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War and social life in prehispanic Peru: Ritual, defense, and communities at the fortress of Acaray, Huaura Valley

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WAR AND SOCIAL LIFE IN PREHISPANIC PERÚ: RITUAL, DEFENSE, AND COMMUNITIES AT THE FORTRESS OF ACARAY, HUAURA VALLEY

BY

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DISSERTATION

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Abstract

This is a study of ritual, war, and how those frame the construction of communities. Excavations at the fortress of Acaray in the Huaura Valley, Perú yielded evidence for conflict and ritual activities associated with two major time periods: the Early Horizon (ca. 900-200 B.C.) and the Late Intermediate Period (ca. A.D. 1000-1476). Using site survey and excavation data, a geographic information system to perform spatial analysis, and data on regional contexts this study demonstrates that Acaray was simultaneously a place constructed with defense in mind, and a locale for ritual activities linked to the strengthening of social bonds and defensive structures. The Early Horizon occupation was permanent, and Acaray was a fortified settlement with ceremonial structures at its summit. During the Late Intermediate Period, the use of Acaray is ephemeral. Ceremonial trash and offerings made during reconstruction of the fort, and during periodic visits, in the Late Intermediate Period are evidence of practices realized by a community of people living under the threat of war who used Acaray as a refuge. War, or the threat of war, framed the formation of communities during both time periods. In the Late Intermediate Period, a larger community of people converged to rebuild Acaray. This process is concurrent with an elaboration of ritual that I argue helped to maintain community identity. The offerings made during this time are also aimed at healing, coping with fear, ensuring security, strengthening defensive walls, and making explicit links to history – the prior occupation.
To the Browns and the Vegas, mi familia
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Chapter 1 Introduction

1.1 Introduction to the proposed research

Studies of war aim to understand its causes, its role in the evolution of societies, the modes of warfare, and its effects (Carneiro 1970; Ferguson 1984; Ferguson and Whitehead 1992b; Haas 1990; Keeley 1996; Redmond 1994). Recent efforts within anthropology and archaeology focus on the social experience of violence (Carman 1997; Martin and Frayer 1997; Scheper-Hughes and Bourgois 2004), emphasizing the interplay between larger social structures and the everyday actions of people (i.e., structure and agency) in contexts of conflict (Feldman 1991; Greenhouse, et al. 2002). This dissertation is an examination of warfare and the social contexts of war at the prehispanic site of Acaray in the Huaura Valley, Peru, a fortified hilltop site long recognized to be a fortress (Figure 1.1).

Figure 1.1 Composite photo of the fortress at Acaray facing southward. Photo and stitch by M. Brown Vega.

I originally proposed to investigate daily life in the context of war, violence, and conflict at the late prehispanic (ca. A.D. 1000-1476, known in local chronological terms as the Late Intermediate Period) settlement of Acaray. The Huaura Valley, in which Acaray is located, lies in an area that was purportedly conquered by the Chimú Empire of the Peruvian north coast (Figure 1.2). It also lies within the recognized territory of a smaller polity, known as Chancay, centered in the valley of the same name immediately
to the south of Huaura. Investigation of a fortification in a frontier area of an expanding empire and simultaneously at the edge of a smaller polity suggested a dynamic context, with the potential to investigate local negotiation of overlapping territories and political agendas, and the experience of conflict that hypothetically arose out of such tensions. The fortification of Acaray served as the primary evidence for conflict in Huaura.
Figure 1.2 Map of the North and Central coasts of Peru showing the location of Acaray.

Through a detailed study of the material remains of daily practices, I sought to measure the infiltration of violence in the lives of Acaray’s residents. Such a study would have enabled interpretation of the ways by which warfare may have been variably negotiated, and produced in contexts other than battle. My objectives were to test the
proposition that the people at Acaray were living under conditions of war, and to measure different social experiences of war. The research was guided by an interest in determining what groups of people were in conflict, their relationship to each other, and contact between local people and those in adjacent areas and valleys. Specifically the research aimed to: 1) elucidate daily practices within and outside of the fortress, 2) identify different groups of people living at the site by targeting different types of residential architecture, 3) build a local ceramic chronology based on stratigraphically excavated pottery with which to document micro-scale change over time, and 4) collect samples for radiocarbon dating to securely date those micro-scale contexts. I hypothesized that if there was a pervasive climate of violence at and around Acaray, then material culture recovered from excavations should reveal that people produced violence in everyday routines that conflated daily life with a regional political arena characterized by conflict.

Acaray is a multicomponent site, with an Early Horizon (ca. 900-200 B.C.) component underlying its Late Intermediate Period configuration. There was no evidence of an intervening occupation pertaining to the Early Intermediate Period (ca. 200 B.C.-A.D. 550) or Middle Horizon (ca. A.D. 550-1000), during which the fort was apparently abandoned. Although the remains of the Early Horizon occupation at Acaray have been disturbed by subsequent remodeling and use of the site, the nature of these remains hints at a more permanent occupation during this time. Abundant groundstone, bowl and cooking jar fragments, and subsistence remains suggest activities of a more domestic nature were carried out in and around the fort. The abandonment of the Early Horizon fortress may be related to the regional collapse of the Chavin sphere in the 3rd century B.C.
This early fortress formed the foundation for, over a thousand years later, the reconstruction of a new defensive site. Rather than finding evidence of a settlement, Acaray is characterized by more ephemeral use during the Late Intermediate Period. I think the residues of human activity in the fortress, likely the result of short-term yet repeated use over time, still speak to group or communal practices that took place there, and suggest something about the people who converged at the fortress from nearby in late prehispanic times. While lack of evidence for a permanent settlement made it difficult to examine of the militarization of daily life, evidence for ritual and other activities that were carried out periodically within a context of war, or the threat of war, suggest life was militarized nonetheless. I suggest that these activities were framed by desires for defense, security, and community maintenance.

In the Huaura Valley the two occupations of Acaray are linked to a different kind of defensive settlement pattern. During the Early Horizon there are at least six other forts that were in use at the same time in the lower Huaura Valley. This pattern suggests there was a network of defensive settlements in the valley. In contrast, Acaray is the only known Late Intermediate Period fortress in the lower and middle valley. Whereas in the Early Horizon groups of people gathered to fortify a number of hilltops, in the Late Intermediate Period people converged to build a single fortified site. The implication is that Late Intermediate Period people built a different kind of community, on a larger scale, as they rebuilt Acaray.

While this dissertation does not deal solely with warfare, it is an important element that has shaped the project, and that shaped the process of prehispanic community building and practices that are the focus of this study. Emphasis on
community building, memory, commemoration and monuments, and daily life does not
diminish the very real imprint of warfare or conflict on people. Thus, understanding
regional contexts of war at one scale, and the practices of people on the ground at a
smaller scale, requires a multi-scalar approach (Joyce and Lopiparo 2005; Pauketat
2001:83). In the present study, regional processes of territorial expansion by polities and
imperialism, intercommunity warfare, and ritualized warfare are all models that are
assessed in light of the data presented. This scale of analysis is balanced by analyzing the
material remains of practices at a single site within a larger geographical and historical
sphere.

This dissertation is also a contribution to the literature dealing with the
transformation of societies as they come into contact with one another. During the Early
Horizon Acaray is part of a regional process involving the violent encounter of groups of
people. In the Late Intermediate Period, Acaray is related to the expansion of the coastal
Chimú Empire. More powerful entities impact smaller-scale organizations of people,
such as those of the Huaura Valley. Some scholars have tended to homogenize the
“indigenous” practice of warfare (Ferguson and Whitehead 1992b) such that any
archaeological treatment of pre-Western-contact conflict would be subsumed under that
heading. In this case, the expansionist polities discussed are pre-contact ones, not
European colonial powers. It is important to understand the diversity of the practice and
experience of warfare prior to the colonial encounter, because it does exist (Chacon and
Mendoza 2007). Furthermore, culture contact is a process that exists prior to European
expansion, and we require more information on the nature of such contacts throughout
human history. Conflict and change underlie not only ethnographic patterns visible today
or historically (Ferguson and Whitehead 1992a:3), but archaeological patterns as well. The differences in conflict during the Early Horizon and Late Intermediate Period as evidence at Acaray are brought to bear on understanding variability in prehispanic warfare.

1.2 Organization of the dissertation

The dissertation is organized into eleven chapters. Chapters 2-4 establish the framework of the dissertation. Chapter two outlines the theoretical approaches that informed the project from its inception, and the theories applied to analysis and interpretation. I discuss literature and ideas related to the study of warfare and fortifications. I also discuss how those two broad themes relate to studies of frontiers, ritual, and community formation. Chapter three provides a culture history of the Andes, beginning with a general cultural scheme for time periods beginning with the archaic period (ca. 3000 B.C) and continuing to the Inca Empire (ca. A.D. 1476-1532). I relate detailed information about the geographical area of focus within the Andes, and provide background on area specific reconstructions of history. I then provide more specific details on prior research in the region, in the Huaura Valley, and at the site of Acaray. I conclude with a brief presentation of some of the problems faced due to issues with chronology. Chapter four outlines middle range expectations for various aspects of war, fortification, and site function. I consider not only criteria used to determine defensive function, but also non-military uses of fortified sites.

Chapters 5-7 primarily describe and focus on the fieldwork carried out for this dissertation. Chapter five explains methods used at various stages of the research. Chapter six discusses the results of mapping, which allows for a detailed description of
the site. I discuss the major architecture, surface collections, and analyses performed using a geographic information system (GIS). Chapter seven is a detailed description of the excavations carried out.

Chapters 8-10 focus on analysis. Chapter eight presents results of radiocarbon dating, permitting a discussion of contexts by time period at Acaray. This sets the stage for understanding subsequent chapters. Chapter nine then places Acaray in a regional context based on the radiocarbon dating. I discuss patterns of fortification for the Early Horizon (ca. 900-200 B.C.) and the Late Intermediate Period (ca. A.D. 1000-1476). Chapter ten is an analysis of excavated contexts at Acaray. I discuss special contexts as well as artifact classes as evidence of the nature of the use and occupation of Acaray.

Chapter 11 presents the primary interpretations and conclusions drawn from this research. I discuss interpretations in light of the theories presented at the beginning, and draws conclusions based on this evaluation. I conclude the chapter by outlining future directions for research, and detailing the specific questions that arise out of the present study. This section is followed by relevant appendices which contain detailed descriptions in text or table form of data and analyses.
Chapter 2 Theoretical Lens’: Anthropological and Archaeological Approaches to Conflict and Ritual

2.1 The Problem

Politics, economics, and ideology are very broad, perhaps more theoretically traditional foci of warfare studies. This dissertation not only builds off of those, but seeks to address the social theoretical implications of these models as well. These top-down models, however, should be countered by bottom-up models of social processes, such as ritual and war, which locate change in the collective actions of people. This entails a focus on the practices of people within a context of war, as they relate to conflict but to other realms of daily life as well. I take an explicitly practice theory approach as I examine war, ritual, and community practices in this dissertation. From the outset, I recognize that this type of approach is most effective when employing large data sets (Pauketat 2001:86-87). In this study I do not have access to such a database, as it does not yet exist (see section 3.2.3 on prior research). This, however, is a starting point, and I find it useful to use a practice framework to approach this research and interpret the data. The data consist of high resolution surface data which permit a variety of spatial analyses, and excavation data of a variety of contexts in and around the fortress of Acaray.

This study examines the relationship between ritual and conflict at the archaeological complex of Acaray in the Huaura Valley, Perú (Figure 2.1). The analysis of such a relationship entails an assessment of conflict in terms of the defensive features of the site indicative of warfare and the possible social and political contexts of such conflict. Evidence uncovered through excavation that is indicative of ritual necessitates an assessment of the ritual nature of warfare, and how they relate to themes of collective
memory and community building. This chapter lays out some of the guiding questions and theoretical frameworks that inform on this study.

Figure 2.1 Map showing Acaray with inset of Huaura Valley. Contour lines are at 1 meter intervals.

2.2 Guiding Questions about Site Function, Construction, and Reconstruction

Determining site function remains an important part of archaeological studies. Given the recent paradigm shift within the field that emphasizes history and process (Pauketat 2001) the assignation of a single site function type is tenuous. People live and use places over long stretches of time in a variety of ways that make it difficult to determine a single function. The very nature of archaeological investigation, that it is diachronic, necessitates the incorporation of greater variability in how we determine how
places were used through time. But the sole purpose of this study is not functional. Rather, by thinking through what kind of space Acaray was I am able to assess social processes that are the most relevant to its appearance on the landscape.

Function remains an important element for understanding the subsequent uses of the fortress of Acaray. The site was rebuilt over a thousand years after its initial construction. While the different temporal configurations of Acaray may look similar, the data presented in this thesis demonstrate distinct assemblages and spatial organization that indicate different uses of the fort. These distinct occupations allow for an assessment of different historical and cultural contexts behind the use of Acaray through time. These differing contexts entail looking not only at conflict as something that framed life, but also the role of ritual, memory, and place in creating, negotiating, and perpetuating collective identity (Dillehay 2004; Isbell 1997; Pauketat 2003; Rowlands 1993).

2.3 Review of studies of warfare and fortification

Warfare has been a topic of anthropological, and archaeological study (despite the claims of Ferguson 2006:469), for over a half a century (Childe 1941; Malinowski 1941). Archaeological studies of warfare have traditionally focused on the role of warfare in the development of complex societies (Carneiro 1970; Haas 1989; Marcus 1998; Spencer 2003; Wilson 1983), the modes of warfare (Redmond 1994), or the practicality of identifying warfare, and more generally violence, in the archaeological record (Martín and Frayer 1997). A shift toward a more social archaeology of war and greater emphasis on history (Gilchrest 2003; Sahlins 1985; Thorpe 2001; Wiessner and Tumu 1998) has transformed how we approach and interpret war in the past. A social archaeology of
warfare emphasizes the social experience of war and conflict. Daily life is filtered through these contexts.

Recent reassessments of ritual and warfare seek to break down the false dichotomy often used to separate the two (see for example Arkush and Stanish 2005; Brown and Stanton 2003; Ghezzi 2006; Webster 2000:104-106). However, the recognition of warfare as a social construction imbedded in other aspects of life, and perhaps working in tandem with the making of other aspects of society and culture, has gone understudied in archaeology. In this section I review literature dealing with warfare and sociopolitical processes in frontiers and peripheries, warfare and ritual, and warfare as related to communities and the construction of identity.

2.3.1 Fortifications in frontiers or peripheries of regional sociopolitical landscapes

The question of why Acaray was built implicates regional sociopolitics. I assert that it is a fortification lying on a peripheral area of the Chavín sphere of interaction during the Early Horizon (Figure 2.2), and on a frontier of the Chimú Empire during the Late Intermediate Period (see Figure 3.2; also see Chapter 9). Thus, it is necessary to review and consider here fortifications and their construction in contested areas. I point out, however, that I do not deal directly with theorizing the concept of frontiers. The literature on the archaeology of frontiers, borders, and peripheries is abundant, and most recently is aimed at decolonizing thought on people and process in frontiers (Lightfoot and Martinez 1995). That is not my specific project now, and I do not believe I have the data to effectively address that body of theory. I do see it as a future line of inquiry, but here I focus on the construction of fortification in frontiers.
According to the Oxford Companion to Military History, “the art of fortification consists of the combination of terrain with available materials to form defenses”. In areas experiencing warfare (vs. raiding), maybe due to state expansion, we may see the rise of armies and defensive architecture (Hassig 1992:32). Depending on a number of factors (these are elaborated in Chapter 4) fortifications appear on the landscape in varying densities. In frontier areas of expanding polities, fortifications may appear in clusters. This may be due to increased investment by the conquering polity in a hard to annex territory, the need for defense by the polity which is being encroached upon, or both simultaneously. Frontier areas monitored by fortifications may also be located in buffer zones where settlement is sparse or largely absent (Keeley 1996:132).
Figure 2.2 Map showing major Early Horizon sites.
Fortifications may also be isolated, or appear to be so depending on the scale of analysis. For example, the outpost in the Cuicatlán de Cañada in the Zapotec state of Oaxaca, Mexico (ca. A.D. 200) was separated by a distance of 100 km from the main fortified settlement of Monte Albán in the Valley of Oaxaca (Marcus 1998:Fig 3.3; Spencer 1982). The Susiana state in Mesopotamia had an outpost 250 km from its center (Marcus 1998:78). Both of these, however, were part of a regional landscape of imperial control by a distant power.

However fortifications do not always signal the need for defense, as has been argued for Monte Albán in the valley of Oaxaca, Mexico (Hassig 1992:41-42). They may be constructed as a means to threaten, show dominance, or symbolize power (Liston and Tuggle 2006:151). Fortified settlements, such as centers like Monte Albán in Oaxaca (Spencer 2003), or Cerro Baúl in Moquegua (Williams 2001), or the Castillo complexes of the Moche society (Willey 1953) all have evidence of administrative and ceremonial activities, such as banquets (Moseley, et al. 2005). Recalling the point made above that fortifications, like many other sites, serve multiple ends it should be expected that at a fortified site evidence for ceremony, administration, and shows of power will be encountered.

### 2.3.2 Warfare and ritual

The relationship between ritual and warfare has been recognized for past societies (for the Inca see D'Altroy 2002:221; Rowe 1946), and is well documented ethnographically (Saunders 2003; Weiner 1985:220; Wiessner and Tumu 1998). However, it has been easy to separate the two by creating a dichotomy between ritual warfare and real warfare (Arkush and Stanish 2005:10; Keeley 1996; LeBlanc 2003;
Topic and Topic 1997:568), an approach that also has a long history in anthropology and military studies (Turney-High 1971). This has created not only an ethical problem for scholars, but it has also impeded our understanding of certain contexts of warfare. In terms of ethics, the dichotomy has tended to minimize the very real impact of violence on communities thought to practice ritualized warfare, societies that are “more primitive”. “Primitive warfare” has also been likened to a sport or athletic activity – a game (Turney-High 1971:167). Real war, on the other hand, is thought to be political, waged for mundane ends such as the acquisition of territory, but having little social significance (Quilter 2002:167). As a result, these approaches have also minimized the integral role ritual plays in all manner of conflict and war, in societies at all levels and in all times, including today. One would be hard pressed to argue that the current “war on terror” is not permeated with religious and ritual overtones and motivations on all sides, despite the political and economic ends also apparent. In fact, one could not fully understand, from an anthropological perspective, this war without paying attention to such elements and the social and cultural constructions they put into play. Even the U.S. military acknowledges the importance of understanding ritual in combat situations, since they include definitions of symbol, ritual, and other concepts used in sociology and anthropology in their Counterinsurgency Manual (Price 2007).

Rituals are embedded in many aspects of social life. While I draw on notions and discussions of ritual that emphasize their role in the realm of the “sacred” (Turner 1974), I recognize that rituals are ever-present, and evidence for them can be found in houses and other mundane spheres not specifically consecrated as sacred. Some ritual practices are appropriated for the garnering and maintenance of power on a large scale, while other
rituals remain an enactment of small-scale desires (Lucero 2003). Thus the difference between state ritual and domestic ritual is one of scale. Groups, communities, or nations all come into being through ritual practices, which serve to make new collective identities and shared histories (Kelly and Kaplan 1990:141).

With regard to warfare, rituals are often carried out to ensure success in battle, in the midst of battle, and following battle in the form of funeral rites or other ceremonies that address the drawn out aspects of warfare beyond the battlefield (Redmond 1994). These rituals may take place in a variety of places, carried out by different classes of people, dictated by the practicalities presented by war.

Theoretical discussions on ritual vary. In times of crisis, when there is war or conflict, or the threat of it, rituals are employed to deal with those fears (Turner 1974:33) or mask them (Wolf 1999:32), and thus we might actually expect to find increased ritual activity in such times. Here it is appropriate to discuss the concept of scalar stress and how it relates to ritual (Johnson 1982:405-407). Ritual may serve to integrate groups which come together that do not have preexisting structures that accommodate larger group size. Thus, this kind of stress can result in the elaboration of ritual. While interpretations of ritual that characterize it as a response to crisis or scalar stress are very functional, they nevertheless draw attention to the possibility for ritual change and elaboration as people come together in new and perhaps unanticipated ways. By implication ritual practices in the context of groups converging for defense may signal attempts to strengthen new groups identities. I discuss this more in the next section.

However, portraying ritual as something special outside of the realm of everyday existence prevents us from understanding much of human life. Ritual, like war and its
counterpart fear (Green 1994), are embedded in daily existence. Archaeologically we can detect material remains of a variety of ritual practices, mundane or otherwise. It may be difficult to sort out which is which, or understand the symbolic meaning behind these practices, but they are there. To avoid falling into the trap of trying to interpret symbolic or ideological realms, a focus on the materiality of ritual practices allows us to more directly interpret the archaeological record (Walker 1998:249).

Scholars have discussed ritualized forms of warfare for archaeologically and ethnographically documented people. In Central Mexico the Aztec “Flower Wars” were planned with an opposing polity, followed certain parameters or scripts, and resulted in the capture of warriors for sacrifice (Hassig 1988:146-147). Ritualized types of competition such as the Mesoamerican ball game are linked to war as well (Fox 1996:505). The Moche of the Peruvian north coast engaged in ritual forms of combat, also resulting in prisoner capture and subsequent sacrifice (Bourget 2001). In the Andes the ritual battle known as tinku is practiced today, involving much ceremony and performance related to paying homage to shrines or to important calendar days (Bastien 1985; Orlove 1994). It is argued that these battles existed in prehispanic times as well (Topic and Topic 1997).

Archaeologically in terms of ritual and warfare people have focused on reinterpreting the obvious, monumental aspects of these practices. Discussions of “sacred war temples” (Kolb and Dixon 2002:518) or “fortified temples” (Ghezzi 2006) call attention to the “religious” nature of warfare in some societies, and the problem with assigning defense as the sole function of fortifications (Vencl 1999:69). Fortifications in these contexts are viewed as having ritual and defensive activities within the sites. In
Mesoamerica, Aztec and Maya warfare is also viewed as having some tie to gods and ritual, although wars might not have been specifically motivated by religion (Hassig 1992:147). The imperial/conquest form of war of the Aztecs and the raiding wars of the Maya highlight how two different kinds of warfare show a relationship between battle and ritual. An explicit link between war and religion, however, is apparent for the Longshan and Zhou period in China (Underhill 2006:261, 274-277). The use of forts as temples has been documented ethnographically in the Cauca River Valley in Colombia (Kelekna 1998:171).

Hillforts of the Iron Age in Europe were long believed to be tied to warfare. However, there is greater variability in their layout and the nature of the remains contained within them. Those located in Ireland and Wales have been interpreted to be places of ceremony and assembly, and may not have had a military function (Raftery 1976; Wailes 1976). Some of the causeway enclosures known in Britain appear to have nothing to do with defense (Thorpe 2005:1), although this is debated (Keeley 1996). This draws attention to the problem of interpreting fortified sites in general: if defense is an activity, it must be assessed and not assumed, and the same holds true for any other type of activity, including those of a ceremonial or ritual nature.

Fortifications can also be tied to the political agendas of advancing states, either as strategic sites from which to annex more territory, or as defensive locations from which to fend off such advances. That does not negate their potential ritual or symbolic significance (Liston and Tuggle 2006:151), but this does not necessarily have to be true. Political rituals can be intertwined with warfare (Wiessner 2001:123; Wiessner and Tumu 1998). Thus aggregations or congregations of people at fortifications may be significant
militarily, politically, and socially. And while ritual and military concerns may be materialized in the sites themselves, they might also be detected in the remains and residues left within these spaces. Thus, it is appropriate to look at varying scales of analysis when attempting to track warfare and ritual practices.

2.3.3 War, communities, and identity

Tied to the notion of ritual as a response to conflict or crisis is the notion that ritual creates social cohesion in such times, or “communitas” (Turner 1974:49). Early studies of social structure indicated that conflict or tension against other groups could solidify group identity (Murphy 1957; Turney-High 1971:141). This strand of thought is still around (Arkush and Allen 2006:288). Any collective identity comes into being through “its own characteristic rituals” (Kelly and Kaplan 1990:141). However the need for social cohesion should not be seen as the motivation for collective violence such as warfare. Community building in times of conflict can be linked to the goals of common defense, shared experiences of war, and activities associated with them, but also to rituals associated with these times and places before and after war. It is the repeated congregation and participation in common practices that builds group membership, and warfare may be something that motivates such practices. The community is ephemeral (Yaeger and Canuto 2000:6), existing in the space in which practices are carried out by group members. Because of this temporality, the practices must be repeated in order for community to continue, for the building of collective memory, and for identities to be asserted (Halbwachs 1992). It is “an ever-emergent social institution that generates and is generated by supr ahousehold interactions that are structured and synchronized by a set of places within a particular span of time” (Yaeger and Canuto 2000:5).
In areas without material evidence of elite warriors or iconography linked to individuals who may gain status as a result of war or battle, such as we see in Mochica, Maya and Aztec society, warfare can be reflected in collective tasks (Arkush 2006:311). One such task would be the construction of fortifications, which may also be centers for ritual and ceremony related to war that draw people together (Quilter 2002:175-176). Another task would be the task of defense, an ongoing goal both prior to, during, and after the construction of a fortified center.

Communal rites or ceremonies can be employed as strategies for the acquisition of power by leaders (Lucero 2003:523), and for intensifying social inequality (Swenson 2003:257), while reinforcing group mentality/identity at the same time. Sometimes these communal or large-scale rituals are appropriations of household or smaller-scale rituals “writ large” (Walker and Lucero 2000:131), where they become politicized (Pauketat 2000). Rites can be integral to the construction of structures, whether a house or a large fortress. A workforce, however large or small, is required to build, particularly a fortification or any ‘big’ (i.e. monumental) site. This means that people congregate, build together, and engage in communal or group activities surrounding the construction. In the construction of places, these actions take place in the public sphere, and are at the supra-household level. As people build they “construct, de-construct, and re-construct cultures” (Pauketat and Alt 2005:214), so ritual linked to communal activities of construction have bearing on understanding culture construction as well.

Fortifications continue in use later in time, sometimes remembered and commemorated, which results in evidence of different types of activities. Their construction may involve dedicatory caches, while rituals related to reconstruction and
subsequent use might be interpreted as termination, abandonment, or renewal practices, which have been documented for the American Southwest and Maya areas (Walker and Lucero 2000), as well as Europe (Pollard 2001). Practices such as “ritual maintenance” can be important to processes of site abandonment that are drawn out over time (Nelson 2003). Forms of ritual maintenance have been documented for Great War (World War I in U.S. terms) sites in Europe that show how these places are crucial to collective memory and identity (Saunders 2003).

Fortifications or battlefields can become war monuments with the aim of remembering, or not allowing people to forget. Processes of construction and reconstruction implicate continuity, and the creation and maintenance of group identities over time. The “afterlife” of a site then involves remembering a past linked to that place. Commemoration might involve pilgrimage to the site, or sites, and periodic ritual offerings at what become shrines (Harvey 2001:205; Saunders 2001:43-44). Appropriation of the power or significance associated with history and place gives strength to ongoing and future social and political actions (Dietler 1998). But it is worth noting that pilgrimage shrines in particular have been interpreted as both sites in which elite state ideologies are inscribed and reinforced, and as sites of resistance to such agendas (Bauer and Stanish 2001:19-20). Characterization as either one or the other, or somewhere in between, does not negate that pilgrimage, for whatever end, is a communal endeavor (Sallnow 1987).

Looking on the one hand at social contexts in a frontier area framed by the threat of war, and on the other, at practices that take place at a single site with the purpose of building and reinforcing community, necessitates “tacking” back and forth between
different scales of analysis, between general comparative models and on-the-ground
details of specific contexts that form a framework necessary for interpretation (Lightfoot

To summarize, this study is informed by different strands of theory depending on
the scale of analysis. At the regional scale, the concepts of frontier and periphery are
important for examining broad processes in which Acaray is embedded. At the scale of
the site, practice oriented approaches that examine ritual and defense are used to interpret
the construction of community and identity.
Chapter 3 Regional Contexts

In this chapter I present a cultural historical framework within which to place this study. This framework is then followed by more detailed information of the region, and prior research conducted in the Huaura Valley and at Acaray. This allows me to review the data on which this dissertation was built, and at the same time point out some of the problems or holes in our knowledge.

3.1 Central Andean Chronology

Cultural developments and prehispanic society in the Huaura valley, and more regionally, are not well understood primarily due to lack of investigation. Pan-Andean chronologies and studies outside of the area can however be tentatively tied to the little information that has been published on the history of Huaura. Much of the information that we have is regarding ceramic collections, which is an important first step toward linking material cultural and social developments. However ceramics have often been used as an analog for people and this can impede our understanding of regional prehispanic societies. I will first review this information and return to this point below.

Because the research discussed in this dissertation is focused primarily on two time periods, the Early Horizon (ca. 900-200 B.C.) and the Late Intermediate Period (ca. A.D. 1000-1470), this chapter will emphasize what we know of regional histories during these periods with only minor attention to prior, intervening, and later periods. In each time period I try to focus in particular on evidence for warfare or conflict, since these themes are relevant theoretically. I follow Rowe’s (1962) chronology for the Central Andes (Table 3.1), although varying date ranges are currently in use for all time periods of this chronology by Andean scholars. This is due in part because of increasing research aimed
at refining this chronology, or even bringing into question its utility.

<table>
<thead>
<tr>
<th>Central Andes</th>
<th>Year range</th>
<th>Cultures/polities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial Period</td>
<td>A.D. 1532-1821</td>
<td>Spanish conquest and colonization</td>
</tr>
<tr>
<td>Late Horizon</td>
<td>A.D. 1476-1532</td>
<td>Inca</td>
</tr>
<tr>
<td>Late Intermediate Period</td>
<td>A.D. 1000-1476</td>
<td>Chimú, Chancay, Yschma, Ica</td>
</tr>
<tr>
<td>Middle Horizon</td>
<td>A.D. 550-1000</td>
<td>Wari, Huaura, Teatino, Sicán, Tiwanaku</td>
</tr>
<tr>
<td>Early Intermediate Period</td>
<td>200 B.C.- A.D. 550</td>
<td>Moche, Recuay, Lima, Nasca</td>
</tr>
<tr>
<td>Early Horizon</td>
<td>900-200 B.C.</td>
<td>Chavin, Cupisnique, Paracas</td>
</tr>
<tr>
<td>Initial Period</td>
<td>1800-900 B.C.</td>
<td>Casma</td>
</tr>
<tr>
<td>Preceramic</td>
<td>3000-1800 B.C.</td>
<td>Caral, Norte Chico</td>
</tr>
</tbody>
</table>

Table 3.1 Central Andean chronology using periods and horizons as outlined by Rowe (1962).

**From the Late Archaic to the Early Horizon (B.C. 3000-200)**

The Preceramic Period (ca. 3000-1800 B.C.) is a particularly “precocious” period in which early settled life and the rise of complex societies in the Andes begins (Craig 2005; Haas and Creamer 2006; Haas and Creamer 2004; Shady, et al. 2003; Shady Solis, et al. 2001; Vega-Centeno Sara-Lafosse 2005). The near north coast, or *norte chico*, has been identified as one locale in which this early complex organization takes place.

Around thirty archaeological sites from this time period from the *norte chico* valleys are known, and represent a level of complexity far beyond what had come before (Haas and Creamer 2006:745-746). Monumental mound complexes are built with similar layouts, and assertions have been made that coercion may have played a role. Anecdotal evidence of conflict has been mentioned in the literature, but there are no data that support an interpretation of this period as characterized by violence or war (Engel 1963; Topic 1989).
In the following Initial Period (ca. 1800-900 B.C.) on the central and north coasts, the construction of large ceremonial centers continued upon traditions of building monumental architecture that began in preceramic times. Monumental centers of the north coast Casma Valley (S. Pozorski and T. Pozorski 1987), the central coast valleys (for Lurín see Burger and Salazar-Burger 1991), and monumental highland centers such as Huaricoto are argued to be associated with large-scale civic-ceremonial activities (Burger 1980; Burger and Salazar-Burger 1985). The central coast is characterized by U-shaped centers (Fung Pineda 1988:85).

The relationship between Initial Period developments and the subsequent Early Horizon is not clear (T. Pozorski and S. Pozorski 1987). Some scholars have suggested a fall of the great Initial Period centers around 900 B.C. related to drought (Moseley 2001). Burger (1995) has suggested the fall of these centers may be related to conflict. Changes in material culture, architecture, and subsistence patterns in the Casma valley at around 1000 B.C. are argued to be the result of a military conquest (Pozorski 1987:25). The elaborate iconography of stone monoliths at the site of Cerro Sechin, and similar adobe friezes at Pampa de las Llamas-Moxeke, in the Casma Valley depict warriors: some are interpreted to be foreign victorious warriors, while dismembered figures are viewed as representing the defeated Casma peoples (Pozorski 1987:27). Upon the fall of the Initial Period centers a large part of the Central Andes is characterized by the widespread adoption of iconography which appears on megalithic and more portable materials, known as the Early Horizon.

In the Early Horizon we see the emergence of what people have characterized as a religious cult or polity called Chavín. Chavín culture is characterized by megalithic
construction, elaborate megalithic art, as well as portable art forms such as textiles and ceramics (Tello 1943). The spread of stylistic elements has been the focus, although it is recognized that there is a concomitant ‘sphere of interaction’ that brought about political and economic changes as well (Burger and Matos Mendieta 2002:172). It is now apparent, however, that there is a difference between the chronological period known as the Early Horizon, and the shorter period in which the widespread Chavín phenomenon takes place – the Chavín Horizon (ca. 500-300 B.C.).

Chavín is believed to emanate out from the Central Andean highlands from centers such as Chavín de Huántar, located in the department of Ancash. Chavín ‘influence’ has long been recognized along the north, central, and south coasts of Peru as well (Carrión Cachot 1948; Druc, et al. 2001; Silverman 1994b; Tello 1943; Willey 1951). Chavinoid ceramics in particular, but textiles as well, have been encountered far and wide in much of the Central Andes at this time, hence the characterization of this period as a Horizon (Bennett 1943; Kroeber 1944; Willey 1945). The Cupisnique culture on the north coast of Peru, believed by some to be the coastal manifestation of a highland Chavín tradition, shares elements of Chavín iconography, such as decapitation and trophy head taking (Cordy-Collins 1992).

Recent research has made it increasingly difficult to define the temporal boundary between the Initial Period and the subsequent Early Horizon at the type site of Chavín de Huántar. Some scholars have argued that the beginnings of Chavín de Huántar may go back to the Initial Period, ca. 1000 B.C (Rick, et al. 1998:208). Elements of that site, one of the most investigated Early Horizon sites and the type site for Chavin, have been linked to both the highland Kotosh-Mito tradition (Burger and Salazar-Burger 1985) and
the coastal U-shaped monumental traditions (Fung Pineda 1988) of the Initial Period. The
debate as to whether Chavín, be it a culture, religion (Burger 1984; Carrión Cachot
1948), empire, or art style (Willey and Corbett 1954:xiii), originates in the highlands
(Tello 1943) or the coast (Larco Hoyle 1941) (for jungle origins see Lathrap 1973)
highlights the problem of framing such processes in terms that ignore people’s movement
between the two zones.

It is thought that some of the earliest fortifications in the Andes belong to this time
(but see Topic 1989; Topic and Topic 1978, 1987). I discuss these patterns of regional
fortification in greater detail in Chapter 9. Traditionally it was thought that the Chavín
‘civilization’ begins to collapse and disintegrate in the third century B.C. (Burger
1995:228). However, it now appears that the highland center at Chavín de Huántar
becomes a squatter settlement by ca. 500 B.C. (Kembel 2001:251; Rick 2005:74),
suggesting that at least that center collapsed earlier than the third century B.C. Most
recently, Rick has suggested that militarism characterized the time before Chavín’s
collapse (Rick 2006), meaning prior to 500 B.C. Alternatively, Burger (1995) has
suggested two times of possible warfare: one related to the fall of the Initial Period
centers at the beginning of the Early Horizon (ca. 900 B.C.), and one related to the
collapse of Chavín (ca. 300 B.C.). The onset of conflict in the Early Horizon, then,
becomes attributed to the end of the period. However, the hilltop fortifications that appear
on the coast in the Huarmey, Casma, and Nepeña valleys at the end of the Early Horizon
are argued to be the manifestation of the consolidation of the foreign forces that invaded
these areas at the beginning of the Early Horizon (Pozorski 1987:29). This would suggest
that the coastal Early Horizon fortifications are not related to the Chavín collapse, but to
an early period of Initial Period collapse. Obviously there is debate as to when Chavin collapses, and thus as to when the associated conflict takes place. These discrepancies and debates remain difficult to resolve without radiocarbon dating of the forts themselves.

On the south coast of Peru there is evidence for conflict during the Early Horizon. Abundant weapons found in Paracas burials, and numerous skulls with holes that are interpreted as blunt force trauma, have been reported for the Early Horizon (Engel 1976:153-154). However, the battles that Paracas people may have experienced are argued to have been “of a sportive or magical character” because of iconographic depictions of trophy heads on textiles of the time period (Engel 1976:154). There is no strong evidence for fortification on the south coast for this time period. Although Paracas is argued to be at the southern reaches of the Chavin phenomenon, there are few characteristics other than shared iconography that can be tied into processes argued to take place in the central highlands and on the north coast.

The Early Intermediate Period and Middle Horizon (200 B.C. – A.D. 900)
After the purported unity attributed to the Early Horizon, sandwiched in between two periods of conflict and upheaval (T. Pozorski and S. Pozorski 1987:45), the following Early Intermediate Period (ca. 200 B.C. – A.D. 550) is characterized as a time of ‘regional development’ (Lumbreras 1974). It is argued that people are no longer linked by shared religious or sociopolitical material culture or institutions. The study of the more well-known regional cultures of Moche and Nasca of the north and south coasts, respectively, have overshadowed research of other cultures of this time period, such as Gallinazo, Salinar, Lima, and Huarpa. Both Moche and Nasca societies experienced
conflict. Because there are debates surrounding the nature of this conflict, and the emphasis on ritualized forms of warfare, I will discuss conflict in these two societies.

There are iconographic depictions of warriors and prisoners, battle scenes, and violence in much of Moche pottery (Reichert 1989). A prisoner scene on a mural from the site of Pañamarca also depicts this imagery (Bonavia 1961). Mass sacrifices at the site of Huaca de la Luna in the Moche Valley (Bourget 2001; Verano 2007) are also interpreted as being related to either ritual battles or all out war in Moche society. Moche warfare is argued to have been an important part of the development of state-level society (Billman 1997). And institutionalized ritualized violence, such as human sacrifice, is argued to have played an important role in building and perpetuating hierarchy and societal inequality (Swenson 2003). Decapitation is a form of ritualized violence depicted in Moche material culture, and is argued to have roots in traditions that began during Cupisnique times (Cordy-Collins 1992).

Weaponry has been recovered from tombs in Nasca society, and they are depicted as well on textiles and ceramics. Iconography depicting trophy-head taking, as well as the recovery of trophy heads from archaeological contexts, further speaks to conflict in Nasca society (Browne, et al. 1993; Proulx 1989). While there are many ritualistic elements to Nasca militarism, it is recognized that the Nasca polity expanded by conquering other areas, introducing Nasca cultural traits into these areas, and thus was tied to a political project of territorial expansion (Proulx 1989:82). Some Nasca sites were fortified, although investigations into this area of Nasca life are virtually non-existent.

Following the Early Intermediate Period much of the central Andes were impacted by the rise of two expansionist states during the Middle Horizon: The Wari Empire of the
central highlands with its heartland near modern-day Ayacucho, and the Tiwanaku state of the Titicaca Basin. Tiwanaku appears to have had little to no influence or interaction with the norte chico region. Wari’s influence north into the area of the norte chico is also unclear. However, it is relevant here to discuss the site of Cerro Baúl in the Moquegua Valley where these two polities were in contact with each other. Discussions of imperial frontiers, colonies, and fortification in this area demonstrate approaches by Andeanists toward warfare.

Wari centers have high walls and restricted access. These centers are not believed to be military installations but rather aimed at extracting resources from populations or tapping into already existing exchange networks (Jennings and Craig 2001:482). Wari was in contact with the Tiwanaku Empire in Moquegua on the far south coast of Peru (Williams 2001). Each polity appeared to maintain their respective settlements, and there is no indication that they were at war with each other. But colonies from both polities appeared to take a defensive posture toward each other, maintaining boundaries despite close proximity to each other, and occupying a number of hilltop settlements. The major Wari center of Cerro Baúl in Moquegua is located atop a hilltop considered to be a “natural bastion” (Moseley, et al. 2005:17264). Although the site is easily defensible, it is interpreted as a symbol of political strength via its view of sacred mountain peaks, and not as an explicit military garrison (Williams and Nash 2006).

**The Late Intermediate Period (A.D. 1000-1476)**

Following the collapse of both highland expansionist states at the end of the Middle Horizon many areas of the Andes appear to undergo sociopolitical reconfigurations, resulting in a patchwork of regional societies during the Late
Intermediate Period. While scholars have recognized the fragmented nature of the Late Intermediate Period polities, particularly as compared to the widespread integration proposed for the prior Middle Horizon period (Schaedel 1993), there is evidence that suggests polities throughout the Central Andes, and perhaps beyond, were in contact with each other. Models of verticality posit that people moved from highland locales to different ecological niches to take advantage of a wider range of resources (Murra 1972). Thus exchange and movement of goods over long distances is something assumed to be taking place in the Late Intermediate Period (as well as in earlier times). During this period two great polities begin to expand. The Chimú on the north coast, and the Inca in the Cuzco Basin, begin to expand to ultimately become empires.

The Sicán of the north coast begin to build massive pyramids, and develop metallurgy. They were eventually conquered by the Chimú around 1375 A.D. (Shimada 2000:64). On the central coast the Yschma polity is known, and has links to the pilgrimage center of Pachacamac. Further south along the coast the Chincha and Ica societies developed, with the former possibly heading a far-flung maritime trade sphere (Rostworowski 1970). A number of other societies are known in other areas of the coast and highlands. Studies of the Late Intermediate Period have been plagued by an inability to frame localized cultural dynamics within regional spheres of process and change. These societies were probably in contact with each other, trading with each other, and engaged in conflict with each other for a variety of reasons. Particularly relevant to the present study is our knowledge of the emerging Chimú Empire, and the development on the central coast of the Chancay polity.
Chimú and Chancay during the Late Intermediate Period

“Between the indeterminate southern limits of the Chimu’s dominion and Chancay there was a region, now rich in archeological remains, the old political status of which is uncertain.” (Means 1919:319)

Scholars have noted the influence of Chimú styles on Chancay art, textiles, and technology (Conklin 1990:55). However the relationship between these two polities, particularly after the Chimú purportedly incorporated Chancay territory into its domain, is not well studied. South of Chancay in the Chillón Valley there are few reported Chimú ceramics and no evidence that would suggest Chimú administration that far south (Moore and Mackey 2008:796-797). Chillón is also argued to have been a buffer zone between Chancay territory and the central coast Yschma polity (Dulanto 2008:768). Thus, the area of Chancay is hypothetically the farthest south the Chimú Empire reached.

According to ethnohistorical documents the Chimú Empire extended along over 1000 km of coast encompassing a variety of smaller polities and groups (Rowe 1948). Their capital at Chan Chan in the Moche Valley comprised a core area where eleven compounds, called *ciudadelas*, housed the Chimú elite. The capital also housed specialized artisans, but does not appear to have been an urban center (Kolata 1990).

Craft production, at least in Chan Chan, seems to have begun late in the development of the empire (ca. A.D. 1350-1400) (J. R. Topic 1990:149). Metalworking and weaving production are considered the major craft goods produced by specialists living at the capital. Evidence for these activities is also found at provincial centers such as Chiquitoy Viejo and Manchan (Mackey and Klymyshyn 1990:203). It is not clear where the specialists hypothesized to be residing and working in Chan Chan to produce
textiles and metals came from, but it has been suggested that they came from conquered or incorporated provinces (J. R. Topic 1990:149).

Chimú rulers incorporated conquered lords into a hierarchical structure as a strategy to consolidate and control their growing empire (Mackey and Klymyshyn 1990). Rule within the empire was centralized, with incorporated polities and their respective leaders under the domain of the ruler of Chan Chan (Rostworowski 1990:457). In Lambayeque the Chimú appear to have ruled indirectly through incorporation of local leaders, whom they oversaw from hilltop fortified administrative centers (Tschauner 2001). But little is known about the process of Chimú imperial expansion along, and these models of incorporation have not been tested in, the southern edges of the empire.

An El Niño event around A.D. 1100 caused flooding in the Chimú heartland, destroying irrigation canals and drastically affecting the state’s ability to sustain itself (Kolata 1990:135). This prompted the Chimú to expand to extract resources from beyond its core and hinterland. According to ethnohistorical reconstructions of Chimú expansion (Rowe 1948) the Chimú state expanded out of the Moche Valley heartland in two phases. In Phase I they expanded north to the Zaña Valley and south to the Santa Valley. In Phase II the empire extended further north to Tumbes and further south to Chillón (figure 3.1).

The second phase (Phase II) of Chimú expansion has been subdivided into three stages with regard to the southern sphere of the empire (Mackey and Klymyshyn 1990). The Casma Valley is identified as the southernmost fully incorporated valley of the Chimú Empire. The coast from Santa to Casma, thus, was conquered and consolidated first. Work at the administrative center of Manchan in the Casma Valley shows that there was an independent Casma polity that was incorporated into the Chimú Empire sometime

Figure 3.1 Map of Chimú territory and southern frontier. Major Chimú sites and other locations discussed in the text are shown.

South of Casma some Chimú presence is recognized in the Culebras to Huaura
valleys, where the second stage of southward expansion occurred. The Fortress of Paramonga in the Fortaleza Valley is considered a possible Chimú fortress (Mackey and Klymyshyn 1990:207), although no evidence has been published to support this assertion. Others consider it an Inca site. Chimu Capac in the Supe Valley has also been posited to be the marker of Chimú control south (Lumbreras 1974; Shimada 2000). Excavations there, however, revealed evidence of an Early Horizon occupation (Valkenier 1995), with Middle Horizon remains at its base. Nevertheless, we can accept that imperial conquest and consolidation was initiated, but not completed, in these valleys (Mackey and Klymyshyn 1990:207). A very recent articulation of the southward expansion model of the Chimú proposes that expansion south of the Casma Valley is now uncertain (Moore and Mackey 2008:789).

Violence associated with the Chimú expansion has been documented in the Huarmey Valley, just south of Culebras. There a mass human sacrifice of roughly 200 individuals was excavated, and has been characterized variably as a “reprisal killing” or a sacrificial offering to an important Chimú deity (Verano 2007:113). This event took place between A.D. 1250 and 1300. Another mass human sacrifice took place during the Late Intermediate Period on the Chimú northern frontier, at the site of Pacatnamú. Both cases are the only evidence to date that speaks to possible scare tactics, shows of domination through violence, and sacrifice of war prisoners that the Chimú engaged in as they expanded their territory. Human burials, possibly victims of violence, have been recovered from the site of Cerro Lampay in the Fortaleza Valley (Vega-Centeno Sara-Lafosse, et al. 2006). These date to the Late Intermediate Period, but whether they are related to the Chimú expansion is not known.
According to this model, south of Huaura the Chimú did not accomplish conquest or consolidation of the Chancay or Chillón Valleys, but did have some influence there and may have made imperial forays into the region. It is exactly in these valleys, Huaura, Chancay, and Chillón, that the Chancay culture is believed to have developed (Krzanowski 1991a).

Chancay society is poorly understood. It is argued to have been centered in the Chancay Valley, extending to the lower Chillón Valley to the south, and encompassing Huaura to the north (Krzanowski 1991a). This geographical sphere is defined by the distribution of what is known as the Chancay black-on-white ceramic style. Yet ceramics of this style are found as far north as Nepeña (Proulx 1973), and Chancay burials have been excavated north of Huaura in the Supe Valley (Flores Blanco 2007, 2008). Radiocarbon dates have framed Chancay black-on-white ceramics as dating to A.D. 958-1451 (Pazdur and Krzanowski 1991:127), suggesting this style develops in the late Middle Horizon and lasts nearly until Inca domination.

Textile production in Chancay society was an important activity. Scholars have recognized the high quality of Chancay textile crafts, yet we know little about their production. The diversity of techniques and the high level of technical expertise required to make textiles indicates specialization. This is in contrast to the mass-produced, lower quality black-on-white ceramics produced by Chancay people.

Independent polities known from ethnohistorical documents have been identified for this central coast region (Rostworowski 1972), but the extent to which they correspond to a ‘Chancay culture’ is not understood. For example, the Late Intermediate Period polity in the Chillón Valley was called Collique (Rostworowski 1972). The people
of Collique were under frequent attack by the adjacent highland Canta polity during the Late Intermediate Period, who constrained access to water by people living in the lower valley. In response to attacks from the highlands the Collique polity constructed a chain of fortresses in Chillón (Rostworowski 1990:450), one of which may have been the fortress of Collique. A number of forts have been reported in both Chillón and parts of the Chancay Valley (Villar Cordova 1958), but there is not enough detail to assess Chancay military structures.

Arguments for cooperation and resource-sharing that deemphasize conflict bring into question reconstructions based on colonial documents. It has been shown that at the site of Huancayo Alto people were exchanging with highland groups, and held a dominant position over them (Dillehay 1979). During the Late Intermediate Period there may have been more economic integration among the various groups sharing the chaupiyunga zone (transitional ecological zone between the coast and highlands, often the middle valley), indicating less need for groups to protect movement of their goods from others (Dillehay 1979:204). The existence, then, of the fortified sites in Chillón remains unexplained in light of the interaction that has been documented there.

**The Late Horizon (Inca Empire - ca. A.D. 1476-1532)**

The varied strategies of incorporation by the Incas of provincial areas has been known for some time (Menzel 1959), and continue to be studied (D'Altroy 1992; Malpass 1993) in light of greater knowledge of the Late Intermediate Period societies. The Inca Empire is known to have conquered the Chimú by A.D. 1470 (Moseley 1990:1; Rowe 1948). Ethnohistoric documents report that the Chimú resisted efforts by the Inca to diplomatically incorporate them into the emerging Inca Empire (Ramirez 1990:508).
Thus we know, at least from historical documents, that the Chimú were attacked by the Inca and defeated. Local level lords who may have previously been incorporated under Chimú rule or had a political alliance with them, such as those from the Cajamarca polity (Shimada 2000:104) may have aided in the military defense against the Inca. Other lords, those in the far north coast region of Tumbez (Ramirez 1990:508), accepted the Inca state’s offers and remained in power at the local level under the new political structure implemented by the Incas.

The Incas were known to have moved populations around their domain, transplanting whole communities or groups of specialized artisans from one end of their territory to another. In their attempt to control coastal populations, they took other measures, forbidding people to have weapons, and not allowing coastal groups to contribute soldiers to the army (Rostworowski 1990:455). Thus in some areas Inca imperial strategies aimed to pacify groups to facilitate control over them.

Given this general background on the Central Andes I will discuss more specifically the Huaura Valley, and how the history of this part of the coast fits into the broad scheme of regional history. First I begin with a description of the valley in terms of geography and resources. I then discuss settlement data for different time periods. Finally I outline previous archaeological research, a brief account of relevant ethnohistorical data, details of the ceramics of the valley, and the problems with chronology.

3.2 Background

3.2.1 Description of the Norte Chico and Huaura Valley

The term *norte chico* (the little north) is used to refer to four valleys on the Peruvian coast: Huaura, Supe, Pativilca, and Fortaleza (Figure 3.2). In the past these
valleys have been variably included in geographical definitions of the central coast (Bennett and Bird 1960:70; Menzel 1977:4), and it is also sometimes referred to as the near north coast (*costa nor-central*). I prefer to use *norte chico* because I distinguish these four valleys from the central coast and north coast valleys, and because the term is shorter.

![Figure 3.2 Map of the four river valleys of the *norte chico*.

While the Supe, Pativilca, and Fortaleza valleys are sometimes referred to as the Pativilca complex (Kosok 1965; Mackey 1987:123), Huaura is too far south to be
included in this three-valley complex. Yet, particularly in the middle and upper sections of the Huaura Valley, there is not much distance that separates it from the Supe Valley immediately north. In fact, people traveling through the foothills between these valleys today find these routes to be faster than the coastal route on the Pan-American Highway. Walking models employed for other time periods in the history of the region demonstrate that the distances between these four valleys is not as great as once thought. From any point in this four valley area one can walk to any other point within a single day (Craig in press).

In this dissertation I focus primarily on the Peruvian coastal valleys. The coast, also known as chala, is a dry desert strip with little rainfall. In some areas the Andean foothills descend toward the coast, particularly on the valley edges. Thus, the topography of this region changes quickly in a very short distance. There is close access to the ocean, as well as to different ecological niches situated at increasing elevations nearby in the hotter yunga or chaupiyunga zones. The norte chico region experiences a fog cap during the austral winter season. It is this moisture that allows the lomas vegetation to grow where normally there are just dunes. Lomas are areas of seasonal vegetation which pop up like oases in the desert (Dillon, et al. 2003:2). The biggest lomas near the norte chico or those of Lachay south of Huaura, and Lupín just north of Fortaleza. Pikachu, Pativilca, and Chiu-Chiu lomas have also been identified closer to the Supe and Pativilca river valleys (Zechenter 1988:79). These areas are important for pastoral communities, who often travel with their herds to these areas to graze.

Scholars debate the extent to which certain areas of the coast may have previously been at least partially forested. Changes in the coastal environment, specifically with
regard to vegetation, can be caused by humans, and their impact should not be underestimated (Dillon, et al. 2003:5). In fact, it has been argued that people do not develop a conservation ethic until they are faced with some environmental calamity in which they played a role in creating (Craig 2007). The late prehispanic practice of planting trees on terraces to prevent soil degradation, documented for the Inca (Chepstow-Lusty and Winfield 2000), could have been undertaken elsewhere. This would indicate the presence of forested areas was due to human intervention. In the area around Acaray, at least one historian has mentioned that this area may have been wooded in late prehispanic times (Rostworowski 1981). Today, however, the landscape characteristic of the lower valleys of this region contains few trees. It is worth bearing this in mind since forests would have inhibited visibility to some extent. Agricultural land may also have been far less extensive than one might think (pre-irrigation agriculture, that is). This, however, cannot be evaluated with current environmental data.

Today agricultural land is extensive in the lower Huaura Valley. The Huaura River has water year-round, permitting irrigation agriculture using canals which branch off of the river. While sugar cane, and other non-native crops introduced into the area such as artichokes and asparagus are primarily grown, the assumption is that maize was widely grown on the coast in prehispanic times (Horkheimer 1990:73). Beans of different varieties are thought to have been grown on the coast as well, usually with maize (Horkheimer 1990:76). Remains of manioc and peanut are found in coastal archaeological sites as well, but they may not have been grown on the coast. Other non-comestible crops such as cotton were also grown on the coast. For Huaura, virtually no research has been aimed at prehispanic land coverage and its change through time. Thus
there is little background information specific to the area in terms of flora, or the
cultivation.

The Pacific Ocean, however, may be considered a near constant resource
throughout the region’s history. The nature of the resources present at any one time may
change, but the ocean has not disappeared. Fish, shellfish, and seaweed are just some of
the resources available from the sea that were consumed by prehispanic people, possibly
as early as late archaic times (Zechenter 1988). In less dry periods, higher water levels
may have created coastal lagoons, *albuferas*, along the littoral. Reeds known to have been
used for fiber goods grow in these areas.

I present this very brief background on the geography and ecology because
knowledge of the resources and elements characteristic of the coastal landscape is
important to understanding social processes. At a very basic level the geography helps to
frame the context in which human settlement takes place. Flora and fauna of a region are
found archaeologically, and thus can speak to the source of subsistence goods and other
remains. I will now review our current state of knowledge of settlement distribution for
the prehispanic era, focusing primarily on the Early Horizon and Late Intermediate
Period.

### 3.2.2 Settlement data

In the area between Casma and Chillón we are only beginning to gain a sense of
prehispanic settlement. For the Late Intermediate Period in the *norte chico* we currently
do not have a general understanding of what groups were living here, how they lived, or
their relationship to each other. Surveys have been conducted in these four valleys
(Cárdenas Martin 1977; Miasta Gutierrez and Merino Jimenez 1986; Vega-Centeno, et al.
1998; Williams and Merino Jimenez 1979), but only recently have there been pedestrian surveys aimed at full-coverage (Nelson and Ruiz Rubio 2005b; Perales Munguía 2006). We also have publications of research by projects such as the Huaura-Checras project conducted in the upper Huaura Valley (Krzanowski 1977, 1986, 1991a), as well as from less extensive investigations (Stumer 1952).

There has been little research on the Early Horizon in the norte chico. However, survey was carried out from the coastal littoral to the town of Sayán in the Huaura Valley (Nelson and Ruiz Rubio 2005b). Twenty occupations were identified for the Huaura Valley that date to the Early Horizon (Total = 635), or a mere 3% of all sites documented during the survey (Nelson and Ruiz Rubio 2005b). As I point out in Chapter 9, there are some additional Early Horizon sites (forts) that are not included in this number. Unfortunately, site size and details of location are not included in the survey report, making it difficult to better assess the nature of Early Horizon occupation in the valley until more detailed publications are produced. Surveys were also recently completed for the neighboring Pativilca and Fortaleza Valleys (Perales Munguía 2006, 2007), but these data have not been made public and are not accessible.

In the Huaura Valley some minor investigations have identified Early Intermediate Period settlements. Surface collections from Caldera reveal the site has occupations from the Early Intermediate Period (ca. 400-600 A.D.) and subsequent Middle Horizon (ca. 600-900 A.D.) (Stumer 1952). This period on the central coast and in the region of the norte chico is identifiable archaeologically by a white-on-red ceramic style, which is linked elsewhere to the end of the Early Horizon and the very beginning of this period (Willey 1945). Analysis of the collections from Caldera suggest that this
proliferous white-on-red style could have had its origin in the Huaura Valley, and not in the Chancay Valley as previously argued (Stumer 1952). Work at the site of Végueta on the north side of the Huaura Valley yielded habitation refuse with ceramics that indicate an early Early Intermediate Period occupation (ca. 200 B.C.-A.D. 200) (Shady and Ruiz 1979). These ceramics show a wide range of variability and appear in other time periods as well. Thus this period is basically a hole in terms of the local chronology. Because of this gap in knowledge, only 8 sites dating to this time period were identified in the Huaura Valley Survey (Nelson and Ruiz Rubio 2005a). I raise this point here because this has bearing on the ability to identify occupations of this time period at multi-component sites (such as Acaray).

The impact of the Wari Empire in the norte chico region during the subsequent Middle Horizon is uncertain. Uhle identified a tri-color geometric ceramic style and an epigonal ceramic style considered to be Middle Horizon in date. The “Huaura culture” (Mejía Xesspe 1953) has been defined based on the presence of these ceramic styles, which have attributes similar to ceramics of the latter half of the Middle Horizon from Pachacamac. Scholars have called attention to Pachacamac’s widespread influence on the south and north coasts during the latter part of the Middle Horizon (Menzel 1977), but the nature of these regional relationships is unclear.

Previous interpretations of Chimu Capac in the Supe Valley as a Wari outpost (Menzel 1977:29) have been questioned (Valkenier 1995). Based on their analysis of a small intrusive offering at the site of Végueta, two scholars suggest that during the Middle Horizon the presence of Wari influence in the norte chico was due to an increase in exchange with other regions and not to a Wari military invasion (Shady and Ruiz...
1979). Thus there is no clear evidence that the Wari Empire conquered, or even had a presence in, the *norte chico*. Farther north in Nepeña it has been argued that there was conflict at the end of the Middle Horizon, and that there was a violent beginning to the subsequent Late Intermediate Period (Proulx 1968:33). This does not appear to be the case in Huaura.

Of the 555 sites identified in the valley in the most recent full-coverage survey (Nelson and Ruiz Rubio 2005b), 221 sites could be tentatively dated to the Late Intermediate Period based on surface characteristics. Roughly 35% of the total occupations identified (Total = 635) date to this time period. This suggests that in the history of Huaura, the Late Intermediate Period was the time of densest occupation. Caution must be taken placing too much emphasis on this because of the bias toward greater recognition of later occupations compared to earlier ones that may not be visible from the surface (Redman and Watson 1970:280). However, without subsurface data for these sites we must rely on the survey data while recognizing our understanding of earlier time periods may change as more sites are excavated.

Settlement data related to the Late Intermediate Period are not currently available for Fortaleza or Pativilca. For Supe, the only data available are from the site inventory made by Carlos Williams and Francisco Merino (1979). Approximately 24 sites were identified that tentatively date to the Late Intermediate Period, or are multi-component but have Late Intermediate Period occupations. If the difference between sites identified as Late Intermediate Period by earlier surveys and later full-coverage surveys in Huaura (compare Cárdenas Martin 1977; and Nelson and Ruiz Rubio 2005b) is any indication, there are probably significantly more sites that date to this time period. Because these 24
sites are not well reported, it is nearly impossible to extrapolate any information on Late Intermediate Period settlement patterns from the Supe Valley.

The archaeological complex at Acaray is located in the lower Huaura Valley on the valley edges at the point where the river delta begins, at the hydrological apex of the river valley. The extensive archaeological complex consists of a series of cemeteries, architectural complexes, and a ridge on which the fortress of Acaray (PV41-97) is located. The ridge on which the fortress is located juts out into the valley from the neighboring foothills, measuring roughly 880 meters in length and 400 meters in width, with an area of approximately 26 hectares that is nearly entirely covered by archaeological remains. The fortified part of the ridge measures closer to 14 hectares. In Chapter 5 I further discuss how site area is calculated.

There are three hilltops on this ridge. The lowest hilltop (Sector C), located on the easternmost part of the ridge, is approximately 220 meters above sea level at its highest point, rising about 50 meters up from its base. The second hilltop (Sector B) is the highest of the three at around 240 meters above sea level. The third hilltop (Sector A), located on the westernmost part of the ridge, is almost as high as the second hilltop, but the slopes are less steep and the hilltop itself is flatter, whereas the second hilltop has comparably little flat space at its uppermost point.

3.2.3 Prior and contemporary research

One of the earliest published accounts of Acaray called it “a true fortress” (Horkheimer 1962). The presence of walls that encircled the hilltops of the area around Cerro San Cristóbal, and the great quantity of river cobbles present at the site indicated that Acaray had a military function.
During a survey of a number of coastal valleys during the 1970s test units were excavated at Acaray (Cárdenas Martin 1977, 1978). Additionally, exposed profiles were cleaned and registered within the fortress at Acaray. Samples for radiocarbon dating were taken from excavations, and a chronology of the valley was published based on these (Cárdenas Martin 1978), although the precision of these dates has been subsequently questioned (Pazdur and Krzanowski 1991:115-116). The samples from Acaray produced dates that place it in the Early Horizon (see Table 8.1, Figure 8.1). The report, unfortunately, does not specify where the excavations were undertaken except to say it was on the hilltop. A subsequent published photo enabled me to determine that the excavation on the summit was within the structure at the top of Sector B (see photo X in Huapaya Manco and Huapaya Cabrera 2005).

Another unit that was excavated on the inside of one of the defensive walls was reported (Huapaya Manco 1977-1978), but I was not able to determine along which of the six walls of the fort it was located. Nevertheless these excavations allowed a determination of the construction technique for sections of the concentric defensive walls at Acaray. They were built of alternating layers of plant material with rubble, which gave the walls stability, perhaps in the event of an earthquake.

A more detailed description of the archaeological complex was published around the same time the above referenced excavations were carried out at Acaray (Ruiz Estrada and Torero 1978). The description provides information on architectural elements and general information on chronology based on surface ceramics. However, it must be noted that the report was based on a single day visit to the site (Ruiz Estrada, personal communication, July 2004). The authors nevertheless reported the presence of parapets
and atalayas, or lookout points, at Acaray. Although the authors refer to Acaray as a yunga fortress, its location and maximum elevation (well under the 500 m.a.s.l. which is the lowest range of yunga areas) are characteristic of the chala ecological zone. They also suggested the site had its beginnings in the Middle Horizon, but that its major occupation was during the Late Intermediate Period. They recognized a primarily late prehispanic occupation. This provided a confusing situation given the reported dates from the Early Horizon.

In 1978 the Polish Scientific Expedition to the Andes (Krzanowski 1986) conducted investigations in the Huaura-Checras region inland, focusing on the Cayash Basin formed by one of the affluents of the Checras River, which joins the Huaura River around the town of Churín. They constructed a chronology for the Cayash region which provides an interesting comparison to that of Cárdenas, for example. In their survey of sites they are only able to detect Early Horizon, Late Intermediate Period, and Late Horizon occupations. San Blás style ceramics known from Junín were indicative of the Early Horizon. They identified the Late Intermediate Period Cayash style, with variants. And they encountered Inca style ceramics, but of the imperial style and local productions.

The Polish Expedition later carried out surface studies in the middle valley sites of Quintay, Casa Blanca, Cañas, and Andahuasi located around the modern day town of Sayán (Krzanowski 1991a). All of these sites date to the Late Intermediate Period or Late Horizon and provide more detailed information than the survey data regarding late sites in the valley.

Full coverage survey of the Huaura Valley began concurrent with my research at Acaray in 2004 (Nelson and Ruiz Rubio 2005a). At the time two other forts besides
Acaray were known that were subsequently registered by the survey as PV41-307 and PV41-118. By the completion of the survey one other fort was known (PV41-62). These three forts were initially assigned to the Initial Period (ca. 1800-900 B.C.) but were not linked to Acaray, which was believed to be later. My research at Acaray identified an Early Horizon component that suggests the other three forts also are Early Horizon, not Initial Period in date (Brown Vega in press). I visited another largely ignored fort, Cerro Colorado (PV41-191), in 2008 and believe it also has an Early Horizon component. Subsequent visits to other surveyed sites by the Huaura Survey project director have also made apparent that there may be at least two other forts further up-valley. I discuss the Huaura Valley forts further in Chapter 9. However it is pertinent to note that future research is required to anchor the occupation or use of these forts in time. Nevertheless, that there are five or more forts with ceramics that indicate an Early Horizon occupation suggests that there was a network of defensive sites during this time period. The same does not seem to be the case for the Late Intermediate Period, the other major time period that is the focus of the dissertation.

These prior investigations served as the basis for the elaboration of the current project at Acaray and concurrent survey of the valley (Nelson and Ruiz Rubio 2005b) provided very helpful supplemental information to put Acaray in a larger context. Radiocarbon dates from Cárdenas Martín’s project were not obtained until after the present project began at Acaray, due in part to the difficulty in gaining access to the unpublished report. Chronological considerations of Acaray were based on Ruiz Estrada and Torero’s work, which assigned the major occupation at Acaray to the Late Intermediate Period, with its beginnings perhaps in the Middle Horizon (Ruiz Estrada and
Torero 1978). A review of extant literature proved fruitless, since no other additional scientific work, to my knowledge, had been conducted at Acaray since the 70s.

3.2.3.1 Ethnohistorical data

Very little ethnohistorical information is available for Acaray. A botanist traveling through the area in the 1700s wrote of a 3 meter wide wall in the Huaura Valley used to separate territory (Ruiz 1998:75). This wall, referred to locally as the *Muralla de Mazo* (great wall of Mazo), extended to the fortress at Acaray (Rostworowski 1978:132-133). It runs along the northern side of the valley. No similar reports are known for walls along the southern margins of the Huaura valley. Cárdenas (1977:56) indicates that local people remember the *Muralla* continuing toward, and forming part of, the fortress at Acaray. This is an interesting part of the landscape given reports from other coastal valleys of walls running for great lengths. The Great wall of Santa is the most well known, however walls have been reported from Nepeña and Cañete. The Santa wall is particularly interesting because it is associated with several citadels along it, suggesting it was incorporated into a defensive network of sites (Wilson 1988). While the historical documents indicate it may have been a territorial marker, the possibility that the *muralla de Mazo* served a defensive purpose as well cannot be ruled out. In fact, Horkheimer states that the wall in the area of the Hacienda Muralla had parapets, served to protect a canal, and that its principal purpose may have been defensive (Horkheimer 1965:42).

Research into myths of the region has also revealed some indication of conflict. Vichama, a local deity, battles the central coast deity Pachacamac. In fact, the two are brothers, fathered by the Sun. Vichama is originally killed by Pachacamac, but later resurrected by his father. Pachacamac later kills Vichama’s mother, and for that he seeks
revenge against Pachacamac (de la Calancha 1638). At least one scholar has interpreted this as signaling conflict between the areas around Huaura and the central coast, perhaps beginning in the Middle Horizon when the oracle at Pachacamac is thought have had widespread influence along the coast (Rostworowski 1978:145). While Vichama is thought to originate in Végueta in the Huaura Valley, ceramic vessels with depictions of the deity are known from as far north as Paramonga (Figure 3.3). The style of these ceramics is recognized as being Middle Horizon, although no chronometric dates confirm this (Ruiz Estrada 2007:14). What is interesting is that the Muralla de Mazo mentioned above extends from Végueta, from which Vichama originates. The foe in this myth is from the central coast to the south, from the ceremonial center of Pachacamac in the Lurín Valley. Whether or not this myth speaks to an actual conflict between people in Huaura and those at Pachacamac, it suggests the Muralla, and one of its associated sites, Acaray, was significant for local people.
3.2.3.2 Ceramics in Huaura

Prior research has focused primarily on the late prehispanic ceramic styles of the Huaura Valley. For the purposes of this dissertation, ceramic styles related to the Early Horizon and Late Intermediate Period are most relevant. While ceramics from the Early Horizon have not been well dated on the coast (in terms of chronometric dating), we do have radiocarbon dates for Chancay-style ceramics of the Late Intermediate Period.

