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THE CASE STUDY OF AMATO, ACARÍ VALLEY, PERU

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EVIDENCE FOR INTERPERSONAL VIOLENCE OR HUMAN SACRIFICE?
THE CASE STUDY OF AMATO, ACARÍ VALLEY, PERU

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ABSTRACT

Human decapitation of the South Coast of Peru can be interpreted in a number of ways, including ancestor worship, ritual sacrifice, trophies of battle, or raiding. A literature review of Nasca archaeology precedes an analysis of the newly excavated Early Intermediate Period site of Amato, in the Acarí Valley, Peru, which has potential to assist in determining the nature of early South Coast decapitations.

This study assesses remains (n=37) recovered during the 2005 field season at Amato. Thirty-six human skeletons are missing their skulls and at least the first two cervical vertebrae, but otherwise, the integrity of skeletal articulations suggests primary burial. Cutmark evidence on the remaining cervical vertebrae is fully consistent with decapitation. This analysis indicates that the age and sex distribution is not consistent with the war trophy or the ancestor worship hypotheses, but suggests instead that the remains are victims of a violent raid or ritual sacrifice.
Dedicated to my grandfather

William Brough

And the memory of my grandmother

Lois Brough
Acknowledgements

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Chapter 1

Introduction

The Problem

Warfare and its origins have captivated anthropologists and archaeologists for decades because of their implications for understanding sociopolitical complexity. Archaeologists specializing in the prehistory of the southern coast of Peru have long debated when and how warfare arose in this region. The evidence is ambiguous for there appear to be few indications of warfare except for the prevalence of decapitated heads. The arid environment of the South Coast of Peru provides excellent preservation of archaeological remains and hence the research potential of this topic is high. To take advantage of the interpretive potential of this region, I conducted a skeletal analysis of the remains of 37 individuals in a mass burial at the site of Amato, Acari Valley, Peru (PV74-19, Figure 1.1). Amato is unique among South Coast sites because it is the first site that has yielded a mass burial of headless skeletons during the Early Intermediate Period (EIP, AD 1-700). Over 36 headless skeletons and one skeleton with his head in articulation were found at Amato, previously described in the literature to be a ceremonial site (Carmichael 1991:6; Valdez et al. 2006), a fortified site (Lanning 1967:120-121; Rowe 1963), and a habitation site (Kowta 1987:30). I conducted a skeletal analysis on these remains in an effort to establish the nature of trophy head-taking at Amato, which may give insight regarding the practice of head-taking within the entire South Coast region during the EIP. It is not known to what extent the Nasca interacted with the inhabitants of the Acari Valley; the debate rests entirely on the presence of Nasca pottery in the Acari Valley.
There appears to be evidence for interpersonal violence, group labor in building walled enclosures, and possibly ritual execution and head removal at Amato. These factors are also found in the nearby Nazca Valley and are all related to the emergence of larger, more complex and more centralized political or religious systems from previous small-scale, undefended villages (in this I thesis refer to the *Nasca* culture and the *Nazca* Valley, spelling conventionalized by Silverman 1986). Research has already established the Nazca Valley had complex societies, but were they state-level? Would a Nasca state have had any effect on the
neighboring Acári Valley? Establishing connections between the inhabitants of Acári and Nasca religious practices may clear up inconsistencies in the literature about the interactions between the two valleys.

In the South Coast, excavations have yielded over 100 mummified heads that some Andeanists interpret as evidence of interpersonal violence and warfare. Other researchers state that trophy head-taking was a ceremonial/religious practice, and they interpret early iconography of the South Coast as containing ritual elements linking decapitated heads to fertility (Carmichael 1988; Proulx 1987). Whatever the reason for head-taking, the fact remains that there is evidence for the practice in both the Nazca and Acári valleys, possibly indicating a shared religious practice. The local polities of the South Coast may have been unified by a common religion that involved head-taking. An assessment of the skeletal assemblage of Amato, in the Acári Valley, may provide information not previously known about the practice of head-taking in the Nazca Valley.

**Thesis Organization**

I intend to establish if the Acári Valley was under Nasca influence and what the nature of that influence might have been. It has been stated in early literature that Nasca was a state-level society that dominated the Acari Valley (Coelho 1972; Lanning 1967:121; Massey 1986:338), despite the fact that little excavation had been done in Acari. In Chapter 2, I will give a brief literature review of Nasca archaeology, including discussion of the Nasca as a state-level society. Also addressed in Chapter 2 is the evidence concerning militarism and warfare of the South Coast. Because early literature assumed the Acári Valley had been a conquest of the Nasca state, it was also assumed the valley had been taken over by militaristic force. I provide literature that
casts doubt on this idea, as further excavations in the Nazca and Acari valleys have yielded little evidence for state-level society, militarism, or warfare in the South Coast. These factors may indicate that the Acari Valley was not under direct militaristic control of the Nasca, and their interactions may have been mainly religious. Also included in the discussion of Nasca archaeology is a review of the osteological evidence for head-taking within the North Coast, including the Nazca and Acari valleys and one case in the Moche Valley, in the north coast. Most researchers that have analyzed trophy heads from Nasca contexts argue that head-taking was a practice related to ritual sacrifice or decapitating warriors in battle. Other hypotheses for trophy head collection include ancestor veneration and the acquisition of trophies secured during a raid or massacre.

The literature review of the Nasca has implications on the site of Amato, which may have been part of the larger Nasca practice of head-taking. The skeletal assemblage of Amato contains variations in age, sex, and physical traces of violence that can determine the nature of a death assemblage (Backo 1998), and is discussed in Chapters 3 and 4. I will discuss the results of my skeletal analysis of the assemblage of Amato in terms of the four main decapitation theories in Chapter 5. Comparing and contrasting my results with those of other South Coast decapitation studies will help to put the site of Amato into context and narrow down the possible theories of decapitation during the Early Intermediate Period in Peru.
Chapter 2

South Coast Archaeology and its Implications for Amato

This chapter is a literature review of the archaeology of the South Coast of Peru as it relates to the site of Amato. This literature review is not an exhaustive study of Nasca literature, but only analyzes lines of evidence that impact my interpretations of Amato. Focus here is on the debate regarding the Nasca as a state-level society, the presence of warfare or militarism in the South Coast, and the osteological evidence for trophy head-taking in the South Coast.

Archaeologists have long thought that the Nasca were a state-level society that conquered and occupied much of the Acarí Valley. I will provide literature that casts doubt on this theory. Additionally, a general lack of evidence for warfare or militarism exists in the South Coast region of Peru. However, there is much osteological evidence for violence, including clear evidence of decapitation and other bodily trauma. These three points of South Coast Peruvian archaeology directly effect my interpretations of the mass burial at Amato and I will be assessing the osteological evidence in terms of the four main theories of Peruvian decapitation: heads taken for worship of revered ancestors, fallen warriors in battle, sacrificial victims for ritual, or victims of raiding/massacre. Due to the lack of post-cranial human skeletons found in the South Coast, the theories of decapitation have been based entirely on studies of early Nasca iconography and caches of trophy heads.

The site of Amato dates to the EIP, contemporaneous with the Nasca immediately north in the Nazca Valley. In Peru, one of the widely used chronologies is based on horizons and intermediate periods (Table 2.1).
Table 2.1. Chronology of the South Coast of Peru (based on Moseley 2001:22).

<table>
<thead>
<tr>
<th>Period</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Horizon</td>
<td>1485- Spanish conquest</td>
</tr>
<tr>
<td>Late Intermediate Period</td>
<td>1000-1485</td>
</tr>
<tr>
<td>Middle Horizon</td>
<td>700-1000</td>
</tr>
<tr>
<td>Early Intermediate Period</td>
<td>AD 1-700</td>
</tr>
<tr>
<td>Early Horizon</td>
<td>500 BC- AD 1</td>
</tr>
<tr>
<td>Initial Period</td>
<td>2000 -500 BC</td>
</tr>
</tbody>
</table>

Horizons have been regarded as time periods of relatively greater religious unity or state authority. Religious unity can be determined by an artistic style that intrudes the whole study area. The designation of a state has more defining criteria than a dominant artistic tradition, including centralized religion, social stratification, central authority, and in some cases, urban areas (Peebles and Kus 1977; Wilson 1983:250-251). When this dating scheme was developed by Uhle (1903) and revised by Kroeber (1929), the horizons were based on the three major cultures known at the time that were represented by artistic influences in local sequences: Chavín, Tiwanaku, and Inca. Rowe (1962:48) named them Early Horizon, Middle Horizon, and Late Horizon, respectively. The intermediate periods were so named because they were considered to be intervals between horizons or periods of disunity when smaller, local polities emerged. Several different, distinctive local artistic styles were considered to be evidence of disunity, instead of the widespread artistic styles characteristic of the horizons (Price and Feinman 2001:376).

