) for the SPD, CCV, and Plainware sherds from the study area.

Figure 7.58. Basic materials used for the traditional ink impression technique among numismatists and archaeologists in the East Asia.

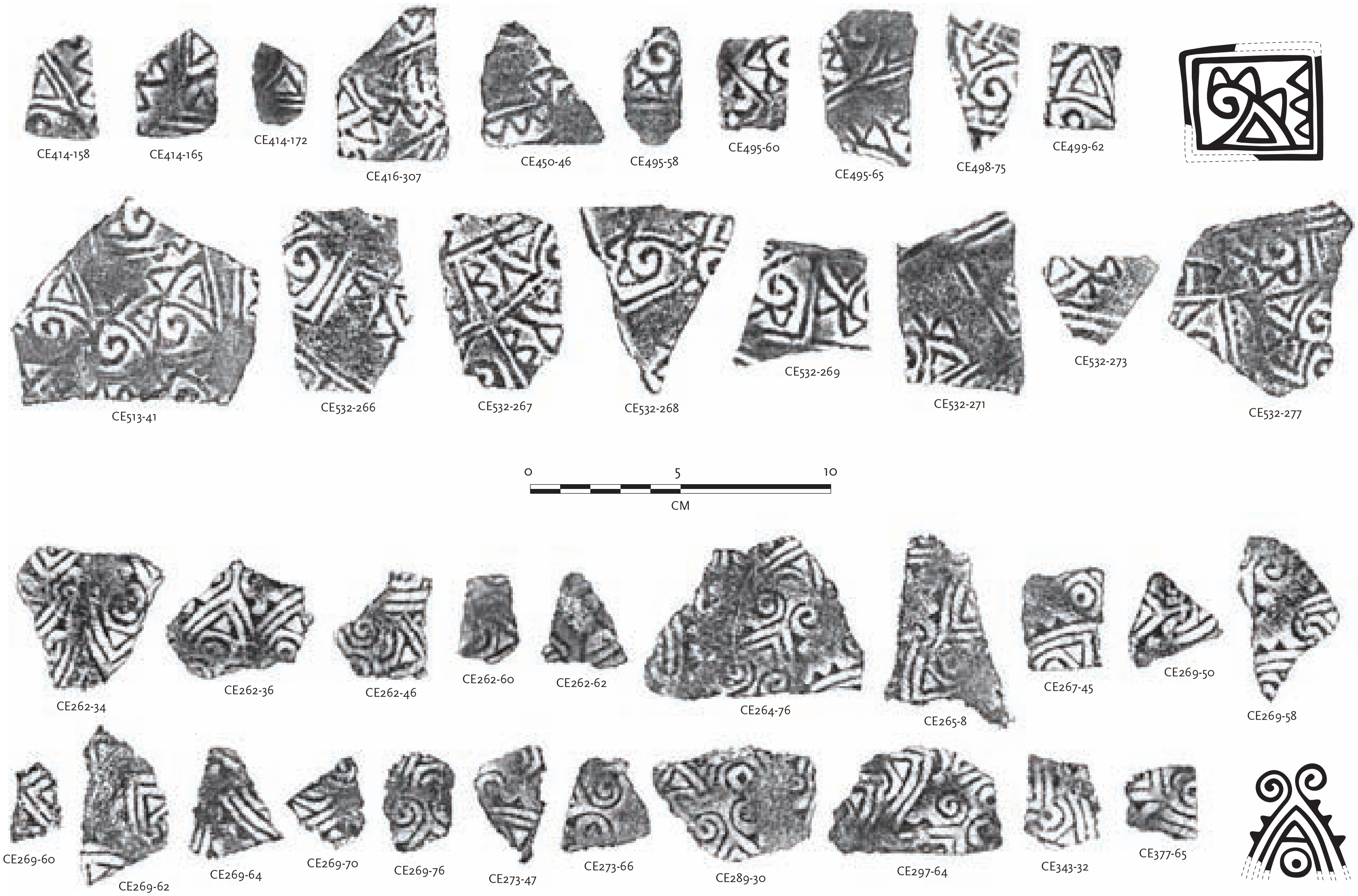


Figure 7.59. Examples of rubbed ink images of *paleteada* sherds from which the original designs were reconstructed.

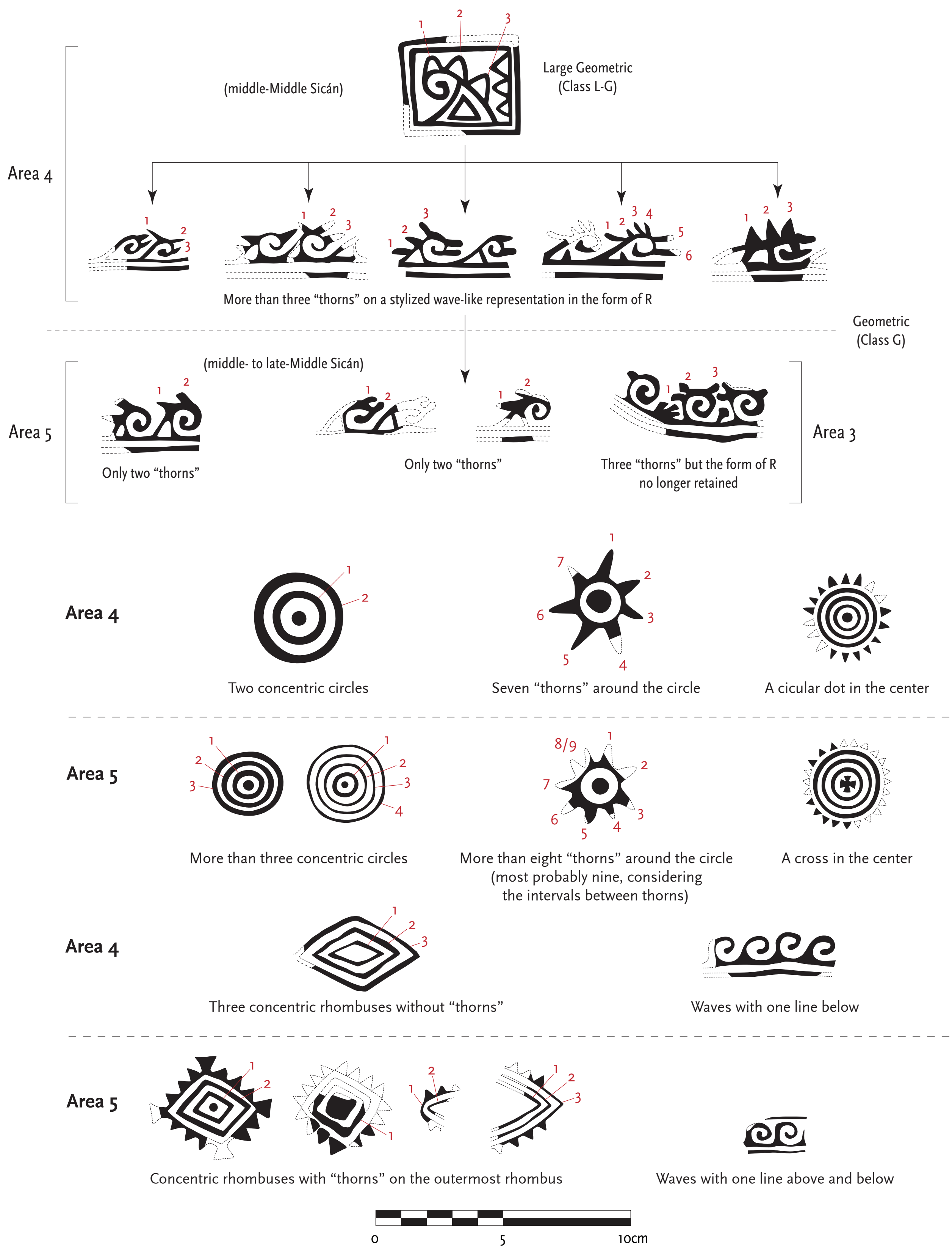


Figure 7.60. Difference among the motif subgroups.

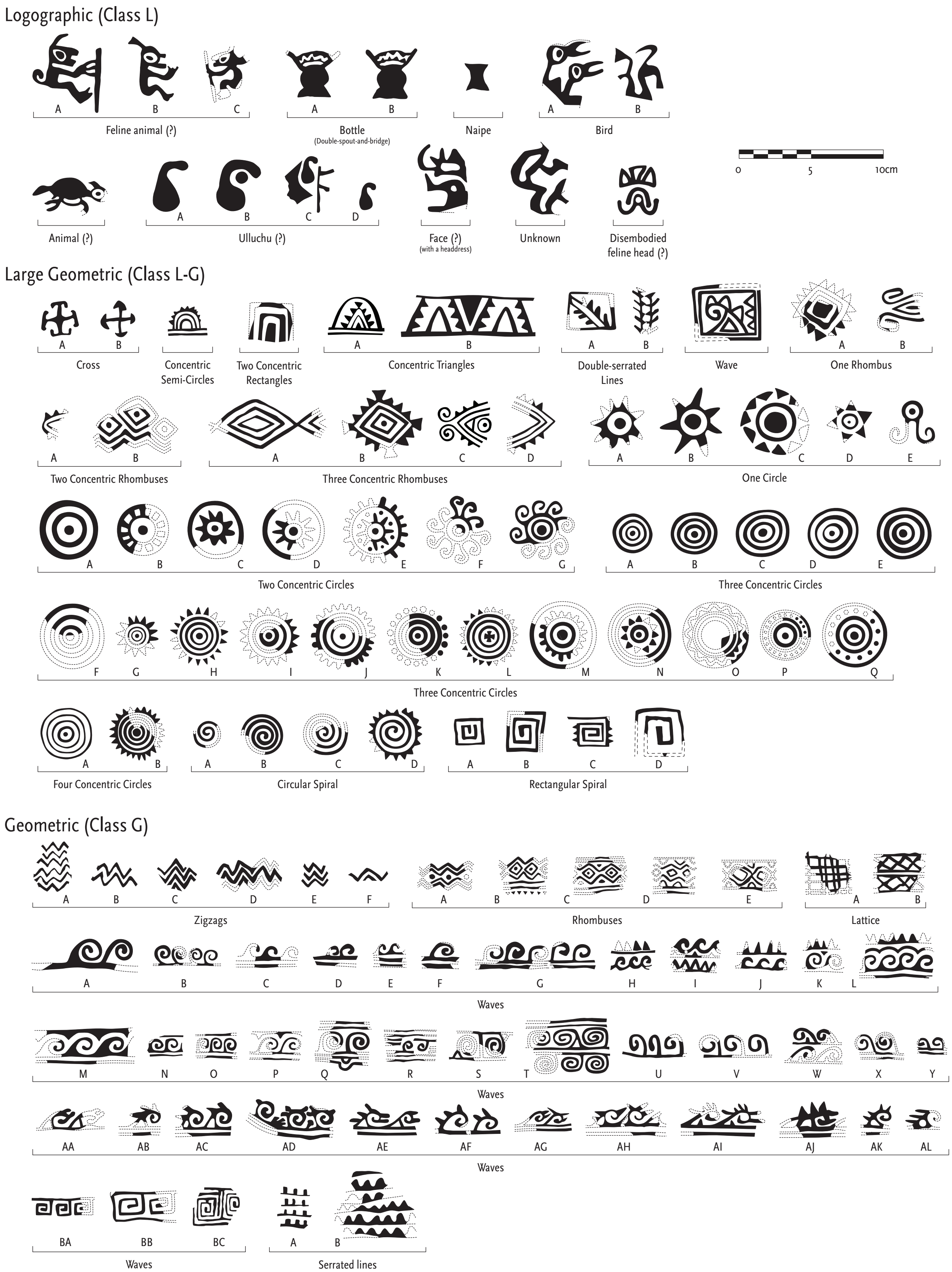


Figure 7.61. The 127 identified design motifs classified into 28 groups.

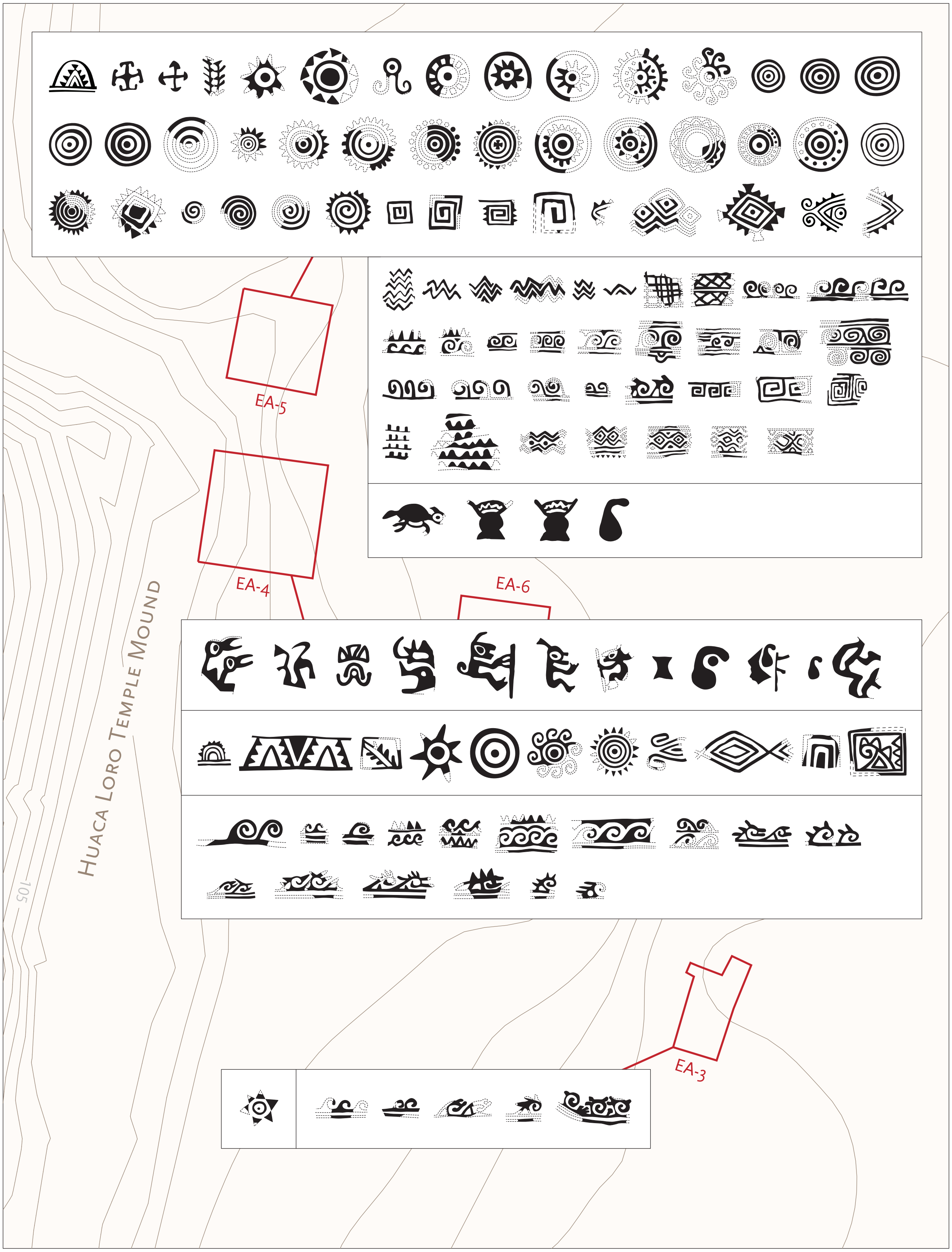


Figure 7.62. Documented spatial segregation of the *paleteada* design motifs among the EAs3 to 5.

Figure 7.63. The cranium excavated from the South Niche of Tomb 1 in the SAP-HL'06-T1. From the dentition, the age is estimated to be 1 year and 3 months to 2 years old. Photo by Nicolas Goepfert.

Figure 7.64. Well preserved eight phalanges probably of one individual (two toes for each limb) excavated from the Burial 1 in the SAP-HL'06-T2. No cut marks were observed on any them. Photo by Nicolas Goepfert.

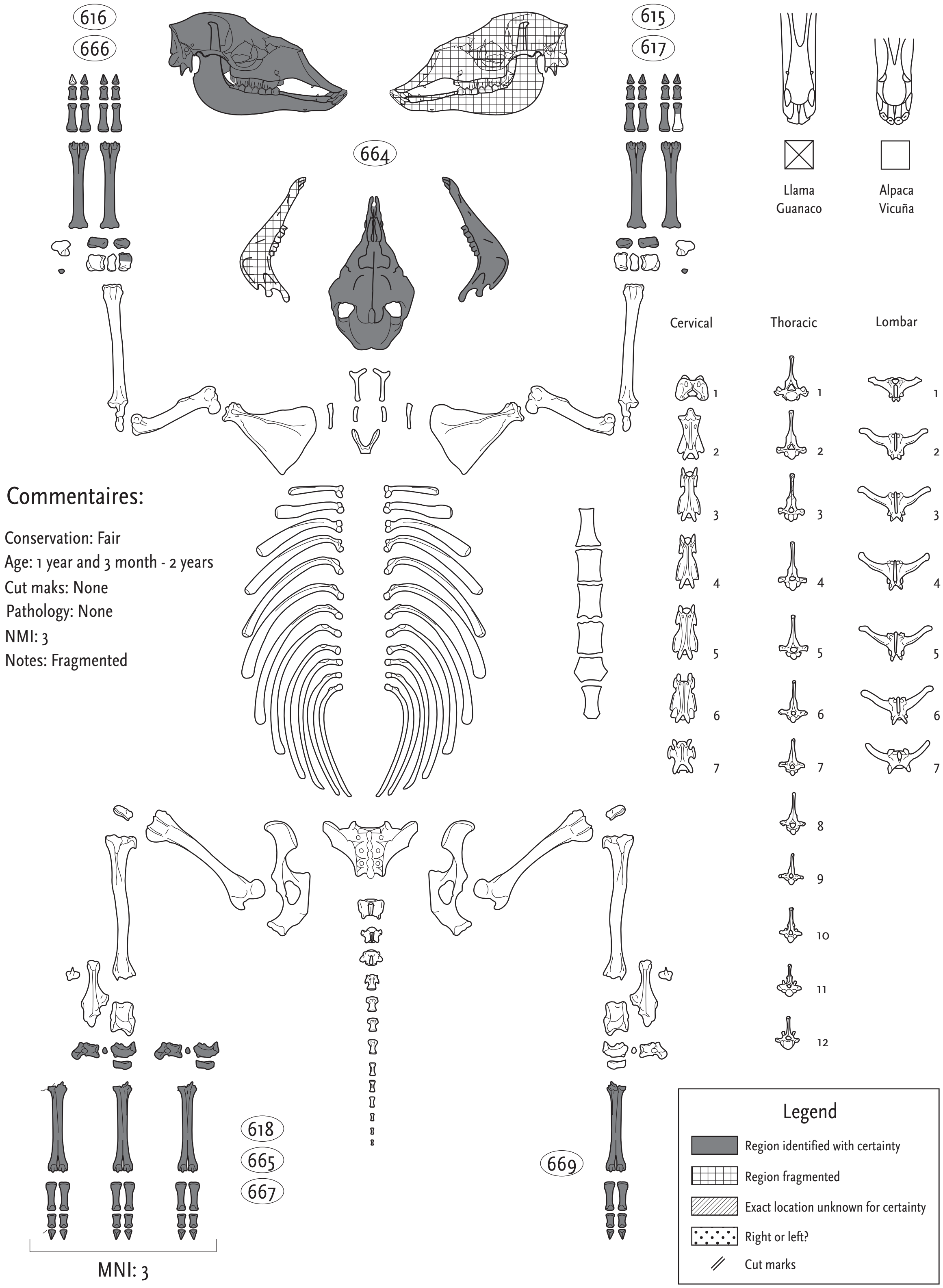


Figure 7.65. Anatomical parts of three llamas excavated from the Tomb 1 in the SAP-HL'06-T1.

Figure 7.66. Perforations and grooves observed on the fragmentary diaphyses of limb bones from the Burial 4 in the SAP-HL’06-T1. The location and orientation of the grooves and the interval of the perforations are quite similar to those of the two flutes (made of llama tibias) excavated from the Northeast Tomb 1 in the SAP-HL’08-EA4. Photo by Nicolas Goepfert.

Figure 7.67. Burnt and/or fragmented remains excavated from the three excavation areas in the Great Plaza. Photo by Nicolas Goepfert.

Figure 7.68. Cut marks observed on the llama bones excavated from the OS-7 Level 3 in the SAP-HL'08-EA3. Photo by Nicolas Goepfert.

Figure 7.69. Cut marks observed on the llama bones excavated from the OS-11 in the SAP-HL'08-EA4. Photo by Nicolas Goepfert.

Figure 7.70. Cut marks observed on the llama bones excavated from the OS-11 in the SAP-HL’08-EA4. Photo by Nicolas Goepfert.

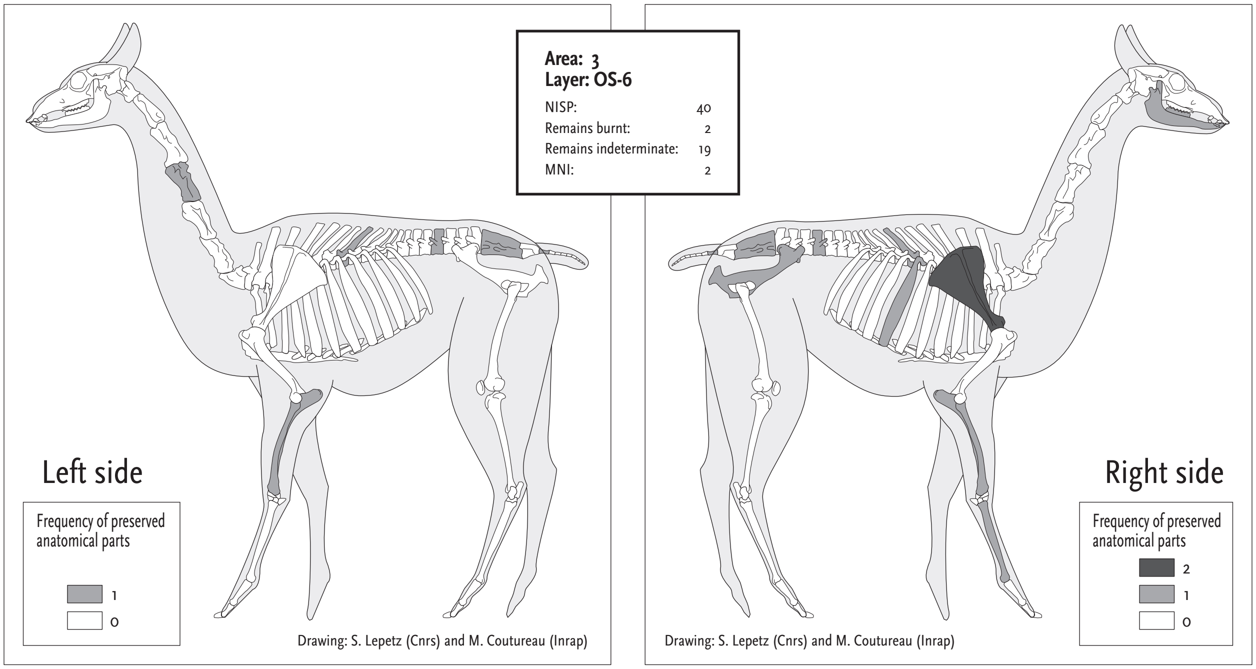


Figure 7.71. Anatomical parts of llama found from the OS-6 in the SAP-HL’08-EA3.

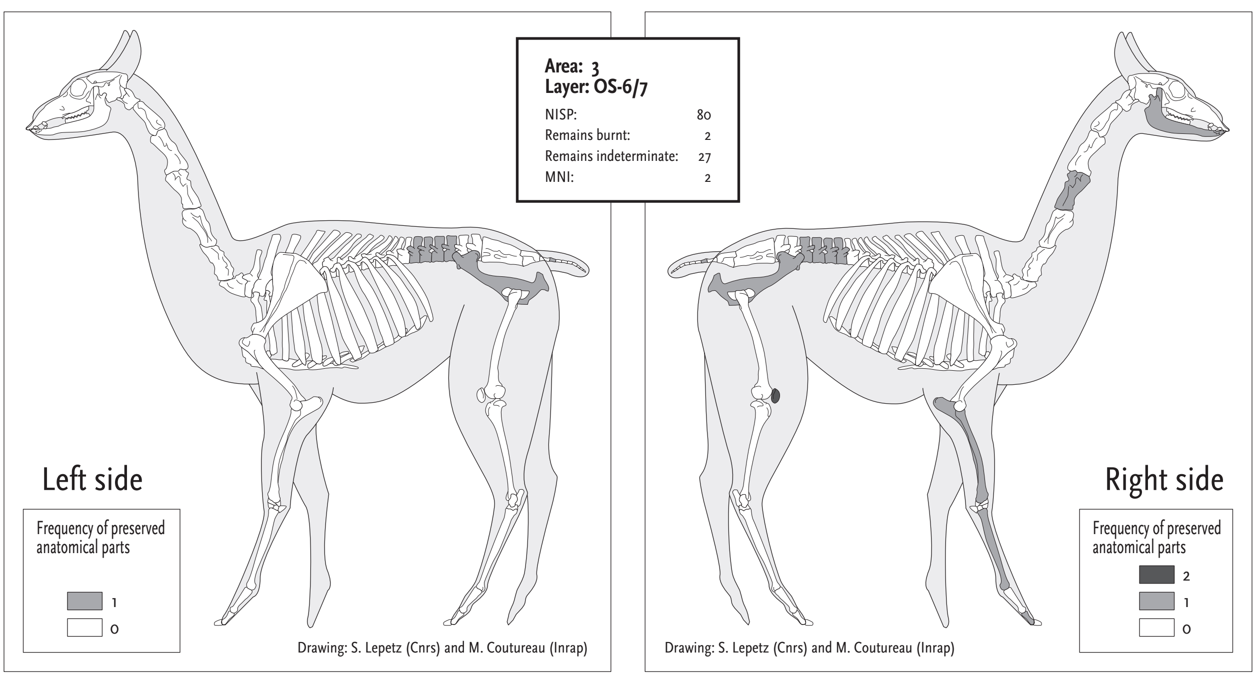


Figure 7.72. Anatomical parts of llama found from the OS-6/7 in the SAP-HL’08-EA3.

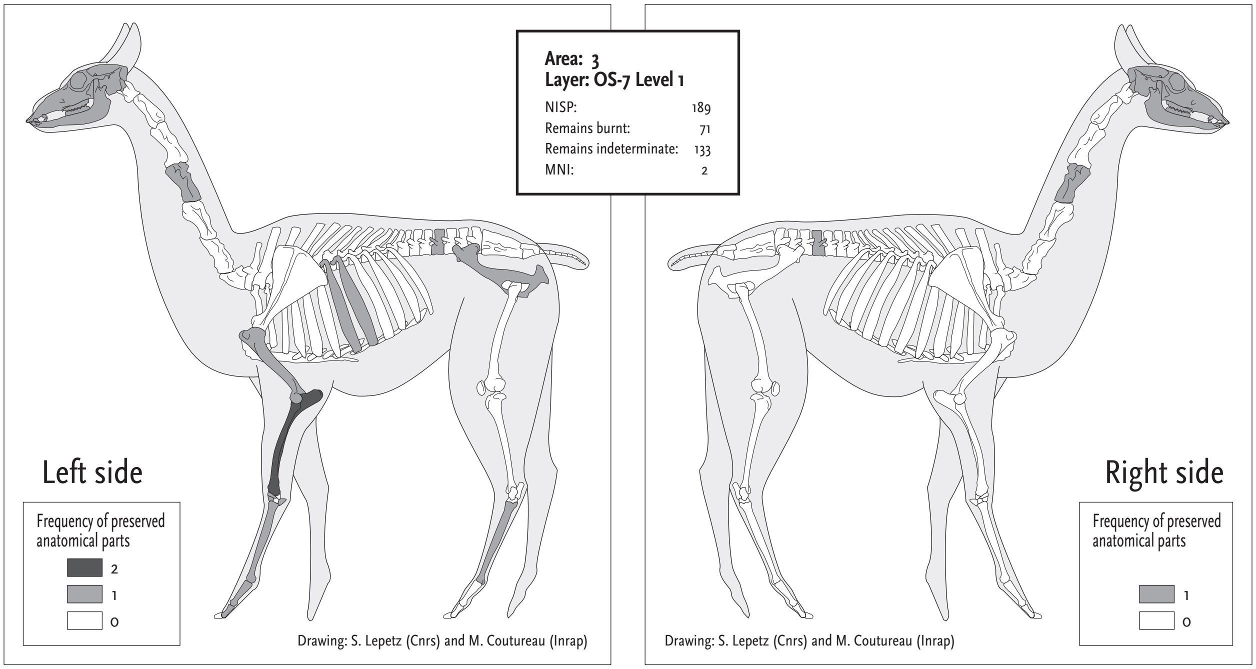


Figure 7.73. Anatomical parts of llama found from the OS-7 Level 1 in the SAP-HL'08-EA3.

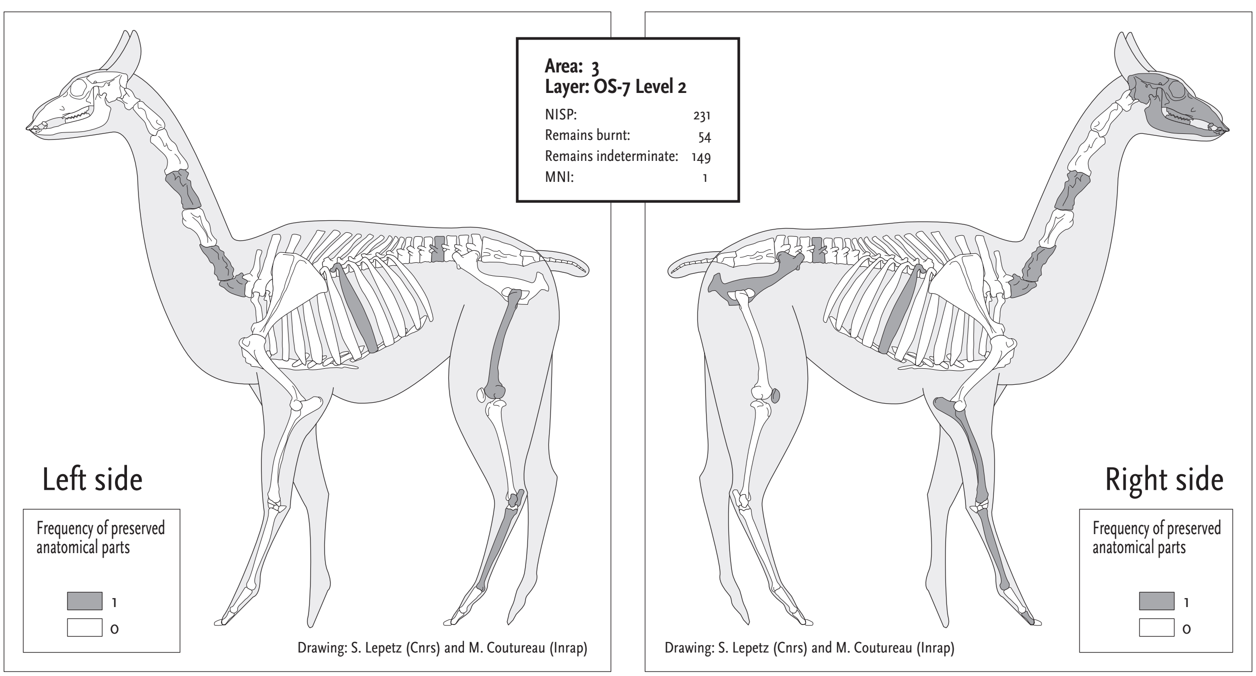


Figure 7.74. Anatomical parts of llama found from the OS-7 Level 2 in the SAP-HL'08-EA3.

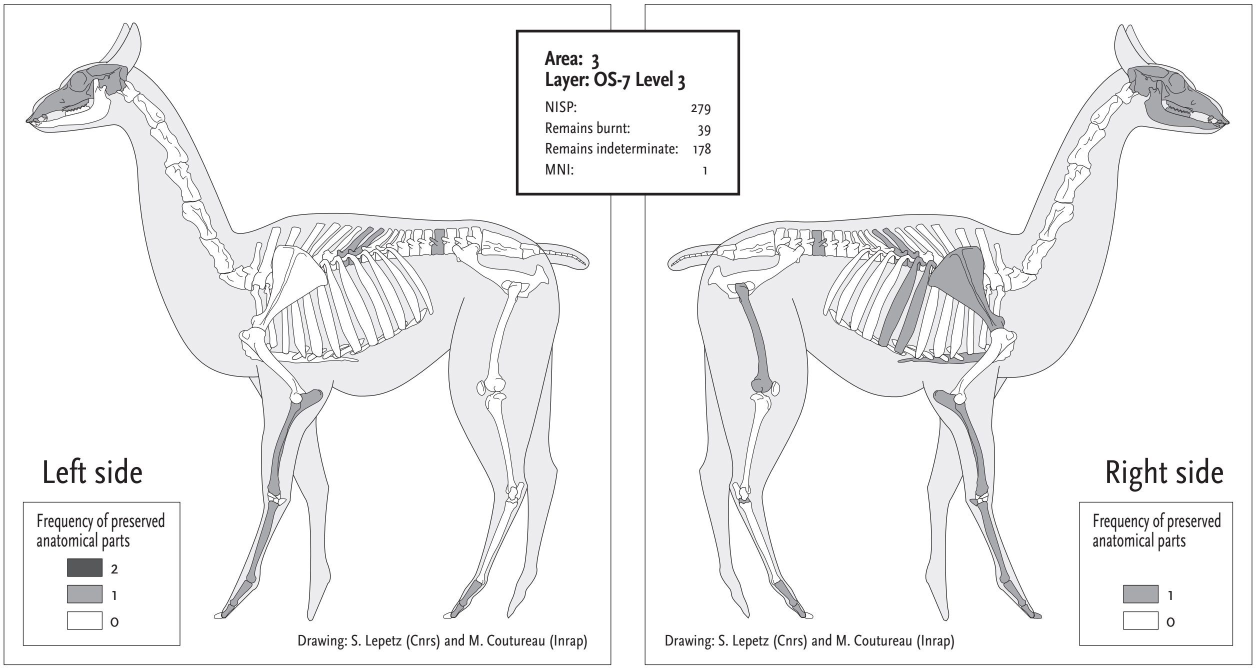


Figure 7.75. Anatomical parts of llama found from the OS-7 Level 3 in the SAP-HL′08-EA3.

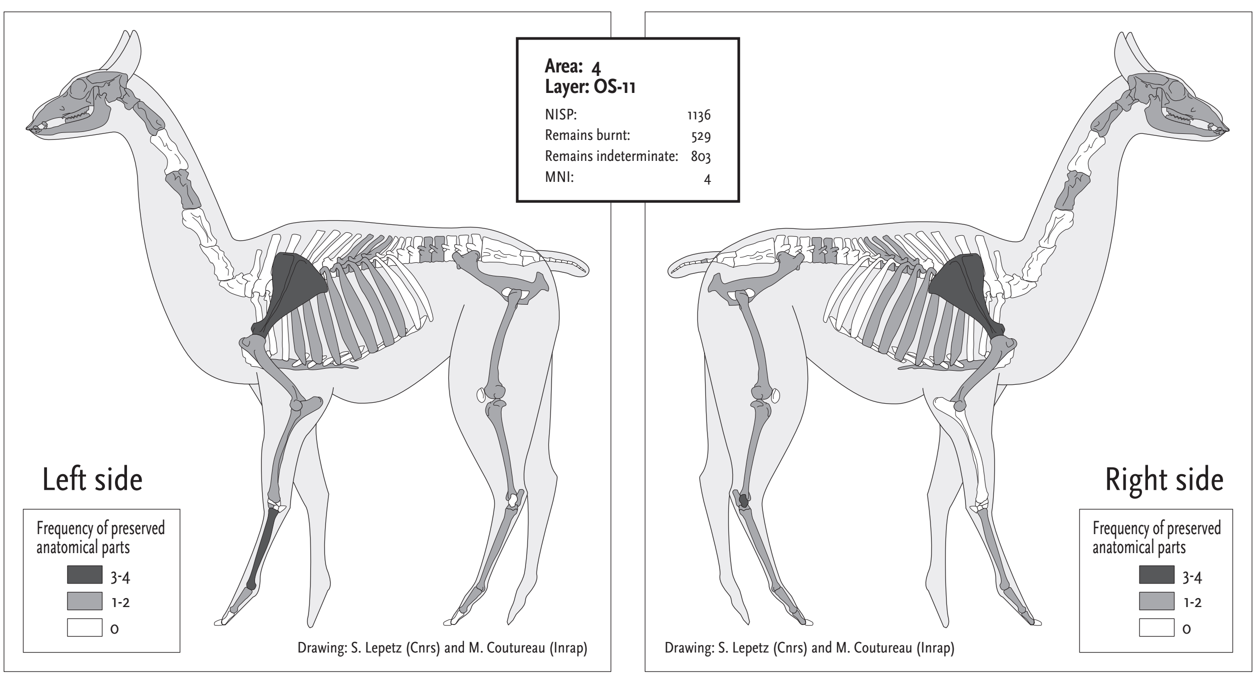


Figure 7.76. Anatomical parts of llama found from the OS-11 in the SAP-HL′08-EA4.

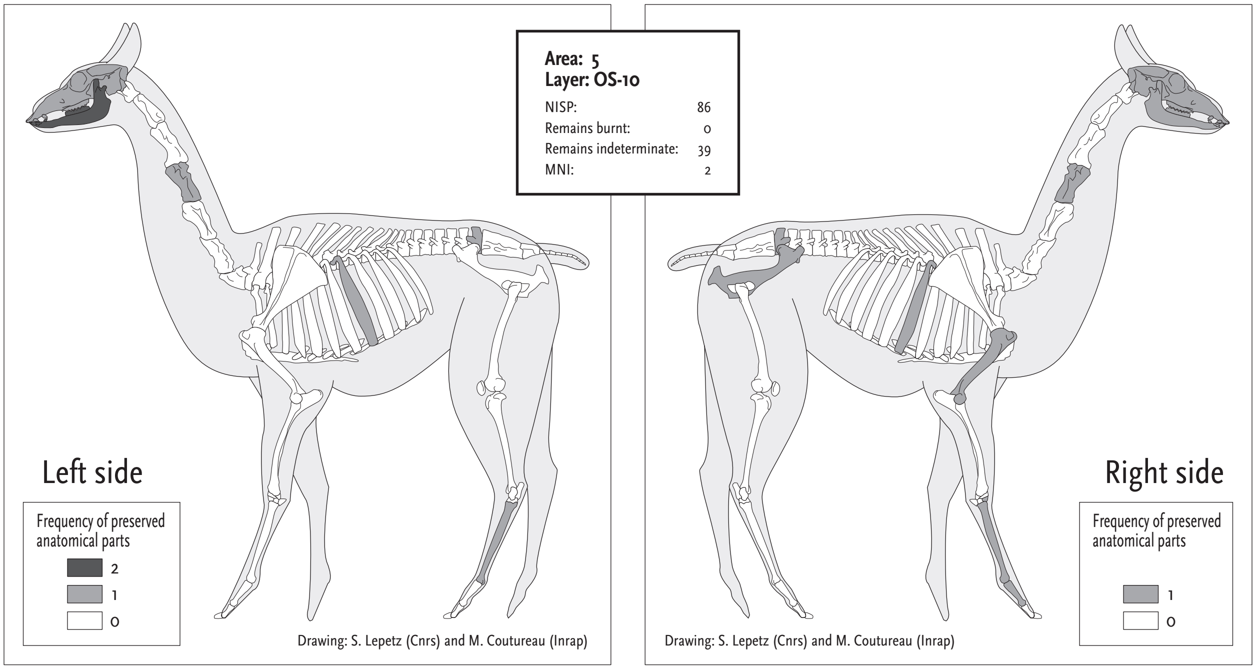


Figure 7.77. Anatomical parts of llama found from the OS-10 in the SAP-HL'08-EA5.

Figure 7.78. Crania, ribs, and limb bones of rodent (probably guinea pig) excavated inside the large hearth (Feature 26) on the OS-7 Level 2 in the SAP-HL'08-EA3. Photo by Nicolas Goepfert.

Figure 7.79. A dog mandible excavated inside the large hearth (Feature 26) on the OS-7 Level 2 in the SAP-HL'08-EA3. Photo by Nicolas Goepfert.

Figure 7.80. A distal end of deer antler excavated from the OS-7 Level 1 in the SAP-HL'08-EA3. Photo by Nicolas Goepfert.

Figure 7.81. A left femur of bird (indeterminate taxon) excavated from the OS-7 Level 1 in the SAP-HL'08-EA3. Photo by Nicolas Goepfert.

Figure 7.82. Small remains excavated from the OS-7 Level 2 in the SAP-HL'08-EA3: (a) an occipital bone and (b) an ulna of a rodent and (c-d) two humeri possibly of a bat. Photo by Nicolas Goepfert.

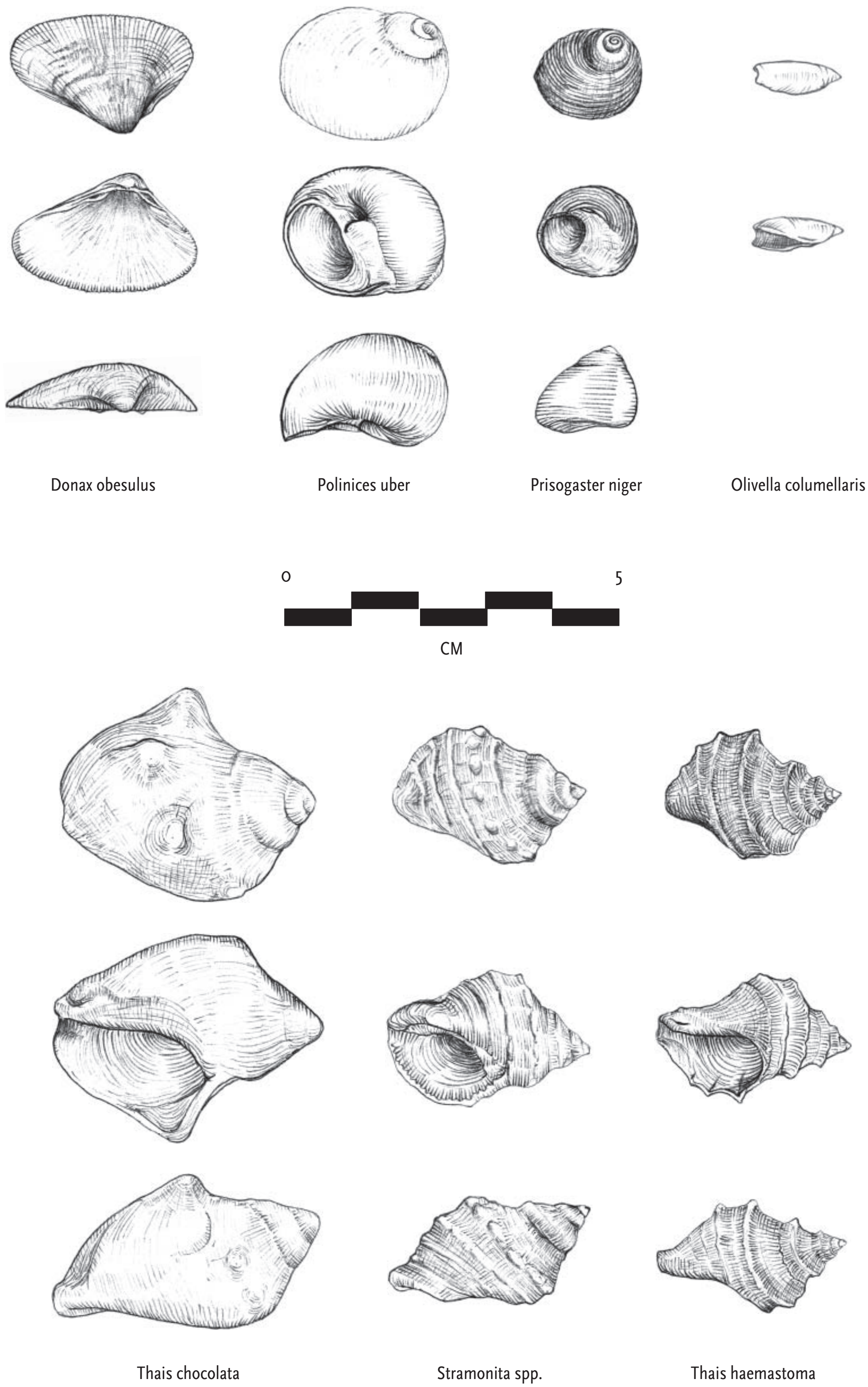


Figure 7.83. Major mollusk species excavated from the SAP-HL′08-EAs3 to 5. Drawing by Go Matsumoto.