Early Horizon ceramic forms and styles are very distinctive. The ubiquitous neckless olla form and the flat-sided bowl are found in Early Horizon contexts. Decoration consists of incised circles and dots, rocker-stamping, and burnished criss-cross patterns on the exterior of vessels. However, it has been pointed out that many of the decorative elements argued to be diagnostic of the Chavin horizon appear in pre-
Chavín contexts (T. Pozorski and S. Pozorski 1987:37). This presents problems for distinguishing ceramic styles that may appear in the late Initial period as well as throughout the Early Horizon.

At the end of the Early Horizon painted ceramics become more widespread. Scholars have discussed a white-on-red horizon, which is believed to have appeared on the central and north coasts and highlands in post-Chavín times but prior to the development of local regional styles of the Early Intermediate Period such as Moche, Lima, and Nasca (Willey 1945:53). However, it is also pointed out that some variation of white-on-red decoration appears at various points in time up to the Inca conquest (Willey 1945:53). For the Huaura Valley, it is unclear what defines the local tradition of white-on-red pottery, which appears prior to the proposed horizon time and up to an unspecified time in the Early Intermediate Period (see Table 3.2).

<table>
<thead>
<tr>
<th>Decoration</th>
<th>Early Horizon</th>
<th>Early Intermediate Period</th>
<th>Middle Horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>brown smoothed</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>white-slipped</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>red polished</td>
<td>X*</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>red-on-white</td>
<td>X*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>white and red</td>
<td>X*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>decorated with white</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tricolor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>impressed circles</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>burnished decoration</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C14 dates from site <=758-390 B.C. A.D. 125-443 A.D. 330-717

Table 3.2 Table showing presence of decorative techniques from ceramics recovered from Végueta. * indicates techniques from sherds recovered from layers stratigraphically beneath the dated Early Horizon layer.

After the Early Horizon there are a number of different decorative techniques and forms that appear locally in Huaura. This variability seems to diminish in the Middle Horizon, where ceramics exhibit decoration and form influenced by Wari and
Pachacamac wares. Huaura Tricolor is a style that supposedly appears toward the end of the Middle Horizon, presumably after Wari influence wanes (Hodnett 1978:35). This styles is defined by black and red on white decoration. A slightly later style, known locally as Pativilca, is characterized by raised surface decoration consisting of dots and lines (Hodnett 1978:35). The latter pottery style is mold made.

The Chancay black-on-white style is ubiquitous in Huaura, but our understanding of what is behind this shared style (with the Chancay Valley) remains unclear. Although Wilhelm Reiss and Alphons Stübel (1880-1887) explored Ancón to the south and published much of the ceramic pieces that were later identified as Chancay, it was Max Uhle who first identified Chancay black-on-white (Krzanowski 1991a:21), and defined it as late (see also Kroeber 1926:269). Uhle worked at a number of sites in the Chancay Valley in 1904, including the sites of La Calera de Jegoan and Lauri (Calera de Lauren), as well as in the Huaral area slightly north of Chancay at Huaral Viejo and Cerro Trinidad (Uhle 1926).

It is significant that early on investigators recognized shared regional styles even if they did not explicitly problematize those patterns. Strong and Willey stated that “in the Huaura valley there are a great number of sites which are little known or published” (Strong 1943:10). They did not conduct excavations, but visited two sites, and in both identified evidence of the late Chancay style black-on-white. Horkheimer identified fragments of Chancay ceramics in various sites in Huaura, such as Rontoy, Vilcahuaura, Visquira, and Acaray (Horkheimer 1965).

Chancay black-on-white wares are mold made, and some have argued they are mass produced, perhaps even made in ‘factories’ (Hodnett 1978:22). There are some
examples of misfired vessels that exhibit bloating, warping, and slumping. It has been characterized as “carelessly made and badly fired” (Lothrop and Mahler 1957:7).

While it is argued that the style known as Lauri Impreso, found in the Chancay Valley, is contemporary with Chancay black-on-white and the same as the Cayash style identified for the upper Huaura Valley, the chronological relationship between these styles is unclear (Cornejo Guerrero 1992). Pazdur and Krzanowski (1991:131) suggest that at the Chancay black-on-white style and Lauri Impreso are developed in parallel during the Late Intermediate Period. It is also difficult to attribute these stylistic differences to separate groups of people, even though that is done by researchers working in the region. The assumption is that different people are making these different pots.

Chimú wares are found in the latter part of the Late Intermediate Period along much of the north coast. These might be considered Chimú imperial wares and are usually recognized as burnished blackwares, produced through reduced firing, and mold made. Chimú domestic wares are usually oxidized red wares (Donnan and Mackey 1978:340). Chimú-style burnished blackware ceramics are not abundant in the region of Huaura. One scholar, noting the presence of large settlements and abundant pottery on the surface, states that the pottery is not Chimú: “Who, then, dominated this valley?” (Engel 1976:184). This is one of the very questions that I began this study with.

3.2.3.3 Problems with chronology

Despite the completion of intensive surveys in the Huaura Valley, we lack systematically recovered ceramic collections from sites to aid us in establishing a chronology. The lack of these collections make comparisons of newly excavated cultural materials to extant collections difficult, although comparisons can be made to detailed
publications of ceramics from neighboring valleys (Wilson 1988 for the Santa Valley). This is particularly a problem for the Early Horizon settlement of the valley and Acaray.

This gap in our knowledge also impacts understanding of settlement patterns, since many sites cannot be assigned to a time period because we do not have diagnostic indicators or radiocarbon dates. Our ability to place a single site like Acaray with others that may have been contemporary is very tentative, and based on much guesswork, or simply omits unknowns from these patterns. At this point in time, that is unavoidable.

For the Late Intermediate Period, there are 13 reported radiocarbon dates from 6 sites in the Chancay and Huaura Valleys that serve to date in part the Chancay black-on-white and Lauri Impressed ceramic styles. However, the contexts vary and what is actually being dated may not be clear. I have tried to organize known dates with the new results from this research so that a more comprehensive assessment of time can be undertaken (see Chapter 8). Suffice it to say that both of the diagnostic Late Intermediate Period styles appear to have a very long life, with both being present in contexts dated as early as A.D. 1029-1119 and as late as A.D. 1442-1462 (Pazdur and Krzanowski 1991:118-119). Chancay black-on-white has a longer range, dating to as early as A.D. 915-991 (Pazdur and Krzanowski 1991:118). That means that we are dealing with a large chunk of time, over 400 years, to which these styles date. This results in a very course chronology.

To conclude, the present study is based on little prior intensive investigation in the norte chico region. Settlement data are also incomplete for Huaura, and has not been made available for the other norte chico valleys (Pativilca and Fortaleza). We have no settlement data for the Chancay Valley to the south. On the basis of ceramics and
assumptions from the ethnohistorical record, Chancay is important for understanding the Late Intermediate Period occupation of the Huaura Valley. Without detailed regional data in hand, I have sought to make comparisons to other regions which are relevant (see Chapter 9). The background information presented places Acaray within the rough chronological framework currently in use for the Central Andes. The next chapter will lay out specific expectations based on the theoretical discussion in Chapter 2 with reference to Andean models and those for other world regions where appropriate.
Chapter 4 Middle Range Theory

This section presents models for interpreting aspects of Acaray and its context. In this section I lay out expectations to test assertions related to landscapes of conflict, the defensibility and military function of sites, and to also assess models for other types of site use. I include a review of data from ethnoarchaeological studies used to interpret archaeological features, and to infer the practices that create ritual deposits.

4.1 Warfare and the archaeological record

Archaeologists have explored what the evidence for warfare and violence is in the archaeological record. Many would agree one of the strongest lines of evidence is osteological (Arkush and Stanish 2005:15; Walker 2001:574). That is, finding the indicators on human skeletal remains that indicate trauma from participating in, or simply being the victim of, conflict (Martin and Frayer 1997; Milner, et al. 1991:582; Verano 2001). This evidence is not 100% unambiguous, but it can be a more direct form of evidence of war. At Acaray we do not have clear osteological evidence of violence or war, although crania with perimortem fractures consistent with injuries from sling stones have been noted in passing through the looted cemeteries near the site. These cemeteries have not been dated, but based on surface materials they are Late Intermediate to Late Horizon in date, and at least partially contemporary with the fortress at Acaray. However, there are other indications of conflict, and the strongest cases for warfare bring to bear multiple lines of evidence to make a compelling case. I review the material expectations for warfare, and other activities in order to outline the criteria by which I evaluate Acaray as a place of conflict and ritual.
4.1.1 Settlement and landscape data – regional level

Beginning at a broad scale, settlement data can provide evidence of warfare or conflict in a region (Arkush and Stanish 2005:15; Lambert 2002:209; Webster 2000:74-75). In response to expansion by polities in a region, human use of landscapes can take on a defensive nature, the remnants of which can signal to the archaeologist that there was conflict or warfare. Frontiers can often be characterized by conflict, or at least tension, between groups who are different. No man’s lands or buffer zones are often interpreted as a sign of conflict – they may indicate greater distance between neighboring groups or polities in conflict with each other, and centralization of each group into larger units for better defense (Keeley 1996:131-132; Wilcox and Haas 1994:230-231). Groups may abandon areas when there is such a threat. Thus shifts in settlement can bolster interpretations of conflict zones. According to Keeley’s model of frontier areas, we should not expect the settlement pattern around Acaray and in the lower Huaura Valley to be dense. Since this is a relative statement that depends on assessing settlement patterns prior to the appearance of fortifications, we will have to rely on the little we know from surveys of the Huaura Valley. This is assessed in Chapter 9.

Chains of fortified sites in areas without buffer zones may have more to do with control over territory, but do not necessarily indicate there was war - only perhaps the threat of it. This has been demonstrated for the northern sphere of the Chimú Empire in the Lambayeque region where a chain of forts, spaced equally apart, marked indirect imperial control in the area (Tschauner 2001). Still networks of defensive sites in an area may indicate it is a contested area, where groups are vying for control over land, resources, and/or people.
If a number of fortified sites thought to be contemporary are identified in a region, their intervisibility can be assessed with viewshed analysis performed in a geographic information system (GIS). Being able to sight one from another would support an interpretation of a relationship between them. Assessments of the extent of visible land seen from them may also allow for assessments of potential control when linked with locations of resources such as canals, rivers, or even access routes or commonly traversed paths in the area (Wheatley and Gillings 2002).

Subtle clues in the landscape in light of detailed knowledge of cultural conception of warfare in a region can also be indicative of conflict (Kolb and Dixon 2002:515). In the Andean region a number of scholars have argued for the cosmological importance of mountain peaks (Williams and Nash 2006). The site of Cerro Baúl in the Moquegua Valley, Peru, is located atop a hilltop bluff. Given its location investigators have argued that Cerro Baúl is strategically located for visibility of sacred mountain peaks nearby, enabling leaders there to appropriate pre-existing ideological beliefs to strengthen their political power. However, there is no evidence for warfare at Cerro Baúl. I simply raise the issue of the cosmological or ideological significance of mountain peaks in the Andes because it is relevant to examining fortifications placed on hilltops.

A calculation of viewshed from Acaray to other points on the landscape would identify places within view from a person standing at the site. While visibility of certain places does not demonstrate conclusively that there is significance in the placement of a particular site, or determine what the possible symbolism of that placement is, it nonetheless identifies what can be seen. This can be integrated with knowledge, known
either historically or ethnographically, of places on the landscape that hold importance for local people.

Comparison to other known fortifications thought to be contemporary might also shed light on who built the fortress at Acaray. Architectural similarities, similar artifact assemblages, and confirmation of chronological position through radiocarbon dating should allow a reasonable determination of what group of people built Acaray.

4.1.2. Site location and defensibility

Where sites are located on the landscape may have to do with concerns of defense. Typically, hard to reach areas, such as hilltops, ridgetops, cliffs, and sites located in difficult terrain are more defendable. These locations can also make access to basic needs, like water or agricultural land, difficult (Hassig 1992:35), further signaling a group’s willingness to sacrifice access for protection and increased safety. However, location on a hilltop is, at best, an ambiguous indicator of defense, and may not be used alone to identify a fortification (Topic and Topic 1987:48). In addition to location in an area where natural or geographic features increase defensibility, people construct architecture or obstacles that enhance defensibility. These can include defensive architecture such as towers, bastions, parapets, defensive walls, ramparts, and palisades. Moats and ditches, baffled or otherwise obstructed entrances in walls, and even things like thorny brush and dense vegetation can provide increased defensibility and restrict access.

Parapets are used to protect defenders within the fortress from fire directed at them. These are low walls behind which defenders can crouch, and which allow them to also launch munitions at attackers. These low walls measure between 50-100 cm in
thickness, and the parapet benches identified in some fortifications of the Peruvian north coast measure 150-200 cm in width (Topic and Topic 1987:48). The most well-preserved examples measure up to 80 cm in height, and it has been argued this is consistent with defense by sling (Topic and Topic 1987:48), although this assertion requires testing. These assertions suggest that parapet walls that are too high would hinder slingers. Based on these tentative data, one can identify defensive architecture that may be consistent with sling use.

A bastion is a projecting structure off of a fortification wall that permits flanking fire along the wall. It is assumed that the primary function has to do with launching projectiles in an attack. Lookouts are strategic points which allow greater visibility of the landscape or adjacent areas. Visibility is also important for bastions. The difference is that a lookout may not necessarily be used as a location from which to launch an attack. In actuality the distinction may not hold. One way to assess this is to see what the range of visibility is from a structure. I assume that for one to aim, one needs to see the intended target or targets. The range of visibility should be assessed together with the range of weaponry to determine the most likely use of the structure.

To assess a site’s defensibility in terms of location and restricted access, we can look at the obvious natural topography, but also carry out spatial analysis to assess the degree to which access might be restricted. For example, once architectural features such as bastions and parapets are identified, a basic viewshed analysis can shed light on the range of visibility of people standing in or on these structures within the fortress. These ranges can then be assessed in with regard to entrances and low-slope pathways up to the fort.
4.1.3. Weaponry and iconography

Weapons and depictions of weaponry or warriors can also be indicative of warfare. Iconography related to warfare has been identified in the American Southwest, Mesoamerica, and the Andes (Bourget 2001; Swenson 2003:263-268; Webster 2000:93-95; Wilcox and Haas 1994:213). While in some parts of the Andes there are well known representations of warriors and warfare, or more generally violence, (i.e. in the Moche and Nasca societies – see Chapter 3), these kinds of representations are not known for many societies in this area. Warfare related representations may be found among people who have classes of warrior specialists, as with the jaguar and bird warriors in the Aztec empire. Thus far evidence for special classes of warriors or iconography has certainly not been well-documented for the norte chico region at any time in its history as we now know it. However warrior figurines excavated from Chankillo in the Casma Valley have been interpreted as representing the rise of a warrior class. These figurines depict weapons such as mace heads, slings, spears and spear throwers, and shields (Ghezzi 2006:74). Thus, we would expect to find this type of evidence if formal warrior classes existed within society.

Encountering different kinds of representations can provide clues as to the intensity of conflict, and the objectives. For example, trophy head taking can be an indication that war was aimed at acquiring captives, and the actual trophy heads or depictions of such can be found archaeologically (Browne, et al. 1993).

On the other hand, it is more reasonable to find weaponry. This is likely to be in the form of sling stones, mace heads, spears and spear throwers, lithic points or blades, and slings (hondas). Circular perforated stones (sometimes called porras in the Andes) can also be mace-heads, although these can be hard to distinguish from agricultural tools.
(Burger 1984:197). The same can be said of lithic points or blades, which could be used as weapons of war but which may also have other uses (i.e. for hunting or as a tool).

Sling stones are documented archaeologically and ethnographically in the Andes (Topic 1989). They are usually river-rolled cobble or smaller round stones, but can also be made of other materials. River cobbles can also be hand thrown. Smaller grooved pebbles that would have been attached to a string are called *bola* stones in the Titicaca basin and are interpreted as possible weapons. However, they are also documented among some Patagonian groups as being used for hunting *guanaco* and ostrich (Musters 1969[1897]:165). The presence of these items, interpreted as weapons, at a site is viewed by some as a strong indicator of a defensive posture (Topic and Topic 1997:568).

Slings, used with sling stones, are believed to be the principal ‘Andean’ weapon of war. Sling-use in South America has been documented ethnographically, and ethnohistorical accounts as well as archaeological specimens demonstrate the sling was a pre-Columbian weapon (Cobo 1990; Means 1919). Specimens from the Central Andes are made of either wool or a plant fiber, called *cabuya*, which is an aloe-like plant. They are however also used in herding and hunting. At the site of Chinchawas in the highlands smaller slingstones found in residential areas may have been used for hunting small animals (Lau 2001:394). Thus their presence can also be ambiguous. The presence of any of these potential weapons in conjunction with other indicators of conflict or warfare, however, would make their interpretation as such more plausible. Slings as weapons are typically thought to be used by men, while women are known to use them as well only in herding contexts. This characterization, however, might be based in preconceptions of warriors as male. As recently as the early 1980s in at least one instance women used...
slings as a weapon in a communal siege, and ultimate victory, over a hacienda in the
Puno region of Perú (Virginia Inkacoña, personal communication, July 2008). Children
also use slings today in herding contexts. The sling as a weapon, hunting tool, or herding
tool can be used widely by adults and children, males and females.

There have been few formal studies of the range of slings. Claims have been made
that slings may have a range of more than 200 meters when pebbles are slung (Korfmann
1973:37). A recent synthesis puts the range anywhere between 27 and 400 m (also Finney
2006:Table 4.2; Keeley, et al. 2007:73). Recent experiments at Middle Iron Age hillforts
in Britain detail specific measurements which can be applied to Andean hilltop
fortifications (Finney 2006). Finney calculated an average distance of 56.07 meters after
casting 90 stones on flat terrain. He used these measurements to calculate hypothetical
ranges of slings launched from a 45° angle from an elevated position (i.e. in side a hilltop
fort), which ranged from 65.61 to 143.52 meters¹ (theoretically) (Finney 2006:103-112).

How slings may have actually been used in war is also somewhat of a mystery.
Statements made in passing by some scholars indicate that slingers would need 2-3
meters spacing between them so as not to injure each other (Topic 1989:217). This is
used to generate the expectation that piles of slingstones on parapeted walls should be
spaced approximately at this distance. Therefore, we would expect to find piles of
slingstones associated with parapeted walls in such a patterns, *but only if they were never
used*. It has also been asserted that low walls associated with parapets (approximately 80
cm) permit slingers to launch from the parapet (Topic and Topic 1987). The implication

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¹ Finney (2006:111) indicates a value of 143.52 meters in the text, but 134.95 meters on the graph. The tick
mark on the graph, however, corresponds to 143.52, so I cite that measurement here.
is that a wall any higher would obstruct the movement of the sling, making it useless as a defensive weapon from such locations.

The reach of slingstones launched from parapets and bastions within the walls of Acaray can be overlapped with the viewshed analysis discussed above. This is a way to test whether or not the structure of the fortress is actually conducive to defense by sling. A range of 30 m has also been suggest for hand-thrown projectiles (Keeley, et al. 2007:73), and this range can be tested as well. If the effectiveness of either of these types of defense, either hand-thrown or sling-launched projectiles from the fort, is demonstrated by the analysis, then we can better support the assertion that the fortress was indeed used for such a purpose. If the effectiveness is not demonstrated, this would make the fortress less consistent with an interpretation emphasizing a military function.

4.1.4 Evidence for destruction

Evidence for the destruction of sites, such as the dismantling of architecture or burning, can also be an indicator of warfare. Events such as wall-breaching can be difficult to assess. In the Andean region, no such practice has been documented in historical documents or in the archaeological record.

Particularly in the Maya region, eastern North America, and the American Southwest scholars have tried to assess evidence for warfare and distinguish it from evidence of other kinds of activities, such as ritual destruction of structures and sites, and abandonment processes. Sudden abandonment, perhaps from a conflict, will hypothetically leave greater amounts of “de facto” refuse (Schiffer 1987:89). In the case of a fortification, where people abandoning other settlements may migrate to (“pull forces”) rather than abandon, de facto refuse would not be expected at a refuge or fort
used only when needed. Destruction events, however, would lead to more complete artifacts being encountered on floors and use-surfaces. The concept of de facto refuse can be fruitfully applied to think about cyclical occupations where people decide when to leave the fort – when it is safe. The only think that might cause evidence consistent with a rapid abandonment of a fort would be its defeat.

Evidence of conquest or defeat of Acaray would be comparable to that found at other sites such as Xochicalco in Morelos, Mexico or Teotihuacán, where evidence of burning of temples and core structures, and rapid abandonment of residential areas indicated by rich floor assemblages is argued to have taken place (Manzanilla 2003; Webb and Hirth 2003). Regardless of whether Acaray was a permanent settlement of not, if people were there they had items with them for daily existence (however meager), and a catastrophe like defeat, being overtaken, or abandoning the site rapidly in the face of defeat would leave an archaeological signature distinguishable from other processes of site abandonment.

4.2 Models of fortifications and function: Expectations and archaeological signatures

Fortifications can be interpreted in different ways, and indeed their military nature is often overlooked (Arkush and Stanish 2005:4-6; Keeley, et al. 2007:56). Here I review possible function related to a military use of a fortification, and below review non-military uses of forts.

Two of the single-function uses assigned to fortifications are their uses as refuges and outposts. One of the main things that might distinguish the two is that a refuge is defensive, while an outpost can be offensive as well as defensive (Hassig 1992:33).
What do refuges look like? Because refuges are used only in times of need, they should not show evidence of long-term occupation. If the refuge is used infrequently, the evidence for occupation should be more ephemeral in nature. Ephemeral occupations within forts or refuges have been little studied. However, we can draw expectations from archaeological and ethnoarchaeological research done on encampments and occupations used by mobile peoples. There may be little formal architecture present inside the defenses. Refuges that may have been used to withstand long sieges would require storage to sustain a group or population for extended periods of time. Storage can be identified archaeologically in architectural forms, but also indirectly through the presence of storage vessels (notably pottery vessels). Storage vessels are usually not as portable, and are big with thick walls. Finding the remains of these kinds of vessels in a fortification would suggest storage and support an interpretation of a place as a refuge.

What does an outpost look like? Outposts are linked to a polity whose center is elsewhere. They are locations on the peripheries of these polities with the aim of protecting foreign interests (political, economic) in new territory. They are, by nature, intrusive. Thus, materially, there should be detectable differences between artifacts and construction of an outpost versus other local settlements. Outposts signal territorial expansion, and perhaps the beginning of territorial consolidation, by an outside group into a new territory, or that of another group of people (Nieves Zedeño 1997:90-92).

Discussions of war temples or fortified temples blur the sole defensive function often assigned to fortifications. The fact that many fortifications incorporate or include ‘ceremonial’ or ‘ritual’ areas is not unusual. Furthermore, a number of fortifications or battlefield sites are commemorated after their use for military or defensive purposes
(Saunders 2003), meaning that over time different kinds of functions may become apparent at these places. On the archaeological time scale, it may be difficult to sort this out given lack of fine-grained chronological control. However work in the American Southwest and the Maya Region on depositional histories of sites can aid in such distinctions.

4.3 Ethnographic cases and archaeological discussions of ritual warfare

In the Andes, ritual battles, known as tinku, are often discussed in the context of prehispanic conflict (Topic and Topic 1997). Ethnographic and ethnohistoric cases, however, demonstrate that ritual conflict is found in other societies around the world as well. For example, the Enga of Papua New Guinea engaged in “Great Wars” which were highly ritualized, and which bear similarity to the Andean tinku in that both were spectator events (Orlove 1994:143; Wiessner and Tumu 1998:269-270) and had more to do with reaffirming or restructuring social relationships. The Aztec “Flower Wars” are also interpreted as staged events to provide the opportunity for capture of prisoners for sacrifice (Hassig 1988). Here it is important that I mention the potential problems of distinguishing “ritualized” forms of warfare with “real” warfare, since what I am basically arguing is that there is no distinction. Nevertheless, in order to evaluate Acaray in light of these explicitly articulated models it is productive to discuss what expectations arise out of such models.

What does ritual related to warfare or battle look like archaeologically? In the Andes, there is much variability in the practice of ritual battles, which continues today but which has roots in prehispanic times. Tinku are often fought in flat, open spaces. They are sometimes also associated with the confluence of two rivers, which is thought to have
significance. These battles at one time were related to boundary maintenance, both in terms of territory and identity (Allen 1988:183). As mentioned above, they are meant to be watched, and spectators often view from above (i.e. on a neighboring hill) (Orlove 1994:143). It has been suggested that ritual battles took place at important Inca shrines and sites such as Sacsayhuamán in the Cuzco Valley (Von Hagen and Morris 1998:173), and Huánuco Pampa in the central highlands. In both cases, large flat areas are thought to be where the battles took place. Ritual battle is also believed to have taken place in Moche society. Rather than using slings, however, hand to hand combat was used (Donnan 1978). These battles also “took place on the margins of irrigated valleys, amid cactus and scrub vegetation” (Von Hagen and Morris 1998:208).

Based on what has been documented and reported for tinku we would expect to find the following to identify potential battle locations archaeologically: 1) no evidence of fortification, 2) location near a flat area with adjacent hills from which to watch the battle, or in marginal lands, and 3) location near the confluence of two rivers. These three factors, however, only suggest a location would have been a candidate for a tinku to have taken place. Ethnographic reports also indicate few deaths arise from tinku, but determining cause and timing of death within a burial population would be difficult. Thus, besides identifying a place as a good locale for tinku, archaeologically identifying a battle, or repeated battles, does not appear to currently be possible.

4.4 Expected non-military activities: a review of possibilities

As a number of scholars have pointed out, defensive sites can serve more than military functions, and a number have suggested that these sites in certain contexts may not be defensive at all. The more common alternative interpretation is that they are
ceremonial in nature. This has played a role in the debates that have taken place in the field at large regarding the recognition (or rather, not wanting to recognize, conflict in the past) (Keeley 1996; LeBlanc 2003). Rather than choose a side, I think testing alternative models for these sites merits consideration, and thus I outline here some other expectations based on assumptions of different kinds of site uses. These kinds of expectations can be broken down into two broad categories: the kind of use that would generate evidence of long-term occupation and that which would result in evidence of shorter-term use.

Walled hilltop sites documented for the north coast of Perú have been interpreted as administrative centers, and strategic locations for the control of water (Figueroa and Hayashida 2004; Tschauner 2001). In Lambayeque Chimú administrative centers, called hill-flank valley-margin centers (Tschauner 2001:201), there is evidence for a sizable population based on estimates of hypothesized roofed residential structures. These sites are fortified, with defensive walls, parapets, and lookout structures, but they contain mounds for public ritual, and the hallmarks of Chimú administration such as audiencias\(^2\) in addition to the residential areas. These centers housed a permanent population of elite overseers, who lived in widely spaced compounds with domestic storage spaces in them (vs. bulk or massive storage for public distribution) (Tschauner 2001:114). At the site of Galindo in the Moche Valley, walls enclose structures that have courtyards and benches, and they may have also served to divide segments of society that lived at Galindo (Conklin 1990:53). Galindo is not a hilltop site, and is not considered to have a military

\(^2\) *Audiencia* is a Spanish term literally translated as ‘audiency’, but that refers to a specific kind of u-shaped room identified at the Chimú capital of Chan Chan. Chimú officials presumably sat in these rooms.
function. Nevertheless the walls are believed to have served a function of security for group activities taking place inside of them.

Based on the model presented by these fortified administrative centers we could expect similar elements to indicate Acaray served as such a center. Other administrative centers such as Manchan in the Casma Valley were not fortified, thus offering a less comparable model for Acaray. These centers are characterized by long-term occupation, with a permanent resident population. We would expect to find houses, with formal evidence for domestic activities such as cooking and food-preparation activity areas. Storage areas or vessels associated with houses would also be consistent with this type of site. This presents a challenge to distinguishing between an administrative site and a refuge, where we would also expect to find storage areas or storage vessels.

Short-term occupations, or evidence of ephemeral site use, are informed by studies of site abandonment (Inomata and Webb 2003). Just as mobile groups of people will take portable and important items with them, when not faced with catastrophic events that require immediate evacuation from a site, people plan and decide what items come with them (Webb and Hirth 2003:28). Temporary occupation of a fortification for refuge with no ensuing battles may leave the residues of ephemeral occupation, and people may leave little behind if they have the chance to plan their departure. As a corollary to this, if people foresee having to return to a fort, caching behavior may be expected (Plunket and Uruñuela 2003:13). They might leave behind usable or reusable items for use when they return. With the more rapid abandonment of a fortification, people may not have time to remove items as they wish. In the most extreme form of rapid abandonment, that induced by disaster and resulting in immediate “abandonment” or burying of the site, things are
left in place (see for example the work at Cerén, El Salvador Sheets 2002). Heavier items are more likely to be left behind with rapid abandonment, and important items may not be cached, but left behind on floor or use surfaces in people’s rush to leave.

There are certain kinds of congregations, involving both small and large groups, which result in the emergence of monumental sites. For example, the site of Cahuachi, a Nasca center on the south coast of Peru, was interpreted as a pilgrimage center (Silverman 1994a) based on evidence of ephemeral use not consistent with a permanent population. Silverman (1993:311) interpreted lack of evidence for residential structures (with the exception of post holes), and lack of refuse areas thought to be linked to permanent refuse areas (except as found in construction fill), along with comparison to the central coast Late Intermediate Period site of Pachacamac, and analogy to a modern pilgrimage as evidence for pilgrimage. Recent research at Cahuachi has identified elite residences in addition to further indications of periodic ceremonial activities by people visiting the site (Vaughn and Van Gijseghem 2007:815). Thus caution must be taken to identify sites entirely as “empty” with no permanent resident population. Pilgrimage centers, especially those linked to dominant ideologies (of, for example, the state) might house small groups of people permanently, with periodic influxes of larger groups. This has been documented for Inca shrines at which state lands were maintained and mamacona (chosen women of the state) were housed (Bauer and Stanish 2001).

Pilgrimages to shrines are usually tied to a specific time or date, perhaps linked to agricultural or other calendric cycles. In the ethnographic case of the pilgrimage for the Virgén del Rosario de Yauca people packed up the items they brought with them for their short-term stay, leaving behind trash in what were public and temporary domestic areas
(Silverman 1993:312). This kind of abandonment with anticipated return (Inomata 2003:44) is also consistent with this kind of behavior. People take important and portable belongings with them (which may be all they brought with them given their short-term stay), and trash in areas normally kept clean will not be disposed of. Defensive sites, or important places in landscapes of past wars are also known be used as places of pilgrimage or as shrines later in time (Arkush and Stanish 2005:11-12; Saunders 2001).

If Acaray was used in a short-term way for purposeful activities (such as a shrine for pilgrimage, or refuge), then we might expect to find trash left on floors and surfaces outside of spaces that might be characterized as sacred, and only the remains of less portable and less useful remains on those surfaces. Furthermore, post holes may be encountered, but aside from already visible architecture there is less of an expectation to find perishable and/or portable structural materials, as those would be brought in, assembled, and then removed. Informal hearths may also be indicative of short-term or periodic use (Nelson 2003:87). Large-scale pilgrimages to a state-backed location might entail the building of more permanent housing in certain areas for elites and other chosen individuals. Small-scale pilgrimages of a local nature would not be have this kind of construction of elite spaces for chosen individual to live who may be involved in shrine maintenance. Maintenance would presumably be left to local people, and carried out through periodic visits, not permanent stays.

Memorials, or places that have been commemorated, might show more variability in the frequency with which they are visited. The repeated visits would appear to generate material remains still consistent with a non-permanent occupation. It would be difficult to separate out the remains that may remain once the site falls out of use in this way. But
offerings may be more characteristic of this kind of subsequent use. Rather than removal of items from the site, memorial practices can be thought of as additive, in that offerings and other additions are left behind to pay homage to place. Archaeological sites in France, for example, become “monumentalized” through the erection of symbols and the recovery of past material remains as commemoration rites in the service of new nationalist identities and agendas (Dietler 1998). Furthermore, there would be less evidence for scavenging behavior of useful items left behind (such as groundstone).

Interpretations of artifacts as offerings or as objects that are ritual or ceremonial in nature are informed by comparative archaeology study, ethnoarchaeology, and cross-cultural comparison. There is a growing body of literature on ceremonial trash, ritual deposits and offerings and how these may be distinguished from other kinds of destructive events (Pollard 2001; Walker and Lucero 2000). These concepts are useful for distinguishing different types of deposits that are typically identified as ritual. I find the linking of ritual behavior, or ritual technology (Walker 1995:71), to practice and materiality very useful for articulating middle range theories of the archaeological signatures of ritual. Ritual objects can be productively characterized as singularities, having singularized spaces of deposition (Kopytoff 1986; Walker 1995:73-74).

Ceremonial trash can be distinguished from these types of offerings. Ceremonial trash refers to the discard of ceremonial or ritual objects when they are no longer useful – their life-histories have run their course. Because of the singular domains in which they are used, we can expect that they would be deposited in singular spaces once used up. Offerings can be divided further into sacrificial and kratophonous deposits (Walker 1995:76). Sacrificial deposits include objects that still have some use despite being worn.
Their function shifts toward one of “harness[ing] their remnant use-lives with an ongoing ritual tradition” (Walker 1995:76). Kratophonous deposits include objects that may be intentionally destroyed because their viability is contested. Thus, in such a deposit one might expect less signs of use-wear, but perhaps destruction at the moment of deposition, such as burning or breakage.

The electronic Human Relations Area Files database provides further data from other cultures that speaks to ritual behaviors, including caching and offerings. I conducted searches in the anthropology database under the subject Religion-Ritual for two categories: Prayers and Sacrifices and Sacred Objects and Places. I limited the searches to the Americas (North America, Central American and the Caribbean, and South America), resulting in a search of 71 cultures. Searches using the keyword “bundle” generated 13 and 22 results for the two general subjects above (Table 4.1). The assembly of bundles of sacred or otherwise potent objects is not unusual, and in fact, in societies such as the Navajo, Blackfoot, and Pawnee, is related to war parties. Burial of assembled packets or bundles of items by communities is documented for the Zia Pueblo communities.
**Religion - Ritual - Prayer and Sacrifices**

<table>
<thead>
<tr>
<th>Bundles-limited to the Americas</th>
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<tbody>
<tr>
<td>Ndunya</td>
</tr>
<tr>
<td>Aymara</td>
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<tr>
<td>Inka</td>
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<tr>
<td>Ojibwa</td>
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<td>Iroquois</td>
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<td>Seminole</td>
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<td>Assiniboine</td>
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<td>Blackfoot</td>
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<td>Pawnee</td>
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<tr>
<td>Hopi</td>
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<tr>
<td>Navajo</td>
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<tr>
<td>Maya (Yucatan Peninsula)</td>
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<tr>
<td>Tarahumara</td>
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</tbody>
</table>

**Religion - Sacred Objects and Places**

<table>
<thead>
<tr>
<th>Bundles-limited to the Americas</th>
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</thead>
<tbody>
<tr>
<td>Ndunya</td>
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<tr>
<td>Tukano</td>
</tr>
<tr>
<td>Aymara</td>
</tr>
<tr>
<td>Inka</td>
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<tr>
<td>Guarani</td>
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<td>Kogi</td>
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<tr>
<td>Ojibwa</td>
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<tr>
<td>Delaware</td>
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<tr>
<td>Iroquois</td>
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<td>Seminole</td>
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<td>Pomo</td>
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<td>Tlingit</td>
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<td>Assiniboine</td>
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<td>Blackfoot</td>
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<td>Pawnee</td>
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<tr>
<td>Chinese Americans</td>
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<tr>
<td>Hopi</td>
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<tr>
<td>Navajo</td>
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<tr>
<td>Western Apache</td>
</tr>
<tr>
<td>Zia Pueblo</td>
</tr>
<tr>
<td>Maya (Yucatan Peninsula)</td>
</tr>
<tr>
<td>Tzeltal</td>
</tr>
</tbody>
</table>

Table 4.1 Table of results from eHRAF search on bundles.

In the Andes, work among the Aymara as well as ethnohistorical studies of the Inka also document the assembling of ceremonial or ritual bundles (Tschopik 1951) as an
important element in ritual practice. Additional ritual activities have been documented ethnographically for the south-central Andean highlands with the intention of informing interpretation of ritual archaeologically (Kuznar 2001). Offerings (despachos or ofrendas), the construction of temporary ritual spaces or shrines (called mesas), and burning of objects for special or mundane everyday rituals can leave archaeological signatures. Throughout the Andes, coca leaves or coca chewing are a part of these routine ceremonies (Allen 1981, 1988). These ceremonies would also entail the offering of libations in the form of chicha (maize beer) (Arriaga 1968[1621]). Because the preservation is excellent on the coast, if such activities were being carried out at Acaray it should be possible to find offerings or ritual deposits, and shallow burning events consistent with one-time burning of offerings. We would also expect to find items related to chicha consumption, the remains of coca leaves, or items and materials linked with coca chewing, such as cal or caleros (a basic substance used when chewing coca leaves, and a container used to carry it, respectively).

4.5 Summary
This chapter has laid out specific expectations to assess models of Acaray as a locale for practices related to war and ritual. Extant literature of defensive settlement patterns and fortifications outlines criteria for determining the military function of Acaray. However, the recognition that these criteria are not unambiguous, and the fact that other scholars have noted evidence for other kinds of activities in these spaces, necessitates an examination of the materiality of non-militaristic behaviors. With these models in mind we can now discuss the methods and fieldwork carried out at Acaray.
Chapter 5 Methods

The present chapter introduces the methods used in mapping, surface collection of materials, and excavations. Laboratory methods, material analysis methods, and GIS spatial analyses are also described.

5.1 Mapping Methods

Mapping was carried out at Acaray from June through August 2004, and again in August and September of 2006. Topography was mapped using a TopCon GTS 210-series total station linked to a data collector using SMI Transfer v7 software (in 2004), and a Leica 1200 total station using Leica GeoOffice software to process data (during 2006). Architecture and other geographical and archaeological features were mapped using a Trimble Pro XR GPS receiver linked to a PDA equipped with ArcPad (Tripcevich 2004). The GPS infrastructure, established by Nathan Craig, Nico Tripcevich, and Keith Carlson for the Proyecto Arqueológico Norte Chico (PANC), was used, and all differential correction of GPS data was done initially by them and later by Manuel Perales Munguía. Differential correction provided sub-meter accuracy on GPS-collected data. Topographic and GPS data were entered into a GIS using ArcMap 8.3, and later ArcMap 9.0 and 9.2.

As mentioned above, the terrain of the ridge on which the fortress at Acaray is located presented challenges to mapping. In 2004 eight mapping stations were located at various points outside and within the fortress for greatest visibility, and yet many areas of this landform were not visible from these eight points. In addition, rough terrain made certain areas of the ridge inaccessible or just dangerous to access, by a person walking with the total station rod. Given these limitations, and constraints on time, I decided to
focus primarily on shooting topographic points where the concentric defensive walls were located and where there was greater density of architecture.

Datum 1 was located on a hilltop northeast of and across from the fortress. A backsight point located 10 meters to the north of datum 1 was measured using a GPS, and the datum and backsight points were differentially corrected for greater accuracy. The location for datum 1 was chosen because it was located outside of the fortress, and offered greatest visibility of the northern side of the ridge on which the fortress is located, following criteria suggested by Perry (1999:3-1). The first mapping station was set up on datum 1, and from there subsequent datums were located. Additional datums were shot in from other datum points, with some datums serving as backsights for new mapping stations. Given the complexity of the terrain all datums were not shot in from Datum 1.

Figure 5.1 Map showing all 8 mapping stations used in 2004.
After three days of mapping, it became apparent that a large section of the southern face of the ridge on which the fortress is located was not visible from any of the existing datums. Accordingly, and eighth datum was located to the southeast of the ridge on a low hill that extended out into neighboring agricultural fields. Once this datum was located, it became apparent that we would not need to use datums 3, 4 and 5 as mapping stations (Figure 5.1).

During 11 days of mapping in 2004 with the total station we were able to shoot 1,874 topographic points on the ridge (Figure 5.2). Although initially we attempted to walk transverse transects across washes and highpoints, we had better success walking along high ridges, and then up through the washes. Given extreme changes in topography, and the desire to generate a reasonable approximation of this topography relatively quickly, we were advised to measure high and low points rather than sampling heavily on slopes (Nathan Craig, personal communication, 2004). Topographic points were then imported into ArcGIS and topographic lines were generated based on our sample of points using the geostatistical analyst extension to create a Digital Elevation Model (DEM), and the spatial analyst extension to interpolate elevations from that model. This resulted in a fairly good map and DEM that permitted more informed selection of excavation units.
Figure 5.2 Map showing topographic points shot in 2004. Note the western side of the ridge was not the focus of mapping.

Mapping stations used in 2006 were not relocated at exactly the same datums used in the 2004 field season. Removal of datum stakes by passersby in the intervening two years, in addition to my desire to better locate some of the datums for increased visibility, led me to use a different set of datums for the second round of mapping. Nails were set in cement for three datums, while others were marked using orange spray paint. Additional mapping stations were located on other non-movable rocks with spray paint to minimize removal by passersby. Two of the cemented datums were nevertheless removed and required resetting. The advantage to using spray paint was that it was also visible from the gun, and datums and backsight points could be shot in using reflectorless mode, decreasing the amount of time needed to send someone out with the rod to these
locations. Reflectoreless mode was not available on the TopCon used in 2004, but was on the Leica used for this season.

![Legend](image)

**Legend**
- **Datum/mapping station**
- **Architecture**
- **Outline of ridge**

Figure 5.3 Map showing location of 14 mapping stations used in 2006. Note that most of these are located on the far western section of the ridge, where gullies and smaller ridges make visibility of topography from one point limited.

The new datum 1, located near the old datum 1 on an adjacent hilltop, was located to maximize visibility of the north side of the fortress, including low-lying areas not visible from the previous datum 1. This datum and another fixed point to be used as a backsight (datum 1924, used in the 1920s for the construction of the San Felipe canal that runs through Acaray) were measured using a differential GPS and the coordinates were used to set up the mapping station. Additional mapping stations were shot in from these known points (Figure 5.3 of 2006 mapping stations). During mapping in 2006 I found that moving the gun often was effective. I would establish temporary mapping stations from the more permanent eight stations in order to shoot points in areas where there was
no topographic data. I used a total of 21 mapping stations, only 14 of which are shown in Figure 5.3. While we started mapping using the rod, reflectorless mode proved to be more rapid and facilitated access to hard to reach areas by foot, and allowed for increased sampling of certain areas. Reflectorless mode could also be used to shoot new mapping stations and backsight points. This saved time not having to send someone with the rod to that point in order to set up the gun at a new station.

![Legend](image)

**Figure 5.4** Map showing all topographic points shot (circles) and additional points added later in the GIS (triangles).

The data generated in 2006 built off the 2004 data and allowed for greater detail of topographic features. I later added points in blank areas using elevations from shot points to minimize interpolation issues when generating the DEM and contour lines (Figure 5.4). The resulting DEM was much more detailed, permitting finer-grained
surface analysis in the GIS (Figure 5.5 of DEM).

**Figure 5.5 Digital Elevation Model based on topographic points.**

The majority of architecture on the ridge was mapped in using a GPS in 2004, with the exception of some terraces and simple walls that were shot in using the total station and later drawn in ArcGIS. Additional GPS mapping was done in 2006 to document architecture that was missed in 2004. These data were differentially corrected, allowing for sub-meter accuracy. Mapping architecture using a differential GPS was more time-efficient, permitting us to register extensive architectural elements, such as concentric defensive walls, and a variety of structures and room complexes quickly and with a high level of accuracy. All architecture was walked with the GPS, except for the majority of the exterior faces of the concentric defensive walls where steep slopes made access difficult or impossible. In these cases, mapping with the GPS was done by walking
along the interior of the walls and continuing through entrances to the outer face of the wall for a meter or two, and the rest was drawn in ArcGIS based on measurements of the width of the defensive walls. As a result, small wall sections are idealized as some heavily eroded areas are shown as complete. This will have to be resolved in future investigations.

Once the two types of data, GPS and total station, were put into the GIS, the total station data were rotated to better match the GPS data. This map served as the basis for looking at placement of entrances in the defensive walls to assess routes of access and the extent of restricted access to, and within, various parts of the fortress. Defensive architectural features such as parapets and lookout points were also mapped in, and their distribution within the site was assessed. Some attention was also paid to the location of rocky outcrops and cliff faces, which appeared to augment the defensibility of the fortress.

During mapping the fortress was divided into sectors using the hilltops and defensive walls to define sectors and subsectors. Defensive architectural features were also identified, as well as other surface characteristics necessary to understanding the use of space within the fortress. Each hilltop within the fortress was defined as a sector (Sectors A, B, and C) and further subdivided into subsectors. Areas adjacent the fortress that also form party of the archaeological complex of Acaray were also defined into general sectors (Sectors D and E) (Figure 5.6 of sectors). A detailed description of each sector and the architecture and surface features mapped is included in the next chapter (Chapter 6).
5.2 Surface collections

Surface collections of ceramics, as well as other special artifacts, were carried out during the 2004 field season. Additional collections were made during the 2005-2006 season during excavations. In March 2006 as excavations wrapped up we collected ceramics and lithics systematically from the far western part of the ridge, registering 50 new collection units. Our naming system for surface collection units from 2004 differs from our more general use of units in 2005-2006, which were defined in areas where excavations were carried out as well. I will first describe our collection units from 2004, then those from the 2005-2006 season.

We recovered surface ceramics, along with other special artifacts, from 33 collection units in 2004. Each collection unit was defined around a group of structures, or areas adjacent to the concentric walls such as the terraces or walkways on the interior of
the walls. These collection units were delimited by polygons mapped in using a GPS (Figure 5.7). We collected fragments from within and immediately outside of structures to get a broader sense of their distribution, particularly given that fragments are more likely to appear outside of structures which may be kept clean. Fourteen collection units were done in sector A (with 430 fragments), ten in sector B (with 200 fragments) and nine in sector C (with 181 fragments).

Figure 5.7 Map showing surface collection units from 2004 field season for Sectors A, B, and C.

Collections were also made from the adobe tapial (rammed-earth) compounds and other structures in the low-lying areas to the north and east of ridge (sectors D and E). Since these areas include extensive cemeteries that have been heavily looted I wished to diminish collection of burial ceramics by focusing on the compounds. This approach served to limit what was collected, as one could spend weeks trying to collect surface ceramics from the cemeteries. It also allowed me to define discrete collection areas around architecture, something difficult to do in the pock-marked open cemetery areas. Ceramics were collected from Sector D (the area to the north) in areas immediately
around and within two compounds, and from around and within an adobe platform
structures in Sector E (to the east the fort). These three additional collection units yielded
245 (Sector D) and 112 (Sector E) sherds. The total number of fragments analyzed from
surface collections is 1168. Each sherd was labeled with the site code (ACA), followed
by the subsector, the unit of collection number, and the sherd number within that unit of
collection (for example, ACA-C3-4-1).

Analysis focused on determining vessel forms, common vessel surface treatment
styles, and paste composition. Table 5.1 details the categories of forms and surface design
treatments that were identified in the analysis. Due to time constraints detailed attribute
analysis was not possible. Reference, instead, was made to previous studies of local

<table>
<thead>
<tr>
<th>Form</th>
<th>Decoration</th>
</tr>
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<tbody>
<tr>
<td>Plate</td>
<td>Lineas bruñidas (burnished lines)</td>
</tr>
<tr>
<td>Vase/cup</td>
<td>Estampado con caña (stamped with cane)</td>
</tr>
<tr>
<td>Bowl</td>
<td>Estampado con caña y puntuación (stamped with cane and punctate)</td>
</tr>
<tr>
<td>Neckless olla</td>
<td>Puntuación (punctate)</td>
</tr>
<tr>
<td>Necked olla</td>
<td>Estampado con sello (stamped with stamp)</td>
</tr>
<tr>
<td>Jar</td>
<td>Listón Mellado (strips with notches)</td>
</tr>
<tr>
<td>Canteen</td>
<td>Inciso en pasta fresca (incised on wet paste)</td>
</tr>
<tr>
<td>Amphora</td>
<td>Engobe crema (cream engobe)</td>
</tr>
<tr>
<td>Other closed vessels</td>
<td>Negro sobre blanco (black on white)</td>
</tr>
<tr>
<td>Not determined</td>
<td>Blanco y negro sobre rojo (white and black on red)</td>
</tr>
<tr>
<td></td>
<td>Negro sobre rojo (black on red)</td>
</tr>
<tr>
<td></td>
<td>Negro (black)</td>
</tr>
<tr>
<td></td>
<td>Rojo sobre crema (red on cream)</td>
</tr>
<tr>
<td></td>
<td>Engobe rojo (red engobe)</td>
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<tr>
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<td>Rojo y crema (red and cream)</td>
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<td></td>
<td>Crema sobre rojo (cream on red)</td>
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<tr>
<td></td>
<td>Inciso (incised)</td>
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<tr>
<td></td>
<td>Negro y rojo sobre anaranjado (black and red on orange)</td>
</tr>
<tr>
<td></td>
<td>Marrón sobre Rojo (brown on red)</td>
</tr>
<tr>
<td></td>
<td>Peinado (combed)</td>
</tr>
<tr>
<td></td>
<td>Negro, Rojo y Crema (black, red and cream)</td>
</tr>
</tbody>
</table>

Table 5.1 Table with categories used for form and design/surface treatment. Terms used were in Spanish and are roughly translated for decoration.
ceramics (Cornejo Guerrero 1991, 1992; Krzanowski 1991b; Krzanowski and Tunia 1991; Usera Mata 1972), as well as to sourcebooks on pottery and pottery analysis (Rice 2005). Analysis of ceramics collected in 2004 was directed by Santiago Rivas Panduro, who was carried by Santiago, me, Miguel Aguilar Diaz, and Carlos Escobar Silva. Drawings were made of forms and decorative techniques. Results from this analysis and drawings are included in Appendix A, and summarized in Chapter 10.

Additional surface collections made in 2005-2006 followed a different system. Within sectors A, B and C units were delimited that served to subdivide each subsector further into manageable units for excavation and surface collection of materials. A total of 50 units were inventoried and surface collected to augment previous surface collections. Systematic analysis of ceramics and lithics from the ultimate collections in the far western part of the ridge (Sector A) is still underway. An attribute analysis for these ceramics, devised in collaboration with Kit Nelson, is ongoing. That method of analysis is discussed in greater detail below (section 5.5).

5.3 Excavation methods

Excavations at Acaray took place from November 2005 through March 2006. A total of eight test units (TU) and six larger area excavations (Blocks) were opened up in Sectors A and B of the fortress.³ Sector C was not the focus of excavations due to time constraints and a desire to focus on certain areas of the site that exhibit more defensive characteristics. Variability in architecture was documented in 2004, and excavations were aimed at exploring this variability. The goal was to identify and define different kinds of

³ In the field test units (TU) were called pozos, and the Blocks were bloques. The translation of pozos as test units might create some confusion given unidades, or units, discussed below. For clarification, units (unidades) are large areas that could be roughly delimited (an area of contiguous rooms, for example), while test units (TU) are specifically excavation units.
residential spaces that might indicate classes or subgroups of people living within the fortress. Excavations targeted what were hypothesized to be high status residences inside the fort, lower status residences inside the fort, and lower status residences outside the fort. 1 x 2 meter test units were excavated to probe what was believed to be deep trash deposits as well as sample different types of architectural structures. Test units were expanded in two cases (TU 3 and TU 8). The area excavations focused primarily on identifying functions of certain structures and identifying activity areas.

Our recording system for excavations was based on defining *unidades* (units), loci, and lots. *Unidades* were used to divide subsectors into smaller units defined by groups of architecture or areas bounded by natural features. In total we defined 50 *unidades*, 10 in which we conducted excavations. The remainder was used only to delimit discrete areas for surface collections (discussed above). Within each *unidad* we identified a locus, or loci, for the purposes of excavation. A locus can be defined as an activity area or deposit. Loci were further divided into lots so that all materials from the same depositional layer would be kept together. Subsequently, in the laboratory phase of the project, lots could easily be grouped together after assessment of stratigraphy and deposition, and given an entirely new lot number. The motivation behind this decision was the belief that it is easier to subsequently lump deposits later, and nearly impossible to tease apart something that was excavated as a single deposit when it actually represents more. This would be particularly important for fill layers, which may be productively lumped together in a coarse way for one level of analysis, or could be dissected into different filling events for a fine-grain analysis. In my descriptions of excavations (Chapter 7) I use layers with only minor mention of lots, since a number of lots can make
up what was deemed to be one depositional layer.

Although original plans for recording during excavation entailed using the TopCon total station, it malfunctioned prior to fieldwork in 2005 and was not used. The replacement total station was not available until August of 2006. Thus, we were unable to tie the excavations, which extended over large expanses of the site, into a single datum for taking depth measurements and recording specific features. A datum was established at each excavation unit from which to measure depth with line, level, and tape measure. We immediately ran into problems with theft of nails and rebar used to locate datums and stake out the units. This problem was solved by using a large, non-movable or less movable rock on which we marked a point with a Sharpie marker. That point served as a reference for reestablishing the datum nail, and in some cases (Block 1C) served as the actual datum itself. Big block excavations sometimes required two or three separate datums from which depths were measured. Each unit was located in space by taking a GPS reading at the northeast corner of the unit or block. The GPS used was a Magellan, not the Trimble described above which collected data that could be differentially collected. Thus, there is some discrepancy between GPS measurements of excavation units, and GPS measured architecture. Due to requirements by the Instituto Nacional de Cultura (INC-National Institute of Culture) to backfill excavations after supervisory visits were conducted, I was not able to return and shoot in datums with the total station. All locations of excavations are essentially eye-balled in using the more accurate differentially corrected GPS measured architecture.

All dirt excavated was passed through 1/4 inch and 1/8 inch screens stacked on top of each other, with the exception of flotation and fine screen samples. Flotation
samples were taken directly from the excavations, while fine screen was taken from below the screens, both in 1 liter amounts. Pollen samples were taken of floors and closed contexts to provide the possibility for comparison with macrobotanical remains, and for potentially reconstructing the local environment. Samples for radiocarbon dating were taken directly from contexts (not from screened materials), using tweezers to extract the sample, which was then placed directly into an aluminum foil packet, and then into a plastic Ziploc bag to allow a paper labeled to be included with the sample. Provenience information was written on all bags, as well as on a paper tag which was included in the bag. This was to avoid potential loss of provenience information due to erasure of the marker on the bag. A master inventory of specimens was kept, with each bag assigned a unique number from 1 to infinity. This would minimize errors in the inventory, and permit future investigations to continue adding to this inventory.

5.4 Laboratory processing of materials

Since there were no plans to carry out residue analyses most ceramics and lithic materials were washed in water using soft toothbrushes. This is true for materials collected during both seasons. However, certain ceramic sherds or vessel parts that had obvious residue stuck to them were not washed or dry-brushed. If certain sherds were too brittle they were also not washed. Some ceramic sherds were heavily encrusted with salt due to the soil in which they were deposited. The growth of the salt was exacerbated by the climate on the coast – humid and adjacent to the ocean. Heavily encrusted sherds were allowed to soak over a few days to try to remove the salt. Prior to analysis ceramics were sorted into diagnostic and non-diagnostic bags based on form or surface treatment. Sherds were labeled with India ink to facilitate analysis and future identification of
certain sherds. The labels consisted of a three letter site code (ACA, for Acaray), the lot number, and the sherd number within that lot (For example, ACA-72-4).

Bone materials were not washed. Also special finds, including ceramic fragments with ochre-like pigment on them, ceramic antara (panpipe) fragments, wooden artifacts, etc. were not cleaned. Textiles were wrapped in acid-free paper and placed in cloth bags or open plastic bags.

Radiocarbon samples were weighed, using tweezers to handle specimens. Some samples were broken up into smaller sizes if the weight was more than twice the minimum requirement for the laboratory. Specimens selected for radiocarbon dating were identified informally by Carmela Alarcón Ledesma. Some samples could not be identified. In at least one case a sample may have been misidentified based on the radiocarbon laboratory’s delta measurement of carbon (too high for a specimen thought to be maize).

Soil samples taken for fine screening were dry screened using a single size sieve. Most fine screen samples were processed by me and Fernandito Guillermo. Some flot samples were processed using a system developed in the PANC laboratory. Carmela Alarcón Ledesma oversaw Hernán Guillermo and Santos Galvéz who processed the samples.

5.5 Methods of analysis
Analysis of excavated materials was undertaken primarily with ceramics and lithics. Because of problems with over-reliance on stylistic analyses in the Central Andes, I opted to develop an attribute analysis. As mentioned above, this was done in collaboration with Kit Nelson. A coding sheet was developed for recording attributes based on our observations of pottery in the region, my observation of pottery specific to Acaray, and with reference to published ceramic collections. The coding sheets also
allowed for the recording of time period and locally known style based on assumptions
drawn from purely stylistic analyses. This would permit a coarse assessment of ceramics
based on commonly known styles while collecting data on specific attributes to carry out
different analyses. Measurements of diameter were determined using a diameter form.
All other measurements were taken using calipers. Data on ceramic attributes from
excavated pottery sherds was carried out in 2005-2006 by myself, Eman Khalifa
(graduate student at Tulane University), Dafne Vargas (undergraduate student at the
Universidad Nacional Mayor de San Marcos), and Isabel Cornejo Rivera. Analyzed
diagnostic rim sherds were selected for drawing and are included in Appendix B.

Since the attribute analysis was devised to accommodate future excavated
materials from the region, it was broad. Each sherd was given a number from 1 to
infinity. Basic provenience information was noted, such as site specific sherd number
assigned in the lab (ACA-74-13, for example) and bag number, and whether the
specimen was a sherd or whole vessel. General characteristics were recorded, such as
estimated time period, common designation, vessel part, and construction method.
Measurements were taken of sherd length, width, thickness, rim diameter, and an
estimation of the % of the rim present was made. Aspects of exterior and interior color
and surface treatments were collected, as well as several indicators related to decoration.
Form (for example, bowl), when it could be determined, was recorded, as well as details
of form (flat-bottom bowl, for example), alteration due to firing, and presence or absence
of soot or vitrification. The specifics of the coding sheet and descriptions of all attributes
are explained in Appendix B.
I carried out all analysis of attributes through basic frequency analysis tools using SPSS 13, as well as relying on basic statistical data such as counts and sums calculated in Excel. Attributes from a total of 1941 sherds were recorded, and were included in statistical analyses. Choosing a sample of sherds from a large collection can be guided by the nature of the research questions and feasibility (Cowgill 1964). Diagnostic sherds comprised the sample, and this included those sherds that indicated form or were decorated. Focusing only on rim sherds would have left out a number of highly distinctive pottery fragments that I wanted to include. Due to time constraints, I opted to analyze all sherds from one test pit (TU6), and sherds from non-fill contexts in the other test units and excavation blocks. Additional fragments were drawn or photographed, and those are included in Appendix B. Results of the ceramic analysis are in Chapter 10.

All lithics were divided into two broad categories: groundstone and chipped stone (see Table 5.2). I developed a typology sheet to identify types of lithic forms based on criteria laid out by Adams (2002) and Andrefsky (1998). I carried out all lithic identification. Groundstone was further grouped into batanes or manos (grinding stones), mortars, pestles, and polishers/smoothers. Any abraders were included with polishers/smoothers. Chipped stone was further divided into bifaces, halfted bifaces, unifaces, flake tools, cores, and debitage. Additionally there were categories for unique lithic artifacts, such as slate blades, perforated stones, and canto rodado (river cobble). Some lithics were measured using calipers, in particular the canto rodado, which were hypothesized to be projectiles.
<table>
<thead>
<tr>
<th>General category</th>
<th>Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundstone</td>
<td>mano de moler</td>
<td>handstone used with a netherstone</td>
</tr>
<tr>
<td></td>
<td>mortar</td>
<td>designed with a basin that confines an intermediate substance that is worked with a pestle</td>
</tr>
<tr>
<td></td>
<td>pestle</td>
<td>handstones used to pulverize, crush, or grind</td>
</tr>
<tr>
<td></td>
<td>perforated stone</td>
<td>doughnut shaped stone</td>
</tr>
<tr>
<td></td>
<td>canto rodado</td>
<td>fist sized river cobbles</td>
</tr>
<tr>
<td></td>
<td>bola /pebble</td>
<td>smaller river pebbles</td>
</tr>
<tr>
<td>Chipped stone</td>
<td>biface</td>
<td>objective piece with two faces</td>
</tr>
<tr>
<td></td>
<td>hafted biface</td>
<td>biface with a haft element that articulates with a handle or shaft</td>
</tr>
<tr>
<td></td>
<td>uniface</td>
<td>non biface without flake characteristics; if there is more than two surfaces and/or neither of two can be identified as either a dorsal or ventral surface it is a non-flake tool</td>
</tr>
<tr>
<td></td>
<td>flake tool</td>
<td>non bifacial tool made on a flake (should have dorsal and ventral surface)</td>
</tr>
<tr>
<td></td>
<td>core</td>
<td>objective piece that has flakes removed from its surface</td>
</tr>
<tr>
<td></td>
<td>debitage</td>
<td>discarded and unused detached pieces of lithic material</td>
</tr>
<tr>
<td></td>
<td>unidentified</td>
<td>produced from the reduction of an objective piece cannot identify</td>
</tr>
<tr>
<td>Special categories</td>
<td>polished slate knife</td>
<td></td>
</tr>
<tr>
<td></td>
<td>quartz</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2 Table of lithic categories with definitions.

Counts and weights were obtained for nearly all artifact classes, including lithics, ceramics, coprolites, minerals, and shell tools. Botanical material was not weighed. Nor were most kinds of special artifacts such as feathers, gourd fragments, and the like.

Weighing of shell was undertaken by Mario Advincula Zeballos with the aid of Isabel Cornejo Rivera in 2006, but was not completed. Additional weighing of shell was carried out in 2007 by Tim Goyette, Sarah Blackwell, Elizabeth Williams, and Theodore Marks (undergraduate students, Tulane University), but time constraints and access to collections did not permit completion of that task. Shell was not counted, as the assessment of a minimum number of individuals based on fragmented shell would have
been far too time-consuming. I identified some species of shell by comparison to other scholarly work carried out in the region (Cárdenas Martin 1977; Zechenter 1988). Bone fragments were also not counted for the same reason discussed above. In both cases (with shell and bone), inability to identify and sort bone by type also factored into the decision to only weigh them. I identified some bone in a very general way, but faunal analysis was not undertaken. Bone is discussed generally, and briefly, in Chapter 10. Human skeletal material from a single burial was analyzed by Rebecca Osborne (graduate student, University of Illinois at Chicago) and her analysis is included in Appendix C.

Counts and not weights were taken of small objects, such as beads. Special artifacts, such as shell tools and some lithic tools, were analyzed using a microscope. However, formal use-wear analysis still needs to undertaken. Textiles were not analyzed because no specialist could be contracted to do so, with the exception of the analysis of textiles from two offering bundles carried out by Kaelyn Dillard (graduate student, University of Illinois at Chicago-see Appendix D). To minimize handling of all other textile fragments from excavations they were not counted or assessed in anyway. Detailed analysis was carried out in conjunction with Alejo Rojas Leiva (Museo de Leymebamba) of quipus (Andean knot records) and quipu fragments recovered from a looted context of one of the cemeteries at the base of the ridge. The coding sheet was based on a system developed by Rojas Leiva. The quipu registry and photos are included in Appendix E.

Pollen samples were processed at the Pollen Lab of the Universidad Cayetano Heredia (see Appendix F). Samples for radiocarbon dating were processed at the U.S. Geological Survey at the University of Illinois at Urbana-Champaign. Unfortunately, no
macrobotanical or microbotanical analysis was carried out due to lack of funds and personnel. Soil samples remain to be analyzed as well. An arrangement to have these materials analyzed as part of a course offered in Perú at the Universidad Cayetano Heredia was unable to be fulfilled. Thus anticipated data cannot presently be included, but future analyses will be carried out on these materials.

5.5.1 GIS analyses
Spatial analysis was carried out in a GIS running ArcMap 9.2. The DEM (.25 meter) generated from topographic points was used as the basis for interpolating topographic contour lines, performing viewshed analysis from various features at the site, and calculating high and low slope areas. A coarser DEM of the valley was used for carrying out analyses on a larger geographic scale. The coarse DEM is based on Shuttle Radar Topography Mission (SRTM) data with a resolution of 90 meters.

Area of a surface, such as a DEM, can be calculated in ArcMap using the surface analysis tool to calculate area through the 3D Analyst extension. The .25 meter DEM can be clipped to the area of the ridgetop. Results provide both 2-dimensional and 3-dimensional calculations in square meters, which can easily be converted to hectares (1 square meter = .0001 hectares). The area of smaller sections or features within the fortress can simply be calculated using the measure tool in ArcMap. This tool permits one to delimit a polygon, and can generate the area of that polygon in square meters.

A viewshed is a way to test visibility on a landscape from an observation point. It is also referred to sometimes as line-of-sight analysis. Viewshed analysis is performed in ArcMap using the Spatial Analyst tool. As a proxy for a person, 1.75 m (about 5’7’’ tall) can be added as a field (Offset A) to a table of data to be tested. This would mean the
results will show what a 1.75 m tall person sees from a cell in the DEM, (a particular point on the landscape). Viewshed is used in this dissertation for a few different tests: to assess the intervisibility of fortifications on the landscape (Cumulative Viewshed), to assess visibility from defensive features within the fortress with relation to access routes and entrances (incorporates Multiple Viewshed), and to assess coverage areas for defenders within the fortress. Cumulative viewsheds are necessary to assess intervisibility from a number of points, and involve a calculation that sums the positive values (visible cells) from each selected point in the analysis (i.e. from each fort) (using the raster calculation function in the Spatial Analyst extension). Multiple viewsheds are the logical sum of viewsheds from a number of different observer points that does not involve a calculation using map algebra (Wheatley and Gillings 2002:207-208). It simply involves displaying all viewshed of interest simultaneously.

Cumulative viewshed analysis to assess intervisibility of numerous points on the landscape (the Early Horizon Huaura Valley forts discussed in Chapter 9) was carried out using a coarse SRTM derived 90 meter DEM. Point features were used to represent sites in the analysis, and their placement on the DEM needed to be based on visual assessment of the highest point of that site rather than UTM coordinates. This method permitted the highest point within a site to be used to calculate viewshed. Having the representative point located in a gully or on a hillslope would produce an ill approximation of visibility. To place the point feature on the highest point within a hilltop site I simply zoomed in to that area, changed the display extent to better show elevation differences, and placed the point on the highest spot within the site limits.
Slope can also be calculated using a DEM to determine low-slope versus high-slope access routes up the ridge. The Spatial Analyst tool is also used. While I conduct these basic analyses in the GIS, my interpretation of them is based on visual assessment of the results generated. Thus, I describe what I see. More rigorous tests involving statistics and other kinds of computing can be used to bolster interpretations made from GIS analyses. However, having spent a great deal of time walking the site, and being familiar with the terrain and surface features, I incorporate my knowledge of the site with my interpretation based on the GIS. This is not an explicitly phenomenological approach (Tilley 1994), but does incorporate my experience at the site.

Slinging trajectories can be applied to assess the range of projectile launched form points within the fortress. An easy way to assess the estimated distance of a projectile launched from a parapet within the fortress is to simply draw a line and measure it. That is a crude measurement because it does not take into account slope. Experiments have demonstrated that slinging from an elevated position can increase the overall distance a projectile travels (versus on a flat plane) (Finney 2006). To incorporate slope a profile graph can be made in ArcMap drawn directly on the DEM. The theoretical distance graph calculated by Finney (2006:111) can then be overlaid, showing the distance achieved when launched at a 45° angle by a slinger. Each profile line drawn was approximately 200 meters in length. This length was sufficient given the maximum theoretical distance suggested by Finney (2006).

This chapter summarized the methods used in mapping, excavation, laboratory processing of materials, and analysis. Results from mapping and some spatial analyses will be discussed in the following chapter (Chapter 6). Descriptions of excavations are
detailed in Chapter 7. Results from radiocarbon dating are discussed in Chapter 8. Most artifact classes are discussed along with specific contexts in Chapter 10, and data and artifact details are contained in appendices A-I.
Chapter 6 Results of mapping and surface analysis

As described in Chapter 3, Acaray is located atop a ridge with three distinct hilltops. This facilitated the division of the fortress into three major sectors (A, B, and C), each corresponding to a hilltop (Figure 6.1). The concentric defensive walls and associated architecture lie primarily in the central and eastern end of the ridgetop. However occupation debris, terracing, and other remains extend to the western end of the ridge as well. The area for the entire ridgetop is approximately 26 hectares (260,288.90 square meters, 3-dimensional, calculated using ArcMap). Its peak elevation is 243 meters above sea level, approximately 50 meters above the surrounding valley floor.

Figure 6.1 Map of the ridgetop at Acaray showing the three sectors. The two thick lines are used to separate the sectors.

Before discussing specific contexts within the site of Acaray I will describe site layout. In this chapter I discuss the sectorization of the site, and describe the major architectural elements. This includes the identification of different construction
techniques, as well as different kinds of structures within the site. I also discuss the results of some surface analyses carried out in the GIS that related to visibility and access within and around the site. An interpretation of Acaray as defensive is supported by architectural features, topographic elements, and spatial analyses.

6.1 Spatial layout: Description of Sectors

Sector A.

Sector A comprises the western most hilltop within the ridge on which the fortress is located, extending down to the base of the ridge (Figure 6.2). This is the most extensive sector of the site, as it extends beyond the defensive walls of the fortress to encompass the western extreme of the ridge. Two sequential concentric defensive walls encircle this hilltop (murallas\(^{4}\) 1 and 2), which were used to subdivide this sector into subsectors A1, A2, and A3.