This chronology was widely accepted before extensive archaeological excavations revealed state-level societies and widespread religious unity during the intermediate periods. Clarke (1973:10) states that early taxonomic divisions were defined by gaps in the evidence, and
recent evidence indicates that there was not a lack of unity during the intermediate periods.

Examples during the EIP are the Moche state of the North Coast, the religious unity of Nasca of
the South Coast, and the Tiwanaku state of the alitplano, and during the Late Intermediate Period
the Chimu state of the North Coast (Moseley 2001:22-23). This thesis is concerned with the EIP
of the South Coast.

Nasca as a State-Level Society

Discussions of the South Coast of Peru often debate whether Nasca was an expansionist
state, and much previous literature assumed Nasca was a state-level society (Lanning 1967:121;
Massey 1986:338; Coelho 1972). Rowe (1963:11-12) described the Acarí Valley as consisting
of fortified habitation sites that were necessary for defense from the nearby Nasca state. He
further posited that the sudden presence of Nasca 3 pottery in the Acarí Valley indicated a
territorial invasion. Rowe also stated that evidence for a Nasca invasion us the simultaneous
abandonment of the ceremonial center of Cahauchi in the Nazca Valley and the fortified Acari
sites, after Nasca Phase 3 (Table 2.2).

Table 2.2. Approximate Dates for Nasca Stylistic Phases of the EIP (from Vaughn 2004:116).

<table>
<thead>
<tr>
<th>Culture</th>
<th>Nasca Phases</th>
<th>Approximate Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Nasca</td>
<td>6, 7</td>
<td>AD 550-750</td>
</tr>
<tr>
<td>Middle Nasca</td>
<td>5</td>
<td>AD 450-550</td>
</tr>
<tr>
<td>Early Nasca</td>
<td>2, 3, 4</td>
<td>AD 1-450</td>
</tr>
<tr>
<td>Late Paracas-Proto Nasca*</td>
<td>1</td>
<td>100 BC- AD 1</td>
</tr>
</tbody>
</table>

*Nasca 1 is usually considered the last phase of the Early Horizon.
Massey has stated that, “at the height of its power, an early Nasca state probably administered a four-valley region including the Ica, Palpa, Nazca and Acarí valleys and had established economic relationships with the Pisco and Chincha Valleys as well as with valleys to the south of Acarí” (1986:338). Other authors had initially subscribed to the idea of the Nasca state, but have since amended their interpretations in favor of Nasca as a chiefdom (Moseley 2001; Silverman 1995).

Although archaeologists had been making evaluations of the complexity of the Nasca, few had stated defining criteria for state-level societies or had archaeological evidence that the Nasca possessed any of these attributes. The rise of states in Peru is a major research topic, and most research conducted in coastal Peru attempts to define a society by its complexity. Some characteristics of a state have been defined as urban sites with full-time craft specialization, social stratification, and the presence of central authority and military force (Peebles and Kus 1977; Wilson 1983:250-251). Recent work suggests few of these characteristics were present in the Nazca or Acarí valleys.

Schreiber and Lancho Rojas (1995) have stated that there is no evidence of cities in the Nazca Valley. Instead, early Nasca sites are considered small or large villages, based on their size and location near agriculturally important land and water resources. An urban center, or city, is a site with evidence for dense settlement (at least 5,000 people), site stratification, and a central location within the larger complex of outlying settlements (Fagan 2005:200-201). A city is recognizable by archaeologists through its size and the scale of its remains. It has also been stated that specialists reside in urban centers that will subsequently have evidence for full-time craft specialization (Lumbreras 1974). The important Nasca site of Cahuachi was once believed to be an urban center (Proulx 1968:96; Rowe 1963:11; Strong 1957:32), but has been argued
convincingly by Silverman (1986, 1988, 1990, 1993; Silverman and Proulx 2002) to be a ceremonial pilgrimage center without many full-time residents. Abundant ceremonial material culture has been recovered, including trophy heads, panpipes, and camelid sacrifices. The relative absence of domestic refuse, evidence of urbanism, residential areas, or workshops have led other researchers to agree with this interpretation of Cahuachi (Carmichael 1988; Schreiber and Lancho Rojas 1995; Valdez 1998). Valdez (1998:88) was also unable to find urban sites in the Acarí Valley during his survey of the valley, classifying them as either walled or unwalled sites.

Full-time craft specialization is assumed among the Nasca because of their sophisticated polychrome pottery (Silverman 1986:848). There are many differences between the local Acarí style of pottery and the polychrome Nasca pottery including colors used, quality, artistic style, and vessel types (Kent and Kowta 1994; Valdez 1998:85; 2000; 2005). Local Acarí Valley pottery, termed Huarato style, is assumed to have been produced at the household level due to its technologically simple construction, decoration, and utilitarian function (Valdez 1998:102).

Pottery production sites are characterized by large size, pottery vessel molds, and other elements such as those found at the sites of Maymi and Conchopata during the Middle Horizon, and among the Chimu and Wari outside of the South Coast region. However, within the South Coast during the EIP, there is no archaeological evidence of pottery, metallurgy, or textile workshops (Valdez 1998:74). The paucity of workshops in the archaeological record suggests that neither the Acari nor Nazca inhabitants had full-time craft specialization. Carmichael (1988:422), and recently Silverman (1993:335), have stated that the sophistication of Nasca pottery does not alone indicate full-time craft specialization; it could have been produced at the household level by skilled residents.
Social stratification can often be found archaeologically in burial patterns. Carmichael’s (1988) exhaustive study of Nasca burials has shown that although there were different burial types found, none indicated social stratification. No burials were considered high-status by Carmichael because the grave constructions and body positions were similar and most burials had the same number or type of grave goods.

Valdez (2005) studied burials of the Acarí Valley and also came to the conclusion that none were indicative of social stratification. Grave construction, body position, and grave goods were all very similar. The sole case against this argument is the site of Amato (Chapter 3) which may contain a high status burial with rich grave goods and possible sacrificed humans. It is difficult to decide if this one case is indicative of social stratification of the Acari Valley during the EIP. The case of Amato probably does not by itself provide sufficient evidence that the local Huarato tradition of the Acarí Valley was a state-level society, because there are no other indicators in the valley to suggest such complexity. Nor does this one case of possible social stratification in the Acari Valley have any clear implications regarding the social complexity of the Nasca to the north during the EIP.

Carmichael (1991:5) states that the local Acari artistic tradition probably coexisted with Nasca influences during the EIP. A comparison of the valleys shows local variations in artistic style that are more indicative of regional autonomy than an expansionist state. Valdez (1998, 2005) states that the presence of Nasca pottery in the Acarí Valley is not an indication of a Nasca invasion. Instead, the presence of prestige items in the Acarí Valley suggests trade. Also noted is the persistence of the local Huarato style pottery during the time of the so-called “Nasca invasion.” It has been posited that when a state imposes a pottery style upon a new territory, the local pottery style of that area is suppressed so that the local style may disappear or change in the
archaeological record. An example is the Chavín style to the north, where local artistic styles changed and became less prominent in the archaeological record as compared to the new, dominant style (Moseley 2001:153). There was no replacement or change of artistic style in the Acari Valley by a Nasca style. Some Nasca phase 3 pottery was found in the Acari Valley by the earliest archaeologists to the South Coast, but these sherds could represent trade. Silverman (1977:69) and Proulx (1968) have also noted that the Nasca sherds of the Ica and Nazca Valleys had local stylistic differences, which would be unlikely if the Nasca forcibly imposed a pottery style in surrounding valleys. A more likely explanation is that the inhabitants of valleys adjacent to the Nazca, such as Ica and Acarí, were imitating Nasca styles and importing prestige items from the Nasca.