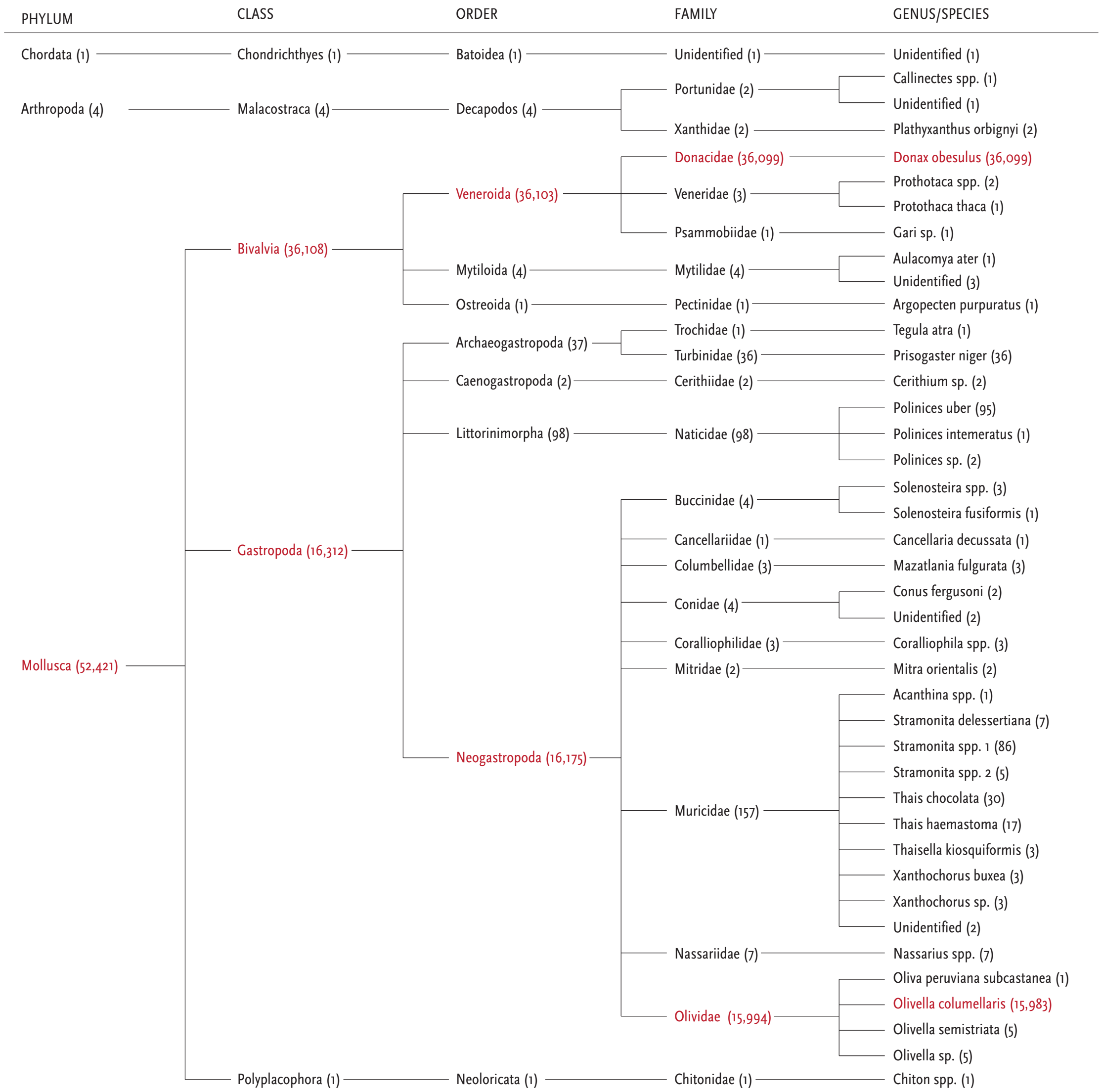


Figure 7.84. Taxonomic tree of the identified species of marine animals excavated from the Great Plaza. The numbers in the parentheses represent the numbers of remains (NR).

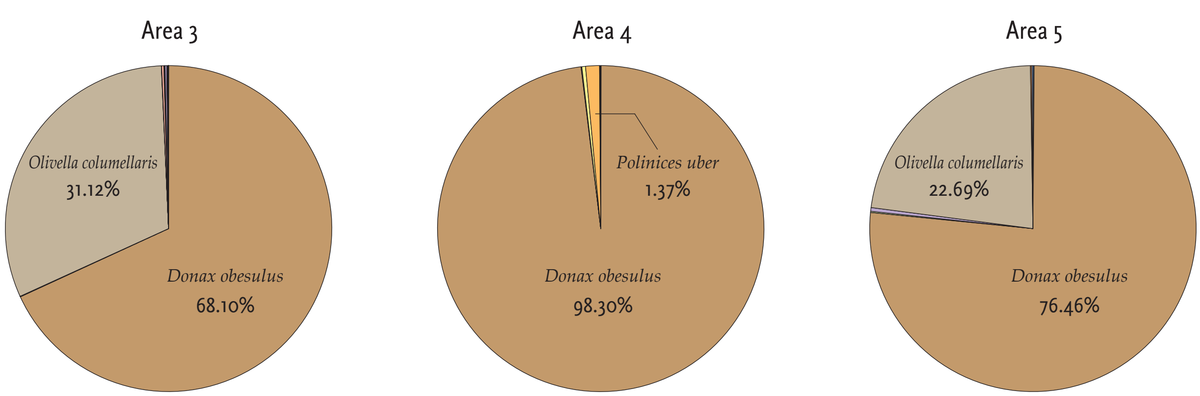


Figure 7.85. The proportions of identified genera and species in the remains of marine animals excavated from the SAP-HL'08-EAs 3 to 5. Note the disproportionately large numbers of *Donax obesulus* and *Olivella columellaris*.

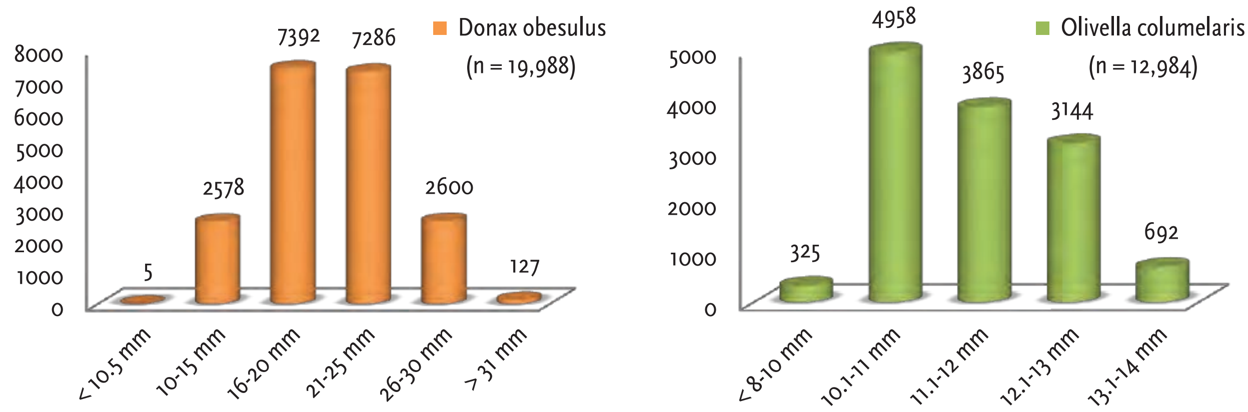


Figure 7.86. Size ranges of *Donax obesulus* and *Olivella columelaris*.

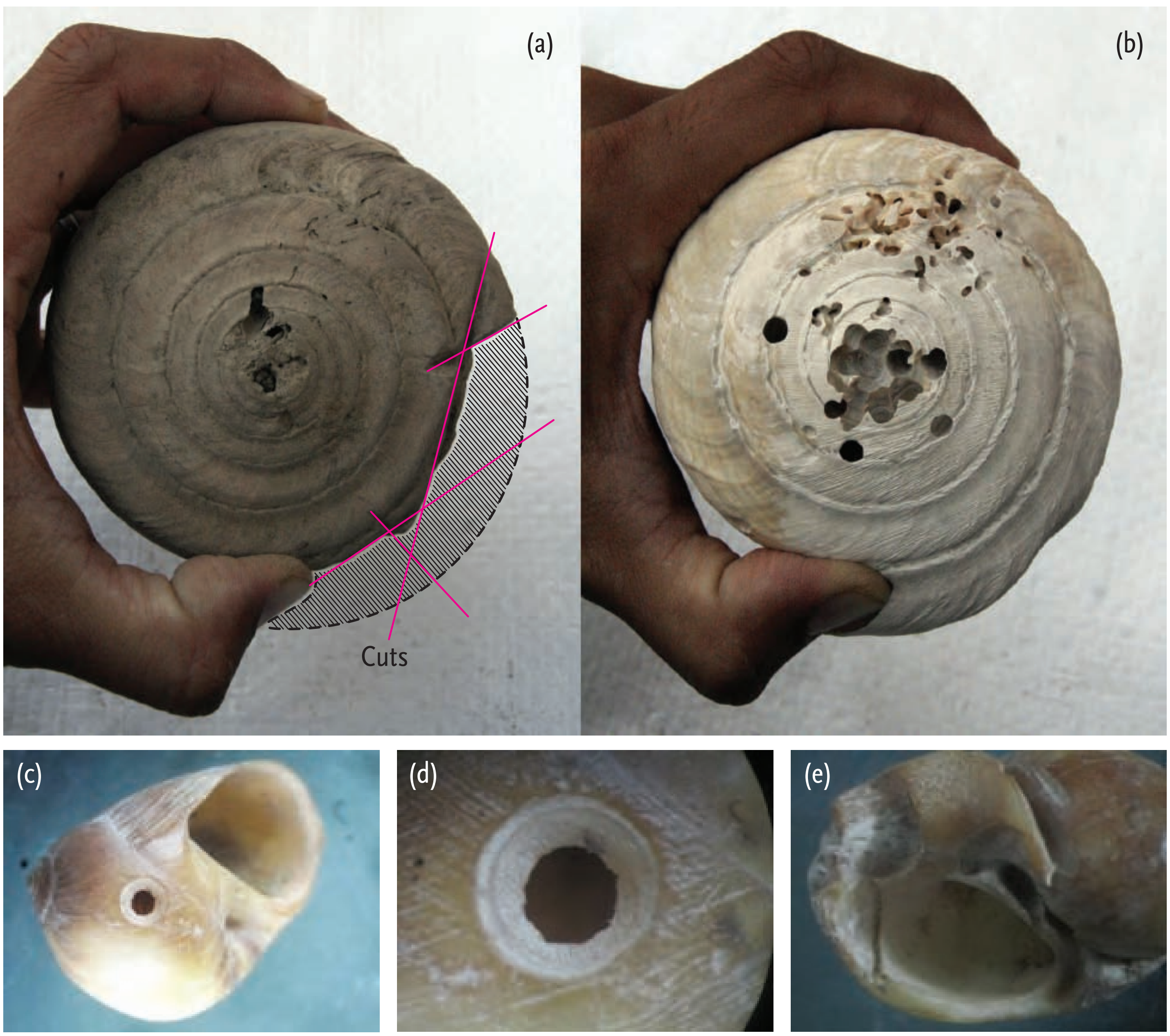
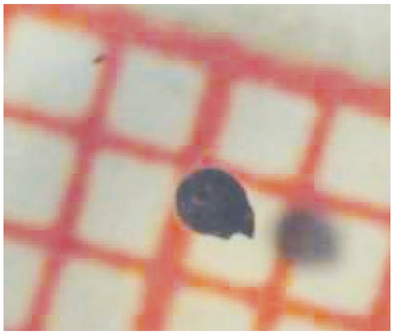


Figure 7.87. Examples of anthropogenic alterations observed on some mollusk species: (a, b) a comparison of two specimens of Conus fergusoni with and without the outer lip; (c, d, e) Polinices uber with perforation.

Figure 7.88. Major identified taxa in the macrobotanical remains excavated from the SAP-HL'08-EA3 in the Great Plaza. The smallest unit of the scale is 1 mm. Photo by Luis Huamán Mesía.



Sesuvium sp.

Indeterminate #8

Indeterminate #10

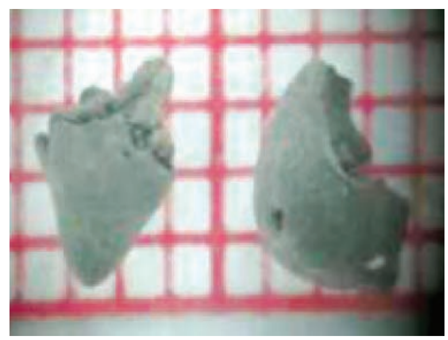
Indeterminate #17

Trianthema portulacastrum

Trianthema portulacastrum

Passilora sp.

Argemone sp.



Fruit of *Nicotiana* sp.

Ambrosia sp.

Figure 7.89. Major identified taxa in the macrobotanical remains excavated from the West Cemetery and the Great Plaza. The smallest unit of the scale is 1 mm. Photo by Luis Huamán Mesía.

Figure 7.90. The dense growth of *algarrobo* in the Pómac Forest National Historical Sanctuary. Viewed from the top of the Huaca Loro temple mound toward the southwest.

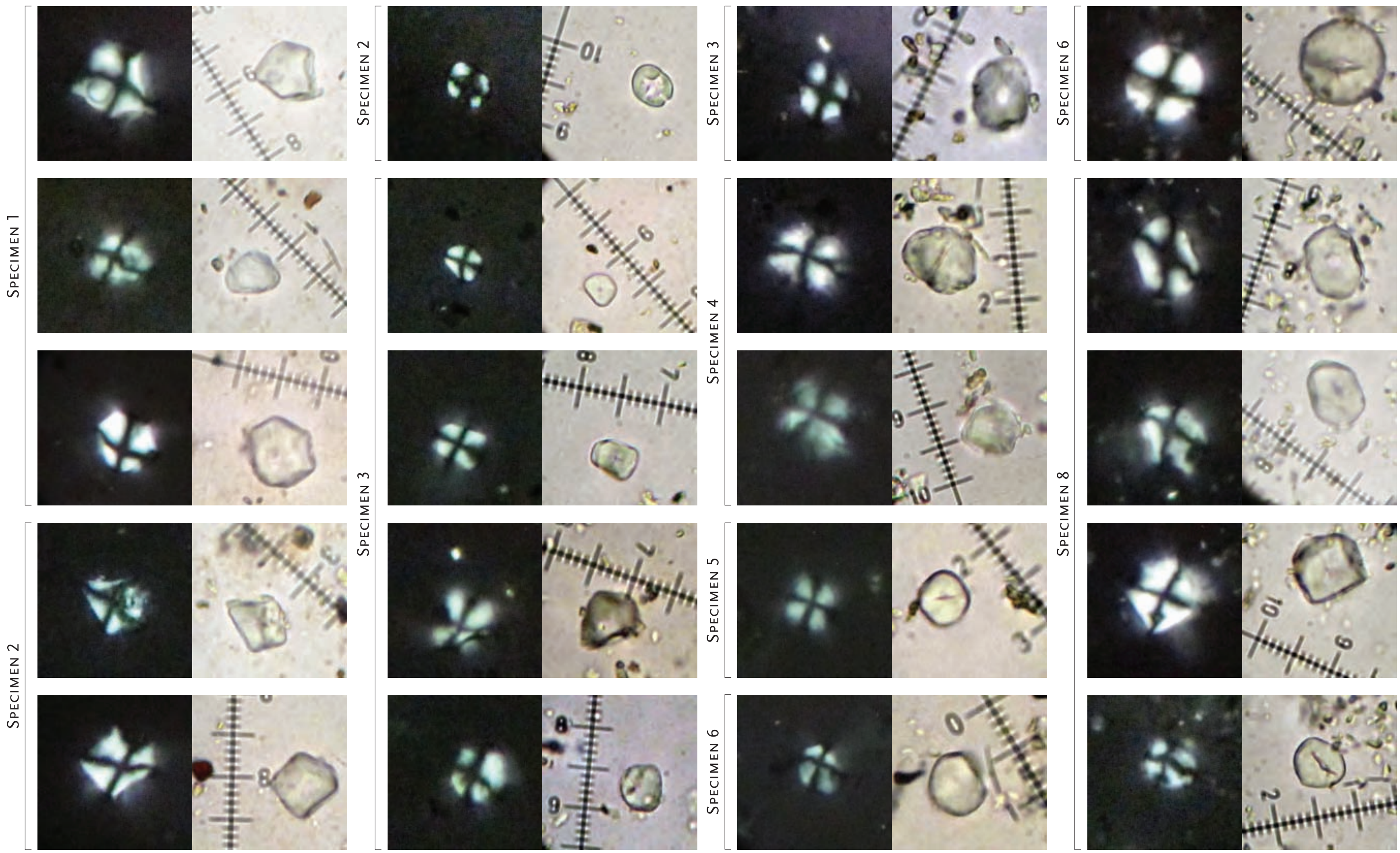


Figure 7.91. Photographs of the identified starch grains (Specimens 1-6, 8). Each space between the short lines of the scale is 2.5 μm.

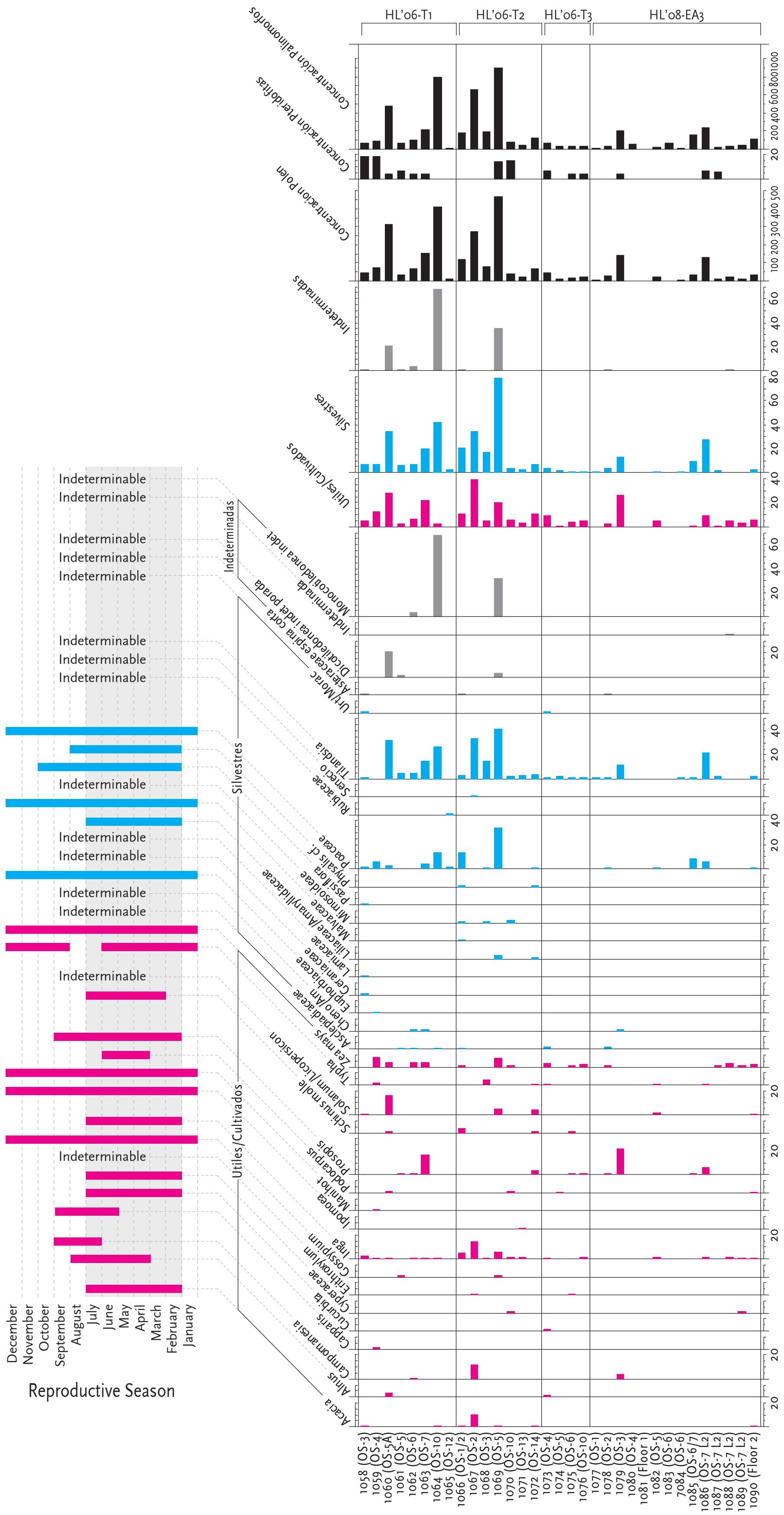


Figure 7.92. Frequency and reproductive season of the 36 taxa of pollen grains identified by the palynological analysis.

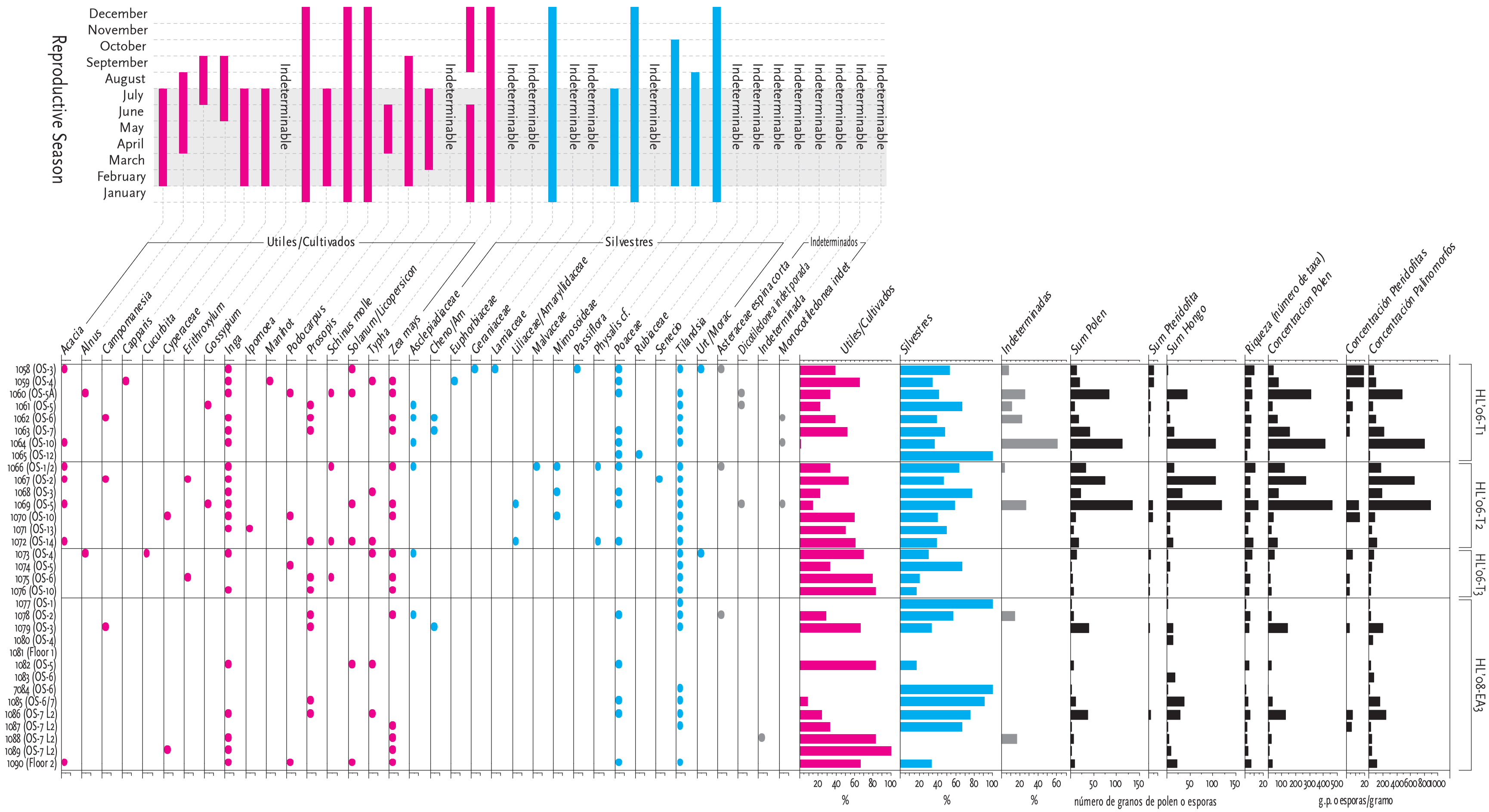


Figure 7.93. Presence/absence and reproductive season of the 36 taxa of pollen grains identified by the palynological analysis.

Table 7.1. (Un)calibrated radiocarbon dates for the three samples from the SAP-HL'08-EAs3 to 5.

Lab code	Provenience	Material	Uncalibrated BP Years			Calibrated Years AD	
			^{14}C age (BP)	^{14}C age error	$\delta^{13}C$ (‰)	68.2% probability (±1)	95.4% probability (±2)
AA103769	SAP-HL'08 Area 3 OS7 L1	Algarrobo Wood	954	38	-24.6	AD 1046-1089 (29.1%) AD 1108-1120 (5.6%) AD 1130-1182 (33.5%)	AD 1034-1206 (95.4%)
AA103770	SAP-HL'08 Area 4 OS11	Algarrobo Pod	335	39	-25.0	AD1508-1582 (51.7%) AD1602-1643 (16.5%)	AD1482-1658 (95.4%)
AA103771	SAP-HL'08 Area 5 OS10	Algarrobo Wood	961	37	-22.6	AD1046-1090 (31.1%) AD 1108-1120 (6.8%) AD 1129-1177 (30.3%)	AD 1030-1202 (95.4%)

Table 7.2. A list of morphological and technological features that were observed on the studied sherds.

Code	Type	Description
WEIGHT	Numeric	Weight of the sherd
SHERD_TYPE	String	Sherd types (15 types)
BODY_SHAPE	String	Vessel body forms (6 types)
SURFTREAT_INT	String	Treatment on the interior surface
SLIP_INT	String	Presence and location of slip painting
COLOR_INT	String	Color of the interior surface (Munsell code)
DEC_TEC_INT	String	Decoration technique (e.g., painting and molding)
DEC_LOCUS_INT	String	Location of decoration
PAINT_COLOR_INT	String	Color of the paint (Munsell code)
COST_INT	Numeric	Production cost to prepare the interior surface
SURFTREAT_EXT	String	Treatment on the exterior surface
SLIP_ EXT	String	Presence and location of slip painting
COLOR_ EXT	String	Color of the exterior surface (Munsell code)
DEC_TEC_ EXT	String	Decoration technique (e.g., painting and molding)
DEC_LOCUS_ EXT	String	Location of decoration
PAINT_COLOR_ EXT	String	Color of the paint (Munsell code)
COST_EXT	Numeric	Production cost to prepare the exterior surface
COST_TOTAL	Numeric	Sum of COST_INT and COST_EXT
IRREG	String	Descriptions of irregularities
RIM_DIA	Numeric	Rim diameter (cm)
RIM_PC	Numeric	Percentage of the preserved rim (%)
RIM_PROF	String	Types of rim-lip form
RIM_ANGLE	Numeric	Rim angle
BASE_DIA	Numeric	Ring base diameter (cm)
BASE_PC	Numeric	Percentage of the preserved base (%)
PASTE_SORT	String	Degree of paste sorting
PASTE_SIZE	Numeric	Grain size of the paste
FIRING_CORE	String	Types of firing core

Table 7.3. The frequencies of the identified 16 sherd types in the SAP-HL'08-EAs3 to 6.

Type	Area 3	Area 4	Area 5	Area 6	Total
A (Appliqué/adorno)	21	20	8	7	56
B (Base)	80	272	68	56	476
BO (Base-to-body)	51	15	9	16	91
C (Carination)	6	4	2	1	13
F (Figurine)	0	1	0	0	1
H (Handle)	9	11	3	12	35
L (Lug)	6	8	4	1	19
N (Neck)	37	129	36	28	230
O (Body)	89	462	492	40	1083
R (Rim)	505	1610	382	244	2741
RB (Rim-to-base)	3	0	2	3	8
S (Spout)	0	5	5	3	13
SR (Spout rim)	23	3	7	3	36
TYR (Tuyere)	0	0	1	1	2
W (Whole vessel)	0	1	0	0	1
TOTAL	830	2541	1019	415	4805

Table 7.4. The descriptions of the six vessel form groups identified in the sample sherds from the SAP-HL'08-EAs3 to 6.

	Vessel Form	Code	Description
1	Bowl/Dish/Plate (BDP)	BDP-PLN	Bowl/Dish/Plate: Painware
		BDP-SPD	Bowl/Dish/Plate: Sicán Painted Dish (Red-on-white painting)
		BDP-WHT	Bowl/Dish/Plate: White slip
		BDP-WOR	Bowl/Dish/Plate: White-on-red painting
2	Bottle/Jug (BJ)	BJ-MISC	Bottle/Jug: Fine black/gray/redware (miscellaneous fragments)
		BJ-IMP	Bottle/Jug: Fine black/gray/redware with press-molded low-relief design
		BJ-HR	Bottle/Jug: Mold-made fine black/gray/redware (Huaco Rey)
3	Jar/Urn (JU)	JU-NCK	Jar/Urn: Necked jar (or *olla*)
		JU-NCK-PLT	Jar/Urn: Necked jar (or *olla*) with *paleteada* designs on the shoulder
		JU-NLS	Jar/Urn: Neckless urn
		JU-NLS-PLT	Jar/Urn: Neckless urn with *paleteada* designs on the shoulder
		JU-LH	Jar/Urn: Lug handle
		JU-PLT	Jar/Urn: *Paleteada* body sherd
		JU-PRN	Jar/Urn: Neckless and oversized urn (or *porrón*)
4	Figurine (F)		Figurine
5	Miniature Vessel (M)		Miniature Vessel
6	Tuyere (T)		Tuyere

Table 7.5. The frequencies of the six vessel form groups in the SAP-HL'08-EAs3 to 6.

Vessel Form		Code	Area 3	Area 4	Area 5	Area 6	Total
1	Bowl/Dish/Plate (BDP)	BDP-PLN	482	1118	315	254	2169
		BDP-SPD	90	46	8	17	161
		BDP-WHT	16	12	5	0	33
		BDP-WOR	0	1	0	0	1
		Subtotal	588	1177	328	271	2364
2	Bottle/Jug (BJ)	BJ-MISC	69	102	48	66	285
		BJ-IMP	25	1	0	0	26
		BJ-MLD	19	17	0	0	36
		Subtotal	113	120	48	66	347
3	Jar/Urn (JU)	JU-NCK	47	322	117	48	534
		JU-NCK-PLT	1	1	0	0	2
		JU-NLS	47	497	40	25	609
		JU-NLS-PLT	1	0	0	1	2
		JU-LH	5	1	0	0	6
		JU-PLT	17	381	454	1	853
		JU-PRN	9	40	30	2	81
		Subtotal	127	1242	641	77	2087
4	Figurine (F)		1	1	0	0	2
5	Miniature Vessel (M)		1	1	1	0	3
6	Tuyere (T)		0	0	1	1	2
Total			830	2541	1019	415	4805

Table 7.6. The distributions of the six vessel forms in the SAP-HL'08-EA3.

	Layers	BDP	BJ	JU	F	M	T	Total
SAP-HL'08 AREA 3	Floor1	0	0	0	0	0	0	0
	OS5	8	0	0	0	0	0	8
	OS6	26	6	9	0	0	0	41
	OS6/7	104	36	24	1	1	0	166
	OS7 L1	188	42	46	0	0	0	276
	OS7 L2	165	17	15	0	0	0	197
	OS7 L3	89	11	28	0	0	0	128
	Floor2	6	1	5	0	0	0	12
	OS8	2	0	0	0	0	0	2
	Total	588	113	127	1	1	0	830

Table 7.7. The distributions of the six vessel forms in the SAP-HL'09-EA4.

	Layers	BDP	BJ	JU	F	M	T	Total
SAP-HL'08 AREA 4	Bulldozer Cut	17	6	10	0	0	0	33
	L3	5	2	5	0	1	0	13
	L4	6	3	3	0	0	0	12
	L7	25	2	44	0	0	0	71
	L9	0	0	1	0	0	0	1
	L18	6	1	8	0	0	0	15
	Fill of NE1 (OS11)	2	1	2	0	0	0	5
	OS11	663	62	701	0	0	0	1426
	OS11A	373	38	397	1	0	0	809
	OS11B	35	0	32	0	0	0	67
	OS11AB	34	3	31	0	0	0	68
	OS11C	11	2	8	0	0	0	21
	Total	1177	120	1242	1	1	0	2541

Table 7.8. The distributions of the six vessel forms in the SAP-HL'08-EA5.

	Layers	BDP	BJ	JU	F	M	T	Total
SAP-HL'08 AREA 5	OS7	12	3	18	0	1	0	34
	L 10	25	0	4	0	0	0	29
	OS10	186	29	468	0	0	0	683
	L16	95	14	128	0	0	1	238
	OS11	10	2	23	0	0	0	35
	Total	328	48	641	0	1	1	1019

Table 7.9. The distributions of the six vessel forms in the SAP-HL'08-EA6.

	Layers	BDP	BJ	JU	F	M	T	Total
SAP-HL'08 AREA 6	Unknown	2	0	7	0	0	0	9
	L7	26	15	3	0	0	0	44
	L8	16	2	1	0	0	0	19
	L9	9	0	5	0	0	0	14
	L10	38	4	15	0	0	1	58
	L11	67	12	22	0	0	0	101
	L12	48	23	7	0	0	0	78
	OS7	26	3	7	0	0	0	36
	OS8	7	0	3	0	0	0	10
	OS9	1	0	1	0	0	0	2
	OS10	27	5	6	0	0	0	38
	OS11	0	1	0	0	0	0	1
	OS14	4	1	0	0	0	0	5
	Total	271	66	77	0	0	1	415

Table 7.10. Distinctions between bowls, dishes, and plates defined by the frequencies of rim diameters and rim wall angles. As opposed Montenegro's (1997) tripartite classification, the BDP vessels analyzed by the current study were classified into four clusters: (1) Bowl, (2) Dish/Bowl, (3) Dish, and (4) Plate.

Montenegro 1997

	Bowl	Dish	Plate
Number	51 (24.9%)	124 (60.5%)	30 (14.6%)
Mean Rim Diameter	16.9 cm	18.25 cm	17.7 cm
Range Rim Diameter	15-18 cm	16-20 cm	13-17 cm
Mean Inclination Angle	62.5°	43.5°	26.8°
Range Inclination Angle	50-70°	40-50°	24-33°

Matsumoto 2014

	Bowl	Dish/Bowl	Dish	Plate
Number	95 (7.5%)	457 (35.8%)	536 (42%)	187 (14.7%)
Mean Rim Diameter	18.43 cm	17.46 cm	16.96 cm	17.26 cm
Range Rim Diameter	11-34 cm	11-39 cm	6-37 cm	6.5-48 cm
Mean Inclination Angle	65.73°	51.93°	41.9°	25.45°
Range Inclination Angle	60-95°	50-55°	35-45°	15-30°

Table 7.11. Frequencies of 15 rim/neck silhouette types in different excavation areas and time periods.

	middle-Middle Sicán			Total		late-Middle Sicán			Total	
	Area 3	Area 4	Area 5			Area 3	Area 4	Area 5		
TYPE I-a	0	7	0	7		0	0	0	0	
TYPE I-b	0	5	0	5		1	0	0	1	
TYPE I-c	0	6	0	6	26	3	0	0	3	5
TYPE I-b2	0	1	0	1		0	0	0	0	
TYPE I-c2	0	3	0	3		0	0	0	0	
TYPE I-c3	0	4	0	4		1	0	0	1	
TYPE II-a	0	5	0	5		0	0	0	0	
TYPE II-b	0	5	0	5	18	0	0	0	0	3
TYPE II-c	1	7	0	8		2	0	1	3	
TYPE III	0	1	0		1	6	1	0		7
TYPE IV	0	1	0		1	1	0	0		1
TYPE V	0	0	0		0	2	0	0		2
TYPE VI-a	0	1	0	1		1	0	0	1	
TYPE VI-b	0	2	0	2		0	1	0	1	
TYPE VI-c	0	3	0	3	19	0	0	0	0	13
TYPE VI-a2	0	4	0	4		3	0	1	4	
TYPE VI-b2	0	5	0	5		1	1	1	3	
TYPE VI-c2	0	4	0	4		3	0	1	4	
TYPE VII	0	3	0		3	2	0	0		2
TYPE VIII	0	1	0		1	0	0	0		0
TYPE IX	0	0	0		0	0	0	1		1
TYPE X	0	1	0		1	1	0	1		2
TYPE XI	0	1	0		1	3	0	2		5
TYPE XII	0	0	0		0	0	0	1		1
TYPE XIII	0	4	1		5	1	0	1		2
TYPE XIV	0	1	0		1	1	0	0		1
TYPE XV-a	0	0	0	0	0	1	0	0	1	3
TYPE XV-c	0	0	0	0		2	0	0	2	

Table 7.12. A scale to quantify the workloads required to produce BDP vessels.

Processes		Cost	Description
1.Paste sorting		1	The grain size of clay is uniformly sorted.
2. Forming		1	The vessel is produced by either hand-forming or molding.
3. Slip painting		1	The surface is slipped in white or whitish color.
4. Swiping/ Smoothing	Partial/rough swiping	1	The surface is partially swiped.
	Complete swiping	2	The entire surface is swiped, but not well smoothed. Oftentimes striations are clearly observable.
	Well smoothing	3	The surface is very well smoothed.
	Burnishing/Polishing	4	The surface is burnished or polished.
5. Painting		1	The surface is painted in red or reddish color.

Table 7.13. Element concentration data (continued).

ANID	Alternate ID	Type	Area	Stratum	As	La	Lu	Nd	Sm	U	Yb	Ce	Co	Cr	Cs	Eu	Fe	Hf	Ni	Rb	Sb	Sc	Sr	Ta	Tb	Th
GMP001	CE037-001	Plainware	3	OS6/7	13.8078	31.0110	0.3837	25.3310	6.1010	4.2023	2.7852	62.0920	14.3543	33.7814	8.0780	1.2190	41121.5	4.5039	0.00	100.32	3.0913	16.0758	180.94	0.6874	0.9491	11.6925
GMP002	CE037-004	Plainware	3	OS6/7	15.7116	28.9090	0.3836	40.0229	6.2700	3.4553	2.5350	59.0371	14.5065	33.0343	8.1255	1.2370	42341.2	4.3127	0.00	99.70	3.3012	16.4288	140.32	0.7274	0.9727	11.7738
GMP003	CE037-005	Plainware	3	OS6/7	20.5341	25.9831	0.3685	27.2668	5.4545	3.8993	2.6666	53.9246	12.5634	32.4181	7.1792	1.2051	37837.1	5.1989	0.00	87.84	2.8618	14.7557	164.31	0.7310	0.8741	8.8978
GMP004	CE041-006	Plainware	3	OS6/7	8.3387	27.6543	0.3770	23.3445	5.6511	4.6774	2.7738	56.7451	12.0511	29.7797	7.5937	1.1818	38805.1	5.1575	0.00	99.72	2.3249	15.6268	177.73	0.7284	0.5944	10.9037
GMP005	CE041-011	Plainware	3	OS6/7	32.8488	24.6668	0.4085	21.2673	5.7631	4.3996	2.5635	51.5566	13.7463	35.7495	8.6629	1.1231	43321.9	3.9318	0.00	106.32	2.3890	15.8278	151.44	0.6960	0.9431	11.4392
GMP006	CE055-001	Plainware	3	OS6/7	28.7134	25.9933	0.4197	33.3669	6.2407	3.5705	2.6549	52.6793	14.8007	38.5989	8.7918	1.1833	48421.8	5.3108	0.00	101.89	2.9874	17.8366	112.43	0.7658	0.6966	11.5713
GMP007	CE055-002	Plainware	3	OS6/7	22.9021	33.6954	0.4554	27.6350	6.8584	5.8343	3.1555	70.1535	16.0842	48.0312	7.5662	1.3456	42983.9	7.9409	0.00	94.39	2.4030	17.2118	140.35	0.9882	0.8953	12.4957
GMP008	CE055-003	Plainware	3	OS6/7	19.6277	25.3553	0.3999	23.2208	5.7248	4.2736	2.8281	54.2736	14.9499	35.0999	8.4787	1.1706	47125.7	6.7314	0.00	104.90	3.0719	18.1500	126.75	0.7286	0.8921	10.9244
GMP009	CE055-005	Plainware	3	OS6/7	28.6328	24.4856	0.3247	21.5277	5.1985	4.2541	2.3966	50.3276	11.5789	32.5185	7.1082	1.0914	37864.6	4.7694	0.00	92.79	2.1509	13.9509	128.81	0.7064	0.6124	10.1474
GMP010	CE055-019	Plainware	3	OS6/7	25.3602	27.5480	0.4347	22.5922	5.7229	6.1778	2.6611	55.4343	10.3562	37.6624	7.0981	1.1166	39300.6	5.3467	0.00	93.44	2.4177	15.5603	169.32	0.7477	0.5745	11.7488
GMP011	CE055-021	Plainware	3	OS6/7	24.4099	29.8272	0.4008	37.2906	6.3192	4.5574	2.8555	60.1460	16.0209	37.8550	8.3317	1.2142	44955.3	4.5137	0.00	105.20	2.8181	16.7841	162.25	0.6799	0.6278	11.7692
GMP012	CE055-025	Plainware	3	OS6/7	23.2607	25.6346	0.3965	34.5367	6.0356	4.2831	2.5072	52.7757	15.3696	34.2712	8.3538	1.1820	47045.0	5.9289	0.00	113.91	2.8832	17.1944	136.50	0.7545	0.9373	15.1502
GMP013	CE055-026	Plainware	3	OS6/7	24.7508	29.4467	0.3978	38.1179	6.4481	5.1726	2.9150	59.0786	13.6813	33.7706	7.3643	1.1790	42991.0	5.6559	0.00	92.58	3.2377	15.6055	158.18	0.7951	0.6459	19.0779
GMP014	CE055-034	SPD	3	OS6/7	16.7919	25.2836	0.3644	21.2016	5.2050	3.5411	2.5032	50.6665	9.9164	36.6138	7.3267	1.1175	37528.1	5.5154	0.00	96.34	2.6707	15.3472	166.16	0.7245	0.7828	10.7937
GMP015	CE056-001	SPD	3	OS6/7	13.4906	25.4302	0.3949	32.3273	5.8420	3.5886	2.7796	54.0952	14.8000	28.2995	8.6547	1.1651	42585.3	4.6216	0.00	117.60	3.0303	17.2437	189.05	0.7292	0.9174	11.0213
GMP016	CE056-010	SPD	3	OS6/7	22.2404	25.7166	0.3727	28.7157	5.5033	3.3893	2.5818	51.0820	14.0055	36.1462	6.8831	1.1505	44531.8	4.9996	0.00	82.80	3.2025	15.3930	161.85	0.7482	0.6379	9.8907
GMP017	CE034-001	Plainware	3	OS7-L1	42.7887	23.4254	0.5390	28.3026	6.2979	20.2010	2.6645	51.2197	13.2855	33.5216	8.8588	1.0841	43303.8	3.7736	0.00	104.94	2.3732	15.7658	226.73	0.6329	0.5478	15.6782
GMP018	CE034-016	SPD	3	OS7-L1	19.0781	25.7547	0.3626	31.1827	5.4513	3.3624	2.4734	51.8073	11.9699	38.3473	7.8394	1.1045	40608.8	4.7692	0.00	103.97	2.7450	15.9628	172.18	0.7370	0.9394	9.5150
GMP019	CE034-018	SPD	3	OS7-L1	23.0606	34.6063	0.3946	26.3459	6.0224	4.2285	2.7691	67.2783	14.0099	30.4339	7.2936	1.1133	43323.6	5.8062	0.00	94.32	2.9933	16.1032	199.56	0.7558	0.6726	11.2079
GMP020	CE035-003	Plainware	3	OS7-L1	18.5917	26.1009	0.3505	32.1324	5.5240	3.0407	2.4696	53.0261	14.6428	31.9818	7.8144	1.0859	40682.2	4.4266	0.00	101.65	2.7762	16.0765	165.57	0.6265	0.6031	10.6958
GMP021	CE038-004	SPD	3	OS7-L1	15.2278	30.0350	0.4868	23.5406	6.1626	11.5201	2.6099	62.3072	13.0761	29.8493	8.4196	1.2610	40588.7	4.1176	0.00	85.27	1.9611	15.2800	299.02	0.7807	0.6269	9.4026
GMP022	CE040-005	Plainware	3	OS7-L1	23.0021	29.2424	0.3800	36.5797	6.1331	3.6010	2.7163	60.4519	15.7147	34.8326	8.6355	1.2182	42808.2	4.3125	0.00	109.25	3.3613	17.8258	169.20	0.7105	0.9842	12.8465
GMP023	CE052-002	SPD	3	OS7-L1	22.2708	25.8450	0.3781	21.5414	5.4541	5.1191	2.6815	52.1903	12.3222	35.5939	6.5865	1.0679	39092.6	4.8554	0.00	93.79	2.7439	15.5867	209.19	0.6409	0.8285	11.1617
GMP024	CE125-001	Plainware	3	OS7-L1	25.7707	25.6078	0.4280	27.3331	5.7245	9.1339	2.6961	53.0174	13.7180	35.1529	7.8168	1.1094	41588.6	3.6058	0.00	96.81	2.4617	16.0777	128.66	0.6639	0.6457	10.4550
GMP025	CE125-003	Plainware	3	OS7-L1	14.8424	26.8392	0.3593	20.0098	4.8473	3.5576	2.6148	51.1982	10.5591	27.2014	6.4975	1.0400	35720.7	5.1634	0.00	70.01	2.0327	13.9542	215.00	0.7200	0.7898	9.0653
GMP026	CE132-001	SPD	3	OS7-L1	14.4340	29.0292	0.4324	20.8528	5.6224	4.0866	2.4768	58.3552	12.6817	28.1311	8.2695	1.1985	39602.3	4.2447	0.00	85.49	1.9925	14.8289	269.85	0.7700	0.8933	9.4270
GMP027	CE135-004	Plainware	3	OS7-L1	29.4084	26.8432	0.4176	24.6656	5.9070	5.5877	2.3135	55.1159	15.3766	36.2589	8.2400	1.1260	46081.9	5.3772	0.00	94.58	3.1513	17.1589	159.93	0.7556	0.6259	12.3229
GMP028	CE138-001	SPD	3	OS7-L1	23.1146	25.4542	0.3576	29.3211	5.6424	3.4579	2.4966	52.3514	13.7189	37.7714	8.8921	1.1438	41505.1	4.5191	0.00	109.80	2.7512	17.0175	117.22	0.7692	0.7525	10.7075
GMP029	CE138-002	SPD	3	OS7-L1	23.1710	26.3708	0.3999	21.9066	5.4448	4.7725	2.6897	53.5155	14.5122	38.3956	8.1135	1.1485	43875.0	5.0532	0.00	90.91	3.0413	16.7921	210.16	0.8076	0.9042	10.4118
GMP030	CE142-001	Plainware	3	OS7-L1	8.6030	31.0249	0.4041	36.9635	6.2588	3.6327	2.7667	64.0908	9.4102	36.2855	6.2719	1.1632	35303.9	7.7946	0.00	94.39	2.3205	14.2986	188.26	0.8092	0.9550	11.8132
GMP031	CE144-002	SPD	3	OS7-L1	22.6224	26.9685	0.3726	29.3774	5.7383	2.8023	2.5164	55.0533	15.6611	34.1056	7.9735	1.1433	45972.2	4.5230	0.00	97.21	3.2352	17.1238	151.50	0.7340	0.5940	10.3586
GMP032	CE147-003	SPD	3	OS7-L1	24.2080	28.9868	0.4074	24.4696	6.0601	5.0130	2.8466	58.5488	16.1555	34.5021	7.7139	1.1611	45071.0	4.1550	0.00	99.62	3.1366	16.9773	127.16	0.6958	0.6820	11.9374
GMP033	CE149-001	Plainware	3	OS7-L1	21.2395	26.7695	0.3862	29.9954	5.8111	4.5542	2.8709	53.5873	14.2306	41.1792	8.8286	1.1602	43494.4	4.8358	0.00	110.25	2.8859	16.3991	142.39	0.7704	0.9252	13.7954
GMP034	CE152-001	Plainware	3	OS7-L1	20.4638	23.3587	0.3903	18.0945	5.3711	7.6735	2.6958	47.9680	12.9459	29.8223	7.5269	1.0497	38815.8	3.9651	0.00	95.52	2.4512	14.8351	160.14	0.6331	0.6418	10.9285
GMP035	CE153-001	Plainware	3	OS7-L1	11.7716	27.0905	0.3579	19.8084	5.2144	4.1133	2.2700	53.3119	11.3307	34.8358	7.3957	1.0962	34608.3	4.6193	0.00	98.08	2.5365	14.2634	190.91	0.6947	0.8777	9.8679
GMP036	CE153-002	Plainware	3	OS7-L1	18.7285	27.8452	0.3775	22.8629	5.9573	5.2811	2.7818	57.8251	15.0469	36.3613	9.5364	1.2082	45409.4	4.1343	0.00	107.11	2.9122	17.4045	123.64	0.7250	0.6499	12.6891
GMP037	CE157-001	Plainware	3	OS7-L1	31.3447	23.8777	0.5554	27.1156	6.5020	22.2013	2.5763	52.1963	12.5652	32.8156	8.1238	1.0690	39745.6	4.3349	0.00	104.51	2.3771	15.5595	251.93	0.6088	0.5734	10.2373
GMP038	CE158-002	Plainware	3	OS7-L1	16.0609	23.4166	0.3377	25.9169	5.0897	3.3545	2.4703	46.5792	11.6771	32.4347	7.5824	1.0201	38509.4	5.2204	0.00	99.11	2.6359	15.0654	120.53	0.5986	0.5480	10.3479
GMP039	CE159-002	SPD	3	OS7-L1	23.9087	25.2835	0.3987	21.7098	5.3425	3.6815	2.7423	51.3203	14.2039	38.6689	6.9926	1.1655	46681.7	5.1090	0.00	85.64	3.3046	15.6524	170.09	0.7351	0.7001	9.4032
GMP040	CE107-001	Plainware	3	OS7-L2	21.2816	22.5657	0.4466	20.2648	5.6313	4.0682	3.1566	47.2152	12.6510	30.8109	8.2389	1.2372	41484.8	4.4002	0.00	105.77	3.0431	16.0548	139.56	1.1034	1.3450	10.8909
GMP041	CE108-002	SPD	3	OS7-L2	15.3979	30.6870	0.4028	29.2462	6.1463	3.3783	2.5550	63.6634	13.1493	35.2526	8.7939	1.1856	44946.5	6.1480	39.66	103.67	2.9544	18.1072	200.86	0.7388	0.9005	10.7883
GMP042	CE114-003	Plainware	3	OS7-L2	20.7081	24.8350	0.3697	21.6612	5.3464	3.2455	2.4201	51.7103	13.6182	35.4040	8.3287	1.0737	44348.6	4.1515	0.00	97.29	3.2287	16.3113	150.94	0.7173	1.0378	11.5119
GMP043	CE120-001	Plainware	3	OS7-L2	23.7787	24.5396	0.3559	20.6059	5.5634	3.8565	2.4935	50.9844	14.8735	34.4812	9.0821	1.1460	47233.4	4.4008	0.00	103.96	2.7784	17.0562	128.63	0.6783	0.7048	11.5662
GMP044	CE126-003	Plainware	3	OS7-L2	21.5085	26.0961	0.3534	27.2690	6.0792	2.9982	2.1929	54.5061	12.4740	31.5145	8.6066	1.1427	43666.9	4.5758	0.00	104.11	3.0132	17.2176	139.00	0.6636	1.0534	11.0156
GMP045	CE128-003	SPD	3	OS7-L2	19.5077	28.7560	0.3625	24.8541	5.7095	4.0163	2.6178	59.9287	13.4281	35.9687	8.3659	1.1899	41942.4	5.3599	0.00	99.98	3.1714	15.2839	215.42	0.7786	0.9939	10.7663

Table 7.13. Element concentration data (continued).