\(^{4}\) Muralla is the Spanish word for large wall or rampart. I choose to use this word instead of ‘defensive wall’.
Subsector A1 is located outside of the lower defensive wall, extending to the foot of the ridge and encompassing a number of washes and smaller ridges. From the base of the ridge, these washes can be climbed, providing access to the hilltop. Perhaps for this reason a number of these washes were occupied as evidenced by the presence of dense surface scatters of cultural materials and the construction of architecture in these areas. Stone-faced terraces have been constructed in many of these washes. Large tiered structures built on terraces are also located in some of these washes, and the remnants of walls sealing off the lower and middle sections of certain washes were also detected. These structures and walls may have played a role in restricting access along these routes.

Three remnant walls were identified in three different washes: two on the north side of subsector A1, the other on the eastern side of subsector A1 close to where sectors A and B meet. Two of these walls are detectable by the remaining large worked stones.
that formed part of the base of the walls. The other wall, at the foot of the wash on the north side of subsector A1, is made of smaller stone and trash fill, and is easily visible (unlike the other two walls). The walls could have been quarried for rock more recently, or dismantled in the past. At this point there is not way to determine which process created the destruction.

Some washes located on the far western part of the ridge and along its southern side appear to be midden areas where trash was dumped down the hillside. In these washes there are no apparent terraces or construction of any kind. They are steep and narrow, and not easily accessible or amenable to building. Yet other washes in these same areas, as well as along the northwestern part of the ridge, have remnants of stone terraces built in them.

The lower defensive wall that separates subsector A1 from A2, muralla 1, almost completely encircles the hilltop. There is a gap in the wall on the south side of subsector A1/A2, but a natural outcrop and steep slopes serve to close this gap. The base of muralla 1 is primarily built using a finer, technique of construction, with some lengthy sections still standing entirely constructed of this early technique. There are wall anchors in certain sections of the wall which enhance its stability (and defensibility, perhaps). I argue this technique is earlier, dating to the Early Horizon (see chapter 8).

In some sections muralla 1 was rebuilt, taking advantage of still-standing bases of the earlier wall type. It remains unclear as to why or how the original walls were destroyed. Other investigators have suggested that earthquakes may have affected the walls (see Huapaya 1977-1978:36; Ruiz Estrada and Torero 1978:19). Local residents also indicate parts of the defensive walls were dismantled for the construction of the San
Felipe canal and other construction projects (Sr. Rojas, personal communication, 2004; see also Huapaya 1977-1978:36, Ruiz Estrada y Torero 1978:22). Violent destruction of the walls in moments of attack cannot be ruled as another possibility. Nevertheless, *muralla* 1 has been reconstructed heavily on its southern and western sides, and segments of the northern side of the wall have been rebuilt, creating an undulating pattern of two types of technique in the wall (Figure 6.3).

![Figure 6.3 Photo shows section of muralla 1 with undulating pattern and two construction techniques.](image)

There are two easily identifiable entrances in *muralla* 1: entrance 1 located at the northeast corner of the defensive wall heading toward sector B, and entrance 2 on the western end of the hilltop, leading down into a wash located roughly on the south side of subsector A1. From the base of the ridge of subsector A1 these are the only access routes into the area delimited by the concentric defensive walls.

The area between the lower and upper walls is *subsector A2*. This subsector is
characterized by small washes with terraces and small enclosures in them, and is delimited on its western side by two steep rock faces. This may have made it unnecessary to have the upper wall of sector A, *muralla* 2, completely encircle the hilltop. These rock faces provide natural barriers and, in conjunction with the built walls, restrict access to the hillcrest. This subsector also has walls built perpendicular to the defensive wall on its interior side, creating small enclosures or rooms on the terrace created by *muralla* 1. The walls appear to restrict movement along the terrace which runs around the hilltop. That is, walking along the interior of the wall has to be done along cut areas in the rock of the hillslope instead of along the walkways created by the defensive walls.

The upper wall, *muralla* 2, like the lower one, also has bases built of the earlier construction technique, but reconstruction using the second construction technique is also present. This wall has a single entrance, located on the eastern part of the wall, and has a lookout point associated with it. The entrance, although affording access to the hilltop, does not allow for an easy entrance into this subsector. Upon entering the doorway one must climb a slope before encountering any open space or having a view of the architecture within this area. While this cannot be considered a baffled entry, the slope does slow down anyone moving through this entrance, and contributes to increased control of access. Based on a calculation of slope using the most detailed DEM that exists for the site, slope increases as one passes through the doorway.

*Subsector A3*, the uppermost part of this hilltop sector above *muralla* 2, has terraces located in washes characteristic of the lower subsectors, as well as large rectangular structures with adjacent smaller enclosures. The two small washes are located on the northern and western sides, and based on surface characteristics these areas appear
to have different functions. The northern wash has small terraces, but there are no enclosures. The other wash on the western side is much longer with a series of containing walls of medium to large stone that create a series of terraces on which there are stone rectangular structures.

The major structure of this sector is located on the highest point of the hilltop. It consists of a large patio, four rooms, and hallways. Also located on this high point is what may be a lookout structure, which is located on a small promontory that juts out on the northeast corner of subsector A3. In addition, there is one structure located on three terraces that extends downward into a small wash. There are also small enclosures with a single room in this subsector.

**Sector B.**

Sector B is located on the second hilltop of the fortress complex. This sector has three concentric defensive walls (*murallas* 3, 4, and 5) that divide the sector into four subsectors: B1, B2, B3 y B4 (Figure 6.4). In comparison to sector A, this sector has less architecture on the hillslopes and in the washes. Of the three sectors that comprise the fortress, sector B shows more defensive characteristics than any other part of the site. There are two lookouts and one bastion in this sector, as well as the longest sections of parapets in the whole site, and the greatest concentration of river cobbles associated with these parapets and the defensive walls at Acaray.
Subsector B1 comprises the hillslopes below the lower defensive wall, muralla 3.

There are few structures in this area, but this may be due to the greater level of modern destruction this part of the site has suffered, particularly on its northern side. Many of the stones that once formed the exterior face of the defensive walls have been dismantled to be used in modern construction projects, as mentioned above. There are the remains of two terrace structures close to the base of the hill on the northern side of subsector B1. On the western side of subsector B1, on a part of the hill that joins sectors A and B, there is a structure of mixed construction material (adobe and cut stone) that is joined to the exterior part of muralla 3 of Sector B. This structure is associated with trash located below it as it descends down into a wash. This structure has at least 5 rooms as well as a terrace at its lowest part. I have tentatively identified this structure as a lookout.
Toward the south of this structure there is another wash that has abundant lithic, ceramic and shell remains, but no indications of enclosures. There are, however, two stone walls that run the width of the wash, each one with an entrance. These two walls may have served to restrict access to the upper part of the hill and the main entrance in the lower defensive wall on the southern side, but they may also be later constructions or reconstructions. The base of the lower of these two walls appears to be part of an earlier remnant wall that extends from subsector A1 to subsector B1.

The lower defensive wall (muralla 3) of sector B has been destroyed on its northern side by modern activities such as hauling away stone for construction projects. But it is clear that the full length of this wall is constructed entirely of the second construction technique identified for the defensive walls. The exposed wall fill consists of alternating layers of plant matter and trash and rock with an external face that is characterized by smaller cut stone and whose outer face is inclined inward. While no mortar is noticeable in the external face, it appears that some areas of this defensive wall were covered in mud or plastered. Adobes were also used as construction fill in some parts of the wall. Reuse of materials from previous occupations is also apparent by the presence of grinding stones (manos) as part of the outer face of the defensive wall.

There are two entrances in muralla 3, one on the south side that is located close to the two walls that restrict access to the wash (mentioned above), and the other entrance that is on the eastern side that provides access to sector C. There are some differences between these entrances and those of sector A. There are parapets on each side of the entrances in the interior of muralla 3, as well as an elevated part with enclosures on top. These enclosures or rooms are not present in subsector A2 or A3. In subsector B3 the fact
that these rooms are concentrated around the entrances in the defensive wall may signal their use in securing those entrances.

Subsector B2, located between murallas 3 and 4, comprises an area of platforms made of adobe and stone, a number of small washes, and walls and enclosures in the walkway of the interior part of the defensive wall (muralla 3). On the north side of this subsector there is a platform constructed on the hillslope. The external part of the platform is destroyed, exposing several layers of trash and fill, as well as retention walls and other architecture of adobe. On top of the platform are stone walls and surface depressions that indicate architecture below the surface, and which was confirmed in excavations (see TU8, Chapter 7). To the west of the platform there is a series of stone terraces that follows the contours of the hill toward the western side.

To the east of the large platform mentioned above there is a wash with terraces and a small rectangular structure. In the southeastern part of the subsector there is another wash with a structure that has a small enclosure. From this wash there is access to subsector B3 through an entrance in the next highest defensive wall, muralla 4.

Close to the south entrance to muralla 3 there are a series of enclosures in the walkway created by the walls abutting the interior face of the defensive wall. As mentioned above in the discussion of entrances in muralla 3, these enclosures restrict access and movement in the walkway.

The second defensive wall of Sector B, muralla 4, has three entrances, two on the south side and one on the western side. There is no access on the north side from subsector B2 to B3. Rather, all movement between the two subsectors must have taken place along the southern and western part of the wall. Two of these entrances are
associated with a platform on at least one side (in both cases, the eastern side) of the entrance. The other entrance is not associated with any rooms adjacent to it. However, the entrance itself is sloped, impeding access (similar to the eastern entrance in muralla 2 of sector A).

There are sections of rubble in muralla 4 and examples of possible reconstruction similar to what is noted in the defensive walls of sector A. Wall seams are also visible in muralla 4, giving some indication that at least this defensive wall was constructed in sections.

**Subsector B3** is the section located between the second and third defensive walls, murallas 4 and 5, of sector B. In the northeastern corner of the sector there is a platform joined to muralla 5 above, with terraces and stone and adobe architecture. On top of this platform is a bastion. Also along the northern part of this subsector are several platforms and walls that abut the interior of the defensive wall. In the western part of the subsector there is a wash with various structures located on both sides of the wash and continuing up to muralla 5. These structures are built of cut stone, but one structure has a platform constructed of adobes. To the east of this wash there is another rectangular structure adjoined to the defensive wall.

Aside from the bastion mentioned above, there is another lookout point located on a promontory that juts out at the northwestern corner of subsector B3. While not entirely enclosed, there are two walls which divide this space. There is a notable presence of river cobbles, often used as sling stones (Topic and Topic 1987) found in this subsector in concentrations associated with parapets. These concentrations appear primarily along the western side of subsector B3 and are associated with small parapets or platforms.
The third defensive wall, *muralla 5*, has only once entrance on its north side. The most important architectural element of this wall, located on its interior, is a parapet. Like the wall, the parapet is made of cut stone, and measures in some areas up to one meter in height and one meter wide, with a minimum height of .5 meters and .5 meters width (discussed in section 6.2.2.2). Aside from the parapets, however, there are no other enclosures or rooms built on the interior of this defensive wall.

**Subsector B4** is the highest part of the hilltop in sector B. There is a major structure that is constructed of stone and built on top of a platform created by stone containing walls. This structure is quite disturbed, but judging by the amount of rubble from the walls this structure must have had walls several meters high. This structure has one entrance on its north side, but the access to the interior of the structure is restricted by a smaller interior enclosure that has almost been completely sealed off. This baffled entry gives one the sense that this structure was meant to be defended. In addition, within this structure, on the top of this sector, is the densest concentration of river cobble found at the site (Figure 6.5).
Figure 6.5 Concentration of river cobble found inside summit structure, Sector B.

**Sector C.**

Sector C (Figure 6.6) is located on the third hilltop, and of the three hilltops that make up the fortress this is the lowest in elevation (approximately 228 m.a.s.l.). This sector in general is badly destroyed. While it is possible to note similarities in layout to sector A, one also notes that this sector is different from sectors A and B in terms of the type of architecture found and the type of construction material used. There is greater variability in terms of both, which suggests that Sector C may represent a different temporal or possibly cultural expression. It must be noted that excavations were not carried out in Sector C in 2005-2006, so we have no detailed data with which to evaluate interpretations based on surface characteristics.
This sector is subdivided into three subsectors based on the presence of what remains of a defensive wall (*muralla* 6), used to delimit sectors C1 and C2, as well as a natural rocky feature which was used to delimit subsector C3. The concentric defensive wall of sector C (*muralla* 6) joins the lower defensive wall of sector B (*muralla* 3) on its western side, making these two sectors physically linked by shared architecture. There may have been an additional defensive wall extending along the eastern side of the hill, but only sections remain and it is not clear what its original extent was.

**Subsector C1** has no evidence of architecture or structures on its entire northern side. On the south side of this subsector, however, there are three rectangular structures, characterized by mixed architecture (adobe and cut stone). The eastern most structure, located in a wash, has been cut along its lower part by the San Felipe canal built in the
1920s. The cut, however, allows one to appreciate the construction of this structure in profile. The lower terrace on which the structure is built contains construction fill that consists of alternating layers of plant remains and trash, similar to the construction fill seen in the later configuration of the concentric defensive walls. There are three large enclosures within this structure, and its location is directly below one of the entrances in the wall above, muralla 6.

To the west of this structure there is another rectangular structure constructed primarily of cut stone, but also has an enclosure within it whose doorway has been sealed off with adobes. Further west of this structure is another stone rectangular structure, smaller in size and located on a small rise. Aside from these primary constructions, there are terraces located in one of the washes toward the eastern part of the subsector.

Muralla 6, the lower defensive wall of sector C, which divides subsectors C1 and C2, is characterized by a variety of construction materials and is very different from the defensive walls of sectors A and B. There are three entrances in this lower wall. One is located on the western side of the subsector and provides direct access to subsector B2. The other two are located on the eastern side of the subsector, and on the southern section of the defensive wall in a wash above a major structure of subsector C1. Each one of these latter entrances has an elevated section on the interior of the defensive wall on both sides of the entrance, and there are structures located on these elevated areas. However, it is interesting to note that there are no parapets or platforms that may have served for defense built along the interior of this wall. In fact, access to all areas of Sector C via these entrances appears to have been relatively easy. Those entering would have encountered little to hinder or impede their entrance.
**Subsector C2** includes platforms and walkways created by the lower defensive wall, *muralla 6*, as well as the hillslopes below the hilltop. This subsector has several rectangular stone structures, groups of enclosures and walls, some platforms, elongated patios, as well as terraces located in the washes of the hillslopes.

On the northern side, located in the wash close to the juncture of the defensive walls of sectors B and C, is a large rectangular, three-tiered stone structure located close to the entrance that leads to subsector B2. Walking eastward along the walkway created by the defensive wall one encounters a series of walls that abut the interior of the defensive wall. This is also characteristic of other sections along the interior walls in sectors A and B. These walls divide space and appear to create small rooms along the interior of the wall that may serve to control access or movement along these routes.

On the south side of this subsector there is a group of rooms in the walkway with very little trash remains on the surface. To the west of this group of rooms there is another group of platforms, adjacent to the south entrance of the lower defensive wall. The builders of these platforms took advantage of the natural rise of the hill to construct them, which appear to be elevated with layers of mud and plant remains.

Advantage was taken of the outcrops on the hill and cut into terraces in almost zigzag form, creating a walkway around the southern, eastern, and northern section of subsector C2 that we used to delimit from subsector C3.

**Subsector C3**, more than any other sector of the site, has the greatest concentration of structures. It consists of six groups of rectangular stone structures. The first architectural group consists of a structure built on three terraces, with another structure located on a small rise near it. To the east there is a rectangular structure which
ascends toward the crest of the hill. To the east there is another group of rectangular structures, and further east there is an elevated area with a platform and what appear to be rooms. The last architectural group consists of a structure or platform made of adobe. Associated trash is located descending this subsector on the hillslopes.

Based on the above descriptions, one is able to see differences in architectural elements, spatial layout, and construction materials and methods. Below follows a more detailed discussion of the types of structures found throughout the fortress. This typology serves to not only group similar structures together, but ultimately to see the distribution of types of structures with the site. In the future it will be possible to explore variability within these types to begin looking at them chronologically.

6.2 Description and discussion of major architectural elements

6.2.1 Construction methods of the defensive walls

Two different construction techniques of the defensive walls have been identified, suggesting reconstruction of the fortress and use during at least two moments in time. The reconstruction of the fortress walls using the second construction technique is also associated with an amplification of the fortress itself to encompass a third hilltop (Sector C) and a greater portion of Sector B.

The first construction technique is characterized by large cut stone fit together using mortar and with smaller chinking stones in between which forms the outer face of the wall (Figure 6.7). The wall fill is pure mortar and small rock, with very little to no inclusions. These walls are straighter and often have wall anchors, particularly in areas where the walls are located at the point of curves or washes, as these walls in general follow the topography of the hill. These wall anchors are built of the same stone that
extend out at the base of the wall and which provide stability. These bases also allow the walls themselves to be straight. Based on similarities in architectural style characteristic of sites in the Casma valley to the north and other sites in the highlands, this technique appears to date relatively to the late Initial Period (1800-900 B.C.) or Early Horizon (900-200 B.C.) (S. Pozorski and T. Pozorski 1987).

![Figure 6.7 Photo of section of muralla 1 (Sector A) illustrating Early Horizon wall construction technique. Scale in photo is 1 meter.](image)

The second construction technique is easily distinguishable from the first. In Sector A, defensive walls characterized by the first technique were rebuilt using the second technique, creating a very noticeable undulating pattern in the walls. In some cases it appears material from the previous walls, particularly large cut stones, was reused to reconstruct the walls, as well as material from occupational areas, as there are several
grinding stones and other lithics that appear in the outer face of the walls. This technique is associated with the reuse of not only the walls, but of materials potentially associated with a prior occupation.

Figure 6.8 Photo shows section of *muralla* 3 (Sector B) with Late Intermediate Period construction technique. Juan Yarleque and Alejo Herrera shown screening at bottom of photo.

These walls are generally built of smaller stone, not held together with mortar, which defines the wall façade (Figure 6.8). The wall fill consists of layers of plant material that alternate with layers of small rock and trash, which contain shell, ceramic, and lithic remains. These walls are not as upright and lack anchors (except where the base is made of the first technique), demonstrating greater inclination indicating lesser
stability. This technique has been previously studied by Cirilo Huapaya (1977-1978) who asserted that this method of construction creates wall stability for instances of earthquakes. However, I believe this method of construction is a much more rapid way to erect walls, and thus may be significant in terms of the time and effort put into rebuilding the fortress: it was done in a more expedient manner.

There are aspects of the wall construction that suggest breaching and rebuilding. In both Sectors A and B there are sections of the defensive walls that display the two different construction techniques discussed above. The larger, cut stone apparent in the better preserved walls appears as an undulating pattern in some areas, seemingly filled in with smaller stone. I suggest this undulating pattern represents a prior breach to the wall, which was then later patched up using different stone employed in the second type of construction technique. This proposition is significant because it suggests there was prolonged conflict at the site, or that this fort was used throughout time during varying contexts of conflict.

The identification of these two techniques of wall construction as linked to separate occupations of the fortress fits well with the radiocarbon data presented in Chapter 8. It is possible to propose different configurations for the fortress during the two documented time periods (Early Horizon and Late Intermediate Period). Figure 6.9 indicates which concentric walls are characterized by the earlier technique. Based on this distinction, there are only four concentric walls associated with two hilltops (Sectors A and B) that can be linked the Early Horizon. Figure 6.10 shows walls that are entirely constructed of the later, more expedient technique. The other defensive walls show partial reconstruction using this construction method. The Late Intermediate Period
configuration of the fortress encompasses all three hilltops, and all Early Horizon
defensive walls are reconstructed and by thus reused in the Late Intermediate Period.

Figure 6.9 Map of Acaray. Red walls indicate those made by Early Horizon construction technique.
6.2.2 Defensive architectural features

The assertion that Acaray was built for defense requires assessment in light of criteria outlined by scholars on fortification and the indicators of warfare. There is abundant literature dealing with defense from military history, history, and anthropology (Arkush and Stanish 2005; Hassig 1992; Keeley 1996; Redmond 1994). For the Andes, four criteria were laid out and have been generally followed in the region to identify fortifications (Topic and Topic 1987, 1997). These criteria have been somewhat debated, and attention has been called to additional indicators (Arkush and Stanish 2005). It is productive nonetheless to begin with these four indicators. They are the presence of: 1) parapets, 2) defensive walls with restricted access, 3) dry moats, and 4) slingstones. Acaray does indeed meet several of these criteria, and there is additional evidence.
allowing for a clear identification of Acaray as a defensive site.

6.2.2.1 Parapets, defensive walls with restricted access, and moats

Unmistakable parapets were identified in Sector B on the interior of murallas 3, 4 and 5. The parapets at Acaray measure up to one meter in height. In subsector B4 they are better preserved, and associated with piles of sling stones. Beginning at either side of the entrance between subsector B3 and B4, these parapets run along the interior of the wall on its northern and western sections. The parapet that extends to the east from the entrance ends where the lookout structure is located on the exterior of muralla 5. Heading in the opposite direction from the entrance, the other parapet extends toward the southern section of the wall, ending in a rubble area indicating it may have extended further. What remains of a badly destroyed parapet is found on either side of the southern entrance of muralla 3. These parapets would have allowed defenders to launch projectiles at the hillsides of Sector B as well as toward what is Sector C, and serve to guard the entrances that lead into the fortress. We documented several piles of slingstones, but they were not spaced 2-3 meters apart. Rather they are more sporadic. Some areas have dispersed sling stones that are not concentrated into piles.

Platforms of various types in Sectors A and B located on the interior of the perimeter defensive walls (murallas 1, 3 and 4) may have served defensive purposes as well. Small, low platforms appear on each side of door entrances in both sectors (subsectors A2, B2, and B3) and would have provided enough height to peer over the defensive wall. These might be considered parapets as well, but I distinguish them here because they do not run for long sections along the interior of defensive walls. Rather, they are usually sections a few meters in length. Three such platforms were identified in
subsector A2, three in subsector B2, and five in subsector B3. In subsector A2 there are two low platforms on either side of the western entrance in *muralla* 1. Similar low platforms are found on either side of the western entrance of *muralla* 4 (subsector B3).

Higher platforms in subsector B2 rise to the top of the defensive wall. It is unclear what these may have been used for, but they do provide height, enabling one to have a view over the defensive wall. It must be noted, however, that they do not offer protection, at least considering the top of the wall now.

Defensive walls with restricted access encircle all three sectors of the hilltop fort. Sector A has a lower wall which almost entirely encircles the hilltop, and has three clearly defined entrances. A second discontinuous wall with one entrance encloses the major structures of this sector. Coupled with natural outcrops, the upper hilltop is easily restricted. Sector B, arguably the most defensive in nature, is encircled by three concentric walls. The lower one has two entrances, one of which leads to Sector C. With two, possibly three, entrances, the second wall further restricts access. A third wall offers access to the hilltop via only once entrance. The walls of Sector C were built after those of Sector B, since they abut them. Radiocarbon dates confirm this (see Chapter 8). Like Sector A, Sector C has two walls, although they have a far lower degree of preservation. Only the lower one could be mapped. It has three entrances, one of which leads into Sector B.

The entrances in the defensive walls at Acaray are wide, measuring almost two meters across in some cases. How were these entrances closed off? Were they closed off? There is little indication of doors or architectural elements in the doorjambs that would have allowed for sealing off these entryways. However, in at least one instance there may
have been a baffled entryway. Baffle-entries do not have doors, but rather an element in front of the entryway that impedes movement. The southern entrance in muralla 3 has a wall base, indicating it is what remains of a wall encountered as one entered the doorway. This wall would have impeded movement up the quebrada (gully), and forced entering individuals to take a right or left, serving to control movement of people, and presumably attackers.

While dry moats have not been clearly identified, access through some openings in the walls appears to be inhibited through the use of an elevated entrance. The steep slope of the hills may make it unnecessary to have moats that must be crossed. Particularly in light of the fact that there are structures located outside of the perimeter walls, dry moats may not have been constructed since that would have also hindered residents, perhaps living in these structures, from easily seeking refuge behind the walls.

Rolled river cobbles are present within the defensive walls of Acaray as well as outside of them. There are concentrations of these cobbles, presumed to be projectiles or slingstones, associated with parapets and along the interior of defensive walls. Since this type of rock does not occur naturally at the fortress it must have been brought to the site. These cobbles are found in abundance in the Huaura River, which lies approximately 1 kilometer to the south of Acaray. Given that they were brought in and were piled up inside the defensive walls, some along parapets, indicates they indeed were used as projectiles. Whether they were launched with a sling or hand thrown is debatable, but they are consistent with what other investigators have identified as slingstones (see discussion in Chapter 10).
6.2.2.2 Defensive and defendable location and bastions

Acaray is located at the opening of the river delta, or hydrological apex. The location provides views up valley, and of nearly the entire river delta to the sea. In addition, Acaray offers a view of the foothills to its north. In fact, when one stands on the fortress it almost appears that the fortification is oriented in this direction. There are two neighboring hilltop forts (PV41-62 at Rontoy and PV41-307 near Cerro San Cristóbal) along the north side of the river, within 5 km distance, as well as two isolated structures on adjacent hilltops (refer to Figure 9.1). Defense would appear to be aimed toward threats from the foothills to the north.

The hilltop ridge on which Acaray is located, with its steep slopes and cliff faces, is defensible. The entire ridge is characterized by a number of smaller gullies and ridges, making the topography quite varied and presenting a challenge to mapping. It is this same topography, however, that hinders access to the ridgetop. The easiest way to climb the ridge is via one of the gullies, which can take anywhere from fifteen to twenty minutes. Some of the gullies are too steep and dangerous to climb. The more climbable gullies have terraces or structures built in them. This may simply be because it is easier to build within these, but I suggest their location allows for guarding, and impeding access along, these routes. I address this in greater detail under section 6.2.2.3 where I look at slope in relation to access routes and doorways.

An architectural element which Topic and Topic (1987) do not discuss, but which other scholars have is the presence of lookouts in defensive areas (Keeley, et al. 2007; Wilson 1988). In the case of Acaray, there are structures which may have served as lookouts that are located within the fortress, as well as small structures located on adjacent hilltops. Single lookouts were identified in subsector A3, subsector A1,
subsector B1, and two were identified in subsector B3.

Upon entering subsector B3 from the eastern entrance in *muralla* 1 one encounters a lookout structure above. Of the five lookout structures identified, this one may also be considered a bastion. This structure is located outside of the uppermost defensive wall in Sector B, at the corner where the defensive walls turns to face east. This structure would have provided fire coverage of *murallas* 3, 4 and 6 along the northern and eastern sections of the fort. Wilson (1988:109) has pointed out for defensive structures which lack bastions that steep slopes may make bastions unnecessary. That may be why more of them are not found at Acaray. The other four lookouts cannot necessarily be identified as bastions, but they certainly would have provided views along sections of wall within their respective areas. Whether they provided a point from which to offer flanking fire along those sections of wall can only be suggested based on their visibility.

6.2.2.3 Results of GIS analyses

*Viewsheds of Bastions and Lookouts*

Five structures were tentatively identified as bastions or lookouts. Viewsheds were calculated for these five structures. I will discuss each viewshed first, and then discuss multiple viewsheds. For ease of discussion I have labeled them all as “Bast” followed by the subsector in which they are located. I will then consider the viewsheds with respect to estimated weaponry ranges.

Structure BastA1, which abuts the lower defensive wall of Sector A, can view much of the area along the northern side of this sector (Figure 6.11). Additionally, there is some visibility of the western side of Sector B. BastA3 has a slightly different
viewshed, but visibility also is best along parts of the northern side of Sector A and along the western side of Sector B (Figure 6.12). BastB1’s viewshed is in precisely the area between Sectors A and B where neither of the lookout of Sector A have visibility (Figure 6.13). The two lookouts or bastions in subsector B3 are particularly interesting because although they are located nearest to each other, they have very little overlap in their viewsheds. BastB3a has good views along the north side of the ridge at its base (Figure 6.14). The wash that provides access up to the area between Sectors A and B is within the viewshed of this structure. Areas of Sector B within the defensive walls are also within its viewshed. BastB3b has good visibility along the northeastern side of the ridge, and offers good views of the northern half of Sector C (Figure 6.15). This structure is not intervisible with any other lookout or bastion within the fortress. The only bastions or lookouts that provide any visibility along the southern side of the ridgetop are BastA3 and BastB1.
Figure 6.11 Viewshed from BastA1. Black area is viewshed calculated without offset A value. Green area is the additional area visible when an offset A value of 1.75 (proxy for a person) is added to analysis.

Figure 6.12 Viewshed from BastA3. Black area is viewshed calculated without offset value. Green area is the additional area visible when an offset value of 1.75 m is added to the analysis.
Figure 6.13 Vieshed of Bast B1. Black area is viewshed calculated without offset value. Green area is the additional area visible when an offset value of 1.75 m is added to analysis.

Figure 6.14 Vieushed of BastB3a. Black area is viewshed calculated without offset value. Green area is the additional area visible when an offset value of 1.75 m is added to analysis.
Figure 6.15 Viewshed of BastB3b. Black area is viewshed calculated without offset value. Green area is the additional area visible when an offset value of 1.75 m is added to analysis.

Overall results indicate that three entrances remain outside of the range of visibility of the bastions and lookouts. The entrance located on the south side of subsector A1 is located at a very steep part of the ridge. This may mitigate its vulnerability. The other two entrances, however, provide easy access into subsector C2. The entrance located at the easternmost point of Sector C is the most vulnerable, while the entrance located along the south side of Sector C may not be as vulnerable. Elsewhere I have suggested that Sector C exhibits the least defensive features compared to other areas of the fortress. The seeming vulnerability of its entrances supports this assertion. However, I
recognize this simply may be due to not identifying defensive features in this area of the site because it received less attention in the research discussed in this dissertation.

The multiple viewshed (Figure 6.16) clearly shows that the structures identified here as bastions or lookouts provide greatest visibility along the northern side of the ridge. If these structures are to provide advanced warning of an approaching threat or danger, or to defend against attacks, then the section of landscape visible from them permits a tentative interpretation that the threat for Acaray was from the north.

![Figure 6.16 Multiple viewshed of all bastions and lookouts. Green represents combined viewshed.](image)

**Overlapping viewshed with slinging distance**

As discussed in Chapter 4 and 5, there are a variety of measurements related to the distance a projectile travels when launched from a sling. I constructed profiles using
the .25 meter DEM from documented parapets in Sector B. Three profiles were drawn from a parapet in subsector B4 (figure 6.17). The first profile was selected along a section of the northern parapet, and a polyline was drawn due north. The second profile was drawn from a selected point along the western parapet, with the line drawn due west. The third profile was drawn from a point on the southwestern side of subsector B4, with the polyline roughly southwest. The directions of the lines correlate to areas outside of major doorways, or along routes of low-slope and relatively easy access.

![Figure 6.17 Green lines are profiles drawn from the parapet in subsector B4.](image)

Profile 1 drawn from the parapet in B4 is of particular significance because the trajectory is basically downhill to the base of the ridge – there are not a lot of ups and downs in the terrain aside from bumps in the profile created by the defensive walls. Using
the trajectory established by Finney (2006) it is clear that slings fired from this section of the parapet would not clear the lower defensive wall (muralla 3) (Figure 6.18). This suggests that slingers on this parapet could not effectively provide cover fire against attackers outside of the lower defensive wall. Sling attacks would have been effective against attackers who had already entered the lower wall. But as discussed in Chapter 8, radiocarbon dates confirm the lower wall is Late Intermediate Period in date, and there are no indications that an Early Horizon defensive wall was present. Since I argue that the Early Horizon configuration of the fort entailed only two walls for Sector B, attackers would have been outside of the lowest defensive wall. This may indicate the parapets in subsector B4 were built and used in Early Horizon times. They could certainly have been reused in Late Intermediate Period times, but parapets along the newly constructed lower defensive wall would have been more effective as a first line of defense for the fortress during that time.

Figure 6.18 Profile 1 drawn from parapet in subsector B3. Location of defensive walls are noted.
The other two profiles (Figures 6.19 and 6.20) are related to coverage of the western and southwestern areas viewed from the parapets of subsector B4. They are oriented toward Sector A. In these two profiles slope is even more flat, and a sling launched from the parapets would hit the ground roughly 80 meters out. That distance might be just enough to clear the lower defensive wall of Sector B on those sides, but it certainly does not suggest slingers would have effective range beyond the wall.

![Profile from parapet 2](image1)

**Figure 6.19 Profile 2 drawn from parapet in subsector B3.**

![Profile from parapet 3](image2)

**Figure 6.20 Profile 3 drawn from subsector B3.**
The results of overlapping slope, distance, and sling trajectory along three profiles originating at different points on a parapet of subsector B4 suggest that these structures would have been more effective against attacks on the Early Horizon configuration of the fortress. Parapets located along the lower walls are not as well conserved. I initially thought this did not indicate a temporal difference, but I now think it might. In general, the builders of the Late Intermediate Period defensive walls and other structures within the fortress used expedient, less stable techniques of construction. It is not unreasonable to suggest that poorly made parapets may be Late Intermediate Period in date, while the better preserved ones in subsector B4 are Early Horizon. That is not to say they were not reused in Late Intermediate Period times. Just that they would have then been converted into a last line of defense, and parapets along the lower walls were required to extend the range of fire beyond the fortress walls to effectively defend it. However, until the parapets themselves can be directly dated, this remains only a hypothesis.

**Slope and accessibility**

Slope was calculated for the entire ridgetop. Figure 6.21 shows the range from low slope (colored green) to high slope areas (colored red), calculated in degrees. The steepest slope is 53.689 degrees, and the gentlest slope is just over 0 degree. This figure indicates that Sectors A and C have more flat areas at their summits and within the defensive concentric walls than Sector B. Access to Sector C is characterized by fewer topographic barriers, in terms of high slope terrain. It is the most accessible of the three hilltops.
Figure 6.21 Slope calculated for ridgetop and immediate area. Note the random lines, which are artifacts from the DEM.

By viewing slope by sector, we can gain a better perspective on the relationship of slope to entryways leading into the defensive walls. In Sector A, the three entrances in the lower defensive wall are all associated with lower slope areas – areas that would provide easier access into the walled areas (Figure 6.22). One way to interpret this is to suggest that access to the summit is funneled via these routes, which can be better controlled. The one entrance in the upper wall of Sector A has a higher slope than the other entryways, but leads up to the low slope hilltop. The entrance is also located adjacent to a structure I suggest is a lookout. While this structure would provide visibility of areas away from the fort, it also might serve internally as a point at which access through this door is monitored. Also, clearly noticeable in Figure 6.22 is one of the natural rock outcrops that connects with the upper defensive wall along the northern side of the ridge. This is an example of how natural barriers to movement and access were incorporated with those that were constructed.
The two detectable entrances in the lower concentric defensive wall of Sector B are located close to lower slope areas (Figure 6.23). Along the northern side of Sector B there are few low slope areas, such as washes or areas with flat terrain, which facilitate access prior to reaching the lower wall. Along the southwestern side of the sector, however, there are washes that provide relatively easy access up to the ridge. It is along this area where one entrance is located. This entrance is flanked on both sides by a parapet, and has the remains of what might have been a wall immediately inside the entrance – making it a possible baffled entry. Though movement may be funneled to this entryway, there are defensive architectural elements that would have provided control over access by people within the fort. Regarding the other entrance along the eastern side of Sector B, one must climb to get through it. It is also flanked on its interior by small rooms, which could have provided the ability to monitor movement through the door.

Figure 6.22 Detail of slope analysis for Sector A.
The three entrances located in the second wall of Sector B are all located along the southern side of the sector. Two of them, on the eastern and southern sides, require one to climb up through them. The entrance located along the western side is located at the point where a small ridge is, creating easy access up the hilltop via this route. In the uppermost concentric defensive wall there is only one entrance along the northern side of the wall. Entry through this door requires climbing a higher slope area, but once inside the slope decreases. This entrance is flanked on both sides by a parapet.

One entrance associated with Sector C that leads into Sector B has already been discussed (Figure 6.24). The other two entrances in the lower wall of Sector C are associated with low slope areas leading into them. The southern entrance is located
adjacent to a platform, which provides ease of visibility to the areas immediately outside of the entrance. The eastern entrance does not seem to be guarded, as there are no rooms or other architectural elements nearby that would monitor access via this doorway. However, once inside via either of these two doorways, access to the summit requires movement toward the westernmost side of the sector, which could be monitored from platforms or structures.

**Figure 6.24 Slope analysis of Sector C.**

When compared to the multiple viewshed image (refer back to Figure 6.17), it is apparent that some high slope areas along the northern side and southeast section of Sector B correspond to areas not visible from the bastions or lookouts. The southern side of Sector A, characterized by high slope and virtually few low slope access areas, is also not within the range of view of the bastions or lookouts. Along the western end of the
ridge, which seems more accessible via the far west end, the combination of high slope areas with the viewshed of lookouts suggests access was indeed monitored in this area. This supports the assertion that the lookout and bastion structures were placed strategically to monitor access up the ridge and into the fort from lower-slope, easier access pathways.

**Distinguishing between Early Horizon and Late Intermediate Period layouts**

One issue to sort out, however, is the contemporaneity of the architectural elements, such as lookouts, bastions, and doorways. That is, the multiple and cumulative viewsheds assume that they are in use at the same time. Above I suggest there may be ways to distinguish between Early Horizon and Late Intermediate Period parapets based on experimental slingstone trajectory data. With regard to lookouts, bastions, and doorways we can use other lines of data. Based on the construction technique used to build it, BastA1 corresponds only to the Late Intermediate use of the site. BastA3, BastB1, and BastB3b all show signs of reconstruction using the Late Intermediate Period technique. Some of the masonry at their bases suggests they may have first been constructed in the Early Horizon. However, BastB1 is attached to a concentric defensive wall built entirely during the Late Intermediate Period. BastB3a is badly destroyed, but its location near a reconstructed section of defensive wall suggests it is Late Intermediate Period in date. Any Early Horizon component has not been identified for this structure. Thus the viewshed analysis of all five structures corresponds to the Late Intermediate Period configuration of the site. They were all constructed or reconstructed during this time, and I assume they were in use together.
Assuming that there are only three lookouts that could correspond to the Early Horizon occupation, the visibility of Early Horizon lookouts and bastions obviously covers less area compared to the Late Intermediate Period coverage (Figure 6.25). Considering the viewsheds of these three structures we can see that the visibility of the far west side of the ridgetop disappears along a wash which corresponds to a low-slope area, and would be a more likely route of access. Some visibility is lost up the wash leading to the space between Sectors A and B. But, in general, the Early Horizon configuration of the fort appears to have sufficiently controlled access along the north side of the ridge. There is greater vulnerability to intrusion via the western part of the ridge.

Figure 6.25 Multiple viewshed from hypothesized Early Horizon bastions/lookouts.
With regard to the entrances, we can hypothesize that all of Sector C, and the lowest defensive wall of Sector B do not correspond to an Early Horizon occupation. Fewer entryways are thus present. However they correspond to high-slope areas and/or areas within visibility of lookout or bastions. Yet, because Sector C was not yet built, the vulnerability of the doorways only pertains to the Late Intermediate Period.

Spatial and surface analyses of architecture, doorways, and defensive features in relation to slope, visibility, and range of defensive weapons support the assertion that defense was of concern to the people who built and rebuilt Acaray (during both Early Horizon and Late Intermediate Period use).

6.2.3 Types of Structures and their Spatial Distribution
In this section I do not deal with defensive architectural elements since those are discussed above. Here, I divide the other types of structures at Acaray into general categories based on their form and how they were constructed. Within defensive or military sites, other activities occur and spaces may encompass a variety of functions throughout time. Without excavation, it can be difficult to infer function from surface features. This proved to be the case when excavations in a number of areas proposed to be hypothetical residential areas showed no such evidence of long-term residence. Here I assign names out of convenience for describing these structures.

Terraces and rectangular terrace structures
The most numerous constructions at Acaray are terraces, and this is probably due to a basic factor: the slope of the ridge allows less room for occupation or use unless certain areas are flattened out upon which people can build. The sector A and B hilltops are sloped more than the sector C hilltop, and it follows that terraces are less common in
Sector C. However, Sector A has extensive terracing in many of the washes and gullies on most of its sides. Not all terraces in this sector of the ridgetop could be mapped because of their state of preservation, but many of them are indicated in Figure 6.2. All terraces are constructed of stone faced retaining walls filled with trash and soil, at least as evidenced by excavations as well as destroyed terraces that permitted observation of fill materials. Some terraces have additional architecture constructed on top of them. These rectangular structures have anywhere from two to three main sections, sometimes with further interior divisions.

Small single rooms

There are some small, one-room structures located within the fortress. Their size varies from between 2-4 meters across. Four were identified, all on the ridgetop in Sector A (subsectors A1, A2, and A3). They are made of small cut stone, and based on the expedient nature of their construction I argue they pertain to the Late Intermediate Period occupation. Each of these is located near a larger rectangular structure, and might be considered as part of a larger unit of structures.

Platforms and rectangular structures with banquettes

In contrast to the rectangular structures discussed above, there are other multi-room constructions that have benches, or banquettes, along their interior walls. The distribution of these types of structures is limited to subsectors A3, C1 and C3. In the major structure on the summit of subsector A3 two rooms had benches visible from the surface along their interior. The westernmost room was delimited along the north, east, and south sides by a low bench. The upper room on the eastern side of the structure also
had a visible bench along its southern wall. A bench in another room was confirmed during excavations (see Chapter 7, Block 1A).

The middle room of the rectangular structure located on the south side of subsector C1 had a visible low bench along its eastern wall. Several of the rectangular structures on the top of subsector C3 also had benches, some in more than one room. No excavations were carried out in Sector C, thus any further elaboration of these structures in this sector is currently not possible.

**Discussion**

Based on surface analyses of architecture, construction techniques, and their distribution I have identified two hypothetical configurations for the fortress at Acaray during the Early Horizon and Late Intermediate Period. Certain excavation contexts (Chapters 7 and 10) and results from radiocarbon dates (Chapter 8) further support this distinction. Additionally, spatial analysis of visibility and access suggest that movement into and around the fortress was monitored and controlled in different ways during the two occupations. For example, during the Late Intermediate Period there appears to have more concern with visibility and control of access routes along the western part of the ridge. Expansion of the fortress during Late Intermediate Period times, consisting of additional defensive walls, construction of additional bastions/lookouts, and the addition of parapets along lower defensive walls suggests the scale of the threat was greater than during Early Horizon times.

However, during both time periods the perceived threat to Acaray appears to come from the north. Both configurations are aimed at monitoring primarily the areas north of the fortress. All bastions and lookouts hypothetically in use during both time
periods would have been most effective at providing warning of approaches from this direction, and if used during battle, would have provided curtain fire along this side of the ridge. Parapets from which defenders would have stood to launch projectiles from within the fortress are also located primarily along the northern side of the ridge. The construction of additional parapets that were likely strategically placed to guard access along a gully at the south side of Sector B during the Late Intermediate Period suggests to me that attackers, although coming from the north, were able to flank the fortress and approach from this access route as well during this time. Perhaps this suggests a larger attacking force, or a more efficient and strategic one.

Piles of slingstones were identified in associated with the parapets. They were not, however, spaced regularly at 2-3 meter intervals. They were associated with breastworks that ranged anywhere from 50 cm up to a meter in height. Thus at Acaray projectiles appear to have launched, or preparations were made for launching, from barriers higher than the 80 cm suggested by other scholars (Topic and Topic 1987). Yet it seems reasonable to assert that given the location of the parapets along the upper walls of the fortress, the defenders within it would have had to have used slings for the projectiles to have had an effective range. The sling trajectory profiles indicate that the slingstones would have barely cleared the lower wall, or barely reached the lower reaches of the ridge, if a sling was used to launch them. Hand thrown cobbles would have had far less range, and been less effective for defense.

An additional thing to note is that no imperial Chimú architecture, such as the audiencia architectural element associated with Chimú administration, was identified in analysis of architecture at the fortress at Acaray. Without the marks of imperial
architecture (and by extension, administration), it does not seem likely that the Chimú rebuilt Acaray, or were even successful in controlling local populations from this site.

Now that I have described the layout of the site, the distribution of architectural and surface characteristics, and discussed spatial organization at the site level I will present detailed descriptions of the excavations carried out in different areas of the site. The following chapter focuses on describing test excavations and block excavations. Specific contexts will be discussed in Chapter 10.
Chapter 7 Descriptions of Excavations

Two kinds of excavations were carried out in the fortress: test excavations and block excavations. This combination of excavation types was used to permit sampling of a number of areas, and greater detail through horizontal exposure of some portion of the site to better assess function or activity areas. This chapter is written in the form of a straightforward report of excavations for each unit. I minimize interpretations in this chapter, and try to confine those to Chapter 10. But in reading the descriptions it will become apparent that excavations revealed evidence of activities of a more ritual nature. There is also some evidence from excavations that supplements interpretations of Acaray as a defensive site based on data discussed in the previous chapter.

7.1 Test excavations

As discussed in Chapter 5, test units (TU) were laid out with dimensions of 1 x 2 meters. Two test units had to be expanded. TU2 was expanded when a burial was encountered that was partially embedded in the western profile wall. TU8 was expanded when a series of plastered floors were encountered. A decision was made to expand the unit to see the relationship of the floor to underlying fill without completely excavating the floors. Test units were excavated in midden, terrace structures, along interiors of concentric defensive walls, and on platform structures.

7.1.1 Excavations in midden: Test units 1 and 6

Test unit 1 (Unit 1)

Test unit 1, a 1 x 2 m test pit, was located in Subsector A3, approximately 2 meters east of the major structure on the top of the hill (figure 7.1). It was hypothesized that this hilltop structure was used or occupied by a higher status segment of the
population at Acaray, and would provide information on activities carried out by this social segment. These data could then be compared with data from other areas of the fortress proposed to be associated with lower status groups. This location was chosen because of the presence of surface scatters of ceramics, lithics, and shell indicating this may be an area of trash associated with the major structure. It would be possible to associate evidence of activities from this unit with later excavations to be carried out within the structure itself. Care was taken to locate the unit to achieve the greatest depth by judging where the bedrock would be. The major structure is located on an elevated platform. A nearby looters hole had exposed part of a low platform wall, with trash deposited on top of this platform.

![Figure 7.1 Location of TU1, subsector A3.](image)

This unit did not meet expectations for deep stratigraphy. Its greatest depth was 67 cm below the surface and 43 cm and its most shallow part. This deposit was located
on a downward sloping part of the bedrock, so that the eastern part of the unit had greater depth. Three cultural strata were excavated, the last, located directly above the bedrock, was excavated in three arbitrary levels for better control (figure 7.2). The first layer was a mixed surface deposit, consisting of a light yellowish brown fine sand wind-blown deposit, and had very little cultural material in it. The second and third layers were both semi-compact brown sandy soils that differed only slightly in their content. The third layer contained greater amounts of both small and large angular rocks, but both strata appeared to be trash containing similar densities of ceramic, botanical, and shell remains. There was a small deposit of dense trash that intruded into the third layer. This deposit had greater amounts of botanical material, particularly *pacae* (a fruit) leaves and pods and *aji* (chili pepper). All layers excavated in this unit appear to be primary trash, but it is not clear whether this is associated with the large structure located near it.

Figure 7.2 North profile of TU1. Numbers indicate layers. Hatched area is bedrock.

Given the shallow depth of this test unit we realized that the hill face was much
closer to the surface than anticipated. This was corroborated in our block excavations within the structure of Unit 1 (described below).

**Test unit 6 (Unit 4)**

Test unit 6, a 1 x 2 m test pit, was located outside of the lowest concentric defensive wall of Sector B, on the southern side of the Sector B hill (figure 7.3). This location was selected because the surface, which was sloping downward, indicated that trash may have been thrown there from above. A series of rooms along the interior of the defensive wall above suggested that trash found below may be associated with activities in these rooms. Because we could see the bedrock in some areas along this surface, we recognized we would not get great depth, and that the deposits might be mixed because of the slope. A zigzag shape cut in the bedrock created a space that was less sloped, and we anticipated finding a greater depth of trash that was less likely to have eroded downslope. We also detected remnants of the base what may have been a lower wall. Because the wall base was constructed of large cut stone, it’s probably that this was an earlier wall related to the earlier occupation (see section on construction techniques).
The first layer was a thin surface layer with very little cultural material in it, and was composed of pale brown, very fine sand (figure 7.4). The second layer, pale brown fine sand, was a layer of trash with indications that it was a primary deposit. Abundant larval casings were found in the deposit. This layer probably represents at least three trash dump events done at the same time or closely spaced in time. That can be asserted because there is a thin lens of dark yellowish brown fine sand that was encountered along the northeastern section of the unit (Lot 46). The difference in soil color may be due to higher concentrations of botanical material, but the composition of this lens and the rest of the layer are the same.
The third layer, an olive brown fine sand deposit, also consisted of trash, but had more small angular rocks in it. A notable find was a large river cobble that had percussion marks on it. Beginning with this layer we also encountered mixing of levels at the southern end of the test pit, especially in the southeastern corner. This is likely due to some erosion of layers downward that mixed later levels with earlier ones as they came to rest at this point. The stratigraphy encountered in the northern half of the pit is still, however, reliable.

A fourth layer of darker soil and trash was partially located on top of the bedrock, which began to appear in the northern half of the unit. This surface dipped down and
became increasingly exposed as subsequent layers were excavated. It appeared to be contained by a large stone linked to a compacted surface in the southern edge of the unit. The compacted surface (Lot 50) was gray fine sand that was very small and deteriorated. Below the fourth layer lay a light olive brown very coarse sandy layer which seemed to represent the first deposit of trash made in this location. The darker color was due to the presence of gravel, which may have eroded from the bedrock.

This unit, while presenting mixed layers at its lowest corner because of the downslope of the unit, revealed primary deposits of trash in good stratigraphic relationship to one another.

7.1.2 Test excavations in terrace structures: test units 2, 3 and 7.

Test unit 2 (Unit 2)
Test unit 2 was located in Subsector A3, oriented inside what appeared to be a small terrace located in a small wash below the major structure on the hilltop that extends down to the upper defensive wall of Sector A (figure 7.5). A series of these low stone terraces characterizes this and other small washes around the site, and ceramic, lithic, and shell remains are notable on the surface. This unit was located here because of the presence of such remains, which suggested it may be an area of domestic activity, its proximity to the structure in unit 1, and because it represented one of the smaller terraces at the site, one of the architectural types identified in 2004.
Figure 7.5 Location of TU2, subsector A3.

Unlike test unit 1, this test unit reached a maximum depth of 168 cm. Eight layers were excavated in this unit, and the appearance of a human burial in layer five prompted us to expand this unit one meter on its western side, making it a 1 x 3 meter unit, so that the burial could be fully excavated since it intruded into the western profile (figure 7.6).

The surface layer was pale brown fine sand that contained few cultural materials. The presence of sheep excrement and ash from modern cane burning in the agricultural field adjacent to Acaray indicated this layer was disturbed by modern activity. It is notable that one of the
ceramic fragments collected from this layer was a neckless *olla (olla sin cuello)*, which has been a chronological indicator in other areas of the formative period (Wilson 1988).

The second layer was a little more compact on its surface, and more brown with some gray mottled areas probably due to the presence of disintegrating rock. Under the compacted upper part of this layer the soil was very loose. This layer presented sheep excrement as well, indicating it is still disturbed by modern activities. Mixing is also apparent because two later ceramic sherds were recovered from this layer: one with white-on-red decoration and the other black-on-white (the classic Chancay style, which is considered Late Intermediate Period in date).

The third layer was more compact than the previous layer, but the matrix was basically the same, being a brown find sandy soil. In part of this layer where the unit was extended we excavated an area of compacted dung, and animal coprolites were also present in this layer. Although the coprolites have not been identified, they appear to be camelid and not sheep coprolites. Their compacted nature suggests coralling.
There were two intrusions in the third layer. A small circular intrusion about 18 cm in diameter was excavated in roughly the middle of the unit (prior to its extension). This intrusion was filled with material from the second layer, consisting of fine brown sand. Another intrusion closer to the east profile wall was also excavated. This soil composition of this intrusion is the same as the other intrusion but much less defined.

The fourth layer was divided into separate lots because of the presence of a concentration of large angular stones in the north end of the test unit. This layer was light olive brown fine sand, but was more brown in the area where the test unit was extended along the western edge of the unit. Because of the presence of the large stones in one extreme of the test unit, this layer may possibly be a layer of construction fill associated with the building of the defensive wall. The content of this layer is much more diverse than the upper layers, containing not only large quantities of ceramics, shell and plant remains, but also bone fragments, some of them burned, carbon, and pieces of textile, as well as a ceramic modeled face characteristic of late Early Horizon/early Early Intermediate Period ceramic material (Wilson 1988:411). This layer may be a secondary deposition of trash that was used as construction fill.

An oval-shaped intrusion in the fourth layer was excavated that consisted of brown fine silty sand with cane and other plant materials, making it slightly darker and redder than the rest of the layer. This may represent a separate pocket of deposition of trash that was dug into previous laid down levels of trash. Another small spot in this layer had high concentrations of carbon that suggested it might be different from the surrounding layer. Excavation of this lot showed it was not an intrusion, but rather a
pocket of higher presence of carbon remains that may also represent another separate pocket of trash deposition.

Underneath a large rock in this layer was a mixed pocket of soil and trash from level 4 and loose soil from a burial context immediately below the rock. The consistency of the soil if a fine brown sand with some bone fragments and textiles fragments that probably come from the burial context.

Level five of this test unit is a very fine sandy layer, dark grayish brown in color, which contained less cultural materials than the previous layers and also did not present large angular stones as part of the layer. We recovered stone beads and panpipe (antara) fragments from this layer suggesting this is a secondary deposition of trash that was used as construction fill.

A burial intruded into level five, and had a matrix of brown fine sand that was more compact than the surrounding layer (figure 7.7). The body was a skeleton of an elderly woman in a flexed (fetal) position, who had only some items associated with her. The burial context is described in greater detail in Chapter 10. We expanded the unit when we encountered the burial. Once the burial was excavated, we left the extension of the test unit unexcavated to focus on the original 1 x 2 meter area.
The sixth level is a very fine sand layer, also dark grayish brown in color due to a great quantity of burned plant remains. A piece of quartz, as well as a panpipe fragment, recovered while screening indicates this is also a secondary trash deposition. The burning of the plants does not appear to have taken place in this spot, as there are very few fragments of burned earth, and the ceramic, shell and lithic remains in this layer do not show evidence of burning. Rather it appears that the burned plant remains were cleaned up from another location and dumped here.

The seventh layer was not continuous along the entire test unit. It was a brown very fine, slightly sticky, sandy layer with rocks that is partly sitting directly on bedrock. It does not appear in the western side of the test unit. The following layer, eight, runs slightly under this layer on the western side of the test unit, where layer seven tapers off. This layer presented some darker spots, possibly because there was some mixing with the layer above.

Layer eight is the last layer of this test unit, located on the western side of the unit immediately above the bedrock. It is a dark grayish brown layer of very fine sand, and is also slightly sticky, similar to layer seven. It is located in the western side of the test unit,
where layer seven did not appear, but does not extend across the unit to the eastern side. This layer is more compact than layer seven, with a higher concentration of shell remains, making the two layers clearly distinguishable. There are also less cultural remains in general than in layer seven.

A feature in layer eight, approximately 20 cm long and 18 cm wide (oval-shaped), was located near a hard compact patch of sediment which may have been heat altered. This intrusion can tentatively be identified as an informal hearth. The intrusion itself consisted of dark brown, very find sandy soil with very little natural or cultural inclusions. This intrusion was associated with two groundstones that were located about 13 cm east of it (figure 7.8).

Figure 7.8 Informal hearth in TU2. Note two broken manos aligned to the left of the arrow.
This test unit may have evidence of an ephemeral occupation immediately above the bedrock, but the intervening layers, at least up to level four, are more likely construction fill layers associated with the building of the defensive wall. Trash tentatively associated with an earlier occupation, based on the style of some of the material culture encountered, was used in this reconstruction. The intrusive burial, embedded in the construction fill, may be a secondary burial of the individual. The uppermost three layers of the unit may be associated with a later occupation, but layers 1 and 2 appear to be mixed by modern activities.

**Test unit 3 (Unit 3)**

This excavation unit (TU3) was located in Subsector A1 in a wash along the northern side of the Sector hill (figure 7.9). This wash was targeted for excavations because there was a high density of terraces and rectangular structures. I hypothesized that these constructions served to control access up the wash. A test unit, rather than a block excavation, was selected because a block excavation in another area was targeting similar architecture. The aim of this unit was to retrieve stratified data relating to construction phases and recover samples for radiocarbon dating. The unit was located in the upper half of the wash on a terrace with little evidence of disturbance on the surface. A large grinding slab located on one terrace, and the presence of handstones (*batanes* or *manos*), cores, and unifaces on the surface, suggested we might encounter a domestic space, so we oriented the unit close to the stone.
The first layer was a thin deposit of wind-blown pale brown very fine sand with some cultural material in it (figure 7.10). The second layer was the first cultural level encountered, and it appeared to be undisturbed. The composition of this compacted level was light olive brown fine sand, and it was compacted probably from transit on its surface, forming a use-floor but not a formal floor. An alignment of stones began to be defined in this level. The stones, roughly rectangular but not well shaped, ran along the northern side of the unit, parallel to the terrace edge. No mortar was detected, but the stone formed a low wall or step (figure 7.11).
Figure 7.10 South profile wall of TU3, with layers indicated. Crisscross hatching at bottom is bedrock. Diagonal lines at bottom indicated unexcavated area. Layer 7 does not appear in this profile.

Figure 7.11 Plan view of Layer 4, TU3, showing rock wall, pit, and hearth referred to in text.
Intrusions were defined on either side of the stone wall. In the southeastern corner of the unit we hit half of what may have been a circular intrusion, approximately 32 cm wide. This intrusion extended down about 3 cm into the deposit along the southern side of the unit (layer 4). The intrusion was light olive brown, very fine sand, with shell, botanicals, ceramic sherds, lithics, charcoal pieces, and coprolites. The intrusion also had bits of mud that were reddish, indicating they had been exposed to fire. This was probably not a hearth, but may have been trash cleaned up from one.

Another semi-circular intrusion (25 cm wide) along the northern side of the stone wall extended down into the lower level (layer three) 15 cm. The intrusion consisted of loose, brown fine sand with shell, ceramic sherds, coprolites, and botanicals, including cotton seeds. This trash was not burned, but the presence of the organic material is what made the soil darker. A smaller, semi-circular lens along the northern profile wall, measuring 10 cm wide, consisted of brown fine sand, with very little cultural material in it, but which contained similar materials to the other intrusions: shell, charcoal, botanicals, ceramic sherds, and coprolites.

A thin lens of trash was excavated over part of the third layer on the southern side of the wall. This lens was confined to the northeastern corner of the unit, and was approximately 2 cm deep. The brown fine sand contained very little cultural material. Layer three, a very compact surface composed of grayish brown, fine sand, probably represents a use-floor associated with the stone wall. The surface of it was clean, with only some inclusions that were likely pressed into the surface through use, such as shell and ceramic sherds. Beneath this compacted surface this level extended down 4-6 cm and contained other materials such as charcoal, bone, botanicals, and lithics.
Layer four extended over the entire unit, below the stone wall, and most likely represents the first great layer of construction fill for the terrace. This layer measured 42-57 cm deep, and was deeper along the western end of the unit. It was a light olive brown, fine sand, semi-compacted deposit with abundant cultural and natural remains. The layer consisted a lot of rock, as well as large amounts of botanicals, most notably cotton, shell, lithics, charcoal, bone, textile fragments, ceramic sherds (including sherds that would be considered Early Horizon, with burnished criss-cross patterns or the neckless *olla* form), and panpipe fragments. In the lower parts of this level there were greater amounts of small and medium-size rocks, and the cultural materials tapered off. This soil in this layer was also very salinated.

There were two intrusions in this layer, as well as some small pockets of what are probably small trash dumps within the fill (see figure 7.11). In the upper level of layer 4, abutting the northern face of the stone wall, was a 22 cm wide intrusion that extended down about 10 cm (Lot 24). The intrusion, a dark grayish brown fine sand, had charcoal, shell, botanicals (including some carbonized seeds), ceramic sherds, bone, and fragments of compact mud. On the other side of the wall, in the northeast corner of the unit we excavated a hearth which extended down 26 cm into layers 4 and 5. The first 19 cm of the hearth consisted of a fine brown sand filled abundant charcoal from burned plant remains, with a reddish, burned soil at the edges, and fragments of rock and compacted mud along the edges of the hearth that showed evidence of being exposed to heat. We only caught one corner of the hearth, but we estimated the radius to be about 36 cm if it was circular. The last 7 cm of the hearth consisted of a loose, dark grayish brown fine sand with abundant carbon and ash, with small rocks concentrated at the bottom. A small
concentration of light olive brown very fine sand with trash in it was located along the southern profile wall.

The fifth layer was a compact brown fine sandy layer with rock and mud that appeared to be a continuation of the construction fill. Layer six was fine brown sand with a lot of rock in it and some cultural material, although far less than found in the previous layer. This layer, extending down about 20-37 cm, was another layer of construction fill, and we began to encounter very large stone blocks protruding from the profile walls that diminished the area that could be excavated. The seventh and last layer of this unit consisted of a dark grayish brown fine sand, semi-compact, and immediately above the bedrock. It was an irregular layer, measuring 5-20 cm in depth, partly because of the difficulty in excavating such a small area given the protruding stone blocks into the unit from the unit’s profile walls.

The last four layers of test unit 3 are best interpreted as construction fill. The upper three layers, with a number of intrusions, represent activities and use associated with this terrace structure.

Test unit 7 (Unit 10)

Test unit 7 was located in Subsector B2 on the western side of the hilltop of Sector B in a wash (figure 7.12). The wash is relatively short, and not that steep. There were some small terrace structures located toward the bottom of the wash, close to an open area near the interior of the lowest defensive wall. These cut stone structures were associated with abundant surface trash, and were small enough that a 1 x 2 m unit could reveal the majority of one structure while also focusing on recovering multiple building episodes and evidence of activities within the structure. This is the only terrace structure
excavated in Sector B, but it was thought that comparisons could be made to the two units from Sector A (described above).

Figure 7.12 Location of TU7, subsector B2.

The surface had some wall fall on it from the partially collapsed eastern wall. The first layer, a wind-blown deposit of light olive brown fine sand, was 6-12 cm deep with a mixture of material culture remains, such as coprolites, botanicals, ceramic sherds, shell, lithics, and not so common artifacts such as feathers and a stone bead (figure 7.13). The layer appeared to be disturbed in the southwest corner by what may have been a looter’s probe. A small depression in the layer, probably caused by the pressure of the fallen wall stones, extended slightly further down along the northern edge of the unit. What appeared to be modern cane ash was present in this area, so this layer is likely disturbed and presents mixed material.
Layer two was a compact irregular surface, confined to the northwest end of the unit. The compact surface was probably caused by the pressure of the fallen wall, and consisted of grayish brown medium grain sand containing very little cultural material. Layer three was present across the entire excavation unit, but was uneven from east to west, and varying from 2-24 cm depth. The composition was olive brown fine sand that was semi-compact and filled with a great density of trash that was also varied. It was notable the variety and amount of shell and ceramic sherds, as well as the presence of a variety of artifacts such as shell and bone beads, panpipe fragments, and coprolites. The bedrock also began to appear in parts of this level. This layer can best be interpreted as a trash deposit used to level out the uneven surface of the bedrock.

Layer four, the last of the strata for this excavation unit, was also an olive brown fine sand, but much more compact. It appeared to adhere to the bedrock, which was largely exposed in the center portions of the unit. There were pupa casings, which suggest...
a possibly primary trash deposit, but the presence of scorpion moltings suggests the layer had some insect disturbance. Below this layer was a small deposit, right in the middle of the excavation unit, in the bedrock that showed signs of burning. The irregular deposit, about 17 x 20 cm, consisted of dark olive brown fine sandy soil with charcoal and burned shell. The bedrock here also showed signs of exposure to fire.

This unit was unexpectedly shallow, with little indications of activity besides the construction of the small terrace enclosure itself.

7.1.3 Test excavations along interior defensive walls: test units 4 and 5

Test unit 4 (Unit 8)

Test unit 4 was located along the interior of the uppermost defensive wall of Sector B, in Subsector B4 (figure 7.14). The 1 x 2 m unit was oriented perpendicular to the defensive wall. The unit was located southeast of the major structure at the hilltop, and it was thought the area sampled might contain remains associated with activities occurring around, or perhaps within, the structure. This is the only relatively flat surface in Subsector B4 that was not covered in rubble from the major structure, and which showed no evidence of surface walls or construction. Moreover, the exterior of the defensive wall where the unit was located showed signs of reconstruction, and it was thought the unit would yield data relevant to the rebuilding of the defensive wall.
The surface layer was a wind-blown deposit with very little cultural material in it, consisting of light yellowish brown very fine sand varying from 1-9 cm depth (figure 7.15). The layer was sloped down toward the southern end of the unit, which abutted the interior of the defensive wall. Layer two was a light olive brown very fine sand that contained abundant cultural material, including a lot of botanical remains, ceramic sherds (*olla sin cuello*), and lithics such as sling stones. In addition some hair and feathers were found, as well as a human rib fragment. There was a small area of burning at the northwest corner of the unit in this layer, which sits right above the bedrock. The small, circular area consisted of olive brown, very fine sand that was very loose and contained charcoal, ash and burnt soil. There were very few artifacts, none of which showed indications of burning or exposure to heat. The deposit extended down 10 cm to the bedrock, and was approximately 35 x 40 cm in size.
The interface between the second layer and the next one was not clear, and presented some mixing. A pocket of fill with gravel and botanicals in it was concentrated along the interior of the defensive wall in the southeast corner of the unit. This pocket lying between the second and third layers made them hard to distinguish. The third layer had a high concentration of botanical material in it. This upper part of this fill layer, a light olive brown fine sandy layer 11-25 cm deep, contained parts of two human radii. The next 25-33 cm of the layer had the same soil matrix, but far less botanical remains and more rock. More human bone was encountered, including a right rib and a possible left fibula. A compacted layer of light brownish gray mud or clay intruded into this layer from the west profile wall of the unit, but did not extend over the entire level (Lot 170). The surface was clean, and had only a few artifacts impressed in the surface. The surface was also associated with a large cut stone. At the northern end of the unit on top of the downward sloping bedrock was an area of light olive brown fine sand delimited by the
large stone linked to the compacted surface. This probably represented another separate pocket of trash deposition within the third layer.

The fourth layer of the unit consisted of loose, brown fine sand that lay immediately above the bedrock, and had a depth of 24-29 cm. This layer contained pupa casings, suggesting the trash from this layer had been exposed and might be a primary deposit and not fill. There was notable more ceramic sherds collected, and more human bone was collected, including two toe bones and part of an articulated hand.

Given the presence of human bone remains in the lower layers of the unit, and the abundance of slingstones recovered, it appears that this unit represents trash associated with the structure at the summit. A recovered nose ring, and a surface collected slate blade fragment, suggest that the trash was disturbed from the early occupation and used in the reconstruction, and that the early use of this space was associated with a higher status segment of the population.

**Test unit 5 (Unit 9)**

Test unit 5, a 1 x 2 m excavation unit, was located along the interior of the second defensive wall in Sector B, on the southern side of Subsector B3 (figure 7.16). This area was located in an area of space with divisions made by walls, and adjacent to a terrace structure with adobe and rock architecture, as well as at the bottom of a wash that contained a series of stone terraces extended up the wash. This unit, unlike unit 4, was located along a section of the defensive wall built entirely of the early construction technique, and showing no evidence of reconstruction. It was though that the two units could be compared, and that evidence of activities taking place in these walled areas or in the terraces might be represented here.
Layer one, about 5-10 cm deep, was olive brown very loose fine sand that had very little cultural material in it (figure 7.17). Wall rubble from the western stone wall that delimited the unit on that side was also encountered, as well as modern can ash and disintegrated rock. The second layer, varying 5-33 cm in depth, was slight darker and contained much more cultural material in it, including a variety of artifacts such as bone needles, small feathers linked by strings, a lithic point, and red and white textile fragments. This appears to be a layer of secondary trash deposition, perhaps dumped here from other areas.
Layer three, between 5 and 42 cm deep, consisted of an olive brown, fine sand that was compacted in parts. We began to encounter large cut stones in this layer, which was most likely construction fill. There was some dispersed ash present in this layer. Below this layer there was a small, irregular shaped deposit, 6-17 cm deep, of botanical materials along the interior of the defensive wall that delimited the unit on its western side. This was not an intrusion, but rather a separate deposit of fill situated behind a large stone encountered roughly in the middle of the excavation unit. The fourth layer, 30-32 cm deep, was only excavated in the eastern half of the unit. Its consistency was also olive brown, fine sand with far less botanical material in it, no ash, and a higher presence of salt in the soil. Bone and stone beads, as well as panpipe fragments were collected from this layer of fill. The lower 6-12 cm of this layer was more compact.
We did not hit a sterile layer (bedrock) in this unit, but decided to not excavate further due to time constraints and the fact that we would only likely encounter more fill used in the initial construction of the defensive wall. The composition of the trash recovered from the second layer is probably not construction fill because it is different than that recovered from other units, and may represent the remains from more specialized activities, such as textile manufacture, around this part of the site.

7.1.4 Test excavations on platform structures: test unit 8

Test unit 8 (Unit 11)

Test unit 8 was located in Subsector B2, along the northern side of the hilltop of Sector B. A partially collapse platform composed of layers of trash and rock with adobe walls visible from the exposed profile suggested the recovery of multiple construction phases was possible. The unit, 1 x 2 m, was located on top of the platform in an area not impacted by looter’s pits (figure 7.18).