Today, many researchers who specialize in the South Coast during the EIP tend to view South Coast societies as independent polities that may have been divided by the river valleys. These polities may have shared a similar belief system. Because we have no direct evidence of political affiliations, even the sites within the same valley were potentially politically distinct. Schreiber (1997) views Nasca as a non-state society (as cited in Valdez 1998:80). Silverman (1995:27) has stated that early Nasca was not state-level, but “was a complex non-state society or ranked society or chiefdom level society”. This view is shared by Proulx (1992:6), who argued that Nasca “was at best a chiefdom, not a state-level society” (emphasis added).

**Warfare and Militarism of the South Coast**

It must first be noted that many sources define war as a conflict or struggle between two groups or nations. Lowell (2007:95) defines warfare “broadly to include violent conflicts between groups in both complex and small-scale societies.” She goes on to cite Otterbein’s
(1970:3) definition as simply “armed combat between political communities.” Gat (1999) states that raids and ambushes are common in small-scale societies and can be devastating warfare techniques. These definitions apply to the Nasca society and the Acarí Valley because, as noted above, these societies are currently considered to be non-state societies by many prominent Andeanists. The presence of conflict does not alone imply a level of social complexity; many different levels of society engage in conflict.

From the characteristics of a state mentioned above, military force is one of the most debated among researchers who specialize in the Nazca or the South Coast region. Archaeologists have stated that Nasca was a conquest state and that brute force was needed for the Nasca to take over the surrounding valleys (Lothrop 1957:15; Proulx 1987, 2001; Tello 1918). Researchers have also posited that the local inhabitants of Acarí may not have been willing to be conquered, engaging in warfare as resistance (Proulx 1987, 2001) and building walled fortification sites (Lanning 1967:120-121; Rowe 1963). Other researchers do not subscribe to the idea of Nasca as an expansionist state, and so look for other causes of, or motivations for, warfare. It is often difficult to tell archaeologically whether a society resorted to force or coercion over other territories. Material evidence for militarism or warfare could include weapons, fortified sites, militaristic iconography, and many cases of skeletal trauma suggesting violence. I have been unable to find much literature about weapons recovered in the South Coast; however, the region may contain fortified sites, militaristic iconography, and skeletal trauma.

The purpose of walled sites in the Acarí Valley is important to the warfare debate because they may be fortified for defense. There are no walled sites in the Nazca Valley. Proulx (1987:80) mentions a “sudden appearance of fortified Nasca sites outside of the heartland of the
“Nazca Valley” as evidence of Nasca territorial expansion. He continues by stating that there is no doubt that the Nasca engaged in warfare and took trophy heads in battle. However, neither of the aforementioned statements is followed with descriptions of the ‘fortified sites’ or physical evidence of warriors practicing decapitation on the battlefield.

Determining the purpose of walled sites in the Acari Valley has been problematic. Wilson’s (1987) work in the north coast of Peru, in the Santa Valley, has yielded walled sites indisputably indicative of warfare. The Santa Valley boasts sites in defensive locations containing up to twenty citadels, dry moats, parapets, and caches of sling stones. Similarly, Topic and Topic (1987:48-49) state that there are four features that make a fortified site: a defensible location with limited access, parapeted walls, caches of sling stones inside the walls, and moats outside the walls. While acknowledging that some of these features degrade over time or can be ambiguous in the archaeological record, Topic and Topic state that for a site to be indicative of warfare, it needs to possess most of these features. They continue to state that a walled site without any of these features is probably not fortified. Some Andeanist authors (Parsons et al. 2000:167; Silverman and Proulx 2002: 235; Smith and Valdez 2005:9; Valdez 1998:142-145) use Topic and Topic’s guidelines as a strict definition for fortified sites, suggesting that if sites do not have these attributes, then the inhabitants did not engage in warfare.

The Walls of Amato

Of the 11 known EIP sites in the Acari Valley, only Amato has been systematically excavated and recorded by a professional archaeologist. Ditches were found outside the outer walls, but are not currently thought to be dry moats. Valdez (1998:143) states the ditches were formed when people were removing earth to construct the walls, and that the Acari site of
Huarato also has these “construction ditches.” The walled structures of the Acari Valley all have a central enclosure. Over two field seasons (2005-2006), excavations were carried out in the central enclosure of Amato. From excavations, the inner walls were found to be made of paniform (loaf-shaped) and conical adobes and river cobbles. No parapets or caches of sling stones were found.

In 2006, part of the outer wall was excavated to determine if the construction material was suitable for defensive purposes. The outer walls of Amato are constructed of the same materials as the inner walls, making them all substantial barriers. The outer walls of Amato (Figure 2.1) are made of the same materials and in the same manner as those of Monte Grande Alto (Figure 2.2), Huarato (Smith and Valdez 2005) (Figure 2.3), and Tambo Viejo (Riddell 1985:4-5) possibly making it a typical construction pattern of the Acari Valley. Not all Acari sites are walled, and currently the walled sites are thought to have functioned to delineate space (Silverman 1993:321; Valdez 1998:145; 2006). Of the ten other EIP sites in the Acari Valley, seven are walled (Valdez 1998:88). Among these seven are Amato, Monte Grande Alto, and Huarato.
Figure 2.1. Line drawing of Amato, Peru (redrawn from Valdez 1998).
Figure 2.2. Line drawing of Monte Grande Alto, Peru (redrawn from Valdez 1998).
Figure 2.3. Line drawing of Huarato, Peru (redrawn from Valdez 1998).
In addition, outside the perimeter of Amato, looted burials litter the ground. Most have yielded skeletal remains or trophy heads buried under or around the walls, such as at Chaviña, Cahauchi, Tambo Viejo, and Amato (Drusini and Baraybar 1991:255; Lothrop and Mahler 1957; Valdez 1998:93). Parsons et al. (1997:334, 2000:168) have also found walled architecture in the Junín highlands of Peru to be associated with burials. Parsons et al. suggest rather than a strictly defensive function, the walls of such sites could have been ritual.

Because only a small portion of the outer walls of Amato have been excavated, it cannot be concluded if the site contained any parapets along the outer walls, although aerial photographs and surveys have not yielded anything resembling a parapet. Additionally, Valdez (1998:143-144) states that no other Acarí Valley site contains parapets, sling stones, dry moats, or weapons based on his surveys, although excavations have not been carried out at any site except Amato. None of the Acarí Valley sites are located in defensible areas; they are all located in the open pampa, with the exception of Monte Grande Alto which faces the pampa on one side.

However, Arkush and Stanish (2005:7) question the conclusions of archaeologists who deny the defensive character of the Late Intermediate site of Pacatnamú in the Jequetepeque Valley. Pacatnamú is a site with triple wall-and-ditch construction and a mass burial of male victims. The site of Amato is also triple-walled with ditches surrounding the outer walls and contains a mass burial of decapitated individuals. If Arkush and Stanish’s argument for a defensive function is valid for Pacatnamú, it might apply to Amato as well.

**Interpretations of Nasca Iconography**

Trophy head iconography abounds in ancient Peru. Not only were trophy heads a dominant feature of South Coast art, but themes are also found in the North Coast and in the
altiplano. Trophy heads and mutilated body parts adorn the temple of Cerro Sechín of the Initial Period north coast. The Early Horizon Chavín and the Middle Horizon Wari cultures had an interest in disembodied heads. The EIP Moche of the north coast, Pucara of the Titicaca Basin (Chavez 2004, personal communication), and the Paracas and Nasca of the South Coast all display trophy head themes in art (Silverman 1993:218).

The Nasca decapitation iconography is suggested as a line of evidence in the warfare debate. However, not much is known about EIP Acarí Valley iconography because the pottery vessels were mainly undecorated utilitarian ware. Hence this abbreviated literature review examines Nasca iconography and how it is interpreted in relation to the practice of head-taking.