ANID	Alternate ID	Type	Area	Stratum	As	La	Lu	Nd	Sm	U	Yb	Ce	Co	Cr	Cs	Eu	Fe	Hf	Ni	Rb	Sb	Sc	Sr	Ta	Tb	Th
GMP046	CE128-005	Plainware	3	OS7-L2	16.7869	27.8751	0.3578	19.1843	5.4570	4.0318	2.2306	57.8318	11.6115	29.6908	6.5913	1.1149	37609.4	4.9683	0.00	77.43	1.8891	14.5878	320.22	0.7424	0.9532	10.0145
GMP047	CE165-001	Plainware	3	OS7-L2	15.0020	23.1989	0.3534	23.6717	5.3697	3.4120	2.4963	49.5042	13.3974	33.8115	7.5112	1.0834	42356.9	5.3168	0.00	101.46	2.6228	15.5644	156.14	0.7187	0.8783	9.8449
GMP048	CE166-001	SPD	3	OS7-L2	13.1469	30.1473	0.4414	24.5262	5.8308	7.1167	2.5647	62.3433	12.9314	28.4589	8.6457	1.1879	41518.0	4.2419	0.00	88.92	1.9564	15.7173	278.15	0.7638	1.0828	9.3084
GMP049	CE171-001	SPD	3	OS7-L2	16.1646	27.3283	0.3737	23.1884	5.6620	4.6869	2.7341	57.7979	13.3281	32.9730	8.3647	1.0938	42867.4	4.3262	0.00	107.17	2.9490	16.4410	147.28	0.7282	0.6864	10.5018
GMP050	CE171-002	SPD	3	OS7-L2	14.8826	29.5908	0.3359	29.3789	5.5917	3.5486	2.2143	59.9990	9.4086	29.6119	6.5532	1.1567	35510.6	6.4707	0.00	78.21	2.6968	13.7242	231.29	0.8187	0.6616	9.3121
GMP051	CE179-001	Plainware	3	OS7-L2	18.8999	26.7395	0.4419	24.2563	5.7265	4.2221	2.8084	55.4540	14.6297	33.3213	9.0263	1.2082	46561.9	4.3084	0.00	109.42	3.0154	18.7151	170.87	0.7171	1.0094	11.1983
GMP052	CE180-003	SPD	3	OS7-L2	16.6074	30.0211	0.4210	25.7386	5.8390	5.3333	2.7362	61.9728	12.6490	29.7453	8.3262	1.1915	40873.7	4.3677	0.00	92.92	2.1325	15.5729	312.65	0.7486	0.9817	9.3881
GMP053	CE186-003	Plainware	3	OS7-L2	18.0327	24.4781	0.3770	21.4776	5.1860	3.8088	2.3456	50.4483	12.2654	34.7167	7.8999	1.0719	41585.5	5.2093	0.00	103.04	2.4104	16.1041	189.15	0.6685	0.9509	10.2098
GMP054	CE186-005	Plainware	3	OS7-L2	32.3410	22.6219	0.5647	28.4995	6.0770	19.8342	1.9671	50.6802	12.1466	30.3453	7.2502	1.0328	38727.5	3.7406	0.00	98.28	2.0740	14.8379	195.67	0.5803	0.6088	9.6002
GMP055	CE188-001	SPD	3	OS7-L2	14.7289	24.5205	0.4051	20.6683	5.3858	4.0127	2.7122	52.1216	13.0807	33.6390	8.4941	1.1344	41410.6	4.5837	0.00	112.43	2.5199	16.4854	172.00	0.6800	0.9988	10.6003
GMP056	CE189-009	Plainware	3	OS7-L2	9.7821	28.2740	0.3636	25.1858	5.5792	3.0341	2.4949	57.4841	12.1197	33.5760	7.9613	1.1461	38538.6	5.3788	0.00	102.34	2.6371	14.8819	245.49	0.6802	0.6817	9.9995
GMP057	CE190-002	Plainware	3	OS7-L2	21.0533	21.3536	0.3273	19.4965	4.6086	3.3157	2.4421	42.2973	13.4058	34.6547	8.5227	0.9700	45696.2	3.6031	0.00	113.26	2.6537	15.6968	140.28	0.6849	0.5732	10.1659
GMP058	CE209-001	SPD	3	OS7-L2	15.9779	22.8744	0.3556	18.1741	4.8347	3.1245	2.1166	46.1375	10.7186	31.7469	7.3071	1.0627	35243.1	5.0894	0.00	95.54	2.3978	13.2952	185.25	0.6467	0.6249	8.9761
GMP059	CE074-001	Plainware	3	OS7-L3	23.5118	28.9225	0.4183	43.4071	6.2241	3.7445	2.6194	58.2090	14.2773	35.8321	8.1448	1.1418	45653.1	4.1171	0.00	96.29	3.1785	17.1973	139.83	0.7164	1.1067	11.7450
GMP060	CE074-003	Plainware	3	OS7-L3	25.8239	24.9093	0.3870	22.6768	5.6602	6.8070	2.0502	52.1028	12.6932	32.8825	7.7969	1.1100	40527.3	4.6941	0.00	100.82	2.4830	14.8861	216.16	0.6161	0.6768	11.0619
GMP061	CE077-001	Plainware	3	OS7-L3	18.9721	23.6338	0.3840	32.1464	5.4732	3.2881	2.6443	53.4331	14.5157	33.1412	8.1778	1.1172	44307.9	4.3301	50.60	101.21	3.0454	16.5823	202.64	0.7411	1.0372	10.9341
GMP062	CE077-003	Plainware	3	OS7-L3	18.0264	39.6485	0.3764	32.2804	6.8978	5.1939	2.5220	81.5840	14.1187	33.7761	8.4059	1.1721	44101.5	4.3743	0.00	101.67	2.8901	16.5785	153.24	0.7011	0.7605	13.7067
GMP063	CE079-001	Plainware	3	OS7-L3	17.1826	26.9619	0.4445	22.2202	5.8503	6.1198	2.5767	55.1705	14.8492	40.1791	10.5936	1.2067	49617.1	3.8754	0.00	119.41	2.8406	18.6575	154.52	0.7263	0.6470	12.5600
GMP064	CE081-001	Plainware	3	OS7-L3	15.6266	29.1845	0.4414	24.2100	5.8103	4.3417	2.7241	61.6124	14.6265	31.9314	8.7961	1.1424	45513.6	4.7363	0.00	105.57	2.9608	18.1870	132.40	0.7338	0.9965	11.2421
GMP065	CE081-003	Plainware	3	OS7-L3	18.6400	25.1346	0.3403	34.0146	5.5447	3.3824	2.5136	50.8164	13.0696	32.0417	8.1634	1.1232	43589.2	4.6187	0.00	103.93	3.0009	16.4504	160.32	0.6867	0.9861	12.5691
GMP066	CE086-002	Plainware	3	OS7-L3	11.4155	24.1434	0.3663	19.9753	5.3632	3.8902	2.6445	49.9048	13.7870	35.1051	9.1295	1.0854	43717.7	4.3756	36.58	110.33	2.6726	16.8707	206.27	0.6704	0.6221	12.9126
GMP067	CE087-001	Plainware	3	OS7-L3	39.8108	24.9247	0.4708	21.2828	5.6941	11.0321	2.4163	51.8465	13.0900	35.4628	8.6523	1.0529	42649.5	3.6018	0.00	105.73	2.1889	15.7911	201.07	0.6438	0.5967	10.7688
GMP068	CE088-001	Plainware	3	OS7-L3	16.6843	25.4049	0.4151	22.2487	5.7926	7.3509	2.4026	54.0420	13.9904	33.3761	8.5474	1.1354	43167.6	4.3348	0.00	104.66	2.8757	17.6464	172.42	0.6717	0.9384	11.3729
GMP069	CE089-001	Plainware	3	OS7-L3	14.7609	26.9031	0.5101	28.4731	6.0363	8.3818	2.7946	57.1981	15.4146	33.7266	9.5229	1.2177	46512.7	4.5072	0.00	113.90	2.9911	17.8136	223.38	0.7223	1.0773	11.2969
GMP070	CE093-001	Plainware	3	OS7-L3	18.8266	25.7912	0.3808	20.8390	5.7269	6.2535	2.8445	54.4568	13.4529	34.9423	8.6475	1.1464	44403.0	5.4242	0.00	110.76	2.6796	18.1810	189.96	0.7369	0.9962	10.5887
GMP071	CE093-002	Plainware	3	OS7-L3	22.0992	22.6451	0.3807	18.9716	5.3102	4.1950	2.8650	48.1944	13.9305	33.1663	9.3171	1.0901	43918.1	3.5764	0.00	108.73	2.7953	16.7868	112.38	0.6498	0.6550	11.2623
GMP072	CE094-001	Plainware	3	OS7-L3	26.0004	23.5663	0.4631	25.0183	5.5973	8.7504	2.6572	49.9028	13.8409	33.1234	8.8320	1.1110	44205.8	4.0800	0.00	104.52	2.2773	17.4077	168.50	0.6681	1.0957	11.6277
GMP073	CE101-002	Plainware	3	OS7-L3	17.6402	24.3394	0.3522	23.7554	5.6105	3.1680	2.3019	51.6646	13.7136	31.1747	8.5597	1.1171	43545.9	3.6966	0.00	105.99	2.9963	17.3387	128.68	0.6384	0.9951	10.3708
GMP074	CE103-001	Plainware	3	OS7-L3	24.0982	22.7244	0.3655	20.0190	5.3236	3.3001	2.3105	46.6779	12.8062	33.3931	7.9913	1.0333	42303.6	4.7078	0.00	105.63	2.8190	15.7971	187.67	0.6484	0.6422	10.2202
GMP075	CE203-001	SPD	3	F2	17.1539	24.2549	0.3494	29.7797	5.2190	3.6765	2.5932	49.7698	13.6905	43.2780	8.2845	1.1048	45597.8	3.9865	0.00	105.78	2.5859	15.9494	124.17	0.7754	0.5936	10.1190
GMP076	CE430-001	Plainware	4	C18	21.0641	25.6593	0.3805	21.2340	5.5391	3.2456	2.5571	54.8389	11.5982	37.5363	7.2503	1.0536	40826.0	5.0174	0.00	99.16	2.5406	16.1117	212.45	0.7129	0.9293	10.3238
GMP077	CE430-005	Plainware	4	C18	24.3045	26.5781	0.4096	27.4349	5.5258	8.6514	2.5003	56.7097	12.0564	31.8610	7.3653	1.0303	43012.4	4.7057	0.00	98.64	2.4850	15.4258	247.46	0.7507	0.6165	9.8565
GMP078	CE414-015	Plainware	4	OS11	14.5344	23.9027	0.3514	19.1438	5.0835	3.3012	2.1679	51.3036	15.9162	34.6292	7.2750	1.0602	40251.8	5.1568	41.97	100.35	2.8705	15.6277	138.78	0.7224	0.8984	9.3126
GMP079	CE414-032	Plainware	4	OS11	13.5566	21.4460	0.3278	18.7417	4.6336	2.6710	2.2059	40.2885	13.5090	31.2418	8.0305	0.9920	42802.8	4.4492	0.00	108.25	2.7952	16.3674	202.72	0.6579	0.9733	8.7809
GMP080	CE414-004	SPD	4	OS11	14.3478	26.5328	0.3832	20.5110	5.3219	3.5918	2.5047	54.3498	11.8811	32.2711	8.5898	1.1422	38277.4	5.4737	0.00	85.58	1.7940	15.0941	409.83	0.7998	0.6446	9.2283
GMP081	CE414-048	Plainware	4	OS11	18.5557	19.7931	0.3329	19.3180	4.7547	2.9378	2.3338	41.1705	13.4209	31.9566	9.1242	1.0289	39968.1	3.4830	0.00	113.18	2.8422	15.5376	173.17	0.6567	0.6063	10.0726
GMP082	CE414-049	Plainware	4	OS11	17.9981	21.2000	0.3350	21.6614	4.9145	3.0865	2.3595	43.3726	13.4134	36.0994	9.2154	1.0527	43700.5	4.0128	0.00	106.71	2.3361	16.9760	137.83	0.6621	0.6374	10.7359
GMP083	CE414-052	Plainware	4	OS11	19.3498	24.3778	0.4006	21.6430	5.4387	3.6665	2.6113	50.7977	13.7232	33.3146	9.9885	1.1390	41845.9	3.8606	0.00	114.31	3.1127	17.1976	159.64	0.6535	0.7138	15.4916
GMP084	CE414-056	Plainware	4	OS11	19.9729	32.7504	0.5163	28.2935	6.5562	4.6074	3.8020	68.7276	16.2423	41.5460	9.0490	1.1933	56638.4	7.9668	0.00	100.95	3.8386	19.8032	160.45	0.9777	0.8507	22.7570
GMP085	CE415-106	Plainware	4	OS11	37.3749	29.0225	0.4039	24.4165	5.6529	3.7886	2.6794	60.3312	13.6534	36.2240	7.9772	1.1753	38700.4	5.6100	0.00	95.12	2.6747	16.3278	181.59	0.7416	1.0149	13.0984
GMP086	CE415-018	Plainware	4	OS11	13.5345	27.6931	0.3862	25.5860	5.5005	3.8756	2.5943	55.5714	12.4081	28.8031	8.2195	1.1814	39604.6	4.0337	0.00	87.22	2.0895	15.2083	358.80	0.7816	0.6497	9.0548
GMP087	CE415-325	SPD	4	OS11	27.1460	23.7123	0.4107	20.1250	5.1821	5.0219	2.3160	49.2951	12.5018	32.8919	7.5568	1.0482	35629.6	4.4379	0.00	98.66	2.1341	14.5614	202.35	0.6814	0.5650	9.5053
GMP088	CE415-033	Plainware	4	OS11	29.7245	29.5656	0.5247	26.1343	5.9786	10.5103	2.4322	60.1837	12.9714	32.0583	9.1310	1.0947	41914.2	4.2619	0.00	109.37	2.4101	16.6024	205.31	0.6635	0.6379	10.3615
GMP089	CE415-041	Plainware	4	OS11	15.6983	25.5433	0.3578	25.8356	5.4028	2.9290	2.5850	54.3362	14.0477	33.2839	9.0016	1.1266	41212.0	3.9739	0.00	110.58	3.1153	17.0196	284.98	0.6642	0.7150	11.1660
GMP090	CE415-055	SPD	4	OS11	17.7847	29.3797	0.3216	25.7852	5.5772	3.3891	2.4617	59.3498	11.8452	35.9199	6.9119	1.1286	37452.2	5.7660	0.00	86.34	2.6626	14.3278	183.76	0.8450	0.6912	9.2664

Table 7.13. Element concentration data (continued).

ANID	Alternate ID	Type	Area	Stratum	As	La	Lu	Nd	Sm	U	Yb	Ce	Co	Cr	Cs	Eu	Fe	Hf	Ni	Rb	Sb	Sc	Sr	Ta	Tb	Th
GMP091	CE415-064	Plainware	4	OS11	27.5222	25.7295	0.4337	23.6499	5.7348	6.2941	2.5699	55.0886	12.3396	29.1001	7.9730	1.1019	37986.0	5.0846	0.00	101.49	2.6025	16.8913	305.23	0.7132	0.6904	11.9619
GMP092	CE415-070	SPD	4	OS11	13.1350	28.7594	0.3991	25.3652	5.8346	4.3676	2.7133	58.2029	9.3895	37.1389	6.6966	1.1151	34890.2	5.3067	0.00	95.87	2.0307	15.2336	204.23	0.8236	0.6946	11.2859
GMP093	CE416-107	SPD	4	OS11	14.8103	25.0844	0.3321	22.7659	5.1093	3.5335	2.3315	49.0047	11.7872	28.4121	7.1171	1.0677	36770.3	3.9037	0.00	90.13	2.3239	14.4985	179.88	0.6378	0.5556	10.0935
GMP094	CE416-111	Plainware	4	OS11	30.9618	25.9789	0.4178	24.4126	5.6407	3.9614	2.7199	54.8143	12.1131	30.0226	7.7410	1.0869	38657.8	5.8205	0.00	101.87	2.7712	16.4595	151.04	0.7764	0.9890	9.6792
GMP095	CE416-112	Plainware	4	OS11	17.0621	26.6093	0.3149	24.2564	5.7994	3.0496	2.4242	54.2573	11.5569	31.9723	8.6147	1.1583	40599.2	3.7014	0.00	103.51	3.0609	16.5149	131.75	0.6867	0.6453	11.3105
GMP096	CE416-115	Plainware	4	OS11	21.3351	25.1801	0.3839	20.5798	5.1838	5.7815	1.9219	52.4428	10.5589	29.8356	6.9248	1.0341	31437.5	3.9927	0.00	90.88	1.9195	12.8854	215.03	0.6120	0.5990	8.9533
GMP097	CE416-012	Plainware	4	OS11	13.9378	22.5777	0.3354	21.3618	4.8594	3.0183	2.3128	46.9575	12.9281	33.5856	7.9826	1.0598	39353.1	4.7117	0.00	108.31	2.8311	15.1828	303.31	0.6955	0.5519	10.0298
GMP098	CE416-034	Plainware	4	OS11	38.9727	22.4797	0.3940	23.1204	5.1316	6.1186	2.2844	46.9356	11.2442	29.9915	7.8546	0.9714	41488.9	5.2377	0.00	100.51	2.5485	15.2470	268.68	0.7117	0.5845	11.1373
GMP099	CE416-058	Plainware	4	OS11	36.7577	24.5337	0.4457	25.0682	5.3633	7.9656	2.2390	51.2402	11.5097	25.9248	7.4964	0.9738	38796.9	4.5787	0.00	94.28	2.4902	15.0356	239.31	0.6812	0.8095	8.1468
GMP100	CE416-064	Plainware	4	OS11	42.7333	28.3211	0.5194	25.6036	6.1600	8.2251	2.6927	59.3340	12.1968	35.8880	7.9583	1.1776	38918.9	5.5170	0.00	97.21	2.2823	15.8608	282.70	0.7468	0.7225	11.8832
GMP101	CE416-077	Plainware	4	OS11	27.0803	24.9265	0.3777	23.6605	5.3974	4.4688	2.5694	50.5725	12.3645	33.2231	8.6173	1.0676	40420.4	3.7163	26.47	103.59	2.2751	15.7929	231.12	0.7019	0.6442	10.3999
GMP102	CE416-087	Plainware	4	OS11	30.9210	25.1444	0.3763	24.8383	5.2467	7.2232	1.9429	50.4098	10.5001	25.8411	6.8268	1.0127	30434.9	3.9525	0.00	89.29	1.7964	12.4426	236.93	0.5939	0.6210	8.9594
GMP103	CE419-013	Plainware	4	OS11	20.3521	23.2082	0.3587	22.0093	5.2210	2.7401	2.3913	49.5086	13.9586	32.6062	9.2305	1.0891	40972.3	3.8836	0.00	115.06	2.9107	16.9461	151.16	0.6460	0.6348	10.8540
GMP104	CE419-004	Plainware	4	OS11	28.2056	25.7864	0.4721	24.1299	5.6562	9.4066	2.3136	54.5546	12.3179	29.4389	8.0539	1.0188	37921.5	4.3067	0.00	100.90	2.3293	15.2489	236.25	0.6557	0.5992	10.0807
GMP105	CE419-005	Plainware	4	OS11	28.0126	23.8963	0.4885	22.0973	5.3295	7.4754	2.3628	48.4942	12.4591	31.3735	7.9010	1.0585	36938.8	4.1665	0.00	99.78	2.5609	15.4689	268.73	0.6772	0.6558	9.8165
GMP106	CE439-010	Plainware	4	OS11	17.8575	27.5853	0.3304	26.4497	5.3739	2.8474	2.1964	55.4334	12.5255	30.0786	8.0448	1.0504	38934.2	3.8293	0.00	110.98	3.0944	15.5493	205.65	0.5920	0.6237	10.1129
GMP107	CE439-021	Plainware	4	OS11	13.6960	24.6428	0.3652	22.4066	5.1874	2.8615	3.0140	49.5168	12.9695	33.3476	8.5605	1.0281	40692.2	4.7377	0.00	105.43	2.9437	16.2536	173.28	0.6887	0.6536	11.2809
GMP108	CE446-006	Plainware	4	OS11	15.6580	27.7765	0.4065	24.8444	5.6075	3.1488	2.4326	56.1832	14.4363	35.9909	9.2943	1.1261	45375.9	5.3775	0.00	114.23	2.9024	17.1270	134.16	0.8201	0.6935	11.7253
GMP109	CE497-016	Plainware	4	OS11	14.7087	25.9500	0.4033	22.6900	5.3983	3.8509	2.5025	52.2290	11.8664	37.3052	8.3599	1.1135	37932.9	5.4233	0.00	100.23	2.7826	14.4832	248.55	0.7396	0.7680	9.2245
GMP110	CE497-003	Plainware	4	OS11	31.1430	26.4115	0.6769	27.9909	7.2982	22.4093	2.3954	58.3451	13.2591	30.4334	8.3025	1.0617	40072.5	3.9890	0.00	102.40	2.6114	16.2654	246.67	0.6709	0.7094	10.6665
GMP111	CE497-031	Plainware	4	OS11	18.8946	29.5822	0.3860	25.4977	5.9340	3.8739	2.8460	60.6165	15.6883	35.9857	8.6175	1.1669	43463.8	4.9621	0.00	105.75	3.1009	17.5611	178.50	0.7564	0.9213	12.5574
GMP112	CE497-048	Plainware	4	OS11	12.6797	27.1359	0.3345	22.5990	5.1749	3.9156	2.2583	54.4608	10.0692	32.7374	6.6298	1.0394	34451.7	5.3280	0.00	81.35	2.8644	14.4927	219.98	0.7551	0.6442	10.4500
GMP113	CE482-004	Plainware	4	OS11B	14.6929	22.1743	0.3452	21.8891	5.0116	2.2296	2.1947	46.4464	12.2850	34.3500	9.9080	1.0157	42907.5	4.0875	0.00	117.37	2.6695	16.2457	118.10	0.7593	0.7082	11.0870
GMP114	CE502-002	Plainware	4	OS11B	20.0246	21.9406	0.3270	21.7349	4.9740	3.2554	2.3168	46.3904	9.6890	35.0947	7.9827	0.9747	35810.4	4.4194	0.00	106.02	2.2767	16.5228	359.87	0.7025	0.5934	9.9588
GMP115	CE495-011	Plainware	4	OS11A	14.8700	24.2532	0.3159	23.3556	5.2093	2.7815	2.3117	43.3230	12.5333	30.7446	7.6320	1.0369	39271.4	4.7247	0.00	109.42	2.7867	15.5318	170.98	0.6702	0.7560	9.0264
GMP116	CE495-003	Plainware	4	OS11A	12.0016	23.3119	0.3185	22.7460	5.1410	3.0051	2.3804	49.8804	12.5735	30.4942	8.9230	1.0726	38406.0	3.8936	0.00	110.37	2.9425	15.8477	191.94	0.5749	0.6162	10.8016
GMP117	CE498-002	SPD	4	OS11A	22.6100	32.1674	0.3494	28.8390	6.1814	3.3313	2.5308	65.9068	12.8373	36.5366	8.6105	1.2349	40145.5	4.7712	38.10	94.37	3.7620	15.7168	178.77	0.7557	0.8504	10.2486
GMP118	CE498-021	Plainware	4	OS11A	21.6670	27.0431	0.4244	25.5790	5.8188	4.0253	2.6459	55.6101	15.6353	36.1113	9.7296	1.1669	44729.8	4.9770	0.00	112.34	3.0742	17.7031	194.17	0.7493	0.6721	11.8621
GMP119	CE498-023	SPD	4	OS11A	13.0736	30.9127	0.3578	26.1617	5.7173	3.4877	2.3053	61.6914	10.9810	32.9229	6.7578	1.1878	36228.9	5.2186	0.00	75.60	2.3691	14.5711	289.24	0.8278	0.8078	9.4958
GMP120	CE498-028	Plainware	4	OS11A	14.9038	22.4600	0.3118	22.1648	4.8835	2.5025	2.2014	43.4051	12.0328	31.6839	8.9168	0.9996	39890.4	3.9159	0.00	111.31	2.9090	15.3282	152.10	0.6177	0.5930	9.5341
GMP121	CE498-036	Plainware	4	OS11A	16.3164	21.8714	0.3683	21.2398	4.8580	2.8394	2.4275	45.3537	12.9262	31.8705	8.0761	1.0002	39629.1	4.8483	0.00	109.28	2.8446	15.8672	141.33	0.6516	0.7850	10.7367
GMP122	CE498-039	SPD	4	OS11A	10.8749	29.5092	0.3844	24.0808	5.1511	3.4097	2.3966	56.1351	9.7147	29.7933	6.5511	1.0771	35895.9	5.4935	0.00	76.61	2.2584	14.1061	270.13	0.9191	0.6791	11.1730
GMP123	CE511-011	Plainware	4	OS11A	13.7314	27.1727	0.3880	25.2988	5.1705	3.1801	2.8568	52.4019	11.9465	34.8742	7.9154	1.0921	36691.0	4.8319	0.00	88.71	2.7875	14.9934	195.15	0.8197	0.7094	10.3077
GMP124	CE530-018	Plainware	4	OS11A	31.4431	20.2141	0.2887	21.6876	5.5874	14.8867	2.0450	43.7762	10.4291	24.6927	7.7226	0.8986	35928.0	3.8965	0.00	99.22	2.3448	13.5114	235.29	0.6268	0.5863	10.8840
GMP125	CE530-025	Plainware	4	OS11A	11.8534	25.8468	0.3611	22.8012	5.2890	2.5726	2.4820	52.7663	12.6217	35.8185	8.3589	1.0411	41012.5	4.7639	0.00	106.80	2.4207	15.9652	135.56	0.7877	0.8878	11.7367
GMP126	CE530-003	SPD	4	OS11A	18.6954	25.8898	0.3611	26.4395	5.8629	3.2197	2.5283	55.3212	15.1576	30.6947	8.1034	1.2318	41264.3	4.0279	18.44	96.64	3.0496	17.2972	177.71	0.7211	0.8482	10.8883
GMP127	CE530-038	Plainware	4	OS11A	13.5124	26.7455	0.3840	23.1384	5.4839	3.6087	3.0904	52.4712	10.4016	34.4245	7.2777	1.1079	36788.6	6.3124	0.00	96.49	2.5133	14.5633	186.22	0.7427	0.7571	12.2185
GMP128	CE530-007	Plainware	4	OS11A	14.9349	21.6632	0.3598	21.5449	5.2578	2.8617	2.4412	45.5521	11.0503	30.8396	8.2951	1.0490	40019.3	4.0849	0.00	107.16	2.6350	15.4668	185.09	0.7001	0.5933	10.9153
GMP129	CE532-010	SPD	4	OS11A	10.2295	27.7944	0.4180	26.9787	5.8347	3.8712	3.1377	56.7293	11.1912	37.3672	7.5672	1.1584	37132.8	5.8625	0.00	100.69	2.4722	15.8280	303.46	0.8053	0.8824	10.6897
GMP130	CE532-110	Plainware	4	OS11A	17.8558	20.4731	0.4366	18.0773	4.5630	6.2287	1.9123	43.6235	10.7155	27.1005	7.2765	0.9390	35221.5	3.7925	77.69	101.93	2.2978	13.7733	168.96	0.6228	0.5800	8.0492
GMP131	CE532-034	SPD	4	OS11A	18.9898	27.3734	0.3848	25.0664	5.6953	3.2132	2.3516	56.3993	14.0821	39.5856	8.7084	1.1745	44115.9	5.1645	0.00	99.02	2.8391	16.3077	209.60	0.7924	0.6815	10.2986
GMP132	CE532-045	Plainware	4	OS11A	13.5553	23.9913	0.3654	20.3457	5.1994	2.8331	2.3654	50.0259	13.2539	31.6544	8.8621	1.0850	40960.9	4.3157	0.00	113.88	3.0371	16.5620	183.47	0.6418	0.7920	10.6556
GMP133	CE532-052	Plainware	4	OS11A	10.8672	25.8908	0.3716	22.6554	5.5213	2.6174	2.3767	53.9816	13.6100	32.1845	8.9387	1.1692	41913.1	3.9913	0.00	110.26	3.1521	16.7245	191.98	0.7034	0.6814	11.6848
GMP134	CE532-055	SPD	4	OS11A	12.0085	30.0031	0.3810	24.2616	5.5051	3.2867	2.2561	60.1490	10.9379	30.6701	7.0047	1.1297	36736.8	5.1413	0.00	79.07	2.4252	14.1735	274.71	0.8919	0.6880	9.2561
GMP135	CE532-073	Plainware	4	OS11A	13.2604	22.8151	0.3597	20.0201	4.9234	3.4466	2.1019	48.1491	12.1767	32.3581	8.4198	0.9554	39201.1	3.7115	0.00	109.59	2.1251	15.2417	158.43	0.6096	0.5827	11.5196

Table 7.13. Element concentration data (continued).

ANID	Alternate ID	Type	Area	Stratum	As	La	Lu	Nd	Sm	U	Yb	Ce	Co	Cr	Cs	Eu	Fe	Hf	Ni	Rb	Sb	Sc	Sr	Ta	Tb	Th
GMP136	CE532-085	Plainware	4	OS11A	11.5126	24.6154	0.3342	21.9999	5.3628	2.3843	2.2962	50.8370	13.5855	32.0406	8.2432	1.0544	41421.2	4.3587	0.00	112.84	2.9189	15.9722	194.84	0.6923	0.7515	10.6278
GMP137	CE532-087	Plainware	4	OS11A	16.4576	26.3332	0.3722	21.3152	5.1108	3.0333	2.2819	49.8987	13.1031	37.4628	7.6282	1.0688	40625.2	6.1748	0.00	91.55	2.8304	14.7222	248.81	0.8465	0.6355	10.7112
GMP138	CE499-011	Plainware	4	OS11AB	53.5579	31.3984	0.5676	29.5700	6.2948	11.0718	2.7019	68.5749	14.6062	36.4443	8.9966	1.0987	48699.0	4.3327	0.00	107.71	2.9337	18.3847	234.22	0.7736	0.6970	12.5810
GMP139	CE499-018	Plainware	4	OS11AB	20.8547	28.1686	0.3954	23.0734	5.1952	2.9324	2.2967	55.0898	12.3849	36.3943	8.0783	1.0983	39586.9	5.4936	0.00	93.71	3.0516	14.8502	136.37	0.7485	0.6402	10.0889
GMP140	CE499-002	Plainware	4	OS11AB	12.8329	26.7150	0.4268	24.6116	5.6431	2.9847	2.6993	55.9278	11.2262	30.2299	5.6904	1.1737	34351.8	6.8150	0.00	91.50	2.1870	13.9211	235.47	0.8170	0.7427	10.1286
GMP141	CE499-020	SPD	4	OS11AB	19.8153	22.4132	0.3408	22.0349	4.8382	3.1133	2.1371	46.6272	13.2877	32.5976	8.0461	1.0402	36962.6	4.7204	0.00	90.41	3.4287	14.7640	233.27	0.6261	0.5747	8.6693
GMP142	CE499-023	Plainware	4	OS11AB	16.4380	23.9657	0.3437	20.6051	5.2390	2.3394	2.7739	50.3759	14.9822	32.0225	8.7221	1.0719	43762.9	3.5572	25.32	106.17	2.7822	17.6396	145.99	0.6409	1.0074	11.9863
GMP143	CE499-025	Plainware	4	OS11AB	14.9564	20.6388	0.3328	19.1076	4.8068	2.8477	2.1710	43.5036	13.7515	32.5520	8.1527	0.9965	44020.4	5.1366	0.00	103.38	2.8673	16.4274	150.71	0.6942	0.6932	10.7677
GMP144	CE499-027	Plainware	4	OS11AB	15.9122	23.5279	0.3783	21.6341	5.3527	3.4483	2.3195	49.0428	13.9148	30.8271	7.8225	1.0615	40169.6	4.2844	0.00	101.27	2.9779	16.1397	160.82	0.6457	0.7035	10.4251
GMP145	CE499-028	Plainware	4	OS11AB	16.6330	23.5875	0.3670	24.4433	5.4086	3.1109	2.6269	47.9915	14.3357	35.4725	9.7720	1.0196	46998.9	4.5683	0.00	116.83	2.9802	16.8983	124.74	0.7204	0.6634	14.3301
GMP146	CE499-003	SPD	4	OS11AB	11.2669	26.1529	0.3731	25.1573	5.8987	3.3262	2.4499	53.7309	12.5900	34.9093	8.9846	1.2229	41045.2	4.1033	0.00	106.73	2.3764	16.1934	111.79	0.6913	0.9332	10.6326
GMP147	CE502-001	Plainware	4	OS11B	23.0583	20.8230	0.3412	20.9820	4.9328	3.8213	2.2138	44.4311	9.6647	37.0291	8.3018	1.0093	38810.3	4.3003	0.00	107.54	2.5419	16.3819	511.79	0.6753	0.9210	10.3871
GMP148	CE502-013	Plainware	4	OS11B	20.9314	29.7512	0.3733	27.3034	5.5055	4.5226	2.5426	59.0789	11.9298	39.0408	10.2925	1.0167	45405.2	3.3096	0.00	116.98	2.3952	17.2451	170.05	0.6945	0.6686	11.7171
GMP149	CE502-014	Plainware	4	OS11B	18.2857	29.0808	0.3807	26.9459	5.3376	3.5999	2.0748	58.2580	10.6294	33.5169	8.1052	1.0234	36859.7	4.0796	0.00	108.16	2.4708	16.2158	213.92	0.6548	0.8184	10.7677
GMP150	CE502-029	SPD	4	OS11B	15.6403	22.4130	0.3430	22.8143	4.9710	3.5601	2.1080	47.0028	10.5349	30.6345	8.1581	0.9930	35630.8	4.2352	0.00	112.06	2.4723	15.5591	220.70	0.6316	0.6527	10.3130
GMP151	CE289-010	Plainware	5	OS7	22.6294	25.7647	0.4472	22.6872	5.7736	3.0313	2.6902	55.8834	15.6874	32.8681	8.2276	1.1831	45777.1	4.4548	0.00	103.34	3.2035	17.7834	183.25	0.6973	0.7739	11.7329
GMP152	CE289-002	Plainware	5	OS7	21.3129	25.2978	0.3817	22.5640	5.2178	3.4556	2.5237	52.4694	12.7935	34.9499	7.5441	1.1604	39368.0	4.6789	0.00	95.51	3.0020	14.6066	214.23	0.7077	0.6471	9.1962
GMP153	CE289-004	Plainware	5	OS7	39.7461	27.7861	0.6735	27.9816	6.4111	9.5480	2.4747	61.5664	16.0077	33.7481	8.0544	1.2388	45764.4	4.5140	0.00	100.20	2.7685	17.0037	198.60	0.6954	0.6967	11.9578
GMP154	CE289-005	Plainware	5	OS7	17.0575	27.2965	0.4280	24.1739	5.6354	3.7375	2.5116	56.5546	13.8551	35.1471	8.0597	1.2123	40956.2	4.1115	0.00	105.49	2.6831	15.6819	159.91	0.6629	0.7035	10.9506
GMP155	CE289-007	SPD	5	OS7	9.7018	25.8875	0.3811	25.2560	5.3852	2.9704	2.3879	54.6958	11.8099	36.4252	6.5545	1.1050	39554.9	5.1993	0.00	102.31	2.2712	15.5679	161.13	0.7765	0.6231	10.8076
GMP156	CE289-008	Plainware	5	OS7	21.8416	27.3591	0.4165	24.8279	5.6069	3.4583	2.5653	56.4758	14.1337	35.3865	8.1092	1.1767	41256.8	4.0052	0.00	105.24	2.8917	15.7841	160.45	0.7266	0.6921	10.9737
GMP157	CE289-009	Plainware	5	OS7	19.9278	26.9847	0.4464	24.3320	5.8752	2.7222	2.8050	56.5080	15.8189	34.1895	8.2799	1.2163	46581.7	5.3043	0.00	108.11	2.9394	18.0829	190.34	0.7343	0.7826	11.7360
GMP158	CE261-002	Plainware	5	OS10	30.5221	27.7458	0.4570	26.9108	5.8768	4.5078	2.5818	57.9045	15.8281	34.3709	8.0590	1.1604	46056.4	5.2814	0.00	106.90	3.3912	17.6050	174.14	0.7108	0.7038	11.4565
GMP159	CE261-003	Plainware	5	OS10	22.4165	26.3319	0.4712	26.0110	5.8588	3.7980	2.6887	55.0421	15.9425	34.0662	9.5687	1.2230	46909.5	4.0747	0.00	118.87	3.4088	18.1319	189.03	0.6939	0.9314	12.5540
GMP160	CE262-001	Plainware	5	OS10	12.7356	27.7439	0.4147	25.3137	5.4791	2.9162	2.5741	57.7194	13.4626	26.1852	7.7793	1.2348	40177.1	4.1797	0.00	90.15	1.6635	15.3981	340.19	0.7359	0.6669	9.0610
GMP161	CE262-004	Plainware	5	OS10	20.4405	24.1297	0.3872	23.5285	5.5134	2.9550	2.6677	50.8193	14.5644	33.9019	8.7029	1.1524	43529.3	3.6974	32.41	113.10	3.4763	16.7300	152.80	0.6937	0.9158	10.9119
GMP162	CE262-007	Plainware	5	OS10	44.8587	26.9154	0.4209	26.5381	5.5464	4.0026	2.5412	55.1664	13.3063	34.5685	7.0077	1.1522	39006.5	4.6282	0.00	91.93	2.4190	14.6086	194.67	0.7076	0.6463	10.3290
GMP163	CE264-017	Plainware	5	OS10	42.4512	27.0518	0.4406	25.5316	5.9395	3.6133	2.7937	56.7045	14.7119	39.2720	8.3684	1.1770	47499.7	4.4534	0.00	110.45	3.2347	17.4878	118.44	0.7458	0.7350	12.5595
GMP164	CE264-022	Plainware	5	OS10	13.8805	26.6668	0.4058	24.4423	5.6657	3.6946	2.6933	55.7921	13.8229	35.4471	8.1831	1.2308	40648.4	4.0627	0.00	104.19	2.5887	15.5950	149.82	0.6859	0.6772	10.4930
GMP165	CE264-025	Plainware	5	OS10	17.2395	27.8263	0.4169	26.5310	5.6543	3.9391	2.5421	55.8601	12.3761	35.6367	8.1909	1.1514	42257.5	4.9839	24.21	99.81	2.6929	15.4603	194.01	0.7441	0.6615	10.5135
GMP166	CE264-029	Plainware	5	OS10	16.8780	24.2402	0.3916	24.7558	5.6617	3.0466	2.5657	52.2853	15.4801	30.3507	8.4376	1.2069	42610.1	4.1501	37.28	111.31	3.9431	16.1666	179.77	0.6643	0.7337	11.1281
GMP167	CE264-030	Plainware	5	OS10	68.3542	25.6700	0.4368	23.8740	5.5175	4.8970	2.6112	52.1048	12.7790	34.6189	7.0266	1.1538	37471.8	4.1117	0.00	92.05	2.5183	14.1525	209.23	0.7127	0.6884	9.6832
GMP168	CE264-034	Plainware	5	OS10	24.6460	25.6540	0.3803	23.9929	5.1507	3.1608	2.2256	52.1808	11.9536	38.7252	6.9227	1.0717	40292.0	4.0171	0.00	101.71	2.1967	14.7128	205.52	0.7466	0.6008	10.1745
GMP169	CE264-036	Plainware	5	OS10	23.8268	26.9912	0.3935	25.4905	5.7380	2.8437	2.4895	55.9163	15.5551	31.1167	8.5600	1.2057	45385.0	3.9039	0.00	103.76	3.1440	17.4809	154.03	0.6910	1.1585	11.4328
GMP170	CE267-013	Plainware	5	OS10	17.2176	26.7707	0.4213	26.2325	5.8847	3.5943	2.8468	57.1482	15.1453	34.7406	8.8417	1.2054	46687.0	4.7236	0.00	113.32	3.3256	17.9147	152.05	0.7762	0.7169	12.3536
GMP171	CE267-005	Plainware	5	OS10	19.7504	26.4752	0.3990	25.4269	5.6343	3.0069	2.7310	54.7620	13.5445	33.0491	8.4794	1.1028	43030.9	4.0090	0.00	112.84	2.8037	16.9494	141.57	0.7347	0.7476	11.8282
GMP172	CE267-008	Plainware	5	OS10	20.1944	27.0276	0.4093	22.9816	5.6099	3.2483	2.7518	55.0941	14.3211	35.9405	8.3510	1.2113	41877.7	4.3186	34.93	107.92	2.3828	16.1044	143.24	0.7090	0.7483	10.9764
GMP173	CE269-012	Plainware	5	OS10	22.2585	28.1152	0.4075	27.3712	5.7405	3.5131	2.7374	57.5854	14.8614	39.1991	8.9949	1.1727	44867.0	5.0828	0.00	109.88	3.0028	17.0101	150.32	0.8039	0.7222	11.0660
GMP174	CE269-013	Plainware	5	OS10	72.3033	27.9422	0.5694	28.1623	6.0943	6.1623	2.4749	58.3494	14.1731	37.9757	7.6524	1.2243	40903.1	4.7025	0.00	98.24	2.4485	15.5310	220.59	0.6919	0.6945	10.5947
GMP175	CE269-016	Plainware	5	OS10	24.3628	26.1623	0.3898	22.7419	5.2507	4.3786	2.5216	53.1121	13.2537	34.7566	7.7699	1.1349	38953.1	4.2611	0.00	99.84	2.2523	14.5613	156.36	0.6413	0.6099	10.2920
GMP176	CE269-017	Plainware	5	OS10	64.3668	28.1437	0.6588	27.2089	6.3377	11.1884	2.5916	59.2851	13.0886	36.1299	7.2594	1.1642	39812.4	4.2251	0.00	90.04	2.2039	15.3895	252.28	0.7262	0.6769	11.0097
GMP177	CE269-020	Plainware	5	OS10	52.4136	26.5271	0.4306	25.5717	5.6878	4.7056	2.3972	55.1027	13.3112	37.4550	7.4795	1.1767	40312.6	5.0800	0.00	96.81	2.7548	15.2089	167.39	0.6665	0.6914	10.1017
GMP178	CE269-005	Plainware	5	OS10	15.1155	35.0065	0.4221	30.2085	6.1975	3.4183	2.5179	67.7731	13.5985	37.9739	6.9925	1.2306	38233.5	6.8996	18.63	94.48	2.4771	14.4294	220.30	0.8117	0.7234	11.7023
GMP179	CE269-007	Plainware	5	OS10	23.1012	25.6398	0.3938	23.4182	5.3142	2.9560	2.3629	53.1255	13.8637	28.6530	7.1225	1.0724	39363.9	5.8889	0.00	95.32	3.8104	15.4404	205.47	0.8278	0.6747	10.2390
GMP180	CE269-008	Plainware	5	OS10	21.4852	26.8543	0.4475	23.7083	5.6705	3.6250	2.7357	55.1199	13.6170	37.0040	8.0914	1.1700	43461.6	4.6472	0.00	103.08	2.5943	16.7630	159.69	0.7659	0.7530	11.3682

Table 7.13. Element concentration data.