Figure 7.18 Location of TU8, subsector B2.
The first layer was a wind-blown deposit of light olive brown very fine sand with very little cultural or natural inclusions in it (figure 7.19). Below this lie a grayish brown layer of very fine sand that had pieces of mortar, white plaster, adobes, and floor mixed loosely with sand. There were also very few cultural materials in this layer, which may represent remains of the destruction of architecture. Below this rubble along the western edge of the unit lay a floor. The unit was extended to the north, to 2 x 2 m total size, to reveal more of the floor.

Figure 7.19 East profile of TU8. Not all layers are represented in this profile. Numbers indicated are layers visible. Three floors are indicated. A fourth is not visible in this profile.

The section of floor, about 3-5 cm thick, was a light brownish gray very fine sand that was very compact, with only a few small pebble and shell inclusions. There was no
cultural material associated with the floor. The floor was also very deteriorated, with a small depression along the southwestern corner of the unit. Below the floor, confined to only the area beneath it and not extending over the entire unit, was a fill layer of light olive brown very fine sand, semi-compact with adobe and mortar fragments in it, as well as small rocks and very little trash. The trash included burned earth, botanicals, plain ceramic sherds, some lithics, rope fragments, shell, coprolites (tentatively identified as camelid), and some bone fragments. The adobe and mortar fragments found in this layer may be parts of underlying architecture that was destroyed.

Another floor, which extended in parts over the entire unit, was found under this fill layer. The excavation unit was again reduced to 1 x 1 m due to time constrains, and we only excavated the southern half of the unit (the original 1 x 1 unit). The floor was semi-compact light yellowish brown very fine sand with no cultural materials associated with it, and in a very bad state of conservation. This floor was only about 1-2 cm thick, thinner than the upper floor. The layer of fill below this floor was about 4-6 cm deep. It consisted of loose, light olive brown very fine sand with very little cultural material in it, but including shell, bone, lithics, and plant remains.

A third floor was also found, very badly deteriorated, in the southeastern corner of the unit. The floor, consisting of dark brownish gray fine sand, had no cultural materials associated with it. The floor thickness varied between 2 and 6 cm. It appeared to have been destroyed, since it did not continue into the western half of the unit. Below this floor was a layer of fill (5-11 cm deep), consisting of light olive brown fine sand with some natural and very few cultural materials in it. But the few cultural remains in it were varied, and consisted of a variety of plant remains, some fish vertebra and small mammal
bones, shell, coprolites, some flakes, and a few ceramic sherds. One was a diagnostic red-slipped sherd with black paint.

There was an intrusion which extended into part of the floor and fill described above. The layer, about 13-19 cm deep, was light olive brown fine sand. There was more cultural material contained in this layer than in the upper fill layers. The materials recovered included floor fragments, ceramic sherds, flakes, shell, some plant remains, vertebra fragments, and a wooden needle.

Below this intrusion was a gravelly lens of grayish brown fine sand with very little material in it. The lens was about 8-11 cm deep, below which was a less gravelly layer about 4-5 cm deep of light olive brown fine sand. This layer was deposited directly above a rock and mortar wall, and extended to the western end of the unit (figure 7.20). Once this intrusion and floor 3 and its fill were excavated we uncovered another floor (floor 4).
The fourth floor consisted of a semi-compact, light brownish very fine sand surface that was cracked. The floor, about 3 cm deep, extended over most of the excavation except where it was broken along the southern end, where the wall was. There were very little materials associated with this floor, although some botanical remains and a ceramic sherd were encrusted on the floor surface along its western edge. This floor had a layer of fill below it, about 6-11 cm deep, consisting of light olive brown fine sand with a lot of cultural material in it.

Below the fill of the fourth floor there appears to be a very different kind of fill, possibly related to the initial construction of the platform. This layer of fill (52-64 cm deep), a light olive brown fine sand, had abundant small rocks and cultural remains, primarily botanicals. Some notable artifacts from this layer were panpipe fragments, as
well we ceramic sherds of the *olla sin cuello* form, both diagnostic of the Early Horizon. This layer was followed by another layer of fill, 15-23 cm deep, which was differentiated because it had corn stalks in it, as well as far fewer rocks. These layers of fill were delimited along the southern side by the stone and mortar wall that had been uncovered in earlier layers. Because the profile walls were continuously collapsing, and the area that could be excavated became restricted because of the wall, we stopped excavations here before reaching bedrock.

The series of four floors confirmed various episodes of destroying and remaking architecture on top of the platform. This architecture consisted of fine plaster architecture, and may have been associated with adobe construction given the fragments that were encountered. The platform itself was constructed over previous architecture, demonstrated by the stone and mortar wall encountered. It is probable that the previous architecture was filled in using trash from and earlier occupation to build up a platform, on top of which was built other structures.

**7.2 Area excavations**

Area excavations (Blocks) vary in size because of the method used to lay out the units. These excavations were carried out within rooms or enclosures. Recall from Chapter 5 that rooms or structures were quartered, and one quarter was selected for excavation. Thus the ultimate dimension of the quarter, or block, depended on the overall size of the enclosure. In two cases Blocks were expanded. Block 1A was slightly expanded along its southern edge when a wall was encountered. Block 1C was expanded in to small areas when features were encountered incompletely. In only one instance was
a block excavation made smaller. In Block 2 the instability of the unit required a balk to be left in place along the northern end of the unit.

7.2.1 Excavations in major hilltop structures: Block 1

Block 1 (Unit 1)

Block 1 was located within the major hilltop structure in subsector A3 (figure 7.21). This structure comprises 5 rooms, and three of those rooms were sampled through the excavation of three block units. This structure was selected for excavations because it is the largest structure within Sector A, and its location and size suggested it may be associated with higher status groups living within the fortress.

Block 1A was located in the southeast quadrant of one room, block 1B in the southwest quadrant of another room, and block 1C in the southeast quadrant of a large patio/room in the western half of the structure. Because the stratigraphy of these area excavations is more complex, particularly for the more shallow units, I have retained the lot numbers in the figures rather than layer numbers.
Block 1A

This room was selected for excavations because it appeared to have two sealed doorways along its eastern and southern walls. One doorway was sealed with cut stone, and the other with adobes. It seemed likely that we would be able to identify a sequence of construction phases. The presence of adobes also suggested evidence of a later occupation would be encountered here. Given the surface evidence for modification of the room, it appeared there would be greater likelihood of recovering materials associated with more than one occupation, and would provide data with greater time depth. Additionally, the room also exhibited little surface destruction and there were no notable looter’s pits on the surface. Although test unit 1, located a few meters east of this structure, did not exhibit great depth, it was thought all excavations within the structure would be deep because the structure appeared to be built on top of a platform.
The room was quartered to determine the extent of this quadrant, which measured 3 x 2.5 meters. The excavation block was bounded on its southern and eastern sides by walls. The southern wall was constructed of small cut stone, while the eastern wall was built using a mixture of cut stone and rectangular adobes. The eastern wall had also partially collapsed, leaving stone and adobe rubble within the excavation unit that was removed as part of the surface layer. Scattered adobes also appeared within the room outside of the designated excavation area. The unit was sloped downward from its eastern to western side. Excavations revealed this was due to the presence of a bench adjoined to the eastern wall.

The first layer was a wind-blown deposit of very fine, loose, grayish brown sand with little cultural material in it that was more thickly deposited over the eastern side of the unit. The presence of burned sugar can ash in the layer may have contributed to the soil color. Some of the ceramics coming out of this layer were diagnostic Late Intermediate Period ceramics, such as a Lauri-impressed style sherd. However, a *sol de oro*\(^5\) coin from 1975 was also recovered, indicating this layer was mixed with more recent deposited materials. Removal of this stratum made it apparent that what was thought to be a sealed doorway in the eastern wall was in fact just reconstruction of the wall using adobe. There was no detectable doorway. Below this layer was a semi-compact layer of light olive brown fine sand that was probably formed from a mixture of natural deposition and cultural activity, such as transit up to the present. There were more cultural materials in this layer, but the variety, particularly in terms of diagnostic ceramics, suggests some mixing. Chancay and Lauri style ceramics were found, both of which date relatively to the Late Intermediate Period, as well as some fragments that

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\(^5\) This is an older Peruvian state currency no longer in use.
appear to be Early Horizon based on style. The slope within the excavation unit was more
marked, and it became apparent that it was not due to the collapse of the eastern wall.
Mud plaster appeared along the eastern edge of the unit. Excavations focused on the
western half of the unit to see if this plaster or something related to it extended over the
entire unit. A fragmented floor was encountered, in the western half of the unit, delimited
by large stones that served as a containing wall. This wall formed part of a bench along
the eastern edge of the unit (this is why the unit was sloped). We divided the excavation
unit into two loci to be excavated separately. It was decided to excavate the western half
of the unit to be able to expose a profile in the middle of the unit before excavating the
eastern half (the bench).

In the western half of the unit a floor had been exposed that was very
fragmentary, but better conserved in its central part. The floor was light olive brown fine
sand that was very compact and smooth with some shell and ceramic fragments
embedded in the floor. Some of the fragments recovered from this layer were Chancay or
Cayash-style ceramics of the Late Intermediate Period. There were three apparent
intrusions dug into this floor (figure 7.22). One circular intrusion, or pit, was dug down to
bedrock (26 cm deep) through the subsequent floors and layers that lay underneath. The
excavation of this intrusion was significant because it demonstrated how shallow the
deposit of the structure was. The intrusion was a dark grayish brown very sandy deposit
of trash consisting of primarily botanical remains. The bottom of the pit was lined with
leaves (identified as coca leaves), which formed a sort of pillow against the bedrock. This
deposit is discussed in Chapter 10.
Figure 7.22 Photo of Block 1A showing bench on the left, what remains of a plaster floor surface on the right half of the unit, and three intrusions. The intrusion along the south wall is shallow. Note the wooden artifact in the intrusion.

Another intrusion was more extensive, running the entire length of the foot of the bench so that the fragmented floor uncovered did not connect with the bench. The destruction of the floor and subsequent layers down to bedrock may have been done but not filled in immediately. The presence of wind created sand webs apparent just above this deposit indicate that the fragmented floor was destroyed and filled in before wind born sand was deposited over the area. The consistency of this deposit was fine sand (light olive brown) with abundant botanical remains such as lúcuma (a fruit) pits, maize, pacae, and cotton. This deposit had a depth that ranged from 17 to 21 cm, indicating how irregular the bedrock surface is on which this structure is built. In the very northeast corner where the north profile wall met the bench wall there were indications that the plaster floor was burned since remnants of it were reddish. In addition to containing botanical material, fragments of ceramic pots were recovered that appeared to be a
mixture of Early Horizon, Middle Horizon, and Late Intermediate Period sherds based on style.

The third intrusion that cut through the floor was located along the southern wall of the excavation, adjacent to the intrusion along the bench and extending to the southwest corner of the unit. This intrusion was very thin, only defined to about 2 cm in depth. It was a dark grayish brown, very fine, loose sandy deposit with botanical remians but very few artifacts. One artifact that was revealed during the excavation of this deposit was a wooden artifact, the use of which is unknown. This intrusion continued down to a layer of gravel (discussed below), but not all the way to the bedrock like the other two intrusions. The consistency of this deposit became a fine grained light olive brown loose sand with more botanical remains as well as greater presence of small angular rocks and some small fragment of compacted mud.

Below the first floor was another smooth floor surface that was also deteriorated, but could be defined over a slightly larger surface than the previous floor. The floor was a compacted light olive brown find sandy soil with some small shell and ceramic inclusions.

A layer of gravelly light olive gray soil was excavated below the floor, but it seems to be less apparent along the southern and northern edges of the excavation. Below the gravel was a layer that consisted of light olive brown find sand that extended over the entire western half of the excavation unit west of the bench. This layer had more cultural materials in it, and can be interpreted to be a layer of secondary trash used possibly to create a level surface for preparation of the floor. The gravel layer in between this layer and the floor may have also been for such a purpose.
In this layer were also two concentrations of ash, one in the central part of the excavation and the other along the southern wall. The central burned area consisted of dark gray find sand and had abundant carbon, with reddish burned soil around it. The deposit extended down 15 cm but in an irregular way – that is, it was not a pit dug straight down. The other burned zone of dark grayish brown sand was adjoined to the southern wall, and was semi-circular in shape. One of the stones from the wall showed evidence of heat alteration, meaning this burning event took place after the southern wall of this room was built. Adjacent to this locus of burning was a deposition of ash near the southwestern corner of the excavation unit. It consisted of olive brown fine sand with ash and other materials that did not show signs of being burned in-situ. This suggests it was a one time burning event or a secondary deposition from a burning event.

The bedrock had already appeared along the southern and eastern parts of this locus during the excavation of the trash layer below the gravel lens. But in the northwestern portion of the excavation unit there was another layer encountered above the bedrock. This layer consisted of compacted light brownish gray fine sand. This could be a floor, but seems more likely to be a layer of mud placed on deeper depressions in the bedrock to create a more level surface.

The bench at the eastern edge of the excavation was excavated separately because it represented a different locus of deposition and could not initially be linked to the strata excavated in the rest of the excavation unit. The southern half of it was excavated first to leave a profile wall of the bench, which was then subsequently excavated.

As discussed above, the first two surface layers had been removed from the entire excavation unit, including the locus of the bench. Below this lay the third layer that I
believe is the same as the second surface layer. Removal of this layer revealed a *reboque*\(^6\) (the curved union of a wall and floor) attached to the eastern wall that did not extend over the entire bench. It appears it was only preserved at the wall corner, but it probably extended over the bench. Below this was a plaster surface which extended over most of the bench with another *reboque* that linked it to the eastern wall. The posterior surface, consisting of a compact light olive gray fine sand plaster, may be evidence of maintenance or a replastering of the bench. A smaller bench was identified that had been hidden by the construction of the larger bench. This smaller bench or step extended approximately 35 cm out from the eastern wall. This bench was constructed of cut stone and mortar, and was plastered on its surface, although not all the plaster was preserved. It differed from the larger, posterior bench, which was constructed of stone and mortar as well, but using much larger cut stone blocks.

Below the plaster floor was a dense layer of fill with a high density of cultural remains. This layer of fill appears to be associated with the covering of the smaller bench to build the larger bench over it. The fill consisted of light olive brown fine loose sand. This fill was excavated in four layers for greater control. In level two of this fill layer two textile bundles were excavated. These bundles were placed intentionally in the fill and abutting the smaller bench during construction of the second bench, which suggests that this was a special offering made during the remodeling of this room. This context is discussed in greater detail in Chapter 10.

The third and fourth levels of the construction fill consisted of more large rocks, while the upper two levels had greater cultural material and smaller size rock. The

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\(^6\) Because the Spanish word *reboque* sums up nicely the longer definition in English, I opt to use the Spanish term.
cultural material used as the fill can be tentatively associated to a prior occupation, possibly during the Early Horizon, because of the presence of panpipe fragments and ceramic sherd fragments stylistically similar to those identified elsewhere as Early Horizon. Level four of the construction fill also yielded a bundle of botanical remains, placed against the smaller bench wall in the northern half of the bench fill. The bundle had twined fiber rope, as well as other botanical remains. This context will be discussed in Chapter 10 as well.

Below the construction fill there was a semi-compact layer of fine grayish brown sand, and looked very similar to the last compacted layer that was excavated in the western half of the excavation block just above the bedrock. These semi-compact layers may have been used to level out the bedrock beneath them in order to build on top. Below this semi-compact lay the bedrock. There was a small deposit of brown fine sand that appeared to be burned, that was placed in a depression in the bedrock. The deposit could not be completely excavated because it appeared to go underneath part of the bedrock, which is a type of rock that degrades easily. The soil, although burned, did not appear to be burned in situ since there were no indications that the bedrock had been exposed to heat.
Figure 7.23 North profile of Block 1A. Lots are indicated to differentiate deposits. Lots 55, 75, and 77 are floors. Hatched area is bedrock.

Block 1A excavations revealed initial construction of architecture, covered up by the later construction of a bench (figure 7.23). Associated with this remodeling are two offerings, placed in the construction fill of the second bench. The floors uncovered in the western part of the block may have been associated with the use of this room after the second bench was made. Subsequently, parts of these floors were destroyed along the foot of the bench, the southern wall, and in the center, where another offering was placed.

Block 1B
This room in the structure was selected for excavations to assess what activities were taking place in this space. The room appears to be less restricted in terms of access to it than the room in which Block 1A was located. Located on the northern half of the major hilltop structure, and possibly linked via a doorway to the room in which Block 1A excavations took place, this room was thought to hold potential for identifying a different kind of space within the building. The configuration was slightly different, with what may be a hallway running along its eastern side and possibly leading out of the structure. There was also an obvious bench along the southern wall of the room. Additionally, there
were no apparent looter’s holes on the surface indicating the potential for finding disturbed contexts would be minimized. Excavations in Blocks 1A and 1B were concurrent, and it became apparent that there similarities in architecture on both blocks. The surface layer removed was a wind-blown deposit of light olive brown find sand that had the remains of modern cane burning ash mixed in. Along the very southern edge of the excavation unit a wall was uncovered, and it was decided that this would delimit the southern extent of the excavation. This surface was mixed, but we uncovered a great variety of artifacts from along this southern wall, including animal bone, animal skin, textiles pieces, maize cobs, vegetal fiber rope, and a small rolled sheet of what may be copper. It was determined that these remains were scattered because they were the result of looting of the adjacent room to the north at some point in the recent past. People living near the site today indicated that they witnessed the removal of the ‘señor’ (lord) of the fort (Sr. Rojas, personal communication, June 2004). The animal (possibly camelid) hair and skin, as well as the corn cobs and the copper artifact all indicate there may have been a tomb sealed in the adjacent room. The looting patterns also match those seen in the cemeteries below the fortress.

There were dispersed adobe bricks uncovered in the surface layer, probably from the adobe wall of the adjacent room. A concentration of these adobes, some partially eroded, was excavated along the southern edge of the unit away from the wall. Some of these adobes were lined up, while others were askew. This is rubble associated with the collapsing, or intentional destruction by looters, of the adobe wall delimiting the southern edge of the unit. Once cleared away, the top of another smaller bench or step was revealed (discussed below). At what appeared to be a doorway linking the two rooms
together we excavated a very compact layer of light brownish gray fine sand. This layer was probably formed by transit, but it did not appear to be a formal floor or ramp.

Once the surface layer was excavated, the bench and the area of the excavation below the bench were treated as different loci. The second layer of deposition in the area below the bench consisted of a light yellowish brown semi compact fine sand with relatively little cultural material in it. The material, however, was quite varied, and consisted of burned botanical remains, ceramic sherds, coprolites, as well as some items that may also have been from the adjacent looted room. This layer still exhibited some mixing with more recent activities.

A smaller locus of what appeared to be a burned area was located at the foot of the bench in the unit. The layer, a semi compact dark yellowish brown very fine sand, contained ash and carbon in it. Although the soil was heat altered, there was no vitrification of the soil, suggesting this may have only been an ephemeral burning event and not a formal hearth.

In the third layer excavated in the area below the bench, a lens of semi compact grayish brown very fine sand was encountered that contained a high concentration of ash and carbon. Animal coprolites, botanicals, and three ceramic sherds that stylistically seem to be Chimú were recovered from this lens. The soil may be what was left from another ephemeral burning event, or it could be related to the burning event described above, although it was located at the northeastern edge of the excavation unit.

Toward the western edge of the excavation unit below the bench was a more compact deposition of very fine sand that had two easily distinguished soil colors: grayish browns and light olive brown. It is likely that the parts that were grayish brown
were due to the eroded bedrock that lay below. This excavation unit has far less depth than Block 1A. This layer had very little in it, but did have primarily botanical remains. On the very western edge of this layer was a concentration of branches and bush stems that extended below the wall that delimited the excavation, indicating the wall was built after this layer was laid down. A radiocarbon sample was taken and processed from this concentration. The results of this are discussed in chapter 8. At the bottom of this layer a large rock with abundant botanical remains was found in a depression in the bedrock.

There was a small intrusion identified in this layer in the northeast corner of the excavation unit, as well as another depression in the bedrock located along the northern edge of the excavation unit. The intrusion was a light olive brown find sand with a very loose matrix and contained abundant botanical remains, including maize cobs. The intrusion was not very deep, extending down only about 4 cm. The depression in the bedrock contained very loose sediment with lots of botanical remains. The soil, a light yellowish brown fine sand matrix, contained maize cobs, leaves, cotton, grass, and a variety of seeds, but little else. The deposit had a depth of approximately 13 cm.
The excavation of the bench was more complicated than in Block 1A. Unlike the bench in Block 1A, the layers of fill used to construct it, as well as the underlying previous architecture, was more complex (figure 7.24). A layer of fill consisting of grayish brown very fine sand mixed with trash covered the entire smaller bench that had been revealed with the removal of the surface layer. The layer was not very compact, and was dense with botanical remains and small mud *terrones* (clods of earth). The underlying layer was very similar, only more extensive, covering a large section of the outer bench. This layer, fine pale brown sand, was slightly compacted and contained fewer botanical remains, but *terrones* as well. It is unclear what these two layers are, but they are best interpreted as uneven fill layers used in the covering up of previous architecture. As these layers were removed the smaller bench was more visible. The bench, which has a plastered surface, was demolished at its base. We detected part of the

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*Figure 7.24 East profile of Block 1B. Lots are indicated. Hatched area at bottom is bedrock.*

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7 Again, the Spanish term *terrones* is much easier to use than ‘clods of earth’, and I opt to use it rather than the English phrase.
reboque, which indicated it was stepped, but the lower part of it no longer existed. What was there was removed and filled in with layers of trash to build up the outer bench.

Under these layers of fill we encountered a floor-like compacted area in the western edge of the bench area. This floor, consisting of compact light olive brown medium sand, had very little cultural material associated with it. In the eastern half of the large bench we uncovered a compacted area with an elongated depression (almost like a small ‘canal’) associated with an alignment of medium-size rocks. Along the northern edge of this compacted area was a layer of fill consisting of loose brown fine sand. The compacted ‘canal’ consisted of light brownish gray very fine sand with very little cultural material found in association with it.

In the western half of the large bench area there was a layer of fill that differed from the eastern half because of the high presence of medium to large-size rocks in it. It is possible that these rocks came from the collapse of part of the eastern wall that delimits the unit and the room in which the excavation unit is located. The layer consisted of light grayish brown fine sand. Of note are some ceramic sherds recovered that represent both ‘late’ and ‘early’ forms (Cayash and incised circles).

Below the ‘canal’ compacted layer was a layer of light brownish gray very fine sand with trash mixed in. There were a lot of botanical remains from this layer, which extended along only a portion of the smaller bench. Below this layer was a more extensive fill layer consisting of brown fine sand.

Between these layers of fill and the bedrock is a layer of light olive brown fine sand that retained fragments of a poorly preserved floor or compact surface on it. There is less trash associated with the layer than the upper fill layers. The trash excavated
contained larval casings associated with coprolites, suggesting that this layer may not be fill, but a primary deposit. This

Figure 7.25 Final plan view of Block 1B. Important features are indicated.
last layer could be an occupation or use surface. Given its location on the bedrock, it is possible that this is associated with the initial use of this space, the earlier occupation.

Block 1B excavations are difficult to interpret. While generally there is evidence of earlier architecture that was dismantled and covered up by later construction (not necessarily done at the same time), it is unclear what the function was of some of this architecture, such as the “canal”. The fill layers associated with the larger, outer bench, and those that may have been linked the construction of the earlier bench, are not easily distinguishable. The plastered bench is different than the rock and mortar bench uncovered in Block 1A excavations, although there were *reboque* remnants that suggested this type of plastered bench may have also been a part of the room architecture (figure 7.25).

**Block 1C**

Block 1C was chosen to excavate because it appeared to be a very different space than the other rooms within this structure. The space, a large “patio” area, demonstrated evidence of at least three possible benches visible on the surface along three of the walls. While there were two large looter’s pits along the western half of the patio, the eastern half was relatively undisturbed. We quartered the patio so that one quadrant of it could be excavated. The excavation block, measuring approximately 4 x 6 meters, was located at the southeast corner of the room, allowing us to sample the space and uncover sections of two benches as well as part of an elevated area that ran along the middle of the patio. The surface was covered with rubble, likely from the collapse of some of the walls.

The surface layer consisted of a wind-blown deposit of loose light yellowish brown fine sand, similar to the surfaces of the other two blocks (1A and 1B). The surface
contained a number of artifacts and objects that indicate it was a mixed deposit, which is expected from a surface layer. As with the other blocks, the unit was divided using the major bench (in this case, the one running north-south) to separate two distinct loci: the bench along the eastern wall, and the area below the bench. However, there are links between the underlying architecture in the two areas that make it difficult to describe them separately (as I did above). The surface layer that continued on the bench was a mixture of wind-blown deposit and rubble. There was very little cultural material in this layer, although a mixture of diagnostic ceramic fragments was encountered (Chancay, Cayash, and ‘early’). The lower parts of this surface layer were more compact, probably because of the presence of large, heavy rocks that fell from the wall. In addition to these large rocks, we encountered terrones, adobe and adobe fragments, as well as plaster fragments.

This rubble lay on top of a yellow plastered bench that was partially destroyed. We uncovered remnants of a step extending up and eastward toward the now visible east wall, which was clearly constructed on top of the plastered, destroyed surface that extended into an adjacent “hallway” between this patio and the room in which Block 1A was excavated. The step was built using adobes stacked on top of each other, then plastered together with mud, with a final treatment of yellow colored plaster. It has been dismantled, and a layer of light yellowish brown fine sandy soil with adobe rubble pieces lay on top of it.
Figure 7.26 Plan view of Block 1C showing major features.

The plastered bench was also dismantled where it extended down, probably via another step. A fragmented yellow plaster floor with remnants of a *reboque* was excavated below the later bench. This step was removed, and a retaining wall of large stones was created in the space where the step was removed (figure 7.26). Atop what was left of the plaster bench we found a thin lens of compacted sandy soil with abundant *lúcuma* seed fragments scattered on it. At the southeast corner of the bench this fill layer had a higher concentration of botanical material as well. In the middle area of the bench
we encountered a textile fragment, as well as large sherds from a large ceramic vessel, encrusted in the interface layer just above the plastered floor.

In this fill layer above the bench there were a couple of concentrations of trash and ash deposits. In the northeast corner of the bench there was a grayish brown deposit of medium grain sand with abundant botanical remains, such as maize, *lúcuma*, and cotton. Near this concentration slightly further down in the fill layer was a smaller ash deposit, consisting of light brownish gray fine sand with ash and charcoal, but with little other materials in it. The fill layer also extended westward, ‘spilling’ over the bench into the area below. Below this layer we encountered a break in the plaster floor. It is possible that there was a *quincha* (wattle and daub) wall embedded in this break because we found remains of cane embedded in compacted mud. This break was filled with loose light olive brown fine sand that also spilled over into the lower part of the excavation unit below the bench. There was also a grayish plaster floor covering the yellow plaster bench below that extended north of this break and appeared to be associated with the cane.

A large circular intrusion was found in the bench at its southeast end, near the southeast corner of the excavation unit. The intrusion, measuring 1 m in diameter, appeared to be partially capped by a semi-compact layer of light yellowish brown fine sand that contained rubble (for example, adobe fragments and pieces of yellow plaster). The upper part of this deposit extended down 11 cm into the bench, and contained abundant botanical remains as well as fish bone, some beads, and rope fragments. A small lens of dark grayish brown fine sand with ash, charcoal, and large ceramic sherds was excavated along the southern arc of the intrusion, revealing what appeared to be the top of an underlying stone wall extending along the southern edge of the excavation unit.
Below this ashy lens we excavated more fill that extended down 21 cm to the bedrock. The fill, a light yellowish brown fine sand, had abundant botanical remains in its first 9 cm, including *lúcuma*, maize, cotton, and beans. The final 12 cm had more angular rock in it. The bedrock below had a compact layer of mud on it, something encountered in the other block excavations in this structure (see above).

Along the southern limit of the excavation unit we identified another possible bench, crudely made with large stones and filled in with trash. This bench was constructed using the same layer of fill, which consisted of light olive brown very fine sand with abundant botanical remains, ceramic sherds, lithics, shell, and some bone. The fill extended down approximately 38 cm, and was delimited on its north side by large stones that served to contain the fill. Inside this fill was a ceramic jar offering, placed roughly in the middle of the bench.

The vessel was broken and contained botanical remains, ash, and charcoal. Maize, *lúcuma*, and bean were readily identifiable among the remains. The vessel did not have a separate matrix, suggesting it was placed within the fill and was not set into an intrusive pit dug into the fill. Another stone and mortar wall, aligned slightly differently, was found underneath the southern wall of the excavation unit.

Along the northern edge of the excavation unit we identified another possible bench. This area appeared to be more disturbed by remodeling, making the construction sequence less clear.

In the area below the plaster remodeled bench, and delimited along its southern and northern ends by the other lower benches, there was a variety of depositional elements. In roughly the middle of this area was a dark olive brown very fine sand
deposit, irregularly shaped, that contained ash and some charcoal. There is no hearth visible, nor is any of the soil compact. But the deposit extended down 10-18 cm, and was very loose, with some burned botanical remains and burned adobe pieces. The areas surrounding this burned area just described consisted of light olive brown very fine sand. A small section along the western profile wall was disturbed, and probably represented a redeposition of trash moved around by looters.

Below these deposits sections of yellow plastered floor began to appear. The floor was broken and not well preserved in most areas. Near the conjuncture of the southern bench with the main plaster bench a section of floor with reboque was uncovered. This indicated that the yellow plastered floor and the yellow plaster bench above were part of the same construction that was destroyed or dismantled. Some sections of floor near showed heat alteration, and were black or reddish in color, suggesting the floor had been exposed to fire.

An unusual concentration of adobes was found near the southwestern corner of the excavation unit. To better define it the unit was extended out a meter at this corner (it was not extended further because of the presence of a looter’s pit nearby). The adobes formed an L-shaped configuration. Along the eastern edge of this accumulation of adobes there was a reboque attached to sections of a grayish plaster floor. While we were unable to determine what this adobe construction was, it was connected to the yellow plaster bench and floor. Along the southern edge of this partially square adobe construction we identified a deposit between the adobes and the stone containing wall that created the southern bench. Removal of the stone wall showed that this deposit extended below it, but was distinct from the fill located on the opposite side of it. This deposit, consisting of
light brownish gray fine sand, extended east to the eastern bench in an area of the broken plaster floor.

The amplified excavation area was quite varied for a 1 x 1 m area. Beyond the area of adobe concentration, in the northwest corner of the extended unit, was a lens of loose burned earth, consisting of dark grayish brown fine sand. After the removal of most of the adobes there was a light olive brown fine sand layer with very few inclusions. It also became evident that looting had caused mixing in this area of the excavation. A small depression filled with windblown deposited sand, modern cane ash, pineapple remains, as well as what appeared to be dispersed remains from a possible looted burial (possibly the nearby looter’s hole), suggested at least the upper levels of this area were not good contexts.

Lower levels of this area had greater amounts of botanical material, but consisted of the same soil matrix. Below this layer we encountered a semi-compact, light olive brown fine sandy layer that appeared to be a layer of fill located on top of a compacted use-floor. In this layer we excavated a concentration of botanical material, containing lúcuma, pacae, and ciruela de fraile (friar’s plum) leaves that had been pressed into the floor below. This concentration, consisting of olive brown fine sand, also contained other trash such as charcoal, shell, ceramic sherds, and coprolites, but in small amounts. The use-floor, a very compact grayish brown fine sandy deposit, had small shell and ceramic sherd inclusions in addition to the leaf imprints from the concentration of botanical material. Intrusive into this floor, as well as the subsequent two layers, on the interior of the alignment of adobes along the western side of the construction, was a long pit that
extended 9-13 cm down to bedrock. The intrusion was filled with a loose, light olive brown fine sand deposit with very little material in it.

Below the use-floor we revealed a fill layer as well as an unusual deposit. This deposit was a small (30 x 40 cm), semi-circular lens of light gray ash with burned shell remains, charcoal fragments, and small burned rocks in it. The burning of this was done in situ, since the ground below it was a reddish brown color. The fill surrounding this small deposit was semi compact, consisting of light olive brown fine sand with mud and plaster fragments in it. Within this layer was a small lens of grayish brown fine sand, slightly more compact than the rest of the fill layer. This layer sits partially on the bedrock, which is irregular. There were two areas of this layer that extended down into small depressions in the bedrock. Another layer of fill was found below parts of the previous layer and extending down into the bedrock. This layer consisted of olive brown fine sand with abundant rock, including what appeared to be an alignment of rock forming a small low ‘wall’ to contain trash. This ‘wall’ may have been used for leveling out the surface of the bedrock for subsequent construction.

We did not continue excavating along the northern edge of the excavation unit where the other possible bench was located, nor did we dismantle part of the plaster bench. This decision was made in part because of time constraints, but also because the presence of bedrock in the unit suggested there was not much greater depth to the construction. The plastered architecture appears to be the earliest construction in this structure.
Summary of block excavations in hilltop structure

Excavations in blocks 1A, 1B, and 1C indicate that there was a previous structure below the one visible today on the surface. This structure may have been a step platform structure, built directly on the bedrock of the hill, which was irregular. The builders leveled out the bedrock using mud as a first layer. Because of the destruction of this previous architecture, and subsequent remodeling that involved covering the previous structure, the fill layers that we excavated were associated with the later construction. The method in which the initial plaster step platform was built remains unknown. However the plastered floors and benches clearly suggest that care and specialized knowledge was used in the initial construction.

The later construction was aimed at covering over the earlier plaster construction. The methods employed in the reconstruction were very different from the previous techniques, and consisted of using roughly cut stone, in some cases reused, to create walls to contain trash which was used as construction fill. This trash appears to be a mixture of early and later refuse given the mixture of temporally distinct ceramic styles seen in the fill layers.

7.2.2 Excavations on terraces: Block 2

Block 2 (Unit 6)

Block 2 was located on the southern side of the Sector A hill, in subsector A1 in a narrow wash (figure 7.27). There is a series of terraces extending from the bottom of the wash nearly all the way up to the first defensive wall. This series of stone terracing creates large platforms in some areas, on top of which rooms or divisions are made with stone walls. One such platform, measuring approximately 4 x 7 m, was selected for excavation. The surface of the terrace was not associated with a lot of refuse visible on
the surface. Given the location of these terraces along an accessible route up the southern face of the ridge, it was important to determine what kind of activities were taking place here.

![Figure 7.27 Location of Block 2, subsector A1.](image)

We originally intended to excavate two quadrants of the terrace, but upon excavating the first quadrant we determined it would be unnecessary to get a bigger sample from this terrace structure. The first quadrant, Block 2A, was the only one excavated. It measured approximately 2 x 2.5 meters. Wall fall from the next terrace above had to be removed, as well as rubble from a collapsed wall along the eastern side of the unit. It appeared that the large cut stones that formed the face of the eastern wall fell, exposing fill that consisted primarily of small stones and *ripio* (degraded rock rubble) with abundant ceramic and other trash remains. The surface layer consisted of an olive fine sand deposit with a lot of gravel in it (figure 7.28). The deposit does not appear
to be a windblown deposit, and the presence of gravel suggests water or rain may have washed down through this area.

Figure 7.28 West profile of Block 2. A sterile stratum was not reached in this excavation.

Below the surface layer we encountered a plaster floor, made of compact light olive brown very fine sand that presented a *reboque* attaching it to the northern terrace wall. Near the north end of the excavation was a small pit, measuring 20 cm in diameter, and which extended down to 35-39 cm below the floor surface. The pit was ovoid in shape, but with a clearly defined edge, and filled with a light olive brown very fine sand containing abundant small rocks but little cultural material (Figure 7.29a and b).
Below this layer we decided to diminish the dimensions of the unit to 1 x 1 m due to the unstable nature of the rubble fill from the wall along the eastern side of the unit. Excavating right under it would have created more instability, and inhibited our ability to
get a good profile along this side. A layer of construction fill was excavated below this floor, with a depth that varied from 25-31 cm. The layer was light olive brown very fine sand, becoming a grayish brown color toward the bottom of the layer. There was little botanical material in the layer, but abundant ceramic sherds, many of which were rims from neckless ollas. Panpipe fragments were also found in this layer.

Below this layer of construction fill lie another floor that was deteriorated, and appeared to be present only in the southern end of the excavation unit. The compacted light olive brown fine sand had some inclusions in it, but very little cultural material associated with it. In the northern end of the excavation unit no floor was detected, but the consistency of the soil was different. It consisted of brown fine sand with areas of reddish-orange dirt, as if burning had taken place here. Below this second floor we excavated a thick layer of fill, consisting of light olive brown/brown fine sand mixed with abundant small and medium sized rocks, and very little cultural material. Because of the presence along the northern end of the unit of a massive boulder, we further diminished the area of excavation to 1 x 1 m, which we took down in the southern half of the excavation. The goal was to detect occupation below the fill layer, or to arrive at bedrock. We achieved neither, and we stopped excavating the fill layer, which extended down at least 144 cm. The profile walls also became unstable and it was prudent to halt excavations.

Block 2 revealed little information about what activities may have taken place on the terrace. The pit, which could be tentatively identified as a post hole, was the only post hole found in all excavations at Acaray. Time constraints did not permit the opening up of the adjacent quadrant to detect another post hole. There were no indications that had
there been a post that it was removed. But the possibility of a roofed structure cannot be ruled out. The terrace itself, however, would appear to have been built at once, and not incrementally. The nearly meter and a half of fill below the first detectable floor extended down further. There may be two episodes of reconstruction of the terrace, but radiocarbon dating allows us to assign the construction to the Early Horizon (see Chapter 8 for further discussion).

7.2.3 Excavations in defensive wall structures: Block 3

Block 3 (Unit 7)

Block 3 was located in Sector B, along the interior of the lowest defensive wall on the southern side of subsector B2 (figure 7.30). Near the southern entrance in the lower defensive wall of Sector B there begins a series of walls that abut the defensive wall, creating several small rooms that are delimited by the defensive wall on one side, and the hillside on the other. These walls are made of medium-size cut stone, and appear to have not mortar. Rather, they have the appearance of pirca, which is a simple piled stone wall considered to be expedient. This is in contrast to the interior face of the defensive wall, which is made of larger cut stone fit together more carefully, with mortar visible between the stones and on parts of the wall surface. The last of these two rooms located along the interior of the wall were selected for excavation because they had less surface disturbance. Additionally, there was not a clear visible wall separating the two rooms, but rather the two had an uneven surface, which indicate the possibility of underlying architecture in one room, and suggested the two rooms might be linked architecturally.
The two rooms were divided along the elevated surface where we believed they were delineated by an underlying wall. Together they measured approximately 6.2 x 2.6 m, and the surface layer was excavated across the entire area. This layer consisted of grayish brown very fine sand that was a windblown deposit. There was clear mixing between archaeological and modern material. We recovered plain ceramic sherds and part of a lithic point, as well as two copper bullets. This layer varied in depth from 13 to 21 cm. Once this layer was excavated, we began to treat the two blocks separately, although some of the surface layers are the same in both units.

**Block 3A**

Block 3A measured approximately 2.4 x 1.2 m and was the westernmost located block. The first layer below the surface layer consisted of light olive brown/brown fine sand, and contained a variety of trash and appeared to be a secondary deposition. A
variety of plant remains, shell, ceramic sherds, textile fragments, flakes and other lithics, coprolites, feathers, and some chucks of burned dirt were all recovered from this layer.
The layer varied in depth from 1-15 cm, but was deepest along the southern half of the unit. There was also greater density of shell along the shallower end of the layer.

The following layer consisted of another layer of trash in a light olive brown fine sandy matrix. There were abundant cultural remains in this layer, which did not extend over the entire unit, but was confined to the northern half of the unit abutting the exposed bedrock from the hillslope. This layer, ranging from 4-16 cm deep, contained abundant and varied plant remains, including maize, lúcuma, pacae, cotton, beans, and coca seeds, as well as shell, textile, charcoal, lithics, coprolites, feathers, and a special find of a few rocks wrapped in fiber cord. There was a small area of ash, about 30 x 70 cm, in this layer located up against the wall that delimits the unit on its western side. The ash deposit was not an intrusion, but a small lens of dark grayish brown very fine sand with very little trash in it and a maximum depth of 5 cm. No compacted or heat-exposed dirt or rock was associated it, suggesting it was not a hearth. However, a one time burning event might account for the deposit.

Along the southern end of the unit near the defensive wall there appeared an alignment of medium-size stones that seemed to delimit an area. The second layer of trash over this area, 6-13 cm deep, was an olive brown fine sand deposit that was only slightly different from the deposit over the northern half of the unit. In addition to a great variety and abundance of botanical remains, fish bones, some of them burned, were recovered, as well as coprolites, rope fragments, ceramic sherds, part of a fishing net, and what might be a piece of deer antler.
A different deposition of trash was excavated within the limits of the rock alignment in the southern end of the unit. This thin layer, roughly 1-5 cm deep, consisted of dark grayish brown fine sand. This deposit, along with the layer above it, has a lot of salt in the soil. Although it was not a large deposit, there was a variety of remains such as burned fish bone, shell, and plant remains consisting of maní (peanut), lúcuma, pacae, cotton, maize, and palta (avocado).

Across the unit we identified a use-floor, poorly preserved along the northern end of the unit that extends below the alignment of stones to the interior of the defensive wall. This semi-compact surface, roughly 1-2 cm thick, consisted of light olive brown fine sand that may be the top compacted layer of trash deposits located below. The fill below this surface was divided along the east-west axis of the unit, roughly in the middle, by a stone and mortar low wall. Along the southern side of this wall the fill layer consisted of light olive brown very fine sand 17-23 cm thick with abundant trash remains. On the northern side of the wall the fill was grayish brown fine sand with abundant trash remains as well and a very high concentration of botanical remains, such as maize, coca, ají, cotton, friar’s plum, and squash. There was a burned area on top of this fill in the northwestern corner of the unit. The burned area was a mixture of brown and gray burned soil, mixed with ash and charcoal, as well as burned trash remains. There were few remains, but they consisted of some plants, shell, and fish remains.

The fill layers at this point stop along the north side of the low stone wall, which appears to serve to contain fill associated with the construction of the defensive wall. The wall is made of large stones and mortar, and contains one broken handstone that is reused as a wall stone. The wall is attached to a compacted mud use-floor surface by a reboque.
This compacted floor surface has a 10 cm thick layer of fill below it that sits directly above bedrock. The fill, a light yellowish brown fine sand, had very little material in it.

On the other side of the low stone wall there is an accumulation of plant remains such as branches, some of them being entire maize plant stalks. There is very little earth mixed in, which was fine brown sand. There are hardly any cultural remains in this layer, which varies from 2-16 cm deep, but some flakes and small bones and shells do appear. Given what can be seen in destroyed sections of defensive wall on the exterior side, this layer represents a constructive layer of plant material that was used to build up the wall. It is on top of this layer of plants that the inner face of the defensive wall is built. The layer of construction fill below this one, which extends below the inner face of the defensive wall, is also consistent with what was viewed on the external face of walls that exposed the inner fill: a 20-24 cm thick layer of rocky fill with very little fine sand, which was light yellowish brown and very loose. Abundant botanical remains were recovered from this layer, as well as some bone, flakes and river cobbles, sherds, and two panpipe fragments.

Below this layer of fill lay another, consisting of light olive brown fine sand, and extending 27-37 cm deep, and separated form the above level by a thin layer of plant branches. This layer also passes below the inner face of the defensive wall, and sits directly on top of bedrock, which slopes down toward the defensive wall. Some cultural materials were collected, such as other plant remains, flakes and river cobbles, ceramic sherds, coprolites, bone and shell, but there was also a greater density of natural rock inclusions.
Block 3A appears to have layers of trash that were deliberately deposited in this ‘room’. The retention wall, informal burning events, and leveling out of the surface suggest that this room was used for some activity, and then it was filled in with trash. There are few suggestions of an early underlying occupation as seen in the excavations of Block 1.

**Block 3B**

Block 3B measured roughly 3.2 x 2.6 m, but had protruding sections of the bedrock that made the area between the down-sloped bedrock and the interior of the defensive wall less wide in some areas. Below the surface layer we encountered a similar layer to that found in the adjacent block. This brown/light olive brown fine sandy layer measured roughly 5-17 cm deep and covered the entire unit. A great variety of shell was recovered, as well as abundant botanical remains of a variety of plants, some bone and textiles, as well as ceramic sherds and part of a deer crania with a partial antler attached. The easternmost half of the unit contained more gravel in it, suggesting there may have been some waterborne deposition or degradation of the hillslope from above.

The next layer consisted of an olive brown fine sand deposit with a depth of 3-11 cm. This layer had abundant trash, including a variety of plant remains (*lúcuma*, maize, and cotton), small mammal and fish bones, coprolites, a variety of shell, with some flakes and textiles fragments. Two beads and two panpipe fragments were also recovered from this level.

Below this layer was the top of a low stone retaining wall, similar to the one found in Block 3A, was uncovered. Deposited partially over this wall was a layer of dense trash mixed with fine brown sand. This trash layer contained abundant botanical
remains (maize, *paca*, cotton, and *caña brava*), abundant shell (including whole bivalves), as well as a variety of other special artifacts (beads, panpipe fragments, coprolites, and rope fragments), and extended down on both sides of the small retaining wall to a varied depth of 10-34 cm. This trash also presented larval casings, suggesting it was a primary trash deposit. Along the northern side of the retaining wall near its juncture with the eastern wall of the unit was an accumulation of more than 50 slingstones of simple river cobbles. This deposit was directly above the bedrock in the northern part of the unit.

The wall seemed to delimit a layer of plant remains with some light olive brown fine sand, and was u-shaped rather than being only a line of stone. This layer was about 10-15 cm deep and was only present in the area south of the wall. It was mixed with only a little light olive brown fine sand with some plain ceramic sherds and some shell. The plant remains consisted of maize, cotton, cane, *paca*, *pallar* (bean), and other plants. A cane *quena* (flute) was also recovered from this area. This deposit was a layer of construction fill used to elevate the defensive wall, but which did not extend below the internal face of the wall.

The last layer of this unit was in the southern half of the unit, and consisted of a 15-61 cm of light olive brown fine sand fill that contained abundant small rocks and plant remains. There was a notable concentration of maize stalks in the center of this deposit. This layer was immediately above bedrock, and extended underneath the internal face of the defensive wall.
**Summary of Block 3 excavations**

Blocks 3A and 3B provide additional data on construction techniques of the defensive walls. They also indicate that a range of activities occurred in these two enclosures. Unlike Block 3A, Block 3B revealed no evidence of burning or other activities. There were no compacted surfaces or use-floors. The accumulation of slingstones in the unit suggests that this space was indeed intended for defense, as was hypothesized. The copper bullets recovered from the surface layer are obviously historic, but they do suggest the possibility that Acaray was the site of much later conflict.

**Summary**

These descriptions of the excavations call attention to two things: many deposits in the site are shallow, and other deposits, particularly construction fill, are mixed. Thus it is important here to recognize that the undisturbed stratigraphic sequences sought at the outset of the project were not encountered in most cases, at least for the Early Horizon occupation. This presents challenges to sorting out assemblages and activities linked to the two occupations.

The descriptions also highlight what appears to be a common type of deposit in the site, those of a more commemorative nature. A number of intrusions, the interment of special items, and fill composed of abundant remains not typically associated with “normal” daily trash (panpipe fragments, beads, offerings, coca leaves, human remains) all call attention to activities aimed at disposal that signal a relationship to ceremony. There are also some indications of destruction of architecture that may be related war, or to desecration. Because of the ephemeral nature of use of the site apparent from excavations, it is reasonable to suggest that groups periodically came to Acaray from
elsewhere. They engaged in destructive, commemorative, and reconstructive activities during these times.

In the next chapter I elaborate on the types of deposits described here, and how they may be related to the creation and maintenance of new social relationships. I discuss the results of radiocarbon dating, and attempt to link dated contexts to other variables that might help determine the temporality of contexts not directly dated.
Chapter 8 Results of radiocarbon dating

As discussed in Chapter 3 we do not yet have a good chronology for the region of the norte chico. One of the primary goals of the present project was to construct a chronological sequence using material remains, primarily ceramics, from deep stratified deposits. Such deposits were not found. However, samples for radiocarbon dating were collected from secure contexts. Given limited funds only ten samples could be processed. Dates come from four test units, four block excavations, and two of the defensive walls.

Additionally, samples of mortar were taken from sections of the defensive walls, as well as from an adobe from a bastion, for dating using optically stimulated luminescence (OSL). These analyses are being carried out by Jack Johnson, PhD Candidate at the University of Washington, and are included as an appendix (Appendix G). Johnson also secured organic material from the mortar taken for the OSL sample of one defensive wall. A radiocarbon assay from the sample dates a section of muralla 1 to the Early Horizon. With his permission, I included the date in this chapter.

The results of dating allow us to better define Acaray’s late occupation during the Late Intermediate Period, as well as confirm an occupation over a thousand five hundred years earlier. Based on these results I have assigned other contexts that have not been directly dated to a general Early Horizon or Late Intermediate Period category. First I discuss the ten dated contexts.

8.1 Radiocarbon Dating

Ten conventional radiocarbon samples (Table 8.1) were processed at the Illinois State Geological Survey (ISGS). With the exception of one sample that was charred all samples consisted of unburned remains of annual plants. An additional sample was run
by at the National Ocean Sciences AMS facility. All dates were calibrated using CALIB 5.0 (McCormac, et al. 2004; Stuiver and Reimer 1993). Three of these dates confirmed there was an early component to Acaray that placed its initial construction in the Early Horizon (ca. 900-200 B.C.). Doubts as to whether Acaray was a Late Intermediate Period site were brought into question during excavations, which produced an abundance of Early Horizon ceramics. This led to the expectation that occupation would be primarily Early Horizon. Two of the ten conventional radiocarbon samples dated to this period, as did the AMS date. The reuse of earlier deposits for wall construction and the extensive remodeling of the site suggest that few primary undisturbed Early Horizon contexts remain, or that excavations did not detect them. Eight radiocarbon assays date to the Late Intermediate Period, one of which has a range that may extend into the Late Horizon (ca. A.D. 1476-1532) and/or Colonial Period (beyond A.D. 1532). This is problematic for assessing dates for this short period of time (a little over one hundred years) using a coarse method such as radiocarbon dating. During this time frame we know there are major changes that impact the Andes, namely the Inca and subsequent Spanish conquests. The error range for radiocarbon dating may not be fine enough to determine if events occurred in one context or the other. AMS dates for all future samples may help minimize the error range.

8.1.1 Early Horizon contexts: Block 2, TU7, and muralla 1

The date from the lowest wall of Sector A (muralla 1) is the latest of the Early Horizon dates (2300 ± 30 B.P.). This wall was constructed sometime between 393-204 Cal B.C. A date of 751-638 Cal B.C. (2390 ± 70 B.P.) came from a sample consisting of carbonized plant stems that dates a small area of burning in the middle of TU7
immediately above bedrock. This deposit likely represents a one-time burning event on this small terrace.
<table>
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<th>δ13C (‰)</th>
<th>Context</th>
<th>1-sigma</th>
<th>2-sigma</th>
<th>Material dated</th>
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<td>480 ±70</td>
<td>-25.1</td>
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<td>1410 AD:1501 AD (0.88)</td>
<td>1396 AD:1628 AD (1.0)</td>
<td>Plant (<em>Pragmites sp./Equisetum sp.</em>)</td>
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<td>ISGS  5984</td>
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<td>-9.9</td>
<td>Construction layer from platform, TU8 (Sector B2)</td>
<td>1307 AD:1361 AD (0.60)</td>
<td>1286 AD:1441 AD (1.0)</td>
<td>Maize stems (<em>Zea mayz</em>)</td>
</tr>
<tr>
<td>ISGS  5966</td>
<td>670±70</td>
<td>-26.5</td>
<td>Construction layer from Block 3A (Sector B2)</td>
<td>1300 AD:1368 AD (0.77)</td>
<td>1270 AD:1432 AD (1.0)</td>
<td>Plant pod (<em>Inga sp.</em>)</td>
</tr>
<tr>
<td>ISGS  5982</td>
<td>730±70</td>
<td>-26.1</td>
<td>Floor surface in Block 3B (Sector B2)</td>
<td>1271 AD:1324 AD (0.56)</td>
<td>1219 AD:1402 AD (1.0)</td>
<td>Bush/shrub (no ID)</td>
</tr>
<tr>
<td>ISGS  5974</td>
<td>790±70</td>
<td>-24.5</td>
<td>Construction layer from <em>muralla</em> 3 (B1)</td>
<td>1214 AD:1304 AD (0.91)</td>
<td>1159 AD:1329 AD (0.84)</td>
<td>Branches, bush/shrub (no ID)</td>
</tr>
<tr>
<td>ISGS  5976</td>
<td>810±70</td>
<td>-23.6</td>
<td>Intrusion in construction layer, TU4 (Sector B4)</td>
<td>1190 AD:1196 AD (0.04)</td>
<td>1052 AD:1076 AD (0.02)</td>
<td>Maize (<em>Zea mayz</em>)</td>
</tr>
<tr>
<td>ISGS  5964</td>
<td>850±70</td>
<td>-18.6</td>
<td>Layer of shrubs below wall, Block 1B (Sector A3)</td>
<td>1164 AD:1167 AD (0.01)</td>
<td>1044 AD:1089 AD (0.08)</td>
<td>Bush/shrub (no ID)</td>
</tr>
</tbody>
</table>

Table 8.1 (continued on next page)
| ISGS 5967 | 850±70 | -23.8 | Fibers from layer of construction fill, TU5 (Sector B3) | 1164 AD:1167 AD (0.01) 1176 AD:1280 AD (0.99) | 1044 AD:1089 AD (0.08) 1104 AD:1304 AD (0.91) 1362 AD:1377 AD (0.01) | Plant fibers (*Gramineae*) |
| ISGS 5975 | 2390±70 | -24.5 | Burned plant remains, TU7 (Sector B2) | 537 BC:529 BC (0.02) 524 BC:355 BC (0.80) 289 BC:232 BC (0.18) | 751 BC:686 BC (0.08) 667 BC:638 BC (0.03) 617 BC:615 BC (0.001) 594 BC:203 BC (0.89) | Plant carbon (no ID) |
| ISGS 5983 | 2640±90 | -23.9 | Fibers from construction fill, Block 2 (Sector A1) | 834 BC:728 BC (0.46) 693 BC:658 BC (0.14) 654 BC:542 BC (0.40) | 902 BC:479 BC (0.94) 470 BC:414 BC (0.06) | Plant (*Scirpus sp./Lagenaria*) |

Table 8.1 Ten radiocarbon assays from Acaray. Dates were processed at the Illinois State Geological Survey (ISGS).
An earlier date, 902-414 Cal B.C. (2640 ± 90 B.P.) is from the profile wall of Block 2, from a deep layer of construction fill used to build up a terrace on top of which an open walled structure was located. This fill was composed of a lot of small rocks and appears to have been deposited at once rather than incrementally, and was sealed off by a floor above.

These dates confirm an Early Horizon use of the site, making it reasonable to assume that the trash encountered with Early Horizon material culture, albeit disturbed, does come from the ridgetop. The earlier date is associated with the construction of a large terrace along the slopes of the ridge, which may be considered subsidiary architecture compared to architecture built on the ridgetop and the defensive walls above. The terrace itself is well made, with a containing wall built using large cut stone, and plaster floors. Given the date for this terrace it is reasonable to suggest that the construction of the Early Horizon configuration of the site began at least this early in time.

8.1.2 Late Intermediate Period contexts
The Late Intermediate Period (ca. A.D. 1000-1476) can be tentatively divided into roughly 150-year segments in order to talk about early, middle, and late periods. Thus, the early Late Intermediate Period corresponds to the 11th through mid-12th centuries (A.D. 1000-1150 A.D.), the middle Late Intermediate Period to the mid-12th and 13th centuries (A.D. 1151-1299), and the late Late Intermediate Period to the 14th through mid-15th centuries (A.D. 1300-1476).

Using the earlier part of the range, three dates might fall in the time frame for the early Late Intermediate Period. The earliest of these dates comes from the major structure
on the summit of Sector A (Block 1B), which yielded a date of 1044-1304 Cal A.D. (850 ± 70 B.P.). This sample was collected from beneath a wall made using an expedient technique within one of the rooms of this structure. Excavations in all three blocks within this structure revealed evidence of the destruction of underlying plaster architecture. While dating the destruction of this earlier architecture has yet to be done, the reconstruction, which consisted of building over and covering this prior architecture, is dated by this sample.

The next two earliest Late Intermediate Period dates fall somewhere between the very end of the early Late Intermediate Period and the middle Late Intermediate Period. TU 5, located on the interior of muralla 4, yielded the same date, 1044-1304 Cal A.D. This sample, from a deposit of construction fill used to build up the terrace delimited by the defensive wall, is associated with the reconstruction of an upper section of muralla 4. TU4, located on the interior of muralla 5, produced a slightly later date of 1052-1324 Cal A.D. (810 ± 70 B.P.). This sample comes from a deposit of botanical material in construction fill associated with the reconstruction of muralla 5.

Four dates fall squarely in the middle Late Intermediate Period, with ranges that may extend into the late Late Intermediate Period. The sample taken from a layer of plant material from the construction fill of muralla 3 yielded a date of 1159-1391 Cal A.D. (790 ± 70 B.P.). The amplification of Sector B by the construction of this additional concentric defensive wall took place at this time.

Dates of 1219-1402 Cal A.D. (730 ± 70 B.P.) and 1270-1432 Cal A.D. (670 ± 70 B.P.) came from excavation Block 3, which exposed two rooms along the interior of muralla 3 that probably restricted access on the interior of the wall. The slightly earlier of
the two dates comes from the surface of a floor delimited by small stones within Block 3A. The later date comes from a layer of construction fill used to build up the interior terrace of muralla 3, and is thus associated with the building of this defensive wall.

A sample from TU8 dates the covering over of previous architecture during the construction of a large platform on the northern side of Sector B. The date, 1286-1441 Cal A.D. (630 ± 70 B.P.), comes from a sample of maize stalks that formed part of a layer of construction fill of the platform. This platform is one of the few structures in the entire complex with abundant adobe building materials. It also has little in the way of defensive architecture. Although it is elevated, rather than providing protection it actually makes one more visible when atop it, making for an easy target. It is plausible that this platform is associated with a less defensive use of the site later in time.

8.1.3 Late Horizon context

The latest date for Acaray comes from muralla 6. Excavations were not carried out in this sector, but given the construction technique of the defensive wall, it was possible to extract a sample from an intact plant layer in the wall fill. The date, 1396-1628 Cal A.D. (480 ± 70 B.P.), seems to correspond to a very different architectural configuration found in Sector C. This sector is characterized by several rectangular room structures with patios and benches, all located in the uppermost sector delimited by this defensive wall. There are also some adobe platform structures on the summit of Sector C. No parapets, bastions, or potential lookouts have been identified for this part of the site. Visibility and slope analyses also suggest there was less concern with defense when this sector was built. Although there are some slingstones encountered at this sector, they are interestingly found in wall fill layers of muralla 6, with only few being found scattered
over the surface. The earliest end of the range for this date falls at the very end of the Late Intermediate Period. It is during this part of the Late Intermediate Period that the Chimú state begins to expand its territory southward, conquering the Casma Valley around 1305 A.D. (Mackey and Klymyshyn 1990). But the date range also overlaps with the Inca conquest of the Chimú and their occupation of the region. Future excavations will determine if this sector represents a third occupation or use of the fort, but this sector certainly seems to have the latest addition of architecture found at the site.

**Discussion: Temporal placement of Acaray**

The new dates from Acaray can be placed with other dates reported for the region, allowing for a discussion of the regional context of the site (Chapter 9). As mentioned in Chapter 3, the dates obtained by Cárdenas (1978) have been called into question. Nevertheless, I include them in the following discussion to be inclusive of all dates reported or published for the region (Figure 8.1). Dates come from those in publications, and additional dates were obtained online from the Andes Radiocarbon Database (Ziólkowski, et al. 1994). Sites, dates, and their publication source are indicated in Table 8.2 below.
Early Horizon Dates

<table>
<thead>
<tr>
<th>Code</th>
<th>Site</th>
<th>Valley</th>
<th>Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUCP-XX11</td>
<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>Gif-2482</td>
<td>Chanquillo</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>PUCP-XX10</td>
<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>PUCP-XX9</td>
<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>all AA samples</td>
<td>Chankillo</td>
<td>Casma</td>
<td>Ghezzi and Ruggles 2007</td>
</tr>
<tr>
<td>PUCP-99</td>
<td>Paraiso I</td>
<td></td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>H-8793</td>
<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>PUCP-68</td>
<td>La Fortaleza (Acaray)</td>
<td>Huaura</td>
<td>Cardenas 1978</td>
</tr>
<tr>
<td>H-11346</td>
<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>L-404A</td>
<td>Chanquillo</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
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<td>H-11494</td>
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<td>H-11560</td>
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</tr>
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<td>Cerro Sechin</td>
<td>Casma</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>ISGS 5975</td>
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<td>Huaura</td>
<td>new date reported here</td>
</tr>
<tr>
<td>GX-1237</td>
<td>Ancón</td>
<td>Chillon</td>
<td>Andean Radiocarbon Database</td>
</tr>
<tr>
<td>PUCP-XX6</td>
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<td>Casma</td>
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</tr>
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<td>Huaura</td>
<td>Cardenas 1978</td>
</tr>
<tr>
<td>ISGS 5983</td>
<td>Acaray</td>
<td>Huaura</td>
<td>new date reported here</td>
</tr>
</tbody>
</table>

Table 8.2 Table of dates with site name, valley, and source of date.

Given the dates suggested for the construction of other fortified sites of the late Early Horizon, ca. 500-200 B.C., after Chavín’s purported collapse (Burger 1995) it is interesting that two of the Early Horizon dates from Acaray predate this period. The date from the mortar in muralla 1, however, fits well with this time frame. The latter date is contemporary with dates reported for the site of Chankillo in the Casma Valley, the only other chronometrically dated fortification from this time period. The significance of fortification in the region during this period is discussed further in Chapter 9. To show that it is reasonable to place Acaray within such a discussion I have plotted these dates with others reported for similar sites such as Chankillo and for other “Chavin” sites, such as Ancón, as well as Early Horizon dates from Cerro Sechin in the Casma Valley.

Acaray’s Early Horizon dates fall at the beginning of that period, prior to the peak and
subsequent decline of the Chavín phenomenon.

Figure 8.2 shows other Early Horizon dates (calendar years), with the two from Acaray indicated with arrows. AA = University of Arizona AMS lab, ISGS = Illinois State Geological Survey, PUCP = Pontificia Universidad Católica de Perú, H = Heidelberg, Germany, L = Lamont-Doherty, USA, Gif = Gif sur Yvette, France, GX = Geochron Laboratories, USA.
For the Late Intermediate Period (ca. A.D. 1000-1476) Pazdur and Krzanowski (1991:127) have suggested that the Chancay culture developed during the time A.D. 958-1451. In Figure 8.3 I have plotted the dates they obtained and used to determine this range, dates within this range reported elsewhere for the area, as well as the new dates reported above from Acaray. Since the dates come from a number of different sites I include their location in the table below (Table 8.3).

<table>
<thead>
<tr>
<th>Late Intermediate Period/Late Horizon Dates</th>
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</thead>
<tbody>
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<td>PUCP-87</td>
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<td>Gd-3396</td>
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<td>Gd-5823</td>
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<td>Gd-6189</td>
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<td>Gd-5824</td>
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Table 8.3 Table shows site, valley, and source of Late Intermediate Period/Late Horizon dates.
Figure 8.3 Plot showing calibrated dates that correspond to "Chancay" times within the bounded box. Gd = Gliwice, Poland, PUCP = Pontificia Universidad Católica de Perú, ISGS = Illinois State Geological Survey, Hv = Hanover, Germany, Tk = University of Tokyo, Japan.
The Late Intermediate Period dates from Acaray are clearly within the range of the purported ‘Chancay culture’. Given that the Late Intermediate Period dates range, at their median values, from A.D. 1100-1300 A.D. we can suggest that Acaray was rebuilt prior to Chimú expansion southward.

It is not unreasonable to assert, then, that the rebuilders and users of Acaray were Chancay people. Krzanowski (1991) and others have asserted that Chancay territory extended into Huaura, and material culture such as ceramics, discussed above, is distributed across this area. The people who lived around and built Acaray used the same black-on-white ceramics as the people who lived in the Chancay valley and other areas where these ceramics are found. And the other styles found at Acaray, for example Cayash (the same as Lauri Impreso), is contemporaneous with Chancay black-on-white wares and probably made and used by the Chancay people at the same time (Krzanowski 1991b:235).

Chimú society is contemporaneous with Chancay. The Chimú are hypothesized to have conquered the Chancay, and indeed this project was aimed at assessing that very question. Chancay ceramics, in particular the black-on-white style, endure through the time of conquest or incorporation into the Chimú Empire (post A.D. 1305). This range suggests there was nothing that caused an abrupt and obvious change in Chancay material culture (ceramics) upon their conquest or incorporation into the empire. Chimú ceramic fragments are not common in the region. They are found in small numbers in the Huaura Valley, and there are some fragments of burnished blackware ceramic sherds from Acaray that are probably Chimú. Given the dates and the lack of a substantial presence of Chimú ceramics and not identifiable Chimú architecture at Acaray it is not likely that an
intrusive Chimú contingent rebuilt Acaray. As has been noted by prior studies, the
presence of Chimú material culture without other direct evidence of control may just
reflect influence as a result of ritual or exchange, and not political control (Parsons and

The latest date for the fort does raise another issue, however. Recall that the range
for this date overlaps with both a possible Chimú expansion into the region, as well as the
Inca occupation of Huaura. Given the relatively rapid timing of these events it may not be
possible to sort them out without more precise calibration of dates. But the different
configuration of Sector C, from which this date comes, might signal a shift toward a more
administrative use of the site. It does not appear that Chimú overseers controlled the area.
Very few Inca ceramics or architecture suggests a weak Inca administrative presence as
well. But, quipus that probably date to Inca times were recovered from the cemetery
below Acaray, suggesting there was administrative control in the valley. The incursion of
two empires in succession into the region undoubtedly is implicated in any shift in site
use at Acaray. We currently lack sufficient data to detail the dimensions of those changes,
but at present any kind of imperial administration would be more consistent with indirect
control.

Summary
This chapter presented radiocarbon dates that situate Acaray within the period of
construction of fortifications that is documented regionally for the Early Horizon (ca.
900-200 B.C.). Two of the Early Horizon dates suggest terraces were being built at
Acaray in the early half of the period. Another date of the construction of a defensive
wall indicates it is contemporary with Early Horizon fortress of Chankillo. For the Late

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Intermediate Period (ca. A.D. 1000-1476), radiocarbon dates confirm that Acaray is contemporaneous with the known range of the Chancay and Chimú societies. Dates for the first phases of reconstruction of Acaray during this period predate the expansion of Chimú into the region, suggesting Chancay people rebuilt the fortress. This is in agreement with the data on architectural layout of the site, presented in Chapter 6, which does not bear the hallmarks of Chimú administration. There may be a subsequent shift in site use at the end of the Late Intermediate Period and in the Late Horizon that is consistent with indirect Chimú or Inca control. The next chapter explores in more detail how Acaray fits into regional phenomena during both the Early Horizon and Late Intermediate Periods.
Chapter 9 Regional Patterns of Defense by Time Period

9.1 Purpose and approach

As discussed in the previous chapter, the present research resulted in the identification of two separate occupations at the fortress of Acaray, spurring the present comparison of regional fortification for these two time periods. Excavations and radiocarbon dates from Acaray identified an Early Horizon (Early Horizon) and Late Intermediate Period occupation. There is presently no known evidence for an intervening occupation. In order to interpret Acaray during these time periods I discuss fortification for the Early Horizon and Late Intermediate Period. Survey data from the north coast treat the theme of Early Horizon warfare, while the Late Intermediate Period is a time period for which conflict is only recently being systematically investigated (Arkush 2005, 2006). In light of survey data for Huaura (Nelson and Ruiz Rubio 2005b) and neighboring valleys, and comparisons to previous studies in valleys further north, I place the fortress of Acaray in a regional sociopolitical context to tie it to broader developments apparent elsewhere along the Peruvian coast.

For the Early Horizon, regional patterns of fortification have been recognized, but it has been noted that no such evidence of fortified hilltop sites for this time period are known for the region of Fortaleza, Pativilca, Supe, or Huaura (T. Pozorski and S. Pozorski 1987:45). That assumption is no longer viable given the research presented in this dissertation, and the possibility that other forts recently identified in the Pativilca and Fortaleza valleys may be early. Thus it is appropriate to discuss Acaray when assessing these larger patterns noted by previous investigators.
Perusal of the published literature and reports on the coastal valleys from Virú in the north to Huaura in the south permits a basic enumeration of number of fortifications per time period. Since data are collected in a variety of ways by different investigators, systematic quantification of fortification attributes is presently impossible to collate and complete from published research. Two problems inhibit comparison of fortified sites in these valleys. First, systematic survey data is not available for all of the valleys. This is not to say that sites have not been reported in all cases, only that some reports are spread out in the literature, focusing on single sites, or are simply incomplete. Second, while some fortifications have been identified in a particular valley, they have not been assigned to a time period for lack of diagnostic features or material culture, and no radiocarbon dates. Without being able to visit all of these sites or adequately assess their chronological placement based on published reports, I have omitted them from the present comparison. This presents a challenge to this comparative study. What is presented here is a first attempt at synthesizing data on fortifications from these 11 coastal valleys, which spans over 300 km of the Peruvian coast.