Researchers often assume that militaristic iconography depicting battle and violence indicates real interpersonal violence within that society. In contrast, iconography that appears to depict monsters and mythical beings is considered ritual iconography. However, there can be a mixture of ritual and militaristic iconographic forms. For example, Moche iconography of the EIP of the north coast is considered by Andeanists to show ritual battle and not territorial or conquest battle because the iconography depicts warriors with elaborate dress and the battle and sacrifice acts are celebrated in art. Moche iconography was focused more on the actual act of dismemberment than with the collection and ritual use of decapitated heads (Verano 1995:268). Additionally, the discovery of multiple burials associated with architecture among the Moche and the Junín highlands of Peru suggests sacrificial victims of ritual significance in ceremonial centers or as dedicatory burials (Alva 2001; Bourget 2001b; Donnan 2001; Parsons et al. 2000:171-172), not merely slain warriors from battle.

Similarly, it has been argued that early EIP Nasca art has ritual significance because it depicts decapitated heads in association with monsters and mythical beings (Carmichael 1992;
DeLeonardis 2000; Silverman and Proulx 2002:149; Vaughn 2004:116). Carmichael (1994) has stated that trophy head depictions in Early Nasca times emphasized fertility because plants are shown sprouting directly from decapitated heads, in what is referred to as the Sprouting Head motif, of which there are many examples on Nasca pottery. Carmichael (1992:190) also argues that trophy heads are part of a “life to death continuum” in which the blood from trophy heads was necessary for human and plant fertility: “trophy heads may imply some form of conflict but their associations go beyond combat.”

Carmichael (1992:190) analyzed 447 pottery vessels from 138 Nasca grave lots and found that only 3.2% of Early Nasca vessels contained trophy head depictions. The Late Nasca vessels were more likely to show trophy heads (8.5%). In addition, the later ElN Nasca art contains militaristic themes of decapitation with battle scenes and is fundamentally different from the earlier Nasca iconography (Browne et al. 1993:278; Carmichael 1988:426-427; DeLeonardis 2000:376-377; Drusini and Baraybar 1991:255; Silverman 1993:324; Kowta 1987:33). Forgey and Williams (2005:255) state that, “clearly Nasca trophy head imagery changes over time, from earlier depictions that are associated with mythical and/or naturalistic themes, to the militaristic themes that dominate the later periods”.

Andeanists interpret the Nasca iconography as evidence for the continuing ritual significance of trophy heads from Early to Late Nasca times. The ritual importance of these heads could have persisted during the Nasca Phases, although the method of procuring heads may have changed. In Early Nasca times it can be assumed from the demographic characteristics (men, women, and children of all ages) of mummified heads and the iconography, that heads were taken from sacrificial victims. In later Nasca times, head-taking practices may have involved raiding or removing heads of fallen enemy combatants; however, the underlying
ceremonial reason for head removal probably did not change (Proulx 2001). Throughout the EIP, the Nasca and the inhabitants of the Acari Valley carefully mummified and ritually buried trophy heads in caches or as grave inclusions. DeLeonardis (2000:382) states that “ultimately the heads were considered to be a source of spiritual protection against an enemy, rather than a souvenir of war.”

**Osteological Interpretations of South Coast Decapitation**

There is abundant evidence for violence and trophy head-taking of the South Coast during the EIP; however, it has been interpreted in a number of ways. Carmichael’s (1988:291) research showed that some Nasca bodies had their heads or other body parts removed after the body had been mummified and buried, with evidence of reopening the tomb and separating the head from the body long after death. Reopening tombs to retrieve body parts may be evidence of ancestor worship. Ethnohistoric accounts of ancestor worship in Peru at the time of contact (Guaman Poma de Ayala 1980; also see Rowe 1946; Uhle 1903) and Buikstra’s (1995) research south of the Acari Valley seem to further support Carmichael’s conclusions about ancestor worship. Some Peruvianists also argue that the carefully prepared and handled Nasca heads of men and women of various ages, as well as the evidence for ritual treatment and burial of the heads, further suggest ancestor veneration (Carmichael 1988, 1995; Coelho 1972; Guillén 2005; Tello 1918).

A large number of mummified heads of young adult males has led some researchers to assume they were trophies of war, collected from enemy combatants killed in battle (Verano 1995, 2001a). Proulx (1987, 1992, 2001) recognizes the ritual significance of the trophy heads once procured, but argues forcefully that they were always taken from enemy combatants during
battle. Still other Andeanists have found trophy heads of women and children and have thus posited that head taking must have been a purely ritual act unrelated to battle (Coelho 1972; Neira Avedaño and Coelho 1972-1973; Tello 1942; Valdez 2006). This conclusion is based on the assumption that women and children did not engage in battle. Similarly, the presence of women and children in the trophy head collection can also be the result of raids and other forms of conflict. The four theories of decapitation (ancestor veneration, battle, sacrifice, raiding) in the South Coast during the EIP can be difficult to distinguish archaeologically because iconography and caches of mummified heads have previously been the only evidence regarding this practice.

Not all disembodied Peruvian heads are considered trophy heads. Trophy heads must have a widened foramen magnum at the base of the skull, which is sometimes manifested as removal of all or part of the occipital bone. Also, a trophy head must have a hole drilled into the middle of the frontal bone. These holes allowed for the removal of the brain and the attachment of a carrying cord that had a toggle inside; the cord exited through the hole in the frontal bone (Browne et al. 1993:274; Verano 1995:203).

A number of trophy heads recovered have these ropes and skin still preserved. When soft tissues remain, most trophy heads have the lips pinned shut with cactus spines. Sometimes the eyes are also pinned shut with cactus spines and the eye sockets may be stuffed with cotton or organic material. Soft tissue preservation is the result of careful mummification and preservation of the heads in antiquity. The loss of soft tissues is attributed to exposure to sun and environmental elements by looters, careless excavation or storage by amateur archaeologists, and poor preservation techniques at museums and in private collections.
After presumed ceremonial use, trophy heads were ritually buried in caches or as grave goods. The term ‘trophy head’ is problematic because it is now clear that there was a ritual significance for head removal and preservation; they were not merely the war trophies as previously thought (Browne et al. 1993:275). Some archaeologists have proposed the terms ritual or ceremonial heads (Coelho 1972:45; Valdez 2006), but the convention of referring to decapitated heads in Peru as trophy heads (with skin and soft tissues) or trophy skulls (without any soft tissues) remains.

The relative absence of headless bodies compared to the number of trophy heads recovered from the South Coast during the EIP is interesting. DeLeonardis (2000:381) states that only seven headless bodies have been found in Nazca that date to the Early Nasca phases. Because these seven bodies had been found singly, DeLeonardis (2000:373) has prematurely asserted that headless bodies during the Early Nasca phases are never found in mass graves or caches (see Chapter 3). DeLeonardis (2000:382) goes on to state that “one could argue that head-taking had evolved from an occasional sacrifice to a more widely practiced tactic of warfare, ritual or otherwise.”

Demographic and other characteristics surrounding the context of trophy heads has been used to determine the nature of death of the decapitated individuals. Trophy head studies are limited in this respect because deteriorated trophy heads may make the sex of the skull appear ambiguous. When analyzing a trophy head, only trauma inflicted on the skull region can be observed. There is an obvious need to recover and analyze post-cranial remains of decapitated victims for more comprehensive demographic and trauma patterns.

The following are summaries of prominent decapitation studies in recent years from the Nazca as well as Moche and Acari valleys. Trophy head studies are included in this literature.
review because they have previously been the only physical evidence for the practice of trophy head-taking in the South Coast. The Moche site was included in this review because it is a study conducted on postcranial (and cranial) remains to address the practices of decapitation and sacrifice. The Moche skeletal study has some similarities to Amato and has potential implications for the interpretations of Amato, even though the North Coast is a geographically distant region.