ANID	Alternate ID	Type	Area	Stratum	As	La	Lu	Nd	Sm	U	Yb	Ce	Co	Cr	Cs	Eu	Fe	Hf	Ni	Rb	Sb	Sc	Sr	Ta	Tb	Th
GMP181	CE273-011	Plainware	5	OS10	17.8658	27.1428	0.4144	26.4559	5.7205	3.7030	2.5589	55.7985	15.3564	35.6936	8.6611	1.1808	43714.7	4.4014	0.00	112.15	2.7457	16.5503	167.40	0.7794	0.6537	11.3774
GMP182	CE273-013	Plainware	5	OS10	39.7645	27.5157	0.4123	24.5180	5.7448	4.7687	2.5900	56.5059	12.4244	35.0276	7.3305	1.1726	38542.7	4.8618	8.40	95.98	3.1101	14.1530	157.68	0.6542	0.6713	11.9172
GMP183	CE273-018	Plainware	5	OS10	22.5570	27.0091	0.3894	25.3474	5.5045	3.1072	2.6182	54.6090	14.5487	35.5559	8.3086	1.1686	42284.5	5.2306	0.00	106.63	2.8511	15.6689	175.73	0.7467	0.6407	10.8701
GMP184	CE273-004	Plainware	5	OS10	22.5949	32.9964	0.4205	32.4501	6.6539	4.4854	2.7365	69.1772	15.1127	34.9725	8.1470	1.3150	43655.1	5.6158	0.00	102.67	2.5704	17.0184	198.45	0.7971	0.8000	11.5961
GMP185	CE273-008	Plainware	5	OS10	20.1595	25.2160	0.3471	22.9472	4.9515	2.7972	2.3256	49.8230	11.4010	29.4001	7.5319	1.0085	38043.5	4.2721	0.00	104.97	2.7488	14.1906	129.17	0.6539	0.7485	9.9750
GMP186	CE344-003	Plainware	5	OS10	26.6705	25.9668	0.3974	24.9131	5.3034	3.1441	2.5764	53.0393	13.7477	37.2801	7.8503	1.1355	42429.0	4.1238	0.00	96.83	2.9992	14.9922	167.93	0.7163	0.6442	9.8355
GMP187	CE344-004	Plainware	5	OS10	19.7307	29.7956	0.4469	27.7570	6.1919	4.8914	2.6996	61.3082	14.2227	35.3338	8.1011	1.2121	42761.2	5.5276	0.00	98.98	2.6962	16.6210	173.07	0.7995	0.7459	12.8134
GMP188	CE344-005	Plainware	5	OS10	13.5086	24.0511	0.4130	22.2033	5.5133	3.0229	2.8059	50.8170	14.0128	34.4780	8.2288	1.1101	43548.1	5.7834	0.00	103.97	3.2864	16.6915	140.04	0.7985	0.6460	10.2772
GMP189	CE377-016	Plainware	5	OS10	31.9128	34.4388	0.4608	31.6224	7.0694	5.1198	2.8622	72.2937	15.8934	39.1395	9.0209	1.2911	46930.7	4.5091	0.00	116.38	3.1725	17.8537	130.53	0.7537	0.8116	13.4579
GMP190	CE377-021	Plainware	5	OS10	13.4639	27.5038	0.4480	28.9097	6.0975	3.5187	2.6653	58.0193	16.4366	32.9224	8.1557	1.1538	43534.5	4.1238	0.00	105.90	3.2555	16.5098	179.52	0.9029	0.7649	10.7523
GMP191	CE377-024	Plainware	5	OS10	21.9649	27.9587	0.4184	27.1095	6.0010	5.0597	2.5484	58.9408	14.1631	35.5328	8.0474	1.2286	43212.5	5.5317	0.00	100.36	2.5887	16.7598	204.40	0.8217	0.6737	12.1364
GMP192	CE377-025	Plainware	5	OS10	69.2845	28.4066	0.3778	28.5581	7.2506	19.1913	2.7026	61.7112	13.6112	38.3501	7.6700	1.1860	41980.7	5.1577	0.00	99.35	2.2762	15.8446	208.43	0.7666	0.7089	12.3506
GMP193	CE377-006	Plainware	5	OS10	45.5532	28.2718	0.4159	27.2541	5.8354	3.1576	2.6541	56.6075	15.2030	37.5206	10.8045	1.1924	47260.3	3.9794	0.00	126.17	3.6379	18.4051	129.56	0.6414	0.6810	12.6854
GMP194	CE378-005	Plainware	5	OS10	13.5690	28.9415	0.3871	26.3196	5.8122	3.6354	2.5223	58.7437	13.8997	37.1313	8.4124	1.2429	42599.4	4.2512	0.00	106.00	2.5878	16.4548	226.80	0.7213	0.6621	10.8542
GMP195	CE449-001	SPD	5	OS10	13.5265	26.5575	0.3983	25.9337	5.5816	3.5500	2.5957	52.6135	10.2833	30.9028	9.0466	1.1520	37319.2	5.3599	26.97	102.90	3.0162	15.9001	160.80	0.7083	0.6743	11.5183
GMP196	CE270-004	Plainware	5	C16	30.8774	27.5991	0.3905	24.8425	5.7095	3.6323	2.4599	55.3647	14.0752	36.3371	7.9643	1.1450	41329.1	4.2428	0.00	97.74	2.8450	15.1833	155.15	0.7121	0.6694	11.0207
GMP197	CE274-003	Plainware	5	C16	57.0179	24.7663	0.5011	22.9041	5.3768	7.7947	2.4048	51.3300	12.2809	38.4913	6.6808	1.0427	39254.3	4.4089	32.94	96.31	2.1383	14.1946	261.32	0.7218	0.6581	10.5579
GMP198	CE274-005	Plainware	5	C16	51.7639	27.6121	0.4434	25.1874	6.0076	7.1055	2.4474	57.4274	13.1202	35.9085	6.9823	1.2276	39606.4	4.7644	0.00	90.54	2.5394	14.9901	189.24	0.6960	0.6846	9.8939
GMP199	CE275-002	Plainware	5	C16	28.7597	26.8932	0.4033	25.5024	5.4766	3.5761	2.6252	54.7292	13.0469	32.8177	7.8812	1.1511	38839.9	4.2888	0.00	103.01	2.7794	15.0617	188.45	0.6452	0.6664	10.5108
GMP200	CE275-003	Plainware	5	C16	18.0479	26.7892	0.3918	23.4372	5.3429	3.0088	2.6759	53.8437	13.4091	34.7815	7.6971	1.1318	38777.1	4.9307	0.00	100.86	2.4379	14.8705	153.33	0.7704	0.6699	10.2445
GMP201	CE275-004	Plainware	5	C16	47.7773	28.4644	0.3872	31.2990	6.0660	3.3476	2.4485	59.4918	14.1474	36.5172	7.9873	1.1835	41292.2	4.1899	0.00	95.46	2.9294	15.7849	350.48	0.7103	0.8796	10.7217
GMP202	CE270-002	Plainware	5	C16	22.8697	27.2108	0.4243	24.7061	5.6676	3.5544	2.6103	56.0879	14.4038	36.7971	8.5443	1.2239	42624.6	4.2782	0.00	100.91	2.6921	16.2827	156.78	0.7431	0.8611	10.6381
GMP203	CE284-006	Plainware	5	C16	20.6499	22.9620	0.3605	31.4480	5.2930	2.9676	2.3689	47.8403	13.2869	31.0032	8.5737	1.1020	41148.9	3.9133	0.00	105.02	2.9902	15.7085	131.50	0.6331	0.8915	11.6919
GMP204	CE284-008	Plainware	5	C16	20.3124	30.5592	0.4506	27.8506	6.0903	3.4640	2.4047	64.2507	15.1283	39.7800	9.2843	1.2433	46804.5	5.7509	0.00	107.89	3.0558	18.3292	140.35	0.8335	1.0593	11.3868
GMP205	CE297-010	Plainware	5	C16	31.1373	25.7982	0.3846	25.3088	5.2223	4.2071	2.1349	50.1688	13.2088	35.2685	7.2003	1.1138	40026.7	4.8923	0.00	86.97	2.5004	14.7437	182.74	0.6929	0.8025	9.9984
GMP206	CE297-011	SPD	5	C16	26.5025	30.2477	0.3973	29.7213	6.0596	3.4088	2.3009	62.8885	14.8187	37.7988	8.4834	1.2578	45998.0	5.1467	0.00	95.45	2.7678	17.4978	213.42	0.7470	0.9894	11.9235
GMP207	CE297-013	Plainware	5	C16	47.6399	27.3428	0.4573	28.8539	5.4945	6.6818	2.3016	56.9332	13.6554	35.9869	7.1977	1.1959	40125.3	4.6319	0.00	90.66	2.7254	15.0886	245.21	0.7480	0.7597	10.3398
GMP208	CE297-015	Plainware	5	C16	22.1231	27.6529	0.3671	25.0126	5.6778	3.4916	2.9180	58.5242	14.1674	33.3594	7.9930	1.1998	41584.6	4.2165	0.00	98.73	3.6671	16.7171	191.60	0.7023	0.7883	11.9040
GMP209	CE297-019	Plainware	5	C16	24.1740	25.5546	0.3877	30.1709	5.1945	2.9223	2.2411	52.3644	13.5616	37.2166	7.5003	1.1658	40589.6	4.2782	0.00	90.90	2.9976	15.0476	164.75	0.7257	1.0614	9.5276
GMP210	CE297-002	Plainware	5	C16	28.5631	25.8526	0.3786	39.1883	5.8416	2.9951	2.4675	55.6180	15.0578	33.7468	9.0380	1.1410	43172.4	3.7157	0.00	112.51	3.8338	17.8538	199.77	0.6785	0.8107	11.9428
GMP211	CE297-020	Plainware	5	C16	31.0402	25.1921	0.4323	29.8500	5.7138	5.2896	2.8561	54.2765	14.3370	31.7959	7.6897	1.2038	40602.2	3.8561	0.00	94.34	3.4010	16.5301	203.74	0.6770	0.9646	10.7619
GMP212	CE297-021	Plainware	5	C16	52.2557	25.1689	0.3704	31.2516	5.5464	5.8995	2.2456	54.2649	14.8693	35.4975	7.4020	1.1519	39982.1	3.7396	0.00	92.05	2.0955	15.4797	235.54	0.6733	0.9342	10.0863
GMP213	CE297-022	Plainware	5	C16	35.2510	24.8792	0.4440	28.1660	5.1825	6.2567	2.0986	49.8413	12.8726	35.9047	6.8510	1.1034	38415.3	4.3031	0.00	88.40	2.2287	14.3327	269.27	0.7222	0.8639	9.5775
GMP214	CE267-014	Plainware	5	OS10	25.4638	25.0978	0.4543	27.0724	5.3075	7.6542	2.3360	53.2511	13.5149	37.6347	8.0660	1.1616	40036.3	4.5469	0.00	97.57	2.2366	15.8834	179.83	0.6808	0.9231	10.2347
GMP215	CE297-005	Plainware	5	OS10	22.3250	28.2238	0.3852	27.3606	5.9068	3.6901	2.8584	61.2527	16.9851	33.7298	9.2414	1.2133	46114.2	4.3589	0.00	106.77	3.4113	17.9528	161.33	0.6868	0.7088	12.5756
GMP216	CE297-007	Plainware	5	OS10	35.3960	24.7438	0.4030	25.2795	5.3166	5.6844	1.9780	49.4933	12.9483	33.3801	6.9727	1.1018	38605.2	4.6633	0.00	87.04	2.3816	14.0700	275.97	0.7041	0.9082	9.6768
GMP217	CE297-008	SPD	5	OS10	27.1151	27.3589	0.4390	26.3998	6.0291	4.6019	2.9183	57.4338	13.5615	36.5442	8.3574	1.2238	43949.9	4.7739	0.00	96.42	2.6074	16.8859	373.26	0.7141	1.0015	11.6269
GMP218	CE561-001	Plainware	5	C16	31.7751	28.4059	0.4144	26.2892	5.6247	3.8488	2.5699	59.0563	15.7841	35.9221	8.2029	1.1528	43323.3	4.5325	0.00	96.48	2.8166	16.3742	142.66	0.7044	0.7863	11.0738
GMP219	CE561-003	Plainware	5	C16	34.7690	25.4036	0.4159	24.6174	5.4093	3.9520	2.4181	53.6401	15.3054	35.7520	8.0378	1.1606	42356.2	4.5411	31.91	96.66	2.7150	16.1184	198.03	0.7018	0.8668	11.0261
GMP220	CE445-002	Plainware	5	OS11	14.9565	36.5919	0.4050	33.0708	6.6174	3.6093	2.7783	75.9204	11.7281	33.3170	6.9391	1.3398	40889.9	6.5498	0.00	75.25	2.1099	15.4449	316.55	0.9374	0.9086	9.9311
GMP221	CE445-003	Plainware	5	OS11	21.1338	26.4710	0.4007	24.4154	5.1970	3.9032	2.6109	50.8991	13.1188	29.8450	7.1242	1.1190	40580.0	4.7709	0.00	74.79	2.2383	14.8575	314.02	0.7584	0.8206	8.9191
GMP222	CE445-004	Plainware	5	OS11	13.6674	27.7819	0.4197	20.2754	5.7670	3.8196	2.3896	59.4693	14.5797	37.9904	8.3697	1.2100	42224.2	5.5709	0.00	96.97	2.5802	16.6163	208.48	0.7944	0.9525	11.0897
GMP223	CE445-005	Plainware	5	OS11	22.9930	29.7411	0.4106	40.3551	6.0253	3.5499	2.4515	62.3412	15.4631	34.6950	8.8392	1.1624	46332.1	4.5490	0.00	105.67	3.3874	17.8787	237.52	0.6903	0.8646	14.1062
GMP224	CE445-006	Plainware	5	OS11	17.7918	35.4964	0.4954	33.5199	7.0644	4.0828	3.1757	75.6178	13.5208	43.1523	7.6589	1.4096	43360.0	10.1024	0.00	94.65	2.7577	16.5984	192.72	0.9859	1.1215	12.4129
GMP225	CE445-008	SPD	5	OS11	11.8836	48.2671	0.5039	54.3662	8.0008	4.5105	3.1868	94.7695	11.8099	36.3835	6.3119	1.3796	44170.0	12.2898	0.00	71.67	2.6111	16.1153	320.71	1.3323	1.0016	13.7900

Table 7.14. The first 11 principal components that explain 90.0293% of the cumulative variance in 225 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11
		Variance	29.0183	19.1995	12.0457	7.9879	5.8422	3.9534	3.4189	2.7063	2.2180	1.9827	1.6564
		Cumulative Variance	29.0183	48.2178	60.2635	68.2514	74.0936	78.0470	81.4659	84.1722	86.3901	88.3729	90.0293
		Eigenvalues	0.0536	0.0355	0.0223	0.0148	0.0108	0.0073	0.0063	0.0050	0.0041	0.0037	0.0031
Al	87059.31		-0.0059	-0.0803	0.0226	-0.0636	0.0828	-0.0044	0.0692	-0.0200	-0.0362	-0.0100	-0.0443
As	20.78		0.6079	-0.3833	-0.0553	0.5731	-0.1080	0.0481	0.2008	0.1829	0.0171	0.1921	0.0052
Ba	495.97		0.0508	-0.0143	-0.0483	-0.0583	0.0766	0.0449	0.0817	-0.0864	0.2360	-0.1801	0.0175
Ca	14604.17		-0.0038	0.6223	0.0391	0.2127	0.2782	-0.3091	0.2754	0.2506	-0.2080	0.3547	0.1238
Ce	54.51		0.0433	0.0627	0.2531	0.0385	0.0176	0.0428	-0.1061	-0.1745	-0.0875	0.1389	-0.0960
Co	13.20		0.0142	-0.1449	0.1836	0.0478	0.2122	-0.1583	0.1020	-0.0452	0.0086	-0.2394	-0.0008
Cr	33.94		0.0117	-0.0797	0.1276	0.0190	-0.0678	0.1331	0.0127	-0.0227	-0.1399	-0.0686	-0.1440
Cs	8.04		-0.0258	-0.1094	0.0394	-0.0933	0.2441	0.0064	0.1185	-0.0117	-0.1002	0.0200	-0.0221
Dy	3.86		0.0086	-0.0261	0.1606	-0.0244	0.0033	0.0389	0.0396	-0.0430	-0.0831	-0.0533	-0.2882
Eu	1.13		0.0080	0.0091	0.1559	0.0516	0.0270	-0.0258	-0.0674	-0.0453	-0.0118	-0.0075	-0.0938
Fe	41263.79		0.0020	-0.0923	0.1466	-0.0125	0.1340	-0.0372	0.0912	0.0046	-0.1113	-0.0975	-0.0061
Hf	4.66		-0.0214	0.1663	0.3122	0.0118	-0.3490	0.2300	0.1029	0.1508	0.0327	-0.0740	0.0268
K	21983.96		-0.0363	-0.0691	-0.1899	-0.1078	0.1564	0.2368	0.1809	-0.0449	-0.3805	-0.1122	0.3604
La	26.42		0.0237	0.0739	0.2453	0.0568	-0.0241	0.0361	-0.1101	-0.1926	-0.1158	0.1532	-0.0842
Lu	0.40		0.1672	0.0141	0.1401	-0.0430	0.0791	0.0371	-0.0246	-0.0291	-0.0708	-0.0753	-0.2619
Mn	778.14		0.0321	-0.0201	0.2653	0.1379	0.3113	-0.3151	0.1718	-0.0529	0.1801	-0.4265	0.1445
Na	16087.02		0.0822	0.0587	-0.0964	0.2122	-0.2012	-0.0579	-0.1034	-0.0670	-0.6097	-0.4463	0.1497
Nd	25.11		0.0605	-0.0164	0.2983	0.1075	0.0069	0.0882	-0.2972	-0.4239	-0.0006	0.2853	0.4927
Rb	100.25		-0.0315	-0.1450	-0.0062	-0.1333	0.1352	0.0686	0.0922	-0.0372	-0.0018	-0.0325	0.0198
Sb	2.70		-0.0789	-0.1866	0.1928	0.0290	0.1022	0.0296	0.1871	-0.0098	0.2623	0.0512	0.3335
Sc	15.97		-0.0120	-0.0741	0.1217	-0.0368	0.1555	0.0234	0.0527	0.0127	-0.0583	-0.0286	-0.0121
Sm	5.61		0.0690	0.0110	0.1844	-0.0262	0.0332	0.0127	-0.0689	-0.1073	-0.0624	0.0656	0.0271
Sr	186.66		0.1419	0.4437	-0.1520	0.3055	0.2571	0.5399	0.0396	-0.2969	0.2414	-0.2636	-0.1038
Ta	0.72		-0.0174	0.0851	0.1999	0.0430	-0.0795	0.0875	-0.0077	0.0365	-0.1531	-0.0361	-0.1219
Tb	0.75		-0.0429	-0.0019	0.2508	0.1320	0.2209	0.1427	-0.5705	0.6098	0.0593	-0.1702	0.0810
Th	10.89		0.0193	-0.0915	0.2137	-0.0874	0.0456	0.0512	0.0665	-0.1563	-0.1631	0.0743	0.0061
Ti	4398.40		-0.0386	0.0161	0.1778	-0.0188	-0.0055	0.1382	0.1890	0.0114	0.0387	0.1260	-0.2827
U	4.21		0.7111	0.1455	-0.0616	-0.5086	0.1809	-0.1159	-0.2129	-0.0070	-0.0086	0.0033	0.0005
V	118.34		0.0467	-0.0680	0.1662	-0.0578	0.0772	0.0027	0.2423	0.0233	-0.1358	0.0068	-0.1684
Yb	2.52		-0.0005	-0.0045	0.1976	-0.0283	0.0307	-0.0167	0.0357	-0.0139	-0.1294	-0.0363	-0.1254
Zn	114.26		-0.0353	-0.1313	-0.0342	-0.1661	0.2923	0.5060	0.1232	0.2665	-0.1739	0.1907	0.0957
Zr	129.25		0.1941	0.2169	0.2499	-0.2803	-0.4208	0.1116	0.3142	0.1958	0.1388	-0.1824	0.2997

Sample	#	Elements, the measurements of which were determined as outliers (extreme outliers in italic)
GMP225	14	*Ca*, *Ce*, Eu, *Hf*, *La*, Lu, *Nd*, Rb, *Sm*, Sr, *Ta*, Ti, Yb, *Zr*
GMP084	12	Ce, Fe, Hf, La, Lu, Sc, Ta, *Th*, *Ti*, *V*, *Yb*, Zr
GMP224	8	Ce, Cr, Eu, *Hf*, La, Sm, Ta, Zr
GMP007	7	Ce, Cr, Hf, La, Sm, Ta, Zr
GMP220	7	Ba, *Ca*, Ce, La, Rb, Sr, Ta
GMP138	6	As, Ba, Ce, Lu, *U*, V
GMP017	5	As, Lu, Th, *U*, Zr
GMP110	5	Ba, *Lu*, Sm, *U*, Zr
GMP221	4	*Ca*, Mn, Rb, Sr
GMP192	4	*As*, Sm, *U*, Zr

Table 7.15. Ten samples most frequently determined as an outlier in the boxplot analysis. The first four specimens were considered as outliers and segregated from the main body of the dataset for the further analyses.

Table 7.16. The first 12 principal components that explain 91.3154% of the cumulative variance in 221 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
		Variance	30.5475	19.1943	9.5184	8.3283	5.8766	3.9678	3.5007	2.8057	2.2902	2.0582	1.7216	1.5061
		Cumulative Variance	30.5475	49.7418	59.2602	67.5886	73.4652	77.4330	80.9337	83.7394	86.0296	88.0878	89.8094	91.3154
		Eigenvalues	0.0544	0.0342	0.0170	0.0148	0.0105	0.0071	0.0062	0.0050	0.0041	0.0037	0.0031	0.0027
Al	87118.59		-0.0056	-0.0795	0.0199	-0.0692	0.0768	-0.0102	-0.0739	-0.0196	0.0390	-0.0154	-0.0433	0.1243
As	20.84		0.6118	-0.3778	-0.0397	0.5816	-0.0766	0.0392	-0.1926	0.1910	-0.0023	0.1872	0.0121	0.0810
Ba	496.58		0.0512	-0.0057	-0.0402	-0.0556	0.0876	0.0433	-0.1000	-0.0998	-0.2564	-0.1355	0.0043	0.0463
Ca	14553.89		-0.0063	0.6178	0.2272	0.1913	0.2076	-0.3147	-0.2713	0.2627	0.2347	0.3224	0.1367	0.0831
Ce	54.17		0.0388	0.0234	0.2594	0.0015	-0.0211	0.0711	0.0959	-0.1796	0.1211	0.1430	-0.0913	-0.0520
Co	13.19		0.0120	-0.1618	0.2179	0.0148	0.1682	-0.1572	-0.1124	-0.0594	-0.0349	-0.2258	-0.0195	-0.1002
Cr	33.81		0.0081	-0.0975	0.0826	0.0128	-0.0591	0.1431	-0.0156	-0.0396	0.1379	-0.0567	-0.1446	-0.0714
Cs	8.05		-0.0253	-0.1067	0.0532	-0.1052	0.2348	-0.0149	-0.1264	-0.0105	0.1044	0.0088	-0.0177	0.1897
Dy	3.85		0.0060	-0.0473	0.1598	-0.0475	-0.0285	0.0719	-0.0432	-0.0478	0.1052	-0.0634	-0.2973	0.2273
Eu	1.13		0.0054	-0.0124	0.1744	0.0265	-0.0024	-0.0056	0.0573	-0.0575	0.0238	0.0021	-0.0959	-0.0060
Fe	41175.17		0.0004	-0.1091	0.1453	-0.0338	0.1082	-0.0439	-0.0907	0.0069	0.1017	-0.1152	-0.0160	-0.0101
Hf	4.61		-0.0301	0.1109	0.2158	-0.0019	-0.3602	0.2733	-0.1026	0.1409	-0.0303	-0.0737	0.0208	-0.0850
K	22053.85		-0.0332	-0.0444	-0.2304	-0.0776	0.2307	0.1705	-0.1879	-0.0286	0.3541	-0.1629	0.3565	0.1693
La	26.26		0.0192	0.0336	0.2475	0.0219	-0.0609	0.0668	0.1018	-0.1950	0.1505	0.1541	-0.0801	-0.0834
Lu	0.40		0.1651	-0.0036	0.1410	-0.0631	0.0573	0.0390	0.0224	-0.0368	0.0725	-0.0763	-0.2780	-0.0590
Mn	775.22		0.0283	-0.0508	0.3472	0.0877	0.2360	-0.3150	-0.1856	-0.0679	-0.2420	-0.3923	0.1022	-0.3573
Na	16085.68		0.0822	0.0610	-0.1061	0.2317	-0.1625	-0.0749	0.1108	-0.0723	0.5665	-0.5183	0.1149	-0.1190
Nd	24.96		0.0572	-0.0735	0.2979	0.0534	-0.0320	0.1226	0.2731	-0.4015	0.0547	0.2647	0.5046	-0.1502
Rb	100.46		-0.0304	-0.1379	-0.0200	-0.1359	0.1410	0.0565	-0.1037	-0.0372	0.0041	-0.0354	0.0225	0.2150
Sb	2.70		-0.0795	-0.2090	0.1909	-0.0009	0.0598	0.0501	-0.1931	0.0021	-0.2381	0.0423	0.3435	0.1355
Sc	15.94		-0.0135	-0.0864	0.1267	-0.0561	0.1364	0.0209	-0.0557	0.0123	0.0592	-0.0381	-0.0090	0.1334
Sm	5.59		0.0659	-0.0169	0.1825	-0.0547	0.0038	0.0306	0.0576	-0.1074	0.0822	0.0595	0.0305	0.0458
Sr	186.55		0.1440	0.4575	-0.0426	0.3208	0.3112	0.5125	-0.0307	-0.3195	-0.2477	-0.2257	-0.0893	0.1406
Ta	0.72		-0.0225	0.0497	0.1671	0.0260	-0.0900	0.1015	0.0102	0.0346	0.1487	-0.0438	-0.1329	-0.1098
Tb	0.75		-0.0463	-0.0359	0.2993	0.0868	0.1960	0.1600	0.5727	0.5986	-0.0765	-0.1996	0.0820	0.2102
Th	10.83		0.0157	-0.1174	0.1588	-0.1040	0.0208	0.0468	-0.0405	-0.1490	0.1737	0.0484	0.0625	0.4244
Ti	4376.18		-0.0415	-0.0100	0.1438	-0.0330	-0.0244	0.1462	-0.1797	0.0213	-0.0210	0.1224	-0.2914	-0.0623
U	4.20		0.7107	0.1642	-0.0582	-0.5107	0.1637	-0.1322	0.2082	-0.0025	-0.0069	0.0050	0.0048	-0.0501
V	117.91		0.0441	-0.0872	0.1423	-0.0742	0.0502	0.0008	-0.2356	0.0314	0.1357	-0.0084	-0.1805	-0.0201
Yb	2.51		-0.0045	-0.0281	0.1836	-0.0489	-0.0012	-0.0075	-0.0276	-0.0229	0.1329	-0.0449	-0.1074	0.1868
Zn	114.40		-0.0340	-0.1204	-0.0650	-0.1604	0.3505	0.4707	-0.1485	0.2731	0.1979	0.1751	0.0537	-0.5152
Zr	127.99		0.1865	0.1818	0.1702	-0.2915	-0.4752	0.2050	-0.3246	0.1911	-0.1045	-0.2132	0.2725	0.0701

Table 7.17. The first 12 principal components that explain 91.2406% of the cumulative variance in 220 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
		Variance	30.7755	19.2270	9.5702	8.3281	5.5972	3.9411	3.3524	2.8219	2.3112	2.0742	1.7243	1.5173
		Cumulative Variance	30.7755	50.0025	59.5727	67.9008	73.4981	77.4392	80.7916	83.6135	85.9247	87.9990	89.7233	91.2406
		Eigenvalues	0.0545	0.0340	0.0169	0.0147	0.0099	0.0070	0.0059	0.0050	0.0041	0.0037	0.0031	0.0027
Al	87165.43		-0.0071	-0.0782	0.0187	-0.0764	0.0638	0.0014	-0.0832	-0.0106	0.0364	-0.0141	-0.0507	0.1211
As	20.93		0.6035	-0.3765	-0.0101	0.5886	-0.0458	0.0771	-0.1751	0.2078	-0.0079	0.1980	-0.0096	0.0724
Ba	496.80		0.0505	-0.0048	-0.0403	-0.0595	0.0823	0.0556	-0.1068	-0.0911	-0.2622	-0.1255	-0.0031	0.0424
Ca	14558.52		-0.0025	0.6266	0.2585	0.1432	0.1364	-0.2530	-0.3259	0.3020	0.2233	0.3385	0.1053	0.0752
Ce	54.13		0.0408	0.0184	0.2564	-0.0087	-0.0141	0.0512	0.1066	-0.1946	0.1341	0.1283	-0.0796	-0.0494
Co	13.21		0.0081	-0.1581	0.2262	-0.0140	0.1332	-0.1386	-0.1615	-0.0401	-0.0440	-0.2218	-0.0136	-0.1008
Cr	33.80		0.0082	-0.1006	0.0786	0.0161	-0.0448	0.1458	0.0173	-0.0442	0.1416	-0.0679	-0.1337	-0.0739
Cs	8.06		-0.0283	-0.1026	0.0556	-0.1262	0.2119	-0.0032	-0.1539	0.0091	0.0981	0.0139	-0.0333	0.1845
Dy	3.85		0.0065	-0.0502	0.1550	-0.0536	-0.0339	0.0840	-0.0208	-0.0496	0.1086	-0.0752	-0.2995	0.2182
Eu	1.13		0.0058	-0.0141	0.1753	0.0170	-0.0042	-0.0154	0.0580	-0.0650	0.0288	-0.0054	-0.0894	-0.0065
Fe	41203.97		-0.0016	-0.1079	0.1472	-0.0510	0.0887	-0.0298	-0.1100	0.0213	0.0954	-0.1142	-0.0154	-0.0116
Hf	4.59		-0.0245	0.1010	0.2021	0.0130	-0.3500	0.3205	0.0170	0.1262	-0.0274	-0.0790	0.0355	-0.0776
K	22073.53		-0.0356	-0.0391	-0.2280	-0.0783	0.2405	0.1801	-0.2027	0.0027	0.3388	-0.1530	0.3526	0.1868
La	26.24		0.0212	0.0291	0.2451	0.0140	-0.0544	0.0497	0.1180	-0.2127	0.1656	0.1365	-0.0629	-0.0775
Lu	0.40		0.1660	-0.0081	0.1369	-0.0719	0.0579	0.0287	0.0209	-0.0381	0.0742	-0.0855	-0.2764	-0.0741
Mn	776.47		0.0251	-0.0457	0.3646	0.0421	0.1797	-0.2825	-0.2784	-0.0334	-0.2614	-0.3752	0.1113	-0.3579
Na	16074.24		0.0840	0.0581	-0.1007	0.2535	-0.1227	-0.1038	0.0597	-0.0603	0.5550	-0.5308	0.1460	-0.1035
Nd	24.92		0.0604	-0.0837	0.2903	0.0529	0.0203	0.0466	0.2419	-0.4206	0.0668	0.2669	0.5125	-0.1272
Rb	100.49		-0.0321	-0.1374	-0.0254	-0.1413	0.1375	0.0627	-0.1197	-0.0210	-0.0035	-0.0261	0.0030	0.2090
Sb	2.70		-0.0825	-0.2075	0.1926	-0.0173	0.0411	0.0883	-0.1811	0.0164	-0.2458	0.0624	0.3315	0.1504
Sc	15.95		-0.0150	-0.0854	0.1274	-0.0726	0.1252	0.0237	-0.0640	0.0213	0.0551	-0.0358	-0.0164	0.1317
Sm	5.59		0.0672	-0.0216	0.1769	-0.0620	0.0064	0.0161	0.0543	-0.1127	0.0869	0.0550	0.0329	0.0499
Sr	186.54		0.1476	0.4615	-0.0144	0.3050	0.3763	0.4721	0.0098	-0.3254	-0.2464	-0.2262	-0.0867	0.1404
Ta	0.71		-0.0209	0.0473	0.1659	0.0220	-0.0903	0.1095	0.0574	0.0232	0.1551	-0.0588	-0.1138	-0.1072
Tb	0.75		-0.0446	-0.0402	0.3020	0.0697	0.2564	0.0227	0.6101	0.5537	-0.0795	-0.1983	0.0845	0.2192
Th	10.83		0.0158	-0.1215	0.1501	-0.1101	0.0200	0.0479	-0.0535	-0.1407	0.1732	0.0492	0.0458	0.4282
Ti	4375.92		-0.0415	-0.0104	0.1424	-0.0422	-0.0407	0.1909	-0.1220	0.0222	-0.0159	0.1159	-0.2982	-0.0827
U	4.20		0.7138	0.1521	-0.0846	-0.5142	0.1383	-0.1782	0.1709	-0.0147	-0.0029	0.0009	0.0125	-0.0463
V	117.98		0.0426	-0.0873	0.1410	-0.0891	0.0190	0.0515	-0.2294	0.0524	0.1306	-0.0092	-0.1891	-0.0349
Yb	2.51		-0.0037	-0.0311	0.1796	-0.0583	-0.0103	-0.0012	-0.0320	-0.0181	0.1319	-0.0489	-0.1133	0.1826
Zn	114.55		-0.0375	-0.1155	-0.0647	-0.1770	0.3629	0.4744	-0.0505	0.2739	0.1989	0.1714	0.0694	-0.5154
Zr	127.65		0.1942	0.1659	0.1379	-0.2690	-0.5050	0.3136	-0.1982	0.1968	-0.1142	-0.2027	0.2774	0.0864

Table 7.18. The first 13 principal components that explain 90.8156% of the cumulative variance in 196 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	PC13
		Variance	26.7725	15.3857	11.2798	8.0125	7.0387	4.4040	3.8555	3.5703	2.6325	2.4453	2.0405	1.8545	1.5239
		Cumulative Variance	26.7725	42.1581	53.4380	61.4504	68.4892	72.8932	76.7486	80.3189	82.9514	85.3967	87.4372	89.2917	90.8156
		Eigenvalues	0.0370	0.0213	0.0156	0.0111	0.0097	0.0061	0.0053	0.0049	0.0036	0.0034	0.0028	0.0026	0.0021
Al	87717.71		-0.0128	0.0808	-0.0025	-0.1001	-0.0191	-0.0810	-0.0010	-0.0343	-0.0081	-0.0085	-0.1293	0.0918	-0.0641
As	20.75		0.7681	0.2380	0.3299	0.2852	0.0323	-0.2152	0.1436	0.0922	0.2160	0.1157	-0.0663	0.0137	0.0405
Ba	495.74		0.0250	-0.0397	-0.0060	-0.0460	-0.0663	-0.0951	-0.1023	0.0120	0.1254	-0.2180	0.1348	0.2293	0.1058
Ca	13599.63		-0.0319	-0.2615	-0.2715	0.1424	-0.1710	-0.3261	-0.1391	0.3170	-0.1088	0.6277	-0.1800	-0.1954	0.0995
Ce	53.71		0.0524	0.1049	-0.2083	0.0531	-0.0421	0.1220	-0.0611	-0.2390	0.0608	0.0607	-0.0819	-0.0953	0.2027
Co	13.30		0.0280	0.2862	-0.0746	-0.0291	-0.0811	-0.1461	-0.1269	0.0493	-0.2051	-0.1548	0.0634	-0.0510	-0.0018
Cr	34.11		0.0306	0.0943	-0.0241	0.0307	0.0153	0.0081	0.1242	-0.1673	-0.0664	-0.1263	-0.0405	-0.0822	0.1818
Cs	8.10		-0.0501	0.1644	0.0174	-0.1912	-0.1135	-0.1536	0.0533	-0.0713	0.0536	0.0248	-0.1130	0.1460	-0.0680
Dy	3.86		0.0001	0.0957	-0.1318	0.0133	0.0151	-0.0193	0.0619	-0.0832	-0.0398	-0.1102	-0.3600	-0.0406	0.2230
Eu	1.12		0.0247	0.1072	-0.1135	0.0458	-0.0207	0.0689	-0.0275	-0.0453	0.0144	-0.0371	-0.0565	-0.0258	0.1467
Fe	41375.01		0.0008	0.1927	-0.0557	-0.0665	-0.0420	-0.1111	0.0496	-0.0313	-0.1217	-0.0478	-0.0202	-0.0156	-0.0949
Hf	4.59		-0.0113	-0.0805	-0.3227	0.2586	0.1364	-0.0420	0.2608	-0.0205	0.0007	-0.0529	0.0652	-0.0525	0.0649
K	22193.69		-0.0837	-0.0645	0.2008	-0.1761	-0.1609	-0.2340	0.2037	-0.2295	-0.2833	0.2563	0.0673	0.3306	0.0419
La	26.07		0.0437	0.0887	-0.2001	0.0750	-0.0067	0.1409	-0.0580	-0.2806	0.0481	0.0766	-0.0564	-0.1071	0.2191
Lu	0.39		0.1473	0.0522	-0.1233	-0.0817	-0.0382	0.0283	0.0388	-0.0388	-0.0033	-0.1157	-0.1531	-0.1116	0.0772
Mn	770.93		0.0453	0.2914	-0.1928	0.0577	-0.1606	-0.2561	-0.3009	0.2072	-0.3238	-0.2756	0.3541	-0.1455	-0.0007
Na	15858.88		0.1237	-0.0695	0.1817	0.2030	0.1361	0.0820	0.1988	-0.1911	-0.7375	0.0480	0.0089	-0.1013	-0.1445
Nd	24.87		0.0810	0.2190	-0.1612	0.1682	-0.1128	0.2802	-0.1829	-0.3706	0.1077	0.3760	0.4193	0.0784	-0.3067
Rb	101.87		-0.0584	0.1031	0.0391	-0.1612	-0.0716	-0.1331	0.0236	-0.0490	0.0453	-0.0198	-0.0776	0.2272	-0.0792
Sb	2.77		-0.0694	0.2515	-0.0905	0.1212	-0.1094	-0.2192	-0.0820	0.0892	0.0465	0.1185	0.0979	0.1597	0.1124
Sc	16.03		-0.0203	0.1528	-0.0634	-0.0826	-0.0998	-0.0746	0.0398	-0.0160	-0.0306	0.0167	-0.1074	0.1034	-0.0756
Sm	5.55		0.0500	0.1113	-0.1465	-0.0005	-0.0232	0.0625	-0.0302	-0.1351	0.0065	0.0665	-0.0552	0.0313	0.0575
Sr	178.15		0.1482	-0.4362	-0.0533	0.3040	-0.6740	-0.0559	-0.0639	-0.2193	0.0045	-0.3183	-0.0965	0.1449	-0.0642
Ta	0.71		-0.0087	0.0355	-0.1482	0.0958	0.0259	0.0588	0.1601	-0.0956	-0.0910	-0.0765	-0.0630	-0.1499	0.1010
Tb	0.75		0.0039	0.2257	-0.1452	0.0461	-0.3448	0.5037	0.4138	0.5223	-0.0982	0.0425	-0.0420	0.2277	-0.0528
Th	10.89		-0.0025	0.1722	-0.1200	-0.0626	-0.0206	-0.0340	-0.0297	-0.2128	-0.0537	0.1491	-0.2877	0.2776	-0.0785
Ti	4400.24		-0.0358	0.0429	-0.1529	0.0393	-0.0084	-0.1147	0.0968	-0.0230	0.1518	-0.0852	-0.2562	-0.3007	-0.7357
U	3.94		0.5425	-0.2473	-0.2667	-0.6274	-0.0138	0.1736	-0.1520	0.0465	-0.1466	0.0361	0.0425	-0.0304	-0.0480
V	118.14		0.0418	0.1335	-0.1073	-0.1119	0.0303	-0.2288	0.0756	-0.0479	-0.0359	-0.0592	-0.1264	-0.0500	-0.0948
Yb	2.50		-0.0017	0.1255	-0.1371	-0.0278	0.0152	-0.0170	0.0163	-0.0604	-0.0758	-0.0004	-0.2115	0.0648	0.1123
Zn	116.15		-0.0623	0.0449	0.0479	-0.2929	-0.3382	-0.1689	0.5099	-0.1557	0.1764	0.0818	0.3232	-0.4380	0.1370
Zr	124.75		0.1071	-0.2024	-0.4645	0.0781	0.3470	-0.2556	0.3412	0.0023	0.0676	-0.0921	0.2696	0.3655	-0.0643

ANID	Membership probabilities (%)			Best Group
	Group 1	Group 2	Group 3	
GMP001	2.05	13.86	75.86	Group 3
GMP002	0.78	13.40	48.99	Group 3
GMP003	1.77	16.60	71.13	Group 3
GMP004	5.00	7.03	9.61	Group 3
GMP005	0.26	43.07	78.23	Group 3
GMP006	0.14	15.31	34.99	Group 3
GMP008	0.33	7.28	16.34	Group 3
GMP009	0.52	19.33	16.81	Group 2
GMP010	0.57	28.90	40.84	Group 3
GMP011	0.34	40.50	51.88	Group 3
GMP012	0.41	15.38	59.12	Group 3
GMP013	0.37	21.01	35.27	Group 3
GMP014	6.58	9.50	46.34	Group 3
GMP015	2.54	11.53	47.02	Group 3
GMP016	0.99	14.99	60.02	Group 3
GMP017	0.19	98.10	0.01	Group 2
GMP018	0.87	28.60	69.98	Group 3
GMP019	0.85	14.62	34.61	Group 3
GMP020	0.79	20.04	46.04	Group 3
GMP021	75.45	7.34	0.00	Group 1
GMP022	0.50	27.38	48.35	Group 3
GMP023	1.98	30.47	57.03	Group 3
GMP024	0.32	50.67	5.64	Group 2
GMP025	82.70	6.42	0.00	Group 1
GMP026	95.76	7.37	0.00	Group 1
GMP027	0.47	16.80	35.35	Group 3
GMP028	0.32	20.32	92.89	Group 3
GMP029	2.36	15.41	64.77	Group 3
GMP031	0.27	25.15	54.82	Group 3
GMP032	0.22	31.71	32.95	Group 3
GMP033	0.26	28.62	77.86	Group 3
GMP034	3.17	16.11	2.21	Group 2
GMP035	9.79	11.68	41.90	Group 3
GMP036	0.43	13.19	27.91	Group 3
GMP037	0.29	99.21	0.00	Group 2
GMP038	0.79	12.32	46.49	Group 3
GMP039	0.92	17.26	79.67	Group 3
GMP040	0.74	18.23	6.09	Group 2
GMP041	2.28	13.67	58.77	Group 3
GMP042	0.45	28.52	61.84	Group 3
GMP043	0.42	15.64	34.51	Group 3
GMP044	0.60	18.69	44.29	Group 3
GMP045	2.35	22.11	93.26	Group 3
GMP046	84.73	11.36	0.00	Group 1
GMP047	1.88	16.07	95.01	Group 3
GMP048	89.93	7.01	0.00	Group 1
GMP049	0.76	19.60	91.83	Group 3
GMP050	11.40	9.38	11.58	Group 3
GMP051	1.00	27.72	61.34	Group 3
GMP052	99.01	9.80	0.00	Group 1
GMP053	4.79	18.64	70.23	Group 3
GMP054	0.35	96.63	0.02	Group 2
GMP055	1.59	18.38	58.53	Group 3
GMP056	10.90	10.35	44.60	Group 3
GMP057	0.29	29.87	29.70	Group 2
GMP058	2.35	19.17	65.03	Group 3
GMP059	0.24	23.18	12.99	Group 2
GMP060	1.75	73.73	74.38	Group 3
GMP061	1.36	29.91	87.80	Group 3
GMP062	0.69	26.99	49.69	Group 3
GMP063	0.37	40.03	17.67	Group 2
GMP064	0.64	19.44	57.10	Group 3
GMP065	1.01	25.42	95.13	Group 3
GMP066	3.51	23.20	66.29	Group 3
GMP067	0.23	59.58	6.45	Group 2
GMP068	1.42	28.92	21.77	Group 2
GMP069	2.32	23.97	1.67	Group 2
GMP070	1.26	16.67	17.24	Group 3
GMP071	0.20	25.02	37.78	Group 3
GMP072	0.60	42.86	8.17	Group 2
GMP073	0.71	18.99	60.32	Group 3
GMP074	0.76	21.08	75.63	Group 3
GMP075	0.28	30.29	56.58	Group 3
GMP076	4.19	29.94	72.90	Group 3
GMP077	1.79	63.12	36.42	Group 2
GMP078	1.51	10.68	46.89	Group 3
GMP079	2.20	26.84	19.23	Group 2
GMP080	90.33	7.27	0.00	Group 1
GMP081	0.56	32.61	40.17	Group 3
GMP082	0.43	32.68	60.62	Group 3
GMP083	0.45	32.20	88.24	Group 3
GMP085	0.62	31.75	44.63	Group 3
GMP086	95.55	8.76	0.00	Group 1
GMP087	1.93	41.38	51.10	Group 3
GMP088	0.43	96.14	10.49	Group 2
GMP089	3.46	43.78	24.34	Group 2
GMP090	3.18	13.97	84.71	Group 3
GMP091	2.09	71.22	56.74	Group 2
GMP092	3.17	17.45	16.92	Group 2
GMP093	1.47	31.31	26.77	Group 2
GMP094	0.82	18.78	38.88	Group 3
GMP095	0.56	28.14	82.26	Group 3
GMP096	1.57	53.61	43.21	Group 2
GMP097	10.19	18.76	12.06	Group 2
GMP098	0.57	62.49	16.75	Group 2
GMP099	0.96	87.39	43.67	Group 2
GMP100	0.43	96.98	17.68	Group 2
GMP101	0.98	69.19	79.41	Group 3
GMP102	0.51	50.28	7.79	Group 2
GMP103	0.44	23.92	53.95	Group 3
GMP104	0.98	97.70	22.95	Group 2
GMP105	0.93	92.64	42.34	Group 2
GMP106	1.91	47.14	53.29	Group 3
GMP107	1.03	22.33	82.10	Group 3
GMP108	0.35	13.88	59.45	Group 3
GMP109	10.94	22.09	22.24	Group 3
GMP110	0.55	96.20	0.00	Group 2
GMP111	0.98	21.30	83.63	Group 3
GMP112	19.01	11.59	55.27	Group 3
GMP113	0.40	16.16	39.38	Group 3
GMP114	1.68	43.87	3.66	Group 2
GMP115	2.22	27.14	80.99	Group 3
GMP116	2.09	23.39	41.88	Group 3
GMP117	0.77	23.28	90.98	Group 3
GMP118	0.55	23.61	66.61	Group 3
GMP119	99.95	7.46	0.01	Group 1
GMP120	0.72	23.87	60.56	Group 3
GMP121	1.04	16.92	84.04	Group 3
GMP122	58.96	9.19	8.54	Group 1
GMP123	6.94	18.97	93.19	Group 3
GMP124	1.12	96.13	0.25	Group 2
GMP125	1.23	14.61	78.97	Group 3
GMP126	0.76	30.51	90.37	Group 3
GMP127	3.62	10.61	35.54	Group 3
GMP128	1.56	25.13	86.81	Group 3
GMP129	75.20	7.72	1.40	Group 1
GMP130	3.37	25.31	13.35	Group 2
GMP131	1.60	16.78	81.35	Group 3
GMP132	1.39	18.64	96.60	Group 3
GMP133	0.96	16.17	53.46	Group 3
GMP134	94.66	5.22	0.00	Group 1
GMP135	1.71	21.39	75.03	Group 3
GMP136	2.62	22.10	65.05	Group 3
GMP137	2.98	13.77	61.59	Group 3
GMP138	0.14	96.38	0.49	Group 2
GMP139	0.53	18.03	88.69	Group 3
GMP140	16.28	8.02	10.22	Group 1
GMP141	4.13	23.08	53.23	Group 3
GMP142	0.54	20.46	66.08	Group 3
GMP143	0.95	12.44	71.26	Group 3
GMP144	2.38	12.75	24.12	Group 3
GMP145	0.22	19.94	68.86	Group 3
GMP146	0.76	14.40	32.13	Group 3
GMP147	2.65	53.37	0.40	Group 2
GMP148	0.36	39.08	34.30	Group 2
GMP149	1.50	36.73	54.14	Group 3
GMP150	3.15	36.09	73.67	Group 3
GMP151	0.88	17.95	44.13	Group 3
GMP152	1.52	28.97	98.61	Group 3
GMP153	0.24	95.98	15.52	Group 2
GMP154	0.58	32.01	91.17	Group 3
GMP155	2.12	14.81	23.95	Group 3
GMP156	0.48	39.14	98.93	Group 3
GMP157	0.70	17.96	86.14	Group 3
GMP158	0.30	33.87	83.39	Group 3
GMP159	0.47	39.47	88.98	Group 3
GMP160	78.71	11.33	0.00	Group 1
GMP161	0.34	32.43	76.53	Group 3
GMP162	0.24	64.44	62.69	Group 2
GMP163	0.08	33.92	34.16	Group 3
GMP164	0.85	24.86	77.13	Group 3
GMP165	4.77	15.00	93.14	Group 3
GMP166	0.68	24.26	94.01	Group 3
GMP167	0.18	55.30	16.20	Group 2
GMP168	0.82	48.69	65.11	Group 3
GMP169	0.44	25.33	42.17	Group 3
GMP170	0.38	13.46	67.54	Group 3
GMP171	0.66	19.78	93.39	Group 3
GMP172	0.85	22.70	96.74	Group 3
GMP173	0.30	30.39	89.72	Group 3
GMP174	0.09	62.18	13.46	Group 2
GMP175	0.47	36.29	94.68	Group 3
GMP176	0.30	96.06	2.78	Group 2
GMP177	0.18	51.07	33.54	Group 2
GMP178	3.77	8.64	15.49	Group 3
GMP179	0.85	13.79	45.03	Group 3
GMP180	0.36	33.83	85.17	Group 3
GMP181	0.79	22.77	93.74	Group 3
GMP182	0.25	45.78	70.44	Group 3
GMP183	0.65	22.18	94.35	Group 3
GMP184	0.84	24.41	64.69	Group 3
GMP185	0.65	20.22	62.64	Group 3
GMP186	0.42	44.55	94.85	Group 3
GMP187	0.89	19.01	86.66	Group 3
GMP188	0.65	9.48	83.45	Group 3
GMP189	0.12	38.75	35.42	Group 2
GMP190	0.91	18.59	67.41	Group 3
GMP191	0.93	23.88	87.38	Group 3
GMP192	0.10	95.92	0.08	Group 2
GMP193	0.07	38.15	9.29	Group 2
GMP194	2.34	23.43	65.81	Group 3
GMP195	1.26	14.49	28.51	Group 3
GMP196	0.34	48.54	95.72	Group 3
GMP197	0.21	59.10	24.59	Group 2
GMP198	0.21	78.64	47.75	Group 2
GMP199	0.42	49.43	90.35	Group 3
GMP200	0.90	17.69	98.45	Group 3
GMP201	0.31	28.52	2.44	Group 2
GMP202	0.56	35.51	90.19	Group 3
GMP203	0.90	20.34	34.92	Group 3
GMP204	0.46	15.64	69.72	Group 3
GMP205	0.64	46.54	72.96	Group 3
GMP206	0.61	36.99	65.70	Group 3
GMP207	0.28	58.13	49.52	Group 2
GMP208	0.65	32.49	99.12	Group 3
GMP209	0.75	27.88	45.14	Group 3
GMP210	0.29	23.41	2.43	Group 2
GMP211	6.95	22.72	0.03	Group 2
GMP212	0.28	35.33	27.28	Group 2
GMP213	0.44	23.24	9.43	Group 2
GMP214	1.02	44.89	41.64	Group 2
GMP215	0.55	33.10	21.85	Group 2
GMP216	0.67	50.20	52.72	Group 3
GMP217	2.03	42.01	22.18	Group 2
GMP218	0.20	39.80	76.67	Group 3
GMP219	0.23	51.46	74.18	Group 3
GMP220	76.05	5.56	0.00	Group 1
GMP221	80.36	9.83	0.00	Group 1
GMP222	2.93	16.04	89.09	Group 3
GMP223	0.56	44.19	17.03	Group 2

Figure 7.19. Classification of the 220 specimens into three groups using Mahalanobis distance: (1) Sicán BDP Group 1 (high in Ca), (2) Group 2 (high in U), and (3) Group 3 (Clusters 1 to 10). The results are based on the first eight components from the principal components analysis, which account for 83.6% of the cumulative variance in 220 specimens (See Table 7.17). Membership probabilities are caluculated after removing each specimen from group.