The table below (Table 9.1) includes the number of known fortifications for the Early Horizon and Late Intermediate Period, and the sources that report the information, for 12 coastal valleys. I have included the Chancay Valley in the table, however due to lack of information I discuss it only briefly in this chapter. The symbol * indicates valleys where reported systematic survey data are currently lacking. The symbol † indicates my determination of the chronological placement of Early Horizon sites based on personal

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8 I do not treat valleys north of Virú because that seems to be the northern extent of the Early Horizon construction of fortifications that I discuss here (see S. Pozorski 1987; Topic and Topic 1982). In addition, with relation to the Late Intermediate Period and the expansion of the Chimú Empire, the expansion south of the Moche Valley heartland of the Chimú is most relevant here. For a discussion of Chimú fortifications in Moche and valleys to the north, see T. Topic (1990).
observations. The symbol ‡ indicates some overlap in the characterization of the Early Horizon and Early Intermediate Period fortresses of the Casma valley per Wilson (1995:197), and an uncertain number due to period assignation between the Middle Horizon and Late Intermediate Period by Wilson (1995:204). The symbol ^ indicates number I have determined based on reading Willey’s (1953) descriptions.

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<thead>
<tr>
<th>Valley</th>
<th>Early Horizon</th>
<th>Late Intermediate</th>
<th>References</th>
</tr>
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<tbody>
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<td>6</td>
<td>4^</td>
<td>Willey 1953</td>
</tr>
<tr>
<td>Santa</td>
<td>21</td>
<td>4</td>
<td>Wilson 1988</td>
</tr>
<tr>
<td>Chao*</td>
<td>Not known</td>
<td>2</td>
<td>Topic 1990; Vogel 2003</td>
</tr>
<tr>
<td>Nepeña</td>
<td>3</td>
<td>2</td>
<td>Daggett 1987; Proulx 1968, 1973, 1985</td>
</tr>
<tr>
<td>Casma</td>
<td>34‡</td>
<td>45‡</td>
<td>Ghezzi 2006; Pozorski and Pozorski 1987; Wilson 1995</td>
</tr>
<tr>
<td>Culebras</td>
<td>2</td>
<td>15</td>
<td>Przadka and Giersz 2003</td>
</tr>
<tr>
<td>Huarmey*</td>
<td>2</td>
<td>Not known</td>
<td>Thompson 1966</td>
</tr>
<tr>
<td>Fortaleza</td>
<td>Not known</td>
<td>2</td>
<td>Horkheimer 1965</td>
</tr>
<tr>
<td>Pativilca</td>
<td>Not known</td>
<td>Not known</td>
<td>Perales 2006</td>
</tr>
<tr>
<td>Supe*</td>
<td>1</td>
<td>Not known</td>
<td>Valkenier 1995</td>
</tr>
<tr>
<td>Huaura</td>
<td>6†</td>
<td>1</td>
<td>Horkheimer 1962, 1965; Nelson and Ruiz 2005; Ruiz and Torero 1978</td>
</tr>
<tr>
<td>Chancay*</td>
<td>Not known</td>
<td>Not known</td>
<td>Horkheimer 1965</td>
</tr>
</tbody>
</table>

Table 9.1 Total number of Early Horizon and Late Intermediate Period forts included in the comparison.

9.2 Early Horizon Fortifications

Early Horizon fortifications are documented for the Virú, Santa, Nepeña, Casma, Culebras, Supe, and Huaura valleys (see Table 9.1). While some valleys have a number of fortifications that pertain to this time period, other valleys have only a few. This is due in part to lack of systematic survey in some valleys, and to the inability to assign some
sites to a time period. Additionally, there are some discrepancies in chronology. This is particularly apparent in Santa, where some of the citadels are assigned to an Early Horizon/Early Intermediate Period period. We also see this in the Moche Valley, where the Early Intermediate Period is defined as beginning at 500 B.C. (Topic and Topic 1978:618), a time which others consider to be Early Horizon. Radiocarbon dates enable better comparisons of sites and inform our understanding of the timing of processes of expansion or human movement and contact. Without radiocarbon dates to resolve the issue of chronology it is difficult to address here, but the discrepancy merits mention nonetheless.

Early Horizon sites, including fortresses, have typically been identified based on architectural style and the appearance of Chavín-style ceramics as well as other diagnostic material artifacts such as ceramic panpipes and polished slate blades. The best descriptions come from published reports for Virú, Nepeña, and Santa. All Early Horizon fortresses known to date are built of cut stone blocks. The walls are constructed using rock and mortar with characteristic large stones and chinking stones in between. For Virú, some Early Horizon forts are referred to as hilltop or ridgetop platforms, but redoubts are also identified, which may be places of refuge (Willey 1953:68-69).

A number of features are identified for the Early Horizon citadels in Santa, such as spoke-walls, ramparts, bastions, and parapets. Some of the citadels he surveyed have a number of concentric walls (Wilson 1988). While Proulx (1985) and Wilson (1988, 1995) make reference to similarities between Early Horizon fortifications identified in the Nepeña and Casma valleys to those reported for Santa, there has been no systematic comparison of site characteristics in either instance. Varying interpretations have been
offered for the function of these sites. Shelia Pozorski (1987), Proulx (1973, 1985), and Wilson (1987, 1988, 1995) see these locales as clear indicators of warfare. More recently Ghezzi (2006) suggests these sites may be fortified temples, recognizing their ritual nature without negating the role of conflict.

Patterns of fortification and characteristics of forts can be discussed based only on our knowledge at present. For Nepeña and Santa, all Early Horizon forts are located in the upper or middle valley, with some being located at the juncture between the two (Proulx 1985:221-222). Daggett (1987) suggested the Early Horizon fortresses may be more indicative of attempts at social cohesion by providing intersite visibility within a valley. Those for Culebras, Supe, and Huaura, however, are all located in the lower valley. A major fort is located in the lower valley in Casma, but the other 34 fortified sites for this valley have not been systematically reported. There are no systematic data currently available for the Chao, Huarmey or Fortaleza valleys, although data from Fortaleza are forthcoming (Manuel Perales, personal communication, 2007).

A number of scholars have discussed the fall of late Initial Period (ca. 1800-900 B.C.) coastal polities with the abandonment and halt in construction of the great U-shaped centers of the central and north coasts (Burger 1995; S. Pozorski and T. Pozorski 1987). Early Horizon fortresses have traditionally been associated with the late Early Horizon when the Chavín sphere is thought to have collapsed, but Burger (1995) has suggested a shift to more defensive settlements for the end of the Initial Period. In the Santa and Nepeña valleys, the citadels and fortresses identified for this time period have been attributed to the late Early Horizon, although we lack any kind of absolute chronometric dating to confirm this expectation. Chankillo in the Casma Valley dates to
the late Early Horizon, at 320-200 Cal B.C. (Ghezzi 2006:67). In the Nepeña Valley Daggett (1987) claims that the introduction of fortification here and in the adjacent valleys of Casma (Pozorski 1987) and Santa (Wilson 1987, 1988) did not take place until the late Early Horizon. Thus the construction of these kinds of fortifications is viewed as relating to the Chavín collapse or Post-Chavín time period.

A fortification with three concentric walls was recognized by Uhle (Menzel 1977:43; Willey and Corbett 1954:4, Map I) at Ancón, but ignored by him and subsequent scholars. The fortification, located on a hilltop above the fishing settlement and Middle Horizon intrusive cemetery at Ancón that have received greater attention, may no longer be there. However, Chavinoid ceramics have been well documented at Ancón (Carrión Cachot 1948; Matos Mendieta 1968; Strong 1925; Willey and Corbett 1954). It is not unreasonable to suggest, given Ancón’s recognized place within a Chavín sphere of interaction, that the adjacent fortification was also part of the coastal pattern of Early Horizon fortresses documented for other areas of the coast to the north, and may even represent the southern limit of such a pattern.

Early Horizon fortifications have been identified in the Callejón de Huaylas and Callejón de Conchucos (Alcalde Milla 2003:382), although sometimes they are attributed to the Early Intermediate Period (Orsini 2003:167), or to a broadly generalized prehispanic period (Ruiz Estrada 2003:415). Concentric ring sites attributed to the Early Intermediate Period are also well documented in the Mantaro and Tarma drainages (Parsons, et al. 2000:9), and their chronology may need to be revisited. Several scholars have suggested that a highland invasion of the coast resulted in the introduction of hilltop fortified sites in the upper reaches of many coastal valleys (Daggett 1987) and even
closer to the coast (Pozorski 1987). Highland fortified sites have been primarily assigned to the Early Intermediate Period, placing them later in time than the coastal fortifications. This difference in timing, although tentative at best given the lack of chronometric dating, makes it unclear how coastal and highland fortifications are related if highland people are the ones invading the coast. At least from the Casma Valley south there are Early Horizon fortresses noted in the lower valleys, which does not appear to be a pattern that holds north of Casma. Detailed landscape data coupled with settlement data in each of these valleys would be required to explore potential patterns.

One clear hypothesis, however, that can be tested in the Huaura Valley is the question of intervisibility of Early Horizon fortifications. In the next section I discuss the Early Horizon Huaura Valley forts, and address results of spatial analysis to assess their intervisibility.

9.2.1 The Huaura Valley Early Horizon Forts

For the Huaura Valley, I have tentatively identified five forts as having an Early Horizon occupation. A sixth Early Horizon fort at Acaray is confirmed by radiocarbon dates. Four of these forts were initially identified as Initial Period in date by the Huaura Valley Survey (Nelson and Ruiz Rubio 2005a). Based on my research at Acaray and visits to the other forts I am provisionally assigning them to the Early Horizon. In visits to these sites from 2004-2008 I have identified surface ceramics, lithics, wall construction and site layout that bear similarities to the Early Horizon configuration of Acaray. Ongoing analysis of survey data in Huaura has enabled the identification of more
fortified sites which may date to this period as well (Kit Nelson, personal communication, June 2007).9

Early Horizon dates from Acaray suggest the fortress was constructed at least this early in time. The Early Horizon dates generated by my excavations at Acaray are 750-620 Cal B.C. and 900-400 Cal B.C.10. The context of these dates is terraces located outside of major Early Horizon defensive walls. These dates do not overlap with those of Chankillo (Ghezzi 2006), but rather are earlier. However a date of 390-200 Cal B.C. obtained by Jack Johnson (Johnson, personal communication, July 2007)11 from one of the major defensive walls at Acaray is roughly the same as the date range reported for Chankillo. The construction of fortifications in the larger region may be earlier than previous studies have suggested given Acaray’s early dates. Nevertheless, radiocarbon dates confirm that Chankillo and Acaray were contemporary, and presumably in use in post-Chavín times.

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9 The Huaura Valley Survey was conducted by the Proyecto Arqueológico Norte Chico under the direction of Kit Nelson, and all survey data belong to her. Survey data are undergoing refinement. My research and the radiocarbon dates I have from Acaray permit a modification of the initial temporal placement of the Huaura Valley forts.

10 All radiocarbon dates are reported here in calibrated years to 2 sigma.

11 Jack Johnson (PhD Candidate, University of Washington) tool samples for Optically Stimulated Luminescence (OSL) in 2006 from Acaray. Organic remains from one of the samples permitted an AMS date, which he has kindly shared with me. His forthcoming dissertation will discuss the dates in full.
There is not much known about the fortifications other than Acaray, but two in particular are lesser known, due in part to the fact that they were recently recognized in 2007 (Figure 9.1). One of these forts consists of a hilltop with a single concentric wall atop it, located near the area known as Vilcahuaura, on the other side of Cerro San Cristóbal. The other fortification is called Cerro Colorado, and is located at the far southern side of the Huaura Valley (PV41-191). At its base is a late prehispanic cemetery (Ruiz Estrada 1999:80, 82). The temporal placement of this fortification, I believe, has been erroneously assigned to that time as well. The fieldwork crew chief who surveyed the valley in 2004 suggested Cerro Colorado might fit the pattern identified for the Early Horizon forts (Perales Munguía, personal communication, August 2007). A search using Google Earth yielded a good resolution aerial image of the site, which clearly shows three concentric walls on a hilltop (Figure 9.2). I visited Cerro Colorado in 2008, and
based on similarities in wall construction and surface artifacts I believe there is an Early Horizon component to the site (Figure 9.3).

Figure 9.2 Image of Cerro Colorado from Google Earth. Note three concentric walls.

Figure 9.3 Photo of the fort at Cerro Colorado. Arrows indicate wall ramparts.

Following the criteria discussed in Chapter 4 for determining whether a site is a fortification we can assess the Huaura Valley forts. Given hilltop location and the presence of defensive walls, each fort is characterized by restricted access. Architectural features can also be used to indicate true defensive sites. At the smaller forts around Acaray there are no identifiable parapets or bastions. Both of these characteristics are
present at Acaray, but it is not yet possible to conclusively assign them to the Early Horizon occupation. They may represent Late Intermediate Period additions. Baffled entryways, which control movement upon entry into the fort, are not unambiguously identifiable at the four fortresses, even at Acaray where intensive surface analysis has been carried out. A single possible baffled entryway may exist at Acaray. Slingstones are present at three of the four forts. The greatest density of these projectiles is found at Acaray. Moats or ditches are not common at any of the forts in Huaura, although a possible ditch may be present at the fort at Rontoy. While the forts do not meet all criteria set forth by other scholars, they still do have characteristics that identify them as defensive sites. They match descriptions for other Early Horizon forts identified in other valleys.

Three of the forts along the north side of the river have at least one hillcrest that is ringed by three concentric walls. Each wall exhibits a similar construction technique that consists of large cut stone blocks with mortar and rock fill. I have discussed this type of wall masonry in Chapter 6, and radiocarbon dates confirm it as Early Horizon at Acaray. A fourth fort near Vilcahuaura has a single concentric wall. The fort located on the south side of the river has perhaps one concentric wall, but rubble makes clear definition difficult. Cerro Colorado has three concentric walls.

Five of the Early Horizon fortresses in Huaura are located in the lower valley below the valley neck, or hydrological apex. It has already been determined that four of these forts can be seen from each other (Nelson and Ruiz Rubio 2005a). They are within a 5 km stretch of valley – well within a day’s walk of each other. Three of these forts are located on the northern side of the Huaura River (Acaray, the fort at Rontoy, and the fort
near Cerro San Cristóbal). Two forts are located on the south side of the river (the fort immediately south of the Huaura River and Cerro Colorado). With the exception of Cerro Colorado, each fort is located near the hydrological apex of the Huaura River, but also near a major route that leads to the Supe Valley to the north. The location of the forts may have been located strategically to control either or both of these two major points in the valley. This requires further analysis.

Because identification of Cerro Colorado as an Early Horizon fort was made recently, I carried out an intervisibility analysis using cumulative viewshed analysis of the Early Horizon Huaura forts that includes this site (Figure 9.4). I was not able to determine with certainty in the field if Cerro Colorado was visible from the other four lower valley forts field checked by Nelson and Ruiz (2005a). Fog and cloud cover during the austral winter, when I visited the site, did not present the ideal clear conditions from which to see other peaks from this Cerro Colorado. Although the ability to see four of the forts from each other was verified in the field, this analysis permitted visualization of the viewshed of each of the six forts now tentatively identified as Early Horizon. Additionally, viewshed analysis permitted me to see how the areas visible from each fort overlapped. This entailed looking at the multiple viewshed to assess what areas of the valley were visible from each fort.
Results of the cumulative viewshed analysis indicate that the five lower valley forts are intervisible, with views of at least three other forts from each one (see Table 9.2). The forts at Rontoy (PV41-62), Cerro San Cristóbal (PV41-307), and the southern edge of the river (PV41-118) can all see four other forts, while Acaray and Cerro Colorado can see three. The fort at Vilcahuaura just above the valley neck is not visible from (meaning it also does not have a view of) the other forts (see Figure 9.5).
<table>
<thead>
<tr>
<th>Site Name</th>
<th>Zone code</th>
<th>No. visible forts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fort at Rontoy</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Fortress at Acaray</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fort at Cerro San Cristobal</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Fort along south side of river</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fort at Vilcahuaura</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Cerro Colorado</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 9.2 Table shows how many forts are visible from each Early Horizon fort.

![Zonal stats for EH forts](image)

Figure 9.5 Chart shows each zone (each fort) and how many forts are visible from that point. Note zone 5 (Vilcahuaura fort) has a value of 0.

A cumulative viewshed of known forts should ideally be compared to a cumulative viewshed derived from a series of randomly generated points on the landscape to see if placement for intervisibility is significant, or random. That is, the fact that five of the six known Early Horizon Huaura forts are intervisible does not mean a lot if randomly selected points generate a similar pattern, which has pointed out by other scholars (Lake, et al. 1998). Testing if there is patterning of Early Horizon forts in Huaura and in other valleys is beyond the scope of the current comparison. A more fine-grained regional DEM is required, as well as more time to run analyses that compare empirical to randomly generated data sets. Future analysis is needed to critically assess site location in a meaningful way.

A fortified temple such as Chankillo has no habitation structures within its concentric walls. One scholar in particular has been ambivalent about identifying the
Nepeña forts as habitational due to lack of extensive architecture (Proulx 1985:227). The presence of terraces and refuse on the surface within or near the walled areas of all six forts in Huaura suggest that they are linked to habitation. Excavations at Acaray revealed in situ evidence of ephemeral activities despite surface characteristics suggestive of greater occupation depth (discussed further in Chapter 10). However, it appears that refuse associated with Early Horizon use has been moved around and redeposited during Late Intermediate Period construction.

It is plausible that the five intervisible fortresses in Huaura were related to each other. Rather than being the manifestation of intravalley conflict between communities, their distribution may correlate to the location of quebradas (gully, flatter areas between the hills) in which there are access routes to the valley to the north, Supe, and may have served to control entry into the valley via these lateral access routes. The fortress at Vilcahuaura would be consistent with this hypothesis. Cerro Colorado is placed in an area that might have monitored access from the south. If this is the case, the fortifications may reflect concern with an external (from the valley) threat rather than internal conflict. This hypothesized pattern would need to be assessed for Huaura and other valleys.

Taking into account the multiple viewshed of all six forts it is apparent that the focus of visibility was the river delta, where agricultural lands would have been located (Figure 9.6). The five lower valley forts have a near comprehensive view of the whole river delta. The fort at Vilcahuara, on the other hand, has the only view up valley. Removing the viewsheds from Cerro Colorado and the fort at Vilcahuaura (Figure 9.7) from the multiple viewshed suggests that these two forts increased the overall view of the
valley. Removing any of the other fort viewsheds has a relatively minor impact on valley visibility. This would support an interpretation of the six forts belonging to a network.

Figure 9.6 Multiple viewshed of all six EH forts. All visible areas are light gray.
It is important to note that the forts meet some, but not all, criteria for identification as fortifications. Additionally, they are consistent with description of other Early Horizon fortresses, and may be consistent with the fortified temple model presented for Chankillo (Ghezzi 2006). The sector A summit structure at Acaray bears some similarities to the Temple of the Pillars of Chankillo. Excavations also revealed evidence for ritual activities in this structure (discussed in Chapter 10). The underlying architecture consists of yellow plastered stepped surface with plastered benches. On one bench in block 1C there is an approximately 1 meter in diameter circular hole in the bench. It is
possible that what was removed from this bench was a pillar. The dismantling of architecture in summit structures at both Acaray and Chankillo suggest a period of destruction of such sites, a time during which one investigator has suggested there may have been “holy wars” (Ghezzi 2006:80). The Early Horizon Acaray fort could have been constructed and used during a time of frequent attacks on hilltop locales that had ritual significance.

If frequent attacks, or raids, occurred in Huaura at this time we might consider it a frontier area lacking any kind of consolidated control. It would be a frontier created by the incursion into the area by highland groups. Unfortunately, we know very little of other Early Horizon settlements in the valley with which to compare the Early Horizon forts. Population does not, however, appear to be dense based on survey data (Nelson and Ruiz Rubio 2005a). The previous Initial Period settlement configuration is unstudied. One major Initial Period u-shaped mound, Huaura Antigua (also known as Chacara Socorro), is known for the Huaura Valley, but whether settlement during this previous period was more or less dense is currently not known. But given the hypothesis of a highland incursion set forth by previous studies, it is not unreasonable to suggest that highland groups moved into a low-population area and caused a stir. Whether they built the forts to establish domain over new territory, or local people built them in response to defend native territory, is not clear.

The next section is a discussion of regional Late Intermediate Period fortification.

9.3 Late Intermediate Period Fortification
While Early Horizon fortifications may be tied into the general problem of Post-Chavín conflict, what we see in the Late Intermediate Period is different. The Late
Intermediate Period fortification pattern differs from that described above in several ways, indicating the nature of defense changed. The Late Intermediate Period forts are more diverse in terms of layout and surface characteristics. Whereas in the Early Horizon there was a concentration of fortifications in the Santa and Casma valleys, during the Late Intermediate Period the area of densest fortification is in the adjacent Casma and Culebras valleys.

Architecture in Late Intermediate Period fortresses is diverse, as is location. Defensive walls at Late Intermediate Period fortifications use stone but may also incorporate adobe as the major construction element. In addition, while Early Horizon fortifications have well-constructed defensive walls that are rock and mortar, Late Intermediate Period walls contain rubble and are made of irregular rock that is not well cut. Sometimes layers of plant matter are placed in the construction fill to possibly help stabilize the wall (Huapaya Manco 1977-1978) or “consolidate the rubble” (T. L. Topic 1990:185). This method of construction is also more expedient, and would permit rapid construction of defenses (see Chapter 6).

While all of the Early Horizon fortifications discussed above are found on hilltops, some of the Late Intermediate Period ones are documented in lower-lying areas. For example, in Virú the V-37, V-140, and V-147 complexes in the Huacapongo North section of the valley are located in a quebrada at the base of the hills. They are enclosed by large stone walls that are 2 meters thick (Willey 1953:248-249). In this case, the defense of the area does not incorporate the natural defensibility of hilltops as seen in the Early Horizon. In contrast, the other Late Intermediate Period defensive sites are not encircled by defensive walls, but appear to consist of only settlements located on hilltops
Yet the site of Cerro la Cruz in the Chao Valley has three concentric walls that encompass a greater number of structures and architecture than the typical Early Horizon fortress (Vogel 2003). Cerro Coronado in the Chao Valley also has three concentric walls, parapets, and slingstones (T. L. Topic 1990:185).

There is greater variability as far as evidence for habitation at Late Intermediate Period fortresses. While some appear to be large settlements with evidence for a variety of activities in them (Cerro la Cruz in Chao), scholars have suggested that others were rarely used (Cerro Coronado in Chao) (T. L. Topic 1990:185).

Late Intermediate Period fortresses are documented for the Virú, Santa, Chao, Nepeña, Casma, Culebras, Fortaleza and Huaura valleys. It becomes difficult to discuss only Late Intermediate Period fortifications given the nebulous relationship between the late Middle Horizon and the Late Intermediate Period of the north coast (McClelland 1990:94). Additionally, Wilson (1995) indicates that there are 45 fortifications in the Casma Valley for the Casma period which are early Late Intermediate Period in date, but which may be related to the eight late Middle Horizon fortresses he identifies. His Manchan period is also Late Intermediate Period, but no fortifications are indicated for this time period. Again, with no radiocarbon dates to properly assess contemporaneity it becomes difficult to compare fortresses regionally.

Directly south of Casma, with its 45 fortress, only 15 Late Intermediate Period fortresses have been identified for the Culebras Valley, and further south to Huaura the number continues to decrease. For the Fortaleza Valley the hilltop site of Cerro de la Horca and the well-known fortress at Paramonga have been identified as Late Intermediate Period or Late Horizon in date (Espinoza Soriano 1974; Horkheimer 1965).
Pativilca has been surveyed but the number of Late Intermediate Period forts is unknown (Perales Munguía 2006). Late Intermediate Period occupations in the Supe Valley have yet to be studied. In the Huaura Valley the only Late Intermediate Period fortress known at present is Acaray.

9.3.1 The Huaura Valley Late Intermediate Period Fortress at Acaray

![Acaray ArcScene image](image)

Figure 9.8 ArcScene image created of Acaray using DEM. This view shows the ridge facing east, which is difficult to capture by camera. The gullies and potential routes of access are easier to appreciate.

Here I would like to summarize the details of Acaray already discussed in Chapter 6. The Late Intermediate Period configuration of Acaray encompasses three hilltops, each ringed with between one and three defensive concentric walls (Figure 9.6). The construction technique of these walls is easily distinguishable from the Early Horizon wall components. Alternating layers of plant material and rocky layers filled with trash were used to build up the walls, which are faced on both sides with smaller rock. At Acaray the Early Horizon wall bases were rebuilt with this technique. Walls of this style have an angle and are not upright, probably because they were built up quickly.
using an expedient technique that is not as stable or well made as the Early Horizon walls. Topic (1990: 185) describes similarly constructed defensive forts for the Chao Valley.

Acaray has parapets, bastions, restricted access, and slingstones on its surface. No moats or ditches have been detected. Two samples taken directly from plant layers within the defensive walls exhibiting this technique yielded dates of 1160-1390 Cal A.D. and 1400-1630 Cal A.D (see Chapter 8). The former date is from the lowest concentric defensive wall of Sector B, built entirely of this technique with no detectable early wall bases. The latter comes from the major defensive wall encircling Sector C, which appears to be the latest addition to the fortress.

The one known Late Intermediate Period fort for Huaura, Acaray, marks a change in patterns of fortification from the Early Horizon. People rebuilt Acaray using one of the Early Horizon forts, but the other Early Horizon fortifications show no indications of being rebuilt. There are few to no surface ceramics or other diagnostic elements of material culture that indicate the other early fortresses are used later in time the way Acaray is. Further research is required at these forts, yet we can suggest that they appear to have been abandoned after the Early Horizon.

Acaray appears to be a large isolated fortress in the valley during the Late Intermediate Period. There is not a dense pattern of fortresses in Huaura in the Late Intermediate Period, making consideration of the fort inconsistent with a view that posits intensive conflict between local people living in the valley. Rather, the construction of an isolated fortress suggests there was no network of defensive sites at the valley level. Acaray can be considered in a number of ways. One hypothesis is that it was built in
response to an external threat. If that is the case it may have served as either a refuge for local communities, or as a strategic point protecting a key access route into the valley. An alternative hypothesis is it was constructed as an outpost on the fringes of another polity’s territory. That would suggest Acaray was a military installation for a foreign polity. The Late Intermediate Period configuration of the fort is much more extensive, and is associated with greater variability in architecture and surface remains. This might be more consistent with a permanent population, except excavations do not support that interpretation (see Chapter 10).

Given the limited knowledge presently developed for polities in the area south of Casma and Huarmey, it is difficult to determine who might have constructed large fortresses such as Acaray. Mackey (1987:123) has suggested that there was a Fortaleza-Pativilca-Supe polity, and then a Chancay polity to the south. Krzanowski (1992) defines the Chancay polity territory as encompassing Huaura. There are more Chancay and Cayash ceramics associated with Acaray than other forms for the Late Intermediate Period (discussed in Chapter 10). As discussed in the previous chapter, the timing of Acaray, along with the kinds of material culture present, indicates it could have been rebuilt by Chancay people. Late Intermediate Period fortresses are not specifically reported for the Chancay valley. Few fortifications are mentioned in the literature for Chancay and the areas south of Chancay. La Viña in Chancay (Horkheimer 1965:47), and a fortification south of Chancay in Pasamayo (Horkheimer 1965:46) have been identified but there is no indication of what time period, or culture, they pertain to. The well known fort at Collique in the Chillón Valley is thought to be linked to a señorío (chiefdom) of the same name (Correa Arango 1992), who may have been in conflict with
their up-valley neighbors. Collique does not seem related to conflict that may have taking place north in Huaura. Furthermore Collique, an ethnohistorically documented group, cannot be said to be the same as the archaeologically defined Chancay.

The question as to whether the Chimú could have rebuilt the fortress at Acaray is not tenable. In imperial frontier areas one might expect to see a chain of fortresses, as is the case perhaps with Casma. However this is not present in the Huaura Valley during the Late Intermediate Period. The settlement pattern for the Late Intermediate Period is also the densest of any time period based on knowledge at present (see Chapter 3). Thus, there is no buffer zone of sparse settlement or indication of abandoned Late Intermediate Period sites that would indicate a frontier, as suggested in Chapter 4. If Acaray were an outpost, an outlier distant from the territorial core of the empire, the site should exhibit more indications of being used by a foreign group. That would entail finding abundant Chimú ceramics at the fort, which could be easily distinguished from the lack of Chimú ceramics in settlements in the rest of the valley (recall Chapter 3). However, later Chimú additions to the fortress cannot be ruled out. The construction of the defensive wall of Sector C, for example, took place sometime between A.D. 1396 and A.D. 1628, during which the Chimú may have been in the Huaura. The date could also correspond to the time of Inca incorporation of the area, which has not been well-documented.

9.4 Discussion

Similarities in Early Horizon fortresses across the area of the north and near north coast are present. Although warfare has been linked to the Early Horizon in some areas, the Chavín horizon is believed by some to be a period of ideological or religious unification. Pozorski and Pozorski offer a contrasting view, having at one point outright
rejected the idea of a “horizon” and calling it the Early Period (1987:44) and suggesting there was greater diversity. The presence of conflict during this period, however, involves a number of valleys with hilltop or ridgetop fortresses that are, for the most part, characterized by concentric stone walls made in a similar style, as well as the presence of circle-and-dot and burnished patterns ceramics, panpipes, and ground slate blades. Although stylistic similarities in material culture can sometimes mask difference, and may not necessarily indicate shared traditions, it nevertheless seems reasonable to say that Early Horizon peoples in many north and near north coastal valleys were constructing fortresses in similar ways and shared a common assemblage of artifacts. It is still difficult to suggest, due to lack of detailed regional data, they may have been constructing these sites for similar reasons. We still lack convincing data that would allow us to assign this tradition to the highlands and assume it is the result of a highland invasion of the coast, which has been postulated for some valleys (Daggett 1987; S. Pozorski and T. Pozorski 1987:5; Proulx 1973:28).

While the Early Horizon fortress at Acaray might be consistent with the model for a fortified temple, the other fortresses cannot yet be adequately evaluated. The intrusive nature of material culture associated with an outpost is not supported simply because no other traditions have been documented for the time period in the Huaura Valley. The widespread distribution of the ceramic and architectural styles, as well as artifacts such as panpipes, and slate blades indicates a phenomenon of expansion. A cluster of fortified sites, then, may be consistent with chains of defensive sites in frontier areas. These sites could also be refuges for use by groups immediately living in the areas around them. The number of them, and their size, indicate smaller groups built and used
them. That the defensive walls are well made, with wall anchors and cut stone masonry, suggests a greater degree of investment in making the Early Horizon forts. In addition, viewshed analysis demonstrates that five forts were intervisible, and that all six Early Horizon forts could have served to monitor the entire river delta, as well as up valley beyond the valley neck. This suggests that the six forts were part of a network during Early Horizon times.

In contrast to the Early Horizon fortresses, Late Intermediate Period fortresses on the north and near north coasts do not share as many similarities in terms of layout or artifact assemblage. The most notable difference in their construction is that they are made of more expedient building techniques. In the case of Acaray, rebuilders took advantage of still standing Early Horizon walls on which to rebuild. This suggests less care and less time was taken in building Late Intermediate Period fortresses. Reuse and rapid construction of defensive walls in the Late Intermediate Period further suggests that forts needed to be built rapidly for defense.

Wilson has pointed out that the Santa, Nepeña, and Casma valleys are all characterized by Casma-incised pottery (1995:205), and others have noted the presence of such pottery in Huarmey and Culebras as well (Przadka and Giersz 2003). Based on my observations at late period sites in the norte chico region, a similar style is present in Fortaleza, Pativilca, and Huaura that has been attributed to the Late Intermediate Period. Similar ceramic styles could be the result of some kind of cultural contact between people living in these valleys. This contact would have taken place despite the presence of fortresses for this time period in the norte chico and north coast valleys, and of Casma and Culebras in particular.
Unlike the Early Horizon, where widespread patterns may be linked to Post-Chavín conflict, early Late Intermediate Period fortifications documented in clusters may have more to do with intra-valley conflict. Middle to late Late Intermediate Period fortifications, however, may be assessed in terms of the expansion of the Chimú Empire. The variability we see with Late Intermediate Period forts may be consistent with moving imperial frontiers, the rapid construction of fortifications, and the ability for local populations to build fortifications in the face of imperial expansion. While Huaura is not an empty buffer zone lacking settlement during the Late Intermediate Period, few of these sites have been investigated. Thus we do not know if they may have been abandoned at some point, or what shifts might have taken place in settlement during these four centuries. These assertions are rather tenuous given lack of refined chronologies for the region at this time.

The Late Intermediate Period is a 400+ year span of time, and we lack a fine-grained chronology to properly link processes between valleys. In general the Late Intermediate Period is poorly defined for the coastal valleys, which also impinges our understanding of sociopolitical processes that may relate to fortification. This is not a new realization. To quote Theresa Topic “the consolidation of valley authority is relatively well documented by survey of fortifications, but there are no radiocarbon dates associated with early forts and walls, and we do not know how quickly the process of power building proceeded” (T. L. Topic 1990:190). Nevertheless, the tentative development outlined above for Late Intermediate Period patterns of fortification can be tested as future work generates more data and dates.
Models based on ethnohistorical documents suggest the Chimú expanded out of their Moche Valley heartland and ultimately conquered 1300 km of coast between Tumbez and Chillón (Rowe 1948), which would have encompassed the north and near north coastal valleys presently discussed. A recent proposal to modify this model based on archaeological knowledge to date suggests the actual incorporated territory of the Chimú state was less, and that they extended only influence in the far reaches of what has been characterized as part of their empire (Moore and Mackey 2008). The present study attempts to address the nature of the Chimú presence in Huaura, but far more archaeological data are required to adequately assess imperial and local dynamics in this frontier area. Imperial expansion and moving imperial frontiers can result in a shift to defensive settlement patterns and the construction of forts. As empires move to annex more territory they might construct outposts, and local populations certainly may respond by constructing defenses such as refuges to resist attacks, or alternatively offensive fortresses with which to combat encroaching outsiders. These possibilities can be assessed in the Huaura Valley. More detailed analyses of fortified sites and the timing of their use across the extent of the empire would help. But without such information, based on what is presented here and the new data from Acaray we can suggest that Acaray is not a Chimú outpost.

The possibility for smaller-scale interpolity conflict cannot be ruled out completely. Indeed localized conflicts sometimes facilitate imperial take-over in areas already in turmoil. Currently there is little support for smaller scale intervalley or interpolity conflict in the Huaura Valley during the Late Intermediate Period. Intravalley conflict also does not seem plausible.
Refuges have not specifically been identified within the Chimú Empire. But given that there is just one fortification in Huaura during the Late Intermediate Period, the refuge model for Acaray might be supported. If this is the case, then rather than a number of groups building a handful of places of refuge, which I suggested above for the Early Horizon, for the Late Intermediate Period we may be seeing a number of groups coming together to rebuild a single, large fortress as a potential place of refuge.

This chapter highlights the regional nature of processes that are relevant to the present study of Acaray. Acaray was a significant locale during the Early Horizon and Late Intermediate Period for different reasons that both involved conflict. During both times of occupation or use of the fortress, there are widespread distributions of ceramic and/or architectural styles that suggest people were in contact with each other over large portions of the coast and in the adjacent highlands, which suggest greater human movement through this area than has been recognized. Culture contact is thus an important factor for assessing both time periods.

This look at how Acaray and the Huaura Valley fit into processes occurring at the regional level can be balanced by an examination of the site-specific contexts analyzed in the present research. The following chapter provides more detailed information on the contexts and materials from Acaray.
Chapter 10 Analysis of contexts and artifact classes from Acaray

The previous chapter discussed Acaray in its regional context. Now we tack back to a smaller-scale of analysis by looking at certain excavated contexts. This chapter discusses the evidence for the nature of the occupation at Acaray and the practices carried out in the fortress. I present two primary lines of evidence that indicate ephemeral, periodic use of Acaray during the Late Intermediate Period. Data on offerings, special interments of objects, human remains, and ceremonial trash suggest commemorative practices took place during these periodic construction/reconstruction events and ceremonial uses of the site. I also include in this chapter summaries of most assemblages and artifact classes, which are also important to understanding what kinds of activities took place at Acaray. Detailed information on some artifacts is also included in the appendices.

10.1 Ephemeral Occupation and Variation in Site Use

In Chapter 4 I outlined some expectation for different types of site-use, specifically ephemeral versus permanent occupation. Excavations at Acaray documented evidence generally more consistent with ephemeral site use for the Late Intermediate Period. Given the disturbed nature of the Early Horizon remains, the nature of site use for this time period is more tentative. I begin by discussing different kinds of burning events at the site. These are summarized in Table 10.1. I also review deposits consistent with post holes and other kinds of pit features. These are summarized in Table 10.2.

10.1.1 Burning events vs. formal hearths

The only formal hearth identified in my excavations at Acaray was in TU3. This unit was located on a terrace near a large, embedded stone with a smoothed surface that
may have served as a groundstone. This hearth was not dated. However, because it was near the surface of the excavation, associated with a crudely made wall characteristic of the second and more expedient building techniques, and no plaster floor, I associate it with the later use of the fort (Late Intermediate Period). The hearth was 29 cm deep and lined with rocks, which showed evidence of burning. We caught the corner of it in the unit, so I estimate we excavated roughly a quarter of it (the radius measured approximate 36 cm, assuming measurement from the hearth’s center). The size and the identification of three distinct layers within the hearth indicate it grew over time and was thus used repeatedly. Evidence of sweeping events and trash deposits nearby suggest it was cleaned periodically. This represents the strongest evidence from our excavations at Acaray of cooking and cleaning events that are consistent with household activities.

Evidence for more ephemeral burning events, however, was encountered in several of the excavations. I characterize these as ephemeral because they are not associated with pits, nor are they lined with stone or clay. The soil associated with these features did not demonstrate vitrification but was burned. These events appear to be consistent with one-time, low-intensity burning events that leave a stain of ash and some burned dirt. Comparison to ethnographic data from the Maya area (Hayden and Cannon 1984:7) and to the Kua San hunter-gatherers (Bartram, et al. 1991:97) suggest that in sedentary as well as mobile groups, hearths do not necessarily need to be formal. Thus what I characterize here as burning events could be small, informal hearths that were not used repeatedly. This seems more characteristic of the residue left from a ‘mobile group’ who used the site intermittently, but did not set up facilities necessary for living there even for short periods of time. They could also represent secondary or tertiary hearths.
associated with less intense activities (Bartram, et al. 1991:108). Given the variety of contexts in which we found evidence of these burning events, however, I am led to believe that there were few primary hearths around for either of the two major uses (Early Horizon or Late Intermediate Period) of the site. Bearing in mind the disturbed nature of Early Horizon contexts this may just be a factor of uneven preservation.

Table 10.1 shows information related to the attributes of these burning events. I decided to compare the characteristics of this type of feature (burning event). However this is great variability in what I characterize as burning events. Furthermore, it is important to distinguish between activities that took place at different times; in this case some may be separated by about a thousand years. Because I lack radiocarbon dates with which to associate with many of these contexts I discuss them either in relation to each other first (within a unit), and then make comparisons based on my best attempt to associate them temporally.

TU2 had one burning event in its last layer immediately above bedrock. This feature contained ash, some small pieces of carbon, and bits of shell and ceramics. There were no macrobotanical remains found in the deposit, although soil samples remain to be processed that may detect microbotanical remains. The soil surface around the feature was very compact, and there was burned earth. I interpret this as an in situ burning activity. Two broken batanes (handstones) were located near the feature, aligned with each other but not associated with any other grinding stone. The handstones and burning are not associated with cooking activities in this case. The small one-time burning event and the placement of broken handstones (without their netherstone counterpart) on bedrock, and on top of which began a series of larger dumping episodes of trash and rock
used for fill, suggest this feature had something to do with preparation for construction (perhaps ritual in nature) and not domestic activity. The construction in this case would have been of the rampart created by the construction of the defensive wall. Given the construction technique apparent of this wall, it was an Early Horizon construction episode.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Locus</th>
<th>Lot</th>
<th>Period</th>
<th>Feature Type</th>
<th>L</th>
<th>W</th>
<th>D</th>
<th>Context</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>35</td>
<td>72</td>
<td>Late Intermediate</td>
<td>burning event</td>
<td>55</td>
<td>20</td>
<td>15</td>
<td>southeast corner of unit below banquette</td>
<td>carbon, ash, burned earth, trash</td>
</tr>
<tr>
<td>1A</td>
<td>36</td>
<td>73</td>
<td>Late Intermediate</td>
<td>burning event</td>
<td>21</td>
<td>19</td>
<td>6</td>
<td>along south wall of block</td>
<td>ash, burned rock (from adjacent wall),</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cultural material-in situ</td>
</tr>
<tr>
<td>1A</td>
<td>37</td>
<td>74</td>
<td>Late Intermediate</td>
<td>burning event</td>
<td>23</td>
<td>15</td>
<td>6</td>
<td>southwest corner of unit</td>
<td>ash, burned earth, carbon, botanics, ceramics,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lithics</td>
</tr>
<tr>
<td>1B</td>
<td>31</td>
<td>63</td>
<td>&gt; A.D. 1044-1304</td>
<td>burning event</td>
<td>125</td>
<td>55</td>
<td>10</td>
<td>along bottom edge of later banquette</td>
<td>ash, carbon, burned earth, bone (camelid, fish,</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>some burned), botanics (maize, burned seeds,</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cotton), animal coprolites, shell, lithics, bead,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>hair</td>
</tr>
<tr>
<td>1C</td>
<td>45</td>
<td>109</td>
<td>Not known</td>
<td>burning event</td>
<td>45</td>
<td>35</td>
<td>6</td>
<td>northeast corner of banquette</td>
<td>ash, carbon, burned earth, botanics, shell,</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>ceramics</td>
</tr>
<tr>
<td>1C</td>
<td>46</td>
<td>93</td>
<td>Not known</td>
<td>burning event</td>
<td>150</td>
<td>80</td>
<td>18</td>
<td>area below banquette</td>
<td>burned earth, ash, carbon, ceramics, shell,</td>
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<td></td>
<td>bone, burned botanics, burned adobe pieces</td>
</tr>
<tr>
<td>1C</td>
<td>46</td>
<td>144</td>
<td>Not known</td>
<td>burning event</td>
<td>40</td>
<td>23</td>
<td>3</td>
<td>northwest corner of ampliacion 2</td>
<td>burned earth, carbon, ceramic</td>
</tr>
<tr>
<td>1C</td>
<td>46</td>
<td>145</td>
<td>Not known</td>
<td>burning event</td>
<td>60</td>
<td>50</td>
<td>3</td>
<td>possible association with burning event of lot 93</td>
<td>burned earth, carbon</td>
</tr>
<tr>
<td>1C</td>
<td>52</td>
<td>116</td>
<td>Not known</td>
<td>burning event</td>
<td>60</td>
<td>30</td>
<td>6</td>
<td>in pit on southeast corner of banquette</td>
<td>burned earth, ash, carbon, ceramics</td>
</tr>
<tr>
<td>1C</td>
<td>60</td>
<td>154</td>
<td>Not known</td>
<td>burning event</td>
<td>40</td>
<td>30</td>
<td>3</td>
<td>northwest corner of ampliacion 2</td>
<td>white ash, carbon, burned shell, burned earth,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>burned rock-in situ</td>
</tr>
<tr>
<td>1C</td>
<td>60</td>
<td>157</td>
<td>Not known</td>
<td>burning event</td>
<td>40</td>
<td>30</td>
<td>3</td>
<td>northwest corner of ampliacion 2</td>
<td>burned earth-in situ</td>
</tr>
<tr>
<td>3A</td>
<td>54</td>
<td>130</td>
<td>&lt; A.D. 1270-1432</td>
<td>burning event</td>
<td>70</td>
<td>50</td>
<td>7</td>
<td>northwest corner of unit</td>
<td>burned earth, ash, carbon, botanics, shell</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(some burned), fish bone (some burned)</td>
</tr>
<tr>
<td>TU2</td>
<td>20</td>
<td>41</td>
<td>Early Horizon</td>
<td>burning event</td>
<td>20</td>
<td>18</td>
<td>5</td>
<td>last layer of unit before bedrock</td>
<td>shell, ceramics, carbon, ash, burned earth</td>
</tr>
<tr>
<td>TU3</td>
<td>8</td>
<td>16</td>
<td>Not known</td>
<td>hearth</td>
<td>32</td>
<td>22</td>
<td>3</td>
<td>near grinding stone</td>
<td>botanics, shell, ceramics, lithics, carbon,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>burned earth, coprolites</td>
</tr>
</tbody>
</table>

Table 10.1 (continued on next page)
<table>
<thead>
<tr>
<th></th>
<th>TU3</th>
<th>14</th>
<th>28</th>
<th>Not known</th>
<th>hearth</th>
<th>31</th>
<th>28</th>
<th>19</th>
<th>near grinding stone</th>
<th>carbon, burned rock, burned earth, botanics (corn, pacae), shell (lapas, chanque, chiton), ceramics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TU3</td>
<td>14</td>
<td>35</td>
<td>Not known</td>
<td>hearth</td>
<td>25</td>
<td>21</td>
<td>7</td>
<td>near grinding stone</td>
<td>ash, carbon, burned earth, botanics (aji), shell (choro, macha), ceramics, antler fragment</td>
</tr>
<tr>
<td></td>
<td>TU7</td>
<td>67</td>
<td>185</td>
<td>751-615 B.C.</td>
<td>burning event</td>
<td>20</td>
<td>17</td>
<td>7</td>
<td>last layer of unit before bedrock</td>
<td>carbon, burned botanics, burned shell, burned rock (bedrock)-in situ</td>
</tr>
</tbody>
</table>

Table 10.1 Table shows characteristics of burning events and hearth. Three distinct levels were excavated in the hearth, excavated as different lots. However, they are the same feature. Note the large burning event indicated as Locus 46.
TU7 also had one burning event immediately above bedrock. It was an in situ burning because the bedrock below the burned soil showed signs of being heated. The feature contained carbon, burned botanical remains, and burned shell. This context dates to 751-615 Cal B.C. (2-sigma).

Two burning events from the same layer in Block 1A were excavated. Both were located along the south wall of the room in which the excavation block was located, at the bottom on an intrusion along that wall. One feature, semi-circular in shape, was abutting the wall. Stone on the wall itself showed signs of burning from this event. The deposit contained ash, and the soil was also heat altered. The second burning event was set away from the wall, and was characterized by the presence of carbon, ash and burned earth. The deposit also contained botanical remains, ceramics, and lithics. These were located beneath a deposit of abundant botanical (food) remains. A third burning event from Block 1A was unlike the other two, which were produced from surface burning. This feature, both larger and deeper than the other two, appears to have been deposited in a pit dug down into the ground, and at the mouth of the pit a fire was set. The feature had compacted fire-reddened earth with abundant ash and large pieces of carbon. The intrusions in Block 1A are associated with the reconstruction of the architecture in this structure. A date from the adjacent block (1B) of 1044-1304 Cal A.D. (2-sigma) can be associated with these intrusions, and I estimate these burning events are contemporary with them.

Block 1B had only one burning event associated with it, located at the base of the containing wall of the banquette. The event consisted of burned earth, ash and carbon, and contained a variety of other materials, some of which showed signs of burning. Burnt
fish and camelid bone, and burned seeds were recovered, as well as other botanicals (maize and cotton), animal coprolites, shell, lithics, a bead, and some hair. The variety of other, non-burned, materials in the deposit may be in an indication of later sweeping of stuff into the burned area. The date from this block comes from a lower layer. Given that this deposit is close to the surface, I suggest the activity dates to post- A.D. 1044-1304.

Block 1C has some different kinds of burning events. The largest was encountered below the major banquette in the unit, in an area where a deteriorated yellow plaster floor showed signs of burning. I interpret it as a one-time burning event because although there was abundant ash and burned earth, it was an irregular fire that was not bounded by anything and showed no indications of being used as a hearth or reused. The upper 18 centimeters of the deposit were a mixture of items that were deposited by wind or moved around by trampling. Carbon, burned botanicals, and burned adobe pieces probably associated with the burning were recovered along with shell, bone, and ceramic remains that showed no signs of burning. The last 3 centimeters of the deposit was more compact, with heat altered soil and abundant carbon remains. Given the amount of additional deposit (indicated by the feature’s depth) and mixing with wind-deposited sediments, I suggest this burning event was related to the burning of architecture when the banquettes and other plastered architectural features were destroyed. This event remains to be dated. The area was left as is and thus accumulated wind-borne deposits over time. This is an interesting context, as it may represent the only evidence encountered that is consistent with destructive burning of architecture.

In another context, a burning event seems to have been related to the remodeling of the structure in which Block 1C was located. A large pit was dug into the plastered
banquette and filled with abundant botanical material. In Chapter 9 I suggested this may have been the remains of a column that was removed, and then refilled. There were at least two phases to this filling, which were separated by a burning event that took place in the pit itself. The pit was first filled part way, then the presence of burned soil, ash, and carbon indicate a fire was ignited on top of it. The burned deposit also contained some ceramic fragments, but these showed no signs of burning. The pit was subsequently filled to the top with more refuse. Since the remodeling of this structure has been dated to at least 1044-1304 Cal A.D. it seems reasonable to suggest that the filling and burning event associated with this pit date to roughly that period.

The second burning event associated with the banquette in Block 1C is linked to a use postdating its reconstruction. Burned earth, ash, and carbon were found concentrated on top of rubble that covered the banquette. The deposit also contained botanicals, shell, and ceramics.

Two shallow burning events are associated with the adobe construction in the western side of Block 1C. The first contained burned earth, carbon, and ceramic. The second appears to be the burning of shell, possibly to produce cal, a basic substance used in chewing coca leaves (Mortimer 1901 [2000]:209). This feature consisted of burned earth, associated with burned rock, white ash, burned shell, and carbon.

The other burning event excavated at Acaray was located in Block 3A. This feature consisted of burned earth, ash, carbon, botanicals, shell (some burned), and fish bone (some burned). Another context in Block 3A was dated to A.D. 1270-1432, and this burning event is probably only slightly younger then this date range, if not contemporary. The burned earth, carbon, and ash suggest an informal hearth, since there was no
vitrification of the soil and it was only slightly compact. The presence of burned fish bone and burned shell suggest these are remains of cooking. Given the jumbled nature of the deposit, this may actually represent a cleaning or sweeping event of an informal hearth.

**10.1.2 Post holes and pits**

Two post holes, and another possible one, were identified in excavations of test units 2 and 3, and block excavation 2. A number of pits were also excavated that appear to be refuse pits. These two feature types are suggestive of domestic use of space, albeit for short periods of time (see Table 10.2).

A post hole in the third layer of TU2 suggests this small terrace could have been roofed prior to the site falling into disuse in the late prehispanic period. The two layers that covered this were mixed layers with abundant sheep coprolites, indicating a modern reuse of the site later in time, probably by herders passing through. At some point the post was removed and refuse from the later use of the site filled in the post hole. The refuse consisted of ceramics, lithics, shell, botanicals, and coprolites. The size of the hole, measuring roughly 18 x 18 cm with a depth of 12 cm, suggest the post, and by deduction the roof, was erected without the intention of it being a well-built permanent structure – something like a *ramada* (Kuznar 1995:103). The post hole is also associated with a compacted use-surface with abundant camelid coprolites (below the layer that contains sheep coprolites). Perhaps this use of the terrace was as a roofed corral for a few animals.

The second clear post hole was encountered in block excavation 2 in the first floor located directly under the surface layer, a rubble and eroded deposit. In contrast to the post hole found in TU2, this one was slightly bigger (24 x 18 cm) and over three
times as deep (39 cm). Given the depth at which the post was inserted into a well-made plaster floor it seems more likely that this pole supported a roof of this terrace that was more permanent. A date from the lower levels of this excavation unit place it in the Early Horizon, and I assert that this terrace was roofed and in use during that time. This pit likely filled over time, aided by the rubble of walls on the terrace. Rock, soil, and some sherds were all that was recovered from it.

The other possible post hole is shallow, much like that described for TU2. This hole is irregularly shaped. This may have been caused if the post had been angled to be taken out. The feature measured 38 x 22 cm and was 9.5 cm deep, too shallow to support a full, formal roof. If this was indeed a post hole, it likely supported a *ramada* like roof for a temporary type of use. The post was removed, and the empty pit was used then as a refuse pit. We recovered carbon,
<table>
<thead>
<tr>
<th>Unit</th>
<th>Locus</th>
<th>Lot</th>
<th>Period</th>
<th>Feature Type</th>
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<th>W</th>
<th>D</th>
<th>Context</th>
<th>Content</th>
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<td>1A</td>
<td>27</td>
<td>57</td>
<td>Not known</td>
<td>refuse pit</td>
<td>250</td>
<td>40</td>
<td>21</td>
<td>along bottom edge of later banquette</td>
<td>botanics (maize leaves and tusas, lucuma, coca seeds, cotton, pacae), lithics, shell, bone, ceramics, burned plaster (of adjacent banquette)</td>
</tr>
<tr>
<td>1A</td>
<td>28</td>
<td>58</td>
<td>Not known</td>
<td>refuse pit</td>
<td>125</td>
<td>67</td>
<td>2</td>
<td>along south wall of block</td>
<td>botanics, ceramics, shell, lithics, bone, textile, feather</td>
</tr>
<tr>
<td>1A</td>
<td>28</td>
<td>65</td>
<td>Not known</td>
<td>refuse pit</td>
<td>125</td>
<td>67</td>
<td>13</td>
<td>along south wall of block</td>
<td>botanics (maize, lucuma), compact earth, shell, ceramics, textile, coprolites, feathers, wood artifact, ash</td>
</tr>
<tr>
<td>1B</td>
<td>41</td>
<td>80</td>
<td>Not known</td>
<td>refuse pit</td>
<td>20</td>
<td>20</td>
<td>4</td>
<td>eastern edge of unit</td>
<td>botanics (maize cobs, plant fibers), ceramics, shells, bone</td>
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<tr>
<td>1C</td>
<td>46</td>
<td>138</td>
<td>Not known</td>
<td>pit</td>
<td>65</td>
<td>50</td>
<td>27</td>
<td>association with looters pit in ampliacion 2</td>
<td>botanics (tillandsia), cane ash, animal hair, bone, ceramics, lithics (could be modern)</td>
</tr>
<tr>
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<td>46</td>
<td>141</td>
<td>Not known</td>
<td>pit</td>
<td>80</td>
<td>80</td>
<td>3</td>
<td>association with looters pit in ampliacion 2</td>
<td>trash, ceramics (could be modern-continuation of Lot 138)</td>
</tr>
<tr>
<td>1C</td>
<td>52</td>
<td>113</td>
<td>Not known</td>
<td>pit</td>
<td>60</td>
<td>30</td>
<td>11</td>
<td>southeast corner of banquette</td>
<td>plaster frags (some burned), adobe frags, botanics (maize, lucuma, cotton, yuca), fish bone, ceramics</td>
</tr>
<tr>
<td>1C</td>
<td>52</td>
<td>117</td>
<td>Not known</td>
<td>pit</td>
<td>110</td>
<td>100</td>
<td>21</td>
<td>southeast corner of banquette</td>
<td>botanics (lucuma, maize, cotton, frejol), ceramics, adobe frags</td>
</tr>
<tr>
<td>1C</td>
<td>59</td>
<td>151</td>
<td>Not known</td>
<td>refuse pit</td>
<td>180</td>
<td>20</td>
<td>13</td>
<td>along interior of adobe alignment</td>
<td>ceramic, bone, lithics, botanic, shell</td>
</tr>
<tr>
<td>1C</td>
<td>62</td>
<td>162</td>
<td>Not known</td>
<td>refuse pit</td>
<td>22</td>
<td>18</td>
<td>14</td>
<td>northwest corner of ampliacion 2</td>
<td>botanics (lucuma), mate top, ceramic</td>
</tr>
<tr>
<td>TU1</td>
<td>3</td>
<td>6</td>
<td>Not known</td>
<td>refuse pit</td>
<td>18</td>
<td>18</td>
<td>11</td>
<td>deposit in midden</td>
<td>pacae leaves and pods, aji seeds, ceramics, shell (choro azul, tegula, choritos), textile, feather</td>
</tr>
<tr>
<td>TU3</td>
<td>10</td>
<td>18</td>
<td>Not known</td>
<td>refuse pit</td>
<td>48</td>
<td>25</td>
<td>15</td>
<td>north side of wall</td>
<td>shell, coprolites, cotton seeds, ceramics</td>
</tr>
</tbody>
</table>

Table 10.2 Table showing attributes of pits and holes excavated.
shell, *zapallo* (squash) seeds, cotton, other burned seeds, ceramics, lithics, and compact earth from inside the pit. This type of refuse seems characteristic of a dump of trash generated from domestic activity.

Refuse pits are pits into which trash is dumped. The ones at Acaray vary in size and shape, and I attempt here to distinguish them based on their contexts and contents. Small pits (with a Length value under 50 cm) were likely used to dispose of trash. In TU 3, for example, the largest of these small pits, shell, coprolites, cotton seeds, and ceramic sherds were recovered from it. In TU1 there was also a variety of materials recovered, that include food remains but also textiles bits and feathers. There is nothing that calls attention to these deposits as being more than mundane trash dumps. Similar, small scale refuse dumping events were also documented in blocks 1B and 1C.

Three refuse pits in particular, however, may be related to feasting associated with the reconstruction of the major structure on the hilltop of Sector A, and represent very different kinds of trash dumping behavior than what we see in the other pits discussed above. These pits are distinguished first and foremost by their size. They are not associated with the kinds of refuse from small-scale food preparation, which is more likely to look like the pits just described. Rather, these pits are intrusive into architecture, and are filled with abundant botanical and food remains. This filling achieves a leveling out of surfaces, and serves a construction need simultaneously.

**10.2 Ofrendas (Offerings)**

A number of special objects or deposits were found in intrusions in floors or in construction fill layers in subsector A3, especially from the structure at the summit of
Sector A. I characterize these as intentional deposits and thus *ofrendas* (offerings)\(^{12}\).

Some are associated with construction or reconstruction of major structures at the site. In the case of *ofrendas* made in intrusions, I differentiate these from other intrusions or pits based on their content.

**10.2.1 Ofrendas in intrusions and depressions in the bedrock.**

In Block 1A an intrusion was excavated that was filled with abundant botanical material, and lined at the bottom with coca leaves. This deposit was made by first destroying a series of plaster floors and digging a narrow circular pit down to bedrock. Coca leaves still attached to their branches were placed along the bottom of the pit directly on top of the bedrock, and the entire pit was filled with trash remains. The burial of coca leaves as part of offerings to places or ancestors is documented in the Andes (Dorsey 1894). Usually this practice is associated with the chewing of coca as well among a group of people. The link between coca leaves and ceremony documented ethnographically and historically suggests this context is indeed a sacrificial deposit.

Different kinds of intrusions were dug into the hill itself. The nature of the bedrock in some areas of the hilltop facilitated the creation of depressions or intrusions into the rock. Consisting of easily degraded rock, one could scrape away at the surface to make holes. Several of these were encountered in the excavations of Blocks 1A, 1B, and 1C. In each case the holes were filled with trash remains that contained abundant botanical material. These seem similar, in terms of their content, to the intrusion made into architectural elements described above. In one case in particular, the intrusion underlies a bench that was destroyed and later reconstructed in Block 1A (Figure 10.1).

\(^{12}\) Although offerings of this nature are documented cross-culturally, here I opt to use the Spanish term applied to these offerings in the Andes, *ofrendas*. 

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Because it was at the base of this construction, it may be a foundational deposit of refuse from activities surround construction (such as eating).

Figure 10.2 Pit dug into the bedrock in Block 1A. Note the wall of the early bench and the containing wall of the later bench.

10.2.2 Ofrendas in construction fill.

The ofrendas found in construction fill were associated with the construction of benches, or banquettes in the summit structure of Sector A. These ofrendas stand out
because they are not seen, and presumably were not means to be encountered or recovered. They may be thought of as deposits that strengthen the structure being built or rebuilt, and simultaneously as the materialization of practices that serve to strengthen group relationships.

**Block 1A ofrendas**

Block 1A yielded two *ofrendas* from within the later bench. Both were not intrusive, but rather placed as part of the fill during the construction of the bench. One *ofrenda* consisted of two textiles bags, and the other of a bundle of rope and botanical remains.

The rope and botanical bundle was placed against the earlier bench identified in Block 1A, at a lower depth than the textile offering discussed below was encountered (61 cm below datum for Block 1A). The two, however, come from the same deposit of construction fill. The botanical bundle was roughly 40 cm by 40 cm in size, with a single plant rope fiber extending from it (Figure 10.2). This specific context has not yet been analyzed. However, pieces of maize plant and *caña brava*, among with a mixture of other twigs and plant fibers, were visible in the mass of botanicals. The rest of the fill layer of the bench did not contain similar remains.

The textile bundle offering was by far more complex. Appendix D is a detailed description of the method used to open the two textile bags, and of each individual item contained in the bags in table form. The two textile bags were placed on top of each other against an earlier bench or wall which was hidden by the construction fill of the later bench (Figure 10.3). The top bag was a brown and tan striped cotton textile (Textile Bag 1), while the lower one was a plain brown cotton textile (Textile Bag 2). The textile
*ofrendas* contained a variety of materials that are somewhat enigmatic. The contents of each bundle were configured in specific ways and carefully constructed. Here I summarize the contents, but refer to the corresponding appendix for greater detail.

![Figure 10.3 Detail of botanical bundle in the construction fill of Block 1A.](image)
Textile Bag 1 was sewn on three sides with its open end tied by a fiber string. The contents of Textile Bag 1 consisted of bundles of white and brown cotton yarn, several bundles of an as yet unidentified fiber (probably plant) in three different colors (tan, brown, and reddish), two braided fiber weaving loom holders, three seed necklaces of an as yet unidentified seed, and some loose botanicals including a lúcuma pit and a fragment of the *Huperzia* plant (identified by Luis Huamán, see Appendix F). There was a smaller textile bag within this one which contained more bundles of brown and white cotton yarn as well as a smaller textile bag which contained a white mineral.
Textile Bag 2 was more complex and contained a greater variety of items. There were a series of bags inside other bags, and many of these showed signs of patching. That is, they were reused items that had been mended and/or altered, and were not newly created for inclusion in this offering. The outer bag, unlike Textile Bag 1, was knotted shut. Inside were three smaller textile bags (objects 4, 5, and 6), the largest of which was tied to the knot of the outer bag (object 4).

Object 4 contained cotton bundles of white and blue yarn, fiber bundles similar to those found in Textile Bag 1 (some of which may actually be hair bundles), as well as three different textile pieces. One was a small empty net bag made of fiber, the other was a brown textile piece (probably wool), and the third was a decorated textile bag (probably wool and fiber).

Object 5 was also tied in a knot to seal it. Inside it were three smaller cotton textile bags, each with contents, as well as a wool bag, a cotton or plant fiber plain net bag, and a net bag similar to that found in object 4 with contents that mirrored, in miniature, what were found in Textile Bag 1 above. The three smaller textile bags contained seven bundles of *Huperzia* plant pieces (the same as an isolated one found in Textile Bag 1). Two bundles were tied with yellow fiber, four were tied with dark brown fiber, and the seventh was tied with a combination of yellow and dark brown fiber. The other smaller textile bags included a seed necklace different from the one encountered in Textile Bag 1, and the same white mineral found in Textile Bag 1.

The miniatures found in the net bag were not removed to preserve the bag itself. But the netted nature of the bag permitted the observance of more of the same white mineral, two small braided rope objects that I suspect are loom holders, and a seed
necklace made of the same seed as in Textile Bag 1. Object 6 was a cotton textile bag open on one end that contained a smaller cotton textile bag filled with the white mineral, a braided fiber weaving loom holder, a ball of fiber (probably plant), and a different kind of seed necklace.

Eight of the 22 textile pieces analyzed from the bundles showed signs of mending or patching. These were not new pieces of cloth, but used, and reused, items that had been patched throughout their life-histories. Some of the textile pieces and fragments, then, would be consistent with ceremonial refuse. However, they contain a variety of items that are more consistent with sacrificial deposits. One other characteristic of some of the textiles from these two offering bags that is of interest is the nature of the yarns used in the pieces. Nine of the pieces had components that were s-spun. Yarn spun in this way is referred to as counterspun. It has been suggested by some scholars that counterspinning is linked to magic (Kula 1991). In this particular area, since z-spun appears to be the ‘normal’ tradition, s-spun yarn is unusual, and perhaps special.

The significance of the association of these varied materials together is not clear, and perhaps not knowable. But the items can be discussed individually with regarding to their known documented uses or functions. The \textit{Huperzia crassa} plant, commonly known as \textit{shimba}, today grows in the \textit{puna} region (colder highlands) of the Andes between 3500 and 4500 m.a.s.l. (Cano, et al. 2006:271). In traditional medicine it is used as a sedative, and is believed to stimulate fertility in guinea pigs (Cano, et al. 2006:271), or used to ensure good luck and success in travel, as a fragrance, or to combat “bad air” (Bussmann and Sharon 2007:356). \textit{Huperzia crassa} plant fragments were also recovered from the
screens during excavation of the banquette of Block 1C. A lúcuma pit, a maize kernel, and part of what could be identified on the spot as aji were also found in the bags.

Textile bundles with seed necklaces placed in them are reported in other finds on the north and central coasts of Perú. The Acaray textile bundle offerings bear some similarities to these reported finds. One of the three seeds of which these necklaces are made may be Nectandra, known as ishpingo. Ishpingo seed necklaces have been found in Chimú tombs on the north coasts, and associated with tombs and ritual offerings of the Late Intermediate Period on the central coast, such as at Pachacamac, Chancay and Ancón (Montoya Vera 1996, 1998; Towle 1961). Ishpingo is commonly associated with shamanism and ritual. One study noted its use by curanderos (healers) of the north coast to appease huacas (shrines), mountains, and winds that may cause illness (Camino 1989:182). Ishpingo (Nectandra floribundo or reticulata) is also used to deal with fright, “bad air”, the nervous system, epilepsy, and to prevent enchantment (Bussmann and Sharon 2007:343-345). Father Pablo Joseph de Arriaga, an extirpator of idolatries during the early colonial period, makes mention of the use of ishpingo in offerings or sacrifices made to huacas on the coast (Arriaga 1968[1621]:41). He notes that ishpingo was brought from the Chachapoyas region, ground into a powder and mixed with chicha. In Block 1A we uncovered a mass of what appeared to be the remains of ground maize gruel, something similar to what remains when chicha is strained during its production (this tentative identification was made in the field by Hernán Guillermo, January 2006).

Textile bundles containing yarn or fiber bundles have been found associated with Late Horizon burials at Rinconada Alta in the Rimac Valley on the central coast (Frame, et al. 2004). The fiber bundles found in a funerary bundle at Rinconada Alta, identified as
furcraea or cabuya (common name), are similar to the ones described above. While at Rinconada Alta the bundles were the raw material used to make slings placed with the body, the fiber bundles in the textile bags from Acaray were used to make the braided loom holders found in the ofrenda. The fiber, if it is cabuya, was not local. Today the plant is found in the Andean highlands between 1200 and 3500 m.a.s.l. (Cano, et al. 2006:193).

The white mineral contained in both textile bags underwent a basic mineralogical determination by the Instituto Geológico Minero y Metalúrgico (INGEMMET) in Lima, Perú which identified it as consisting of feldspars, clays, and quartz. Another sample of the mineral subsequently underwent Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICPMS) at the Field Museum in Chicago (courtesy of Dr. Laure Dussubieux and with collaboration by Dr. Nathan Craig). A summary of the results of that analysis are shown in Table 10.3. These results are only semi-quantitative because they were not used with appropriate standards. Nevertheless, they give some indication of what the mineral is made of. Both the Ingemmet and ICPMS results are included in Appendix I.

I hypothesized that the mineral might be consistent with a mordant, something used to fix dyes to textiles. Common mordants are aluminum salts and iron derivatives, or more generally, metal oxides, as well as tannins and oxyfatty acids (Liles 1990:4; Wouters and Rosario-Chirinos 1992:239). The mineral from the offering bundle is composed largely of aluminum oxide. Today this compound is used in a variety of industrial processes. However, it is not possible to say this mineral was used as a mordant in the Huaura Valley in prehispanic times. The mineral appears to be caustic. It
contributed to the deterioration of the cotton textile bags in which it was placed. It, however, did not deteriorate the plant fiber bags.

<table>
<thead>
<tr>
<th>Compound</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaO</td>
<td>.1</td>
</tr>
<tr>
<td>K₂O</td>
<td>.1</td>
</tr>
<tr>
<td>SiO₂</td>
<td>.2</td>
</tr>
<tr>
<td>Na₂O</td>
<td>.3</td>
</tr>
<tr>
<td>MnO</td>
<td>.4</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>8.3</td>
</tr>
<tr>
<td>MgO</td>
<td>21.6</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>68.9</td>
</tr>
</tbody>
</table>

Table 10.3 Major compounds identified in the white mineral using ICP-MS.

**Block 1C ofrenda**
A ceramic vessel filled with beans, *lúcuma* seeds, maize cobs, and other food remains was broken and interred as part of the construction of the low bench along the southern end of Block 1C (Figure 10.4). The vessel was placed against an earlier wall hidden by the later construction of this bench. A smoothed handstone (*mano*) was placed on top of the vessel. The handstone showed signs of use-wear, but was not broken and could conceivably have continued to be used. The fact that it was interred in architecture suggests the offering itself is consistent with a sacrificial deposit. Whether the ceramic vessel was broken at the moment it was placed there, or afterward under the weight of construction fill, is not known.
10.3 Burial and human remains

One human burial was encountered in TU2, Subsector A3. The burial was encountered in a deep layer of construction fill with abundant rock. Detailed skeletal analysis of the individual was conducted by Rebecca Osborne, and her report is included in Appendix C. The skeleton was associated with very few burial goods (a gourd bowl and some stone and shell beads), and is probably a secondary deposition of this individual. Some textile fragments were still stuck to parts of the cranium, and other fragments were recovered from the soil matrix around the individual, suggesting she had been wrapped in textiles at one point. However, either the majority of the textile wrap
disintegrated, which seems unlikely given the high state of preservation of other materials, or the body was unwrapped and reinterred.