Huaca de la Luna, Moche Valley

Excavations at Huaca de la Luna, Moche Valley, were carried out by Steve Bourget in 1995-1996 and skeletal remains were analyzed by John Verano. At the site, Bourget excavated Platform II and its associated Plaza 3A at the base of a hill called Cerro Blanco. The platform/plaza was surrounded by walls made of adobe, estimated to have been over 8 meters high. The platform covers 840 square meters and the plaza is 1,100 square meters (Bourget 2001a:95). During three field seasons, Bourget was able to recognize 15 strata of human remains of at least six distinct ritual events at Plaza 3A. Verano (2005) estimates the minimum number of individuals (MNI) to be 70 adults in the mass burial, embedded in clay. Bourget explains the presence of clay in this desert coastal region as evidence of torrential rains associated with El Niño floods. Below these clay deposits was a layer of sand, in which three children were found. Bourget believes the first sacrificial event to take place involved these children, two with their heads missing (2001a:98). Plaza 3A constitutes the largest mass burial of human sacrifices in the Moche Valley. Later, in 2000, excavations resumed at Plaza 3C, where more adult skeletons had been found. Bourget and Verano both argue that the discovery
of these individuals validates the Moche iconography depicting sacrifice of war captives by
costumed Moche participants.

Osteological Methods and Results. At Plaza 3A, three child skeletons were found at the
deepest layer of skeletal remains. The first child was found 60 cm below the surface of the sand
layer, it was aged 2 ½- 3 ½ years old, and exhibited evidence of mild periostitis. Periostitis is
caused by trauma or infection; it is not a disease (White 2000:390). Periostitis is an infection of
the periosteum, which is the protective tissue that surrounds bones. Inflammation of the
periosteum results in diagnostic porosity of the bones, involving woven bone formation, at the
site of infection. The second child was found headless, 15 cm below the sandy surface. This
individual was approximately 1 year old with evidence of acute periostitis or osteomyelitis.
Osteomyelitis differs from periostitis in that the infection from the periosteum spreads to infect
the marrow cavity of the bone. This condition is identified by more severe woven bone
formation and a cloaca. A cloaca is a hole that forms in the bone from the marrow cavity to
allow for pus drainage. Osteomyelitis can form through injury or bacteria in the bloodstream,
called hematogenous osteomyelitis, which is more common in children (White 2000:390-392).
Bourget determined the second child’s disease was possibly congenital and severe enough to
have caused the child’s death (2001a:98). However, if the child had a congenital disease then it
did not suffer from acute periostitis, which is not a disease. Bourget failed to mention a cloaca in
his reports of the child’s pathology, so his assessment of a congenital disease is regarded with
cautions.

The third child was 10 cm below the sand surface and was aged at 3 years. This child
was also missing its head, although Bourget states the presence of cervical vertebrae indicates
the heads may have been removed after burial. This third child was covered in textiles and had a
whistle in each hand. Bourget (2001a, 2001b) believes these children were conceptually linked to the ancestors, ritual, and sacrifice of war captives.

Above these children at Plaza 3A were the remains of a number of adult males. The presence of complete articulated skeletons, partial skeletons, and isolated skeletal elements complicated the deposits, but element counts revealed an MNI of 70 (Verano 2001). Verano states that all skeletal remains in the clay matrix are males aged 15-39 years, with most individuals estimated to have died in their early- to mid-twenties.

Verano (2001:118) found that most skeletons were healthy with pronounced muscle attachments. He notes healed fractures of the ribs, long bones, and depressed fractures of the skull are quite common. Eighteen out of 70 individuals (26%) exhibited instances of healed trauma, which Verano argues to be a very high frequency (see Chapter 5). He also states that rib and skull fractures are typical wounds of interpersonal violence, and that this sample of victims had “a history of violent encounters” (Verano 2001:118).

The victims of Plaza 3A had cutmarks on the ventral bodies of cervical vertebrae or the transverse processes, indicating throat slitting instead of decapitation from the back (see Chapter 4). Additionally, three individuals had perimortem fractures of the forearms, otherwise known as parry fractures. At least 12 individuals had trauma in the early stages of healing, indicating elapsed time of several weeks to a month from time of injury to time of death. Verano (2001) and Bourget (2001a, 2001b) both claim this physical evidence closely follows Moche iconography, which depicts the Moche capturing prisoners before sacrificing them. Additionally, Verano (2001:120) states that the skeletal remains show evidence of “physical mistreatment” including small, repeated cutmarks on hand and foot bones or around the eye sockets. Verano believes these injuries could not have been inflicted during actual combat.
Lastly, excavations carried out in 2000 at Plaza 3C at Huaca de la Luna also yielded human remains. Present were 15 complete or mostly complete human skeletons: 16 sets of articulated skeletal elements and hundreds of isolated bones (Verano 2005:282). These remains were all determined to be males and were aged between adolescence and young adulthood, similar to the characteristics of Plaza 3A. (However, it must be noted that it is not always possible to determine the sex of isolated bones. Many foot, hand, ankle, wrist, and long bones can appear ambiguous. As discussed in detail in Chapter 4, sex determinations are made most reliably on the pelvis). Most of the complete skeletons from Plaza 3C had cutmarks on ventral bodies of cervical vertebrae and evidence of defleshing. Evidence of defleshing consists of cutmarks along muscle attachment sites of long bones, ribs, vertebrae, os coxae, and hand and foot bones (Verano 2005:284). Dismembered elements were evidenced by cutmarks at the joints.

Some of the complete skeletons had remains of rope around the wrists, ankles, or neck (see Chapter 5). Some victims were missing skulls or other limbs. A few were represented by only the torso. Antemortem trauma was noted by the presence of healing fractures of the hands, arms, and shoulders of the victims. These fractures are assumed to have been sustained during combat or capture, and the victims were held captive for a period of weeks before their deaths.

While some skeletons had been dismembered, a large portion retained anatomical articulation and are not viewed as evidence of cannibalism; however, the exact purpose of defleshing or mutilating the bodies is unknown. Additionally, there was no evidence at Huaca de la Luna to indicate burnt bones or bones broken for marrow extraction, as is often assumed as physical evidence of cannibalism in the American Southwest (Turner and Turner 1999; Verano 2005:284). Verano instead suggests these mutilated and dismembered body parts were put on
display because some limbs and an axial skeleton retain ropes around them as if they were intended for suspension from some object. Similarly, Moche iconography depicts legs, arms, and torsos with ropes around them. Both Bourget (2001a, 2001b) and Verano (2005) believe the victims from Huaca de la Luna are evidence that the iconography depicts actual events and practices of the Moche people and are not just aesthetic art. Bourget (2001a) argues that victims of war were captured and taken to the Huaca de la Luna for sacrifice to appease the gods during El Niño crises.

*Cerro Carapo, Palpa Valley*

Browne, Silverman and García recovered 48 trophy heads as part of a salvage excavation in the 1980s at Cerro Carapo in the Palpa Valley, a tributary of the Rio Grande de Nazca drainage. Initially, 15 heads had been exposed by looters, all exhibiting a hole in the frontal bone and frontal-occipital (front to back) cranial deformation associated with the Nasca culture (Browne et al. 1993:279). Ten levels were excavated, most containing Nasca pottery sherds or textiles that could not be assigned to a specific Nasca Phase. A full, extended burial was found in Level 4. The trophy heads were found in a pit in Level 9 without cultural material, so consequently precise dating of these heads is not possible (Browne et al. 1993:281). The authors do not mention skin or soft tissues, so I assumed all 48 were trophy skulls.

*Osteological Methods and Results.* Due to the looting activity, 26 of the 48 skulls were found *in situ* in the cache pit. All heads were found in a single layer, with the exception of two skulls that were placed above two other skulls. The skulls were arranged in two concentric circles with the faces looking inward at each other. Three of the skulls still retained the carrying rope, complete with wooden toggle inside the skull, with the rope protruding through the hole in
the frontal bone (Browne et al. 1993:284). The authors mention the presence of dried mud, so it is apparent that water entered the pit at some point and would account for the deterioration of skin and soft tissue. John Verano examined the skulls in 1989 and noticed cutmarks on the face and skull, interpreting them as places of skin removal. He also believes that the skin was refitted over the skull after flaying because of a lack of patina on the skulls (Browne et al. 1993:286). However, the cutmarks may be the result of bloodletting rituals, as discussed by Drusini and Baraybar (1991, and below). Verano determined that all the skulls in the collection were males between 20 and 45 years of age, except one individual who was 12-15 years of age and thus of indeterminate sex. This site constitutes a significant find because it is the largest scientifically excavated cache of trophy skulls found in Peru that dates to Nasca Phase 5 or later, around A.D. 500 (Browne et al. 1993:291).