Table 7.20. The first 10 principal components that explain 90.3510% of the cumulative variance in 122 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
		Variance	38.5895	23.7963	7.7035	6.1162	3.5043	2.9544	2.3444	2.0363	1.7504	1.5556
		Cumulative Variance	38.5895	62.3859	70.0894	76.2056	79.7099	82.6642	85.0087	87.0450	88.7954	90.3510
		Eigenvalues	0.0699	0.0431	0.0140	0.0111	0.0064	0.0054	0.0042	0.0037	0.0032	0.0028
Al	86587.10		-0.0062	-0.0695	-0.0051	-0.0928	0.0650	0.0619	-0.0633	0.0031	0.0251	0.0920
As	21.00		0.4899	-0.3775	0.2527	0.6300	0.1501	0.1640	0.0082	-0.2272	0.0663	0.1514
Ba	499.50		0.0596	-0.0351	-0.0532	-0.1004	0.0146	0.0229	-0.0977	-0.0845	0.2899	-0.3283
Ca	14883.35		0.0675	0.7323	0.1151	0.0565	0.1317	0.0565	-0.0227	-0.2979	0.0346	0.3788
Ce	54.37		0.0455	0.0462	0.2711	-0.0813	0.0291	-0.0349	0.0441	0.0581	-0.1877	-0.1548
Co	13.28		-0.0141	-0.0982	0.2159	-0.1428	0.1151	-0.0407	-0.1791	0.0357	0.2165	-0.0141
Cr	33.76		-0.0182	-0.0933	0.1727	-0.0054	-0.1012	0.0705	0.0139	0.1870	-0.1223	0.0568
Cs	8.08		-0.0223	-0.0583	0.0020	-0.2014	0.1469	0.0627	-0.1027	0.0288	0.0634	0.1621
Dy	3.87		0.0052	-0.0482	0.1874	-0.1039	0.0480	0.1457	-0.0876	0.2516	-0.1171	0.1285
Eu	1.13		-0.0001	0.0136	0.2045	-0.0332	0.0217	-0.0708	-0.0520	0.0527	-0.0442	-0.1413
Fe	41363.48		-0.0097	-0.0586	0.1240	-0.1015	0.0757	0.0062	-0.0812	0.0321	0.1148	0.1409
Hf	4.61		-0.0119	0.0629	0.2111	0.0547	-0.3825	0.1904	0.2414	0.1131	-0.0262	0.0377
K	21934.76		-0.0042	-0.0545	-0.2650	-0.0501	0.2345	0.3489	0.1573	0.3349	0.1871	0.2097
La	26.33		0.0217	0.0608	0.2661	-0.0319	-0.0002	-0.0368	0.0436	0.0834	-0.1927	-0.1438
Lu	0.40		0.1710	-0.0190	0.1578	-0.1235	0.1299	0.0125	-0.2331	0.1057	-0.0537	-0.1755
Mn	792.14		0.0097	0.0430	0.2695	-0.0934	0.1052	-0.1168	-0.2698	-0.0625	0.5021	-0.1008
Na	16340.28		0.0564	0.0737	0.0057	0.2763	0.0602	-0.1996	-0.0619	0.6304	0.1145	0.1431
Nd	24.57		0.0670	-0.0356	0.2374	-0.0840	0.0106	-0.0505	0.1221	0.0833	-0.2219	-0.1824
Rb	99.77		-0.0275	-0.1393	-0.0755	-0.1904	0.0823	0.1095	-0.0722	0.0463	0.0305	0.1000
Sb	2.67		-0.0863	-0.1942	0.1513	-0.1581	-0.1269	0.1189	0.1313	-0.2079	0.3407	-0.0301
Sc	15.90		-0.0147	-0.0511	0.0981	-0.1494	0.1203	0.0585	-0.0179	0.0129	0.0547	0.1101
Sm	5.61		0.0767	-0.0053	0.1385	-0.1207	0.0263	-0.0388	0.0336	0.0501	-0.0793	-0.0340
Sr	192.11		0.1871	0.3989	0.0328	0.0944	0.1884	0.4922	-0.0034	0.2015	0.1343	-0.3980
Ta	0.72		-0.0221	0.0699	0.2120	-0.0283	-0.0918	0.0539	0.0211	0.0659	-0.1416	-0.0109
Tb	0.74		-0.0764	0.0281	0.2858	-0.0788	0.3346	-0.2733	0.6805	-0.0226	0.1730	0.1011
Th	10.73		0.0112	-0.1124	0.0727	-0.1778	0.0792	0.0974	-0.0515	0.1189	-0.0366	0.3922
Ti	4363.94		-0.0329	-0.0106	0.1503	-0.1158	-0.0059	0.2494	-0.2319	-0.2431	-0.2561	0.2121
U	4.27		0.7655	0.0256	-0.2456	-0.3961	0.0536	-0.2213	0.1024	-0.0218	-0.1110	0.0187
V	118.22		0.0416	-0.0652	0.1457	-0.0966	0.0265	0.1181	-0.1259	-0.0047	-0.1171	0.0452
Yb	2.52		-0.0111	-0.0029	0.1705	-0.1091	0.0174	0.0169	-0.0612	0.0340	-0.0148	0.0574
Zn	114.85		-0.0294	-0.1350	-0.0807	-0.1520	0.1112	0.4639	0.3316	-0.1229	-0.0736	-0.1532
Zr	128.58		0.2558	0.0733	0.0909	-0.1314	-0.6722	0.1045	0.0972	0.1005	0.3110	0.1603

Table 7.21. The first 11 principal components that explain 90.7460% of the cumulative variance in 162 specimens.

Variable	Average		PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11
		Variance	29.8626	18.2995	14.0258	8.3412	4.8273	4.5513	3.1481	2.6637	1.8838	1.7796	1.3631
		Cumulative Variance	29.8626	48.1622	62.1879	70.5291	75.3564	79.9078	83.0559	85.7196	87.6034	89.3829	90.7460
		Eigenvalues	0.0627	0.0384	0.0295	0.0175	0.0101	0.0096	0.0066	0.0056	0.0040	0.0037	0.0029
Al	86870.77		-0.0040	-0.0490	0.0440	0.0345	0.1222	-0.0072	0.0213	0.0838	0.0283	-0.0466	-0.0088
As	20.30		0.4463	0.0422	0.5062	-0.0888	-0.5160	0.2682	0.2391	0.2561	-0.1664	-0.0746	0.0944
Ba	510.02		-0.0014	0.0751	0.1316	-0.0505	0.2019	-0.0537	0.1025	0.0256	-0.0161	0.0172	0.3012
Ca	14815.14		-0.0154	0.4768	-0.5264	-0.0785	0.0074	0.3643	-0.0187	0.1478	-0.3367	-0.2260	0.1848
Ce	53.78		0.0554	0.0223	-0.0588	0.2165	-0.0266	0.1598	-0.0817	0.0529	0.1076	0.0253	0.0218
Co	13.73		-0.0659	0.0284	0.1999	0.1562	0.1405	0.1885	-0.0624	-0.0679	0.1483	-0.0701	-0.0560
Cr	34.14		-0.0133	-0.0571	0.0638	0.2106	-0.0579	0.0017	0.0388	-0.0014	0.1282	0.0111	-0.1085
Cs	7.88		0.0213	-0.0972	0.0077	-0.0316	0.3208	0.1929	0.1244	0.0288	0.0473	-0.0035	0.2498
Dy	3.85		0.0335	-0.0711	-0.0411	0.2387	-0.0075	-0.0211	0.0466	0.1367	0.3544	-0.0218	0.0597
Eu	1.13		0.0082	-0.0036	-0.0283	0.1606	-0.0400	0.1063	-0.0607	0.0318	0.1197	-0.0092	0.0658
Fe	41838.13		-0.0210	-0.0231	0.0645	0.1345	0.1193	0.1028	0.0384	0.0351	0.0028	-0.0475	-0.0083
Hf	4.64		-0.0063	0.0091	-0.1249	0.3765	-0.1776	-0.1376	0.2661	-0.1579	-0.1701	0.1707	-0.1156
K	20347.11		0.1323	-0.2119	-0.1533	-0.2074	0.1882	0.0828	0.2592	0.0863	0.0620	0.3259	0.1161
La	25.81		0.0519	-0.0034	-0.1030	0.1969	-0.0736	0.1739	-0.0596	0.0404	0.0884	0.0228	0.0447
Lu	0.40		0.1639	0.0368	0.0103	0.1779	0.0602	0.0363	-0.0327	0.0743	0.2530	-0.0687	-0.0339
Mn	863.83		-0.1718	0.3281	0.3891	0.1046	0.1838	0.4344	-0.0655	-0.5001	-0.0474	0.0843	-0.0478
Na	14391.20		0.2468	-0.1831	-0.3368	-0.1976	-0.2240	0.3597	0.1685	-0.4358	0.3285	0.2008	0.0245
Nd	24.02		0.1027	-0.0495	-0.0328	0.1906	-0.0473	0.1213	-0.1219	0.0552	0.0455	0.0660	0.0552
Rb	98.49		0.0126	-0.1301	0.0694	-0.0435	0.1963	-0.0203	-0.0062	0.0636	0.1066	0.0561	0.2661
Sb	2.61		-0.0042	-0.2276	0.0573	0.1583	0.0849	0.0758	0.0708	-0.0057	-0.3173	0.0943	0.5267
Sc	15.81		0.0003	-0.0549	0.0236	0.1042	0.1752	0.1361	0.0381	0.0795	-0.0280	-0.0109	-0.0326
Sm	5.50		0.0990	-0.0161	-0.0367	0.1478	0.0430	0.0723	-0.0748	0.0425	0.0617	0.0213	0.0568
Sr	211.83		-0.0738	0.5881	0.0125	-0.0007	0.0535	-0.0897	0.4046	0.3153	0.3515	0.2839	0.0096
Ta	0.72		0.0000	0.0024	-0.1052	0.2205	-0.0595	0.0926	0.0213	-0.0684	0.0613	-0.0010	-0.0662
Tb	0.75		-0.0579	-0.0411	-0.0657	0.2176	-0.1147	0.1398	-0.3931	0.3120	-0.2193	0.5885	-0.1009
Th	10.81		0.0110	-0.0603	0.0907	0.1252	0.1294	0.0014	-0.0487	0.1313	0.1079	-0.0544	0.1734
Ti	4147.66		0.0756	-0.1772	-0.1921	0.2107	0.0438	0.0978	0.1765	0.1344	-0.0313	-0.4543	-0.1305
U	3.85		0.7580	0.2071	-0.0192	-0.0391	0.3503	-0.1566	-0.3258	-0.0681	-0.0343	0.0382	-0.1292
V	117.32		0.0491	-0.0374	0.0447	0.1306	0.1285	0.1263	0.1246	0.1006	-0.0239	-0.2173	-0.2132
Yb	2.53		-0.0046	-0.0160	-0.0203	0.1916	0.0089	0.0457	-0.0600	0.0584	0.0887	-0.0336	0.1275
Zn	110.73		0.0439	-0.1726	0.0198	-0.0006	0.3422	0.1644	0.3824	0.1023	-0.2995	0.1964	-0.4612
Zr	129.22		0.1981	0.1560	-0.0607	0.3902	-0.0181	-0.3694	0.2658	-0.3399	-0.2118	0.0522	0.1978

Table 7.22. Frequencies of the three classes of motifs by the stratigraphic positions.

Class		Before MMS	MMS	LMS	After LMS	Total
Logographic (Class L)	n	43	59	11	1	114
	%	37.7%	51.8%	9.6%	0.9%	
Large Geometric (Class L-G)	n	55	71	188	8	322
	%	17.1%	22.0%	58.4%	2.5%	
Geometric (Class G)	n	18	89	107	7	221
	%	8.1%	40.3%	48.4%	3.2%	
TOTAL	n	116	219	306	16	657
	%	17.7%	33.3%	46.6%	2.4%	

Table 7.23. Frequencies of the eight groups of the Class L (Logographic) motifs shown by the stratigraphic positions.

Class	Motif Group	Subgroup	Before MMS	MMS	LMS	After LMS	Total
L	Animal		0	1	0	0	1
	Bird	A	0	1	0	0	1
		B	1	2	1	0	4
	Bottle	A	0	1	2	0	3
		B	0	0	4	1	5
	Disembodied Feline Head		3	3	1	0	7
	Face with a Headdress		24	26	3	0	53
	Feline Animal	A	3	4	0	0	7
		B	0	4	0	0	4
		C	1	0	0	0	1
	Naipe		1	1	0	0	2
	Ulluchu	A	0	1	0	0	1
		B	0	1	0	0	1
		C	0	1	0	0	1
		D	1	0	0	0	1
	Unknown		9	13	0	0	22
TOTAL			43	59	11	1	114
			37.7%	51.8%	9.6%	0.9%	

Table 7.24. Frequencies of the fifteen groups of the Class L-G (Large Geometric) motifs shown by the stratigraphic positions.

Class	Motif Group	Subgroup	Before MMS	MMS	LMS	After LMS	Total
L-G	Cross	A	0	1	10	0	11
		B	0	1	2	0	3
	Wave		13	5	0	0	18
	Double-Serrated Lines	A	3	0	1	0	4
		B	0	0	1	0	1
	Circular Spiral	A	0	0	1	0	1
		B	0	1	1	0	2
		C	0	0	1	0	1
		D	0	0	3	1	4
	Rectangular Spiral	A	0	0	4	0	4
		B	0	1	6	0	7
		C	0	1	0	0	1
		D	0	2	0	0	2
	One Circle	A	0	1	0	0	1
		B	0	1	0	0	1
		C	0	0	5	1	6
		D	0	0	2	0	2
		E	0	1	0	0	1
	Two Concentric Circles	A	1	0	0	0	1
		B	0	0	3	0	3
		C	0	0	1	0	1
		D	0	0	1	0	1
		E	0	2	1	1	4
		F	0	0	1	0	1
		G	0	0	1	0	1
	Three Concentric Circles	A	0	1	2	0	3
		B	0	3	2	0	5
		C	0	1	6	0	7
		D	0	3	28	2	33
		E	0	0	20	0	20
		F	0	0	1	0	1
		G	0	1	1	0	2
		H	0	0	1	0	1
		I	0	0	9	1	10
		J	0	0	1	0	1
		K	0	0	10	0	10
		L	0	0	3	0	3
		M	0	1	0	0	1
		N	0	0	3	0	3
		O	0	0	3	0	3
		P	0	0	1	0	1
		Q	0	0	3	0	3
	Four Concentric Circles	A	0	0	11	0	11
		B	0	0	1	0	1
	One Rhombus	A	0	0	2	0	2
		B	0	1	0	0	1
	Two concentric Rhombuses	A	0	0	1	0	1
		B	0	0	1	0	1
	Three concentric Rhombuses	A	32	37	2	0	71
		B	0	0	7	0	7
		C	0	2	21	1	24
		D	0	0	1	0	1
	Concentric Semi-Circles		0	1	0	0	1
	Concentric Triangles	A	0	0	0	1	1
		B	6	1	2	0	9
	Concentric Rectangles		0	2	0	0	2
TOTAL			55	71	188	8	322
			17.1%	22.0%	58.4%	2.5%	

Table 7.25. Frequencies of the five groups of the Class G (Geometric) motifs shown by the stratigraphic positions.

Class	Motif Group	Subgroup	Before MMS	MMS	LMS	After LMS	Total
G	Rhombuses	A	0	0	1	0	1
		B	0	1	10	0	11
		C	0	0	1	0	1
		D	0	0	1	1	2
		E	0	1	0	0	1
	Lattice	A	0	2	4	0	6
		B	0	10	15	0	25
	Zigzags	A	0	0	5	0	5
		B	0	0	2	0	2
		C	0	1	1	1	3
		D	0	0	4	0	4
		E	0	0	1	0	1
		F	0	1	0	0	1
	Serrated Lines	A	0	0	9	0	9
		B	0	2	0	0	2
	Waves	A	0	1	0	0	1
		B	0	0	4	0	4
		C	0	0	2	0	2
		D	0	0	0	1	1
		E	0	0	1	0	1
		F	0	1	0	0	1
		G	0	5	1	0	6
		H	1	8	0	0	9
		I	1	8	0	0	9
		J	0	3	1	0	4
		K	0	0	1	0	1
		L	4	3	1	0	8
		M	0	2	0	0	2
		N	0	1	1	0	2
		O	0	0	16	0	16
		P	0	0	1	0	1
		Q	0	1	1	0	2
		R	0	0	1	0	1
		S	0	3	4	0	7
		T	0	8	0	0	8
		U	0	2	5	0	7
		V	0	1	0	0	1
		W	1	0	0	0	1
		X	0	0	3	0	3
		Y	0	0	1	0	1
		AA	0	0	0	1	1
		AB	0	0	0	1	1
		AC	0	4	0	0	4
		AD	0	0	2	0	2
		AE	1	2	0	0	3
		AF	1	4	0	0	5
		AG	0	2	0	0	2
		AH	1	2	0	0	3
		AI	8	4	0	0	12
		AJ	0	2	0	0	2
		AK	0	1	0	0	1
		AL	0	0	1	0	1
		BA	0	0	1	0	1
		BB	0	0	0	1	1
		BC	0	3	5	1	9
TOTAL			18	89	107	7	221
			8.1%	40.3%	48.4%	3.2%	

Table 7.26. Frequencies of the three classes of motifs by the excavation areas.

Class		Area 3	Area 4	Area 5	Total
Logographic (Class L)	n	0	104	10	114
	%	0.0%	91.2%	8.8%	
Large Geometric (Class L-G)	n	2	110	210	322
	%	0.6%	34.2%	65.2%	
Geometric (Class G)	n	7	61	153	221
	%	4.0%	35.1%	87.9%	
TOTAL	n	9	275	373	657
	%	1.4%	41.93%	56.8%	

Table 7.27. Frequencies of the eight groups of the Class L (Logographic) motifs shown by the excavation areas.

Class	Motif Group	Subgroup	Area 3	Area 4	Area 5	Total
L	Animal		0	0	1	1
	Bird	A	0	1	0	1
		B	0	4	0	4
	Bottle	A	0	0	3	3
		B	0	0	5	5
	Disembodied Feline Head		0	7	0	7
	Face with a Headdress		0	53	0	53
	Feline Animal	A	0	7	0	7
		B	0	4	0	4
		C	0	1	0	1
	Naipe		0	2	0	2
	Ulluchu	A	0	0	1	1
		B	0	1	0	1
		C	0	1	0	1
		D	0	1	0	1
	Unknown		0	22	0	22
TOTAL			0	104	10	114
			0.0%	91.2%	8.8%	

Table 7.28. Frequencies of the fifteen groups of the Class L-G (Large Geometric) motifs shown by the excavation areas.

Class	Motif Group	Subgroup	Area 3	Area 4	Area 5	Total
L-G	Cross	A	0	0	11	11
		B	0	0	3	3
	Wave		0	18	0	18
	Double-Serrated Lines	A	0	4	0	4
		B	0	0	1	1
	Circular Spiral	A	0	0	1	1
		B	0	0	2	2
		C	0	0	1	1
		D	0	0	4	4
	Rectangular Spiral	A	0	0	4	4
		B	0	0	7	7
		C	0	0	1	1
		D	0	0	2	2
	One Circle	A	0	0	1	1
		B	0	1	0	1
		C	0	0	6	6
		D	2	0	0	2
		E	0	0	1	1
	Two Concentric Circles	A	0	1	0	1
		B	0	0	3	3
		C	0	0	1	1
		D	0	0	1	1
		E	0	0	4	4
		F	0	0	1	1
		G	0	1	0	1
	Three Concentric Circles	A	0	0	3	3
		B	0	0	5	5
		C	0	0	7	7
		D	0	0	33	33
		E	0	0	20	20
		F	0	0	1	1
		G	0	0	2	2
		H	0	1	0	1
		I	0	0	10	10
		J	0	0	1	1
		K	0	0	10	10
		L	0	0	3	3
		M	0	0	1	1
		N	0	0	3	3
		O	0	0	3	3
		P	0	0	1	1
		Q	0	0	3	3
	Four Concentric Circles	A	0	0	11	11
		B	0	0	1	1
	One Rhombus	A	0	0	2	2
		B	0	1	0	1
	Two Concentric Rhombuses	A	0	0	1	1
		B	0	0	1	1
	Three concentric Rhombuses	A	0	71	0	71
		B	0	0	7	7
		C	0	0	24	24
		D	0	0	1	1
	Concentric Semi-Circles		0	1	0	1
	Concentric Triangles	A	0	0	1	1
		B	0	9	0	9
	Concentric Rectangles		0	2	0	2
TOTAL			2	110	210	322
			0.6%	34.2%	65.2%	

Table 7.29. Frequencies of the five groups of the Class G (Geometric) motifs shown by the excavation areas.

Class	Motif Group	Subgroup	Area 3	Area 4	Area 5	Total
G	Rhombuses	A	0	0	1	1
		B	0	0	11	11
		C	0	0	1	1
		D	0	0	2	2
		E	0	0	1	1
	Lattice	A	0	0	6	6
		B	0	0	25	25
	Zigzags	A	0	0	5	5
		B	0	0	2	2
		C	0	0	3	3
		D	0	0	4	4
		E	0	0	1	1
		F	0	0	1	1
	Serrated Lines	A	0	0	9	9
		B	0	0	2	2
	Waves	A	0	1	0	1
		B	0	0	4	4
		C	2	0	0	2
		D	1	0	0	1
		E	0	1	0	1
		F	0	1	0	1
		G	0	0	6	6
		H	0	9	0	9
		I	0	9	0	9
		J	0	0	4	4
		K	0	0	1	1
		L	0	8	0	8
		M	0	2	0	2
		N	0	0	2	2
		O	0	0	16	16
		P	0	0	1	1
		Q	0	0	2	2
		R	0	0	1	1
		S	0	0	7	7
		T	0	0	8	8
		U	0	0	7	7
		V	0	0	1	1
		W	0	1	0	1
		X	0	0	3	3
		Y	0	0	1	1
		AA	1	0	0	1
		AB	1	0	0	1
		AC	0	0	4	4
		AD	2	0	0	2
		AE	0	3	0	3
		AF	0	5	0	5
		AG	0	2	0	2
		AH	0	3	0	3
		AI	0	12	0	12
		AJ	0	2	0	2
		AK	0	1	0	1
		AL	0	1	0	1
		BA	0	0	1	1
		BB	0	0	1	1
		BC	0	0	9	9
TOTAL			7	61	153	221
			4.0%	35.1%	87.9%	

Table 7.30. Two hundred twenty seven bags of zooarchaeological remains analyzed by Goepfert (continued).

ID	Bag #	Trench/ Area	Quad.	Stratigraphic Position	Feature	Tomb	Burial	Weight (g)
1	HA-22	EA3	2	OS-6	Canal 1			38.1
2	HA-23	EA3	3	OS-6	Canal 1			16.5
3	HA-158	EA3	3	OS-6	Canal 1			32.9
4	HA-24	EA3		OS-6	Canal 1, 2			104.7
5	HA-28	EA3	2	OS-6	23			7.7
6	HA-15	EA3	3, 4	OS-6/7				28.7
7	HA-17	EA3	1, 2	OS-6/7				29.1
8	HA-159	EA3	2	OS-6/7				73.4
9	HA-30	EA3		OS-6/7	24d			28.7
10	HA-31	EA3		OS-6/7	24e			29.1
11	HA-32	EA3		OS-6/7	24f			69.5
12	HA-33	EA3		OS-6/7	24g			75.3
13	HA-34	EA3		OS-6/7	24i			59.8
14	HA-35	EA3	1, 2	OS-6/7				41.7
15	HA-16	EA3		OS-7 Level 1	25			28.7
16	HA-18	EA3		OS-7 Level 1	27			29.1
17	HA-29	EA3		OS-7 Level 1	27			73.7
18	HA-99	EA3	8	OS-7 Level 1				5.7
19	HA-100	EA3	9	OS-7 Level 1				10.7
20	HA-101	EA3		OS-7 Level 1				28.7
21	HA-102	EA3	13	OS-7 Level 1				11.2
22	HA-103	EA3	15	OS-7 Level 1				7.7
23	HA-104	EA3	16	OS-7 Level 1				25.0
24	HA-105	EA3	17	OS-7 Level 1				23.0
25	HA-106	EA3	19	OS-7 Level 1				12.0
26	HA-107	EA3	20	OS-7 Level 1				24.7
27	HA-108	EA3	21	OS-7 Level 1				14.5
28	HA-109	EA3	22	OS-7 Level 1				26.8
29	HA-110	EA3	23	OS-7 Level 1				13.6
30	HA-111	EA3	24	OS-7 Level 1				50.0
31	HA-112	EA3	25	OS-7 Level 1				11.7
32	HA-113	EA3	26	OS-7 Level 1				12.3
33	HA-114	EA3	27	OS-7 Level 1				11.1
34	HA-115	EA3	28	OS-7 Level 1				31.8
35	HA-116	EA3	29	OS-7 Level 1				17.9
36	HA-117	EA3	30	OS-7 Level 1				12.3
37	HA-118	EA3	31	OS-7 Level 1				9.5
38	HA-119	EA3	32	OS-7 Level 1				12.2
39	HA-120	EA3	33	OS-7 Level 1				3.4
40	HA-121	EA3	34	OS-7 Level 1				34.9
41	HA-122	EA3	37	OS-7 Level 1				8.9
42	HA-123	EA3	36	OS-7 Level 1				23.7
43	HA-124	EA3	35	OS-7 Level 1				16.5
44	HA-125	EA3	38	OS-7 Level 1				11.8
45	HA-126	EA3	40	OS-7 Level 1				4.4
46	HA-127	EA3	2	OS-7 Level 1				4.5
47	HA-82	EA3	41	OS-7 Level 1	26			43.5
48	HA-83	EA3	42	OS-7 Level 1	26			19.6
49	HA-84	EA3	43	OS-7 Level 1	26			4.0
50	HA-85	EA3	44	OS-7 Level 1	26			4.3
51	HA-89	EA3	47	OS-7 Level 1	26			12.0
52	HA-92	EA3	53	OS-7 Level 1	26			5.6
53	HA-94	EA3	54	OS-7 Level 1	26			34.0
54	HA-97	EA3	6	OS-7 Level 1				29.3
55	HA-98	EA3	7	OS-7 Level 1				6.8
56	HA-127	EA3	2	OS-7 Level 2				12.3
57	HA-128	EA3	5	OS-7 Level 2				3.7
58	HA-129	EA3	6	OS-7 Level 2				83.3
59	HA-130	EA3	7	OS-7 Level 2				12.3
60	HA-131	EA3	8	OS-7 Level 2				31.5
61	HA-132	EA3	9	OS-7 Level 2				12.5
62	HA-133	EA3	10	OS-7 Level 2				4.5
63	HA-134	EA3	13	OS-7 Level 2				7.6
64	HA-135	EA3	15	OS-7 Level 2				7.8

Table 7.30. Two hundred twenty seven bags of zooarchaeological remains analyzed by Goepfert.

ID	Bag #	Trench/ Area	Quad.	Stratigraphic Position	Feature	Tomb	Burial	Weight (g)
65	HA-136	EA3	17	OS-7 Level 2				0.5
66	HA-137	EA3	18	OS-7 Level 2				6.7
67	HA-138	EA3	19	OS-7 Level 2				21.0
68	HA-139	EA3	20	OS-7 Level 2				3.5
69	HA-140	EA3	21	OS-7 Level 2				10.3
70	HA-141	EA3	22	OS-7 Level 2				6.5
71	HA-142	EA3	23	OS-7 Level 2				7.0
72	HA-143	EA3	24	OS-7 Level 2				24.5
73	HA-144	EA3	25	OS-7 Level 2				12.8
74	HA-145	EA3	26	OS-7 Level 2				11.0
75	HA-146	EA3	27	OS-7 Level 2				4.5
76	HA-147	EA3	28	OS-7 Level 2				45.0
77	HA-148	EA3	29	OS-7 Level 2				50.7
78	HA-149	EA3	31	OS-7 Level 2				4.1
79	HA-150	EA3	32	OS-7 Level 2				7.4
80	HA-151	EA3	33	OS-7 Level 2				9.0
81	HA-152	EA3	34	OS-7 Level 2				5.1
82	HA-153	EA3	35	OS-7 Level 2				4.7
83	HA-154	EA3	38	OS-7 Level 2				20.4
84	HA-155	EA3	39	OS-7 Level 2				8.1
85	HA-156	EA3	40	OS-7 Level 2				5.5
86	HA-169	EA3	59	OS-7 Level 2				175.0
87	HA-77	EA3	41	OS-7 Level 2	26			11.8
88	HA-78	EA3	42	OS-7 Level 2	26			21.8
89	HA-79	EA3	43	OS-7 Level 2	26			14.1
90	HA-80	EA3	44	OS-7 Level 2	26			8.8
91	HA-81	EA3	45	OS-7 Level 2	26			6.4
92	HA-86	EA3	46	OS-7 Level 2	26			45.7
93	HA-87	EA3	47	OS-7 Level 2	26			16.5
94	HA-88	EA3	48	OS-7 Level 2	26			46.9
95	HA-90	EA3	49	OS-7 Level 2	26			9.2
96	HA-91	EA3	52	OS-7 Level 2	26			14.1
97	HA-93	EA3	53	OS-7 Level 2	26			70.4
98	HA-95	EA3	54	OS-7 Level 2	26			10.3
99	HA-96	EA3	56	OS-7 Level 2	26			59.0
100	HA-41	EA3	1	OS-7 Level 3				21.2
101	HA-42	EA3	2	OS-7 Level 3				23.5
102	HA-43	EA3	3	OS-7 Level 3				18.0
103	HA-44	EA3	4	OS-7 Level 3				14.5
104	HA-45	EA3	5	OS-7 Level 3				65.5
105	HA-46	EA3	6	OS-7 Level 3				43.3
106	HA-47	EA3	7	OS-7 Level 3				68.2
107	HA-48	EA3	8	OS-7 Level 3				29.6
108	HA-49	EA3	9	OS-7 Level 3				70.6
109	HA-50	EA3	10	OS-7 Level 3				3.7
110	HA-51	EA3	11	OS-7 Level 3				11.8
111	HA-52	EA3	12	OS-7 Level 3				36.6
112	HA-53	EA3	13	OS-7 Level 3				41.0
113	HA-54	EA3	14	OS-7 Level 3				9.3
114	HA-55	EA3	15	OS-7 Level 3				24.4
115	HA-56	EA3	16	OS-7 Level 3				31.0
116	HA-57	EA3	17	OS-7 Level 3				17.0
117	HA-58	EA3	18	OS-7 Level 3				16.2
118	HA-59	EA3	19	OS-7 Level 3				29.7
119	HA-60	EA3	21	OS-7 Level 3				5.2
120	HA-61	EA3	22	OS-7 Level 3				5.4
121	HA-62	EA3	23	OS-7 Level 3				5.8
122	HA-63	EA3	24	OS-7 Level 3				5.3
123	HA-64	EA3	25	OS-7 Level 3				5.8
124	HA-65	EA3	26	OS-7 Level 3				41.2
125	HA-66	EA3	27	OS-7 Level 3				7.7
126	HA-67	EA3	28	OS-7 Level 3				7.3
127	HA-68	EA3	29	OS-7 Level 3				17.8
128	HA-69	EA3	30	OS-7 Level 3				4.5

Table 7.30. Two hundred twenty seven bags of zooarchaeological remains analyzed by Goepfert.

ID	Bag #	Trench/ Area	Quad.	Stratigraphic Position	Feature	Tomb	Burial	Weight (g)
129	HA-70	EA3	31	OS-7 Level 3				5.7
129	HA-70	EA3	31	OS-7 Level 3				5.7
130	HA-71	EA3	32	OS-7 Level 3				27.6
131	HA-72	EA3	33	OS-7 Level 3				19.2
132	HA-73	EA3	35	OS-7 Level 3				19.0
133	HA-74	EA3	37	OS-7 Level 3				16.2
134	HA-75	EA3	39	OS-7 Level 3				12.0
135	HA-76	EA3	40	OS-7 Level 3				9.6
136	HA-157	EA3		Floor 2	Hearth			31.5
137	HA-160	EA3		Floor 2				16.0
138	H-108	EA4	26B	OS-11				317.9
139	H-121	EA4	38D	OS-11				50.5
140	H-131	EA4	33D	OS-11				40.2
141	H-143	EA4	38E	OS-11				478.0
142	H-94	EA4	26	OS-11				544.6
143	H-95	EA4	11	OS-11				1800.0
144	H-119	EA4	35	OS-11A				120.0
145	H-135	EA4	33	OS-11A				100.6
146	H-138	EA4	6	OS-11A				11.3
147	H-141	EA4	38	OS-11A				125.5
148	H-144	EA4	34	OS-11A				550.5
149	H-137	EA4	30	OS-11A, B				199.9
150	H-133	EA4	34	OS-11B				28.7
151	H-127	EA4	38	OS-11C				22.5
152	HA-180	EA5		OS-10	6			44.5
153	HA-181	EA5		OS-10	7A			157.0
154	HA-182	EA5		OS-10	7A			82.9
155	HA-183	EA5		OS-10	7A			155.9
156	HA-184	EA5		OS-10	7C			86.1
157	HA-179	EA5		OS-10	8			177.5
158	HA-185	EA5		OS-10	8			56.8
159	HA-191	EA5		OS-10	Enclosure 1			78.7
160	HA-219	EA5		OS-10/11		T-NE-2		56.1
161	HA-220	EA5		OS-10/11		T-NE-2		71.2
162	HA-221	EA5		OS-10/11		T-NE-2		56.2
163	HA-222	EA5		OS-10/11		T-NE-2		564.0
164	615	T1		Layer 34		1		135.2
165	616	T1		Layer 34		1		143.3
166	617	T1		Layer 34		1		123.5
167	618	T1		Layer 34		1		123.0
168	664	T1		Layer 34		1		700.0
169	665	T1		Layer 34		1		134.7
170	666	T1		Layer 34		1		147.0
171	667	T1		Layer 34		1		123.9
172	669	T1		Layer 34		1		120.8
173	1171	T1		Layer 34			4	132.4
174	1172	T1		Layer 34			4	51.3
175	1180	T1		Layer 34			4	123.3
176	465	T1		Layer 34			7	7.2
177	535	T1		Layer 34			7	53.4
178	536	T1		Layer 34			7	14.6
179	537	T1		Layer 34			7	13.3
180	538	T1		Layer 34			7	17.5
181	539	T1		Layer 34			7	55.8
182	540	T1		Layer 34			7	77.2
183	541	T1		Layer 34			7	20.9
184	542	T1		Layer 34			7	29.0
185	543	T1		Layer 34			7	15.3
186	544	T1		Layer 34			7	76.0
187	545	T1		Layer 34			7	17.3
188	546	T1		Layer 34			7	76.1
189	547	T1		Layer 34			7	8.1
190	548	T1		Layer 34			7	13.8
191	549	T1		Layer 34			7	101.9

Table 7.30. Two hundred twenty seven bags of zooarchaeological remains analyzed by Goepfert.

ID	Bag #	Trench/ Area	Quad.	Stratigraphic Position	Feature	Tomb	Burial	Weight (g)
192	550	T1		Layer 34			7	23.0
193	551	T1		Layer 34			7	2400.0
194	1254	T1		Layer 34			7	11.5
195	1416	T1		Layer 34			7	5.7
196	545A	T1		Layer 34			7	12.2
197	1150	T1		Layer 34			8	25.7
198	1151	T1		Layer 34			8	15.0
199	1152	T1		Layer 34			8	26.0
200	1079	T1		Layer 34			10	22.8
201	1080	T1		Layer 34			10	23.0
202	1081	T1		Layer 34			10	27.3
203	1095	T1		Layer 34			10	30.3
204	947	T2/3		Layer 34		2		33.4
205	953	T2/3		Layer 34		2		43.8
206	954	T2/3		Layer 34		2		42.0
207	955	T2/3		Layer 34		2		131.6
208	956	2/3		Layer 34		2		117.8
209	957	2/3		Layer 34		2		44.2
210	979	2/3		Layer 34		2		100.0
211	998	2/3		Layer 34		2		59.3
212	999	2/3		Layer 34		2		59.2
213	1059	2/3		Layer 34		2		267.5
214	1299	2/3		Layer 34		2		13.9
215	1307	2/3		Layer 34		2		63.0
216	1330	2		Layer 34			1	84.3
217	1360	2		Layer 34			1	113.0
218	1071	2		Layer 34			3	145.0
219	1072	2		Layer 34			3	36.0
220	1073	2		Layer 34			3	24.7
221	1074	2		Layer 34			3	18.6
222	1075	2		Layer 34			3	18.7
223	1419	2		Layer 34			5	21.7
224	1137	2		Layer 34			10	26.7
225	1149	2		Layer 34			10	57.1
226	1200	2		Layer 34			10	31.0
227	1426	2		Layer 34			13	35.3

Table 7.31. A list of anatomical parts of llamas selected for the burial offerings during the Middle Sicán Period (MMS: middle- Middle Sicán / LMS: late-Middle Sicán). Note that the Burial 6 in the SAP-HL'06-T2 is the only burial that contained llama body parts other than cranium and limb extremities.

Trench/Area	Date	Tomb/Burial	Anatomical parts	Provenience
T1	EMS	Tomb 1	A cranium of a young camelid and eight lower limbs	South Niche
T1	EMS	Burial 2	None	N/A
T1	EMS	Burial 3	None	N/A
T1	MMS	Burial 4	Lower limb (worked and fragmented)	SE corner of the burial pit
T1	MMS	Burial 5	Four toe bones (only phalanges)	east side of the principal personage
T1	LMS	Burial 6	Five toe bones (only phalanges)	NE corner of the burial pit
T1	EMS	Burial 7	Two crania and three pairs of lower limbs	Lower Level of the principal chamber
T1	EMS	Burial 8	Six or seven toe bones (only phalanges)	SW of the body
T1	LMS	Burial 9	None	N/A
T1	EMS	Burial 10	Six toe bones (only phalanges)	Over the body
T2/3	MMS-LMS	Tomb 2	Crania and more than a dozen of lower limbs	Upper Level and Chamber 3
T2	MMS	Burial 1	Eight toe bones (only phalanges)	SE corner of the burial pit
T2	EMS	Burial 2	None	N/A
T2	MMS	Burial 3	Four lower limbs	In the center of the box
T2	MMS	Burial 4	None	N/A
T2	EMS?	Burial 5	None	N/A
T2	LMS	Burial 6A	Cranium, scapula, vertebrae, and toe bones (only phalanges)	Unknown due to the disturbance
T2	EMS	Burial 6B	Some toe bones (only phalanges)	Probably left side of the Individual 4
T2	MMS	Burial 7	None	N/A
T2/3	EMS	Burial 8	None	N/A
T2/3	EMS	Burial 9 (unexcavated)	None	N/A
T2	MMS	Burial 10	Six toe bones (only phalanges)	Along the south and west walls of the burial pit
T2	N/A	Burial 11	None	N/A
T2/3	EMS	Burial 12	None	N/A
T2	EMS	Burial 13	None	N/A
T2	N/A	Burial 14	None	N/A
T2/3	EMS	Burial 15	None	N/A
T2/3	N/A	Burial 16 (empty)	None	N/A
T2/3	N/A	Burial 17	None	N/A
T2/3	N/A	Burial 18 (unexcavated)	None	N/A
T3	N/A	Burial 19	None	N/A
EA4	MMS	T-NE1	Two tibia flutes / some toe bones?	Over the Individual 1 / South Niche
EA4	MMS	Burial 2	None	N/A
EA5	LMS	T-NE-2	Two lower limbs	In the center of the principal chamber floor

Table 7.32. Llama bones excavated from the Great Plaza.