The skeleton’s position also gives some clues that suggest it is a secondary interment. While most of the burial itself had a matrix distinct from that of the surrounding fill, the cranium was detached from the body and was encountered in looser soil. A large cut stone had been placed over the head. The rest of the body was articulated in a flexed fetal position, but the legs and arms were at a very awkward angle. This woman was laid with her back down, and her arms were behind her with her hands near the heels of her feet. The context lies above a burning event which I interpret as Early Horizon in date. Thus, the burial was likely placed there during a construction event by Early Horizon people. They may have reinterred an individual burial encountered elsewhere, or reinterred one of their own. The skeleton would need to be dated to confirm in which time period the person lived and died.

Few other human remains were found, and they consisted of isolated body parts. These were recovered from TU4 in Subsector B4. A human hand, a rib, and part of a human radius and ulna were found in different levels of the construction fill revealed in this excavation. Since this fill is associated with the reconstruction of the uppermost defensive wall (*muralla 5*) the human remains likely come from a disturbed context and were included during reconstruction.

It is interesting that the only human bone recovered comes from excavations carried out on the summits of both Sectors A and B. Remains of looting of a possible tomb located in the major structure of Subsector A3 were recovered in Block 1B as well, although no human bone was found. Nevertheless, this suggests that if any human burials
were located within the fortress, they are located on the summits. It is important to note that no evidence of human victims of battle or attack was found in the fortress, which was an expectation given that the site is defensive and shows signs of possible destruction. Recall the human massacres carried out by the Chimú at both Pacatnamú and Punta Lobos in Huarmey, and the Late Intermediate Period human sacrifices from Cerro Lampay discussed in Chapter 3. Crania with skull fractures are encountered in the looted cemeteries below the fortress (Figure 10.5a and b). However, evidence of this kind of was not recovered in the fort at Acaray.

Figure 10.6a and b Crania from Sector D showing signs of blunt force trauma (left), with detail (right). Photos taken by Lori Jahnke and used with her permission.

The burial of human remains in construction fill could be interpreted as linking reconstruction efforts to ancestors and history, and thus community. The removal of body parts from complete skeletons and their curation and reinterment can be linked to the importance of maintaining group identity and links to the past, and can be indicative of ritual veneration (Weiner 1985:218-219). When employed in construction efforts human remains may play a role as a dedicatory offering. From an Andean perspective, this is a
practice that has been well-documented archaeologically and ethnographically (Andrews 1974:250; Blom and Janusek 2004; Dulanto 2002). Human offerings, or rather sacrifices, are interred in construction projects such as bridges or terraces and are believed to be required to appease the deities (Gose 1986:303), or perhaps to strengthen those structures. The latter is a common belief held today about the recent construction of a new bridge crossing the Pativilca River (Juvino Chavez, personal communication, June 2008). This is another possible interpretation of the burial of an elderly woman and isolated human body parts in the construction fill of defensive ramparts at Acaray.

10.4 Discussion of ritual spaces, shelters and houses

Some of the burning events are consistent with what Kuznar has referred to as “crematory basins” (Kuznar 2001:59). These features are shallow and are the result of a fire intense enough to produce ash and alter the color of the soil due to exposure to heat. He links these to altars, another type of feature that is found at sacred places (Kuznar 2001:50). Altars take on a variety of forms in Andean religious traditions, some being more temporary than others, and others simple being mobile textile bundles with the necessary paraphernalia contained inside. These can be laid out when used, then rebundled after rituals are carried out.

The major structure on the hilltop of Sector A was a ritual space during the Late Intermediate Period. No formal cooking places could be identified in the space, nor were there post holes that would indicate it was roofed as one would expect a house structure to be. The nature of the underlying architecture and the manner in which it was destroyed and rebuilt suggests it represented a space of importance during the Early Horizon as well. That may have contributed to its significance for later populations. Feasting and
dumping or filling events have been documented for the building of mounds during the late Preceramic period at the site of Cerro Lampay in the Fortaleza Valley to the north (Vega-Centeno Sara-Lafosse 2007). This kind of activity is documented archaeologically in North America (Kelly 2001; Knight 2001; Pauketat, et al. 2002) and ethnographically for a number of world areas (Dietler and Herbich 2001). While this kind of activity is typically associated with mount or platform construction, it seems plausible that work parties rebuilding a fortress might also deposit feasting trash as they build and rebuild or modify architecture. Whether this is associated with some kind of renewal ceremony is not something that can be argued with the evidence presented. But the fact that these kinds of deposits were only found in the structure at the summit of Sector A, and not elsewhere in the site, suggests this activity was limited to this space.

Coca leaves were found in a deposit in Block 1A (see section 10.2.1 below), and an area of burned shell in Block 1C may be consistent with the burning of shell to make cal for chewing coca. Coca chewing and the offering of coca leaves in ofrendas or despachos is well documented in the Andes (Allen 1981, 1988). This activity is known to accompany routine daily activities, such as engaging in physical labor or visiting someone, as well as events of greater significance. Today and in the recent past coca chewing has been documented in contexts essentially involving work parties for house roofing events, or even agricultural activities (Burchard 1992:13-14). Coca leaves are known to be burned in some cases for the ‘spirit beings’, or buried (Allen 1981:160; Dorsey 1894:309). Before chewing people often invoke the spirits. I think it is particularly significant that coca chewing is often an activity people engage in when they visit or encounter one another. It is often shared among a group of people, and scholars
have argued its practice is important to reciprocal relations among people. It is a tangible way in which social relationships are solidified and reinforced (Allen 1981:166). These two aspects of the practice of coca chewing, that of recognizing a relationship between an individual chewer and the spirit beings, and the relationships that exist between people who chew together, speak to the integration of ritual practices and community (Allen 1981:161). We only documented residues of this type of activity in the summit structure of Sector A. This further supports an interpretation of this as a ceremonial space, where small groups of people may have engaged in practices that solidified social relationships.

The nature of the trash deposits (possibly of feasting) might also be considered as ceremonial trash. Additionally, other items, such as weaving and wooden implements (discussed in section 10.6.5 and 10.6.7.) were encountered in Block 1A. These items were either abandoned, or interred to garner their remaining power, suggesting they are sacrificial deposits (Walker 1995, 1998). Sacrificial deposits can be interpreted as “embodied memories”. The textile bundles in particular were buried not with reference to a past, but rather with an eye toward the possibilities of the future (a new community) (Rowlands 1993:146-146). In this instance, interring the object is not an act of forgetting, but of future remembering.

With regard to domestic space, people were likely living temporarily on some of the terraces located on the slopes of the ridge both within and outside of the defensive walls during the Late Intermediate Period. In these spaces there is more evidence for domestic activities. Excavations failed to document formal, permanent housing at the fort. Yet we know from ethnographic examples of mobile people that seemingly
temporary housing can be used repeatedly over long periods of time (Kuznar 1995:55-57). Thus housing was likely periodically used, and more ‘makeshift’ in character.

The term windbreak has been used to refer to small, low wall structures associated with very little rubble, indicating they did not originally have high walls (Wilson 1988). Similar structures have been documented ethnographically among pastoral people in southern Argentina (Delfino 2001). They serve as temporary shelter because they are not associated with residential activities, and are characterized by an expedient method of construction. The four small single roomed structures found in Sector A may be consistent with this kind of temporary shelter.

10.5 Discussion of caching and dedicatory practices

I distinguish between ofrendas placed in construction fill, and those consisting of mainly plant remains that were placed in intrusions or pits. The ofrenda from Block 1A in particular employs a variety of objects with undoubted symbolic value. Symbolic objects are used to communicate within the group a common goal (Turner 1974:37). This is a different kind of ritual than that carried out in a commemoration rite, such as may be done on a pilgrimage to make an offering to a sacred site. The latter do not necessarily involve group symbols. While understanding the meaning of symbols is a difficult endeavor for the archaeologists, we can think about the objects themselves and their use to infer the social significance of the practices that employ them.

It is interesting to think of the Block 1A ofrenda in light of theories of materiality, in particular, the concept of singularities and inalienable possessions (Weiner 1985), and what Mills has referred to as “repositories of group identity” (Mills 2004:242). Burial of significant objects achieves their ultimate inalienability, and signals their high value
within a society (Weiner 1985:219). Some of the items contained in the ofrenda were used, and others were raw materials that would have been good for the production of textiles, for example. Thus, this type of offering is similar to the expectation laid out in Chapter 4 for sacrificial deposits (Walker 1995, 1998; Walker and Lucero 2000).

References in the ethnographic literature may give some insight into the practice of bundle making and deposition. Llama herders in Ayacucho carry out a ceremony that is called herranza (Flannery, et al. 1989:144). This ceremony is for protection of llama herds, but also might be interpreted as a communal gathering for the purpose of reestablishing property and territorial boundaries (Flannery, et al. 1989:178). Families come together, each with a bundle that contains a variety of ritual paraphernalia, including a mineral powder called llampu. Llampu is translated as “soft to the touch” in Quechua, and defined as “a clay mineral, ground to a powder and mixed with white cornmeal, used to allay the adversity caused by breaking relations with the wamani” (Flannery, et al. 1989:181). These bundles are offered to each family’s wamani, a hilltop spirit.

While the ends of the herranza ceremony that took place during the assembly, transport, and ultimate interring of the bundles is not the same as the herranza, we can suggest that the bundles from Acaray are a materialization of a group congregation to strengthen a social relationship – either among the members of the group, between the group and deities, or both. Additionally, I am intrigued by the llampu, white powder, used in the ceremony. This is the only description of an object that is somewhat similar to the white mineral found in the Acaray bundles. Elsewhere llampu is described as ground white maize (Gose 1986:300).
In general, these ofrendas can be considered to be similar to dedication rituals documented for the American Southwest, the Maya region (Walker and Lucero 2000), and the American Midwest (Pauketat and Alt 2004). The caches from Acaray are found at the base of old structures that were partly dismantled (the ofrendas in bedrock), as well as in fill used in the construction of benches, or banquettes, in the major structure on the hilltop of Sector A. When considered with later depositional evidence of ritual activities in the form of intrusions filled with botanical remains, these “pathways” seem consistent with repeated ritual activity in this space over time during the Late Intermediate Period.

The nature of this ritual activity took on a different form than that linked to the Early Horizon use of this same space. The partial uncovering during excavations of an underlying construction on the summit of Sector A showed that the previous architecture was oriented differently. I suggest the original structure could have been a plastered stepped platform structure, which has been noted for other fortresses (Willey 1953). I suggest this type of construction enabled more visible (public) ritual to take place on the hilltop during the Early Horizon.

The later structure, with smaller rooms that appear to have created smaller activity spaces, and associated with higher walls, might be more consistent with rituals in which only a few participated. The concentration of adobes excavated in Block 1C is similar to a singular context reported for the site of Cerro Lampay in the Fortaleza Valley. Cerro Lampay is a late archaic site with three intrusive burials, two of which may have died violently, that date to the Late Intermediate Period (Vega-Centeno Sara-Lafosse, et al. 2006). A low adobe platform was identified associated with the ephemeral Late Intermediate Period reuse of Cerro Lampay, although there is not a description of
what kind of activity may have been associated with the platform. The authors suggest it may have been a cover or seal of some sort. The yellow plaster adobe floor in Block 1C extended up the side of the adobe feature, so that it represented a corner or reboque. This characteristic does not seem consistent with a seal, but rather with an architectural element that has been disassembled so that only its base remains. There might have been an additional bench or elevated plastered surface, which suggests further restriction of the space during Early Horizon times compared to Late Intermediate use of this space.

10.6 Artifact classes
In this section I discuss artifact classes individually. Where appropriate I discuss types of artifacts together, such as weaving tools. I attempt to distinguish different types within each artifact class that are associated with either the Early Horizon or the Late Intermediate Period use of the site. Some artifacts are illustrated here, but ceramic drawings can be found in Appendices A and B, and other artifact photos are in Appendices D, E, and H.

10.6.1 Ceramics and pottery production
In Chapter 3 I discuss some of the ceramic styles known for the region. Here I tie the ceramics from Acaray to these known styles. 1168 fragments were analyzed from surface collections. Surface collections come from the fortress (Sectors A-C) and from areas below the fort within the larger archaeological complex of Acaray (Sectors D and E). A total of 44,960 ceramic sherds were recovered from excavations in Sector A and B of the fort at Acaray (453.51 kg by weight). Of that total, 5466 were determined to be diagnostic (12.16%). Attribute data was collected on a sample of the diagnostic ceramic sherds from excavations. In this section I present summary information on the surface
collections, and attribute data for 1941 sherds that were analyzed from both test units and area excavations. Details of both analyses are presented in Appendices A and B.

Bowls were the most common form represented in surface collections (Table 10.4). Cups are also more common in Sector D and E than in the fort. The neckless *olla* is restricted to the fort. Since this form is considered diagnostic of the Early Horizon, it is interesting that it is only found on the fort, and not in the low-lying areas around the fort. This suggests there is not an Early Horizon occupation in these areas, or that it is covered by later remains. As churned up as these areas are, however, it would not be unreasonable to expect some Early Horizon sherds to be found. This form is also very uncommon in Sector C, where only 1 sherd belonged to a neckless *olla*.

The amphora form is represented in low numbers in subsectors A1, B2, and sector E, but it is found primarily in subsector C3 and sector D. Amphoras are thick walled, large vessels that would be appropriate for storage. Their orifice ranges in size from 31-46 cm in diameter, and wall thickness is anywhere from 12-14 mm.

57% (667) of the sherds from surface collections had some surface treatment or decoration. By far the most common decoration was yellow slip (47%). Because yellow slip is used in ceramics that date not only to the Late Intermediate Period, but to the Early Intermediate Period as well, it is difficult to know what percentage of this total corresponds to these time periods. Other decorative elements that correspond to Late Intermediate Period styles, such as incised and impressed wares, appliqués, black on white painted ceramics, and black wares, comprise almost 21% of surface collections (this does not include the yellow slipped wares). Punctate and cane-stamped ceramics could be Early Horizon or Late Intermediate Period, since circular incisions appear
during both time periods. The late Early Horizon San Blas style known from the far upper Huaura Valley, in the region of Cayash, has incised and stamped circles (Krzanowski 1986:167). One might say that the Early Horizon incised circles are created by drawing a circle on the clay, since the circles are somewhat oval-shaped and are variable. The Late Intermediate Period incised circles are more systematically executed, and potters probably did employ a hollow tube, like a cane reed, to make the incised circles. The manner in which data were collected on these surface sherds, however, does not permit a distinction between the two.

Sherds decorated with burnished lines, which are diagnostic of the Early Horizon, were found in Sectors A and B. No sherds with this surface treatment were found in Sectors C, D, or E. The distribution of the neckless olla form and burnished line decoration corresponds with the hypothesized Early Horizon configuration of the fortress discussed in Chapter 6. Vessels that would be appropriate for storage, such as amphoras, have a distribution that does correspond well with the Early Horizon configuration. They are found in the abundance at the summit of Sector C, the least defensible and potentially latest addition to the fortress. Amphoras are also represented in nearly equal numbers from Sector D, the area below and to the north of the fortified ridgetop.
<table>
<thead>
<tr>
<th>Subsector</th>
<th>Plate</th>
<th>Cup</th>
<th>Bowl</th>
<th>Neckless olla</th>
<th>Necked olla</th>
<th>Jar</th>
<th>Canteen</th>
<th>Amphora</th>
<th>Not determined</th>
<th>Other closed vessel</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>0</td>
<td>71</td>
<td>31</td>
<td>29</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>81</td>
<td>74</td>
</tr>
<tr>
<td>A2</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>A3</td>
<td>0</td>
<td>0</td>
<td>22</td>
<td>12</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>27</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>B1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>8</td>
<td>4</td>
</tr>
<tr>
<td>B2</td>
<td>2</td>
<td>2</td>
<td>29</td>
<td>5</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>21</td>
<td>21</td>
<td>38</td>
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<tr>
<td>B3</td>
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<td>0</td>
<td>31</td>
<td>6</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>13</td>
<td>15</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>C1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>1</td>
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<td>1</td>
<td>0</td>
<td>23</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>C3</td>
<td>2</td>
<td>2</td>
<td>29</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>18</td>
<td>18</td>
<td>37</td>
</tr>
<tr>
<td>subtotal</td>
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<td>5</td>
<td>209</td>
<td>62</td>
<td>65</td>
<td>1</td>
<td>1</td>
<td>20</td>
<td>203</td>
<td>203</td>
<td>239</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>12</td>
<td>93</td>
<td>0</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>12</td>
<td>38</td>
<td>38</td>
<td>79</td>
</tr>
<tr>
<td>E</td>
<td>0</td>
<td>2</td>
<td>54</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
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<td>36</td>
</tr>
<tr>
<td>subtotal</td>
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<td>14</td>
<td>147</td>
<td>0</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>14</td>
<td>54</td>
<td>54</td>
<td>115</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>19</td>
<td>356</td>
<td>62</td>
<td>73</td>
<td>4</td>
<td>2</td>
<td>34</td>
<td>257</td>
<td>257</td>
<td>354</td>
</tr>
<tr>
<td>% Total</td>
<td>0.6</td>
<td>1.6</td>
<td>30.5</td>
<td>5.3</td>
<td>6.3</td>
<td>0.3</td>
<td>0.2</td>
<td>2.9</td>
<td>22.0</td>
<td>22.0</td>
<td>30.3</td>
</tr>
</tbody>
</table>

Table 10.4 Table of pottery forms for surface collections.
Sherds from excavations permit a more detailed discussion of the distribution of forms and decorative techniques within the fortress. All sherd lots were analyzed for TU6, while analysis of only a sample of sherds lots from all other units could be carried out. A large sample of sherds was analyzed from Block 1A. Thus, discussion is focused on TU6 and Block 1A. Frequency charts for other units can be found in Appendix B.

### Table 10.5 Frequency of forms for all sherds analyzed.

<table>
<thead>
<tr>
<th>Form</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>bowl</td>
<td>280</td>
<td>14.4</td>
<td>60.5</td>
</tr>
<tr>
<td></td>
<td>jar</td>
<td>33</td>
<td>1.7</td>
<td>67.6</td>
</tr>
<tr>
<td></td>
<td>cup</td>
<td>2</td>
<td>.1</td>
<td>68.0</td>
</tr>
<tr>
<td></td>
<td>plate</td>
<td>27</td>
<td>1.4</td>
<td>73.9</td>
</tr>
<tr>
<td></td>
<td>canteen</td>
<td>16</td>
<td>.8</td>
<td>77.3</td>
</tr>
<tr>
<td></td>
<td>olla</td>
<td>105</td>
<td>5.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>463</td>
<td>23.9</td>
<td>100.0</td>
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<tr>
<td>Missing</td>
<td>undetermined</td>
<td>1478</td>
<td>76.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1941</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Of the 1941 sherds vessel form could not be determined on 1478 sherds, about 76% (Table 10.5). The most common vessel form for those sherds for which form could be determined at the fortress of Acaray is the bowl (280, or 60% of the 463 sherds where form was determined). The next most common form is the *olla* (105, or 23%). Jars, plates, canteens, and cup forms are found, but in relatively low numbers. Jar forms appear to be found primarily in the structure on the summit of Sector A. That is, they are represented in Blocks 1A, 1B, and 1C, although jars are present in TU6 also. Admittedly this may be a factor of which lots were analyzed, since only a sample from most excavation units was analyzed (with the exception of TU6). Of these jar forms, a few might be considered storage vessels, since they are large, with thick walls (see figure 10.5). They come from Block 1A (lots 55 and 67), Block 1B (lot 62), and Block 1C (lot...
The vessel from lot 135 is an offering vessel that was excavated from the fill of a low bench, and was filled with beans, maize, and *lúcuma*.

Figure 10.7 Jar forms by wall thickness and rim diameter. Numbers indicate lots.

TU6 sherds consisted of bowl, ollas, and jars (Table 10.6). A high percentage (96.3%) of sherds had no decoration type (Table 10.7). The most frequent decoration type on those sherds that were decorated was patterned burnishing. The two painted sherds were black on red, and white on red, but they could not be matched up to published ceramics that might indicate time period. The white on red sherd belonged, however, to a neckless pot (*olla*), so it may be Early Horizon in date. Patterned burnishing is also recognized as an Early Horizon decorative technique.
Table 10.6 Frequency of form types for TU6.

<table>
<thead>
<tr>
<th>Form</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>634</td>
<td>90.3</td>
<td>90.3</td>
<td>90.3</td>
</tr>
<tr>
<td>not determined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bowl</td>
<td>38</td>
<td>5.4</td>
<td>5.4</td>
<td>95.7</td>
</tr>
<tr>
<td>jar</td>
<td>8</td>
<td>1.1</td>
<td>1.1</td>
<td>96.9</td>
</tr>
<tr>
<td>olla</td>
<td>22</td>
<td>3.1</td>
<td>3.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>702</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.7 Frequency of decoration types for TU6.

<table>
<thead>
<tr>
<th>DecType</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>incised</td>
<td>1</td>
<td>.1</td>
<td>.1</td>
<td>.1</td>
</tr>
<tr>
<td>impressed</td>
<td>1</td>
<td>.1</td>
<td>.1</td>
<td>.3</td>
</tr>
<tr>
<td>painted</td>
<td>2</td>
<td>.3</td>
<td>.3</td>
<td>.6</td>
</tr>
<tr>
<td>patterned burnishing</td>
<td>22</td>
<td>3.1</td>
<td>3.1</td>
<td>3.7</td>
</tr>
<tr>
<td>not applicable</td>
<td>676</td>
<td>96.3</td>
<td>96.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>702</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The vessel forms from Block 1A are more variable than TU6 (Table 10.8). In addition to bowls, olla, and jars, fragments of a plate and a cup were recovered. 91.8% of sherds form Block 1A also had no decoration. Of those that were decorated, painting and incising were the most common decoration techniques (Table 10.9). A few sherds also exhibited molded and stamped decoration, as well as incising and burnishing together.
<table>
<thead>
<tr>
<th>Form</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>704</td>
<td>89.7</td>
<td>89.7</td>
<td>89.7</td>
</tr>
<tr>
<td>undetermined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bowl</td>
<td>25</td>
<td>3.2</td>
<td>3.2</td>
<td>92.9</td>
</tr>
<tr>
<td>jar</td>
<td>16</td>
<td>2.0</td>
<td>2.0</td>
<td>94.9</td>
</tr>
<tr>
<td>cup</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>95.0</td>
</tr>
<tr>
<td>plate</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>95.2</td>
</tr>
<tr>
<td>olla</td>
<td>38</td>
<td>4.8</td>
<td>4.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>785</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.8 Frequency of form types for Block 1A.

<table>
<thead>
<tr>
<th>DecType</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<tr>
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<td>21</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>incised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>impressed</td>
<td>3</td>
<td>0.4</td>
<td>0.4</td>
<td>3.1</td>
</tr>
<tr>
<td>painted</td>
<td>31</td>
<td>3.9</td>
<td>3.9</td>
<td>7.0</td>
</tr>
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<td>molded</td>
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<td>0.3</td>
<td>0.3</td>
<td>7.3</td>
</tr>
<tr>
<td>patterned burnished</td>
<td>5</td>
<td>0.6</td>
<td>0.6</td>
<td>7.9</td>
</tr>
<tr>
<td>stamped</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
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<tr>
<td>incised and burnished</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>8.2</td>
</tr>
<tr>
<td>not applicable</td>
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<td>91.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>785</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.9 Frequency of decoration types for Block 1A.

The cup and plate sherd fragments come from a surface layer in Block 1A, and can be reasonably interpreted as Late Intermediate Period in date. These forms, albeit only represented by two sherd fragments, suggest consumption of food taking place in this structure. Taken into account with the abundant food remains deposited in pits dug into the floors of this structure, and other ancillary evidence such as the remains of possible maize beer production found in the same structure, these vessels types speak to the ceremonial nature of the activities that took place here in the Late Intermediate Period.
Although emphasis was placed on recording attributes, sherds were also identified as belonging to known styles or types when possible. Figure 10.6 shows the breakdown of a total of 287 sherds that could be assigned to a known type or style. As mentioned above, neckless pots (*olla sin cuello*) and decoration using burnished lines are considered diagnostic of the Early Horizon. Cayash and Chancay black-on-white wares belong to the Late Intermediate Period. Note that there are some sherds that could be Middle Horizon (those of the Huaura style). These Middle Horizon wares are poorly defined, and since no radiocarbon dates or other lines of evidence suggest a Middle Horizon occupation at the fortress of Acaray they are difficult to consider.

![Figure 10.8 Bar graph showing sherd counts according to known diagnostic style and form categories.](image-url)
Data from surface collections can be compared with data from excavated sherds, and used to supplement the excavation data since only Sectors A and B are represented. One thing that can be noted is that the amphora form found primarily in surface collections in subsector C3 and Sector D is larger than the largest jar forms we have from excavations (from the summit structure in subsector A3 and TU6). As mentioned above, at least one of the large jars from excavations is an offering vessel. Given the other lines of evidence that indicate ritual activities taking place in the structure at the summit of Sector A, these large jar forms might be more indicative of ceremonial activities. We do not know enough about Sector C to say if this is the case with the amphora forms or not.

There is some indirect evidence for pottery production. Items that could have been used to produce pottery were found in certain contexts, and refuse that might be consistent with pottery production was also found. Ochre found in Sector A (see subsection 10.6.7 below) might have been used in the decoration of pottery. An incised sherd with red powder pigment was recovered from Block 1A. Another indirect line of evidence for pottery production is the presence of sherds showing signs of firing defects, such as warped sherds, and some that exhibited vitrification or sinterization, meaning they were overfired (Table 10.9). Less than 1% of sherds analyzed (15) showed some vitrification. These kinds of sherds are also referred to as wasters and suggest pottery manufacture (Rice 2005:179-180).

---

13 Vitrification was an attribute for which data was collected separately. It does not appear in Table 10.9 for that reason.
<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>unidentified</td>
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<td>.5</td>
<td>.5</td>
<td>.5</td>
</tr>
<tr>
<td>fireclouds</td>
<td>345</td>
<td>17.8</td>
<td>17.8</td>
<td>18.2</td>
</tr>
<tr>
<td>bloating</td>
<td>2</td>
<td>.1</td>
<td>.1</td>
<td>18.3</td>
</tr>
<tr>
<td>sintering</td>
<td>1</td>
<td>.1</td>
<td>.1</td>
<td>18.4</td>
</tr>
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<td>spalling</td>
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<td>.8</td>
<td>.8</td>
<td>19.2</td>
</tr>
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<td>not applicable</td>
<td>1569</td>
<td>80.8</td>
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</tr>
<tr>
<td>Total</td>
<td>1941</td>
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<td></td>
</tr>
</tbody>
</table>

Table 10.10 Table shows frequencies for firing defects of all sherds analyzed. 18% show signs of fireclouds, with small numbers showing bloating, sintering, and spalling.

Several pieces of a ‘pumice’ like rock were recovered in excavations. I have seen similar finds on the surface of other sites in the Huaura Valley (personal observation, June-August 2007). After asking several people from the area I was told it was something found on the shore, and typically used in construction. I suspected it might be worm tubes created by marine worms. An exhaustive search of reports and dissertation yielded an image of the artifact, identified as “ground polychaete worm calcareous head” or “false coral” and as a possible smoothing tool used during the production of pottery (Hayashida 1995:149). However, one would think that clay would then be noticeable inside the holes of the false coral. Given prior interpretations it is not unreasonable to include this as evidence of pottery production, but I recognize the speculative nature of the functional interpretation of this artifact. Other artifacts such as polishing stones (discussed below in section 10.6.2) and a wooden scraping tool are more consistent with items used in smoothing and scraping pottery vessels prior to firing.

Given that no kilns were found, nor areas that were identified as open air firing areas, in our excavations, we must only assume that pottery production took place elsewhere. Open air firing creates a lot of smoke, and we would expect to find firing
areas away from spaces people usually congregate in for domestic or otherwise non-firing activities (Rice 2005:156). Keeping in mind that windy areas are not ideal places for firing due to the potential inability to control firing temperatures, it seems unlikely that firing of vessels took place on the summits of Acaray. I think a likely place where pottery production may have taken place is along the far west end of the ridge, outside of the defensive walls. These areas are mapped, surface collections have been made, and abundant refuse is noted on the surface. However, investigations have not focused on these areas (yet). But it is plausible that refuse from these areas was ported to the fortified hilltops and used in the reconstruction of the fortress. That might explain why we find jumbled remains containing possible evidence of pottery production in fill contexts. If that is the case then this pottery-making refuse would date to an Early Horizon occupation.

Figure 10.9 Unfired or low-fired clay mold for making pottery, recovered from Sector D.
A ceramic mold was also surface collected in 2004 in the cemetery north of the fortress at Acaray (Figure 10.7). Because the area is so jumbled from looting, it is difficult to determine if the mold was from a looted burial, or associated with one of the compound structures. Nonetheless, this is another indication that pottery making was taking place at Acaray, but perhaps not on the fortress. The design of the mold suggests it was used to make the pressed wares typical of the Late Intermediate Period.

10.6.2 Lithic Tools

As mentioned in Chapter 5, lithics were analyzed after basic categorization into two groups: ground and chipped stone. While a total of 252.39 kg of lithic material was recovered during excavations, only 86.85 kg (1933 specimens) was analyzed in the lab. Of that total only 1183 specimens were determined in the lab to be artifacts. 1101 of those could be assigned to a category (see Table 10.11).

<table>
<thead>
<tr>
<th>Lithic Type</th>
<th>Number</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batan</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Mortar</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Pestle</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Polisher</td>
<td>119</td>
<td>10.1%</td>
</tr>
<tr>
<td>Biface</td>
<td>7</td>
<td>0.6%</td>
</tr>
<tr>
<td>Halfed Biface</td>
<td>7</td>
<td>0.6%</td>
</tr>
<tr>
<td>Uniface</td>
<td>496</td>
<td>41.9%</td>
</tr>
<tr>
<td>Flake tool</td>
<td>44</td>
<td>3.7%</td>
</tr>
<tr>
<td>Core</td>
<td>101</td>
<td>8.5%</td>
</tr>
<tr>
<td>Debitage</td>
<td>125</td>
<td>10.6%</td>
</tr>
<tr>
<td>Perforated Stone</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Canto Rodado</td>
<td>197</td>
<td>16.7%</td>
</tr>
<tr>
<td>Slate Blade</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Unidentified</td>
<td>81</td>
<td>6.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1183</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 10.11 Table shows totals and percentages of lithics analyzed. Mortar and Perforated Stone are two categories included because these lithic types were encountered in surface collections, but were not ultimately included in the lithic analysis.

Groundstone at Acaray makes up less than 11% of the total lithic collection that was analyzed. Groundstone consists of batanes (manos), mortars, and handstones such as
pestles, abraders, and polishers (see Table 10.12). Most abundant within the groundstone category are polishers. The three *batanes* recovered in excavations come from contexts that were not directly dated. But I interpret them as pertaining to the Early Horizon occupation. In TU3 two broken *batanes* were used in an activity associated with a building event during the Early Horizon. Other *batanes* at the site were used as construction material, used in the reconstruction of defensive walls, in the construction of *muralla* 3 (dated as a Late Intermediate Period construction – see Chapter 8), and in the construction of a retaining wall in Block 3B, also a Late Intermediate Period context. The reuse of these domestic items as construction materials is consistent with the assertion that materials from the Early Horizon occupation were used to rebuild the site. Given that no other such grinding stones are associated with activities of the Late Intermediate Period use of the site, this lithic type helps us to signal the different nature of activities that took place in the for during the two documented occupations.

*Batanes* in particular are used to process food (Adams 2002:99), which would appear to have been an activity at the site during the Early Horizon. This form of groundstone would be used to grind maize, which was introduced in the Early Horizon and became a major food staple (Pozorski 1987:27). The fact that *batanes* were reused not as food processing equipment, but as construction material during the Late Intermediate Period, signals less concern with that type of food processing at the site. This is not to say that food preparation did not take place at Acaray during the Late Intermediate Period. Perhaps grinding food was less a part of food preparation practices, or this aspect of food preparation took place elsewhere. The kind of food preparation we
see at Acaray for the Late Intermediate Period seems to involve the consumption of fruits such as *lúcuma* and *paca* which do not require preparation.

Handstones, on the other hand, are not sensitive markers of time. The one item identified as a pestle comes from a layer of construction fill of a major defensive wall that is likely Early Horizon in date. 119 lithics were characterized generally as polishing or smoothing stones, and the category itself may be too broad to say anything significant about this type of lithic. Sometimes the differences between tools used for polishing, smoothing, and abrading are not clear (Adams 2002:77). As their names suggest, polishers and smoothers have smooth surfaces, while abraders have a rough surface. Some of the polishers could have been abraders, others could have simply been smoothed pebbles. Without more fine-grained analysis of the tool themselves, including use-wear analysis, it is difficult to distinguish the variety of uses this lithic type represents.

Nevertheless, indications of use wear such as grooves and patina were used to assign these to this category. Polishers and smoothers were recovered from all but one unit (TU8).

Chipped stone made up 65.9% of the total lithics analyzed. Chipped stone was further identified into unifaces, bifaces, halfted bifaces (points), flake tools, cores, and debitage. Seven lithic points were recovered from excavations, four from within the hilltop structure on Sector A (from excavation Blocks 1A and 1C), 2 from excavation Block 3A, and one from TU6. Two lithic points were also recovered in surface collections. Points can be used for a variety of reasons, ranging from hunting to war. In this context it is not easy to determine which use characterized these artifacts. Aside from these there were 7 other bifaces.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Batan</th>
<th>Mortar</th>
<th>Pestle</th>
<th>Polisher/ smoother</th>
<th>Biface</th>
<th>Halfed Biface</th>
<th>Uniface</th>
<th>Flake Tool</th>
<th>Core</th>
<th>Debitage</th>
<th>Slate Blade</th>
<th>Perforated Stone</th>
<th>Canto Rodado</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1A</td>
<td>0</td>
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<td>0</td>
<td>17</td>
<td>2</td>
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<td>58</td>
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<td>21</td>
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<td>4</td>
</tr>
<tr>
<td>B1B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
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<td>0</td>
<td>33</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>0</td>
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<td>1</td>
</tr>
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<td>B1C</td>
<td>0</td>
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<td>0</td>
<td>18</td>
<td>0</td>
<td>3</td>
<td>126</td>
<td>4</td>
<td>6</td>
<td>33</td>
<td>0</td>
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<td>1</td>
</tr>
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<td>B3A</td>
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<td>0</td>
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<td>0</td>
<td>2</td>
<td>9</td>
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<td>2</td>
<td>2</td>
<td>0</td>
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<td>2</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>29</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
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<td>0</td>
<td>1</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>39</td>
<td>9</td>
<td>13</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
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<td>TU3</td>
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<td>0</td>
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<td>15</td>
<td>1</td>
<td>0</td>
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<td>4</td>
<td>13</td>
<td>8</td>
<td>1</td>
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<td>1</td>
</tr>
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<td>TU4</td>
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<td>0</td>
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<td>0</td>
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<td>0</td>
<td>24</td>
</tr>
<tr>
<td>TU6</td>
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<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>113</td>
<td>1</td>
<td>25</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>23</td>
</tr>
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<td>TU7</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
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<td>TU8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Grand Total</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>119</td>
<td>7</td>
<td>7</td>
<td>496</td>
<td>44</td>
<td>101</td>
<td>125</td>
<td>2</td>
<td>0</td>
<td>197</td>
</tr>
</tbody>
</table>

Table 10.12 Table shows types of lithics broken down by unit of excavation for 1102 analyzed lithic pieces.
The majority (64%) of chipped stone tools were unifaces, representing 41.9% of the total lithic collection analyzed. The two confirmed Early Horizon contexts, those of TU7 and excavation block 2, have relatively low numbers of unifaces. Late Intermediate Period contexts yielded greater numbers of unifaces. This type of lithic, which consisted of endscrapers and other non-modified primary flakes, is expedient in nature. Some appear to be flakes from cobbles (canto rodado). Few tools linked to the Late Intermediate Period occupation of Acaray are curated. I suggest Late Intermediate Period chipped stone is not elaborate at Acaray, and that people are probably using materials they find at the site for stone tools. A similar kind of lithic industry reported for a Late Intermediate Site in the Santa Valley is argues to have been used for cleaning fish (Donnan and Moseley 1968:503). Given the few remains of terrestrial animals at Acaray (see section 10.6.8 below), I suggest these tools were likely used for processing marine resources such as fish and shellfish.

Slate blades and perforated stones were special, rarer, lithic artifacts that make up a small percentage of what was found in surface collections and in excavations. Two perforated stone fragments were encountered in surface collections from subsector A1 along the north side of the ridge. However, none were recovered from excavations. Perforated stones, also called porras, can be used as part of handheld weapons used in combat. Similar artifacts, however, are also used as agricultural implements, used to weigh down digging sticks. There is no way to know, without doing detailed use-wear analysis, how these artifacts were used.

Slate blades are another type of lithic artifact whose use is not well documented through detailed analysis. An early study in the Andes region of these tools characterized
them as offensive weapons (Muelle 1957:60). A recent study of slate blades from the Pacific Northwest Coast indicates the importance of this artifact to processing fish (salmon), and states that the development of this type of tool is seen as common in groups with maritime adaptations (Graesch 2007:577). Thus slate blades may serve a military function, or alternatively a domestic one (for cleaning fish). Two were recovered from excavations, and one was found in surface collections. Slate blades are associated with Early Horizon coastal sites in the Nepeña, Santa, and Casma valleys, and have been found at Chavín de Huántar in the highlands. The two blade fragments from excavations came from construction fill of the major defensive walls. The surface find was encountered within the major hilltop structure on Sector B, where excavations by Cárdenas (1977, 1978) generated Early Horizon dates (see Table 8.2 and refer to discussion in Chapter 3).

_Canto rodado_ represent a specific kind of lithic that merits mention here, although reference is made to the presence of these as indicators of weaponry in Chapter 6. When encountered in excavations all _canto rodado_ were kept. Some of these showed signs of possible use as handstones, although that kind of wear would be difficult to distinguish from battering due to use as a projectile. After unifaces this type represents the second most abundant lithic type of the collection analyzed from Acaray (16.7 %). 93% (183) of all _canto rodado_ excavated came from units in Sector B, the sector with the most indicators of defense. The greatest concentration of these _canto rodado_ were recovered as a cache from excavation block 3B, where 104 of these were piled up behind a small retaining wall. This context has been dated to the Late Intermediate Period, and the interpretation of these stones as projectiles in this instance seems most likely. The
other canto rodado recovered from Sector B came from units located on the ramparts on the interior of the defensive walls.

Figure 10.10 Cache of slingstones from Block 3B.

10.6.3 Shell Tools

Nine shell tools were found in excavations. These consisted of eight serrated macha (wedge clam) and choro azul (mussel) shells, and one polished macha shell (Table 10.13). Both types of shells are bivalves. It appears that one valve was taken and used to scrape, or in the case of the smoothed shell, polish something. I suggest the shells may have been used to scrape scales off of fish. The serrated edges of the shell tools are similar to denticulated edges of shell tools used for scraping fish identified for the Caribbean, Brazil, and parts of North America (Claassen 1998:202; Lima, et al. 1986; O'Day and Keegan 2001). We recovered fish scales from the screens in some
excavations. Future analysis of fine screen and flot samples will likely produce more
detailed data on this specific remain.  

All of these shell tools come from fill deposits, with the exception of the one from
lot 141 in excavation block 1C. This tool was recovered from a disturbed context that
may have been the result of looting. Therefore it cannot be said with certainty that this
tool was deposited in construction fill as well. Construction fill used to build the structure
in which Block 1C was located has not been directly dated, but appears to contain
material culture associated with the Early Horizon. The fill in which the other tools were
recovered in TU2, TU3, and TU4 also contained Early Horizon materials. Given that
elsewhere at the site Early Horizon refuse was used to rebuild, it is not unreasonable to
say these tools may have been linked to activities that occurred in the Early Horizon.

<table>
<thead>
<tr>
<th>Exc unit</th>
<th>Subsector</th>
<th>Lot</th>
<th>Description</th>
<th>W (g)</th>
<th>L (mm)</th>
<th>W (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU2</td>
<td>A3</td>
<td>12</td>
<td>Mesodesma donacium; serrated</td>
<td>0.9</td>
<td>43.38</td>
<td>15.37</td>
</tr>
<tr>
<td>TU2</td>
<td>A3</td>
<td>36</td>
<td>Mesodesma donacium; serrated</td>
<td>0.8</td>
<td>29.78</td>
<td>13.78</td>
</tr>
<tr>
<td>TU3</td>
<td>A1</td>
<td>23</td>
<td>Choro azul (Choromytilus sp.); serrated</td>
<td>2.1</td>
<td>45.14</td>
<td>12.83</td>
</tr>
<tr>
<td>TU3</td>
<td>A1</td>
<td>23</td>
<td>Choro azul (Choromytilus sp.); serrated</td>
<td>4.1</td>
<td>30.58</td>
<td>18.07</td>
</tr>
<tr>
<td>Block 1C</td>
<td>A3</td>
<td>141</td>
<td>Mesodesma donacium; polished</td>
<td>2.2</td>
<td>31.8</td>
<td>19.65</td>
</tr>
<tr>
<td>Block 1C</td>
<td>A3</td>
<td>156</td>
<td>Mesodesma donacium; serrated</td>
<td>5.4</td>
<td>65.88</td>
<td>32.56</td>
</tr>
<tr>
<td>Block 1C</td>
<td>A3</td>
<td>161</td>
<td>Mesodesma donacium; serrated</td>
<td>3</td>
<td>52.11</td>
<td>27.1</td>
</tr>
<tr>
<td>Block 1C</td>
<td>A3</td>
<td>161</td>
<td>Mesodesma donacium; serrated</td>
<td>0.8</td>
<td>24.01</td>
<td>11.64</td>
</tr>
<tr>
<td>TU4</td>
<td>B4</td>
<td>169</td>
<td>Mesodesma donacium; serrated</td>
<td>5.4</td>
<td>40.93</td>
<td>24.58</td>
</tr>
</tbody>
</table>

Table 10.13 Table showing shell tools. L (length) refers to the valve length, and W (width) refers to
the valve height (see Claassen 1998:202).

10.6.4 Antara (Panpipe) Fragments

Panpipe fragments were an unanticipated artifact class encountered during
excavations. No fragments had been recovered during surface collections. Panpipe
fragments, however, are commonly found in Early Horizon sites in other areas of the
coast (S. Pozorski and T. Pozorski 1987). The panpipe fragments from Acaray are red-
slipped, red-slipped and polished, black polished, or too badly degraded to determine
surface treatment. Table 10.14 breaks down the percentage by weight found in each excavation unit. Over half of the panpipe (57.13%) were recovered from TU3.

<table>
<thead>
<tr>
<th>Excavation unit</th>
<th>Sum of Weight (g)</th>
<th>% of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1A</td>
<td>17.8</td>
<td>7.23</td>
</tr>
<tr>
<td>Block 1B</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Block 1C</td>
<td>8.2</td>
<td>3.33</td>
</tr>
<tr>
<td>Block 2</td>
<td>7.0</td>
<td>2.84</td>
</tr>
<tr>
<td>Block 3A</td>
<td>9.3</td>
<td>3.78</td>
</tr>
<tr>
<td>Block 3B</td>
<td>3.9</td>
<td>1.58</td>
</tr>
<tr>
<td>TU1</td>
<td>0.0</td>
<td>0.0</td>
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<td>TU2</td>
<td>31.5</td>
<td>12.79</td>
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<td>7.0</td>
<td>2.84</td>
</tr>
<tr>
<td>TU8</td>
<td>2.0</td>
<td>0.81</td>
</tr>
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</table>

Table 10.14 Percentage of total antara fragments found broken down by excavation unit.

Because panpipe fragments were hypothesized to be indicative of Early Horizon contexts, I explored what kind of deposits they came from. If refuse associated with the early occupation was used to later rebuild Acaray, then these fragments should come from fill used in the reconstruction of Acaray. Table 10.15 shows the percentage of panpipe fragments by the type of deposit from which they came. The majority (81.68%) of panpipe fragments by weight come from fill deposits. This supports the assertion that Early Horizon refuse was used to rebuild the fortress during the Late Intermediate Period.
<table>
<thead>
<tr>
<th>Type of Deposit</th>
<th>Sum of Weight (g)</th>
<th>% of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burned deposit</td>
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<td>6.98</td>
</tr>
<tr>
<td>Deposit below wall</td>
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<td>2.20</td>
</tr>
<tr>
<td>Disturbed level</td>
<td>2.3</td>
<td>0.94</td>
</tr>
<tr>
<td>Fill</td>
<td>200.15</td>
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<td>Floor</td>
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<td>0.49</td>
</tr>
<tr>
<td>Intrusion</td>
<td>6.0</td>
<td>2.45</td>
</tr>
<tr>
<td>Primary trash</td>
<td>1.6</td>
<td>0.65</td>
</tr>
<tr>
<td>Rubble</td>
<td>3.9</td>
<td>1.59</td>
</tr>
<tr>
<td>Surface layer</td>
<td>3.1</td>
<td>1.27</td>
</tr>
<tr>
<td>Trash deposit</td>
<td>0.7</td>
<td>0.29</td>
</tr>
<tr>
<td>Use-floor</td>
<td>2.3</td>
<td>0.94</td>
</tr>
<tr>
<td>Wall</td>
<td>1.3</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Table 10.15 Percentage of total antara fragments found broken down by type of deposit from which they were recovered. Fragments from surface collections and profile walls are not included.

### 10.6.5 Textiles and Weaving tools

There is some evidence for weaving activities at Acaray. Whorls and spindles, used for spinning, and some artifacts used in weaving and sewing were recovered in surface collections and excavations. I discuss them in the text by the type of artifact.

Table 10.16 shows weaving associated artifacts by excavation unit and deposit type. No artifacts indicative of textile production or weaving activities were recovered from Block 2 or TU7, the only two dated Early Horizon contexts.

Thirteen artifacts identified as whorls (*piruros*) and five ceramic discs that may have been whorls were recovered (total = 17). 71% (12) of all whorls come from subsector A3, the area inside the uppermost defensive wall on the summit of sector A. Five of the whorls come from Block 1A, four of those from a single context. Three whorls come from TU2, and one each come from Blocks 1B and 1C. I suggest these are all Late Intermediate Period artifacts.

Five spindles, or fragments of spindles, were recovered from two excavations: TU5 and Block 1A. The three from TU5 come from deposits of trash and fill. One of the spindles from Block 1A comes from a thin layer of fill in between two floors. The other
from that same unit comes from the layer of construction fill that the textile bag ofrendas were from. Some of the spindles were painted with lines, and one particularly well preserved spindle from Block 1A had a broken ceramic whorl placed at its center that was wrapped with thread. This is the spindle that was placed in fill between floors. Again, these spindles and spindle fragments are of Late Intermediate Period origin. Small sticks with cotton wrapped around the end have been termed cotton swabs in other contexts (Silverman 1993). They may have been used in the processing of cotton for textile production. Two were recovered from excavation of rubble in Block 1C, and are likely Late Intermediate Period in date as well.
<table>
<thead>
<tr>
<th>Excavation unit</th>
<th>Lot</th>
<th>Type of deposit</th>
<th>Artifact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1A</td>
<td>57</td>
<td>Intrusion</td>
<td>4 different ceramic whorl fragments</td>
</tr>
<tr>
<td>Block 1A</td>
<td>65</td>
<td>Intrusion</td>
<td>ceramic whorl fragment</td>
</tr>
<tr>
<td>Block 1A</td>
<td>67</td>
<td>Fill</td>
<td>bone needle</td>
</tr>
<tr>
<td>Block 1A</td>
<td>67</td>
<td>Fill</td>
<td>ceramic whorl fragment</td>
</tr>
<tr>
<td>Block 1A</td>
<td>67</td>
<td>Fill</td>
<td>wooden spindle</td>
</tr>
<tr>
<td>Block 1A</td>
<td>75</td>
<td>Floor</td>
<td>bone needle</td>
</tr>
<tr>
<td>Block 1A</td>
<td>77</td>
<td>Floor</td>
<td>bone needle</td>
</tr>
<tr>
<td>Block 1A</td>
<td>274</td>
<td>Fill</td>
<td>wooden spindle</td>
</tr>
<tr>
<td>Block 1B</td>
<td>70</td>
<td>Fill</td>
<td>bone needle</td>
</tr>
<tr>
<td>Block 1B</td>
<td>273</td>
<td>Fill</td>
<td>bone needle</td>
</tr>
<tr>
<td>Block 1B</td>
<td>97</td>
<td>Compacted level</td>
<td>dowel</td>
</tr>
<tr>
<td>Block 1B</td>
<td>104</td>
<td>Fill</td>
<td>ceramic whorl fragment</td>
</tr>
<tr>
<td>Block 1C</td>
<td>89</td>
<td>Surface</td>
<td>wooden needle</td>
</tr>
<tr>
<td>Block 1C</td>
<td>111</td>
<td>Rubble</td>
<td>cotton swab</td>
</tr>
<tr>
<td>Block 1C</td>
<td>111</td>
<td>Rubble</td>
<td>cotton swab</td>
</tr>
<tr>
<td>Block 1C</td>
<td>135</td>
<td>Special context</td>
<td>dowel</td>
</tr>
<tr>
<td>Block 1C</td>
<td>140</td>
<td>Disturbed level</td>
<td>ceramic whorl fragment, disc</td>
</tr>
<tr>
<td>Block 1C</td>
<td>285</td>
<td>Fill</td>
<td>wood needle or drill</td>
</tr>
<tr>
<td>Block 3A</td>
<td>130</td>
<td>Burned deposit</td>
<td>dowel</td>
</tr>
<tr>
<td>Block 3B</td>
<td>172</td>
<td>Primary trash</td>
<td>wooden artifact</td>
</tr>
<tr>
<td>Block 3B</td>
<td>279</td>
<td>Fill</td>
<td>ceramic whorl fragment</td>
</tr>
<tr>
<td>Surface A1</td>
<td>-</td>
<td>Surface</td>
<td>ceramic whorl, disc</td>
</tr>
<tr>
<td>TU1</td>
<td>5</td>
<td>Primary trash</td>
<td>ball of fine thread</td>
</tr>
<tr>
<td>TU1</td>
<td>5</td>
<td>Primary trash</td>
<td>ceramic whorl, disc</td>
</tr>
<tr>
<td>TU2</td>
<td>269</td>
<td>Fill</td>
<td>wooden artifact</td>
</tr>
<tr>
<td>TU2</td>
<td>39</td>
<td>Trash deposit</td>
<td>ceramic whorl fragment</td>
</tr>
<tr>
<td>TU2</td>
<td>36</td>
<td>Fill</td>
<td>whorl</td>
</tr>
<tr>
<td>TU3</td>
<td>39</td>
<td>Trash deposit</td>
<td>ceramic whorl</td>
</tr>
<tr>
<td>TU3</td>
<td>271</td>
<td>Fill</td>
<td>wooden artifact</td>
</tr>
<tr>
<td>TU3</td>
<td>271</td>
<td>Fill</td>
<td>feathers tied together with thread</td>
</tr>
<tr>
<td>TU3</td>
<td>271</td>
<td>Fill</td>
<td>stone whorl</td>
</tr>
<tr>
<td>TU3</td>
<td>42</td>
<td>Fill</td>
<td>2 plant needles</td>
</tr>
<tr>
<td>TU4</td>
<td>170</td>
<td>Fill</td>
<td>stone whorl</td>
</tr>
<tr>
<td>TU5</td>
<td>177</td>
<td>Trash deposit</td>
<td>feather quills tied with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>177</td>
<td>Trash deposit</td>
<td>feathers tied together with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>177</td>
<td>Trash deposit</td>
<td>wooden spindle with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>177</td>
<td>Trash deposit</td>
<td>ceramic whorl fragment, disc</td>
</tr>
<tr>
<td>TU5</td>
<td>182</td>
<td>Fill</td>
<td>feather quills tied with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>182</td>
<td>Fill</td>
<td>feather with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>182</td>
<td>Fill</td>
<td>wooden spindle</td>
</tr>
<tr>
<td>TU5</td>
<td>183</td>
<td>Fill</td>
<td>feathers tied together with thread</td>
</tr>
<tr>
<td>TU5</td>
<td>183</td>
<td>Fill</td>
<td>wooden spindle</td>
</tr>
<tr>
<td>TU6</td>
<td>272</td>
<td>Primary trash</td>
<td>worked sherd; disc</td>
</tr>
<tr>
<td>TU6</td>
<td>62</td>
<td>Disturbed level</td>
<td>worked sherd; disc</td>
</tr>
<tr>
<td>TU8</td>
<td>195</td>
<td>Fill</td>
<td>wooden weaving batten</td>
</tr>
</tbody>
</table>

Table 10.16 Artifacts tentatively identified as weaving or textile production tools are shown by excavation unit, lot, and lot type.
Eight artifacts that I identify as needles were found. Two of these appear to be modified plant spines, and were excavated in TU3. Five bone needles, and an additional wooden needle, come from within the major structure at the summit of Sector A (Blocks 1A, 1B, and 1C). Two needles from Block 1A were found associated with a floor, and one was from fill above that floor. The one needle from Block 1C was found in a surface layer. Two needles from Block 1B come from fill contexts. One comes from a context that was dated to A.D. 1164-1280 (1 sigma), and the other from a fill layer used to cover over an earlier bench in this unit. Thus, it is likely that all of the bone needles, all made from fish vertebra, and the wood needle from Block 1C relate to weaving activities of the Late Intermediate Period. The two plant spine needles from TU3 come from a lower layer of construction fill used to build a terrace. Assigning them to a period of occupation or use is tentative. Given that they are made of a different material than, and are not as well preserved as the Late Intermediate Period needles, they may be remains of the Early Horizon occupation from contexts that were disturbed. I have demonstrated with other material classes and contexts that Early Horizon refuse was likely used as fill to rebuild the fortress during the Late Intermediate Period.

Six examples of bird feathers tied together with string were found. Five come from trash and fill deposits in TU5. One was recovered from a fill deposit in TU3, which I date to the Late Intermediate Period. Feather covered textiles are known for both Chimú and Chancay societies, and are considered to be prestige good consumed by Chimú elites (Stone-Miller 1995:173). These feather remnants can be interpreted as evidence of this type of textile production at Acaray, or as evidence of people wearing these type of garments (compare to Lothrop and Mahler 1957:Plate XI). The majority of the feathers
from these artifacts are brown, but one of these artifacts has yellow and red feathers. While feathers may have come from coastal birds, colorful feathers are generally thought to have come from the Amazon region (Stone-Miller 1995:173; Young-Sanchez 1992:46).

There is one other possible interpretation for one of these artifacts from TU5. Rather than feather quills, what may be tied together are plant spines. Because the feather part is missing I may have misidentified these as feather quills. This particular specimen has widely spaced spines tied with cotton yarn. In an account of a *hechicero* (witch doctor) in the Chancay Valley during the 1600’s a sick person had plant spines tied with cotton string and wrapped with fat pulled from their kidneys by a healer to remove the *mal ojo* (evil eye) (Sánchez 1991:XXXVI). This one artifact, then, may not be used in textile production at all, but rather in curing. However, the two activities, curing and textile production, may not be mutually exclusive. Among at least one Quechua-speaking community weavers are also curers (Stevenson 1974:6).

I mention again here some of the items found in the ofrenda from Block 1A discussed above. Three braided fiber loom holders, and an additional miniature one, suggest loom weaving. The fiber bundles, and thread bundles would all have been used in making textiles. One bundle in particular was blue or indigo. This color is difficult to create, especially when dying cotton, (Stone-Miller 1992:68, 1995:172), suggesting expertise in dying for textile production.

The miniatures contained in the small net bag within Textile Bag 2 of this ofrenda contain small seed necklaces, and a small braided fiber loom holder. Chancay people made miniature textile ‘sculptures’ depicting weaving (Stone-Miller 1995:176), as well
as dolls for which miniature clothing was made (Young-Sanchez 1992:46). As has been stated by previous scholars “Chancay techniques in fiber are extraordinarily varied and are almost without exception executed in a virtuoso manner” (Stone-Miller 1995:177). Another characteristic that has been noted with Chancay textiles is that they are often reused, or patched. This is the case even with textiles interred with burials as offerings (Lothrop and Mahler 1957:12). There were several instances of mending noted on the textiles included in the bundles (see section 10.2.2). This evidence is consistent with a practice noted to be Chancay. To my knowledge, this is not associated with the makers of Chimú textiles.

Although it has been argued that textile production in Chancay society took place in the home, little research has been aimed at Chancay households or textile production sites. Nevertheless, Chancay textiles are not viewed as mass-produced items. Chimú textiles on the other hand, whether produced in the capital at Chan Chan or in the provinces, were produced on a large scale and the techniques used seem characteristic of assembly-line production (Stone-Miller 1995:172-173). Of course, if the Chimú conquered the Chancay their labor would have presumably been appropriated, and textile production in Chancay society may have changed. We are not sure when, or if, this happened. This is an area of study that is worth exploring further. None of the other textile fragments recovered from excavations at Acaray were analyzed. Currently we can suggest that the artifacts associated with weaving and textile production remain from Late Intermediate Period activities.

A surface collection was made of a number of *quipus* from a single looted grave. *Quipus* are Andean knot records used for accounting. All known *quipus* are either Middle
Horizon or Late Horizon in date, with the exception of a supposedly preceramic find reported for the site of Caral (Mann 2005). Although we have no firm date for the quipus from Acaray, I suggest they are Late Horizon and are linked to the very last occupation of the site prior to the Spanish invasion. All fragments were found strewn about a single spot within the cemetery north of the fortress with the exception of one quipu found near the base of Sector B, where it had probably been dropped. The characteristics of that quipu suggest it was part of the larger collection found in the cemetery. They were known to be administrative devices used by the Inca (Urton 1998, 2005; Urton and Brezine 2005). Although these specimens come from a looted context in the cemetery of Sector D of Acaray, they still have better provenience than most studied quipus from museum collections. A detailed registry of attributes of the quipus was carried out. Photos of the quipus are included in Appendix E.

The registration of the quipus permitted an identification of 19 separate quipus or quipu fragments. The specimens are largely made of cotton, with only a few hanging cords that may be camelid wool, and two hanging cords on another quipu that are made of plant fiber. Some of the specimens show signs of being cut, and their condition varies from poor to good. I initially considered the context from which the quipus were looted to be fresh (looted the night before we encountered them). However, upon further inspection it appeared that they may have been exposed for longer than that given indications of sun-bleaching on some cords. Given the number of quipus found from this single context, I suggest that the looted tomb was that of a quipucamayoc, an Inca record keeper. This is the strongest archaeological evidence thus far for Inca administration in the Huaura Valley, and specifically at Acaray.
10.6.6 Possible weapons

In this brief section I want to bring attention to other artifacts not already
discussed that may have been used as weapons. Recall that slate blades, *canto rodado*,
and lithic points have already been discussed above (subsection 10.4.2). Two perforated
stone fragments had been recovered in surface collections in 2004. These are consistent
with mace heads, although it can be difficult to rule out use as an agricultural implement.
Additionally, in surface collections during 2006 we recovered four slings (2 whole slings,
and 2 fragments) from the cemetery below the ridge on which the fortress is located.
Slings have been reported for Acaray by previous researchers as well (Cárdenas Martin
1978:34). The Acaray slings collected in 2005 appear to be made of plant fiber, not wool
(Figure 10.9). The cradle of the sling, preserved on all four of the slings collected, is
different than that reported for many other archaeological specimens from the Andes,
which have a slit (Cahlander 1980; Means 1919). These slings all have a net-like cradle.
A similar style sling is housed in the Museo Amano collection in Lima (Cahlander
1980:Plate 1.1).14

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14 Much of the collection for the Museo Amano comes from the Chancay and Huaura Valleys.
Sling stones and river cobbles have been identified throughout the site. In all three sectors there is a dispersed pattern of these stones, both within and outside of the perimeter walls. What is more interesting is the presence of these stones in piles associated with the walls and parapets of Sector B from Late Intermediate Period contexts. These concentrations of river cobble might be considered as unused ammunition, while the dispersed patterns of stones indicate these projectiles were thrown.

Measurement of a sample (Total = 123) of these sling stones (see Figure 10.10)
indicates they may have been selected for their size, which is commonly seen in other fortified sites in the Andes (see Ghezzi 2006:7-9; Topic 1989). The plot shows a fairly good cluster, with standard deviations of 12.83 (length) and 10.23 (width). These calculations are less than the standard deviations reported for cobbles measured at Chankillo, but higher than those reported for other sites (Ghezzi 2006:Figure 3.6). However it is notable that the average size of the slingstones from Acaray is higher than that documented for other sites where such measurements have been reported. The average length for the slingstones measured at Acaray is 87.15 mm, and the average width is 65.45 mm. Experimental data suggest slingstones should be smaller (along the lines of 50 mm in length), but slingers have been known to launch larger projectiles (Finney 2006:65, 68). The possibility exists that these stones were hand-thrown.

Also, in contrast to studies that have looked at slingstones as weapons only if they were not used in another capacity, I found that at Acaray rolled river cobbles recovered from excavations sometimes show signs of use-wear either as handstones or used as cores. However, I believe they were still used as projectiles.

15 Measurements were only taken for length and width, which were recorded in centimeters. I have converted the averages for the Acaray slingstones for comparison to published data measured in mm. I thank Fernandito Guillermo for carrying out the task of measuring the river cobbles at the site.
2002-46 1 0 1 4

Figure 10.12  Scatter plot of length and width measurements for river cobble at Acaray. Note the plot is in centimeters. Averages reported in the text have been converted to mm for comparison.

10.6.7 Special artifacts

Minerals.

Aside from the mineral found in the textile bag offerings discussed above, ochre, salt, chalk, and alumbre (roughly translated as alum) could all be identified (total = 19 fragments). The most abundant, salt, was found only in subsector A3 (Blocks 1A, 1B, and 1C and TU2). I can offer no context association for the presence of salt, which has a range of uses. Salt can be used in preserving fish, for example, or for giving to herding animals (Marcus 1987). There are salt mining areas (salinas) south of the Huaura Valley that are known today, indicating it is probably a local resource. Ochre was also only recovered from subsector A3 (Block 1C, TU1, TU2). The use of ochre is not known at Acaray, but a ceramic sherd with a modeled zoomorphic face was decorated with what appeared to be ochre along an incision in the eye area. It is possible that ochre was used in the production of pottery, which has been documented elsewhere in the Andes.
Ochre may have symbolic value in some times and places (Craig 2005:688-693), but I cannot assess its nature in this instance.

Chalk may be employed in weaving when spinning thread. Given the bobbins and whirls found at Acaray in subsector A3 where we also find chalk, it seems reasonable to suggest chalk may have been associated with this activity. Some chalk did come from TU7, however, and is the only place outside of subsector A3 where a mineral was recovered. *Alumbre* is a clear mineral that in modern Peruvian belief can be used to treat *susto* (fright). Only one fragment was recovered from Block 1A.

**Beads.**

A total of 125 beads of various sorts were recovered from excavations. Bone, stone, ceramic, shell, and seed beads were found. This total count does not include the seed necklaces from the Block 1A ofrenda described above, which were made of at least three kinds of seeds, one of which is only tentatively identified as *ishpingo*. The most abundant of the loose beads found in excavations were stone (21%), shell (16%), and bone (15%), although only 61% of all beads were identified. No stylistic analysis was undertaken with this class of artifact.

**Metal.**

Eleven metal artifacts were recovered from excavations. All appear to be copper, although tests have not been undertaken to confirm this characterization. I base this on the presence of green oxidation on the metal pieces. Eight of the pieces are thin sheets of metal, and one is a small copper ball weighing only 2.4 g. These artifacts come from Block 1B.
The more notable metal artifact recovered was a copper nose clip excavated from the second layer of TU4. This layer is associated with the reconstruction of muralla 5, and thus the nose ring is likely a remain from an Early Horizon burial in the site. A warrior figurine from the Early Horizon fortified site of Chankillo in the Casma Valley is wearing a nose ring of similar relative size, which furthers supports characterization of this artifact as early (Ghezzi 2006:74, fig. 73.74). A possible copper sheet fragment was also recovered in TU2.

I might suggest that the metal nose ring, likely Early Horizon in date, suggests people during these times at Acaray used metal for adornment. During the Late Intermediate Period, however, the sheets of copper do not readily suggest a specific use.

Other miscellaneous and unidentified artifacts.

A variety of other artifacts, found in smaller numbers, were recovered from Acaray. Some can be identified, while others remain a mystery. A small piece of obsidian was recovered from Block 2, and I associate it with the Early Horizon occupation. The fragment appears to be shatter. X-ray fluorescence spectrometry (XRF) was carried out on the specimen at the Archaeometry Lab of the Universidad Nacional de San Marcos (Appendix J). Results indicate the obsidian fragment is not from the known sources of Quispisisa, Alca, Chivay or Puzolana (also called Tipo Ayacucho). This evaluation was made by comparing strontium (Sr) and rubidium (Rb) components of the Acaray sample to a published report of obsidian artifacts and standards evaluated by XRF (Craig, et al. 2007:fig2-3). It is possible that this fragment comes from an obsidian source yet to be identified from somewhere in the north highlands (Mercedes Delgado, personal communication).

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16 XRF results were provided as % of element content by weight. I converted those percentages to parts per million (ppm) for comparison.
communication, January 2008). The results are still preliminary and require further testing against known sources.

Some wood artifacts were found other than the ones mentioned above (see section 10.6.5). One in particular is wood stick that is pointed on one end, with a flattened semi-circular shape at the other end. Similar kinds of artifacts are found in looted cemeteries, and are on display in museum collections. Their function is debated. There are a number of possible uses for this item: as a paddle for making pottery, as a mace, or as a digging stick (Kvietok 1987). The shape suggests it would not have been appropriate as a weaving batten. Weaving using a backstrap loom usually requires straight, flat sticks and blades (Stevenson 1974). A mace head would not fit on this stick because the shaft is not round, and known mace heads are doughnut-shaped with a circular hole. The most likely interpretation is that it is a digging stick, however it is not possible to determine for certain how this item was used without more detailed analysis of use-wear. It appears to have been abandoned in Block 1A during the Late Intermediate Period.

Nine cut quill (also called calamus) from bird feathers were found, all from Block 2. These quills form tubes, which were used for an unknown purpose. Use as snuff tubes is one possibility. An undecorated bone spoon was recovered from TU3 at Acaray. Bone spoons are not typical artifacts reported for Late Intermediate Period sites. A bone spoon decorated in the Chavin style, with carvings reminiscent of the lanzón monolith at Chavin de Huántar, was recovered from the site of Humaya in the Huaura Valley (Lothrop 1951:232-233). This bone spoon may be Early Horizon in date, since it seems less likely to be linked to traditions of the Late Intermediate Period.
Other artifacts include a reed *quena* (flute), found in Block 3B, rocks tied with fiber rope from Block 3A, mate tops, and a few wooden artifacts I refer to as dowels. The rocks tied with rope could be weights used with fishing nets. The mate tops are small, circular ‘stoppers’ that I suggest were used to close or seal off something, perhaps an opening on a gourd or ceramic container. I have not seen wooden dowels reported elsewhere, and can suggest no possible function for them. These artifacts are cylindrical and have a hole drilled through them. Two (from Blocks 1B and 1C, Late Intermediate Period contexts) are roughly the same size (approximately 5 cm long, with a diameter of 4 cm). A larger one, approximately 12 cm with a diameter of 4 cm, was recovered from Block 3A. I have included photographs of some of the unusual mystery items in Appendix H.

10.6.8 Subsistence remains (botanicals and pollen, bone, shell)

Due to outstanding preservation, abundant macrobotanical remains were recovered from the excavations at Acaray. Additionally, soil samples were collected for flotation and fine screening, which contain micro remains. Unfortunately, these materials await future analysis.

Tentative identifications were made in the field as to the kinds of botanical remains recovered. I can only mention some of the remains by name here without any information on their distribution or quantities. Table 10.17 shows a list of the common name of remains identified in field notes, and the species name where possible. This information is incomplete until future analysis can be undertaken. Most items were identified by their fruit or seeds, although coca leaves were easily identified. In addition to this information, we have some general previously published data on remains from the
fortress. *Achira, aji, cotton, alder, carricillo, friar’s plum, cola de caballo, bean, gramalote, guayaba, lúcuma, maize, peanut, gourd, pacae, avocado, nicotine leaves, manihot, and squash* are reported as being present at Acaray (Cárdenas Martin 1978:17-18). There is some overlap with what we could tentatively identify in the field, as well as additional plant remains.

<table>
<thead>
<tr>
<th>Field ID</th>
<th>English equivalent</th>
<th>Species name</th>
</tr>
</thead>
<tbody>
<tr>
<td>aji</td>
<td>chile pepper</td>
<td>Capsicum</td>
</tr>
<tr>
<td>algodon</td>
<td>cotton</td>
<td>Gossypium</td>
</tr>
<tr>
<td>cana brava</td>
<td>wild cane, bamboo*</td>
<td>Cynerium</td>
</tr>
<tr>
<td>ciruela de fraile</td>
<td>friar's plum</td>
<td>Bunchosis armeniaca</td>
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<tr>
<td>coca</td>
<td>n/a</td>
<td>Erythroxylon</td>
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<tr>
<td>frejol</td>
<td>bean</td>
<td>Canavalia, phaseolus</td>
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<td>lucuma</td>
<td>n/a</td>
<td>Lucuma bifera</td>
</tr>
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<td>maize</td>
<td>maize</td>
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</tr>
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<td>mani</td>
<td>peanut</td>
<td>Arachis hypogaea</td>
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<tr>
<td>mate</td>
<td>gourd</td>
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<td>n/a</td>
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<td>manioc</td>
<td>Manihot</td>
</tr>
<tr>
<td>zapallo</td>
<td>squash</td>
<td>Cucurbita</td>
</tr>
</tbody>
</table>

Table 10.17 List of botanical remains identified in the field, with their respective English name and species name.