Orefici’s Excavation, Cahuachi, Nazca Valley

Drusini and Baraybar (1991) studied seven trophy heads while participating in the excavation led by Orefici at Cahuachi from 1984-1988. It is not clear from which feature these trophy heads were recovered at Cahuachi, and Orefici has not published any archaeological reports regarding his findings in the 1980s. Drusini and Baraybar were not the consulting physical anthropologists at Cahuachi during these field seasons and only analyzed the remains in the field, without transporting them to a laboratory for cleaning and closer examination.

Age and sex determinations were made by consulting physical anthropologists. Some diagnostic bones and features of the skulls were missing, possibly hindering age and sex assessments. Additionally, sexing a skull is not as accurate as sexing remains from the pelvis. It is not explicitly stated, but the physical anthropologists must have made their age assessments
based solely on tooth wear and cranial suture closure, with the exception of the sub-adult who was probably reliably aged by means of dental eruption.

The deciduous dentition (baby, or milk, teeth) and the permanent dentition (adult teeth) form and erupt through the gums at relatively precise stages of development. It is well-documented and highly accurate to age children by the progress of their dental eruption (White 2000). Tooth wear-patterns of adults are highly variable between and even within populations. Ancient dental wear is usually quite severe compared to modern wear patterns because people ate coarser diets. The only way for an aging technique to be considered reliable is if it is proven to provide correct ages of cadavers or skeletal material that has the documented age of death of the individual. Any tooth-wear aging method conducted on skeletal material today would not be considered acceptable to apply to an ancient population. Aging by tooth wear and cranial suture closure are not considered unproblematic methods among physical anthropologists, but are acknowledged as the only possible ways to estimate age of an adult skull. Drusini and Baraybar do not mention skin or soft tissues, so I assume all seven specimens are trophy skulls.

Osteological Methods and Results. The authors state that the interment of the skulls in a shallow pit near the surface implies secondary deposition, having been originally taken from other burials by looters and reburied (Drusini and Baraybar 1991:255). It is unclear how the authors reached the conclusion that the heads had originally been grave goods accompanying other burials. The trophy heads consisted of two adult males, four adult females, and a 7-9 year old sub-adult. The skulls exhibited Nasca-style cranial deformation (Drusini and Baraybar 1991:256). This type of deformation is characteristic of the Nasca, and can be found on skulls from the Ica to the Acarí valleys, implying cultural or religious unity among these populations (Drusini and Baraybar 1991:259). All skulls examined from Cahuachi had a hole in the frontal
bone and an enlarged foramen magnum, making them typical trophy skulls. The authors also noted cutmarks on the skulls indicating bloodletting or scalping. Drusini and Baraybar believe these decapitation victims had been captured and tortured by bloodletting and scarification, and had not been victims of a battle (Drusini and Baraybar 1991:261). The age and sex characteristics of this small sample confirm this assumption, as women and children are not usually combatants. The authors also discuss iconography to support their argument that Nasca trophy heads were obtained for ritual purposes through raiding (Drusini and Baraybar 1991:262).

Various Excavations, Cahuachi, Nazca Valley

Trophy heads have been recovered by a number of researchers at the site of Cahuachi. Silverman (1993) excavated two trophy heads and provides a literature review of published material of the other trophy heads excavated from Cahuachi. In addition to her own trophy head discoveries, Silverman’s literature review includes excavations by Kroeber, Strong, and Doering.

Osteological Methods and Results. Alfred Kroeber excavated four graves at Cahuachi, consisting of one headless body and 10 trophy heads. The headless skeleton recovered from Grave Al 4 was identified as an adult female determined to have had her head removed after mummification (Carmichael 1988:290-291, 349). The 10 trophy heads that Kroeber excavated are described by Forgey and Williams (2005, and see below).

William Strong excavated two burials in the 1950s. Burial Number 12 consisted of a trophy head and a pottery vessel. The trophy head may have originally been inside the vessel because within it was a quantity of human hair, a tooth, and skull fragments. The head may date to Nasca Phases 5 or 6 (Silverman 1993:219). Strong also excavated Burial Number 14 in which a complete skeleton of a young adult male was buried. The skull had been placed upside down
on the vertebral column, with the foramen magnum facing upward. Additionally, the skull had been “treated as a trophy head” with a small hole in the frontal bone and the base of the skull had been enlarged (Silverman 1993:206). Interestingly, the piece of occipital bone that had been removed for enlarging the foramen magnum was placed on the individual’s lap.

Heinrich Doering (1966) excavated a grave that contained the lower body of a male with many grave goods, textiles, and nine trophy heads. The heads had been placed on corn cobs or beds of coca leaves in the front of the grave. Doering explains the missing upper part of the mummy and the disarray of grave goods to be of Colonial period vandalism. Carmichael (1988:374-377) posits a multi-stage mortuary rite of the Nasca that consisted of re-entering the grave and removing body parts.

Chaviña, Acarí Valley

Neira Avedaño and Coelho (1972-1973:142) excavated 11 trophy heads dating to the EIP at Chaviña of the Acarí Valley. The authors described the skull burials as having grave goods and cloth wrappings. Unfortunately, this article (Neira Avedaño and Coelho 1972-1973) and Coelho’s dissertation (1972) on the findings at Chaviña were not written in English. Thus my summary of the site relies on Browne et al.’s (1993) summary of a personal communication with Niera Avedaño and Coelho, where some of the report was translated and summarized.

Osteological Methods and Results. At Chaviña, six of the trophy skulls had been buried in pits dug into the adobe of a wall dating to the Early Nasca Phases. These skulls are considered intrusive to the Early Nasca context and are thought to be EIP Phase 4 or Phase 5 based on radiocarbon dates (Browne et al. 1993:289). Two of the heads were covered in utilitarian vessel sherds. Two more heads had been buried in cooking vessels along the wall. Two additional
heads were wrapped in cloth and were placed on the floor along the wall. The last head lay in the loose sand above the floor. Above the heads, was a middle layer that contained Late Nasca pottery. Here, heads can only be dated to the Early Nasca and Late Nasca cultural layers that they lie between. Browne et al. (1993) refer to the heads as ‘skulls’ and do not mention preserved skin or hair. Although these skulls were found in the Acari Valley, the site report mentions the presence of Nasca pottery sherds, which had probably been trade items brought from the Nazca Valley.

The Kroeber Collection

Forgey and Williams (2005) studied the 18 trophy heads housed at the Field Museum in Chicago. These heads had been recovered and documented archaeologically by Alfred Kroeber in 1925-1926 to be from six sites: Aja (n=1), Cahuachi (n=10), Cantayo (n=2), Las Cañas (n=1), Majoro Chico (n=2), and Paredones (n=2). The trophy heads are mostly skeletonized with shreds of soft tissue that the authors attribute to deterioration and not to intentional flaying of the skin by the Nasca. The heads date from late Paracas to the Middle Horizon based on associated artifacts. Eight of the Kroeber collection heads can be dated to EIP Phases 1-4, the approximate time of occupation of Amato. Three of the Kroeber collection trophy heads were found in pits along or near walls like those described by Neira Avedaño and Coelho (1972-1973) and Silverman (1993) at Chaviña and Cahuachi, respectively. Ten of the heads were found as grave goods in tombs and the remaining heads were found in two caches.

Osteological Methods and Results. The heads were aged by dental eruption and cranial suture closure. Forgey and Williams state their reluctance to use dental wear as aging criteria; however, dental wear was observed and noted. The heads had large portions of the occipital
bone removed making specific cranial deformation identification difficult; however, all but one were observed to possess anteroposterior deformation (front to back Nasca style). The collection contains 14 adults (young to middle adult), two sub-adults (14-18 years), and two children (4-10 years). Of the adults, seven are male, one is probably male, and two are female; the remaining four adults and the four sub-adults and children are of indeterminate sex (Forgey and Williams 2005:259).