	Number of Remains (NR)	Number of Identified Specimens (NISP)	Remains Indeterminate	Remains Burnt	Minimum Number of Individuals (MNI)
EA3 OS-6	59	40 (67.8 %)	19 (32.2 %)	2 (3.4 %)	2
EA3 OS-6/7	107	80 (74.8 %)	27 (25.2 %)	2 (1.9 %)	2
EA OS7 Level 1	322	189 (58.7 %)	133 (41. 3 %)	71 (22.0 %)	2
EA OS7 Level 2	380	231 (60.8 %)	149 (39.2 %)	54 (14.2 %)	1
EA OS7 Level 3	457	279 (61.1 %)	178 (38.9 %)	39 (8.5 %)	1
EA4 OS-11	1,939	1,136 (58.6 %)	803 (41.4 %)	529 (27.3 %)	4
EA5 OS-10	125	86 (68.8 %)	39 (31.2 %)	0 (0.0 %)	2
TOTAL	3,389	2,041 (60.2 %)	1,348 (39.8 %)	697(20.6 %)	14

Table 7.33. Anatomical regions of the identified llama bones excavated from the Great Plaza.

	Cranium	Limb bones (phalanges)	Most meaty region (femoral)
EA3 OS-6	X		
EA3 OS-6/7	X	X	
EA3 OS-7 Level 1	X	X	
EA3 OS-7 Level 2	X	X	X
EA3 OS-7 Level 3	X	X	X
EA4 OS-11	X	X	X
EA5 OS-11	X	X	

Table 7.34. Other mammals and birds identified in the remains from the Great Plaza (continued).

Bag ID	Area	Quad	Layer	Feature	Class	Order	Family	Genus	Specie	Anatomical Parts	Note	Preservation	Side	NR
HA-100	EA3	9	OS-7 L1		Mammals	Rodents	Caviidae	Cavia	porcellus	Tibia (diaphysis)		Incomplete	left	1
HA-29	EA3		OS-7 L1	27	Mammals	Rodents	Caviidae	Cavia	porcellus	Mandible		Incomplete	left	1
HA-97	EA3	6	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Femur (ep. dist.)		Incomplete	Indet.	1
HA-97	EA3	6	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Vertebra		Complete	Indet.	2
HA-97	EA3	6	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	A long bone (diaphysis)		Incomplete	Indet.	2
HA-101	EA3	12	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Femur (ext. prox.)		Incomplete	right	1
HA-101	EA3	12	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Femur (ext. dist.)		Incomplete	left	1
HA-101	EA3	12	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Femur (ext. prox.)		Incomplete	right	1
HA-101	EA3	12	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	A long bone (diaphysis)		Incomplete	Indet.	1
HA-103	EA3	15	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	A long bone (diaphysis)		Incomplete	Indet.	1
HA-104	EA3	16	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Scapula		Incomplete	Indet.	1
HA-105	EA3	17	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Vertebra		Incomplete	Indet.	1
HA-105	EA3	17	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Incisor		Incomplete	Indet.	1
HA-107	EA3	20	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Mandible	Burnt	Incomplete	Indet.	1
HA-107	EA3	20	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Vertebra		Incomplete	Indet.	1
HA-109	EA3	22	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Cranium		Incomplete	Indet.	1
HA-112	EA3	25	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	1
HA-114	EA3	27	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	1
HA-116	EA3	29	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Humerus		Incomplete	Indet.	1
HA-116	EA3	29	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Tibia		Incomplete	Indet.	1
HA-119	EA3	32	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Indet.	Burnt	Incomplete	Indet.	1
HA-123	EA3	36	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Humerus (1/2 ext. dist.)		Incomplete	Indet.	1
HA-123	EA3	36	OS-7 L1		Mammals	Rodents	Indet.	Indet.	Indet.	Incisor		Incomplete	Indet.	3
HA-16	EA3		OS-7 L1	25	Mammals	Rodents	Indet.	Indet.	Indet.	Tibia		Complete	right	1
HA-16	EA3		OS-7 L1	25	Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Incomplete	left	1
HA-16	EA3		OS-7 L1	25	Mammals	Rodents	Indet.	Indet.	Indet.	Maxilla		Incomplete	Indet.	1
HA-18	EA3		OS-7 L1	27	Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Complete	right	1
HA-29	EA3		OS-7 L1	27	Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Incomplete	right	1
HA-29	EA3		OS-7 L1	27	Mammals	Rodents	Indet.	Indet.	Indet.	Teeth		Complete	Indet.	3
HA-29	EA3		OS-7 L1	27	Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Complete	left	2
HA-29	EA3		OS-7 L1	27	Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	4
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Complete	right	1
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Complete	left	1
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Humerus		Complete	Indet.	4
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Ulnas		Complete	Indet.	3
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Complete	Indet.	2
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Tibia		Complete	Indet.	3
HA-82	EA3	41	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Ribs		Complete	Indet.	2
HA-83	EA3	42	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Cranium (occipital)		Incomplete	Indet.	1
HA-83	EA3	42	OS-7 L1	26	Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Incomplete	Indet.	2
													TOTAL	60

Table 7.34. Other mammals and birds identified in the remains from the Great Plaza (continued).

Bag ID	Area	Quad	Layer	Feature	Class	Order	Family	Genus	Specie	Anatomical Parts	Note	Preservation	Side	NR
HA-128	EA3	5	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Incomplete	Indet.	1
HA-132	EA3	9	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Incomplete	Indet.	1
HA-132	EA3	9	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Ulna (diaphysis)		Incomplete	Indet.	1
HA-133	EA3	10	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Vertebrae		Incomplete	Indet.	3
HA-135	EA3	15	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Scapula		Incomplete	Indet.	1
HA-136	EA3	17	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Incomplete	Left	1
HA-139	EA3	20	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Humerus (1/2 ext. dist.)		Incomplete	Indet.	1
HA-143	EA3	24	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Vertebrae		Incomplete	Indet.	1
HA-144	EA3	25	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Incisor		Complete	Indet.	3
HA-144	EA3	25	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	3
HA-147	EA3	28	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Cranium (occipital)		Incomplete	Indet.	1
HA-147	EA3	28	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Ulna		Incomplete	Indet.	1
HA-148	EA3	29	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Humerus (diaphysis)		Incomplete	Indet.	1
HA-150	EA3	32	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Tibia (diaphysis)		Incomplete	Indet.	1
HA-151	EA3	33	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Indet. (diaphysis)		Incomplete	Indet.	1
HA-121	EA3	34	OS-7 L2		Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	1
HA-77	EA3	41	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Tibia (diaphysis)		Incomplete	Indet.	1
HA-79	EA3	43	OS-7 L2	26	Mammals	Rodents	Caviidae	Cavia	porcellus	Maxilla		Incomplete	Indet.	1
HA-86	EA3	46	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Humerus (diaphysis)		Incomplete	Indet.	1
HA-86	EA3	46	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Ribs		Incomplete	Indet.	1
HA-86	EA3	46	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Indet. (diaphysis)		Incomplete	Indet.	1
HA-90	EA3	49	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Incomplete	Right	1
HA-90	EA3	49	OS-7 L2	26	Mammals	Rodents	Indet.	Indet.	Indet.	Pelvis		Incomplete	Indet.	1
													TOTAL	29
HA-45	EA3	5	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Humerus (1/2 ext. dist.)		Incomplete	Indet.	1
HA-46	EA3	6	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Complete	Left	1
HA-46	EA3	6	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Tibia (diaphysis)		Incomplete	Indet.	1
HA-47	EA3	7	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Mandible		Incomplete	Indet.	1
HA-50	EA3	10	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Complete	Left	1
HA-50	EA3	10	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Tibias		Incomplete	Indet.	2
HA-50	EA3	10	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Pelvis		Incomplete	Indet.	1
HA-60	EA3	21	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Ribs		Incomplete	Left	1
HA-61	EA3	22	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Pelvis		Incomplete	Indet.	1
HA-63	EA3	24	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Incisor		Incomplete	Indet.	1
HA-73	EA3	35	OS-7 L3		Mammals	Rodents	Indet.	Indet.	Indet.	Maxilla		Incomplete	Indet.	1
													TOTAL	12

Table 7.34. Other mammals and birds identified in the remains from the Great Plaza .

Bag ID	Area	Quad	Layer	Feature	Class	Order	Family	Genus	Specie	Anatomical Parts	Note	Preservation	Side	NR
HA-157	EA3		Floor 2	28	Mammals	Rodents	Indet.	Indet.	Indet.	Femur		Incomplete	Indet.	3
HA-157	EA3		Floor 2	28	Mammals	Rodents	Indet.	Indet.	Indet.	Tibia		Incomplete	Indet.	2
HA-157	EA3		Floor 2	28	Mammals	Rodents	Indet.	Indet.	Indet.	Ulna		Incomplete	Indet.	2
HA-157	EA3		Floor 2	28	Mammals	Rodents	Indet.	Indet.	Indet.	Scapula		Incomplete	Indet.	2
HA-157	EA3		Floor 2	28	Mammals	Rodents	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	1
													TOTAL	10
H-95	EA4	11	OS-11		Mammals	Rodents	Indet.	Indet.	Indet.	Pelvis		Incomplete	Indet.	1
H-95	EA4	11	OS-11		Mammals	Rodents	Indet.	Indet.	Indet.	Tibia		Incomplete	Indet.	1
													TOTAL	2
HA-29	EA3		OS-7 L1	27	Mammals	Carnivores	Canidae	Canis	familiaris	Tibia (1/3 ext. prox.)		Incomplete	Left	1
													TOTAL	1
HA-87	EA3	47	OS-7 L2	26	Mammals	Carnivores	Canidae	Canis	familiaris	Mandible		Incomplete	Right	1
													TOTAL	1
HA-48	EA3	8	OS-7 L3		Mammals	Carnivores	Canidae	Canis	familiaris	Vertebrae (tail)		Complete	Indet.	1
													TOTAL	1
H-108	EA4	26B	OS-11		Mammals	Carnivores	Canidae	Canis	familiaris	Phalanx		Incomplete	Indet.	1
													TOTAL	1
HA-181	EA5		OS-10	7A	Mammals	Carnivores	Canidae	Canis	familiaris	Ribs		Incomplete	Right	1
HA-182	EA5		OS-10	7A	Mammals	Carnivores	Canidae	Canis	familiaris	Ribs (1/3 ext. dist.)		Incomplete	Right	1
HA-182	EA5		OS-10	7A	Mammals	Carnivores	Canidae	Canis	familiaris	Ribs (diaphysis)		Incomplete	Indet.	2
HA-184	EA5		OS-10	7C	Mammals	Carnivores	Canidae	Canis	familiaris	Ulna (1/3 ext. prox.)		Incomplete	Indet.	1
HA-185	EA5		OS-10	8	Mammals	Carnivores	Canidae	Canis	familiaris	Teeth		Incomplete	Indet.	2
HA-185	EA5		OS-10	8	Mammals	Carnivores	Canidae	Canis	familiaris	Vertebrae		Incomplete	Indet.	1
HA-183	EA5		OS-10	7A	Mammals	Indet.	Indet.	Indet.	Indet.	Indet. (diaphysis)	Dog?	Incomplete	Indet.	1
													TOTAL	9
HA-120	EA3	33	OS-7 L1		Mammals	Artiodactyles	Cervidae	Indet.	Indet.	Antler		Incomplete	Indet.	1
													TOTAL	1
HA-134	EA3	13	OS-7 L2		Mammals	Artiodactyles	Cervidae	Indet.	Indet.	Diaphysis		Incomplete	Indet.	3
													TOTAL	3
HA-115	EA3	28	OS-7 L1		Birds	Indet.	Indet.	Indet.	Indet.	Tibia (1/2 ext. dist.)		Incomplete	Indet.	2
HA-115	EA3	28	OS-7 L1		Birds	Indet.	Indet.	Indet.	Indet.	Metatarsal		Complete	Indet.	1
HA-115	EA3	28	OS-7 L1		Birds	Indet.	Indet.	Indet.	Indet.	Metatarsal (1/3 ext. prox.)		Incomplete	Indet.	1
HA-16	EA3		OS-7 L1	25	Birds	Indet.	Indet.	Indet.	Indet.	Femur		Complete	Left	1
													TOTAL	5
HA-23	EA3	3	OS-6	Canal 1	Birds	Indet.	Indet.	Indet.	Indet.	Indet.		Incomplete	Indet.	1
													TOTAL	1
HA-147	EA3	28	OS-7 L2		Mammals	Indet.	Indet.	Indet.	Indet.	Humerus	Rodent or bat?	Complete	Indet.	2
													TOTAL	2

Table 7.35. Frequencies of other mammals and birds identified in the sample remains from the Great Plaza.

	Rodents (Indeterminate or *Cavia porcellus*)	Dogs (*Canis familiaris*)	Deer (Cervidae)	Birds (Indeterminate)	Bat? (Indeterminate)
EA3 OS-6	0	0	0	1	0
EA3 OS-6/7	0	0	0	0	0
EA3 OS-7 L1	60	1	1	5	0
EA3 OS-7 L2	29	1	3	0	2
EA3 OS-7 L3	12	1	0	0	0
EA3 Floor 2	10	0	0	0	0
EA4 OS-11	2	1	0	0	0
EA5 OS-10	0	9	0	0	0
TOTAL	113	13	4	6	2

Table 7.36. Identified species of the marine animals excavated from SAP-HL'08-EA3.

Area 3

Stratigraphic position	Wright (g.)
Layer 1	44.6
Layer 2	30.9
OS-1	42.5
OS-2	7.2
OS-3	18.9
OS-4	161.1
Floor 1	200.0
OS-5	339.8
OS-6	540.0
OS-6/7	2,963.3
OS-7 Level 1	16,325.1
OS-7 Levzl 2	15,882.4
OS-7 Level 3	7,146.3
Floor 2	31.1
Total	**43,733.2**

Area 4

Stratigraphic position	Wright (g.)
Layer 2	546.0
Layer 3	540.7
Layer 7	54.5
Layer 8	11.1
OS-11	8,257.9
OS-11A	2,263.8
OS-11B	58.8
OS-11AB	2,864.2
OS-11C	89.8
Total	**14,686.8**

Area 5

Stratigraphic position	Wright (g.)
Layer 12	128.7
OS-10	12,189.7
NE-T2	426.8
Layer 16	2,542.7
OS-11	448.7
Total	**15,736.6**

Table 7.37. Identified species of the marine animals excavated from SAP-HL'08-EAs4 and 5.

SAP-HL'08-Area 4

Bivalves

Layer	Family	Species	NR	NMI
Layer 2	Donacidae	*Donax obesulus*	204	204
	Subtotal		204	204
Layer 3	Donacidae	*Donax obesulus*	269	267
	Subtotal		269	267
Layer 7	Donacidae	*Donax obesulus*	52	52
	Subtotal		52	52
Layer 8	Donacidae	*Donax obesulus*	8	8
	Subtotal		8	8
T-NE1	Donacidae	*Donax obesulus*	3	3
	Subtotal		3	3
OS-11	Donacidae	*Donax obesulus*	1325	1306
	Subtotal		1325	1306
OS-11A	Mytillidae	*Aulacomya ater*	1	1
OS-11A	Donacidae	*Donax obesulus*	457	419
	Subtotal		458	420
OS-11B	Donacidae	*Donax obesulus*	73	72
	Subtotal		73	72
OS-11C	Donacidae	*Donax obesulus*	106	106
	Subtotal		107	106
	Total		2499	2438

Gastropods

Layer	Family	Species	NR	NMI
Layer 3	Olividae	*Olivella columellaris*	8	8
Layer 3	Naticidae	*Polinices uber*	2	2
	Subtotal		10	10
Layer 8	Olividae	*Olivella columellaris*	1	1
	Subtotal		1	1
OS-11	Mitridae	*Mitra sp.*	1	1
OS-11	Naticidae	*Polinices uber*	23	23
OS-11	Muricidae	*Thais haemastoma*	1	1
	Subtotal		25	25
OS-11A	Mitridae	*Mitra orientalis*	1	1
OS-11A	Naticidae	*Polinices uber*	8	8
OS-11A	Muricidae	*Purpura sp.*	1	1
	Subtotal		10	10
OS-11C	Naticidae	*Polinices uber*	1	1
OS-11C	Muricidae	*Stramonita sp.*	1	1
	Subtotal		2	2
	Total		48	48

SAP-HL'08-Area 5

Bivalves

Layer	Family	Species	NR	NMI
Layer 12	Donacidae	*Donax obesulus*	115	113
	Subtotal		115	113
OS-10	Donacidae	*Donax obesulus*	430	406
	Subtotal		430	406
Layer 16	Donacidae	*Donax obesulus*	49	48
	Subtotal		49	48
OS-11	Donacidae	*Donax obesulus*	63	63
OS-11	Mytillidae	*Aulacomya ater*	1	1
	Subtotal		64	64
	Total		658	631

Gastropods

Layer	Family	Species	NR	NMI
OS-10	Nassariidae	*Nassarius sp.*	1	1
OS-10	Olividae	*Olivella columellaris*	1	1
OS-10	Naticidae	*Polinices uber*	1	1
	Subtotal		3	3
Layer 16	Nassariidae	*Nassarius sp.*	2	2
	Subtotal		2	2
OS-11	Olividae	*Olivella columellaris*	186	186
OS-11	Turbinidae	*Prisogaster niger*	1	1
OS-11	Mitridae	*Mitra orientalis*	1	1
	Subtotal		188	188
	Total		193	193

Table 7.38. Identified species of the marine animals excavated from SAP-HL'08-EA3.

SAP-HL'08-Area 3

Bivalves

Layer	Family	Species	NR	NMI
Layer 1	Donacidae	*Donax obesulus*	11	11
		Subtotal	11	11
Layer 2	Donacidae	*Donax obesulus*	17	17
		Subtotal	17	17
OS-1	Donacidae	*Donax obesulus*	119	119
OS-1	Mytilidae	*Aulacomya ater*	1	1
		Subtotal	120	120
OS-2	Donacidae	*Donax obesulus*	1	1
		Subtotal	1	1
OS-3	Donacidae	*Donax obesulus*	7	6
		Subtotal	7	6
OS-4	Donacidae	*Donax obesulus*	5	2
		Subtotal	5	2
OS-5	Donacidae	*Donax obesulus*	313	312
		Subtotal	313	312
OS-6	Donacidae	*Donax obesulus*	407	375
		Subtotal	407	375
OS-6/7	Donacidae	*Donax obesulus*	2256	2046
		Subtotal	2256	2046
OS-7	Donacidae	*Donax obesulus*	32963	26812
OS-7	Pectinidae	*Argopecten purpuratus*	1	1
OS-7	Psammobiidae	*Gari sp.*	1	1
OS-7	Veneridae	*Prothotaca sp.*	2	2
OS-7	Veneridae	*Protothaca thaca*	1	1
		Subtotal	32968	26817
		Total	36105	29707

Gastropods

Layer	Family	Species	NR	NMI
Layer 1	Muricidae	*Thais chocolata*	1	1
Layer 1	Olividae	*Olivella columellaris*	1	1
		Subtotal	2	2
OS-1	Naticidae	*Polinices uber*	5	5
OS-1	Olividae	*Olivella sp.*	1	1
OS-1	Olividae	*Olivella columellaris*	9	9
OS-1	Turbinidae	*Prisogaster niger*	1	1
		Subtotal	16	16
OS-2	Naticidae	*Polinices uber*	2	2
		Subtotal	2	2
OS-4	Naticidae	*Polinices uber*	1	1
		Subtotal	1	1
OS-5	Mitridae	*Mitra orientalis*	1	1
OS-5	Muricidae	*Stramonita sp.*	1	1
OS-5	Muricidae	*Thais chocolata*	1	1
OS-5	Naticidae	*Polinices uber*	6	6
OS-5	Olividae	*Olivella sp.*	1	1
		Subtotal	10	10
OS-6	Muricidae	*Stramonita sp.*	3	3
OS-6	Muricidae	*Stramonita delessertiana*	1	1
OS-6	Muricidae	*Thais chocolata*	2	2
OS-6	Muricidae	*Thaisella kiosquiformis*	2	2
OS-6	Naticidae	*Polinices sp.*	1	1
OS-6	Naticidae	*Polinices uber*	7	7
OS-6	Olividae	*Olivella columellaris*	3	3
		Subtotal	19	19
OS-6/7	Muricidae	*Stramonita sp.*	9	9
OS-6/7	Muricidae	*Stramonita delessertiana*	1	1
OS-6/7	Muricidae	*Xanthochorus sp.*	1	1
OS-6/7	Naticidae	*Polinices uber*	7	6
OS-6/7	Olividae	*Oliva peruviana subcastanea*	1	1
OS-6/7	Olividae	*Olivella columellaris*	17	17
OS-6/7	Olividae	*Olivella semistriata*	1	1
OS-6/7	Turbinidae	*Prisogaster niger*	2	2
		Subtotal	39	38
OS-7	Buccinidae	*Solenosteira sp.*	3	3
OS-7	Buccinidae	*Solenosteira fusiformis*	1	1
OS-7	Cancellariidae	*Cancellaria decussata*	1	1
OS-7	Cerithiidae	*Cerithium sp.*	2	2
OS-7	Columbellidae	*Mazatlania fulgurata*	3	3
OS-7	Conidae	*Conus fergusoni*	2	2
OS-7	Conidae	*ND*	2	1
OS-7	Coralliophilidae	*Coralliophila sp.*	3	3
OS-7	Olividae	*Olivella sp.*	3	3
OS-7	Olividae	*Olivella columellaris*	15953	13540
OS-7	Olividae	*Olivella semistriata*	4	4
OS-7	Mitridae	*Mitra orientalis*	1	1
OS-7	Muricidae	*Acanthina spp.*	1	1
OS-7	Muricidae	*Stramonita sp.*	73	71
OS-7	Muricidae	*Stramonita sp. 2*	5	5
OS-7	Muricidae	*Stramonita delessertiana*	5	5
OS-7	Muricidae	*Thais chocolata*	26	26
OS-7	Muricidae	*Thais haemastoma*	17	17
OS-7	Muricidae	*Thaisella kiosquiformis*	1	1
OS-7	Muricidae	*Xanthochorus sp.*	2	2
OS-7	Muricidae	*Xanthochorus buxea*	3	3
OS-7	Muricidae	*ND*	5	5
OS-7	Nassariidae	*Nassarius sp.*	8	8
OS-7	Naticidae	*Polinices intemeratus*	1	1
OS-7	Naticidae	*Polinices uber*	67	67
OS-7	Trochidae	*Tegula atra*	1	1
OS-7	Turbinidae	*Prisogaster niger*	33	33
		Subtotal	16226	13810
		Total	16315	13898

Table 7.39. Seventy-four specimens for the paleoethnobotanical analyses of macro-remains and pollen (continued).

Studied specimens				Materials from which the studied specimens were sub-samples							
ID	Analysis	Mesh	Weight (g)	Bag #	Material	Trench/Area	Quad	Layer	Feature	Weight (g)	Notes
1	Macro	0.5mm	841.7	T-16	Soil	T-1		OS-3	10	7,100	
2	Pollen		254.4								
3	Macro	0.5mm	364.2	T-85	Soil	T-1	C	OS-4	18	1,300	
4	Pollen		256.2								
5	Macro	0.5mm	291.9	T-63	Soil	T-1	M	OS-5A	40	1,700	
6	Pollen		244.7								
7	Macro	0.5mm	739.9	T-71	Soil	T-1		OS-5	50	3,900	
8	Pollen		251.2								
9	Macro	0.5mm	521.7	T-38	Soil	T-1		OS-6	27	4,600	
10	Pollen		254.5								
11	Macro	0.5mm	816.7	T-68	Soil	T-1		OS-7	45	6,700	
12	Pollen		253.5								
13	Macro	0.5mm	601.7	T-89	Soil	T-1	E-F	OS-10		5,900	OS scraped
14	Pollen		252.7								
15	Macro	0.5mm	114.0	T-115	Soil	T-1		OS-12		900	OS scraped (Mouth of the Tomb 1)
16	Pollen		255.8								
17	Macro	0.5mm	766.7	T-12	Soil	T-2		OS-1/2	8	7,300	From a hearth
18	Pollen		245.6								
19	Macro	0.5mm	1156.7	T-22	Soil	T-2		OS-2	12	9,200	
20	Pollen		254.2								
21	Macro	0.5mm	1711.7	T-27	Soil	T-2	F, G	OS-3	16	10,000	
22	Pollen		255.6								
23	Macro	0.5mm	631.7	T-75	Soil	T-2		OS-5	43	5,200	
24	Pollen		256.1								
25	Macro	0.5mm	131.4	T-105	Soil	T-2	E-I	OS-10		1,500	OS scraped
26	Pollen		255.1								
27	Macro	0.5mm	249.7	T-149	Soil	T-2		OS-13		1,700	OS scraped
28	Pollen		257.7								
29	Pollen		205.7	T-161	Soil	T-2		OS-14		217.5	OS scraped
30	Macro	0.5mm	95.2	T-118	Soil	T-3		OS-4	3	2,200	
31	Pollen		256.0								
32	Macro	0.5mm	801.7	T-120	Soil	T-3		OS-5	11	3,000	
33	Pollen		250.4								
34	Macro	0.5mm	142.0	T-136	Soil	T-3		OS-6	24B	1,600	
35	Pollen		255.5								
36	Macro	0.5mm	61.7	T-142	Soil	T-3		OS-10		800	OS scraped
37	Pollen		254.9								

Table 7.39. Seventy-four specimens for the paleoethnobotanical analyses of macro-remains and pollen.

Studied specimens				Materials from which the studied specimens were sub-samples							
ID	Analysis	Mesh	Weight (g)	Bag #	Material	Trench/Area	Quad	Layer	Feature	Weight (g)	Notes
38	Pollen		75.1	T-11	Soil/Ash	EA-3	2	OS-1	1	81	
39	Pollen		27.3	T-14	Soil	EA-3	2	OS-2	8a	28.2	
40	Pollen		108.1	T-24	Soil	EA-3	3	OS-3	12d	113.3	
41	Macro	0.5mm	125.1	T-29	Ash	EA-3	2	OS-4	14	1,000	From a hearth
42	Pollen		242.9								
43	Macro	0.5mm	95.5	T-47	Soil	EA-3		Floor 1	15d	1,100	Pit fill
44	Pollen		255.0								
45	Pollen		149.6	T-63	Soil	EA-3	2	OS-5	22a	158	Pit fill
46	Macro	0.5mm	102.9	T-107	Ash	EA-3	2	OS-6	23	1,100	
47	Pollen		251.8								
48	Macro	0.5mm	266.2	T-95	Soil	EA-3	1	OS-6	Canal 2	1,500	From the inferred base of Canal 2
49	Pollen		250.1								
50	Macro	0.5mm	129.8	T-85	Ash	EA-3		OS-6/7	24b, c	1,100	
51	Pollen		250.8								
52	Macro	0.5mm	124.8	T-245	Soil	EA-3	18	OS-7 Level 2		1,100	OS scraped
53	Pollen		250.3								
54	Macro	0.5mm	238.0	T-251	Soil	EA-3	24	OS-7 Level 2		1,000	OS scraped
55	Pollen		249.5								
56	Macro	0.5mm	115.8	T-286	Ash	EA-3	48	OS-7 Level 2	26	1,100	
57	Pollen		250.3								
58	Macro	0.5mm	107.6	T-289	Ash	EA-3	50	OS-7 Level 2	26	1,100	
59	Pollen		253.9								
60	Macro	0.5mm	125.3	T-300	Ash	EA-3		Floor 2	29	1,100	
61	Pollen		249.4								
62	Macro			V-15	Botanical	EA-3		OS-7 Level 1		3.0	
63	Macro			V-17	Botanical	EA-3		OS-7 Level 1		2.9	
64	Macro			V-14	Botanical	EA-3		OS-7 Level 2		2.4	
65	Macro			V-18	Botanical	EA-3		OS-7 Level 2		4.4	
66	Macro			V-19	Botanical	EA-3		OS-7 Level 2		2.8	
67	Macro			V-6	Botanical	EA-3		OS-7 Level 3		4.1	
68	Macro			V-7	Botanical	EA-3		OS-7 Level 3		10.2	
69	Macro			V-8	Botanical	EA-3		OS-7 Level 3		4.6	
70	Macro			V-9	Botanical	EA-3		OS-7 Level 3		4.0	
71	Macro			V-10	Botanical	EA-3		OS-7 Level 3		4.2	
72	Macro			V-11	Botanical	EA-3		OS-7 Level 3		10.9	
73	Macro			V-12	Botanical	EA-3		OS-7 Level 3		3.4	
74	Macro			V-13	Botanical	EA-3		OS-7 Level 3		3.7	

Table 7.40. Details of the identified macro-remains.

ID	Bag #	Stratigraphic Position	Quad	Preservation	Structure	Family	Genus/Species	Quantity	Weight (g)
62	V-15	OS-7 L1	20	Fragmented	N/A	Indeterminate	Indeterminate	3	1.16
63	V-17	OS-7 L1	36	Fragmented	Seed	Cucurbitaceae	*Cucurbita* sp.	1	1.45
64	V-14	OS-7 L1	41	Fragmented	N/A	Indeterminate	Indeterminate	4	1.15
65	V-18	OS-7 L2	7	Fragmented	Seed	Boraginaceae	*Cordia* sp.	1	2.8
66	V -19	OS-7 L2	18	Fragmented	Seed	Fabaceae	*Prosopis* sp.	1	1.25
67	V -6	OS-7 L3	7	Complete	Seed	Fabaceae	*Prosopis* sp.	1	1.7
68	V-7	OS-7 L3	8	Complete	Seed	Fabaceae	*Prosopis* sp.	1	0.4
68	V-7	OS-7 L3	8	Complete	Seed	Fabaceae	*Acacia farmesiana*	1	0.55
68	V-7	OS-7 L3	8	Complete	Seed	Fabaceae	*Acacia* sp.	2	2.3
68	V-7	OS-7 L3	8	Fragmented	Seed	Fabaceae	*Prosopis* sp.	18	1.6
68	V-7	OS-7 L3	8	Fragmented	Fruit (bean pod)	Fabaceae	*Prosopis* sp.	2	0.9
69	V-8	OS-7 L3	9	Complete/ Fragmented	Seed	Fabaceae	*Prosopis* sp.	3	2.3
70	V-9	OS-7 L3	10	Complete	Seed	Fabaceae	*Prosopis* sp.	1	2.7
70	V-9	OS-7 L3	10	Complete	Seed	Cucurbitaceae	*Cucurbita* sp.	1	2.7
70	V-9	OS-7 L3	10	Complete	Seed	Anacardiaceae	*Schinus molle*	1	2.7
70	V-9	OS-7 L3	10	Complete	Seed	Fabaceae	*Acacia* sp.	1	2.7
71	V-10	OS-7 L3	19	Complete	Seed	Fabaceae	*Prosopis* sp.	1	1.9
72	V-11	OS-7 L3	20	Complete	Seed	Fabaceae	*Prosopis* sp.	2	1.2
72	V-11	OS-7 L3	20	Complete	Seed	Fabaceae	*Prosopis alba*	1	2.45
72	V-11	OS-7 L3	20	Complete	Seed	Annonaceae	*Annona* sp.	1	1.3
72	V-11	OS-7 L3	20	Complete	Seed	Fabaceae	*Acacia* sp.	1	1
72	V-11	OS-7 L3	20	Complete	Seed	Boraginaceae	*Cordia* sp.	2	4
72	V-11	OS-7 L3	20	Complete	Seed	Fabaceae	*Acacia* sp.	1	0.4
72	V-11	OS-7 L3	20	Fragmented	Seed	Boraginaceae	*Cordia* sp.	5	0.3
73	V-12	OS-7 L3	29	Complete	Seed	Fabaceae	*Prosopis* sp.	1	1.5
74	V-13	OS-7 L3	30	Fragmented	Seed	Fabaceae	*Prosopis* sp.	1	1.15
							TOTAL	58	

Table 7.41. Fifty-one remains classified into six genera in five families.

Structure	Family	Genus/Species	Common Name	Quantity
Seed	Anacardiaceae	*Schinus molle*	Molle	1
	Annonaceae	*Annona* sp.	Cherimoya	1
	Cucurbitaceae	*Cucurbita* sp.	Zapallo (squash)	2
	Boraginaceae	*Cordia* sp.	Overo	8
	Fabaceae	*Prosopis cf. alba*	Algarrobo	1
		Prosopis sp.		30
		Acacia cf. farmesiana	Huarango	1
		Acacia sp.		5
Fruit	Fabaceae	*Prosopis* sp.	Algarrobo	2
N/A	Indeterminate	Indeterminate	Indeterminate	7

Table 7.42. Known usage of the principal species in the five families that the identified remains belong to.

Family	Genus/Species	Common name	Food	Medicine	Building material	Insect repellent	Fuel, Charcoal	Craft	Fence	Forage	Ornament
Anacardiaceae	*Schinus molle*	Molle, Falsa Pimienta, Puyash	X	X		X			X		X
Annonaceae	*Annona cherimola*	Cherimoya	X	X							
Boraginaceae	*Cordia lutea*	Overo, Flor de Overo, Overal		X					X		X
Cucurbitaceae	*Cucurbita ficifolia*	Calabaza, Chibche	X					X			
	Cucurbita maxima	Zapallo	X	X							
	Cucurbita moschata	Loche, Lacayote, Bobo	X					X			
Fabaceae	*Prosopis alba, Prosopis chilensis*	Algarrobo	X	X	X		X			X	
	Acacia farmesiana, Acacia macracantha	Huarango, Faique, Espino	X		X		X		X		

Table 7.43. Presence/absence of macro-remains in the studied specimens.

Bag #	Trench /Area	Quad	Stratigraphic Position	Feature	Presence of Macro-remains
T-16	T1		OS-3	10	
T-85	T1	C	OS-4	18	
T-63	T1	M	OS-5A	40	X
T-71	T1		OS-5	50	
T-38	T1		OS-6	27	X
T-68	T1		OS-7	45	X
T-89	T1	E-F(2)	OS-10		X
T-115	T1		OS-12		
T-12	T2/3		OS-1/2	8	X
T-22	T2/3		OS-2	12	X
T-27	T2/3	F y G	OS-3	16	X
T-75	T2/3		OS-5	43	X
T-105	T2/3	E-I(3)	OS-10		X
T-149	T2/3		OS-13		X
T-118	T3		OS-4	3	X
T-120	T3		OS-5	11	X
T-136	T3		OS-6	24B	X
T-142	T3		OS-10		
T-29	EA3	2	OS-4	14	X
T-47	EA3		Floor 1	15d	
T-107	EA3	2	OS-6	23	
T-95	EA3	1	OS-6	Canal 2	
T-85	EA3		OS-6/7	24b y c	
T-245	EA3	18	OS-7 L2		
T-251	EA3	24	OS-7L2		
T-286	EA3	48	OS-7 L2	26	
T-289	EA3	50	OS-7 L2	26	X
T-300	EA3		Floor 2	29	X

Table 7.44. Frequencies of the identified 18 taxa (and four indeterminate taxa) in the specimens analyzed.

	TAXA																						
Bag #	*Amaranthaceae cf.*	*Amaranthus sp.*	*Ambrosia sp.*	*Argemone sp.*	*cf. Gossypium sp.*	*Cyperus sp.*	*Desmodium sp.*	*Euphorbia sp.*	*Fabaceae cf.*	*Gossypium sp.*	*Lippia sp.*	*Mimosa sp.*	*Nicotiana sp.*	*Passiflora sp.*	*Prosopis sp.*	*Scirpus sp.*	*Triantema portulacastrum*	*Sesuvium sp.*	INDET Embryo	INDET # 17	INDET # 10	INDET # 8	Total
T-75									X						X								2
T-105	X																	X					2
T-118	X	X							X						X		X	X					6
T-12										X				X	X					X			4
T-120							X			X		X			X							X	5
T-136	X	X						X	X						X		X						6
T-149					X		X								X								3
T-22										X					X								2
T-27															X	X							2
T-289																X			X			X	3
T-29							X				X											X	3
T-300															X								1
T-38										X					X		X					X	4
T-63															X								1
T-68						X			X					X	X							X	5
T-89	X	X	X	X							X		X								X		7

Table 7.45. Known usage of the identified species, based on Brack (1999), Fernandez and Rodriguez (2007), Mostacero et al. (2002), and Sagástegui and Lewis (1993).

Family	Genus/Species	Common Name	Retrieved Structure	Life Form	Wild/Cultivated	Food	Medicinal	Construction	Fuel	Dye	Fiber	Forage	Ornamental	Magico-religious
Aizoaceae	*Triantema portulacastrum*	Verdolaga	Seed	Grass	Wild									
	Sesuvium sp.	Lito, litho, capin	Seed	Grass	Wild		X							
Amaranthaceae	*Amaranthus sp.*	Yuyo, yuyo espinoso, ataco	Seed	Grass	Wild	X	X					X		
Asteraceae	*Ambrosia sp.*	Artemisa, marco	Seed	Shrub	Wild and Cultivated		X							X
Cyperaceae	*Cyperus sp.*	Piripiri or junco	Seed	Grass	Wild		X							
	Scirpus sp.		Seed	Grass	Wild									
Euphorbiaceae	*Euphorbia*	Flor de pascua de monte, flor de pascua, lechera	Seed	Shrub	Wild		X						X	
Fabaceae	*Desmodium sp.*	Pega pega	Seed	Grass	Wild		X					X		
	Mimosa sp.		Seed	Shrub	Wild		X						X	
	Prosopis sp.	Algarrobo	Seed/Fruit	Tree	Wild and Cultivated	X	X	X	X			X		
Malvaceae	*Gossypium sp.*	Algodón	Seed	Shrub	Cultivated		X				X	X		
Papaveraceae	*Argemone sp.*	Cardo santo	Seed	Grass	Wild		X			X				
Passifloraceae	*Passiflora sp.*	Granadilla, maracuyá, poroporo, tumbo	Seed	Shrub	Wild and Cultivated	X	X						X	
Solanaceae	*Nicotiana sp.*	Tabaco, tabaco cimarrón	Fruit	Shrub	Wild and Cultivated		X							X
Verbenaceae	*Lippia sp.*	Turre hembra, oregano	Seed	Grass	Wild									

Table 7.46. Frequency of the macro-remains found in the specimens analyzed.

Family	Taxon	Total	Percentage (%)
Aizoaceae	*Triantema portulacastrum*	4	0.67%
	Sesuvium sp.	71	11.83%
	Subtotal *Aizoaceae*	75	12.50%
Amaranthaceae	*Amaranthaceae cf.*	21	3.50%
	Amaranthus sp.	5	0.83%
	Subtotal *Amaranthaceae*	26	4.33%
Asteraceae	*Ambrosia sp.*	1	0.17%
	Subtotal *Asteraceae*	1	0.17%
Cyperaceae	*Cyperus sp.*	2	0.33%
	Scirpus sp.	2	0.33%
	Subtotal *Cyperaceae*	4	0.67%
Euphorbiaceae	*Euphorbia sp.*	1	0.17%
	Subtotal *Euphorbiaceae*	1	0.17%
Fabaceae	*Desmodium sp.*	32	5.33%
	Fabaceae cf.	23	3.83%
	Mimosa sp.	1	0.17%
	Prosopis sp.	362	60.33%
	Subtotal *Fabaceae*	418	69.67%
Malvaceae	*cf. Gossypium sp.*	1	0.17%
	Gossypium sp.	24	4.00%
	Subtotal *Malvaceae*	25	4.17%
Papaveraceae	*Argemone sp.*	10	1.67%
	Subtotal *Papaveraceae*	10	1.67%
Passifloraceae	*Passiflora sp.*	3	0.50%
	Subtotal *Passifloraceae*	3	0.50%
Solanaceae	*Nicotiana sp.*	2	0.33%
	Subtotal *Solanaceae*	2	0.33%
Verbenaceae	*Lippia sp.*	5	0.83%
	Subtotal *Verbenaceae*	5	0.83%
Indeterminate (most frequent)	INDET # 10	9	1.50%
	INDET # 17	4	0.67%
	INDET # 8	16	2.67%
	INDET Embryo	1	0.17%
	Subtotal Indeterminate	30	5.00%
	Total general	600	100.00%

Table 7.47. Taxa and abundance of the starch grains found and identified in the 14 specimens.

ID	Bag #	Area	Quad	Layer	Feature	Taxon	Abundance
1	T-96	EA-3		OS-6	Canal 2	*Zea mays*	*
2	T-114	EA-3	1 y 2	OS-6	Canal 2	*Zea mays* cf., 1 indeterminate	* * * * *
3	CE-459	EA-4	34C	OS-11		*Zea mays*	* * * * *
4	CE-491	EA-4	33	OS-11C		*Zea mays*	* * *
5	CE-512	EA-4	6	OS-11A		*Zea mays*	*
6	CE-519	EA-4	33	OS-11A		*Zea mays*	*
7	CE-531	EA-4	38	OS-11		–	–
8	CE-536	EA-4	38	OS-11A		*Zea mays*	* * * * *
9	CE-263	EA-5	7D	OS-10		–	–
10	CE-265	EA-5	6	OS-10		*Zea mays*	* * *
11	CE-266	EA-5	7A	OS-10		*Zea mays*	*
12	CE-434	EA-5	13A	OS-11		*Zea mays*	* * *
13	CE-576	EA-5		Between OS-10 and 11	T-NE 2	–	–
14	CE-563	EA-6		OS-12	T-PL	*Zea mays* cf.	*

Table 7.48. Thirty three sediment samples studied by the palynological analysis.

ID	Bag	Date	Trench/Area	Quad	Layer	Rasgo	Notes
1058	T-16	09-08-06	T-1		OS-3	10	
1059	T-85	17-08-06	T-1	C	OS-4	18	
1060	T-63	15-08-06	T-1	M	OS-5A	40	
1061	T-71	15-08-06	T-1		OS-5	50	
1062	T-38	10-08-06	T-1		OS-6	27	
1063	T-68	15-08-06	T-1		OS-7	45	
1064	T-89	21-08-06	T-1	E-F(2)	OS-10		
1065	T-115	30-08-06	T-1		OS-12		Mouth of Tomb 1
1066	T-12	08-08-06	T-2/3		OS-1/2	8	From a hearth
1067	T-22	09-08-06	T-2/3		OS-2	12	
1068	T-27	10-08-06	T-2/3	F y G	OS-3	16	
1069	T-75	16-08-06	T-2/3		OS-5	43	
1070	T-105	21-08-06	T-2/3	E-I(3)	OS-10		
1071	T-149	14-10-06	T-2/3		OS-13		
1072	T-161	21-10-06	T-2/3		OS-14		Surface scraped
1073	T-118	11-09-06	T-3		OS-4	3	
1074	T-120	15-09-06	T-3		OS-5	11	
1075	T-136	19-09-06	T-3		OS-6	24B	
1076	T-142	12-10-06	T-3		OS-10		
1077	T-11	10-07-08	EA-3	2	OS-1	1	
1078	T-14	11-07-08	EA-3	2	OS-2	8a	Surface scraped
1079	T-24	14-07-08	EA-3	3	OS-3	12d	
1080	T-29	14-07-08	EA-3	2	OS-4	14	From a hearth
1081	T-47	17-07-08	EA-3		Floor 1	15d	Pit fill
1082	T-63	18-07-08	EA-3	2	OS-5	22a	Pit fill
1083	T-107	25-07-08	EA-3	2	OS-6	23	
1084	T-95	25-07-08	EA-3	1	OS-6	Canal 2	From the base of the canal
1085	T-85	23-07-08	EA-3		OS-6/7	24b, c	
1086	T-245	04-08-08	EA-3	18	OS-7 Level 2		
1087	T-251	04-08-08	EA-3	24	OS-7 Level 2		
1088	T-286	04-08-08	EA-3	48	OS-7 Level 2	26	
1089	T-289	04-08-08	EA-3	50	OS-7 Level 2	26	
1090	T-300	04-08-08	EA-3		Floor 2	29	

Table 7.49. A total of 36 pollen taxa revealed by the palynological study.

Taxon	Family	General and Species	Cultivated or Wild/Utility
Acacia	Fabaceae	*Acacia spp.* (acacia)	Cultivated/Building material (timber)
Alnus	Betulaceae	*Alnus acuminate* (alder)	Cultivated/Building material (timber)
Asclepiadiaceae	Asclepiadiaceae	*Asclepias* and other grasses (mikweed)	Wild
Asteraceae espina corta	Asteraceae	Indeterminate	Indeterminate
Campomanesia	Myrtaceae	*Campomanesia linearifolia* (palillo)	Cultivated/Fruit
Capparis	Capparaceae	Various species of *Capparis* (sapote)	Cultivated/Building material (timber)
Cheno/Am	Amaranthaceae	Indeterminate	Largely wild
Cucurbita	Cucurbitaceae	Various species of *Cucurbita* (gourd)	Cultivated/Food (fruit)
Cyperaceae	Cuyperaceae	*Scirpus* and others (totora or cattail)	Cultivated/Building material (cane)
Erithroxylum	Erithroxylaceae	Various species of Erythroxylum (coca)	Cultivated/Hallucinogen
Euphorbiaceae	Euphorbiaceae	Indeterminate	Largely wild
Geraniaceae	Geraniaceae	Indeterminate	Largely wild
Gossypium	Malvaceae	Various species of *Gossypium* (cotton)	Cultivated/Textile
Inga	Fabaceae	Various species of *Inga* (shimbillo)	Cultivated/Food (fruit)
Ipomoea	Convolvulaceae	*Ipomea batata* (camote)	Cultivated/Food (root)
Lamiaceae	Lamiaceae	Indeterminate	Largely wild
Liliaceae/Amaryllidaceae	Liliaceae/Amaryllidaceae	Indeterminate	Largely wild
Malvaceae	Malvaceae	Indeterminate	Largely wild
Manihot	Euphorbiaceae	*Manihot esculenta* (yucca)	Cultivated/Food (root)
Mimosoideae	Fabaceae	Indeterminate	Largely wild
Passiflora	Passifloraceae	Indeterminate	Largely wild
Physalis cf.	Solanaceae	*Physalis peruviana* (aguaymanto)	Cultivated/Food (fruit)
Poaceae	Poaceae	Indeterminate	Largely wild
Podocarpus	Podocarpaceae	Various species of *Podocarpus* (diablo fuerte or olivillo)	Cultivated/Building material (timber)
Prosopis	Fabaceae	Various species of *Prosopis* (algarrobo)	Cultivated/ Building material (timber), fuel
Rubiaceae	Rubiaceae	Indeterminate	Largely wild
Schinus molle	Anacardiaceae	*Schinus molle* (molle)	Cultivated/Condiment (seed), drink (fruit)
Senecio	Asteraceae	Indeterminate	Largely wild
Solanum/Lycopersicon	Solanaceae	*Solanum* (potato), *Lycopersicon* (tomato)	Cultivated/Food (root, fruit)
Tillandsia	Bromeliaceae	*Tillandsia* (salvajina)	Wild/Fuel
Typha	Typhaceae	*Typha* (totora or cattail)	Cultivated/Building material (cane)
Urt/Morac	Urticaceae/Moraceae	Indeterminate	Largely wild
Zea mays	Poaceae	*Zea mays* (maize)	Cultivated/Food (fruit)
Dicotiledonea indet porada	Indeterminate	Indeterminate	Largely wild
Monocotiledonea indet	Indeterminate	Indeterminate	Largely wild
Indeterminate	Indeterminate	Indeterminate	Largely wild

Table 7.50. Apparition frequencies of the identified palynomorphs and calculated concentration rates.