We have some additional information on possible plants present at or around Acaray from 14 pollen samples (Table 10.18; see also Appendix F). Samples were identified generally to a family, but some also have more specific taxa information. *Alnus* pollen (alder tree) has the highest presence in the samples. Two samples from burned areas (sample ID 1948 and 2179) contain the most alder pollen, and suggest that alder wood was being used for burning. Maize pollen also has a high presence in the samples. It is found in high percentages from floor contexts in Blocks 1A, 1B, 3A and TU6, as well as from the burial context in TU2. General *poaceae* pollen was identified in similar amounts to the maize, indicating the pollen might result from presence of maize, although
this family also contains grasses. *Solanum/Lycopersicon* and *Myrica* pollen were also identified in high presence.

<table>
<thead>
<tr>
<th>Sample_ID</th>
<th>Unit_Exc</th>
<th>Locus</th>
<th>Lot</th>
<th>Desc</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>754</td>
<td>1A</td>
<td>25</td>
<td>61</td>
<td>floor</td>
<td>nd</td>
</tr>
<tr>
<td>1133</td>
<td>1A</td>
<td>42</td>
<td>90</td>
<td>floor</td>
<td>nd</td>
</tr>
<tr>
<td>1084</td>
<td>1A</td>
<td>-</td>
<td>-</td>
<td>Object 5A, ofrenda LIP</td>
<td></td>
</tr>
<tr>
<td>893</td>
<td>1B</td>
<td>39</td>
<td>76</td>
<td>use-floor</td>
<td>posterior to 1216-1265 A.D.?</td>
</tr>
<tr>
<td>1276</td>
<td>1B</td>
<td>32</td>
<td>97</td>
<td>compact mud (ramp?)</td>
<td>?</td>
</tr>
<tr>
<td>1948</td>
<td>1C</td>
<td>46</td>
<td>93</td>
<td>burn zone</td>
<td>nd</td>
</tr>
<tr>
<td>2053</td>
<td>2A</td>
<td>53</td>
<td>133</td>
<td>fill below floor</td>
<td>posterior to 805-674 B.C.</td>
</tr>
<tr>
<td>1773</td>
<td>3A</td>
<td>54</td>
<td>131</td>
<td>use-floor</td>
<td>anterior to 1306-1391 A.D.</td>
</tr>
<tr>
<td>309</td>
<td>Pozo 2</td>
<td>18</td>
<td>34</td>
<td>burial</td>
<td>nd</td>
</tr>
<tr>
<td>2928</td>
<td>Pozo 4</td>
<td>61</td>
<td>173</td>
<td>trash deposit</td>
<td>anterior to 1228-1277 A.D.</td>
</tr>
<tr>
<td>2179</td>
<td>Pozo 5</td>
<td>66</td>
<td>177</td>
<td>burn zone</td>
<td>posterior to 1216-1265 A.D.</td>
</tr>
<tr>
<td>600</td>
<td>Pozo 6</td>
<td>24</td>
<td>50</td>
<td>use-floor</td>
<td>nd</td>
</tr>
<tr>
<td>3042</td>
<td>Pozo 8</td>
<td>70</td>
<td>190</td>
<td>fill below floor</td>
<td>posterior to 1323-1400 A.D.</td>
</tr>
<tr>
<td>3196</td>
<td>Pozo 8</td>
<td>76</td>
<td>199</td>
<td>fill below floor</td>
<td>posterior to 1323-1400 A.D.</td>
</tr>
</tbody>
</table>

Table 10.18 Table showing provenience of pollen samples.

It is difficult to interpret the pollen data given that more specific identifications were not made, and that the prehispanic land coverage of the area is not well known. For example, today alder grows only above 3000 m.a.s.l. Some have argued that the tree line has simply moved up from prehispanic times, but we cannot be sure of earlier distribution of some flora, or what may have caused changes in their distribution (i.e. natural vs. human modification) (Weng, et al. 2004).

Faunal remains were surprisingly few given the amounts of other kinds of remains recovered in excavations, and the level preservation. Total faunal bone (not including what could be identified as human), weighed 17.2 kg. This consisted of fish bone, small rodent bones, and other animal bone. Some camelid bone was tentatively identified in the field. I reviewed the faunal remains in July 2008 and was able to identify bird bone, deer bone and antler, as well as camelid mandibles and a camelid toe bone. Faunal analysis was not undertaken because no funds were available to hire a specialist to
analyze the collection. I can only say here that the relatively little animal bone recovered indicates that food consumed at Acaray did not consist primarily of animals. However there was abundant shell remains. So many that we could not weight all of them. Of the 373 bags of shell remains from excavations, we weighed only 206 bags. The total weight for these bags is 411 kg. Given the fish bone and shell present (almost 24 times the amount of bone that was collected), we can safely say that diet consisted mostly of marine resources. However, I recognize that it is difficult to translate shell or bone remains into actual food quantities, and the weights presented may not be wholly comparable. Nevertheless, without detailed information of these artifact classes weigh is the only way to provide a quantitative basis for some comparison.

Shell remains were only partially identified, but consisted of gastropods and bivalves. As mentioned above in the discussion of shell tools, macha and choro azul were found in excavations. Most were not tools, but the remains of food consumption. Chiton, limpets, olive shells, and other mussel shells of unidentified species were recovered. Sea urchin and crab fragments were also recovered. In previous excavations at the fortress the investigators identified the presence of Crepidula dilatata, Chitonidea, Fissurella limbata, Mesodesma donacium, Perumytilus purpuratus, Semimytilus algosus, and Spisula adamsi (Cárdenas Martin 1978:28), all limpet, chiton, mussel, or clam species that could be consistent with our recent collections. All of these can be found on beaches or clinging to rocky outcrops along the beach (Zechenter 1988:74-76).

10.7 Summary
This chapter discussed certain contexts from excavations that are particularly relevant to understanding the activities carried out within the fortress at Acaray. Evidence
for ritual or ceremonial practices such as dedicatory or sacrificial offerings, and
deposition of ceremonial trash, coupled with evidence for ephemeral versus permanent
site use during the Late Intermediate Period require a more nuanced interpretation of this
defensive site. In addition, there is one good context of a slingstone pile associated with
the defensive wall. The cache was not associated with a parapet, but nevertheless was
located at a point of the defensive rampart from which defenders would have protected
entry into subsector B2 by attackers.

The artifact and material classes discussed here provide greater insight into these
ritual practices, and inform on defensive and other kinds of activities at Acaray. In the
next and concluding chapter I bring together these contextual data and consider them
with regard to detailed spatial data from Acaray, chronological data, and regional patterns
of fortification.
Chapter 11 Interpretations and Conclusions

In Chapter 4 indicators for warfare and fortification were outlined against which data from Acaray would be compared. Models for ritual or ceremonial activity were also detailed. Chapter 9 discussed Acaray in light of some of these criteria, and I discussed artifacts relevant to assessing these criteria in Chapter 10. Here I want to sum up this evidence and the major results of fieldwork.

11.1 Regional fortification and Huaura Valley settlements in the Early Horizon and Late Intermediate Period

Radiocarbon dates presented in Chapter 8 confirm that Acaray has two major occupations. One pertains to the Early Horizon (ca. 900-200 B.C.), and the other to the Late Intermediate Period (ca. A.D. 1000-1476). I mention the possibility of a subsequent Late Horizon use of the site. However all analyses and discussions have focused on the two main occupations.

In Chapter 9 I discussed patterns of fortification for the Early Horizon and Late Intermediate Period. One confirmed Early Horizon fort, Acaray, and five tentatively identified ones are located in the Huaura Valley. They share similar architectural configurations and material culture on their surfaces. Five of the forts are intervisible, although I stated that without a clear demonstration of significance, the pattern of intervisibility could be random. The five closest forts are within roughly a 10 km stretch of the lower valley. The sixth, Cerro Colorado, is 11 km from the one farthest up valley. The pattern suggests that the forts may have been part of a network of defense. The seemingly isolated fortress at Vilcahuaura is not visible from the others, yet its viewshed,
when considered with the multiple viewshed of the other forts, add significant visibility up valley, where the others have zero visibility.

In the Late Intermediate Period in Huaura, one fort is built, or rather, rebuilt. The Early Horizon fortress at Acaray is reconstructed and made more extensive. It is associated with the *Muralla de Mazo*, which I argue did not exist in Early Horizon times. Thus for the Late Intermediate Period we have a massive wall that runs between the littoral and a single fortification, Acaray, along the north side of the valley. The viewshed from Acaray, and specifically from the bastions that comprise the Late Intermediate Period fort, is oriented northward as well. Together these two elements (the *Muralla* and Acaray’s defensive orientation) demonstrate that the threat to Acaray was from the north.

In Chapter 4 I brought up several possibilities for interpreting what Acaray could be: an outpost, a refuge, a ritual fortification akin to a fortified temple, an administrative center, a point at which to control people and water, a pilgrimage site, a memorial, or a shrine. The regional data from both within the Huaura Valley and beyond it inform on these possibilities. Acaray during the Early Horizon is one of a cluster of fortified hilltops in the lower Huaura Valley that, based on current evidence, were contemporary. They were likely built by relatively smaller groups of people who lived immediately adjacent to the defensive walls, but probably used the concentric walled forts themselves as refuges or temples. The disturbed nature of this occupation at Acaray makes this interpretation especially tentative.

Acaray during the Late Intermediate Period was rebuilt by a number of groups who converged to participate in this collective project. No other fortifications were built in the lower Huaura Valley. In fact, the nearest fortification that we think is contemporary
is located in the Fortaleza Valley. There may be fortifications in the upper Huaura Valley (Checras) whose locations are not reported (Krzanowski 1986:15). I estimate these to be over 40 kilometers up valley. If Acaray is the only Late Intermediate Period fortification in the area, could it have served as a refuge for the entire lower valley? The number of sites identified for this time period suggests the population of the valley was at its highest. We do not know, however, if people built other kinds of defenses at other sites that are not of the monumental kind encountered at Acaray. We lack the data to estimate population density to assess whether a single fort like Acaray could accommodate everyone in the area.

It is apparent that the use with which Acaray was put changed during the Late Intermediate Period. Ritual activities are associated with its reconstruction, but evidence at hand suggests that people continued to periodically visit the site to make offerings after the reconstruction. The kinds of offerings made are similar to those made at shrines, and thus might be consistent with commemorative or memorializing acts. That does not negate the possibility that it was used as a refuge. In fact, people periodically used Acaray for defensive purposes, and during those periods simultaneously engaged in ritual activities. This suggests that those activities had everything to do with conflict and defense.

11.2 The evidence for warfare at Acaray

Architectural elements such as bastions, parapets, and restricted entryways have been identified and their use as part of defense has been assessed through detailed spatial and topographic analyses. The function of these components is consistent with one of defense. Lookouts and bastions were placed strategically to enhance visibility of access
routes. The placement of parapets is also consistent with defense by sling. And natural
terrain, such as outcrops that enhance barriers or high slope areas all contribute to the
defensibility of Acaray. This is true for both the Early Horizon and Late Intermediate
Period. A slightly later use of the site during the Late Horizon might be less defensible,
but new data are required to adequately assess this hypothesis.

No iconography or representations with war-related themes were recovered from
Acaray. Slingstones, slings, mace heads, and arrow points were recovered from surface
and looted contexts, as well as from excavations of Late Intermediate Period contexts.
Given the other evidence documented for conflict, it is reasonable to assume these
artifacts were used as weapons at Acaray, even if they may have been used for other
purposes as well. The only evidence for possible Early Horizon weaponry is the presence
of a few slate blade fragments. This might signal a different degree of violence than was
experienced in the Late Intermediate Period.

Dismantled architecture on the summit of Sector A, as well as the remnant walls
and partially destroyed Early Horizon defensive walls are consistent with an
interpretation of conflict-related destruction. For the Early Horizon, this evidence may be
suggestive of desecration. Destruction during the Late Intermediate Period is only hinted
at, and natural factors such as earthquakes or much later looting or destruction cannot be
ruled out.

11.3 The evidence for ritual at Acaray

The summits of both hilltops during the Early Horizon use of Acaray appear to
have had ceremonial uses. The nature of the architecture associated with the Early
Horizon is similar to that for the fortified temple of Chankillo. By analogy, the space at
Acaray could have been used in the same way. Sacrificial deposits were interred during the reconstruction and use of the fortress, as well as during subsequent use as a shrine or place of veneration. Ceremonial trash was interred in pits dug into earlier architecture. This trash may have been the remains of food consumption based on the composition of the deposits and the presence of ceramic forms such as plates and cups. The evidence is suggestive: Acaray was rebuilt because it was a place of importance. Perhaps after being abandoned in the Early Horizon it had been forgotten. But later people in Huaura reconstructed it, and by extension, created new collective memories and group identities, during the Late Intermediate Period. These efforts were motivated by the need for defense.

The evidence presented on Acaray, during the Late Intermediate Period, suggest this place held significance for a new group identity. I suggest groups converged at this place, engaged in practices to solidify their new relationships with each other, and essentially built a new place and a new community. Taking into account the evidence for conflict discussed above, it seems plausible that the threat of attack by an even bigger outside group set in motion, or at least framed, these social changes.

11.4 Other activities at Acaray

There is some evidence for textile and ceramic production at Acaray, as well as food-processing activities. The lithics suggest that food processing involving grinding was related to the Early Horizon occupation. Much of this evidence comes from disturbed contexts, and thus detecting the primary contexts of these Early Horizon activities to properly evaluate this hypothesis is required. Abundant shell remains also suggest there was exploitation of marine resources during the Early Horizon. Olla forms, in particular
the neckless *olla*, would be hypothetically used for cooking, and are very common at Acaray. The absence of large storage vessels associated with this occupation, and no indication of storage features in the architecture, suggests that Acaray was not a place where goods were stored for bad times during the Early Horizon.

In the Late Intermediate Period, there is evidence suggestive of textile production. Spindles, whorls, and the contents of the textile bundle offerings suggest this activity took place on the hilltop, and that it may have had greater significance than can be recognized now. These activities were engaged in during periodic stays. There appears to be less intense food-processing carried out, probably associated with these periodic stays on the hilltop during the Late Intermediate Period. Some *olla* forms with short necks may indicate cooking activities, although we must recall that only one formal hearth was documented in excavations. There are some larger jars that may have been used in ceremonies on the summit of Sector A, but that were likely not used for storage. Larger jar vessels found in surface collections in Sector C serves as indirect evidence of storage in vessels that might be linked to the last occupation of the site.

Regarding the *alumbre, Huperzia* and *ishpingo* discussed from the textile bundle offerings from Block 1A, as well as the plant spines tied with string mentioned in the previous chapter, I suggest people engaged in healing practices at Acaray during the Late Intermediate Period. One use of all of these items is as a remedy for *mal aire, mal ojo*, or *susto*. The manifestation of illness and malady in the body as a result of fear or bad air has been examined by anthropologists, and appears to be pervasive in much of Latin American today with arguable pre-Columbian roots. A recent interpretation suggests that *susto* may be related to fear derived from political oppression and repression, and from a
general state of violence and fear created by the state (Green 1994:248). I then find it an interesting avenue of thought to consider that these items, all from Block 1A from ritual or ceremonial contexts, may have been used in healing practices – to heal fear. Given that Acaray is a fortification, and the evidence presented thus far supports an interpretation of use for defense, it seems plausible that people lived in fear. The residues of some of their practices hint at that possibility. Given the possibility of a reprisal attack by a powerful empire (the Chimú), which has been documented to the north of Huaura in the Huarmey Valley, people in Huaura may have had something real to fear.

11.5 A consideration of abandonment

The Early Horizon and Late Intermediate Period uses of Acaray were different. While the extent of what we know of the Early Horizon occupation is limited given only one season of excavations, I argue that the nature of remains associated with these early contexts indicate a rapid abandonment of the fortress during the Early Horizon, probably caused by a catastrophic event such as an attack. The Early Horizon assemblage consists of panpipe fragments, which could be considered a special item of importance, and highly portable, and other useful domestic items such as manos and metates. This “de facto” refuse was left behind. We not find it in its original context because it was disturbed by later people who rebuilt the fort. But the nature of the remains linked to the Early Horizon suggests that life for people at Acaray during this time was plagued by warfare, and that the people of Acaray experienced this directly. The evidence for dismantling of Early Horizon architecture also suggests that post-abandonment there were activities related to desecration, but the site was not immediately occupied by either the people who fled, or the ones who may have attacked them.
After the rapid abandonment of Acaray in the Early Horizon, which probably took place post 300 B.C., when radiocarbon dates indicate one of the major defensive walls was constructed, there is no strong evidence that site was used. In our excavations we detected no intervening occupation, at least of the areas investigated, until the Late Intermediate Period. Despite a few ceramic sherds that might stylistically belong to the late Middle Horizon, there are no radiocarbon dates that would support an occupation during the period, or the prior Early Intermediate Period. The fact that groundstone that had been left behind in the Early Horizon was still lying around to be used in the construction of the new structures and the lower defensive concentric wall around Sector B suggest there was no scavenging for these types of useful items until they were reused as construction material.

The Late Intermediate Period use of Acaray is even more varied. Ritual offerings were an integral part of remodeling the major structure on the hilltop of Sector A, while an additional wall was added to further fortify Sector B at around the same time. Trash was allowed to accumulate on terraces and in structures inside the defensive wall of both Sectors A and B, suggesting there may have been little concern with trash disposal and keeping these places clean. Perhaps these interior terrace areas were not in use. Terraces outside of the defensive walls, however, were relatively clean. The terrace where TU3 was excavated is also the only place where we have evidence of domestic cooking activity. The lower slopes of the ridge, and the structures located here, may have still been in use. But overall there does not appear to be a permanent population living within the defensive wall of the fortress at Acaray.
The summit structure atop Sector A was also kept clean, except for deliberate intrusions containing deposits of botanical remains that are consistent with refuse, ceremonial trash, and sacrificial deposits. This kind of activity appears to be related to periodic visitation involving the giving of offerings. I suggest this kind of commemorative or ritual activity takes place at the same time that the fort is intended for military use, either as a refuge or outpost. These practices may have continued over time even after the fort was used for defense. It may have then become a shrine. I suspect that the addition of the third hilltop (Sector C), however, might be an administrative use of the site. Although no excavations were carried out there, the terrace structures with benches, easier access, and fewer defensive elements may be consistent with the appropriation of the site for overseeing local people. Whether this was accomplished by the Chimú or Inca is not clear. But if Acaray became the site at which new forms of community relationships were formed and reformed, then it makes sense that such a place would be appropriated by the Inca, possibly a form of indirect rule.

11.6 Future Directions

It is imperative to begin investigations at other sites in the valley to better understand both periods of war, or the threat of war, in Huaura. For the Early Horizon, the other forts need to be dated, and detailed mapping will demonstrate, as it has at Acaray, the dimensions of defense. Because these sites were not rebuilt the way Acaray was, they hold potential for better delimiting the Early Horizon occupation at Acaray. For the Late Intermediate Period, other kinds of settlements contemporary with Acaray should be examined for evidence of the factors that may have drawn people to the fortress periodically.
At Acaray itself, the third hilltop, which may represent an imperial cooption of the site, must be investigated. Evidence for Inca administration in the form of quipus recovered from the cemeteries at Acaray is suggestive of Inca bureaucracy. Given that there are few other material indicators of an Inca presence at or near Acaray, the manner in which the Inca incorporated the people of the Huaura Valley is a complete mystery. Another question is raised if we accept an interpretation of Acaray as a shrine, or local pilgrimage site, is whether it was appropriated by the Inca state later in an attempt to dominate local people through ideology.

Osteological evidence of conflict is likely in the cemeteries around Acaray. Collection of such data would be important for further assessing the impact of war on people. Before collectors began removing scattered skulls from the surface of the looted cemeteries, one could identify several instances of skull fractures consistent with blunt force trauma. As looting intensifies, however, our ability to get at this aspect of the personal experience of violence (on the physical bodies of people) will diminish. Isotopic analyses from human remains from the cemeteries, or from the individual buried in subsector A3 could also inform on migration of people from other areas. If people born in the highlands are migrating to the coast during the Early Horizon and the Late Intermediate Period, their isotopic signatures should be distinct. Excellent preservation would permit the recovery of teeth for this kind of analysis.

A better consideration of regional and local climate change is also another avenue of future research. In this dissertation I did not take into account the role of environmental factors and shifts in the social processes discussed. However anthropologists and archaeologists alike have noted that natural disasters, arid periods, or
other changes are a factor to consider when examining conflict or war (Ember and Ember 1992; Keeley 1996:138-141). Given that El Niño Southern Oscillation (ENSO) events are known to have affected the Central Andes (and continue to do so), a consideration of the impact of such events on people is necessary, and currently lacking, for the Huaura Valley and adjacent areas.

Today people are only now remembering Acaray due to this research. The site, forgotten for much time, no longer resides in the collective memory of nearby inhabitants, many of whom are relatively recent migrants. The ‘mighty’ fortress is located by the ex-hacienda Acaray, the poorest town in the Huaura Valley in 2006 (Alejo Herrera, personal communication, July 2006). The Inca subjugated many coastal populations when they conquered the region, and they presumably controlled the people of Acaray and Huaura during prehispanic times in ways we still do not understand. Not long after, another rupture brought about by the Spanish conquest initiated another process – one of erasure and slow forgetting. Huaura suffered large demographic decline during the colonial period, either due to displaced populations or death of indigenous populations (Cook 1981; Cushner 1980). The traditions that bound community during the Late Intermediate Period, had they survived Inca domination, did not fare well in the face of Spanish colonization. These are issues raised by the present research that require further evaluation using both archaeological and ethnohistorical data.
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Appendix A: Surface Collected Ceramics

This appendix presents ceramic data from 2004 surface collections of the fortress at Acaray (Sectors A-C). Additional drawings are included of ceramics from the surrounding architectural areas in the Archaeological Complex of Acaray (Sectors D and E-Figures A17 and A18). Some of the vessels recovered from Sectors D and E were more complete, permitting better characterization of some sherds from Sectors A-C. Table A1 shows the frequencies of decorative techniques for sherds from all five sectors. Figures A19-A22 are graphs that show frequencies by sector.

Sherd codes as well as figure letters are indicated. Not all sherds with codes are represented in figures. Most drawings were done by Santiago Rivas Panduro, with some by Miguel Aguilar Diaz, and me.

Ceramic Forms

1. Plate (Figure A.1)
Sample: 6 sherds
Method: not determined
Inclusions: Very little quartz and black, brown, and gray crushed minerals. Homogeneous distribution. Medium size (1-1.9 mm) and coarse (2-3.9 mm) particles.
Paste: compact. Oxidized and reduced firing. Paste color is orange, reddish brown, and gray.
Finish: both sides are smoothed, with striations on the upper exterior rim close to the lip. Enkobe: two plates are red-slipped on the interior of the vessel (ACA-A1-7-5, ACA-B2-3-1; see A and B in Figure A.1), a third plate is yellow-slipped on its exterior (ACA-C2-1-2; see C in Figure A.1).
Surface color: orange, reddish brown, or gray for those sherds not slipped. 3 sherds have fireclouds. No soot apparent.
Form: straight-walled plate
Diameter and thickness: Diameter 25-27 cm, average thickness 6-7 mm.
Lip: rounded and thinned toward the exterior surface.
Decoration: some are slipped.

2. Cup (Figure A.1)
Sample: 5 sherds
Method: not determined
Inclusions: Predominantly brown biotite, black phlogopite, with some quartz and brown and gray crushed minerals. Homogeneous distribution. Particle size is 1-1.9 mm.
Paste: compact. Oxidized or incompletely oxidized firing. Paste color is orange, dark brown, and gray.
Finish: both sides are smoothed, without striations.

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1 I have interpreted, edited, and translated a version of a report written and submitted by Santiago Rivas Panduro. A version of this report in Spanish appears in the Final Report to the Instituto Nacional de Cultura for the 2004 field season. Errors in the original text have been corrected here where possible. Discrepancies not resolved are indicated by footnotes. Figures have been added to illustrate all forms and decorative techniques.
Engobe: 1 fragment has dark red slip on both sides.
Surface color: orange and dark brown for those that aren’t slipped. No soot is apparent.
Form:

**Variant 1:**
based on four body/base fragments (see D, E, F in Figure A.1). Flat-bottomed vase, slightly concave, with straight walls and slightly divergent. Interior diameter of base 6-9 cm.
Decoration: none

**Variant 2:**
based on one rim fragment (see G in Figure A.1). Diameter 8 cm. Thinned, pointed lip. Average thickness is 6 mm, with slightly everted walls.
Decoration: painted black on red slip (ACA-B2-3-8)

3. Bowl
Sample: 209 sherds. 197 medium bowls, 12 large bowls.

**Large bowl (Figure A.2):**

**Variant 1: 9 sherds**
Method: not determined
Inclusions: Crushed minerals of brown biotite and black phlogopite. Homogeneous distribution with coarse particles (2-3.9 mm).
Paste: compact. Oxidized. Paste is orange, beige or cream.
Finish: both sides are smoothed, with striations.
Engobe: 2 fragments are yellow-slipped on the upper exterior of the rim; 2 are yellow-slipped on the lip and upper interior wall.
Surface color: same as the paste color (orange, beige and cream). No soot is apparent.
Form: slightly convex walls
Diameter and thickness: 26-30 cm diameter, 9 mm average thickness.
Lip: flat-lip and slightly grooved.
Base: Form not known.
Decoration: some are yellow-slipped.

**Variant 2: 3 sherds**
Method: not determined
Inclusions: Quartz and black and cream crushed minerals. Homogeneous distribution. Medium size inclusions (1-1.9 mm). Compact paste. Reduced and oxidized firing. Past is dark gray and reddish brown.
Finish: both sides smoothed, with striations on both sides.
Engobe: none
Surface color: same as paste color (gray and reddish brown). No soot is apparent.
Form: convex walls
Diameter and thickness: diameter 20-22 cm, 5-7 mm average thickness.
Lip: rounded lip.
Base: Form not known.
Decoration: none

**Medium bowl**

**Variant 1 (Figure A.3): 36 sherds**
Method: not determined
Inclusions: brown biotite, quartz and other gray and black mineral inclusions. Homogenous distribution. Fine inclusions (.6-.9 mm), with some sherds having medium inclusions (1-1.9 mm).
Paste: compact. Oxidized, incomplete oxidized, and rarely reduced firing. Paste color is pink, orange, brown, red, and gray.
Finish: smoothed with some striations that suggest the use of fabric or leaf to smooth
Engobe: yellow on both sides; red slip; some not at all
Surface color: the color of the slip (yellow or red); unslipped ones are the color of the paste (brown or orange). No soot is apparent.
Form: semi-spherical; with convex walls; straight
Diameter and thickness: Diameter 10-24 cm, thickness 6 mm (average).
Lip: slightly thinned toward the interior, slightly beveled toward the exterior. Infrequently, with a small everted rim and rounded lip (ACA-B2-4-20, see M in Figure A.3).
Base: Form not known.
Decoration: black on yellow painted (ACA-A1-5-6, see G in Figure A.3); red on yellow slip; yellow slipped (ACA-B2-4-20); stamped with cane and punctate (ACA-A1-3-15, see N in Figure A.3); brown on yellow slip (ACA-A3-3-7, J in Figure A.3).

**Variant 2 (Figure A.4): 48 sherds**
Method: not determined
Inclusions: Brown biotite, quartz and other black, gray, and cream mineral particles. Homogenous distribution. Inclusion size 1-1.9 mm.
Paste: compact. Oxidized firing, rarely reduced. Paste color is cream, orange, red, brown and black (reduced paste).
Finish: both sides slipped with striations (use of fabric or leaf to smooth).
Engobe: the majority has yellow slip on the exterior and interior (apparent on pedestal bases); yellow slipped on the outside with red slip on the inside; brown slip on the inside; others not slipped.
Surface color: for those not slipped, paste color (red, orange, brown, and black). One sherd has soot.
Form: straight wall, strongly everted. Rim is thinned on both exterior and interior sides.
Diameter and thickness: 12-24 cm, average thickness 6 mm.
Lip: rounded, slightly thinned on interior
Base: pedestal base. 2 forms: an everted strip 1-1.5 cm, with rounded lip; straight strip .5 cm, with rounded lip
Decoration: painted black on yellow; black and red on yellow; black on red; red slip; stamped with mold.

Variant 3 (Figure A.5): 83 sherds
Method: not determined
Inclusions: Quartz, other reddish brown, black, gray and cream mineral inclusions. Homogenous distribution. Inclusion size average 1-1.9 mm.
Paste: compact. Oxidized, incomplete oxidized, and rarely reduced. Paste color is cream, beige, orange, reddish brown, red, gray, and black.
Finish: both sides smoothed, with some polishing
Engobe: burnished bowls have no slip. Vessels with black paint have red slip.
Surface color: Cream, beige, orange, reddish brown, red, gray black. No soot is apparent.
Form: slightly convex wall, lightly everted, thinned rim
Diameter and thickness: Diameter 14-18 cm, average thickness 4-6 mm.
Lip: rounded, rarely beveled toward interior
Base: lightly convex with carinated base/body inflexion point
Decoration: the majority have burnished lines, rarely red-slipped

4. Ollas

Olla sin cuello (neckless pot) (Figure A.6)
Sample: 62 sherds
Method: not determined
Inclusions: brown biotite, black phlogopite; some quartz and gray and clear brown crushed minerals. Homogenous distribution. Particle size is medium (1-1.9 mm).
Finish: interior smoothing, with striations; exterior regular smoothing, with zones of slight polishing
Engobe: none
Surface color: paste color (orange, reddish brown, beige, and gray). Some fireclouding on external and internal sides. No soot apparent.
Form: convergent walls, body slightly convex, spherical
Base: not known
Decoration: none

Variant 1: 60 sherds
Vessel has final, direct rim; diameter 12-22 cm, average thickness 5-11 mm.
Lip: rounded, or lightly flat.

Variant 2: 2 sherds (see C in Figure A.3)
Rim is thickened on both sides of wall at lip; diameter 15 cm, average thickness 8 mm.
Lip: flat

**Olla con cuello (necked pot)**

Sample: 65 sherds
Method: vessels with stamped decoration are molded; other not determined
Inclusions: black phlogopite, brown biotite, and clear brown and gray particles. Homogenous distribution. Particle size is medium (1-1.9 mm), with some more coarse (2-3.9 mm).
Paste: compact. Oxidized firing. Paste color is mostly reddish brown, some beige. Variant 1 are mostly brown, dark gray, and black.
Finish: smoothed walls, with striations
Engobe: none
Surface color: same color as paste (reddish brown, beige). No soot apparent.
Form: olla with spherical body
Base: convex

**Variant 1: (Figure A.7)**
Short neck, strongly everted; diameter 9-16 cm, thickness 5-8 mm
Lip: rounded
Handle: small vertical handle on the upper middle part of body or where body joins neck
Decoration: majority have none; one vessel has yellow slip on exterior body and interior neck (ACA-A3-4-10, see B in Figure A.7)

**Variant 2: (Figures A.8, A.9)**
Short neck, up to 3.5 cm in height, convex, with majority carinated on the exterior wall; diameter 7-16 cm, thickness 4-5 mm
Lip: rounded
Decoration: some have yellow slip on exterior; strip and notched (ACA-A3-3-22 [see B in Figure A.8], ACA-C2-3-10, ACA-C3-5-16 [see C in Figure A.9]); punctate (ACA-C2-2-1, see I in Figure A.8), stamped with cane in one or two rows; some not decorated

**Variant 3: (see Figure A.9)**
Short rim, inverted concave before the neck join, where the neck turns lightly everted; diameter 12 cm, thickness 5 mm.
Lip: rounded
Decoration: none

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2 Ollas, according to Rice (1998), do not have necks, or a point of inflection. Thus, these are really jars. Locally, however, there is a tendency to call them ollas.

3 Sample sizes for necked jars are not indicated because the numbers in the report do not match those in original paper documents on which the report was based. There is no way to accurately resolve the discrepancy.
Variant 4: (see Figure A.9)
Pronounced neck, strongly concave, neck 2-3.5 cm high; diameter 11-20 cm, average thickness 6 mm
Lip: flat or rounded
Decoration: some are yellow slipped

5. Amphora (see Figure A.10)
Sample: 20 sherds
Method: not determined
Inclusions: brown biotite, quartz, and other black and gray crushed mineral. Homogenous distribution. Inclusions are coarse (2-3.9 mm) in small amphoras, and very coarse (4-6 mm) for large amphoras.
Paste: compact. Oxidized firing, or incompletely oxidized. Paste color is orange, reddish brown, and clear gray.
Finish: external and internal walls are smoothed, with striations
Engobe: none
Surface Color: the color of the paste (orange, reddish brown). No soot apparent.
Form: oval form, with slightly convex walls
Decoration: none

Variant 1: 3 sherds
Oval body, convex walls, rim strongly everted
Diameter and thickness: 36-43 cm diameter, average thickness 12 mm
Lip: rounded

Variant 2: 2 sherds
Oval body, convex walls, rim lightly everted
Diameter and thickness: 41-43 cm diameter, average thickness 13 mm.
Lip: rounded

Variant 3: 9 sherds
Oval body, convex walls, rims widened up to the lip, lightly inverted
Diameter and thickness: 42-45 cm diameter, average thickness 14 mm
Lip: rounded, lightly rounded, or lightly beveled toward the exterior an interior

Variant 4: 6 sherds
Similar to Variant 3 but smaller, oval body, convex walls, rims lightly inverted
Diameter and thickness: 31-36 cm, average thickness 13 mm
Lip: flat, rounded, or lightly rounded

6. Other closed vessels
It is difficult to determine if some sherds were canteens or jars. Cornejo Guerrero (1991) differentiates these based on number of handles (canteens have 2, jarras [jars] have 1). One canteen and one jar were recognized, but are not discussed separately here. Within the general category of other closed vessels, however, we can distinguish the cuello gollete (restricted neck vessel) form.
Sample: 67 sherds
Method: vessels with stamped decoration are molded, others not determined
Inclusions: brown biotite, quartz, mica and other black and gray crushed minerals.
Homogeneous distribution. Inclusion size medium (1-1.9 mm) to coarse (2-3.9 mm).
Paste: compact. Oxidized firing, some incomplete oxidation, rarely reduced. Paste colors
are cream, orange, reddish brown, clear gray, and black.
Finish: smoothed on both sides, with some striations
Engobe: yellow slip
Surface color: same as paste (cream, orange, reddish brown, clear gray). No soot
apparent.
Form: spherical or ovoid body, with straight bottlenecks or lightly everted; ‘tape’ handles
joined horizontally between the middle upper section of the body or the union of the body
and neck. Bases could be convex or ellipsoid.
Lip: rounded or beveled toward exterior
Decoration: some stamped with mold

**Restricted neck vessels (cuello gollete)**

**Form 1: 2 sherds (Figure A.12)**
Possible canteen neck, 7-8 cm high; vertical walls lightly convex
Diameter and thickness: 9-10 cm in diameter, average thickness 7 mm.
Lip: rounded
Decoration: yellow slip on exterior and interior

**Form 2: 19 sherds (Figure A.11)**
Possible canteen neck, 4.5-8 cm high; vertical concave walls with everted rim. Soot
apparent on external side of one sherd.
Diameter and thickness: 9-16 cm in diameter, average thickness 9 mm.
Lip: flat, convex, or lightly concave
Decoration: some have yellow slip; stamped with cane; others none; the sherd with soot
has yellow slip (ACA-A1-7-23, see F in Figure A.12)

**Form 3: 20 sherds (see Figure A.12)**
Possible canteen neck, 4-9.5 cm high; everted walls lightly concave; one is black with a
handle (ACA-C3-1-13, see F in Figure A.11)
Diameter and thickness: 10-14 cm diameter, average thickness 7 mm
Lip: thinned on the interior or lightly rounded
Decoration: some have orange or red slip, black paste (reduced), or painted black on
yellow

**Form 4: 2 sherds (see Figure A.12)**
Bottleneck, straight and with rim lightly everted before the lip
Diameter and thickness: diameter 5 cm, thickness 4-7 mm
Lip: rounded, or lightly inverted
Decoration: none
Form 5 (miscellaneous): 15 sherds
Small rim sherds, or very eroded near lip, making it difficult to specify form
Decoration: one rim has stamped with cane decoration; another red slipped; 2 with yellow slip; one yellow-slipped and stamped with cane; and other punctate

Other sherds: 15 fragments
‘tape’ handles, of diverse sizes and thickness, corresponding probably to ollas, canteen, or jars; some are horizontal based on the direction of striations; some are yellow slipped, painted black on yellow, or red slipped.

Decorative Techniques

Plastic decoration

1. burnished lines (see Figure A.5)
Appears only on medium bowls, variant 3; only found in Sector A and B
Design is executed on the exterior of the vessel body, probably when paste is leatherhard or wet
Lines are average 2 mm wide, and .5 mm deep, and form crossed diagonal lines
Occasionally the lines are continuous and parallel around the rim edge (lip)

2. stamped with cane (Figure A.13)
Appears on medium bowls, variant 2; form 2 of restricted neck vessels
Design appears on the external side of the rim and body of the vessel, and also on the lip.
It consists of impressed circles 3-11 mm in diameter, 1-2 mm wide, and 1-2 mm deep.
Sometimes there are simple circles, and other times concentric. Generally they appear in horizontal rows in one or two columns bordering the vessel, spaced at short intervals (1 mm) or long intervals (3.5 cm). On the majority of the vessels the circles are symmetrical, but some are half oval. On occasion the impressions don’t form complete circles, leaving small areas intact. It is probable that the impressions were made with a thin and narrow piece of cane, while the paste was wet, based on the burrs left around the impressions.

3. stamped with cane and punctate (see Figure A.13)
Appears on medium bowls, variant 1; and on two body sherds
Design appears on the external side of the vessel. The punctate designs are 1-2 mm in diameter, and 1-2 mm deep. The technique is very similar to stamped with cane with the only different being the added punctate.

4. punctate (see Figure A.13)
Appears on the rim, neck, or upper part of the exterior side of closed vessels. Marked with dots. Design is composed of one or two rows of circular or oval dots 3-7 mm in diameter and 2 mm deep (average). The design was probably applied while the paste was wet. It can be considered a type of incision.
5. stamped with mold (Figure A.14)
Design appears on the body of closed vessels. Applied to the external side of vessels, and composed of a succession of rows that form small rounded or oval-shaped protuberances 2 mm wide, 3 mm in diameter, and 7 mm maximum length. In all cases the protuberances are delimited by longish relief designs closing off triangular, rectangular, or quadrangular shaped spaces, including stamps of stylized zoomorphic figures.

6. strips with notches (listón mellado) (Figure A.15, A-E)
Design appears on exterior bodies of closed vessels. Composed of short or long strips added to vessel in diagonal or horizontal directions while the paste was wet. The strips generally are 7-10 mm long, with an average width of 3 mm. The incisions are not more deep than 2 mm and are executed in regular fashion at intervals of 1-3 mm. Another variant of this design was found in a necked olla, variant 2, composed of two short strips located on the carinated section of the external rim.

7. incised on wet paste (see Figure A.15, H)
Appears on olla bodies. Composed of interlaced lines in the central zone of the exterior globular body, giving form to rectangular or rhomboid-shaped figures. The incisions were executed while the paste was wet, based on the burrs that appear around the incisions, with a v-shaped pointed instrument.

8. incised (see Figure A.15, I)
Appears on two small tape-shaped handles. Composed of 5-6 short and parallel incisions, followed by a transversal incision, executed on one end of the handle. The design was executed while the clay was leatherhard, as there are no burrs. The width and depth of the incisions are 2 mm.

9. combing (see Figure A.15, G)
Appears on the rim and possible the neck of a bottle. Composed of a series of tight and long incisions 2 mm wide and no more than 1 mm deep, parallel to each other and oriented from the neck down.

10. miscellaneous (see Figure A.15, F)
One fragment that is probably a modeled face appliqué from a necked pot.

Painted decoration

1. Yellow slip\(^4\)
Appears on medium bowls, variants 1 and 2, necked pots, variant 2, and restricted neck vessels form 2. Sometimes the slip is applied to handles, bases, only the external side, only the internal side, both external and internal sides, or only the rim.

\(^4\) I use yellow, but others may refer to white, cream, clear cream, clear yellow, etc. There is no clear distinction between specific yellow wares in the literature, so I subsume them all under this color. Same goes for Black on Yellow. However, some polychromes do indeed have white and yellow. I indicate where the variability may be relevant in the text.
2. Black on yellow (Figure A.16, A-D)
Appears mostly on medium bowls variants 1 and 2, but also on other closed vessels. The black painted areas consist of lines, abstract figures, zigzags, and other geometric shapes. The black paint sometimes appears as reddish brown, dark brown, or purplish, due to variability in firing technique.

3. Black on red (see Figure A.16, F-H)
Appears on some closed vessels, with application in narrow horizontal bands on the upper external rim on slipped surfaces on the exterior side that are slipped in sections, or as a line on the interior of a closed vessel, narrow lines and concentric circles.

4. Black
Vessels with black polished surfaces.

5. Red on yellow/white
Appears on one fragment with red designs, two pairs of parallel lines whose central part has rhomboid shaped designs with concentric circles in the center, on a background of yellow/white slip.

6. miscellaneous
Some small fragments of vessel bodies and rims have decoration with stripes of brown color over red; black and red paint on yellow/white slip; black and red paint on orange slip; black, red and white on red slip (Figure A.16, I); yellow/white on red slip (see Figure A.16, E); black lines, circles and points and red paint on yellow/white slip; or simply red slip.

Plastic and painted decoration

1. stamped with cane and yellow slipped
Appears on medium bowls, variant 2, long necks of closed vessels, form 2. These fragments combine the cane stamped technique with yellow slip. One fragment has a row of stamped circles on the interior of the rim, on top of which was applied yellow slip.

2. stamped with mold and yellow slipped
Appears on closed vessel form 2. The exterior is yellow slipped, with only the upper part of the interior of the neck slipped as well, and a row of stamped protuberances in the upper exterior section of the body. There is a pedestal base fragment that has yellow slip on its exterior and interior and two rows of small protuberances that run along the interior section close to the union of the body with the base.

3. zoomorphic appliqué and yellow slip (see Figure A.15, F)
Fragmented piece of the face of an animal with rounded eyes represented by a pair of applied buttons of clay. The mouth is an incised line. The figure is yellow slipped with yellow paint.
4. burnished lines and cream slip
From a possible pot (olla) fragment. The burnished lines form triangles and rectangles.

Discussion

The analysis focused primarily on form and design identification. We did not explicitly link these to time. However, comparison to published ceramic forms permits some identification of time period for this collection.

Neckless pots and burnished lines are considered diagnostic of the Early Horizon in the Santa, Nepeña, and Casma valleys. Since the burnished lines appear primarily on flat-bottomed bowls with straight walls, this form can also be considered diagnostic of that period. Incised circles and circle and dot designs are also known from coastal and highland assemblage dating to the Early Horizon. However incised circles are also very characteristic of some Late Intermediate Period wares. Their configuration is different for the most part, but ceramic sherds from the two periods could be confused. At Acaray, neckless pots, and flat bottom bowls with burnished lines are common on the fortress. They are not found, however, in the lower-lying cemeteries in the rest of the complex.

Yellow slipped ceramics, brown smoothed wares, red polished wares, red-on-white, and white and red wares, decoration with white paint, tricolor, impressed circles, and burnished decoration have been found in an Early Intermediate Period context in Végueta in the Huaura Valley (Shady Solis and Ruiz Estrada 1979). Radiocarbon dates associated with these ceramics (see chapter 3) suggest certain recognized styles do not equate well with temporal divisions of the Central Andean chronology. The impressed circles and burnished decorations are presumably decorative techniques that persist from the Early Horizon. The other painted wares are not easily placed. A red-on-white horizon was recognized by Willey to be very widespread at the end of the formative period, when Chavín styles cease to be common.

Yellow slipped wares are by far the most common decoration type found in surface collections of the fortress (Sectors A-C) and of the lower lying compounds at the Acaray complex. Based on the report mentioned in the prior paragraph, there are some yellow slipped ceramics that may date to the Early Intermediate Period. But distinguishing them from sherds from the late Chancay yellow wares is difficult. There currently are no criteria established with which to do so. Red and white painted wares are rare at the fortress at Acaray. Red slipped wares are also found, but this surface treatment appears during other time periods (it alone may not be temporally sensitive).

A local style known as Huaura Tricolor is associated with the end of the Middle Horizon. This style is not well defined, but is assumed to be related to the polychrome styles emanating out of the central coast that may have some relationship to Wari styles. It is characterized by polychrome painted decoration, usually black, red, and white on an orange slipped vessel, or black and red on white. The black is used to outline areas of color. Cup forms are very common in this style. From Acaray there are a few sherds from the fortress that are consistent with this style.

Black on yellow decoration is known locally as the classic Chancay style (actually called Chancay black-on-white), which dates to the Late Intermediate Period. Cayash, a localized style similar to Lauri Impreso of the Chancay Valley, is also Late Intermediate Period in date. Both Cayash and Lauri Impreso have designs dominated by incised
circles. Molded press wares, similar to those known from the Casma Valley and farther north, are also thought to be Late Intermediate Period. A local style called Pativilca is characterized by raised bumps and patterns on the surface of the vessel. Black burnished wares and mold-made pottery are Late Intermediate Period, and likely are Chimú, meaning they date to the latter part of the period.

Stamped with cane, punctate, mold stamped, and strip and notch decorations identified here from Acaray can be considered Late Intermediate Period in date. A few black burnished fragments were found, and can be considered Chimú wares. As I mentioned above, yellow slipped wares are the most common decoration type found in all sectors at Acaray (A-E). Although I initially characterized these as Chancay wares, I recognize yellow slipped appear in the Early Intermediate Period, suggesting we may not have such a high percentage of Chancay wares at Acaray.

Aryballo forms are characteristic of the Inca style associated with the Late Horizon. Inca designs can also be very identifiable. No recognizable Inca forms or sherds decorated using Inca conventions were found on the fortress at Acaray.
| Sect | A  | B  | C  | D  | E  | F  | G  | H  | I  | J  | K  | L  | M  | N  | ñ  | P  | Q  | T  | U  | V  | W  | Total |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|     |
| A1   | 18 | 3  | 4  | 0  | 4  | 1  | 2  | 54 | 7  | 0  | 1  | 11 | 5  | 5  | 5  | 3  | 2  | 0  | 0  | 0  | 0  | 125  |
| A2   | 2  | 1  | 0  | 0  | 0  | 0  | 9  | 1  | 0  | 1  | 1  | 4  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 19   |
| A3   | 7  | 3  | 0  | 1  | 2  | 1  | 0  | 22 | 7  | 0  | 1  | 2  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 47   |
| B1   | 0  | 0  | 0  | 0  | 0  | 3  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 5    |
| B2   | 10 | 2  | 0  | 0  | 3  | 0  | 0  | 16 | 3  | 0  | 1  | 3  | 0  | 2  | 0  | 1  | 0  | 1  | 1  | 1  | 44   |
| B3   | 12 | 1  | 0  | 0  | 0  | 0  | 19 | 0  | 0  | 1  | 4  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 38   |
| B4   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 3    |
| C1   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0    |
| C2   | 0  | 2  | 1  | 3  | 3  | 1  | 0  | 29 | 2  | 1  | 3  | 2  | 0  | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 51   |
| C3   | 0  | 0  | 0  | 1  | 7  | 3  | 0  | 17 | 6  | 0  | 3  | 5  | 2  | 4  | 0  | 0  | 0  | 0  | 0  | 0    |
| D    | 0  | 3  | 0  | 2  | 14 | 1  | 0  | 110| 14 | 0  | 5  | 3  | 6  | 30 | 0  | 1  | 0  | 3  | 0  | 4  | 199  |
| E    | 0  | 3  | 2  | 0  | 8  | 0  | 0  | 35 | 9  | 0  | 3  | 4  | 1  | 16 | 0  | 1  | 0  | 4  | 0  | 0  | 88   |
| Total| 49 | 18 | 7  | 7  | 41 | 10 | 2  | 314| 50 | 1  | 20 | 38 | 15 | 59 | 5  | 8  | 3  | 8  | 1  | 4  | 7  | 667  |

| Total %| 7.3 | 2.7 | 1.0 | 1.0 | 6.1 | 1.5 | 0.3 | 47.1| 7.5 | 0.1 | 3.0 | 5.7 | 2.2 | 8.8 | 0.7 | 1.2 | 0.4 | 1.2 | 0.1 | 0.6 | 1.0 | 100.0 |

Table A.1 Table of decorative techniques by sector. Technique codes are indicated below.

A-Burnished lines  I-black on white/yellow  Q-incised
B-stamped with cane  J-white and black on red  T-black and red on orange
C-stamped cane with punctuate  K-black on red  U-brown on red
D-punctate  L-black  V-combed
E-stamped with mold  M-red on yellow  W-black, red, and yellow/white
F-strips with notches  N-red slip
G-incised in wet paste  ñ-red and yellow
H-yellow slip  P-yellow on red
Figure A.1 Plate (A-C) and cup (D-G) forms.
Figure A.2 Large bowl forms, variant 1 (A-C) and variant 2 (D-E).
Figure A.3 Medium bowls, variant 1. A, G, and I have yellow slip on interior. M is yellow slipped on both sides.
Figure A.4 Medium bowl, variant 2.
Figure A.5 Medium bowls, variant 3. A, C, D, F, G, H, I, J, and M are decorated with burnished lines.
Figure A.6 Neckless pot (*olla sin cuello*) form, variant 1 (A-B, D-G) and variant 2 (C).

Figure A.7 Necked pot form, variant 1. The diameter of B could not be determined. B is yellow slipped on exterior an upper interior of rim.
Figure A.8 Necked pot form, variant 2. Rim diameter could not be determined for F.
Figure A.9 Necked pot forms, variant 2 (A, C), variant 3 (B), and variant 4 (D-E).
Figure A.10 Amphora forms, variant 1 (A), variant 2 (B), variant 3 (C-E), variant 4 (F-G).
Figure A.11 Restricted neck vessels, form 2.
Figure A.12 Restricted neck vessels, form 1 (A-B), form 3 (D-G), and form 4 (C).
Figure A.13 Stamped with cane (upper 6 examples) and punctate (lower six examples) decorative techniques.
Figure A.14 Stamped with mold decorative technique.
Figure A.15 Strip and notch (A-E), modeled appliqué (F), combing (G), incised on wet paste (H), and incised (I).
Figure A.16 Painted decoration. A-D is black on yellow, E is yellow on red, and F-G are black on red, H-I are black and red on red slip, and I is black, red, and white on red slip.
Figure A.17 Vessel forms and decoration from Sector D.
Figure A.18 Vessel forms and decoration from Sector E.
Figure A.19 Frequency chart for decorative techniques from Sector A sherds.

Figure A.20 Frequency chart for decorative techniques from Sector B sherds.
Figure A.21 Frequency chart for decorative techniques for Sector C sherds.

Figure A.22 Frequency chart for decorative techniques for Sector D and E sherds.
Appendix B: Excavated Ceramics

This appendix contains the attribute and value descriptions used for ceramic analysis beginning in 2006. Following that is a selection of drawn sherds from analyzed ceramics. The bulk of the drawings shown here were done by Maria Ysela Leyva and Alfredo Molina.

The attribute form was developed in collaboration with Kit Nelson. Ideally, this analysis form should be used by anyone working in the region to systematize collection of ceramic data. For that reason I provide it here, but emphasize it is in need of further modification. During the course of analysis I have rethought the form. I include it here as it was used, with additions made to analysis. However, I want to make note of categories that might need to be changed, or certain issues that I have not yet resolved for ongoing analyses.

One category in particular that I feel is not well-suited to this type of form is FormDet, or detail of the form. The idea was to have a general category, such as jar, then within that form category detail different kinds of jars. What resulted was the assignation of a new detailed form type for many sherds. Also, some of the details of surface treatments were to be elaborated during the course of analysis. But here we also run into the same problem. It was difficult to keep track of the different kinds of painted and mold-made designs.

Regarding color identification, because of the inherent variability in color that results from firing along, I am now not convinced that it is useful to distinguish different types of yellows or browns. That is something that may need to be reconsidered.

Ceramic Analysis for the Huaura Valley—Description of attributes

**PROVENIENCE**

**Sherd#:** Individual number for every artifact in the pottery database (1 to infinity).

**Provenience:** designated by the investigator. In the case of Acaray, the fragment code indicated on each fragment should be written.

**Bag:** bag number.

**SV:** Sherd or Whole Vessel, where whole vessel equals approximately 75% of the vessel present. Sherds represent all other.

1=Sherd
2=Whole Vessel

**GENERAL CHARACTERISTICS**

**EstPeriod:** Estimated time period.

0=not known
1=Initial Period
2=Early Horizon
3=Early Intermediate Period
4=Middle Horizon
5=Late Intermediate Period
6=Late Horizon
7=Late Intermediate Period + Late Horizon

**ProcTerm:** Parochial (Common designation) term for vessel type/style.
0=not known
1=neckless pot
2=Chancay black on white
3=Cayash
4=Burnished pattern
5=Huaura style
6=neckless pot with burnished lines
7=Chancay + Cayash/Pativilca

**VesPart:** Location of the sherd on the vessel.
0=Unknown
1=Whole Vessel
2=Rim
3=Body
4=Base
5=Rim and Body
6=Body and Base
7=Rim, Body, and Base
8=Handle
9=Body and Handle

**Constr:** Construction method.
0=undetermined
1=Coil/padded
2=Mold
3=paddle and anvil
4=other
5=slab
6=drawn, pinched

**Length:** Measurement of the maximum length perpendicular to the rim in mm, first orienting the fragment.

**Width:** Measurement of the maximum width parallel to the rim in mm.

**Thickness:** Measurement of the thickness of the wall of the sherd/vessel. Rims should be measured below any thickening at the lip.
Leave blank =not measurable, eroded

**RimDiam:** Rim diameter measurement in mm.
%Rim: Percentage of the rim present. Should be estimated using the rim diameter form, which indicates 25% of the rim.

ExtColor: Exterior color is the predominant color of the exterior surface of the vessel. Refer to color range categories at end.
0=not identifiable
1=Red
2=Yellow
  2.1=cream
  2.2=light yellow
  2.3=other yellow
3=Salmon
4=Heavily mottled yellow, brown, red
5=Gray
6=Black
7=Brown
  7.1 reddish brown
  7.2 light reddish brown
99=not applicable

IntColor: Interior color is the predominate color of the interior surface of the vessel.
0=not identifiable
1=Red
2=Yellow
  2.1=cream
  2.2=light yellow
  2.3=other yellow
3=Salmon
4=Heavily mottled yellow, brown, red
5=Gray
  5.1 dark reddish gray 3YR 4/2
6=Black
7=Brown
  7.1 reddish brown
  7.2 light reddish brown
99=not applicable

0=not determined
1=Scraped
2=Smoothed unslipped
3=Smoothed slipped
4=Polished
5=Burnished
6=slipped and burnished
7=scraped slipped
8=unmodified
9=striated
10=engobe
99=not applicable

**EBPatter**: Exterior surface burnishing pattern. If vessel is burnished, in what direction(s) is the burnishing.
1=perpendicular to rim
2=parallel to rim
3=crisscross
4=parallel to rim + crisscross on body
99=not applicable

**IntSurf**: Interior surface treatment.
0=unknown
1=Scraped
2=Smoothed unslipped
3=Smoothed slipped
4=Polished
5=Burnished
6=burnished with slip
7=scraped and slipped
8=unmodified
9=striated
10=burnished + scraped
99=not applicable

**IBPatter**: Interior surface burnishing pattern. If vessel is burnished, in what direction(s) is the burnishing.
1=horizontal to rim
2=parallel to rim
3=crisscross
99=not applicable

**DECORATION**

**ColorSch**: Color scheme of the vessel. General designation of the vessel color scheme.
0=Unidentifiable
1=Unidentified Yellow
2=Unidentified Red
3=Unidentified Black
4=Unidentified Gray
5=Black on Yellow
6=White on Red
7=Black on Red
8=Polychrome (Black and Red on Yellow)
9=Polychrome (Black and Cream/White on Red)
10=Unidentified Brown
11=Polychrome (black, red, and cream or orange)
12=Polychrome (cream and red on brown)
13=red on creme/yellow
14=cream on brown
15=brown on cream

**DecType**: Decoration type.
1=Incised
2=Impressed
3=Painted
4=Molded
5=Incised and Impressed
6=Incised and Painted
7=Impressed and Painted
8=Patterned Burnishing
9=stamped
10=incised and burnished
99=not applicable

**ExtDecType**: Decoration type located on the exterior surface of the vessel.
1=Incised
2=Impressed
3=Painted
4=Molded
5=Incised and Impressed
6=Incised and Painted
7=Impressed and Painted
8=Patterned Burnishing
9=stamped
10=incised and burnished
11=appliqué
99=not applicable

**IntDecType**: Decoration type located on the interior of the vessel.
1=Incised
2=Impressed
3=Painted
4=Molded
5=Incised and Impressed
6=Incised and Painted
7=Impressed and Painted
8=Patterned Burnishing
99=not applicable

**ExtIncised**: Location of exterior incising.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**EIPattern**: Exterior Incised Pattern.
0=Unknown
1=Circle
2=Circle and Dot (dot is impressed but part of the same motif)
3=Line
4=circle, dot and line
5=line and dots
6=circle and undulating line
7=zoned incised
8=straight and undulating lines
9=rhombus shapes
10=circles with dot, straight and undulating lines
99=not applicable

**ExtImp**: Location of Exterior Impressed.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**EMPATTERN**: Pattern of impressions on the exterior of the vessel.
0=Unknown
1=Circle
2=Circle and Dot
3=impressed dot
4=impressed notches
5=crossed arches
99=not applicable

**ExtMold**: Location of Exterior mold made design.
EMoPattern: Pattern of impressions on the exterior of the vessel (codified as we go).
*These are drawn on sheets-refer to these*
0=Unknown
99=not applicable

ExtPaint: Location of paint on the exterior of the vessel.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
9=rim, neck, and handle
99=not applicable

EPPattern: Type of pattern created by paint (motif). To be elaborated as analysis proceeds. *These are on sheets-refer to these*
99=not applicable

ExtAppliq: Location of appliqué on the exterior of the vessel.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
9=rim, neck, and handle
99=not applicable

EAPattern: Form of the appliqué.
0=unknown
1=coffee bean
2=monkey
3=frog
4=anthropomorphic
5=dog, fox, jaguar
6=strip
7=strip with notches (*listón mellado*)
99=not applicable

**IntIncised**: Location of interior incising.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**IIPattern**: Interior Incised Pattern.
0=Unknown
1=Circle
2=Circle and Dot (dot is impressed but part of the same motif)
3=Line
99=not applicable

**IntImp**: Location of Interior Impressed.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**IMPattern**: Pattern of impressions on the interior of the vessel.
0=Unknown
1=Circle
2=Circle and Dot (dot is impressed but part of the same motif)
3=Line
99=not applicable

**IntMold:** Location of interior mold made design.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**IMoPattern:** Pattern of impressions on the interior of the vessel.
0=Unknown
99=not applicable

**IntPaint:** Location of paint on the interior of the vessel.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
9=rim and neck
99=not applicable

**IPPattern:** Type of pattern created by paint (motif). To be elaborated as analysis proceeds.
1=EP Pattern 1-drawn on sheet
2=EP Pattern 2-drawn on sheet
3=drawing on sheet-please refer to sheet
4=drawing on sheet-please refer to sheet
5=triangles
6=drawing on sheet-please refer to sheet
99=not applicable

**IntAppliq:** Location of appliqué on the interior of the vessel.
0=Unknown
1=Rim
2=Body
3=Base
4=Rim and Body
5=Body and Base
6=Rim, Body, and Base
7=Handle
8=Body and Handle
99=not applicable

**IAPattern**: Form of the appliqué.
0=Unknown
1=coffee bean
2=monkey
3=frog
4=anthropomorphic
5=dog, fox, jaguar
99=not applicable

**Form**: General form of vessel limited to types listed.
0=Undetermined
1=Bowl
2=Jar
3=Cup
4=Plate
5=Canteen
6=Olla

**FormDet**: Details of form. To be elaborated during analysis.

**Firing**: Alteration due to firing including misfires.
0=unidentified
1=fireclouds
2=bloating
3=sintering
4=spalling
99=not applicable

**Vitrif**: Absence or presence of vitrified substance on sherd.
0=no
1=yes

**Soot (Hollín)**: Absence or presence of soot on sherd.
0=no
1=yes

**Comments**: Any addition information.
Key to Color Groups (Using Munsell Designations).

CREAM/BUFF: 7.5YR 8/2, 8/3, 8/4; 10YR 7/3, 7/4, 8/1, 8/2, 8/3, 8/4; 2.5Y 6/2, 6/3, 6/4, 7/2, 7/4; 5Y 7/2, 7/4, 8/1

RED: 2.5R 3/4, 3/6, 4/3, 4/4, 4/5, 4/6, 4/7, 4/8, 5/2, 5/3, 5/4, 5/5, 5/6, 5/7, 5/8, 6/6, 6/8, 7/6, 7/8; 5YR 3/4, 4/6; 10R 3/6, 4/3, 4/4, 4/6, 4/8, 5/3, 5/4, 5/6, 5/8, 6/6, 6/8

PINK/SALMON: 2.5YR 6/2, 6/4; 5YR 8/2, 8/3, 8/4; 10YR 6/2, 6/3, 6/4

GRAY: 5YR 4/1, 5/1, 6/1, 7/1, 7/2, 8/1; 7.5YR 4/1, 5/1, 6/1, 7/1, 8/1; 10YR 4/1, 5/1, 5/2, 6/1, 6/2, 7/1, 7/2; 2.5Y 4/0, 5/0, 6/0, 7/0; 5Y 4/1, 5/1, 6/1, 6/2, 7/1, 7/2; 10R 4/1, 4/2, 5/1, 5/2, 6/1

YELLOW: 5YR 5/6, 5/8, 6/8, 7/6, 7/8; 7.5YR 7/8, 8/6; 10YR 6/6, 6/8, 7/6, 7/8, 8/2, 8/3, 8/4, 8/5, 8/6, 8/7, 8/8; 2.5Y 6/6, 6/8, 7/6, 7/8, 8/2, 8/4, 8/6, 8/8; 5Y 8/2, 8/3, 8/4, 8/5, 8/6, 8/7, 8/8

BROWN/BLACK: 2/5YR 4/2, 3/1, 2.5/1, 2.5/2

BLACK: 5YR 2.5/1, 2.5/2, 3/1, 3/2, 3/3, 3/4, 4/2, 4/3, 4/4, 5/2, 5/3, 5/4, 6/3, 6/4, 6/5, 6/6; 7.5YR 2.5/0, 2.5/2, 2.5/4, 3/1, 3/2, 10YR 2/2, 3/2, 3/3; 2.5Y 2.5/0, 3/0; 5Y 2.5/1, 2.5/2, 3/1; 10R 2.5/1, 2.5/2, 3/1

TAN/LIGHT BROWN: 7.5YR 5/2, 5/4, 5/6, 5/8, 6/4, 6/6, 6/8, 7/2, 7/4, 7/6; 10YR 5/3, 5/4, 5/6, 5/7, 5/8, 6/3, 6/4, 6/6, 6/7, 6/8, 2.5Y 5/2; 5Y 6/2

RED/BROWN: 2.5YR 2.5/4, 3/2, 3/3, 3/4; 10R 3/2, 3/3, 3/4

ORANGE: 2.5YR 5/6, 5/8, 6/6, 6/8; 5YR 6/8, 7/6, 8/8

BROWN: 7.5YR 3/2; 10YR 3/3, 3/4, 3/6, 4/2, 4/4, 4/6, 4/8; 2.5Y 3/2, 4/2, 4/4

GREEN: 2.5Y 5/4, 5/6; 5Y 4/2, 4/3, 4/4, 5/3, 5/4, 5/5, 5/6, 6/3, 6/4, 6/5, 6/6, 6/7, 7/4, 7/5, 7/6, 7/7, 7/8
Figure B.1 Rim sherds from intrusions in Block 1A. Neckless olla, a short-necked jar, and a bowl are represented. Decorated rim is from surface layer in Block 1A. Rim was too small for determining vessel diameter. Form is probably an open bowl or cup. Decoration is black, red (horizontal lines), and white on orange (diagonal lines). Sherd is orange slipped on interior (not indicated in drawing).
Figure B.2 Rim sherds from floors and compact surfaces in Block 1A. Neckless ollas, short necked jars, and bowls are represented.
Figure B.3 Rim sherds from TU6 (Lots 44, 45, 51, and 52 – all trash deposits). Bowls, short necked ollas, and neckless ollas are represented.
Figure B.4 Rim sherds from TU6 (all Lot 47, a trash deposit). Bowls, short necked olla, and neckless olla are represented. Note the patterned burnishing design on 4 sherds, and one with incised circles.
Figure B.5 Rim sherds from Block 1B. Neckless ollas, bowls, and necked jars are represented.
Figure B.6 Rim sherds from Block 1C. Neckless ollas, bowls, and necked jars are represented.
Figure B.7 Rim sherds from Block 3B. Neckless ollas, bowls, and necked jars represented.
Figure B.8 Rim sherds from TU2 (lots 9, 10 and 11). Neckless ollas, short necked ollas, and bowls are represented.
Figure B.9 Rim sherds from TU2 (lots 26, 31, 34, and 36). Neckless ollas, short-necked olla, and bowls are represented. Note sherd with burnished lines and black on red painted sherd. Rim second from top left was found with burial.
Figure B.10 Rim sherds from TU2 (lots 36 and 37). Neckless ollas and bowls are represented.
Figure B.11 Rim sherds from TU5 (lot 177). Bowls and short necked ollas are represented.
Figure B.12 Rim sherds for TU5 (lot 177). Neckless ollas and bowls are represented.
Appendix C: Osteological report, by Rebecca Osborne

On accompanying Compact Disc
Appendix D: Block 1A textile *ofrenda*, with Kaelyn Dillard

On accompanying Compact Disc
Appendix E: Quipu report, with Alejo Rojas

On accompanying Compact Disc
Appendix F: Pollen report, by Luis Huamán

On accompanying Compact Disc
Appendix G: Optically Stimulated Luminescence report, by Jack Johnson

On accompanying Compact Disc
Appendix H: Artifact photos

On accompanying Compact Disc
Appendix I: LA-ICPMS analysis of mineral, with Laure Dussubieux and Nathan Craig

On accompanying Compact Disc
Appendix J: X-ray Fluorescence report, with Jorge Bravo and Mercedes Delgado

On accompanying Compact Disc
Appendix K: Site protection

On accompanying Compact Disc
Curriculum Vitae

Education
Ph.D, Anthropology, University at Illinois at Urbana-Champaign.
  Dissertation: War and Social Life in Prehispanic Perú: Ritual, Defense and Communities at the Fortress of Acaray, Huaura Valley.
M.A., Anthropology, University of Illinois at Urbana-Champaign.
B.A., Anthropology, Departmental Honors, University of Texas at Austin.

Research Interests
Violence and war, social experience and change, identity, imperialism and colonialism, domination and resistance, culture contact, frontiers, borders, social complexity, ritual; late prehispanic societies of the Central Andes; integration of ethnohistory and archaeology, ethnoarchaeology and experimental archaeology; politics of archaeological research

Current and Past Institutional Affiliations
Adjunct Research Associate, Department of Anthropology, The Pennsylvania State University. 2008-current
Visiting Scholar, Department of Anthropology, University of Arizona. 2007-2008 academic year.
Affiliated Member, Regional Archaeology Museum, Universidad Nacional José Faustino Sánchez Carrión. 2006-2008
Affiliated Investigator, Department of Humanities, Pontificia Universidad Católica del Perú. February 2006-February 2007

Languages
English (native), Spanish (fluent in reading, writing, and speaking), Portuguese (reading)

Publications
Brown Vega, Margaret
In press  Prehispanic Warfare During the Early Horizon and Late Intermediate Period in the Huaura Valley, Perú. Report accepted for publication to Current Anthropology.
Brown, Margaret and Mario Advincula Zeballos
2007 Acaray: La Fortaleza Emblemática del Valle de Huaura (Acaray: The
Emblematic Fortress of the Huaura Valley). Guaura: Revista del Museo
Arqueológico de la Universidad Nacional José Faustino Sánchez Carrión
No. 1: 29-34.

Conference Papers and Professional Presentations (*invited by organizers)
Brown Vega, Margaret
2008 Ritual and Conflict During the Early Horizon and Late Intermediate Period
Occupations of the Fortress of Acaray, Huaura Valley, Perú. Paper presented
at the 73rd Annual Meeting for the Society for American Archaeology.

2007 Patrones Regionales Defensivos y Fortificaciones: Evaluando Cómo Se
Articulan las Dinámicas Sociopolíticas Regionales y Los Eventos Focalizados
(Regional Patterns of Fortification and Single Forts: Evaluating the
Articulation of Regional Sociopolitical Dynamics with Localized Phenomena).
Paper presented at the Comparative Perspectives on the Archaeology of

2007 Archaeological investigation, gender and fieldwork, and the politics of
research in Perú: experiences from a professional conference and beyond.
Presented at the Latina/Latino Studies Brown Bag Series. University of

2007 Episodes of War in the Early Horizon and Late Intermediate Period: New
Dates from the Fortress of Acaray, Huaura Valley, Perú. Paper presented at
the 35th Midwest Conference on Andean and Amazonian Archaeology and

Brown Enrile, Margaret
2006* Late Intermediate Period Developments in the Huaura Valley, Perú: situating
micro-scale events within macro-regional histories. Paper presented at the 71st
Annual Meeting for the Society for American Archaeology. San Juan, Puerto

2005* Preliminary Data from the Archaeological Complex of Acaray, a Fortified
Settlement in the Huaura Valley, Perú. Paper presented at 70th Annual
Meeting for the Society for American Archaeology. Salt Lake City, Utah.
April, 2005.