Only one trophy head exhibited a perimortem spiral fracture and another had healed antemortem head trauma. The damage to the occipital is attributed to the practice of widening the foramen magnum. However, in 11 of the Kroeber specimens the entire occipital bone and posterior portions of the parietal and temporal bones were also removed. Additionally, two heads displayed removal of the entire basioccipital and squamosal portions of the occipital bone (Forgey and Williams 2005:261). Such extreme removal of the back of the head would have left these 13 trophy heads with little more than just the facial bones. The edges of the cut bone margins of the occipital and the edge of the frontal bone perforations contained resin, which is assumed to have served to seal the cut bone regions from seepage of the bone interior.

Cutmarks were present on the entire skull region of all but three trophy heads, possibly indicating skin removal or bloodletting. Three trophy heads retained cotton pads stuffed into the eye orbits and nasal aperture. Wear marks were observed around the frontal bone perforations, probably from the carrying cord rubbing against the bone (Forgey and Williams 2005:268).

Summary

The Acarí Valley has been largely neglected in Peruvian archaeology. Literature about Nasca society had traditionally assumed that the Acarí Valley had been conquered by the Nasca
state. New research in the region has yielded no evidence of Nasca as a state-level society. Stratified sites, differential burials, craft specialization, and urban sites have not been conclusively identified in the Nazca Valley. In addition, there is no evidence that the Acarí Valley had been invaded by the Nasca. While some Acarí sites contain Nasca pottery sherds, this material does not necessarily indicate a Nasca occupation. Trade and shared religious beliefs are also plausible explanations for the presence of these sherds.

Additionally, the evidence for warfare and militarism is ambiguous in the South Coast. Researchers disagree regarding the function of the walled sites in Acarí. Hypotheses suggest walled sites were either fortifications or walled ceremonial centers. There is little to no evidence of weaponry in the Acarí Valley. Nasca iconography and South Coast osteological remains are the only lines of evidence possibly indicating interpersonal violence. However, the Nasca iconography from the early phases of the EIP is considered to be primarily ritualistic. Disembodied heads are predominately displayed in relation to mythical beings and religious icons, in contrast to battle scenes which predominate in later Nasca times.

Lastly, osteological evidence was analyzed in a brief literature review regarding the South Coast practice of trophy head-taking. Most of the studies discussed above suggest a ritual/ceremonial context for trophy-head taking among the Nasca and Moche. Perimortem trauma is often used as evidence to indicate warfare and violence, but the trophy head collections display few perimortem fractures: only one at Cerro Carapo and one in the Kroeber collection. While many researchers argue that there is an overwhelming number of young adult males in the trophy head collection to indicate they were trophies of battle, very few show signs of perimortem trauma. The lack of perimortem skull trauma may indicate the heads were not taken in battle, but it may also simply indicate that the Nasca who were procuring heads were careful
not to damage them. The lack of cranial damage makes sense considering the Nasca treated and handled the heads carefully and buried them ritually.
Chapter 3

The Skeletal Assemblage of Amato, Peru

The Site of Amato

The site of Amato (PV74-19) is on an alluvial terrace 400 meters east of the Acarí River in the Acarí Valley of Peru, 275 miles south of Lima, Peru. Amato is a walled site first described by Rowe (1963) as an Early Intermediate Period site (AD 1-700), based on the presence of Nasca Phase 3 pottery sherds in the Acarí Valley, although excavations were not carried out at Amato until 2005 by Dr. Lidio M. Valdez of the California Institute for Peruvian Studies. While the Acarí Valley may have contained some Nasca Phase 3 pottery sherds, the site of Amato yielded mostly local Huarato pottery and did not produce any Nasca sherds, indicating there may not have been a Nasca occupation, as previously thought. However, the presence of incised pottery sherds at the site may indicate it was originally constructed before the EIP, possibly during the Early Horizon (Valdez 1998:105-106). Excavations confirmed that the burials at Amato date to the EIP based on a radiocarbon date of AD 15-20 (cal age) (Valdez et al. 2006:17).

The EIP site of Amato in the south coast has a quadrangular outer wall with a partial enclosure within the outer walls. Inside this partial enclosure is a square enclosure, and there is a smaller walled enclosure inside that one. All walls are approximately 2 meters wide and may have been over 2 meters tall. The walls were built of stones, paniform adobes and conical adobes with a large amount of plant remains as fill (Valdez 1998:90). As no structures were found outside the walls “it seems that these [walls] were built to confine the settlement” (Valdez 1998:90) or delineate space, instead of functioning to defend the site.
An initial survey in 1987 (Riddell and Valdez 1988:19) yielded broken panpipes and worked *spondylus* shell pieces in the central enclosure, both known to be ritual elements in the South Coast (Cordy-Collins 2001b; Silverman 1993:241; Valdez et al. 2006:10). Excavations yielded more *spondylus*, another broken panpipe, a bird bone necklace, camelid sacrifices, guinea pig burials, and a mummified decapitated bird, all interpreted to be ceremonial items. The site had a number of local EIP Huarato style pottery sherds (see Valdez 1998, 2000 for analysis). In addition, outside the outermost walls of Amato looted burials are scattered across the desert. The quadrangular construction of sites with central enclosures and the presence of burials make the Acari Valley sites different from Nasca sites, where round stone structures are typical and sites are located at a distance from cemeteries.

**The Skeletal Assemblage**

Seven 4 by 4 meter excavation units were excavated inside the central enclosure and three units immediately outside the eastern wall were opened at the site. Excavations were conducted from July through August 2005 and, at the close of fieldwork, Dr. Lidio Valdez and his students had uncovered 37 skeletons in excellent condition. All individuals were skeletonized (Figure 3.1), with a few retaining some dried soft tissues or partially mummified limbs.

![Figure 3.1. Decapitated individual from Amato, Peru. Photograph by Lidio M. Valdez, 2005.](image-url)
The bodies of men, women, and children had been decapitated, and with the heads having been removed and taken elsewhere, they were heaped haphazardly in several pits within the central enclosure. This arrangement contrasts with burial practices of the South Coast during the EIP that traditionally include seated burial with cloth wrappings and grave goods (Carmichael 1988; DeLeonardis 2000:365-366; Valdez 2005). Several disarticulated human elements were also found within these pits. Otherwise, all decapitated bodies are primary interments because the bones are in anatomical articulation. Additionally, no bones exhibited sun bleaching or evidence of scavenging, indicating burial shortly after death (Buikstra and Ubelaker 1994; Byers 2005; Hester et al. 1997:262; White 2000:289).

The pits containing skeletal remains were at approximately the same depth and in close proximity and are assumed to be contemporaneous (Valdez et al. 2006). These remains can be classified as a catastrophic death assemblage according to the definition provided by Backo (1998:4-5), which states that multiple individuals must be deposited simultaneously or within a short interval, and in a manner than differentiates them from normal burial practices. Catastrophic death assemblages can be further distinguished by pathology, demography, context, taphonomy or a combination of these, as described in the next chapters.

I examined the 2005 skeletal assemblage during the 2006 field season at Amato, Peru for indicators of sex, age, perimortem and postmortem trauma, as well as other bone deformations and related pathologies. Of the 37 skeletons, 36 had been decapitated, with one individual retaining his skull in articulation. This is the first mass burial of headless bodies from the EIP of the South Coast of Peru yet found. I will attempt to investigate the nature of head-taking at Amato, in order to see if there are broader implications about this practice for the entire South Coast, including the Nasca region.
Osteological Methods

This section identifies sex, age at death, and physical traces of variation in decapitation and perimortem trauma within the Amato skeletal assemblage, in order test the main hypotheses about trophy head-taking in the South Coast of Peru. Demographic characteristics of a mass burial can indicate the nature of death (Backo 1998; Buikstra and Ubelaker 1994:5; Hester et al. 1997:255; White 2000:337), so I determined age, sex, and perimortem trauma of the Amato assemblage during the 2006 field season using Buikstra and Ubelaker’s Standards (1994). Skeletal inventory sheets and pathology forms from Standards were filled out for each individual identified (see Appendix).