	Specimen ID	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090
Taxon	Acacia	1	0	0	0	0	0	1	0	1	11	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Alnus	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Asclepiadiaceae	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	Asteraceae espina corta	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Campomanesia	0	0	0	0	1	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
	Capparis	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cheno/Am	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Cucurbita	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cyperaceae	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Erithroxylum	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Euphorbiaceae	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Geraniaceae	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Gossypium	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Inga	3	1	1	0	1	1	1	0	5	15	1	6	2	2	0	1	0	0	2	0	0	0	0	0	2	0	0	0	2	0	2	1	1
	Ipomoea	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lamiaceae	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liliaceae/Amaryllidaceae	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Malvaceae rota	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Manihot	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mimosoideae	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Passiflora	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physalis cf.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Poaceae	2	6	3	0	0	4	14	2	14	0	1	34	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	9	6	0	0	0	1
	Podocarpus	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Prosopis	0	0	0	1	1	17	0	0	0	0	0	0	0	0	4	0	0	1	1	0	1	22	0	0	0	0	0	1	6	0	0	0	0
	Rubiaceae	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Schinus molle	0	0	1	0	0	0	0	0	4	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Senecio	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Solanum/Licopersicon	1	0	16	0	0	0	0	0	0	0	0	5	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
	Tilandsia	1	0	32	5	5	15	27	0	3	34	15	42	2	3	4	1	2	1	1	1	1	12	0	0	0	0	1	1	22	2	0	0	2
	Typha	0	2	0	0	0	0	0	0	0	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
	Urt/Morac	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Zea mays	0	8	4	0	4	4	0	0	1	0	0	7	1	0	0	3	0	1	2	0	1	0	0	0	0	0	0	0	0	1	3	1	2
	Dicotiledonea indet porada	0	0	21	1	0	0		0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Monocotiledonea indet	0	0	0	0	4	0	68	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Pollen Sum	13	20	84	9	18	42	112	3	33	74	22	134	10	6	18	13	3	5	6	1	7	39	0	0	6	0	1	11	37	3	6	3	9
	Pteridophytes Sum (Fern and Equisetum)	6	5	1	2	1	1	0	0	0	0	0	4	4	0	0	2	0	1	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0
	Fungi Sum	1	0	44	5	7	16	105	0	15	105	32	118	7	6	14	3	6	1	1	1	0	14	14	0	0	17	2	37	29	3	4	9	23
	Palynomorphs Sum	20	25	129	16	26	59	217	3	48	179	54	256	21	12	32	18	9	7	8	2	7	54	14	0	6	17	3	48	68	6	10	12	32
	Lycopodium (indicator)	1159	1004	1005	1009	1023	1004	1008	1005	1017	1013	1061	1064	1003	1005	1019	1077	1048	1023	1005	1119	1009	1009	1043	1111	1051	1010	1055	1171	1062	1103	1078	1177	1059
	Pollen Concentration	42	74	311	33	65	155	413	11	121	271	77	468	37	22	66	45	11	18	22	3	26	144	0	0	21	0	4	35	129	10	21	9	32
	Pteridophytes Concentration	19	19	4	7	4	4	0	0	0	0	0	14	15	0	0	7	0	4	4	0	0	4	0	0	0	0	0	0	7	0	0	0	0
	Palynomorphs Concentration	64	93	477	59	94	218	800	11	175	656	189	894	78	44	117	62	32	25	30	7	26	199	50	0	21	63	11	152	238	20	34	38	112

CHAPTER 8

ANCESTOR WORSHIP IN THE MIDDLE SICÁN THEOCRATIC STATE

In this chapter, I return to my original research questions: (1) *Was ancestor veneration practiced in the Middle Sicán society?*; (2) *What was the role of the inferred ancestor cult and associated rituals in the Middle Sicán society?* In the course of arguments, the two General Hypotheses that I proposed in Chapter 4 are fully examined against the findings from the excavations at the West Cemetery and the Great Plaza (Chapter 6) as well as the results of subsequent material analyses of the excavated artifacts and ecofacts (Chapter 7).

8.1. Was ancestor veneration practiced in the Middle Sicán society?

The first question will be answered by examining the General Hypothesis 1 ("*The deceased Middle Sicán elites achieved ancestorhood through a series of prescribed processes of mortuary program*") in relation to the five Tentative Conclusions. Before answering and discussing the first question, however, there is one more important issue to reflect on, concerning who became an ancestor in the Middle Sicán society.

The inferred ancestor veneration during the Middle Sicán period was primarily for the Sicán elites to celebrate and honor the ancestors of their lineage and to secure the symbolic linkage with the Sicán Deity thereby claiming for religious and political legitimacy. Thus, it follows that the ancestors in question should have been ascribed an elite status in the first place. The successive sovereigns, who claimed to be vicegerents of the Sicán Deity connecting this world and the world of the Deity, were no doubt the first candidates for ancestors; however, who else were considered as ancestors? All members of the elite classes should not have automatically become ancestors, as already discussed in Chapter 2.

Based on the cross-culturally observed characteristics of ancestor cult, I argue that the possible criteria for the dead Sicán elites to be recognized as an ancestor were: (1) whether they successfully achieved parenthood (in other words, guaranteed the continuity of their lineage); and (2) whether they were responsible for and contributed to the well-being (from the perspective of the elites) of the society, e.g., by undertaking critical role(s) for the social institutions. It would not be easy to examine the kinship relations and genetic distances among the ancient dead by a limited number of available analytical methods (e.g., mtDNA and dental traits analyses). It would not be easy to discern the premortem role(s) of the deceased either, even in a society like Sicán where social categories (e.g., status, gender, and ethnicity) appear to have been faithfully reflected in the material aspects of burial practice. Besides the Sicán sovereigns, a possible candidate for ancestor would be someone like the principal personage of the East Tomb, who was interpreted by Shimada (1995:68) as a master goldsmith or elite administrator of precious metalworking from the abnormally robust and large forearm and wrist bones as well as an enormous amount of grave offerings of precious metals (also see Yamaguchi 1994). The metalworking was one of the major thrusts for economic development in the Sicán society. It is nothing surprising that such an individual enjoyed enormous prestige and privileges including the right to become an ancestor (e.g., Helms 1993).

Even though it would be difficult to clearly delineate the kinship relations among the deceased and the premortem social roles and contributions of the deceased, those who had fulfilled the aforementioned criteria in life are inferred to have been distinguished to a greater or lesser extent by the burial treatment and material wealth of their burials, if not that determinately like the inferred master goldsmith of the East Tomb. The Tentative Conclusions below focus attention on such distinctions in burial treatments that may serve as material correlates of ancestors.

8.1.1. <u>Tentative Conclusion 1: Cross-legged, seated position</u>

From the previous burial excavations, it has been known that the Sicán elites were buried either in a cross-legged, seated or in a supine, extended position; however, the high elites have always been found in the former, and most probably in the form of funerary bundle (see Chapter 4). It appears that the body position most closely associated with the Sicán identity was the cross-legged, seated position. The Tentative Conclusion 1 ("*The bodies of the Sicán elite ancestors were buried in a seated, cross-legged position*") is based on this previously known burial pattern.

Out of the 37 excavated individuals (30 from the West Cemetery and 7 from the two Northeast Tombs and Burial 2), only nine individuals were found in a seated, cross-legged position (Table 8.1): (1) Individual 1 in T1-Tomb 1, (2-4) individuals in T2-Burials 2, 4, and 7, (5-7) Individuals 1, 2, and 3 in EA4-T-NE-1, and (8-9) Individuals 1 and 2 in EA5-T-NE-2. In T1-Tomb 1, some textile imprints were found around the body of the Individual 1. The volume that the textile encompassed suggests that Individual 1 was wrapped in the layers of textile, as with the funerary bundles found at Huacas Las Ventanas, Chornancap, and Cao Viejo (Figure 4.6; Elera 2009; Wester 2013; Franco 2009). In contrast, 19 individuals were found in a supine, extended position (Table 8.2). It is notable that in 13 out of these 19 cases, the head was oriented toward the south. As opposed to the cross-legged, seated position preferred by the Sicán high elites, which was variable in orientation, this south-oriented, supine and extended body position conforms to the earlier Mochica burial custom (see Klaus 2014). The distinction between those of Sicán and Mochica identity seems to have been intentionally expressed in the body position and orientation (Klaus 2014; Klaus and Shimada 2003). Quite interestingly, those who were identified as the low Sicán elites were buried in the

Mochica way. It is possible that the low elites consisted of those of Sicán and Mochica identity. In this regard, T1-Burial 4 is an unusual case in terms of not only his/her extraordinary height, generally robust built and the presence of inferred brassieres, but also the combination of the extended body position for lower statuses (low elites and commoners) and the high-quality grave goods that indicate high elite status (e.g., an elaborate headdress with fine gold and *tumbaga* components and a copper-and-silver-alloy mask).

Although the body positions of the Individual 1 in T2/3-Tomb 2 and the Individual 3 in EA5-T-NE-2 were indeterminate (Table 8.3), these individuals might have originally been interred in a cross-legged, seated position. The incomplete body of the Individual 1 in T2/3-Tomb 2 suggests that it was exhumed from its original (primary) burial together with grave goods including a metal mask and reburied in the Chamber 3 coffin. From his/her high elite status indicated by the associated high-quality grave goods, it is very probable that he/she was interred in a cross-legged, seated position, rather than in a supine, extended or flexed position. The Individual 3 in EA5-T-NE-2, on the other hand, is similar to the principal personage (Individual 2) of the EA4-T-NE-1 in terms of the location of the body, the association with a metal mask, the shape and size of the grave furniture, and the inferred social status as low elite. It is quite possible that the Individual 3 was also interred in a cross-legged, seated position.

Furthermore, before it was disturbed by the modern-day looters, the mask left on the niche floor might have originally covered the face of the Individual 3.

8.1.2. Tentative Conclusion 2: Metal mask

During the ancestor-making process, the decease is inferred to have been transformed into a transcendental existence, equivalent or next to the Sicán Deity. The metal mask of the Sicán Deity image was probably integral to this transformation process and was placed over the face of the deceased, i.e., either directly on the face[1] or the facial region of the funerary bundle. The Tentative Conclusion 2 is based not only on the previous findings of the metal masks in the Huaca Loro East and West Tombs, but also on this hypothesis.

Out of the 37 excavated individuals, ten individuals were found accompanied by a Sicán Deity mask made of varied metal (Table 8.4): (1) Individual 1 in T1-Tomb 1, (2-5) individuals in T1-Burials 4, 6, 7, and 10, (6) Individual 1 in T2/3-Tomb 2, (7-8) individuals in T2-Burials 12 and 17, (9) Individual 2 in EA4-T-NE-1, and (10) Individual 3 in EA5-T-NE-2. These individuals were all elites, belonging to either the high or low elite class. None of the excavated mask was associated with commoners. It was only two of the 10 individuals, however, who were "wearing" the mask: the individual in T1-Burial 10 and the Individual 2 in EA4-T-NE-1. Although the original positions of the masks in T2/3-Tomb 2 and EA5-T-NE-2 are unknown due to the disturbance, it is possible that they were originally covering the faces as well. The recovered masks were predominantly made of copper or copper alloy, forming a marked contrast with the gold mask from the East Tomb and the *tumbaga* mask from the West Tomb.

The individual in T1-Burial 10 deserves special attention. This low elite child body placed in a supine, extended position wore an arsenical-copper mask. Why was the mask covering the face of this child? Although no mask was associated with any commoners, five masks accompanied low elite individuals, and only two of them were worn. The remaining masks were instead found nearby the individual on the floor or over certain body part (e.g., over the chest in T1-Burial 4). This raises the possibility that the masks might also have accompanied non-ancestor elite bodies and/or served for some other purposes rather than as a transformation ritual device that I hypothesize. I tentatively concluded that this low elite child was *not* an ancestor, but a burial attendant for the principal personage in T1-Tomb 1, just as with the infants in T1-Burials 2 and 3 (Figure 6.37). In the anthropological arguments based on the Old World data, children are not considered as an ancestor, primarily because they have not achieved parenthood (Gluckman 1937; Chamberlain and Parker Pearson 2001:91-94). It is important, however, to consider the possibility that this criterion may not have been applicable to the Sicán case.

Thus, the only individual who was placed in a cross-legged, seated position with a metal mask on one's face was the Individual 2 in EA4-T-NE-1. If the two disturbed and/or reburied individuals in T2/3-Tomb 2 and EA5-T-NE-2 were originally wearing the mask and placed in a seated and cross-legged position, the total number will increase up to three. Nevertheless, this is nothing more than a speculation.

8.1.3. Tentative Conclusion 3: Shaft tomb

The size and shape of the excavated tombs and burials varied. Only three tombs took the form of shaft: (1) T1-Tomb 1, (2) EA4-T-NE-1, and (3) EA5-T-NE-2 (Table 8.5). The depth of these three shaft tombs varied from ca. 5.0 m (T1-Tomb 1) to ca. 1.75-1.95 m (EA4-T-NE-1) below the mouth of the tomb. The depth of shaft tombs was probably correlated very closely with the level of water table at the time of burial construction. In the study area, the excavation of an inferred deep shaft tomb always has to be scheduled for the time of low water table. Otherwise, it would be not only too dangerous, but practically impossible, to dig deep when the water table is very high. As with the Huaca Loro East and West Tombs (3 × 3-m central chamber), the above three shaft tombs had a square floor plan. The square floor plan seems to have had certain significance in the Sicán mortuary program. During Shimada's interviews, local looters (*huaqueros*) said that the deep shaft tombs of small square floor plan (e.g., 3 × 3 m) tended to contain more "precious" grave goods than those of other size and shape.

In this light, it is important to note that the two offering pits and one empty pit found in the West Cemetery (T1-Burial 7, and T2/3-Burials 12 and 16) also had a square floor plan, although they were uniformly shallow and thus may not be called a shaft. The two offering pits contained various sumptuary goods including a Sicán Deity mask, which suggest the involvement of elite individuals who had access to those goods. From the proximity to T1-Tomb 1, the offerings in T1-Burial 7 might have been devoted to the principal personage of this elite tomb. If the original burial of the Individual 1 in T2/3-Tomb 2 was located in the same place as T2/3-Tomb 2, the offering in T2/3-Burial 12 might have been devoted to her during the early-Middle Sicán period as well.

8.1.4. Tentative Conclusion 4: Planned layout of cemetery

Four elite tombs (T1-Tomb 1, T2/3-Tomb 2, EA4-T-NE-1, and EA5-T-NE-2) were recovered about in the expected locations of the aforementioned, inferred planned layout, near the edges of the Huaca Loro temple mound (Figures 4.1 and 4.3). Incidentally, the same was true of the two other elite tombs excavated during the SAP 2008 field season (those in the EAs1 and 6). Together with the East and West Tombs that were symmetrically opposed to each other on the north edge of the Huaca Loro temple mound across its N-S longitudinal axis, all of the elite tombs excavated thus far are inferred to have intentionally been arranged around the temple mound. Although T2/3-Tomb 2 was not a shaft tomb, the locations of all elite tombs conform to the inferred layout on the basis of GPR surveys and support the Tentative Conclusion 4 ("*The shaft* *tombs of the Sicán elite ancestors were built close to the symbolic core (Huaca Loro) in a planned manner*").

Within the West Cemetery, furthermore, smaller and simpler burials were arranged basically around the two tombs (T1-Tomb 1 and T2/3-Tomb 2) without destroying earlier ones, although the T2-Burials 6A and B had been disturbed by two sacrificed bodies probably during the terminal late-Middle Sicán period. The two clusters of tomb and burials are quite apparent in Figure 6.37. Within this nested hierarchical structure of tombs and burials, the two elite tombs seem to have had a greater importance than other smaller and simpler burials.

8.1.5. Tentative Conclusion 5: Ritual care and tendance

The Huaca Loro elite tombs that occupied the pivotal points of the planned layout seem to have been recognized as important and visited during and after the funerary rites for a long period of time. First, the four elite tombs (T1-Tomb 1, T2/3-Tomb 2, EA4-T-NE-1, and EA5-T-NE-2) showed vestiges of ritual care and tendance during the funeral before the tomb was sealed (Table 8.5). The most significant evidence is a copious number of miniature vessels repeatedly devoted at different ritual/construction phases of T2/3-Tomb 2. Based on their pyro-technological and micro-ethnobotanical analyses of these vessels, Cervantes et al. (2011; 2014) argue that the people who participated in the funeral came from different places with their own miniature vessels, put *chicha*-like drink and stew-like substance into those vessels, and placed them in the tomb together with other burial offerings (e.g., ceramic bottles and llama crania and more than a dozen of lower limbs). Same miniature vessels were also found in clusters in three other elite tombs.

Second, all of the four elite tombs above also illuminated the post-depositional interactions between the dead and the living in various forms. Particularly important is the *ushnu*-like vertical duct found in EA4-T-NE-1. The multiple layers of fine waterlain clay found at the base of the duct are interpreted as the vestige of repeated libations made through the duct (Shimada, et al. in press). T1-Tomb 1, on the other hand, was given a whole cache offering in the square pit (T1-Burial 7) immediately on the northeast side during the early-Middle Sicán Period and two sacrificed human bodies (T2-Burial 6) on the south side during the terminal late-Middle Sicán period. A series of burnt occupational surfaces documented extensively above the West Cemetery and in the Great Plaza are also strong lines of evidence for the repeated visitations of the former burial ground. The alternating sequence of alluvial deposits and these burnt surfaces suggests that people visited there at the time of fluvial events (e.g., heavy rains and floods). Pollen analysis of the sediment samples taken from the burnt surfaces and associated features supports this inference and raises the possibility that the visitations took place sometime from February to July. It could well be as early as December when an ENSO usually begins. The ritualistic nature of these activities is also indicated by the botanical remains recovered from the burnt surfaces and associated features that are more suitable for medicinal and magico-religious purposes (e.g., ragweed and tobacco). Although new styles of offering emerged during the Chimú or Chimú-Inca Period (e.g., burning offering in fire pits, burying whole vessels in the ground, and leaving animal sacrifice on the ground), the ritual of ground surface burning persisted intermittently for at least 400 years up until the Late Horizon.

8.1.6. Final judgment

Our burial excavations documented many variables of each tomb and burial that supported the five Tentative Conclusions on one hand, but concurrently provided new findings that did not fit my expectations on the other hand. Regarding the body position (Tentative Conclusion 1), the cross-legged and seated position was observed only in elite burials as expected; however, it was surprising that a high elite individual (T1-Burial 4) was found in a supine, extended position, accompanied by a copper-silver-alloy mask placed over his/her chest. This seemingly abnormal burial posed new questions about the use of metal mask and the significance of extended body position for elites. The individual, reminiscent of the three Mochica “giants” excavated by Donnan and Cordy-Collins at Dos Cabezas (Donnan 2007), also raised the possibility that this individual had a gender identity that did not fit the norm.

Regarding the use of metal mask for transformation ritual (Tentative Conclusion 2), new data support that the use of the Sicán Deity mask was reserved only for elites; however, two puzzling cases were documented. The funerary bundle of a low elite young female placed in a cross-legged and seated position (T1-Tomb 1) was not wearing her mask that was instead placed nearby on the chamber floor, while a four-year-old low elite child (T1-Burial 10), who should not have been even considered as a candidate for ancestor, was wearing an arsenical copper mask and placed in a supine, extended position.

Regarding the size and shape of burials (Tentative Conclusion 3), although various sizes and depths were anticipated to some extent, the excavated shaft tombs turned out to be much shallower than previous cases. The shallow shaft tombs, as mentioned earlier, probably suggest that they were constructed during the time of high water table. That the construction was implemented before the water table fell appears to indicate that the tombs must have been constructed as soon as possible. On the other hand, the size, shape, and a complex ritual/construction sequence of T2/3-Tomb 2 were noteworthy, in contrast to the elite shaft tombs and offering pits of square floor plan.

The inferred planned layout of the Huaca Loro elite cemetery (Tentative Conclusion 4) is supported by all tombs and burials excavated in 2006 and 2008, except for the two sacrificed bodies that disturbed two earlier low elite burials. The Sicán people appear to have been fully aware of the locations of earlier tombs and burials with reference to the master plan of their cemetery.

The protracted interactions between the dead and the living in the form of ritual care and tendance and revisitations of the burial ground (Tentative Conclusion 5) were successfully documented in and above all of the four elite tombs. The close association between fluvial events and ritual activities using fire was particularly remarkable.

The data presented thus far appear to generally support the Tentative Conclusions 1 to 5; however, it was only the Individual 2 in EA4-T-NE-1 among the 37 excavated individuals who showed all of the burial treatments and the characteristics of grave furniture addressed in the five Tentative Conclusions.

Now, was ancestor veneration practiced in the Middle Sicán society? Was the Individual 2 in EA4-T-NE-1 the only ancestor among the 37 individuals excavated in 2006 and 2008? I argue that ancestors were indeed venerated in this society; however, the Individual 2 was not the only one. I infer that all three elite shaft tombs (T1-Tomb 1, EA4-T-NE-1, and EA5-T-NE-2) around the edges of the Huaca Loro temple mound contained an ancestral body. These shaft tombs were placed and built in the designated spots of the planned layout and contained a funerary bundle of ancestral body in a cross-legged seated position. The bundles were either wearing or accompanied by a metal mask. The ancestral bodies were visited by many people at the funeral and treated with food and drink. After sealed, the tombs were revisited and received care and tendance in the form of cache offering, human sacrifice, and/or fire ritual. The T2-Tomb 2 was eliminated from the candidates for ancestral tomb, because the principal personage of this tomb was a four-year-old child who had not achieved parenthood. The same criterion was applied to the child in T1-Burial 10 who was wearing an arsenical copper mask. The only exception that could have occurred is that a very young individual had to take over the throne for some emergent situation but died still at a young age. In such a case, the body of the young sovereign should have been treated in the same way as other sovereigns (e.g., wearing a mask made of precious metals).

Nonetheless, the Tentative Conclusions need to be reconsidered and refined. What deserves considering first is the distinction between the mask worn by the deceased body and the mask unworn and instead placed nearby the body. One rationale to explain this distinction is that they may have been at least two types of ancestors: those who were deified and those who were not. There may have been a hierarchy in which the ancestors were ranked in terms of the proximity to the ultimately sacred existence of the Sicán Deity. The deified ancestors should have been considered as more important and powerful than non-deified ones in this hierarchy. It is notable that the masks were made of varied metal: gold (East Tomb), *tumbaga* (West Tomb), copper-silver alloy (T1-Tomb 1), gilded copper (EA4-T-NE-1), and copper (EA5-T-NE-2). If this distinction corresponds to the inferred echelons of ancestors, the inferred ancestors that we excavated from the shaft tombs should have joined the very low rank of the ancestral pantheon. Depending on which metal(s) were used to produce them, the masks might have had even different significance or functions. It may be possible that assuming only one function of the mask is posing an impediment for a better understanding. In this regard, the fact that copper or copper alloy masks were also found associated with other bodies placed in a supine, extended position in smaller burials should not be overlooked. It is also important to even consider the possibility that the reality was totally different from my hypothesis that the mask served as the ritual devise to strip the individualities of the deceased as a mortal existence, transform them into a transcendental existence, and allow them to join the ancestral collectivity. Covering the face with a mask could have merely been a symbolic expression of the wearer's ascribed elite status.

Second, the ancestral bodies may not have been altered by any post-interment interactions with the living. I do not preclude the possibility of, for example, renewing the textiles that wrapped the ancestral bodies before the final deposition; however, it is remarkable that the bodies of the principal personages in the inferred ancestral shaft tombs, as well as those in the East and West Tombs, did not show any major alterations, as opposed to the body of the Individual 1 in T2-Tomb 2 that showed a substantial degree of alterations and "interventions" by the living. In this context, the nature of the T2/3-Tomb 2, which was eliminated from the candidates for ancestral tombs, should be reconsidered. What draw attention most are the symbolic significance of the high elite child body that showed the vestiges of exhumation and reburial, the relation of this tomb with other surrounding smaller burials, and a broader significance of this tomb in the planned layout of the elite cemetery. It appears that the complex Middle Sicán mortuary program cannot be fully explicated solely in terms of the veneration of deified/non-deified ancestors.

8.2. What was the role of the inferred ancestor cult and associated rituals?

Now that I concluded that ancestor veneration was practiced in the Middle Sicán society, in this section, I move on to my second research question: *What was the role of the inferred ancestor cult and associated rituals in the Middle Sicán society?* For this question, in Chapter 4, I hypothesized: "*The commensal hospitality between the dead and the living in the form of ceremonial feasts helped the ruling elites consolidate the multiethnic and stratified Middle Sicán society*." Speaking from a functionalists' perspective, death is the source of social disruption and confusion. Ancestral rituals and ceremonies may be seen as an attempt to restore the disrupted social order and to incorporate the society back into the normal but new course (e.g., Hertz 1960 [1905-06]; Van Gennep 1960 [1909]). In this light, I argue that the ceremonial activities including feasts during and after the funeral of important individuals including the former ruler provided an arena for the redefinition of social relations and the political negotiations among the bereaved (lineage members and cult followers) (e.g., Gluckman 1937; Goody 1962). Underlying the above hypothesis is an idea that the ceremonial feasts sponsored by the Sicán elites for the purpose of commemorating ancestors collaterally served an ideological and political role to consolidate the highly stratified, multiethnic Middle Sicán society. This hypothesis is explored by focusing on the inferred ceremonial feasts at the Great Plaza and answering a broader question of (1) *who* prepared and consumed (2) *what*, (3) *when* and (4) *how*.

8.2.1 *Who* prepared and consumed food and drink?

The question of *who* prepared and consumed food and drink during the inferred ceremonial feasts contains a few components in it and thus can be divided into different questions: who prepared food and drink; who prepared food vessels; who participated in the feasts; and so on. These *who*-questions are entirely or partially addressed by the analyses of food vessels: (1) morphological and technological and (2) compositional analyses.

The analysis of BDP vessel fragments by INAA revealed three compositional groups of paste recipe (*Sicán BDP Groups* 1 to 3): probably two regional and one foreign. This limited number of compositional signatures agrees with my expectations and appears to indicate that the food vessels were produced at a limited number of workshops affiliated with the Huaca Loro elite lineage. The Sicán elites most probably supplied the food vessels for the feasts[2], which partially supports the Operational Hypothesis 1. What about the food? This question will be answered below shortly.

The technological variations in the BDP vessels illuminated the distinctions in production costs, which were inferred to reflect the distinctions in social status of the user, and provided clues to presume who attended the inferred ceremonial feasts. The production costs were calculated, using a scale that quantified the workloads required for pottery production on the basis of the documented morphological and technological features. A total of 1,443 sherds were compared by a two-step cluster analysis in terms of the total production cost, and grouped into three clusters. The Clusters 1 and 2 consisted primarily of the Plainware BDP sherds produced with lower costs, while the Cluster 3 involved the majority of the well-decorated BDPs produced with higher costs. Thus, the painted BDP vessels were clearly distinguished from the unpainted plain ones by their production quality. Taking into account the inferred four social tiers of the Middle Sicán society discussed in Chapter 4 (Table 4.1), I argue that the painted vessels categorized into the Cluster 3 (359 sherds) were reserved only for the upper two tiers of the Sicán elites (high and low elites), while the vessels in Clusters 1 and 2 (1,084 sherds) were used by the lower two tiers of commoners. The Cluster 3 might have been strictly limited to the high elites. The participants of the inferred feasts seem to have included not only the lineage members of the deceased Sicán elites, but also many other people lower in social status (perhaps cult followers of Mochica origin).

The aforementioned three compositional groups of paste recipe revealed by INAA also shed light on the composition of the feast participants. Although further comparative studies are required, I tentatively conclude that the *Sicán BDP Groups* 2 and 3 sherds were produced at the regional workshop of Huaca Sialupe, while the Ca-rich *Group* 1 sherds (n = 14) were produced and brought from the adjacent Zaña or Jequetepeque Valley[3]. The bright orange to reddish orange color paint observed on the painted BDPs may also suggest that the studied sherds include those of foreign vessels (e.g., CCVs from either of the above two valleys). The presence of these possibly foreign sherds raises some possibilities. For example, well-decorated vessels (or CCVs) might have been brought in as a tribute, while undecorated plainware ones might have been used as the lid to seal necked jars and brought in with some food and drink (also probably as a part of tribute). In any scenario, there might have been some guests participating in the inferred ceremonial feasts. It is also important to note that the possibly foreign, *Sicán BDP Group* 1 sherds increased from the middle- to late-Middle Sicán Periods (from five to nine sherds). This may suggest that the Middle Sicán ancestor cult was aimed at not only solidifying internal unity, but also centrifugally seeking for more cult followers during the late-Middle Sicán Period.

8.2.2. <u>*What* was prepared and consumed</u>?

This question was examined by the studies of food remains and food vessels. The analyses of faunal and botanical remains helped to clarify the composition of the food and drink served during the inferred ceremonial feasts.

The most remarkable result derived from the microbotanical analysis of the sediment samples taken from the interior surface of body sherds of JU Group vessels. Nearly exclusively maize starch grains (*Zea mays*) were identified in abundance. Since the observed changes in morphology and property of the grains point to the processes during food preparation (e.g., milling, drying, and boiling), I conclude that the cooked maize was *aqha*. *Aqha* was generously served and consumed in all three excavation areas, the EAs3 to 5. The large-scale preparations and consumptions of *aqha* are also indicated by the large proportions of the BDP vessels in the ceramic assemblages across the excavation areas and the particularly high frequency of neckless urns for storage in the EA4. The maize starch grains were found in the specimens sampled from various occupational layers in all three excavation areas spanning from the middle-Middle to the end of the late-Middle Sicán Periods. This suggests the longevity of *aqha* production and consumption for the ceremonial gatherings at the Great Plaza during the major part of Middle Sicán Period. What needs to be emphasized here, furthermore, is that *aqha* was not only consumed for the ceremonial gatherings that many different people participated in, but also used for some ritual purpose. The abundant maize starch grains found in the small ritual canals excavated in the EA3 clearly suggest that *aqha* was poured into this canal. The flow direction of the canals from the two *huacas* (Huacas Loro and Colorada) toward the south based on the elevation measurements and the reported presence of a rectangular container made of green stone at the southern end also support this inference.

Taxonomic identifications of marine and terrestrial faunal remains and botanical remains were conducted for the purpose of exploring the menu for ceremonial feasts in addition to *aqha*. They revealed a series of species that might have been consumed during the inferred feasts. Within the indentified marine faunal remains, two edible species of mollusks, wedge clams (*Donax obesulus*) and olive shells (*Olivella columellaris*), were predominant and accounted for over 98% of all remains across the three excavation areas in the Great Plaza. Both of them have been important food sources in the study area since early in the prehistoric era, and particularly wedge calms are always seen today in the local markets and sold for daily consumptions. These two mollusk species have comprised an integral part of the traditional cuisine on the Peruvian North Coast. From their immediate association with the inferred cooking hearths, it is inferred that they were cooked, rather than eaten raw like at the present day. It is important to note that olive shells suddenly emerged during the late-Middle Sicán Period (Figure 7.84). This species could have been a new addition to the menu for ceremonial food.

The terrestrial faunal remains consisted of a large proportion of llamas (*Lama glama*), a small number of rodents (some determined as guinea pig [*Cavia porcellus*]), dogs (*Canis familiaris*), deer (Cervidae), and birds, and what appears to be a bat. Particularly important for the inferred ceremonial feasts are llamas and deer. Llama crania and limb extremities of immature individuals were devoted to burial offerings, while the participants of the feasts also consumed llama meats, although relatively small in amount. An analysis of llama bones and teeth was conducted to test the possibility of commensality between the dead and the living (Operational Hypothesis 3). The analysis revealed that the body parts devoted to the deceased in the burials and those consumed in the Great Plaza were not anatomically exclusive. This result does not support the Operational Hypothesis 3, although it still does not completely rule out the possibility of the ritual commensality. As I discussed in the previous chapter, the hypothesis seems to have been too simplistic, expecting a clear-cut "eating or funerary offering" differentiation. A further research is evidently necessary for exploring the whereabouts of the remaining body parts after having crania and limb extremities removed from the llama bodies for burial offerings.

Deer remains (bones and an antler), although very small in number, deserve special attention. It is widely known that the deer had ritual significance in Mochica culture. In that deer remains have been found generally in non-domestic contexts (e.g., at Pampa Grande), the access to this animal is thought to have been strictly confined to the elites. The presence of deer bones and antler in the faunal remains from the Great Plaza may indicate a similar significance of deer during the Middle Sicán Period[4]. The deer meat might have been used for a special meal that was only served for elites. I argue that such a meal should have been significantly appealing in the eyes of those who had ones' origin in the Mochica noble families. Deer meats might also have been served to the inferred guests from the neighboring valleys to offer hospitality to them. The presence of this type of "special" food alludes to the elite involvement in the procurement and supports the Operational Hypothesis 1.

The analysis of macrobotanical remains identified several taxa such as *molle* (*Schinus molle*), *cherimoya* (*Annona* sp.), *zapallo* (*Cucurbita* sp.), *overo* (*Cordia* sp.), *algarrobo* (*Prosopis* sp.), and (6) *huarango* (*Acacia* sp.). Notable for consumption purposes was the higher frequency of *Prosopis* sp. in the form of *algarrobas* (bean pods). It is possible that in the areas associated with hearths, the bean pods were processed to extract the nutritious black syrup (*algarrobina*). *Molle*, *cherimoya*, and *zapallo* also suggest the usage as food sources. As ethnohistorical and archaeological studies report (Coe 1994:186-187; Goldstein and Coleman 2004), the sweet exterior part of the ripe fruit of *molle* might have been used to brew *chicha*. To this day, *molle* is known to be used for the same purpose. In addition of *aqha* (maize *chicha*), *molle chicha* could have been prepared and consumed at the Great Plaza.

Last but not least, the study of morphological variations and characteristics of food vessels also provides some clues to infer what was prepared and consumed. For example, more of the deeper BDP vessels (dish/bowl and bowl) were found in the EAs3 and 4, while the number of shallow plates is predominant in the EA5 (Figure 7.7). This seems to suggest that more liquids were consumed in the EAs3 and 4, and more solid materials in the EA5.

8.2.3. *When* were food and drink prepared and consumed?

Some contextual information obtained during the excavations seems to provide some clues to infer the timing of the ceremonial feasts and social gatherings at the Great Plaza. The thick ashy soil depositions recovered around the large adobe-lined hearth in the EA3, for instance, contained not only food remains and fragmented vessels, but also some artifacts and materials that suggest burial preparations. Spindle whirls and sewing needles suggest simple production of textiles, while cinnabar paint bits suggest some paintings of the dead bodies and grave offerings. An exotic and precious cone shell (*Conus fergusoni*) found in the EA3, with its outer lip removed, may suggest that the removed portion was used for making shell ornaments such as a bead necklace or pectoral. Taking into consideration the existence of a metal workshop found in the EA5, the process of making funerary bundles (e.g., weaving textiles, making necklaces from exotic shells, painting the bodies and associate grave offerings, and producing metal masks and other metal objects) might have taken place at the Great Plaza, side by side with food preparations and consumptions. It has been reported that Huaca Las Ventanas was also accompanied by at least one metal workshop near the northeast corner of the temple. The discovery of pottery-making molds at the east base of Huaca Lercanlech suggests the presence of a ceramic workshop there. Shimada also excavated a pile of adobe bricks neatly stacked over another, most probably awaiting a new construction or repair of the constructions in and around the Great Plaza. These multiple lines of evidence suggest that the outermost public spaces of the Middle Sicán Mortuary Complexes (MSMCs) as well as the Great Plaza could have been very vibrant, with a number of people engaging in various activities, if not all the time. In sum, I conclude that the ceremonial feasts took place before and during, and perhaps immediately after the funerals around the Huaca Loro temple mound.

In addition, a palynological study was also conducted for the purpose of exploring the possibility that the ceremonial gatherings at the Great Plaza were seasonal as is inferred to have been the case with the ground burning rituals and associated offerings above the West Cemetery. The results, however, do not support this hypothesis.

8.2.4. *How* were food and drink prepared and consumed?

An analysis of *paleteada* designs stamped on the shoulders of jars and *ollas* was conducted with an assumption that patterned distributions, if any, may shed light on how the feast participants spatially distributed within the ritual space at the Great Plaza. A total of 127 different motifs were identified on 657 *paleteada* sherds from three excavation areas and classified broadly into three classes (logographic [Class L], large-geometric [L-G], and geometric [G]). Some motifs are similar to each other, but clearly distinguished from each other in terms of size, number, and organization of certain components. The identified 127 motifs demonstrated interesting spatial distribution patterns. First, the distinct motifs were never found across the boundaries of excavation areas. This patterned distribution of *paleteada* motifs suggests the congregation of the people who produced and/or used the vessels. I argue that the motifs served as an identification mark like emblem or insignia, the similarity and difference of which were considered as the proximity and remoteness of the shared group identities of the vessel producers and/or users (e.g., the markings on adobe bricks used for building public architectures from the Early Intermediate Period to the Late Horizon on the North Coast). Second, the Class L motifs, those related to elite culture (e.g. double-spout bottles), were recovered only from the EAs4 and 5. The majority came from the EA4 (Figure 7.61). Inversely in the EA3, *paleteada* sherds themselves were significantly scarce (Tables 7.27 to 7.29). The presence of Class L motifs in the EAs4 and 5 is interpreted to reflect the preparations of ceremonial food and drink in the area very close to Huaca Loro (and associated tombs and burials). Concurrently, however, many geometric motifs were also found from the EA5. This may suggest that there took place more mundane food practices (e.g., food and drink prepared for and consumed by the artisans working in the metal workshop) in addition to the preparations of ceremonial food and drink. Incidentally, Figure 8.1 illustrates similar proportions in the three excavation areas of the three clusters of the BDP vessels grouped in terms of total production costs. This suggests that people different in social status evenly distributed in all three areas and consumed food and drink, although the members of the same groups might have clustered tightly together as I argued above.

8.2.5. Conclusion

A series of analyses of the artifacts and ecofacts recovered from the excavations at the West Cemetery and the Great Plaza provided various lines of evidence that support at least two of the three Operational Hypotheses. The Operational Hypothesis 3 was too simplistic to adequately address the research question and lacked verification capability. Nonetheless, independent of my assumption of commensality between the dead and the living, I could also obtain contextual information from the excavation that confirms the symbolic connection between the inferred ceremonial feasts and the mortuary practices at the elite cemetery. Thus, I posit that the General Hypothesis 2 has been largely supported.

In parallel to the funerary preparations of the important deceased members of their lineage, who will become ancestors, the elites sponsored ceremonial feasts providing provisions, and invited many people different in social class and even cultural identity (e.g., primarily the subordinate people of Mochica ethnicity and some guests from the neighboring river valleys). These feasts, if not successfully consolidated the diversified Middle Sicán society, at least provided an arena for the redefinition of social relations and the political negotiations among the bereaved (both lineage members and those invited), social display by the new ruler and entourage of their legitimacy, material wealth, and prospective view of their reign, addressing especially the cult followers.

8.3. Final considerations and future tasks

8.3.1. Revisiting the earlier question: What was the Middle Sicán ancestor?

As the concluding remarks, in this section, I present my view of the Middle Sicán ancestor worship and associated religious beliefs, based on the knowledge from previous studies and the new data gained from our excavations and subsequent material analyses. It contains a good deal of theoretical assumptions and speculations, which need to be examined in future.

The Sicán ancestor cult came to be the worship of the deified founding father of the Middle Sicán theocracy and his successors as the so-called first-principle ancestors. In an early phase of its development, however, the venerated ancestors were probably more of the characteristics of emergent house ancestors. It had been just a few centuries at most (AD 850-1100) since the inferred charismatic individual (in Wallace's [1966] term) became the first ancestor. Many of the subsequent ancestors were probably still recognized and remembered by their names. In order for the Sicán elite lineages to gain greater prestige and spiritual viability, they had to form alliance with the cosmological "Others" and to rely on their external power. In other words, the Sicán ancestor cult sought the transcendental existence that belonged to the intangible cosmological world of the "there-and-then" (vis-à-vis those in the tangible "here-and-now") and had a direct access to the cosmological origin or the ultimate source of creational and energizing power (Helms 1998). That was the Sicán Deity. Not to mention the first charismatic leader, the Sicán ancestors, if not all, were transformed into a transcendental existence equivalent or next to the Sicán Deity. Although I initially hypothesized that the Sicán Deity mask served as an integral device for the transformation ritual, the excavation data urge me to reconsider this idea.

Besides the worship of the Sicán Deity, the Sicán elites strategically integrated the "Others." At the West Cemetery, many of the low elites were interred in the Mochica burial style, i.e., placed in a supine, extended position with the head oriented toward the south. This may suggest that the low elite consisted of many of those who had an ethnic identity as the Mochica (Klaus 2009). Such an inclusive relationship between two different ethnicities should not be present in an intra-lineage level veneration of emergent house ancestors. It is an open question, however, whether if those subordinate people had their allegiance to and/or were sympathetic to the Sicán religious principles as elite dogmas. The evidence of crude and careless work observed on the serving vessels may indicate their indifferent and brusque attitude against the elite religion. Whether they realized it or not, the Sicán elites invited to ceremonial feasts many people other than the members of their elite lineages for the consolidation of their stratified and multiethnic state.

As Helms (1998:38-39) argues, the Middle Sicán first-principle ancestors were objectified and made accessible at a particular place on the cultural landscape, rather than in the domestic sphere. A congregation of the ancestral temples and tombs (Middle Sicán Mortuary Complexes) was built within the Middle Sicán capital near the La Leche River in its mid-valley portion. Although it is still unclear why the site was located there, the proximity to the river (although usually dried-up) might have been an important factor for the location selection for the reason that I will discuss at the end of this section.

The excavation at the West Cemetery documented the alternating sequence of intermittent fluvial events (e.g., heavy rains and/or floods) and revisitations of the former burial ground of the Sicán ancestors at the base of Huaca Loro. The associations imply a persistent symbolic connection between the water-related events and the ancestors buried underneath – or the *huaca* as their proxy or an enormous burial marker. At each visitation, the visitors extensively burnt the ground surface and sometimes placed various forms of offerings using fire. It is likely that these material and performative offerings were made for propitiating the ancestors, if not recognized as the Sicán anymore, who were viewed as capable of restoring the world order. The use of fire even in a larger scale has been documented on top of the major monumental mounds at the same site, immediately after a severe flood associated with an ENSO event of historic proportions, commonly called "Fempellec Flood" or "Naymlap Floor," ca. AD 1050-1100 (Moseley and Cordy-Collins 1990). These cases of fire use may be closely related to fire's property to chemically and physically transform material items (Shimada and Matsumoto 2011). The practice of setting fire might have been a sort of ritual violence that helped to demarcate the termination of transitional phase (Hertz's concept of *liminality*) that was brought about by disrupting natural and social events. Even centuries after the Middle Sicán ancestor cult, the *huaca* probably served as the mnemonic device to reproduce and renew the image of long gone ancestors buried at its base.

Shimada and Matsumoto (2011) recently presented an idea that "the mounds were perceived to embody both souls and physical remains of venerated ancestors and were treated as proxies of sacred mountains that provided life-giving water to the coast." Underlying this idea is another intriguing discovery from the SAP-HL'08-EA1 (an area excavated during the SAP2008 field season around the NW base of Huaca Loro; see Figure 4.1). Along the north edge of Huaca Loro, a series of vessel offerings were recovered. The vessels were carefully placed at the distal termini of natural gutters formed by rainwater that cascaded down the steep slopes of Huaca Loro (Figures 8.2 and 8.3). The eroded mound was left unrepaired, and rather the eroded image of Huaca Loro seems to have been appreciated (Figure 8.4). Together with the documented *aqha* libation using the ritual canals, the flow of liquid coming from the Huacas seems to have had a strong symbolic meaning. It is posited that people superimposed the images of venerated ancestors as a fertile mountain and rivers over the eroded mound and running water on its steep side.

If the above symbolic connection between the water-related events and the ancestors/*hucas* already took on significance in the Sicán religious beliefs at the time of construction of the ancestral tombs and temples, those tombs and temples might have been intentionally placed in the vicinity of the river in the hope that the ancestors would prevent devastating floods and maintain the world order. Floods are two-sided in their character, however, in that they are not only a devastating but also life-generating event. Alternatively, the ancestral tombs and temples, if not the entire Middle Sicán capital, might have been placed there to appreciate and celebrate the arrival of water from the river. In any case, I argue, the location selection was quite intentional and was based on the above symbolic connection between water and ancestors (also see Glowacki and Malpass 2003).

8.3.2. Intellectual merits

The current study will contribute both theoretically and methodologically at different levels. For archaeology in general, it explores the role of ancestor veneration in a given society as a form of ideology and means for social integration and differentiation through interactions during the social gatherings such as ceremonial feasts. In essence, it integrates theoretical arguments on ancestor veneration and feasting as complementary and interdependent. In contrast to the traditional view of ancestor veneration practices as a means to claim continuity of occupancy and gain economic merits, this study emphasizes the ideological aspect of the practices. Similarly, the food consumption is viewed as a highly charged symbolic medium of expression, rather than a basic and continual human physiological need, and assumed to have facilitated social interactions and political negotiations.

For Andean archaeology, this study explores the significance of ceremonial centers as the locus of social interactions and political negotiations through the excavations of a seemingly featureless plaza, as opposed to mere visual examination of it as an empty space. As opposed to the conventional architectural approach that discusses the hypothetical ritual activities within architecture, this study advocates the perspective *from the inside out*, rather than *from the outside in* and relies on the contextual information that may enable us to explore the ritual activities themselves. The current study also emphasizes the intracultural variability such as social status and cultural identity.