2004 Assessing the Militarization of Social Life Archaeologically: Prospects for the
Study of the Late Prehispanic Settlement of Acaray, Huaura Valley, Perú.
Presented at the Graduate Association of Student Anthropologists Brown Bag
Series. Department of Anthropology, University of Illinois at Urbana-

2004 Investigaciones Preliminares en el Complejo Arqueológico de Acaray, Valle
de Huaura: La Primera Temporada 2004 (Preliminary Investigations at the
Archaeological Complex of Acaray, Huaura Valley: The First Fieldseason
2004). Presented at the School of Archaeology, Greater National University of

447


Brown Enrile, Margaret and Eva Pajuelo

Brown Enrile, Margaret and Mario Advíncula

**Fellowships and Awards**

Diversity Conference Travel Grant, Department of Anthropology, University of Illinois at Urbana-Champaign, Spring 2008 ($500) to present conference paper at SAA meeting, Vancouver, British Columbia, Canada.

Graduate College Conference Travel Grant, University of Illinois at Urbana-Champaign, Spring 2008 ($400) to present a conference paper at SAA meeting, Vancouver, British Columbia, Canada.

Graduate College Dissertation Completion Grant, University of Illinois at Urbana-Champaign, 2007-2008 ($17,000).

Exploration Fund Grant, Explorer’s Club, 2007 ($1200) for analysis of prehispanic quipus from Acaray, Huaura Valley, Perú.

Graduate College Conference Travel Grant, University of Illinois at Urbana-Champaign, Spring 2006 ($400) to present a conference paper at SAA meeting, San Juan, Puerto Rico.

Diversity Conference Travel Grant, Department of Anthropology, University of Illinois at Urbana-Champaign, Spring 2006 ($400) to present a conference paper at SAA meeting, San Juan, Puerto Rico.

Conference Travel Grant, Latina/Latino Studies, University of Illinois at Urbana-Champaign, Spring 2006 ($400) to present a conference paper at SAA meeting, San Juan, Puerto Rico.


Graduate College Dissertation Travel Grant, University of Illinois at Urbana-Champaign, 2004-2005 ($3,522) for dissertation research at Acaray, Huaura Valley, Perú.
Tinker Summer Research Grant, Center for Latin American and Caribbean Studies, University of Illinois at Urbana-Champaign, Summer 2003 ($1,430) for pre-dissertation research in the near north coast of Perú (Fortaleza, Pativilca, Supe, and Huaura valleys).

Graduate Student Research Assistance Award, Department of Anthropology, University of Illinois at Urbana-Champaign, Summer 2002 ($2,725) for master’s/pre-dissertation research in the Ica Valley, Perú.

Summer Field Research Grant, Center for Latin American and Caribbean Studies, University of Illinois at Urbana-Champaign (declined), Summer 2001.

Graduate Student Research Assistance Award, Department of Anthropology, University of Illinois at Urbana-Champaign, Summer 2001 ($2,350) for exploratory research in the south coast of Perú (Acarí, Nasca, and Ica Valleys).

Predoctoral Fellowship, Graduate College, University of Illinois at Urbana-Champaign, 2000-2003 ($45,000).

Scholarship, National Society for Hispanic MBA’s, 1994 ($1,000).

Field and Laboratory Research
June-July 2008, Project Director, Proyecto Experimental de la Huauraca (Experimental Sling Project). Puno, Perú. Conducted slinging experiments to assess the dimensions of its use in prehispanic warfare. Collaborator: Dr. Nathan Craig.


June-August 2004, Project Director, Proyecto Arqueológico La Fortaleza de Acaray (The Fortress of Acaray Archaeological Project). Huaura Valley, Perú. Directed mapping, established and maintained project GIS, directed laboratory analysis of ceramic artifacts.


August 2003, Preliminary dissertation research, survey of late prehispanic sites in the Fortaleza, Pativilca, Supe, and Huaura valleys, near north coast of Perú.


July 2001, Crew Member, Huancaco-Santa Clara Archaeological Project. Virú Valley, Perú. Excavated and carried out laboratory analysis of ceramics. Principal Investigator: Dr. Steve Bourget.

June 2001, Exploratory research, survey of late prehispanic sites in the Acarí, Nasca, and Ica valleys, south coast of Perú.


1994-1996, Crew Member, Texas Archaeological Research Lab and University of Texas at Austin, Department of Anthropology. Bee Caves, Texas. Excavation and pedestrian survey. Principal Investigator: James Karbula.


**Teaching Experience**

**Spring 2007,** Graduate Teaching Assistant, Department of Anthropology, University of Illinois at Urbana-Champaign. Historical Archaeology of the Americas (Anthropology 106).

**Spring 2006,** Co-Director and Field Supervisor, Undergraduate Archaeological Field Methods Practicum, Universidad Nacional Mayor de San Marcos. Acaray, Huaura Valley, Perú.

**Summer 2005,** Visiting Lecturer, Department of Anthropology, University of Illinois at Urbana-Champaign. Introduction to Anthropology: Human Origins and Culture (Anthropology 102).

**Spring 2005,** Visiting Instructor, Department of Anthropology, University of Illinois at Urbana-Champaign. Aztec Civilization (Anthropology 376).


**Fall 2005,** Guest Lecturer, *Prehispanic societies of Mesoamerica and the Andes.* Introduction to Latin America: A Modular Approach (Latin American Studies 170), University of Illinois at Urbana-Champaign.

**Spring 2005,** Guest Lecturer, *Empires of the Andes.* Latin American Cultures (Anthropology 182), University of Illinois at Urbana-Champaign.

**Fall 2004,** Guest Lecturer, *Late Prehispanic Societies of Perú: Chimú and Chancay.* World Archaeology (Anthropology 105), University of Illinois at Urbana-Champaign.

**Public Lectures**

**July 2006,** La Fortaleza de Acaray en el Valle de Huaura (The Fortress of Acaray in the Huaura Valley). Given for the Cultural Event Vichama Raymi and Tourist Week of Paramonga, District Municipality of Paramonga. (with Mario Advíncula)

**July 2006,** Proyecto de Investigación Arqueológica Acaray: Resultados y Proyección Social (Acaray Archaeological Investigation Project: Results and Social Projection). Given for the Cultural Association INSULA of Huacho. (with Mario Advíncula)
February 2006, Proyecto de Investigación Arqueológica Acaray, valle de Huaura (Acaray Archaeological Investigation Project, Huaura Valley). Given at the Anniversary of the Columbia Pre-University School, sponsored by the RAICES (Red Americana de Identidad Cultural y Educación Social). (with Mario Advíncula)


Professional Memberships
National Register of Professional Archaeologists of Perú. 2004-present

Technical skills
ArcGIS (ArcMap, ArcCatalog, ArcToolbox, ArcPad, Python)
Use of TopCon (SMI 7.0) and Leica (LeicaGEO Office) total stations, GPS (Trimble Pathfinder Office)
Basic Web Design, SPSS
THE FOLLOWING PAGES ARE APPENDICES THAT ACCOMPANY
THE DISSERTATION ON CD

THEY ARE INCLUDED HERE APPENDED TO THE PDF
A single inhumation of an adult female was recovered by Margaret Brown and Mario Advincula at the archaeological site of Acaray in the spring of 2006. What follows is a description of the skeletal data relevant to estimation of sex, age, and general health of the individual. (Observations based on: Standards for Data Collection from Human Skeletal Remains, Buikstra and Ubelaker 1994)

Sex

Estimation of sex was based on observations of features of the pelvis and cranium. The skeleton displayed features common to females such as a wide greater sciatic notch, a deep preauricular sulcus, and a lack of a glabellar protuberance. In addition, the skeleton would be considered gracile based on the size and density of the bone. Based on the array of features, an estimation of the sex of the individual as female can be confidently asserted.

Age

Though the skeleton was over 90% complete, some of the features used to estimate age were either obscured by remaining flesh, or fragmented. However, those features that were observable, together point to an age estimation of 'old adult', over 50 years of age. The primary lines of evidence available were features on the pelvis, the pubic symphysis and auricular surface. The auricular surfaces on both right and left ilia were intact, and 75% of the lower left pubic symphysis, and 25% of the upper right pubic symphysis were present. The criteria for assigning age based on changes in the surface of the auricular surface were based on the standards set out by Meindl and Lovejoy (1989). Using those standards, the skeleton received a score of 8, which indicates an age of 60+. In addition, the Todd (1921) and Suchey-Brooks (1990) pubic symphysis scoring systems were utilized, and in both cases, the skeleton received the highest score possible, indicating old age (50+). Because flesh and textile were preserved on the cranium, it was impossible to utilize suture closure in order to aid in assigning age. However, in addition to the pelvic evidence, the extreme amount of dental wear/tooth loss/mandibular resorption also suggests that the individual had reached an advanced age (50+ years).

Health Status

Observations were also made concerning general health status based on evidence of trauma, pathology, and dental health. Evidence for trauma was minimal, with 3 compression fractures on the phalanges of the foot, and bony formation on both knees resulting from ligamental damage.
Pathological changes in the skeleton were observed resulting from osteoporosis, degeneration of the vertebral column, osteoarthritis, and periostial infection. Osteoporosis is demonstrated by the extreme porosity of the skeleton. The vertebral column displayed a large amount of degeneration, including both osteophyte and syndesmophyte formation, and the presence of possible schmorl nodes. Lateral bone growth resulting from osteophytic activity was marked on multiple vertebrae, including: C4, C5, T11, and L2-5. Vertical bone growth (syndesmophytes) was present on L2, L3, and L5. Possible schmorl nodes, resulting from intervertebral disk pressure, were observed on T5, T6, and L3. Their diagnosis is tentative, due to extreme porosity of the vertebral bodies. Osteoarthritis was present in most major joints, including the shoulder, elbow, wrist, hip and knee. In all cases, the osteoarthritis was minor, with porosity, and little eburnation. Finally, evidence of healed periosteal infection was located on the proximal and distal ends of the lower leg bones, and the distal end of the femora, indicating a previous bloodborne infection.

It appears that the individual's dental health was poor, based on the extreme premortem tooth loss and attrition on remaining teeth. Only 8 of 32 teeth were present, and of those, all but one premolar had been worn down to the root. The remaining premolar demonstrated a carious lesion on the occlusal surface. All of the lower teeth had been lost well before the time of death, based on advanced alveolar resorption.
### CRANIAL BONES AND JOINT SURFACES

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*CHAPTER 2: Attachment 1*
LONG BONES

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<td>Middle</td>
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<td>4/4</td>
<td>4/4</td>
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<tr>
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<td>4/4</td>
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<tr>
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</tr>
<tr>
<td>Right Femur</td>
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<td>2/2</td>
<td>2/2</td>
</tr>
<tr>
<td>Left Tibia</td>
<td>2/2</td>
<td>2/2</td>
<td>2/2</td>
</tr>
<tr>
<td>Right Tibia</td>
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<td>2/2</td>
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<tr>
<td>Left Fibula</td>
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<tr>
<td>Right Fibula</td>
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<td>2/2</td>
<td>2/2</td>
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<tr>
<td>Left Talus</td>
<td>4/4</td>
<td>4/4</td>
<td>4/4</td>
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<tr>
<td>Right Talus</td>
<td>4/4</td>
<td>4/4</td>
<td>4/4</td>
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<tr>
<td>Left Calcaneus</td>
<td>3/3</td>
<td>3/3</td>
<td>3/3</td>
</tr>
<tr>
<td>Right Calcaneus</td>
<td>3/3</td>
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<td>3/3</td>
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</table>

HAND ( # Present/# Complete)

<table>
<thead>
<tr>
<th>L</th>
<th>R</th>
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</tr>
</thead>
<tbody>
<tr>
<td># Carpals</td>
<td>5/5</td>
<td>5/5</td>
</tr>
<tr>
<td># Metacarpals</td>
<td>5/5</td>
<td>5/5</td>
</tr>
<tr>
<td># Phalanges</td>
<td>2/2</td>
<td>2/2</td>
</tr>
</tbody>
</table>

FOOT ( # Present/# Complete)

<table>
<thead>
<tr>
<th>L</th>
<th>R</th>
<th>Unilateral</th>
</tr>
</thead>
<tbody>
<tr>
<td># Tarsals</td>
<td>5/5</td>
<td>5/5</td>
</tr>
<tr>
<td># Metatarsals</td>
<td>5/5</td>
<td>5/5</td>
</tr>
<tr>
<td># Phalanges</td>
<td>2/2</td>
<td>2/2</td>
</tr>
</tbody>
</table>

Comments:
- Marked reduction in bone density-osteoporosis
- 3 healed compression fractures of phalanges of foot
- Marked osteophytic formation L2-L5, T11, T4-T5
- Syndesmosis on L2-L3, L5
- Compression of L5 body + T11
- Possible torn node on L3, causing further degradation
- Compression of vertebral body
- Fracture of body T5-T6 - healed, but porous
- Extreme porosity of bodies - C4-C7
- Osteoarthritic activity: Porosity of margins of both humeri - both joints, right radius head, distal ends of all distal arm bones, glenoid cavity of left scapula, extremities of both clavicles, left acromion
- Bony formation on both knees - result of ligamental damage
- Superior patella, tubial tuberosity
- Minor periosteal infection, healed - proximal and distal left + right tibia, distal left + right femurs, proximal and distal left + right fibula
- Porosity - left femoral heads, medial condyles
- Lipping - left proximal tibia

Attachment 1: CHAPTER 7
- Right +
ADULT SEX/AGE RECORDING FORM

Site Name/Number: Acaray, Valle de Huaura
Observer: R. Osborne
Feature/Burial Number: Lote 34
Date: 04/08/06
Burial/Skeleton Number: / 
Present Location of Collection: Caja 20, Bolsos 810-331

SEX

Pelvis

- Ventral Arc (1-3) 4 L 4 R
- Subpubic Concavity (1-3) 1 L 1 R
- Ischiopubic Ramus Ridge (1-3) 2 L 2 R
- Greater Sciatic Notch (1-5) 4 L 4 R
- Preauricular Sulcus (0-4) 1 L 1 R

Estimated Sex, Pelvis (0-5):  = Female

Skull

- Nuchal Crest (1-5) 4 L 4 R
- Mastoid Process (1-5) 2 L 2 R
- Supraorbital Margin (1-5) 4 L 4 R
- Glabella (1-5) 2 L 2 R
- Mental Eminence (1-5) 2 L 2 R

Estimated Sex, Skull (0-5):  = probable Female

Comments:

All features suggest this specimen is a female.

CHAPTER 3: Attachment 11
Both pubic symphyses are fragmented, making age estimation difficult. Cranial sutures obscured by scalp/hair and textile.

Based on pubic symphysis + auricular surface = >50 yrs.

This is supported by the large amount of dental wear/tooth loss/mandibular resorption.
POSTCRANIAL BONES VISUAL RECORDING FORM
LEFT OS COXAE, SCAPULA, CLAVICLE

Series/Burial/Skeleton: Acaray Late 34
Observer/Date: Poston 04/08/66

- fragmented

CHAPTER 2: Attachment 9a
Appendix D: Description of Ofrenda from Block 1A

This appendix presents a brief description of the two textile bag ofrendas excavated from Block 1A, and a detailed chart of the objects within each bundle. I also include a detailed textile analysis carried out by Kaelyn Dillard on some of the textiles pieces from the two bundles. The textile attribute chart and corresponding coding sheet were developed by her.

Two textile bags were excavated in construction fill of a bench in excavation block 1A. This bench is part of the last phase of construction of the structure on the hilltop of subsector A3. Block 1A was located on the southeast quadrant of a room within this structure, encompassing what appeared to be a bench created by a stone wall, and part of the room floor below. Once the bench was excavated it became apparent that it was covering previous architecture, specifically another bench made of stone that had possibly been plastered (see description of Block 1A in Chapter 7).

Excavation of the construction fill of the bench, which consisted of loose dirt with small rocks mixed with some trash remains (ceramic fragments, some botanicals), revealed a piece of striped textile. Once it was better defined it more it became apparent that it was a bundle. There was no matrix, so it was obvious that this was not an intrusion into the bench. Rather, the bundle was placed in with the fill, abutting the older bench. The bundle was coupled with another textile bundle, the two together forming an ofrenda.

The documentation of the bundles is treated according to levels, similar to stratigraphy (see Frame et al 2004:856). Within each layer there are objects, which have a number (Object 4), sub-objects, which are distinguished by a letter (Object 4A), and sub-items, which are further distinguished by numbers (Object 4A1) and lower case letters (Object 4A1-a). The first textile bundle was inventoried using only numbers, but relationships between objects are still clear.

All textile bundles were cut where necessary to preserve all knots, ties, and stitching. All stages of the unwrapping were documented with two cameras: one which was used to take general photos and video clips, and another which was mounted on a boom and placed above the table to photograph the bundles from above. Photos were taken prior to and immediately following removal of any item from the bundle. This method, derived from methods developed and used for high resolution digital data recording in excavations (Craig 2002), allowed for the creation a detailed photographic record of the unraveling, which would also allow drawing to be done from any photograph at any point in the process. Corners 50 cm apart were marked to form a square around the bundles so that scale could be reproduced in all photos.

Description of Textile Bundle 1

This textile bag appeared to be the more elaborate of the two simply because the textile was decorated. This bag measures roughly 65 cm long and 26 cm wide. The fabric has vertical (to the opening) lines that are brown and tan. This bag is stitched on three sides: along one long edge and along both short edges although the opening is not completely sewn shut. The other short edge was sewn together using one technique and thread, then resewn in the center using a completely different cotton yarn. This textile appears to be reused because it appears to have been cut on one end and then sewn together.
The string that tied the bag closed was cut in two places to conserve the knots made in the string. The string appears to be made of plant fiber. While this enabled a peek inside of the bag, the contents could not be removed through the opening because information regarding the spatial arrangement of items in the bag would be lost. The bag was then cut along one of its long edges away from the seam to peel back the bag and reveal the contents. There was a variety of items: a necklace, a number of bundles of fiber, bundles of white and brown yarn, two seeds, two rope bundles, and another textile bundle inside. Each item was photographed in relation to its place within the bag as well as individually. In total we had 27 objects from this bundle.

**Description of Ofrenda, Bundle 2**
This bundle appeared to have two smaller bundles inside before it was opened. On one side, near the knot, the bag itself had a depressed zone where it collapsed in toward the knot, while the opposing side was rounded by the contents. The bundle was tied closed by gathering the edges of the textile and tying them into a knot, which was preserved by cutting the bag on one side to open it up.

The textile is plain, and it is sewn on one end. On one end of a corner of the textile that was used to make a knot there was light blue yarn, as if this corner had been tied to another textile (a pattern noted elsewhere in the textile).

There were two layers of textiles, the underlying layer may not be the same textile as the outer layer, but the two are tied together and could not be separated. The underlying layer was badly deteriorated, with holes in it. The bag was cut along the deteriorated area, exposing three smaller bundles inside. The underlying layer of textile shows a striped pattern, but is badly deteriorated.

The three bundles were located on top of some loose botanical remains. Some of these botanicals may have fallen out of one of the smaller bundles, which had holes in it and which appeared to have some botanical remains in it, along with fiber rope. The largest of the smaller bundles, tied on one end by what appears to be fiber yarn, was removed first, further exposing the smaller bundle below it and revealing more of the botanical remains that lay below.

This bundle was cut perpendicular to the opening, and then across the bottom to open it up and expose its contents. There were four items located inside: two smaller textile bundles, a brown textile piece, and a small netted bag. Of the smaller three bundles inside, one was tied to the knot of the larger bundle. This smaller bundle was knotted in a similar way: the corners of the textiles were gathered and knotted, and one end of the textile from this knot was somehow tied to the external knot. We cut the textile piece where this smaller interior bundle and the outer bundle were tied together.
<table>
<thead>
<tr>
<th>Context: Block 1A, Locus 42, Lot 85</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Textile Bag 1</strong></td>
</tr>
<tr>
<td><strong>Layer</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td><strong>C14</strong></td>
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<td>2</td>
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**C14**

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<th>Material(s)</th>
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<td>5A1</td>
<td></td>
<td>botanical bundle tied with dark fiber</td>
<td>hair or wool?</td>
</tr>
<tr>
<td></td>
<td>5A1b</td>
<td></td>
<td>botanical bundle tied with dark fiber and used for C14 sample</td>
<td>Huperzia crassa</td>
</tr>
<tr>
<td></td>
<td>5A1c</td>
<td></td>
<td>botanical bundle tied with yellow fiber</td>
<td>Huperzia crassa</td>
</tr>
<tr>
<td></td>
<td>5A1d</td>
<td></td>
<td>botanical bundle tied with dark and yellow fiber</td>
<td>Huperzia crassa</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| * |   | 5A1e | botanical bundle tied with dark fiber | hair or wool? | *Huperzia crassa*
|   |   | 5A1f | botanical bundle tied with yellow fiber | hair or wool? | *Huperzia crassa*
|   |   | 5A1g* | botanical bundle tied with dark fiber (didn't preserve well; included in C14 sample) | hair or wool? | *Huperzia crassa*
<p>| | | | | | |
|   |   |   |   |   |   |
|   |   | dirt sample from 5A1 |   |   |   |
|   | 5A2 |   | small net bag that is similar to Object 4A, with contents that are miniature of Textile Bag 1 | 11 x 14 cm | plant fiber? |
|   | 5A3 |   | plain net bag | 7 x 19 cm | cotton |
|   | 5A4 |   | wool bag with a few botanical remains inside | 13 x 12 cm | camelid wool |
|   | 5A5 |   | broken textile bag with seed necklace attached by a fiber twisted rope; loose maize kernel | 8 x 13 cm (bag, measured after cut and opened) | cotton |
|   |   |   |   |   |   |
| * |   | 5A6 | cotton textile bag with white mineral in it tied in the middle; very deteriorated | 5 x 10 cm (measured after removed from bundle) | cotton |
| 2 |   | 5A6 | dirt sample from Object 5 |   |   |
| 2 | 6 |   | cotton textile bag open on one end | 13 x 30 cm | cotton |
| 2 |   | 6A | brown cotton textile bag of mineral, tied with cotton string | 6 x 15.5 cm | cotton |</p>
<table>
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<tr>
<th></th>
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<th>braided fiber weaving loom holder</th>
<th>4 x 15.5 cm</th>
<th>plant fiber</th>
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<td>2</td>
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<td>6B</td>
<td>fiber ball</td>
<td>5 x 5.5 cm</td>
<td>plant fiber?</td>
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<tr>
<td>2</td>
<td>-</td>
<td>6C</td>
<td>seed necklace with fiber cord (seed unidentified); loose seeds</td>
<td>plant fiber</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>6D</td>
<td>botanical fragment</td>
<td>-</td>
<td>\textit{Huperzia crassa}</td>
</tr>
</tbody>
</table>

Table C.1 Table of all items from the two textile bundles of the Block 1A ofrenda.
Photos from Bundle 1

Figure C.1 Bundle 1 once opened. Seed necklaces, fiber loom holder, and bundles of fiber and yarn are visible.

Figure C.2 Object 20 inside Bundle 1. Note blue-green mineral visible underneath fabric. Scale (black line) along top is approximately 50 cm.
Figure C.3 Object 24, found inside Object 20. This bundle contained an unidentified, caustic white mineral. Scale (black line) is approximately 50 cm.

Figure C.4 Object 25, white mineral inside Object 24.
Figure C.5 Object 4, inside Bundle 1.

Figure C.6 Object 4 unraveled. Initially thought to be a sling, it appears this is a loom holder.

Figure C.7 Object 13 from Bundle 1. A necklace made of unidentified seeds.
Photos from Bundle 2

Figure C.8 Bundle 2. Note bundle is knotted closed.

Figure C.9 Object 4, Bundle 2. Bag is tied, and also shows signs of mending.
Figure C.10 Object 4 opened, containing objects 4A-4D.

Figure C.11 Object 4C, opened. It contained a ball of blue yarn, a small chuspa with a yarn ball inside, and a bundle of hair or wool.
Figure C.12 Object 4C, opened. It contained bundles of wool/hard and fiber.

Figure C.13 Object 4D.
Figure C.14 Object 5, unopened. Note it is also tied shut with a knot.

Figure C.15 Object 5A. Note seed neckless spilling out (right corner of photo), a net bag, and Object 5A1 in the foreground.
Figure C.16 Object 5A1, opened, showing bundles of *Huperzia crassa*.

Figure C.17 Objects 5A1a, c-f (from left to right). Note different color fiber used to secure them.
Figure C.18 Detail of how Object 5A2 (net bag) was attached to knot of outer bag. Object 5A2 contained the unidentified white mineral, miniature necklaces, as well as loom holders similar to those found in Bundle 1 and Object 6 of Bundle 2.

Figure C.19 Object 5A5, a seed necklace possibly made of ishpingo. Note how it is secured to the knot from the outer bag.
Figure C.20 Object 6, a cotton bag open on one end. Inside were a loom holder, a ball of fiber twine, and another seed necklace.

Figure C.21 Object 6c, a ball of fiber twine.
Figure C.22 Object 6D, a necklace made of an unidentified seed. Above is Object 6 empty bag.
Textile Attribute Form Key (developed by Kaelyn Dillard)

**PROVENIENCE**
Date: Date of Analysis

C/A No.: Catalog/Artifact Number

Site Name: Site Name/Number

Provenience: Other Provenience Information

**DIMENSIONS**
Length/A: Length/Warp/or “A” direction in centimeters

Width/B: Width/Weft/or “B” direction in centimeters

Other: Other dimension (in centimeters) specify

#Orig: Number of original identifiable dimensions
  0=none
  1=length
  2=width
  3=both length and width

**GENERAL CHARACTERISTICS**
#StructVar: Number of structural variations within fabric specimen

#Selv: Number of selvages present and visible (0-4)

TypeSelv: Type of selvage
  0=none
  1=1 starting/ending selvage
  2=1 side selvage
  3=1 side & 1 end
  4=1 end & 2 sides
  5=2 sides & 2 ends
  6=2 ends & 1 side
  7=2 ends
  8=1 sides

SelvTrt: Type of selvage treatment
  0=none
  1=warp ends looped
  2=multiple wefts per shed in starting/ending selvages
  4=fringed selvage
  5=attached fringe border
  6=cut warp ends
7=multiple wefts in side and end selvages
8=stitched edge
9=plaited edge

#StructPatt: Number of structural patterning techniques

TypeStP: Types of structural patterning techniques
  0=indeterminate
  1=twining
  2= interlacement
  3=tapestry
  4=irregular spacing of elements
  5=combining &/or recombining of elements
  6=separating elements
  7=combining colored elements
  8=combining yarn types
  9=twined outlines
  10=knotting
  11=wrapping
  12=plaiting
  13=single element

#SurfPatt: Number of surface pattern

TypeSuP: Types of surface techniques
  0=none
  1=painted
  2=resist dyed (ikat)
  3=tie dyed
  4=embroidered
  5=added elements
  6=applied pigment

Design
Des: Design motifs
  0=absent
  1= present

Place: Placement of motifs
  0=absent
  1=overall
  2=border
  3=centered
  4=bands
  5=corners
  6=stripes
  99=indeterminate
#Rep: Number of repeated patterns

Characterization of motifs

Geom: Geometric
0=absent
1=bands
2=stripes
3=circles
4=squares
5=rectangles
6=diamonds
7=chevrons
8=stepped fret
9=swirls
99=indeterminate

Fig: Figural
0=absent
1=anthropomorphic
2=bird form
3=serpent form
4=feline form
5=monkey form
99=indeterminate

Coloration

#Color: Number of colors

Yarn Structure

#YarnT: Number of different yarn types

Ave#YC: Average number of yarn components

Fibers (TPCI)

#Fib: Number of fiber types

Function

PrimFunc: Category of primary function
1=utilitarian
2=nonutilitarian
0=indeterminate

Type: Type of item
1=narrow band
2=container
3=mantle
<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cond: Condition of item</td>
</tr>
<tr>
<td>1 = extremely poor</td>
</tr>
<tr>
<td>2 = poor</td>
</tr>
<tr>
<td>3 = fair</td>
</tr>
<tr>
<td>4 = good</td>
</tr>
<tr>
<td>5 = excellent</td>
</tr>
</tbody>
</table>

**Description and Shape:** Brief description and shape of item

---

**FABRIC STRUCTURE:** information needed for each structural variation

### #Elem: Number of sets of elements

**Interlacing**

**TypePl:** Type of plain weave

| 0 = none, N/A |
| 1 = balanced |
| 2 = warp faced |
| 3 = weft faced |
| 4 = warp predominate |
| 5 = weft predominate |
| 99 = indeterminate |

### #YToget: Number of yarns working together (warp/weft)

| 0 = none, N/A |
| 1 = 1/1 |
| 2 = 2/1 |
| 3 = 2/2 |
| 4 = 2/3 |
| 5 = 3/3 |
| 6 = 4/4 |
| 99 = indeterminate |

**TwillF:** Pattern of regular (twill) floats

| 0 = none, N/A |
| 1 = 2/1 |
| 2 = 3/1 |
3=2/2
4=2/3
5=3/3
6=4/4
99=indeterminate

**WeavPatt:** Other weave type present in item
0=none, N/A
1=supplementary warp weave
2=complementary warp weave
3=tapestry-interlocking
4=tapestry-dovetailed
5=tapestry-slit
6=brocade (supplementary weft)
7=double cloth (complementary wa&we)
8=discontinuous warp
9=gauze
10=plaiting
11=single element, linking
12=single element, knotted looping, larks head knots
13=single element, knotted looping, square knots
14= single element, knotted looping, simple loops
15= single element, knotted looping, link and twist
16= single element, knotted looping, link and twist more than 2 twists

---

**SCALE:** information needed for each structural variation

**DistWa:** Distance between warps, inactive elements

**DistWe:** Distance between wefts, active elements

**#Warp:** Number of warps or inactive elements per centimeter

**#Weft:** Number of wefts or active elements per centimeter

---

**YARN STRUCTURE:** information needed for each yarn type (wa&we below)

**#Comp:** Number of components

**YFunct1:** Yarn function
0=none, N/A
1=warp
2=weft
3=sewing/embroidery
4=loose yarn
5=cordage
6=warp and weft
99=indeterminate

**ArrComp1**: Arrangement of components
1=unspun, single
2=unspun, combined
3=spun, single
4=spun, plied 2
5=spun, plied 3
6=spun, plied 4
7=spun, replied 2:2
8=spun, replied 2:3
9=spun, replied 3:2
10=combined
11=other
12=unspun, plaited
13=spun, plaited
14=spun, plied
99=indeterminate

**FinTwst1**: Final twist direction
0=no twist
1=S \n2=Z /
99=indeterminate

**TwstCom1**: Twist direction of components
0=no twist
1=S \n2=Z /
99=indeterminate

**YFunct2**: Yarn function
0=none, N/A
1=warp
2=weft
3=sewing/embroidery
4=loose yarn
5=embroidery
6=closure/securing other specimens (e.g. tying a bag closed)
99=indeterminate

**ArrComp2**: Arrangement of components
1=unspun, single
2=unspun, combined
3=spun, single
4=spun, plied 2
5 = spun, plied 3
6 = spun, plied 4
7 = spun, replied 2:2
8 = spun, replied 2:3
9 = spun, replied 3:2
10 = combined
11 = other
99 = indeterminate

**FinTwst2:** Final twist direction
0 = no twist
1 = S \n2 = Z /
99 = indeterminate

**TwstCom2:** Twist direction of components
0 = no twist
1 = S \n2 = Z /
99 = indeterminate

**Y1 Dia:** Diameter of Yarn 1 in millimeters

**Y2 Dia:** Diameter of Yarn 2 in millimeters

**FinAng:** Final angle of twist in degrees
0 = none
1 = <10 degrees
2 = 10-25 degrees
3 = 26-45 degrees
4 = >=45 degrees
99 = indeterminate, not evaluated

**AngCom:** Angle of twist of components in degrees
0 = none
1 = <10 degrees
2 = 10-25 degrees
3 = 26-45 degrees
4 = >=45 degrees
99 = indeterminate, not evaluated

**FIBERS**

**FibClass:** Fiber Classification
1 = animal, fur/hair
2 = animal, feather
3 = hard fiber (leaf/stem/root)
4=bast fiber
5=combination of hard & bast
6=seed hair
99=indeterminate

**FibID**: Fiber identification
1=cotton
2=camelid
3=junco
4=agave
99=indeterminate

**YaComb**: Combining different fibers or colors in a yarn
0=absent
1=present

**FibPro**: Degree of fiber preparation/processing
1=minimum
2=moderate
3=extensive
4=very extensive

---

### COLOR

**ColDes1-4**: Color Description (#.1=light, #.2=dark)
0=absent
1=off-white
2=tan
3=brown
4=black
5=yellow
6=red
7=blue
8=green
9=purple
10=white
11=orange

---

### SUPPLEMENTARY STRUCTURES

**SuppSt**: Supplementary Structures
0=absent
1=sewing more than one textile together
2=sewing textile to itself (doubling, hemming)
3=mending
4=sewing and mending
5=embroidery
6=mending knot in textile

**Stit:** Stitches used in supplementary structures
0=absent
1=running
2=basting
3=overcast
4=figure-8
5=cross-knit loop
6=overhand
7=larks head
8=square/reef

**#Mend:** Number of separate instances of mending

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<td>10 sets of 3 stripes, 2 tan with alternating off-white. &quot;pebbles&quot; surround thicker brown stripe.</td>
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<td>2 brown/2 tan yarns complete the plait. At beginning selvage, 2 plaits form 2 loops, plaiting continues before the two sections rejoin to form a larger plait.</td>
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<td>Wefts exit side selvage and plait to make a bag edge.</td>
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<td>Different interlink construction finishes the bag.</td>
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<td>Plant fiber stitching.</td>
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<td>Black wefts exit weave and plait with white fibers, loops made out of the plaits, a yarn runs through these loops to cinch the top of the bag.</td>
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Appendix E: Quipu registry

This is a photographic registry of 19 quipus recovered from Sector D of Acaray. The first quipu displayed (specimen 1876) was found at the base of the ridge where the fortification at Acaray is located. We encountered it on March 2, 2006 as we approached Sector B on our daily climb up to the site. It has seemingly been tossed aside. On March 9, 2006 while wandering through one of the cemeteries in Sector D, Jesús Holguín, one of my crew chiefs, found another quipu fragment. He called a number of us over, and we began to see more quipu fragments, scattered around a large looter’s hole. I took a GPS reading at the hole, and we collected the scattered fragments. The UTM coordinates of this looted context are: UTM 8776711 N 0223291 E.

Figure E.1 Location of looted quipus. Shown in photo from left to right, me, Mario Advincula, Hernán Guillermo, and Alex Gonzalez.
Figure E.2 Photo showing the condition of the quipus when found.
Quipu specimen 1876

Surface collection
Location: base of Sector B along the north side of the fortress
Quipu specimen
3368

Surface collection
Location:
Sector D
Quipu specimen 3369

Surface Collection Location: Sector D
Quipu specimen 3371

Surface Collection Location: Sector D
Quipu specimen 3372A

Surface Collection Location: Sector D
Quipu specimen 3372B
Surface Collection Location: Sector D
Quipu specimen 3374A

Surface Collection Location: Sector D
Quipu specimen 3374B

Surface Collection Location: Sector D
Quipu specimen 3375A

Surface Collection Location: Sector D
Quipu specimen 3375B

Surface Collection Location: Sector D
Quipu specimen 3375C

Surface Collection Location: Sector D
Quipu specimen 3375D

Surface Collection Location: Sector D
Quipu specimen 3375F

Surface Collection Location: Sector D
Quipu specimen 3375G

Surface Collection Location: Sector D
Quipu specimen 3375H

Surface Collection
Location: Sector D
Quipu specimen 3376

Surface Collection Location: Sector D
PALYNOLOGY REPORT OF 14 SAMPLES
FROM ACARAY ARCHAEOLOGICAL SITE (LIMA-PERU)
DRAFT

by: LUIS HUAMAN

LIMA-PERU
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TILIAGRAPH. RELATIVE FREQUENCIES
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| Taxa (n) | 134 | 1136 | 1627 | 1016 | 764 | 198 | 607 | 116 | 5272 | 0 | 1219 | 335 | 1374 | 973 | 1627 | 2009 | 3735 | 832 |

**Notes:**
- High presence (>100 pg)
- Medium presence (78-20 pg)
- Low presence (<20 pg)
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## Resume Table:

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<th>SLITE 101</th>
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<td>3735</td>
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Introduction
In July of 2006, a pilot project was undertaken to attempt to extend the use of optically stimulated luminescence (OSL) to the dating of prehistoric architectural materials collected on the desert coast of Peru. Samples were collected from multiple architectural contexts at the sites of Caballete (Pativilca Valley) and Acaray (Huara Valley). This report details the collection and laboratory analysis of samples collected from the site of Acaray.

Sample background
Two samples were collected from the site of Acaray. These samples are UW1660 and UW1661, and each will be discussed in detail below.

UW1660 was a sample of architectural adobe from a large rectangular brick within a structure believed to have been constructed during the Late Intermediate Period (roughly the 14th century AD). The sample was collected by breaking off a portion of an adobe block (Image 1) and shipping a solid piece to the University of Washington for further preparation and analysis. A travel dosimeter was shipped with the sample to control for exposure to any radiation after collection. As the sample was collected from an essentially homogenous matrix, sample gamma radioactivity could be reliably estimated from laboratory measurement alone, and no dosimeter was placed at the sample location.

Image 1: Location sampled for UW1660 (adobe). Block sampled is immediately to the right of photographic arrow (Arrow is for scale only and does not point to magnetic north.)
The University of Washington Luminescence Laboratory has had success dating adobe materials in the past, so it was anticipated that analysis of this sample would be relatively straightforward. In our experience, however, adobe materials have often not been fully exposed to sunlight during brick manufacture in antiquity, and some portions of this sample were therefore expected to be “partially bleached,” retaining geologic luminescence signals in such portions. Such partial bleaching represents a difficulty for archaeological dating, and our methods for identifying partial bleaching within samples and avoiding its detrimental effects to age estimation are discussed in detail below.

UW 1661 was a sample of mortar collected from an ancient wall. The wall is of unknown age, but is one of the earlier of 2 sets of (probably defensive) walls evident at the site, and rough estimates have speculated that this wall might have been built in the early centuries AD. The mortar is a mud/clay base and was not fired. Extraction of samples of this type is ideally carried out by driving light-proof collection probes into the wall surface, but the random arrangement and orientation of local wall stones (Image 2) made such extraction impossible in this case. Instead, the sample was collected at night by scraping sub-surface portions of the mortar (about 5-10cm below wall surface) into a collection bag. 3 nearby stones were collected to aid in gamma dose estimation. This sample was shipped to UW for analysis in the same manner as above. Sampling in this way precluded the placement of a dosimeter at the sample location, as any matrix that could have held a dosimeter in place was removed during sample extraction. The implications of this for sample dosimetry are discussed later.

Our laboratory has had some success with dating architectural mortar in past studies, but this application of OSL dating is, although theoretically sound, in its practical infancy and is therefore largely experimental. As with adobe, our experience with mortar has shown that mortar is typically partially bleached, as will be discussed in detail below.

Image 2: Location sampled for UW1661 (mortar). Dark rings overlain were used in geometric estimates of gamma dose (discussed below). (Arrow is for scale only and does not point to magnetic north.)
**OSL dating**

In general, OSL dating requires the measurement of 1) the energy trapped within sampled crystalline minerals (released in the laboratory and measured as a burst of light with a quantifiable intensity), 2) the amount of radioactivity it took to produce this energy, and 3) the amount of radioactivity per unit time to which sampled materials have been exposed after deposition. The first is reset when minerals are exposed to significant light or heat and begins to accumulate after burial, and the magnitude of this term is therefore directly proportional to the elapsed time since burial of the materials of interest. In the case of internal architectural materials, time of burial is identical to time of construction. We are thus dating the wall construction event in the case of samples UW1660 and UW1661.

The second term derives from the first, and is termed equivalent dose ($D_e$). It is the numerator of the age equation where $Age = \frac{D_e}{D_r}$ and $D_r$ represents dose rate, the third term listed above. More details on the general principles outlined here can be given upon request. The remainder of this section will discuss the analytical procedures used to derive sample $D_e$ and $D_r$, as well as the values derived themselves.

**Equivalent dose ($D_e$) measurement**

Samples were prepared for equivalent dose measurement in a dark room environment by first isolating portions of the sample which would have been exposed to sunlight at time of construction in antiquity, but not since. This portion of the samples was then physically and chemically treated to isolate sand-sized grains of pure quartz. These grains were chosen because 1) the luminescence properties of quartz are well-studied and have been demonstrated to be generally stable over archaeological time scales, and 2) radiation attenuates differentially in grains of markedly different sizes, and thus homogeneity in grain size is essential for comparing equivalent doses of individual grains. Samples were then given a 40 minute etch to remove the outer rind of each grain and most feldspathic inclusions, thereby further purifying the mineral and removing the influence of alpha radioactivity external to grains. A single charred seed of unidentified species was recovered from within UW1661, and this was sent away for radiocarbon dating to generate an independent control on the OSL dating of this sample.

Initial measurement of sample equivalent dose was performed on single grains using the SAR protocol with an added IR stimulation to help identify and eliminate the influence of any lingering feldspathic inclusions. Single grain SAR is ideal for these samples for two main reasons. First, the SAR protocol allows for the rigorous evaluation of sample luminescence characteristics so that aliquots with luminescence properties which violate the theoretical basis of the method can be eliminated before damaging overall sample equivalent dose data. This ensures reliability of measurement in equivalent dose. Second, single grain dating allows the isolation of signals from well-bleached grains for use in equivalent dose estimation. This allows the researcher to identify and correct for problems of partial bleaching, in addition to providing greater resolution in evaluating sample performance characteristics and more robust counting statistics. Single grain SAR measurement was performed on a Riso TL-DA-15 machine with a 532 nm laser at 90% power, a 7.5 mm U340 (UV) detection filter, a 10s 240°C preheat, a 200°C cut heat, a 2-5 Gy test dose, a .8s exposure at 125°C, and analysis at .06s, (background 0.65-.8s).
Unfortunately, single-grain dating yielded a very low rate of valid luminescence signals for equivalent dose estimation (Table 1). Of the 500 grains measured for UW1660, only one held a luminescence signal of any kind (>0 dose count column), and none yielded a signal that could be used for equivalent dose estimation (Acceptance Count column). Of the 1100 measured for UW1661, only 3 were acceptable for use in equivalent dose estimation. It is important to note here that 7 grains from UW1661 exhibited “supersaturated” signals, meaning in short the natural luminescence signal in these grains was above what could be derived experimentally. These grains violate the assumptions of the SAR method and cannot be used for equivalent dose calculation. The presence of these signals is possibly due to a geologic residual signal and may be a sign of partial bleaching. In neither sample were there enough single grain data to perform statistically significant estimation of equivalent dose, and obtaining sufficient data would require at minimum an immense amount of analysis time. We were not willing to invest such effort into these samples given constraints on laboratory resources.

We therefore turned to multigrain SAR using pulsed OSL as an attractive alternative. This method allows hundreds of grains to be measured simultaneously for equivalent dose data. The loss of resolution in dating multiple grains is balanced by a savings in machine analysis time, and the miniscule acceptance rate of grains in the single grain data means that measurement of several hundred grains at once can be expected to yield data that is almost single-grain in resolution. Put another way, if only a few grains per thousand have luminescence signals, then measurement of a thousand at once yields luminescence data on only a few grains at a time. Pulsed OSL, which uses the unique timing of quartz’s release of luminescence after stimulation to isolate its signal from a polymineral multigrain aliquot, was used to help further isolate quartz signals for analysis. All protocols employed were the same as above, with the exception of the use of OSL stimulation by a 470nm diode (80% power), IRSL stimulation by an 870 nm diode (90% power), and a 10μs on and 24μs off pulsed stimulation window.

In the case of UW1660, limited pulsed multigrain analysis failed to yield any valid data. We therefore concluded that this sample is at best very insensitive to luminescence measurement, and we abandoned its analysis to focus further on UW1661. The remainder of this report therefore discusses only the OSL dating of UW1661.

Pulsed multigrain analysis of UW1661 showed a high rate of aliquot acceptance (18 out of 26), and standard dose recovery testing was successful. 5 aliquots exhibited supersaturation (and therefore possible dominance of a geologic signal), however, so it is possible that even the aliquots with valid luminescence characteristics represent a mixture.

<table>
<thead>
<tr>
<th>Sample*</th>
<th>OSL Method</th>
<th>Aliquot Count</th>
<th>&gt; 0 dose Count</th>
<th>Acceptance Count</th>
<th>Supersaturated Count</th>
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<tbody>
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<td>single grain SAR</td>
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<td></td>
<td>pulsed multigrain</td>
<td>5</td>
<td>1</td>
<td>0</td>
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<td>U1661</td>
<td>single grain SAR</td>
<td>1100</td>
<td>17</td>
<td>3</td>
<td>7</td>
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<tr>
<td></td>
<td>pulsed multigrain</td>
<td>26</td>
<td>26</td>
<td>18</td>
<td>5</td>
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</tbody>
</table>

* all grains measured were 180-212 μm in size
of grains with equivalent doses representative of both geologic and archaeological ages. Table 2, which shows a comparison of 3 different statistical techniques for calculating equivalent dose, supports this idea. The “central age model,” which represents the geometric mean (weighted by precision) of pulsed OSL signals yields an equivalent dose distribution that is significantly higher than the “minimum age model,” which represents the statistical isolation of the low-end mode in a skewed $D_e$ distribution (or those aliquots most likely to be dominated by grains which were well-bleached at the time of wall construction). If UW1661 had been well-bleached in antiquity, these two models would yield the same estimate of equivalent dose, and the fact that they do not is further evidence that some grains were bleached, while others yielded unbleached signals. Unfortunately, the equivalent dose derived from the minimum age model is almost certainly also inflated by grains with residual signals, as a rough comparison of this value with the (very limited) single-grain data (which most reliably isolates well-bleached grains) shows a statistically significant difference. Our pulsed multigrain OSL equivalent dose estimates therefore conflate grains of multiple apparent luminescence ages and are not to be trusted in age calculation, while our single grain data is too sparse to be used for any rigorous analysis.

<table>
<thead>
<tr>
<th>Measurement Type</th>
<th>Pulsed Multigrain OSL</th>
<th>Single Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistical Method</td>
<td>Central Age</td>
<td>Minimum Age</td>
</tr>
<tr>
<td>$D_e$ (in Gy)</td>
<td>11.108</td>
<td>8.26</td>
</tr>
<tr>
<td>Error (1-sigma)</td>
<td>+/- .697</td>
<td>+/- .880</td>
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</table>

Three possible solutions could remedy this situation. The first is to use feldspars instead of quartz for analysis, but this avenue does not seem promising given the fact that limited testing of feldspars from UW1661 has yielded none thus far with stable luminescence properties. The second is to experiment with multigrain discs which contain fewer grains than those used here (say, 100 grains instead of multiple hundreds) in an attempt to more effectively eliminate measurement of multiple luminescence signals at once, thereby achieving a rapid way to attain near-single grain resolution. This solution perhaps holds promise, but would require extensive testing to find the optimal number of grains per disc while generating robust population statistics. The third is to simply measure thousands more single quartz grains, but this solution is again labor and cost prohibitive at present. In addition, the second and third approaches would likely require collection of additional raw sample to supply further measurement, making them impractical solutions for the time being.

Dose rate measurement

Dose rate, or the amount of radiation to which the sample has been exposed, represents a composite of four types of radiation: alpha, beta, gamma, and cosmic. Cosmic radioactivity for UW1661 was estimated using global parameters in conjunction with location data for Acaray. Alpha, beta, and gamma estimation was performed in-house through the use of direct beta counting, thick-source alpha counting, and potassium flame photometry. As mentioned above, all samples were etched with HF acid for 40 minutes to eliminate the effects of external short-range about 5μm) alpha irradiation.
Beta radioactivity, which is also short-range (< 2mm) was assumed to be homogenous throughout the sample. The relatively high potassium content of the mortar and the fine-grained nature of the material support this assumption, although it remains untested at present. Gamma radioactivity, which has a range of about 30cm, was certainly heterogeneous within the sampled mortar due to the divergent radioactivity of sampled mortar and stones (see Table 3). Again, no dosimeter could be placed at the sample location to directly measure gamma radioactivity. Gamma radioactivity was therefore estimated in the laboratory by measuring the percentage composition (mortar vs. stone) of a digital image of the sample location (Image 3), and then geometrically weighting the measured radioactivities of these materials according to this percent composition into a “composite” radioactivity at the sample location (Table 3). This composite data was used to derive dose rate for sample age estimation (Table 4). The process was repeated at 3 additional hypothetical sample locations within the image to help estimate potential error due to differing stone/mortar configurations at the sample location, and none differed significantly in terms of resultant overall radiogenic environment. Sample moisture content was measured to account for attenuation of radioactivity due to the presence of water in the sample.

It is important to note that this method embeds the untested assumption that the composition at the digitally analyzed surface mirrors that at sampled depth, and this assumption is not likely to be perfectly valid given the randomness of visible stone configurations at the wall surface. On the other hand, our lab has achieved success with this method in the past, and in this case extra error terms were attached to dose rate calculations (roughly double the actual measurement error) to account for any extra uncertainty. Thus, when one considers that gammas make up only a portion of the total dose rate of this kind of sample (about 30%, most of which is internal to the mortar itself and therefore directly measured in the laboratory), we find the overall uncertainty introduced with this geometric method to be acceptable given the experimental nature of this application of OSL dating.
Table 3: UW 1661 Radioactivity Data

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<th>Mortar</th>
<th>Average Stone</th>
<th>Composite</th>
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<tbody>
<tr>
<td>K</td>
<td>1.652 +/- .011</td>
<td>1.188 +/- .010</td>
<td>1.14 +/- .02</td>
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<tr>
<td>U</td>
<td>2.72 +/- .22</td>
<td>1.75 +/- .11</td>
<td>1.82 +/- .4</td>
</tr>
<tr>
<td>Th</td>
<td>11.46 +/- 1.43</td>
<td>2.738 +/- .46</td>
<td>6.36 +/- 2.0</td>
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Table 4: UW1661 Dose Rate (Gy/ka)

<table>
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<tr>
<th></th>
<th>Value</th>
<th>Error</th>
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<td>alpha</td>
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<tr>
<td>beta</td>
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<tr>
<td>gamma</td>
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<td>0.062</td>
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<tr>
<td>Cosmic</td>
<td>0.241</td>
<td>0.049</td>
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<tr>
<td>Total</td>
<td>2.018</td>
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Dates and discussion

Table 5: UW 1661 Dates

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<th>Measurement Type</th>
<th>Pulsed Multigrain OSL</th>
<th>Single Grain OSL</th>
<th>AMS*</th>
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<tr>
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<td>Central Age</td>
<td>Minimum Age</td>
<td>Simple Mean</td>
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<tr>
<td>Mean Age</td>
<td>3496 BC</td>
<td>2085 BC</td>
<td>588</td>
</tr>
<tr>
<td>Error (1-sigma)</td>
<td>+/- 511</td>
<td>+/- 518</td>
<td>+/- 984</td>
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<tr>
<td>% Error</td>
<td>9.29</td>
<td>12.67</td>
<td>37.91</td>
</tr>
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</table>

* Measurement was performed by the lab at NOSAMS Woods Hole (1 sigma 14C age of 2300 +/- 30 BP) and calibrated using the online version of CALIB 5.0.2html.

Table 5 shows the mean age and error terms for OSL dates derived from each of the methods of equivalent dose estimation outlined in Table 2. Also given here is the radiocarbon date for the associated seed. As expected, the apparent geologic residual exhibited in equivalent dose measurements of multigrain aliquots has inflated the final age estimates derived from these measurements, resulting in ages that are unreasonably old given archaeological interpretations and independent radiocarbon dates. On the other hand, the simple mean of our mere 3 successful single grain measurements, although by no means statistically rigorous, yields an age in accord with independent data. Unfortunately, the error terms on this estimate are so large that it is essentially useless for meaningful archaeological interpretation.

As no equivalent dose data were available for UW1660, any attempt to derive a date is impossible at present.

Conclusions

The extension of OSL to architectural materials, although theoretically sound, remains an experimental process. At the site of Acaray, the poor luminescence properties of collected mineral quartz complicate matters a great deal, as the resulting effort needed
to generate single grain dates is immense. Further, because single grain resolution is essential to applying OSL to partially bleached architectural minerals, multigrain analysis failed to provide an avenue for generation of valid data. Nor have experiments with local feldspars as of yet. While challenges to dosimetry remain, difficulty in the measurement of sample equivalent dose is the primary limitation on the resolution of sample age data, and therefore remains the main overall limitation of this research at present. Creativity in analytical approach might bring about improvement in this area, and testing will be required to assess whether such difficulties are systematic to similar settings on the Peruvian coast and/or insurmountable overall. Any way forward will require lots of hard work and expense, making further testing on these samples impractical for the present.
Appendix H: Artifacts

The photos presented in this appendix are to facilitate artifact comparison for other researchers. All photographs were taken by me. I request that you let me know if you are going to use the photos, and that proper credit is given if used.

<table>
<thead>
<tr>
<th>Antara Fragments</th>
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</tr>
<tr>
<td><img src="image2" alt="Antara Fragments" /></td>
<td>TU 3</td>
</tr>
</tbody>
</table>
| Bone Artifacts | Bone spoon
TU 3 |
|---------------|---------|
|               | Bone bead (left), bone tool
Block 1B      |
|               | Bone tool
Block 1C      |
<table>
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<th>Feather artifacts</th>
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<td>Feathers tied together TU 3</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
<td>Feathers tied together TU 5</td>
</tr>
<tr>
<td>Image</td>
<td>Text</td>
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<td>------</td>
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<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Feathers spines or plant spines tied together (related to healing?) TU 5</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Feathers tied together TU 5</td>
</tr>
</tbody>
</table>
Feathers tied together
TU 5

Cut feather quills (calamus)
Block 2
| **Gourd Artifacts** | **Gourd stoppers?**  
|TU 3|  
| **Gourd stoppers?**  
|TU 5|  
| **Gourd stoppers?**  
<p>|Block 1A (left), Block 1B (right)|</p>
<table>
<thead>
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<th>Image</th>
<th>Text</th>
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<td>Gourd stoppers? Block 1A (left), Block 1B (middle, right)</td>
</tr>
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<td><img src="image2.jpg" alt="Image" /></td>
<td>Gourd stoppers? Block 1C</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
<td>Gourd stoppers? Block 3A</td>
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</tbody>
</table>
| Gourd bowl  
<table>
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<tr>
<th>Block 1B</th>
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</thead>
<tbody>
<tr>
<td>Metal Artifacts</td>
</tr>
</tbody>
</table>
| Copper nose ring  
| TU 4 |
| Modern Artifacts | Copper (?) ball (top), copper (?) plates  
|                 | Block 1B |
| Modern Artifacts | Sol de oro coin  
|                 | Block 1A |
| Modern Artifacts | Bullets  
|                 | Block 3A |
| Shell Tools and Artifacts | Clam and mussel shell serrated tools  
TU 2 (left two), TU 3 (right two) |
|--------------------------|--------------------------------------------------|
|                          | Clam shell serrated tools  
Block 1C                                                      |
Clam shell smoothing tool
TU 4

Polished shell
TU 7

Polished shell
Block 1C
| Tools for Textile Production | Whorls  
TU 2 (right), TU 3 (left) |
|-----------------------------|-----------------------------|
|                             | Ceramic discs (whorls)  
TU 6 (left, surface finds), TU 1 (middle, right) |
|                             | Ceramic whorls  
Block 1A |
<table>
<thead>
<tr>
<th>Block</th>
<th>Item Description</th>
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<tbody>
<tr>
<td>1A</td>
<td>Ceramic whorl</td>
</tr>
<tr>
<td>1B</td>
<td>Ceramic whorl</td>
</tr>
<tr>
<td>1C</td>
<td>Ceramic disc (whorl)</td>
</tr>
<tr>
<td>Image</td>
<td>Description</td>
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<td>-------</td>
<td>--------------------------------------------------</td>
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<tr>
<td><img src="image1.jpg" alt="Image" /></td>
<td>Stick with string TU 1</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
<td>Broken spindles TU 5</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
<td>Broken spindles TU 5</td>
</tr>
<tr>
<td><img src="image4.jpg" alt="Image" /></td>
<td>Spindle with whorl still attached Block 1A</td>
</tr>
</tbody>
</table>
| Image 1 | Wood Needle?  
| Block 1C |
| Image 2 | Sticks with cotton  
<p>| Block 1C |
| Image 3 | Plant needles (TU 3, left two), fish bone needles (Block 1B, middle two; Block 1A, right two) |</p>
<table>
<thead>
<tr>
<th>Wood artifacts</th>
<th>Wood artifact</th>
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<tbody>
<tr>
<td></td>
<td>TU 8</td>
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<td></td>
<td>Wood artifact</td>
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<td>Block 1A</td>
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<td></td>
<td>Wood peg?</td>
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<td></td>
<td>Block 3A</td>
</tr>
<tr>
<td>Wood peg? (has whole through middle)</td>
<td>Block 1B</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Wood peg? (has whole through middle)</td>
<td>Block 1C</td>
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</table>

**Other Artifacts**

<p>| Reed <em>quena</em> (flute) | Block 3B |</p>
<table>
<thead>
<tr>
<th>Rocks tied with rope</th>
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<tbody>
<tr>
<td>Block 3A</td>
</tr>
<tr>
<td>Wood (?) poker</td>
</tr>
<tr>
<td>Block 1C</td>
</tr>
<tr>
<td>Deer antler</td>
</tr>
<tr>
<td>Block 3A</td>
</tr>
</tbody>
</table>
| False coral  
Block 2 (left), Block 3A (right) |
|----------------------------------|

| Ceramic tube  
TU 2 |
<table>
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<tbody>
<tr>
<td>Beads</td>
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<table>
<thead>
<tr>
<th>Beads</th>
<th>TU 2 Burial context</th>
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<table>
<thead>
<tr>
<th>Beads</th>
<th>Beads (fish odolith also shown)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TU 2</td>
</tr>
</tbody>
</table>
Beads
TU 3

Beads
TU 3

Beads
TU 4
Beads
Block 1C

Beads
Block 2

Modified fish vertebra (beads?)
Block 3 (left four), Block 1C (right one)
<table>
<thead>
<tr>
<th>Beads</th>
<th>Blocks 3A and 3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithics</td>
<td>Serrated point</td>
</tr>
<tr>
<td></td>
<td>Surface collection, Subsector B1</td>
</tr>
<tr>
<td>Leaf-shaped point</td>
<td>Surface collection, Subsector B2</td>
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<td>-------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Quartz point</td>
<td>Block 3A</td>
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</table>
Quartz point
TU 6

Point
Block 3
<table>
<thead>
<tr>
<th>Slate blade</th>
<th>Surface Collection, Subsector B4</th>
</tr>
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<tbody>
<tr>
<td>Slate blade</td>
<td>TU 3</td>
</tr>
</tbody>
</table>
Blade?
TU 5

Perforated stones (mace heads?)
Surface Collection, Subsector A1
<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Grinding stone" /></td>
<td>Grinding stone, Block 3</td>
</tr>
</tbody>
</table>
| ![Stone mortar](image2.jpg) | Stone mortar  
Surface Collections, next to TU 5 |
| ![Broken grinding stone](image3.jpg) | Broken grinding stone  
Block 1C |
| Broken grinding stone  
| TU 8          |
|------------------|------------------|
| Handstone (from offering)  
| Block 1C          |

Table H.1 Table of artifact photos with provenience and brief description.
Appendix I: LA-ICPMS report

Two different chemical analyses were run to identify the mineral found in the textile offering bundles from Block 1A (sample NMC07). A basic identification was made by the Ingemmet, and a more detailed identification of the chemical components was performed using LA-ICPMS. The ICPMS at the Field Museum of Natural History in Chicago was used under the direction of Dr. Laure Dussubieux and the analyses were run by Dr. Nathan Craig.

Appropriate standards were not used, thus the results are semi-quantitative.

The homogeneity indicator is 88% (this indicator is 3% for glass standard).
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<tr>
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<tr>
<td>Al2O3</td>
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<tr>
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<td>MnO</td>
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<td>Fe2O3</td>
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<td>8.3%</td>
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<td>CuO</td>
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</table>
Appendix J: XRF Report authored by Jorge A. Bravo, Facultad de Ciencias Físicas, UNMSM (December 2007)

XRF Spectrum for Acaray2119 Obsidian

Element content (%) by weight:
- Potassium 2.20 %
- Calcium 0.50
- Titanium 0.10
- Manganese 0.06
- Iron 0.62
- Copper 0.12
- Zinc 0.025
- Rubidium 0.019
- Strontium 0.012
- Zirconium 0.008

Estimated content of other elements:
- Oxygen 50 %
- Silicon 46 %

Method of quantitative analysis:

Simulation of spectrum using the fundamental parameter approach.

The experimental technique allows the detection of characteristic X rays from elements heavier than aluminium. The presence of oxygen is inferred from the basic silicate structure of obsidian and is included in the composition of the matrix used to calculate the continuous background spectrum.
Discussion (by Margaret Brown Vega)

The element content % by weight is equivalent to parts per million (ppm) by moving the decimal place over three spaces (for example, 2.20% Potassium is 2200 ppm). This conversion allowed me to compare the results for the obsidian for Acaray with other published results. I used in particular the Craig et al. (2007) article as the major reference. Using two figures from that article, I plotted the Acaray obsidian’s Strontium and Rubidium values relative to those reported for the Alca, Chivay, Quispisisa, and Tipo Ayacucho sources (Figures J1 and J2). Standards for Quispisisa and Tipo Ayacucho were provided by Mercedes Delgado from the UNMSM laboratory.

As indicated in the figures below, the obsidian from Acaray does not correspond to the known obsidian sources. The standards provided by Quispisisa by the UNMSM laboratory do not correspond to those presented in Figure J2. I can offer no explanation for this discrepancy.

Figure J.1 Figure 2 from Craig et al. (2007) showing Strontium versus Rubidium values of Chivay and Alca, with Quispisisa and Tipo Ayacucho standards and the value of the Acaray obsidian plotted.
Figure J.1 Figure 3 from Craig et al. (2007) showing Strontium versus Rubidium values of Chivay, Alca, and Quispispa obsidian, with the value of the Acaray obsidian plotted. Note discrepancy in published Quispispa group with standard (blue dot) for Quispispa from the UNMSM lab.
Appendix K: Site Protection at Acaray

The Archaeological Complex of Acaray is a heavily looted site (Figure K.1). It has suffered extensive damage both in the cemeteries, and on the fortress. During surface reconnaissance in 2004, and excavations in 2005-2006, me and my crew encountered looters on a number of occasions. They were often leaving the cemeteries of Acaray in the morning after having spent a night looting. The site is also being encroached upon by agricultural fields (Figure K.2), large trucks drive through the cemeteries to reach a quarry for road construction material, an adjacent property owner would to have the fortress declared as a rock quarry (Figure K.3), and 4 x 4 “rally” enthusiasts roll all over the site and adjacent hills. I pursued a number of avenues to help protect Acaray, including declaring the site as cultural patrimony, direct confrontation, and collaboration with local authorities.

Figure K.1 Photograph of Sector D showing the major compound with pock marking from decades of looting.
In 2004 I submitted paperwork to the Instituto Nacional de Cultura (INC) to declare Acaray as cultural patrimony. This was accomplished, and the relevant Resolution by the INC was attached.
to the project proposal submitted in 2005, which was distributed to local officials and community leaders.

During excavations my crew and I confronted looters as they left the cemeteries. Because we were excavating on top of the fortified ridge, we had an excellent view of adjoining cemeteries. While the looters in general were not aggressive, we refrained from having them turn over their bags, which presumably had looted materials in them. We informed them that Acaray was cultural patrimony, and thus protected under national law, and that looting was illegal. The number of encounters during the day waned, but it was clear that looting was still taking place at night.

In January we began our day excavating early due to the summer heat. We typically arrived at the site before 6 a.m. I made it a point of doing the rounds in the cemeteries to “wake up” the looters (Figure K.4). I came to realize they simply left earlier, prior to our arrival at the site. Although it was somewhat dangerous to drive to the site at night, on two occasions we did exactly that, arriving at around 9 p.m. Accompanied by the Huaura Police Department on the first occasion, we scared off some looters, who left behind their beds and looting tools (Figures K.5 and K.6).

Figure K.4 My crew and I checking for looters before beginning excavations for the day. Note the sizable looter’s pit with their “bed” and trash remains.
Figure K.5 Looter’s bed, left behind when we scared this individual away during our nighttime visit. Photo taken by Felipe Livora.
Our ability to monitor the site changed when excavations stopped, and project headquarters were moved to the town of Barranca, about an hour drive away. At the very least, I wanted to build a sign at the site indicating that it was cultural patrimony. With the collaboration of the community of Acaray we built a concrete sign (*letrero*) at a major entryway into the site.

The sign was constructed of adobe bricks donated by the community, and concrete and steel rebar which I purchased. Juan Yarleque and Alejo Herrera from Acaray, who had worked with us during excavations, built the *letrero* (Figure K.7).
I planned to have the *letrero* built by Easter Week (*Semana Santa*). *Semana Santa* is a very popular week for looting, and word had come from the town of Acaray that the looter’s were planning on hitting Acaray particularly hard. In collaboration with my co-director, Mario Advíncula, we organized a campout at the site during this week. We enlisted the help of many of the students from San Marcos University who had excavated with us, as well as a few additional ones, to camp out with us at Acaray to protect the site from looters. We contacted the Huaura Police Department, who agreed to support our efforts, and extend their patrol routes during those days to patrol the site of Acaray. We organized ourselves into groups to take turns patrolling on foot with flashlights until 3 a.m. The endeavor was publicized with a press note to make people aware that we would be guarding Acaray.

In the days that we camped out, we prepared the *letrero* for painting under the direction of Hernán Guillermo (Figure K.8). On our last day of the campout, we painted the lettering on the sign (Figure K.9). This entire *letrero* project was completed with primarily volunteer labor at a minimal cost.

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*Figure K.7 The adobe and concrete *letrero* being built at Acaray. Alejo Herrera (left) and Juan Yarleque (right) are working on the sign columns.*
Figure K.8 *Letrero* ready to be painted the next day. From left to right: Carmela Alarcón, Mario Advíncula, Janeth Huaman, Elizabeth Cruzado, Michiel Zegarra, Dafne Vargas, me, Leonel Hurtado, Isabel Cornejo, Jesús Holguin, and Hernán Guillermo. Photo courtesy of Gerbert Asencios.

Figure K.9 The completed *letrero*. From left to right: Jesús Holguin, me, Alejo Herrera, Michiel Zegarra, Elizabeth Cruzado, Leonel Hurtado, Mario Advíncula, and Gerbert Asencios. Photo courtesy of Gerbert Asencios.
Results of Activities and Thoughts on Looting

Confrontations with looters in Huaura can be effective at keeping them at bay for short periods of time. As soon as our investigations stopped at Acaray during both field seasons, looting continued.

While the Semana Santa campout was successful in keeping most of Acaray from being looted during that week, we simply pushed the looters to other areas outside of our patrol range. We discovered fresh looting on the other side of the hills, in Sector E of the complex, as well as into a new area up a small quebrada that leads to another hilltop fort.

Ultimately our efforts did demonstrate that a presence is sufficient to keep the looters away, at least in Huaura. The problems, however, continue when we (archaeologists, police, concerned activists) are not there.

In 2006 the Instituto Nacional de Cultura delimited the site, as well as several adjoining sites, with cement markers as part of a project to bring electricity to the area. The town of Acaray once had electricity, but since the 1970’s had been without it. This new project required the limits of these declared areas to be concrete. Acaray is officially “zona intangible”.

I have returned to Acaray and noted a decrease in looting at the site. This is probably due to the efforts of this project over the years, to some of the community members from Acaray, and to the INC. However, looting continues, and there have been clear signs of disrespect for the INC. In a visit to Acaray in 2008 I noted that several INC markers had been toppled (Figure K.10), and there are still signs of relatively fresh looting (Figure K.11). In my opinion, the strongest line of defense against looting and further destruction at Acaray is the town of Acaray itself. Only the people who live near the site can effectively keep the looters, many of whom are allegedly outsiders, away.

There is a clear difference between the degree of looting along the western sectors of Acaray, where we focused our anti-looting efforts, and the areas to the east. Entry by looters into this long quebrada filled with cemeteries and architecture is permitted by the land owner who lives at the mouth of the quebrada. I have witnessed looters coming and going, as recently as June 2008, past this land owner’s house. In the five years that I have visited or worked at Acaray, I have seen an increase in looting activity in this area. Despite the construction of a letrero by the INC at this spot, and regardless of delimitation of this area by the INC, looting has not waned but increased. This leads me to conclude, again, that while a sign may inform people that a site is protected, that means very little unless there is someone there to actively ensure an archaeological site is protected. Given that archaeologists typically do not live adjacent to the sites they excavate or visit, their role in minimizing looting on the ground is inhibited.
Figure K.10 INC marker delimiting Acaray that has been removed.

Figure K.11 Another INC marker that has been removed, with two “probing” holes made by looters visible at the top corners of the photo.