Regarding the archaeology of the Peruvian North Coast, the current study further develops and refines Shimada et al.'s (2004) hypothesis and clarifies the social role and function of the ancestor veneration in the Sicán society from a perspective of food practices. It deepens our understandings of the Sicán religious activities including ritual foodways. The analyses of food remains explore the possibilities of certain composition of food items most appropriate for ceremonial settings and food sharing among the dead and the living, whereas the analyses of food vessels comprise the first detailed study of a large sample of non-decorated Sicán food vessels and provide the compositional signatures for the possible locations of ceramic production.

Methodologically, a major significance of this study is that it gives a greater role to archaeological data that has been subservient to ethnohistorical/ethnographic data in the studies of prehistoric religion in general. Bringing together the merits of tradition approach (e.g., the study of architecture, iconography, bioarchaeology, and ethnohistory and ethnography in the Andes), the current study proposes an integrative approach to ritual activities themselves. As a result, it provides a practical solution to the justified caution by Whitley (2002) and demonstrates how we should approach ancestor veneration and what evidence we would need in order to appropriately define it in archaeological record.

8.3.3. Broader impacts

As for the broader significance of the proposed research, new findings will enhance the local identity and appreciation of prehispanic predecessors literally as remote ancestors. Recently, Shinoda's (2009) DNA analyses revealed a genetic link between the Sicán and the present people of the area. The contribution of this dissertation will not be confined to the local level. As mentioned at the beginning of this dissertation, even though the Sicán Deity image has long been an important icon directly linked to the national identity of modern-day Peru and has further gained an international-level visibility, the nature of the prehispanic religion that created this image is yet to be fully understood. This study will also help to orient people's interests toward a better understanding of the Sicán religion and its significance in the Peruvian prehistory.

8.3.4. Future tasks

This dissertation focused attention on a very small portion of the ceremonial core of the Middle Sicán capital and tackled very challenging questions about the Middle Sicán religious beliefs and practices in general. A series of hypotheses and tentative conclusions discussed in this study will remain as such to be further examined and refined with additional data from new excavations in the future. For future study, therefore, it would be necessary to put my knowledge gained from the case of Huaca Loro in broader contexts, geographically and temporally. It would be fruitful, for example, to explore how the Sicán ancestor cult was like outside the Middle Sicán capital (e.g., major ceremonial mound centers such as Vista Florida, Santa Rosa de Lambayeque, Luya, and Cruz de Bobadilla), and likewise before and after the Middle Sicán Period.

Another interesting task to perform is to better understand the intra-societal dynamics during the Middle Sicán, e.g., sociopolitical relations among the inferred six elite lineages. The excavations by the research team from the Sicán National Museum have recently revealed various activities including large-scale human sacrifices and food preparations and consumptions near the west base of Huaca Las Ventanas. In addition, the recent construction of new drainage channels through the Great Plaza, some 80 m west of Huaca Las Ventanas, provided me with an opportunity to observe the stratigraphic sequence of a wider area of the plaza. The alternating sequence of alluvial depositions and layers of ash and burnt soil was widely and continuously observed within the depth of less than 1.5 m below the current ground surface on an over-100-m section of the longest channel running N-S (Figures 8.5 to 8.7). These findings suggest that there may have taken place a set of activities somewhat similar to those documented around Huaca Loro, although artifactual assemblage from this area demonstrates a great deal of intra-regional variability (particularly in the style of fineware bottles and SPDs). Since the outermost public spaces of the three MSMCs (Huacas Loro, Las Ventanas, and La Merced) should have been overlapping or abutting to each other within the Great Plaza, the excavations of those contact areas are of particular importance to study the relations among the different elite lineages.

Among other things, it would be also interesting to develop the study of *paleteada* design motifs. Of particular interest is a wide comparative study of the designs excavated from the Middle Sicán heartland with those excavated from different regions under the Sicán dominion or influence. Nonetheless, no excavation would be required for the time being. There is a wealth of data to organize and numerous ceramic bags left untouched in the museum repositories. Thus, the first step would be to expand the sample size of the existing database. Another important task to pursue is to develop a better understanding of the Sicán foodways. Previous studies of the Sicán foodways, including the current study, have focused attention on the food practices primarily in funerary and ceremonial contexts. In order to have a clear perception of what was "special" and what was "ordinary" in the Middle Sicán cuisine, implementation of household archaeology would be essential. Nonetheless, what requires immediate attention is the comparison of my INAA data with those from Shimada et al.'s (2003) study of 194 pottery samples from Huaca Loro West Tomb and Huaca Sialupe. As discussed in Chapter 7, due to the lack of standard samples shared between MURR and the laboratory at TUM in Germany, an appropriate comparison of the results from these laboratories was not feasible. The desired comparative study will be carried out as soon as we complete the process of exchanging and sharing some standards between the two laboratories (e.g., GSP-1 certified by National Institute for Standards and Technology [NIST], MAN [Manchester Podmore Clay], and New Ohio Redart Clay).

8.3.5. Concluding remarks

I concluded that ancestor worship was indeed practiced in the Middle Sicán society. By maintaining and monopolizing the ritual access to the Sicán Deity through their ancestors, the Sicán elites reproduced their religious and political power and retained the legitimacy of their social status. Concurrently, as seen in the juxtaposition of the dead bodies of distinct Sicán and Mochica ethnic identities at the West Cemetery and the participation of various people to the ceremonial feasts, the Sicán elites consciously employed their ancestor cult for social integration. After the Middle Sicán Period, these ancestors seem to have kept retaining their spiritual viability even after the later Chimú Empire took the control of this region. If not recognized as the Sicán anymore, they were remembered and honored by the living for over four centuries.

On the basis of the merits of tradition approach (e.g., the study of architecture, iconography, bioarchaeology, and ethnohistory and ethnography in the Andes), this study gives primacy to the direct focus on the material residues and relational contexts and patterns of ritual activities and studies their change and stability through time in relation to other historical contingencies. The merit of focusing on the trajectories of ritual activities themselves in a long and wide perspective is that it sheds light on the regional peculiarities and contingent nature of the inferred ancestor veneration, which may be overlooked in cross-cultural, ethnological arguments about the nature, role, and capacity of ancestors. It also provides a wealth of information not only to determine what types of activities took place, but also to explore the intangible symbolic significance behind those activities. As a result, this approach provides a practical solution to the justified caution by Whitley and demonstrates how we should approach ancestor veneration and what evidence we would need in order to appropriately define it in archaeological records.

NOTES

1 In the cases of the Huaca Loro East and West Tombs, the mask was placed directly on the fact of the deceased. During interviews conducted by Shimada (2014, personal communication) in 1978 and 1979, "*maestros*," masters of looting also said that the masks were found directly on the faces.

2 It is important to consider the possibility that the elites who sponsored the feasts might have been different from the elites who participated in the feasts, although the inferred distinction would not be easy to recognize in archaeological records. Comparative stylistic and compositional analyses of the ceramic assemblages associated with different mortuary mound complexes would be essential.

3 We should not preclude the possibility that there are additional workshops within the Lambayeque region during the Middle Sicán Period. For example, Based on his excavation of the Chimú ceramic workshop at Pampa de los Burros, Tschauner (2001) argues that the workshop was also operational during the Middle Sicán Period.

4 The deer remains, however, have not been found at other Sicán sites such as Sapamé 1 and 2, and Huaca Pueblo del Batán Grande (residential and workshop site) (Shimada 1981:436, Tables 3 and 4).

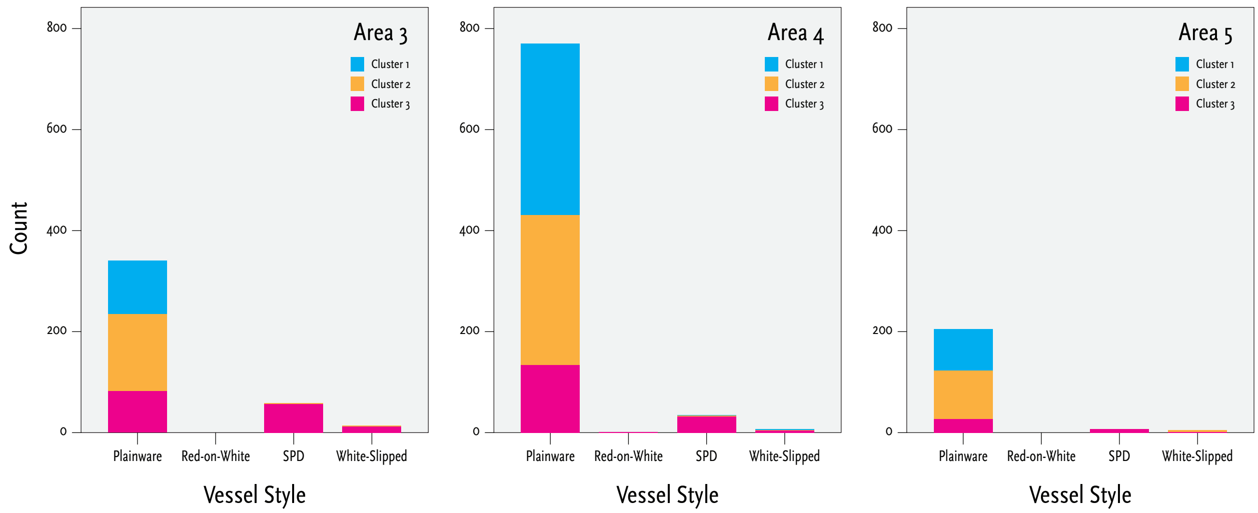


Figure 8.1. Similar proportions of in the three excavation areas (EAs3-5) of the three Clusters of the BDP vessels grouped in terms of total production costs.

Figure 8.2. Vessel offerings found carefully placed at the distal termini of natural gutters formed by rainwater that cascaded down the steep slopes of Huaca Loro. Note that the areas around the vessles had been burnt. Photo courtesy of Izumi Shimada.

Figure 8.3. Vessel offerings found carefully placed at the distal termini of natural gutters formed by rainwater that cascaded down the steep slopes of Huaca Loro. Note that the areas around the vessels had been burnt. Photo courtesy of Izumi Shimada.

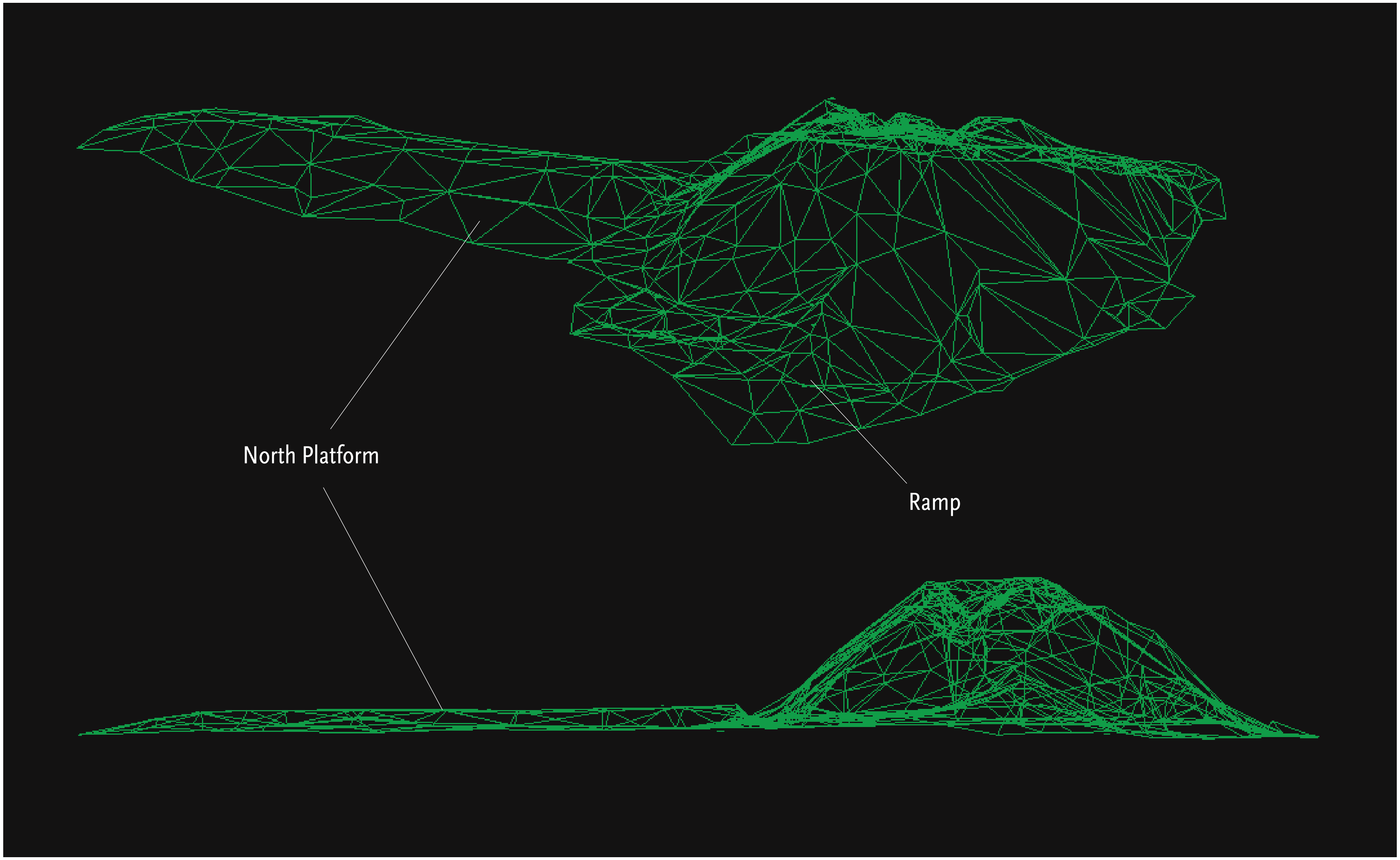


Figure 8.4. The eroded Huaca Loro temple mound. The images of venerated ancestors as a fertile mountain and rivers might have been superimposed over the eroded mound and running water on its steep side.

Figure 8.4. A new drainage channel under construction at the Great Plaza.

Figure 8.5. The profile of a new drainage channel under construction at the Great Plaza.

Figure 8.6. The profile of a new drainage channel under construction at the Great Plaza.

Table 8.1. A list of nine individuals found in a seated, cross-legged position.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Tomb 1 Individual 1 (PP)	Seated Cross-legged	Copper Nearby on the floor	Relatively deep Square shaft	X	Miniature vessels	West	Female	20	High elite
T2	EMS	Burial 2	Seated Cross-legged		Shallow Rectangular	X		North	Female	15-21	Low elite
T2	MMS	Burial 4 (Half-excavated)	Seated Cross-legged		Shallow Rounded square	X		West	Female	20-25	Low elite?
T2	MMS	Burial 7	Seated Cross-legged		Shallow Square	X		East	Male	40-50	Low elite
EA4	MMS	T-NE-1 Individual 1	Seated Cross-legged?		Relatively deep Square shaft	X		West	Female	16-18	Low elite
EA4	MMS	T-NE-1 Individual 2 (PP)	Seated Cross-legged	Gilded copper Worn	Relatively deep Square shaft	X	Miniature vessels and food duct ("*ushnu*"?)	South	Indeterminate	Indeterminate	Low elite?
EA4	MMS	T-NE-1 Individual 3	Seated Cross-legged?		Relatively deep Square shaft	X		North?	Indeterminate	18-21	Privileged Commoner?
EA5	LMS	T-NE-2 Individual 1	Seated Cross-legged?		Relatively deep Square shaft	X		West?	Female	16-18	Low elite?
EA5	LMS	T-NE-2 Individual 2	Seated Cross-legged?		Relatively deep Square shaft	X		Southwest	Female	25-35	Low elite?

* PP = Principal personage of the tomb

Table 8.2. A list of 19 individuals found in a supine, extended position.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Burial 2	Supine Extended		Shallow Irregular	X			Indeterminate	Infant	Low elite
T1	EMS	Burial 3	Supine Extended		Shallow Irregular	X		South	Indeterminate	Infant	Low elite
T1	MMS	Burial 4	Supine Extended	Copper-silver alloy Above the chest	Shallow Rectangular	X		East	Indeterminate	25-35	High elite
T1	MMS	Burial 5	Supine Extended		Shallow Rectangular?	X		South	Indeterminate	Child	Low elite
T1	LMS	Burial 6	Supine Extended	Copper? Nearby (facing down)	Shallow Rectangular	X		South	Male	30-35	Low elite
T1	EMS	Burial 8	Supine Extended		Shallow Rectangular	X		South	Male	35-40	Low elite or commoner
T1	LMS	Burial 9	Supine Extended		Shallow Rectangular	X		South	Female	30	Low elite or commoner
T1	EMS	Burial 10	Supine Extended	Arsenical copper Worn	Shallow	X		North	Indeterminate	Child	Low elite
T2	MMS	Burial 1	Supine Extended		Shallow Rectangular	X		South	Female	15-21	Commoner?
T2	EMS?	Burial 5	Flexed Extended		Shallow	X		South	Indeterminate	Child	Low elite
T2	LMS	Burial 6 Individual 1	Extended (sacrificed)		Indeterminate (unlined)			North	Female	30-35	Commoner?
T2	LMS	Burial 6 Individual 2	Extended (sacrificed)		Indeterminate (unlined)			East	Male	35-45	Commoner?
T2	LMS	Burial 6B Individual 4	Supine Extended		Shallow Rectangular?	X		South	Indeterminate	Adult	Low elite?
T2/3	EMS	Burial 8	Supine Extended		Shallow Rectangular	X		South	Male	>40	Low elite?
T2	MMS	Burial 10	Supine Extended		Shallow Rectangular	X		South	Female	25-35	Low elite
T2	EMS	Burial 13	Supine Extended		Shallow Rectangular	X		South	Indeterminate	Child	Privileged commoner
T2	N/A	Burial 14	Supine Extended		Shallow Rectangular	X		South	Female	25-30	Low elite
T2/3	N/A	Burial 17 (Cranium only)	Extended?	Copper alloy Above the cranium	Shallow Rectangular	X		South	Indeterminate	Adult?	Low elite
T3	EMS	Burial 19 (Exhumed)	Extended		Shallow Rectangular	X		East	Female?	Indeterminate	Low elite?

Table 8.3. A list of five offering pits and 14 burial pits containing individuals found in a flexed or indeterminate position.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Tomb 1 Individual 2	Flexed		Relatively deep Square shaft	X		West	Female	25-35	Privileged commoner
T1	EMS	Burial 7	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	MMS-LMS	Tomb 2 Individual 1 (PP)	Indeterminate	Gilded copper Disturbed	Shallow Rectangular	X	A large number of miniature vessels	Indeterminate	Indeterminate	Child (ca. 4)	High elite?
T2/3	MMS	Tomb 2 Individual 2	Flexed/seated		Shallow Rectangular	X		Southwest	Female	25	Low elite or commoner
T2	MMS	Burial 3	(No Body)		Shallow Rectangular	X		N/A	N/A	N/A	N/A
T2	EMS	Burial 6A Individual 3	Indeterminate		Shallow Rectangular?	X		Indeterminate	Indeterminate	Adult	Low elite?
T2/3	EMS	Burial 9	Indeterminate		Shallow Rectangular?	X		Indeterminate	Indeterminate	Indeterminate	Indeterminate
T2	N/A	Burial 11	Indeterminate		Shallow Semi-circular	X		Indeterminate	Indeterminate	Neonate?	Low elite
T2/3	EMS	Burial 12	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	EMS	Burial 15	Indeterminate (reburial)		Shallow Irregular	X		N/A	Male?	Indeterminate	Indeterminate
T2/3	N/A	Burial 16	(No Body)		Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	N/A	Burial 18	(No Body)		Shallow Rectangular?	X		N/A	N/A	N/A	N/A
EA4	MMS	Burial 2	Indeterminate		Shallow Rectangular	X		Indeterminate	Male?	18-22	Low elite
EA5	LMS	T-NE-2 Individual 3 (PP)	Indeterminate (disturbed)	Copper Nearby (disturbed)	Relatively deep Square shaft	X	Miniature funerary vessels	Indeterminate	Indeterminate	Adult	Low elite?

* PP = Principal personage of the tomb

Table 8.4. A list of 10 individuals found accompanied by a Sicán Deity mask.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Tomb 1 Individual 1 (PP)	Seated Cross-legged	Copper Nearby on the floor	Relatively deep Square shaft	X	Miniature vessels	West	Female	20	High elite
T1	MMS	Burial 4	Supine Extended	Copper-silver alloy Above the chest	Shallow Rectangular	X		East	Indeterminate	25-35	High elite
T1	LMS	Burial 6	Supine Extended	Copper? Nearby (facing down)	Shallow Rectangular	X		South	Male	30-35	Low elite
T1	EMS	Burial 7	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T1	EMS	Burial 10	Supine Extended	Arsenical copper Worn	Shallow Rounded rectangular	X		North	Indeterminate	Child	Low elite
T2/3	MMS-LMS	Tomb 2 Individual 1 (PP)	Indeterminate	Gilded copper Disturbed	Shallow Rectangular	X	A large number of miniature vessels	Indeterminate	Indeterminate	Child (ca. 4)	High elite?
T2/3	EMS	Burial 12	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	N/A	Burial 17 (Cranium only)	Extended?	Copper alloy Above the cranium	Shallow Rectangular	X		South	Indeterminate	Adult?	Low elite
EA4	MMS	T-NE-1 Individual 2 (PP)	Seated Cross-legged	Gilded copper Worn	Relatively deep Square shaft	X	Miniature vessels and food duct (“*ushnu*”?)	South	Indeterminate	Indeterminate	Low elite?
EA5	LMS	T-NE-2 Individual 3 (PP)	Indeterminate (disturbed)	Copper Nearby (disturbed)	Relatively deep Square shaft	X	Miniature vessels	Indeterminate	Indeterminate	Adult	Low elite?

* PP = Principal personage of the tomb

Table 8.5. A list of three shaft tombs and three square offering pits excavated from the burial ground around the Huaca Loro temple mound.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Tomb 1	Seated Cross-legged	Copper on the floor	Relatively deep Square shaft	X	Miniature vessels	West	Female	20	
T1	EMS	Burial 7 Offering Pit	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	EMS	Burial 12 Offering Pit	(No Body)	Gilded copper In the niche	Shallow Square	X		N/A	N/A	N/A	N/A
T2/3	N/A	Burial 16 Empty pit	(No Body/ offering)		Shallow Square	X		N/A	N/A	N/A	N/A
EA4	MMS	T-NE-1 Individual 2 (PP)	Seated Cross-legged	Gilded copper Worn	Relatively shallow Square shaft	X	Miniature vessels and food duct (“*ushnu*”?)	South	Indeterminate	Indeterminate	Low elite?
EA5	LMS	T-NE-2 Individual 3 (PP)	Indeterminate (disturbed)	Copper Nearby (disturbed)	Relatively shallow Square shaft	X	Miniature vessels	Indeterminate	Indeterminate	Adult	Low elite?

* PP = Principal personage of the tomb

Table 8.6. A list of four tombs that showed vestiges of ritual care and tendance during or after the deposition of the principal personage.

			1	2	3	4	5				
Trench/Area	Date	Tomb/Burial	Body Position	Mask	Burial Pit	Plan	Care Tendance	Orientation	Sex	Age	Social Status
T1	EMS	Tomb 1 Individual 1 (PP)	Seated Cross-legged	Copper Nearby on the floor	Relatively deep Square shaft	X	Miniature vessels	West	Female	20	High elite
T2/3	MMS-LMS	Tomb 2 Individual 1 (PP)	Indeterminate	Gilded copper Disturbed	Shallow Rectangular	X	A large number of miniature vessels	Indeterminate	Indeterminate	Child (ca. 4)	High elite?
EA4	MMS	T-NE-1 Individual 2 (PP)	Seated Cross-legged	Gilded copper Worn	Relatively deep Square shaft	X	Miniature vessels and food duct (“*ushnu*”?)	South	Indeterminate	Indeterminate	Low elite?
EA5	LMS	T-NE-2 Individual 3 (PP)	Indeterminate (disturbed)	Copper Nearby (disturbed)	Relatively deep Square shaft	X		Indeterminate	Indeterminate	Adult	Low elite?

* PP = Principal personage of the tomb

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APPENDICES

APPENDIX A: ABBREVIATIONS

AMNH = American Museum of Natural History

BDP = Bowl/Dish/Plate

BJ = Bottle/Jug

ENSO = El Niño-Southern Oscillation

GPR = Ground-penetrating radar

HC = Huaca El Corte

HL = Huaca Loro

HLL = Huaca Lercanlech

HLM = Huaca La Merced

HLV = Huaca Las Ventanas

HS = Huaca Sontillo

HPBG = Huaca del Pueblo Batán Grande

INAA = Instrumental neutron activation analysis

LH = Late Horizon

LIP = Late Intermediate Period

MH = Middle Horizon

MNI = Minimum number of individuals

MNAAHP = Museo Nacional de Arqueología Antropología e Historia del Perú (National Museum of Anthropology, Archaeology, and History of Peru)

MSMC = Middle Sicán Mortuary Complex

MURR = University of Missouri Research Reactor

NISP = Number of identified specimens

NR = Number of remains

PCA = Principal components analysis

PJ = Pot/Jar

REE = Rare earth elements

SAP = Sicán Archaeological Project

SPD = Sicán Painted Dish

TUM = Technical University of München

UPCH = Universidad Peruana Cayetano Heredia

APPENDIX B: SICÁN/LAMBAYEQUE SITES

Tello reported 56 sites in the Lambayeque Complex where gold objects had been found, in his articles ("Los Trabajos Arqueológicos en el Departamento de Lambayeque") in El Comercio, January 29, 30, 31, Lima, 1937 (Bennett 1939:95):

1) Thirty sites in the La Leche Valley: (1) Quemada, (2) Santa María, (3) Tepo, (4) Libertad, (5) Grande, (6) de las Pavas, (7) Horcón, (8) Túcume, (9) del Rayo, (10) Pintada, (11) Manuelón, (12) Saeto (or de la Virgen), (13) del Sol, (14) Colchón, (15) Íllimo, (16) Purgatorio between Mochumí and Íllimo; (17) la Merced, (18) Loro, (19) de la Cruz, (20) las Ventanas, (21) Campana, (22) Botijas, (23) Monje, (24) Soledad on Batán Grande hacienda; (25) Podococha, (26) La Horca, (27) Iscarra, (28) los Cerritos, (29) la Rajada between Jayanca and Salas pueblos; and (30) Cholocal near Motupe pueblo
2) Fourteen sites in the Lambayeque Valley: (1) Chotuna, (2) Chornancap, (3) Palito, (4) Alacmacnud, (5) Solecape on Bodegones hacienda; (6) Pueblo, (7) Panteón, (8) La Cruz near San José pueblo; (9) Mocce sites on Mocce hacienda; (10) Culebra, (11) Humedad, (12) Paredones, (13) Till between Combo and Pucala; and (14) Cinto near Pátapo hacienda

3) Seven sites in the Reque Valley: (1) Del Oro, (2) Reque, (3) Blanca, (4) Collud, (5) de la Cria between Eten and Chiclayo; (6) Rajada near Sipán bridge; and (7) Kollike at the Cerro Corcobado (Pampa Grande hacienda)

4) Five sine in the Zaña Valley: (1) Corbacho, (2) Medina, and (3) Potrero on the Cayalti hacienda; (4) Mata Indio on the Otra Banda hacienda; and (5) a site on San Nicolas hacienda

Bennett (1939:95-120) excavated 23 sites in three areas of the Lambayeque Complex: (1) Lambayeque, (2) Tucume, and (3) Chongoyape pueblos:

1) Lambayeque 1: Small cemetery between Lambayeque and San José which yielded thirty-eight graves and a total of 109 bowls.
2) Lambayeque 2: Small cemetery, north of Lambayeque, near Solecape pyramid which yielded twenty-eight graves and a total of fifty-eight bowls.
3) Lambayeque 3: Group of mounds northeast of Lambayeque. Excavation without results.
4) Lambayeque 4: Mocce mounds. Excavation yielded sherds and large jars.
5) Lambayeque 5: Las Calaveras, near Mocce. Excavation without results.
6) Lambayeque 6: Paredones, southwest of Lambayeque. No excavation.
7) Lambayeque 7: Paredones Chico, near L6. Excavation without results.

8) Lambayeque 8: Paredones de San Jose, south of Lambayeque. Excavation yielded four graves and a total of five bowls.

9) Lambayeque 9: At San Nicolas, south of Lambayeque. Excavation uncovered one large jar.

10) Lambayeque 10: Mound north of Lambayeque. Excavation yielded two graves and a total of two bowls.

11) Lambayeque 11: Solecape pyramid. No excavation.

12) Lambayeque 12: Site northeast of Lambayeque. Excavation revealed sherds and one bowl.

13) Lambayeque 13: Huaca Joriado (?) near L12. No excavation.

14) Lambayeque 14: Site near L13. Excavations yielded sherds and one large jar.

15) Lambayeque 15: Dwelling site near L2. Excavations furnished sherds.

16) Túcume 1: El Purgatorio. Excavations encountered seven graves and a total of twenty-five bowls.

17) Túcume 2: Huaca Grande. Excavations encountered two graves and a total of four bowls.

18) Túcume 3: Huaca Pintada. Excavations encountered one grave and a total of twelve bowls.

19) Chongoyape 1: Site behind pueblo. Excavations encountered three graves and a total of six bowls, as well as sherds.

20) Chongoyape 2: Near modern cemetery. Excavations yielded sherds only.

21) Chongoyape 3: Site back of Cerro Mulato. Excavations encountered two graves and a total of four bowls, as well as many sherds.

22) Chongoyape 4: Paredones on Almendral hacienda. Excavations yielded a few sherds.

23) Chongoyape 5: Site on road between Pátapo and Chongoyape. No excavation, but surface sherds collected.

APPENDIX C: NAYMLAP LEGEND

Below is the original text of the so-called "Naymlap Legend" first recorded by a Spanish Jesuit Miguel Cabello Valboa (1951 [1586]:327-330) through his interview with local people in the area currently know as the Lambayeque Complex. It describes the arrival of Naymlap and his people in the area, the establishment of his dynasty, and the successions to the throne by his descendants after his death until the dynasty yielded to a powerful, invasive tyrant called Chimo Capac:

> Dicen los naturales de Lanbayeque (y con ellos conforman los demas pueblos a este valle comarcanos) que en tiempos muy antiguos que no saben numerarlos vino de la parte suprema de este Piru con gran flota de Balsas un padre de Compañas, hombre de mucho valor y calidad llamado N aimlap y consigo traía muchas concubinas, mas la muger principal dicese auerse llamado Ceterni trujo en su compañía muchas gentes que ansi como á capitan y caudillo lo venian siguiendo, mas lo que entre ellos tenia mas valor eran sus oficiales que fueron quarenta, ansi como Pita Zofi que era su trompetero ó Tañedor de unos grandes caracoles, que entre los Yndios estiman en mucho, otro Ñinacola que era el que tenía cuidadado de sus andas y Silla, y otro Ñinagintue a cuio cargo estaua la vevida de aquel Señor a manera de Botiller, otro llamado Fonga sigde que

tenia cargo de derramar polvo de conchas marinas en la tierra que su Señor auia de Pisar, otro Occhocalo era su Cocinero, otro tenia cuidado de las unciones, y color con que el Señor adornava su rostro, a este llamauan Xam muchec tenía cargo de bañar ál Señor Ollopcopoc, labrava camisetas y ropa de pluma, otro principal y muy estimado de su Principe llamado Llapchiluli, y con esta gente (y otros infinitos oficiales y hombres de cuenta) traia adornada, y auturizada su persona y casa.

Este señor Naymlap con todo su repuesto vino á aportar y tomar tierra á la boca de un Rio (aora llamado Faquisllanga) y auiendo alli desamparado sus balsas se entraron la tierra adentro deseosos de hacer asiento en ella, y auiendo andado espacio de media legua fabricaron unos Palacios á su modo, a quien llamaron Chot, y en esta casa y palacios convocaron con devocion barbara un Ydolo que consigo traian contra hecho en el rostro de su mismo caudUlo, este era labrado en una piedra verde, a quien llamaron Yampallec (que quiere decir figura y estatua. de Naymlap). Auiendo vivido muchos años en paz y quietud esta gente y auiendo su Señor, y caudillo tenido muchos hijos, le vino el tiempo de su muerte, y porque no entendiessen sus vassallos que tenia la muerte jurisdicion sobre el, lo sepultaron escondidamente en el mismo aposento donde auia vivido, y publicaron por toda la tierra, que el (por su misma virtud) auia tomado alas, y se auia desparecido. Fue tanto lo que sintieron su ausencia aquellos que en su venida lo auian seguido que aunque tenian ya gran copia de hijos, y nietos, y estauan muy apasionados en la nueva y fertil tierra lo desampararon todo, y despulsados, y sin tiento ni guia salieron a buscarlo por todas partes, y ansi no quedo por entonces en la tierra mas de los nacidos en ella, que no era poca cantidad porque los demás se derramaron sin orden en busca de el que creian auer desparecido. Quedo con el Ymperio y mando de el muerto Naymlap, su hijo mayor Cium el qual casó con una moza llamada Zolzoloñi: y en esta y en otras concubinas tubo doce hijos varones que cada uno fue padre de una copiosa familia, y auiendo vivido y señoreado muchos años este Cium, se metio en una bobeda soterriza, y alli se dejo morir (y todo a fin de que a su posteridad tuviessen por inmortal y diuina). Por su fin y muerte de este governo Escuñain a este heredero Mascuy, a este subcedio Cuntipallec y tras este governo Allascunti, y a este subcedio Nofan nech á este subcedio Mulumuslan tras este tuvo el mando Llamecoll á este subcedio Lanipat=cum, y tras este señoreo Acunta.

Sucediole en el Señorio FempeIIec, este fue el ultimo y mas desdichado de esta generacion porque puso su pensamiento en mudar á otra parte aquella Guaca ó y dolo que dejamos dicho auer puesto Naymlap en el asiento de Choc, y andando provando este intento no pudo salir con el, y a desora se le aparecio el Demonio en forma y figura de una hermosa muger, y tanta fue la falacia de el

Demonio, y tan poca la continencia de el Femllep, que dunnio con ella segun se dice, y que acabado de perpetuar ayuntamiento tan nefando comenzo a llover (cosa que jamas auian visto en estos llanos) y duro este diluvio treinta dias á los quales. subcedio un año de mucha esterilidad, y hambre: pues como los Sacerdotes de sus Ydolos (y demas principales) les fuesse notorio el grave delito cometido por su Señor entendieron ser pena correspondiente á su culpa la que su Pueblo padecia, con hambres pluvias, y necesidades: y por tomar de el venganzas (olvidados de la fidelidad de vasallos) lo prendieron y atadas las manos, y pies, lo hecharon en el pro, fundo de el mar, y con el se acabo la linea y descendencia de los Señores, naturales del Valle de Lambayeque ansi llamado por aquella Guaca (o Ydolo) que Naymlap trujo consigo a quien llamauan Yampallec. Durante la vida de Cium hijo heredero de Naymlap (y segundo Señor en estos Valles) se apartaron sus hijos (como dicho queda) a ser principios de otras familias, y poblaciones y llevaron consigo muchas gentes uno llamado Nor se fue al valle de Cinto y Cala, fue á Tucume, y otro á Collique y otros a otras partes. Un Llapchillulli hombre principal de quien dejamos dicho haver hecho mucho caudal el Señor Naymlap tanto por ser valeroso quanto por ser Maestro de labrar ropas de plumeria se aparto con mucha compaña que lo quiso seguir, y hallando asiento a su gusto en valle llamado Jayanca se pablo en el, y alli permanecio su generacion y prosapia.

Ya queda visto como por la muerte merecida que dieron los suyos á Fempallec quedo el Señorio de Lambayeque (y lo a el anexo) sin patron ni Señor natural en el qual estado estuvo aquella numerosa republica, muchos dias hasta que cierto Tirano poderoso llamado Chimo capac vino con invencible exercito, y se apodero de estos valles, y puso en ellos presidios, y en el de Lambayeque Señor y Cacique de su mano, el qual se llamo Pongmassa natural de Chimo este murio pacifico Señor, y dejó por sucesor á un hijo suio llamado Pallesmassa, a este sucedio su hijo Oxa, y fue esto en el tiempo y coyuntura que los Yngas andauan pujantes en las Prouincias de Caxamarca porque es ansi que este Oxa fue el primero que entre los de su linage tuvo noticia de los Señores Yngas desde las temporadas de este comenzaron a bivir con sobresalto de ser despojados de sus Señorios por mano y armas de los de el Cuzco. A este Oxa sucedio en el Cacicazgo un hijo suyo llamado Llempisan muerte este le vino el Señorio á ChuIlumpisan a este subcedio un hermano suyo llamado Cipromarca, y tras este señoreo otro hermano menor que se llamo Fallenpisan. Vino despues de este a tener el mando Efquempisan, muerto este subcedio Secfunpisan en cuyo tiempo entraron en este Piru.

Below is the English translation by Philip A. Means (1931:51-53) of the above legend:

The people of Lambayeque say – and with them agree all the folk living in the vicinity of this valley – that in times so very ancient that they do not know how to express them, there came from the northerly part of this Piru, with a great fleet of Balsas, a father of Families, a man of much valor and quality named Naymlap; and with him he brought many concubines, but the chief wife is said to have been named Ceterni. He brought in his company many people who followed him as their Captain and leader. But those among them who were of the greatest bravery were their officials, who were forty in number, including such men as Pita Zofi, who was the trumpeter or player upon certain great shells that are much esteemed among the Indians. Another was Ninacola, who was in charge of the litter and Throne; another was Ninagintue, in whose care was the drink of that Lord, after the fashion of a Butler; another was called Fonga Sigde, whose duty it was to scatter the dust of sea-shells upon the ground where his Lord was to Tread; another, Occhocalo, was his cook; another had charge of the ointments and color with which the Lord was wont to adorn his countenance, this official being Xam Muchec. Ollopcopoc supervised the bathing of the Lord. Another very important official, much esteemed by his Prince, was called Llapchillulli, and he wrought shirts and clothing of feathers. With this retinue, and with an infinite number of other officials and men of importance, he [Naymlap] brought his person and house, already adorned and established.

With all his possessions this Lord, Naymlap, made port and landed at the mouth of a River which is today called Faquisllanga, and having there abandoned their *balsas*, they went inland, desirous of making a settlement, and having advanced half a league, they built certain Palaces after their fashion to which they gave the name of Chot. And in this house and palace they invoked with barbarous devotion an Idol which they had brought with them made in the likeness of their chief himself and wrought from a green stone. They called it Yampallec, which is to say, "image and statue of Naymlap."

This people having lived for many years in peace and quiet, their Lord and Chief, having had many children, [knew that] the time of his death had arrived. In order that his vassals should not learn that death had jurisdiction over him, his [immediate] attendants buried him secretly and in the same room where he had lived, and they published it throughout the land that he, of his own virtue, had taken wings and had flown away. So great was the grief caused by his absence among those who had followed him at the time of his coming, that, although they now had a great number of descendants and were much attached to their new and fertile land, they abandoned everything and, dispersing without clue or guide, set forth to search for him in every direction. Therefore, there did not remain in the land more people than those who had been born there, which was no small number, for all the rest scattered themselves without rule or order in search of him who, so they believed, had disappeared.

The Empire and power of the dead Naymlap was left to his oldest son, Cium, who married a maiden named Zolzdoñi. By her and by other concubines he had twelve sons, each of whom was father of a large family; and having lived and ruled many years, this Cium placed himself in a subterranean vault and there he allowed himself die, all to the end that posterity might regard him as immortal and divine. After the end and death of this man Escuñain governed; and from him Mascuy inherited the kingdom; and to him succeeded Cuntipallec; and after him governed Allascunti; and to him succeeded Nofan Nech; and to him succeeded Mulumuslan; and after him the power was held by Llamecoll; to whom succeeded Lanipatcum; and after him Acunta ruled.

His successor in the Lordship was Fempellec who was the last and most unfortunate member of this dynasty, for he took it into his mind to move to another place the Idol which we have said had been placed by Naymlap in the palace called Chot. And he made several attempts to carry out his purpose, but without success. At this juncture the Devil appeared to him in the form of a beautiful woman; and so great was the deceitfulness of the Devil and so small was the continence of Fempellec that he slept with her, so they relate, and no sooner had a union so nefarious been consummated than rain began to fall, a thing which had never before been seen upon these plains, and this flood lasted for thirty days; after which followed a year of much sterility and famine. For, inasmuch as it was notorious among the Priests of their Idols and other important men that their Lord had committed this grave crime, they understood that it was the punishment for his fault that his People was suffering, with hunger, rain, and want. And in order to take vengeance upon him, forgetful of the fidelity which is owed by vassals, they took him prisoner and, tying his feet and hands, threw him into the deep sea. With his death was ended the lineage of the native Lords of the Valley of Lambayeque, thus called because of that Idol which Naymlap had brought with him and which was called Yampallec.

During the life of Cium, son and heir of Naymlap and second Lord of these Valleys, his sons set forth, as has been said, to be the beginnings of other families and peoples, and they took with them many followers. One of them, who was called Nor, went to the Valley of Cinto; and Cala went to Tucume; and another to Collique; and others went to other parts. A certain Llapchillulli, a very important man, of whom, as we have said, the Lord Naymlap had made much on account of his valor and because of his skill in making apparel of feather-work, set forth with a great following of those who wished to go with him, and, finding a place to his liking in the valley called Jayanca, settled there. In that locality his progeny and descendants have remained.

We have already seen how, by the merited death which his followers gave to Fempellec, the Lordship of Lambayeque and the country surrounding it remained without patron or native Lord. In that condition remained that populous republic during many days, until a certain powerful Tyrant called Chimo Capac came with an invincible army and possessed himself of these valleys, placing garrisons in them. And in that of Lambayeque he placed a Lord and Chief of his own choice who was called Pongmassa, a native of Chimo. He died a peace-loving Lord, and left as his successor his son named Pallesmassa. To him succeeded his son, Oxa, and it was in his time that the Yngas were passing in their power through the Provinces of Caxamarca, and thus it was that this Oxa was the first one of his lineage to have news of the Ynga Lords; and from this time forward the coast people began to live in constant dread of being despoiled of their Lordships by the arms of the people from Cuzco. This Oxa was followed in the Chieftainship by a son of his named Llempisan; and when he was dead the Lordship went to Chullumpisan; and to him succeeded a brother of his named Cipromarca; and after him a younger brother was Lord whose name was Fallenpisan. After him the command was held by Efquempisan; and on his death he was succeeded by Pecfunpisan, in whose time our Spaniards entered into this Piru.

APPENDIX D: SAMPLE SHERDS ANALYZED BY INAA

GMP001 to GMP010 (interior surface)

GMP001 to GMP010 (exterior surface)

GMP011 to GMP020 (interior surface)

GMP011 to GMP020 (exterior surface)

GMP021 to GMP030 (interior surface)

GMP021 to GMP030 (exterior surface)

GMP031 to GMP040 (interior surface)

GMP031 to GMP040 (exterior surface)

GMP041 to GMP050 (interior surface)

GMP041 to GMP050 (exterior surface)

GMP051 to GMP060 (interior surface)

GMP051 to GMP060 (exterior surface)

GMP061 to GMP070 (interior surface)

GMP061 to GMP070 (exterior surface)

GMP071 to GMP080 (interior surface)

GMP071 to GMP080 (exterior surface)

GMP081 to GMP090 (interior surface)

GMP081 to GMP090 (exterior surface)

GMP091 to GMP100 (interior surface)

GMP091 to GMP100 (exterior surface)

GMP101 to GMP110 (interior surface)

GMP101 to GMP110 (exterior surface)

GMP111 to GMP120 (interior surface)

GMP111 to GMP120 (exterior surface)

GMP121 to GMP130 (interior surface)

GMP121 to GMP130 (exterior surface)

GMP131 to GMP140 (interior surface)

GMP131 to GMP140 (exterior surface)

GMP141 to GMP150 (interior surface)

GMP141 to GMP150 (exterior surface)

GMP151 to GMP160 (interior surface)

GMP151 to GMP160 (exterior surface)

GMP161 to GMP170 (interior surface)

GMP161 to GMP170 (exterior surface)

GMP171 to GMP180 (interior surface)

GMP171 to GMP180 (exterior surface)

GMP181 to GMP190 (interior surface)

GMP181 to GMP190 (exterior surface)

GMP191 to GMP200 (interior surface)

GMP191 to GMP200 (exterior surface)

GMP201 to GMP210 (interior surface)

GMP201 to GMP210 (exterior surface)

GMP211 to GMP220 (interior surface)

GMP211 to GMP220 (exterior surface)

GMP221 to GMP225 (interior surface)

GMP221 to GMP225 (exterior surface)

APPENDIX E: STEP-BY-STEP PROCEDURES FOR INK IMPRESSION

STEP 1: Clean the sherd, particularly the rubbed surface with stamped design(s). Even small pieces of sand adhering to the surface will be rubbed and precisely reflected on the resultant image.

STEP 2: Cut the paper to the size of the sherd with one-half-inch margins on all sides (in order to roll up around the edges of the sherd) and put it over the sherd surface.

STEP 3: Wet the sponge properly in a cup of water and gently rub and moisten the paper so that it adheres firmly to the sherd surface. A pinch of cotton may be replaced for the sponge. All the bubbles need to be removed from between the paper and the sherd.

STEP 4: Moisten the one-half-inch margins spared on all sides of the sherd and roll them up around the sherd edges. This process will help to render the paper immovable on the sherd surface.

STEP 5: Leave the paper-covered sherd for a few minutes before applying ink. It is important to note that a hasty ink application will blur the resultant image, although the ink is oil-based.

STEP 6: When the paper gets half dried, apply ink to it by tapping with a cotton-stuffed bag. Care needs to be taken not to apply too much ink at a time. In order to duplicate subtle reliefs on the paddled surface, it is critical to apply ink little by little. For small dents that cannot be inked even by the small cotton bag, a dermatograph may be used.

STEP 7: Once the ink application is completed, the paper is ready to be peeled off of the sherd. Gently begin peeling it off, trying not to rip it.

STEP 8: Do not forget to give it a sherd ID number.

STEP 9: The finished ink impressions will have some creases that need to be smoothed out.

STEP 10: In order to smooth them out, work the papers into a folded large plane paper (e.g., copy paper).

STEP 11: Then, insert and press it in a thick book like a dictionary.

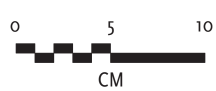
STEP 12: Once the creases are smoothed out, the impressed images are ready for identification and classification processes.

APPENDIX F: UNIDENTIFIED *PALETEADA* SHERDS FROM EXCAVATION AREA 6


0
5
10
CM


0
5
10
CM


0
5
10
CM


0
5
10
CM

VITA

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Publications:

Matsumoto, Go

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