I initially aged adult individuals using the pubic symphysis (Brooks and Suchey 1990; Buikstra and Ubelaker 1994) and the auricular surface of the ilium following Lovejoy (White 2000:355, 358-359). I used epiphyseal fusion and ossification (Scheuer & Black 2000) for sub-adults. The auricular surface of the ilium is the place of articulation between the sacrum and the os coxae (sacro-iliac joint). The auricular surface of the ilium shows signs of wear in adulthood as the sacro-iliac joint deteriorates from the stress of bipedal walking. Epiphyseal fusion refers to the growth of bones in children. Children’s long bones are separated into three pieces: the shaft (diaphysis), and the two ends (the epiphyses). The cartilaginous separations between the diaphysis and the epiphyses are commonly referred to as growth plates. As these three sections of the bone grow, the growth plates ossify. The diaphysis joins the epiphyses at predictable intervals in development, allowing for accurate aging of the child’s skeleton. Aging infants is more difficult because their skeletons contain areas of cartilage that have not ossified into bone yet. However, this study does not require such precise aging of infants. Moreover, those sections of cartilage do not preserve long after death. Children’s bones begin ossifying in
primary centers of ossification and continue to turn cartilage into bone radiating outward from the center. These patterns of ossification are also well documented for accurate aging of children’s skeletons. The aforementioned techniques for aging skeletons are modern forensic methods because they have been proven to be effective on cadavers of known ages at death among modern populations (Byers 2005).

Because I used modern forensic techniques for aging, I collapsed the age categories so that the individuals fell into more general age classes. Precisely aging archaeological remains without substantial sample size and previous studies on the aging and health of the population is notoriously difficult (White 2000:339). Following Redmond (1994:79), all individuals were classified as either infants 0-12 months of age, sub-adults aged 2-18 years, young adults 19-29 years, or older adults 30+ years.

I did not attempt to sex sub-adults because it is also documented to be highly inaccurate (Scheuer 2002:189); sex determinations were only conducted on adults. Sub-adults often do not develop sexually dimorphic characteristics until after the completion of puberty. Because no cranial elements were present, sex assessment was based solely on the morphology of the pelvis. Measurements of the width of pelvic inlet and greater sciatic notch, length of pubic portions and subpubic angle were taken, following White (2000:365-366). The Phenice method (1969) was employed using the presence of ventral arc, presence of subpubic concavity, and sharp edge of the medial aspect of the ischiopubic ramus to identify females.

Perimortem trauma is damage to the bone at or around the time of death of the individual. Perimortem trauma is distinguished from antemortem trauma, which has evidence of healing. Perimortem trauma was assessed in the Amato skeletal assemblage by observing the presence of sharp and jagged broken edges of the bone, as well as hinging, and radiating fracture lines (Byers
Fractures determined to be perimortem are the same color as the rest of the bone, indicating fracture occurred when the tissues were still living. Perimortem trauma can be distinguished from postmortem trauma (post-depositional damage) because postmortem fractures have a lighter color than the surrounding bone because it was dry during breakage (Johnson 1985:176; Ubelaker 1991; White 2000:316).

Quantitative Analysis

All 36 skeletons were missing skulls, the atlas, and axis, and most were also missing the third or fourth cervical vertebrae (C3-C4, Figure 3.2).

Most individuals recovered at Amato are not young adults of ‘warrior age’ but are older adults over 30 years of age and children under 18 years of age (Figure 3.3).

Figure 3.2. Distribution of Uppermost Cervical Vertebrae Remaining with Individuals at Amato, Peru.
The skeletal assemblage contains one infant, 13 sub-adults, 4 young adults, and 16 older adults. There were three incomplete adult skeletons that were not sexed or more precisely aged because they were missing pelves. My analysis yielded 19 individuals of indeterminate sex, of which five were adults with missing or ambiguous pelves and the remaining 14 were subadults (Figure 3.4).
Perimortem trauma, cutmarks on cervical vertebrae, and healed fractures were also observed in order to determine the nature of the victims’ deaths (Table 3.1). Seven individuals had parry fractures of the forearms, usually on the ulna. These fractures are so named as to suggest the victim was holding their arms over their heads to parry, or deflect, a blow. It has also been stated that this type of forearm fracture can result from a fall onto the outstretched hands (Lovell 1997:161). However, the radius is more likely to break from a fall onto the hands, because the proximo-lateral portion of the palm, between the thumb and the distal radius, provides the most stability.

Table 3.1. Distribution of Perimortem Trauma of Individuals at Amato, Peru.

<table>
<thead>
<tr>
<th></th>
<th>Infant</th>
<th>Sub-adult</th>
<th>Young Adult</th>
<th>Older Adult</th>
<th>Undetermined Adult</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma Absent</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>Trauma Present</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>13</td>
<td>3</td>
<td>16</td>
<td>3</td>
<td>36</td>
</tr>
</tbody>
</table>
Twelve individuals had perimortem cutmarks on the remaining cervical vertebrae (Figure 3.5), which includes all three young adults in the sample. The cervical vertebrae cutmarks were left on the transverse processes or the spinous processes, indicating cutting from the sides or behind (Figure 3.6). There were no cutmarks observed on ventral bodies of the vertebrae, which would indicate cutting of the throat from the front.

Figure 3.5. Cervical Vertebrae Cutmark Distribution of Aged Individuals from Amato, Peru.
Together, this information is consistent with decapitation (Verano 2001:168) and may have been the cause of death. It is interesting to note that all young adults in the Amato assemblage display cutmarks on remaining cervical vertebrae. Also, some male individuals have several cutmarks. Next to young adults, children were the second most likely to display cutmarks, followed by older adults; the infant did not display any cutmarks.

Figure 3.6. Individual displaying multiple deep cutmarks on uppermost cervical vertebrae. Photograph by Lidio M. Valdez, 2005.
Chapter 4

Results and Interpretations

Results

This chapter evaluates the skeletal assemblage by assessing the following information: 1) the type of perimortem fractures; 2) the patterns of trauma in the assemblage; and 3) possible explanations for the trauma. The type of perimortem trauma may indicate a defensive posture or resistance from the victim around the time of death.

Perimortem fractures of the forearms, parry fractures, are the most common at Amato. For example, Body Number 4 is a young adult male and Body Number 11 (Figure 4.1) is an older adult male, both displaying perimortem fractures of both distal ulnae.

Figure 4.1. Perimortem fractures of the left and right ulnae of Body Number 11. Photograph by Lidio M. Valdez, July 2006.

Body Numbers 22, 37, and 40 (Figure 4.2) are older adult males with a perimortem fracture of the left distal ulna. Both Body Number 7, an old adult male with much degenerative disease, and Body Number 37, a sub-adult between 12 and 14 years old, exhibited perimortem fractures of the
distal left radius and ulna. Body Number 10 is an individual with septal arthritis (Amy Raes 2006, personal communication) and a perimortem midshaft break of the left radius (Figure 4.3). The individual with septal arthritis is of indeterminate age and sex because the pelvis was missing.

Figure 4.2. Body Number 40 displaying perimortem fracture of the left distal ulna. Photograph by Lidio M. Valdez, July 2006.

Figure 4.3. Body Number 10 exhibits a perimortem fracture of the left radius and septal arthritis of the elbow and wrist. Photograph by Lidio M. Valdez, July 2006.
Body Number 6 is a child around 9-11 years old with a greenstick fracture at midshaft of the left radius, with the interosseous crest showing porosity. A greenstick fracture is one in which the broken ends of the bone do not separate (Byers 2005:278). Greenstick fractures are most common in sub-adults, because young bone that has not finished ossifying is more flexible. The porous bone reaction indicates the child’s arm was injured and infection had time to set into the bone before death. There was no indication of healing of the greenstick fracture. Body Number 33 (Figures 4.4-4.5) is a child approximately 1-3 years of age with severe greenstick fracturing of the distal third of the right femur and proximal third of the right tibia. This blunt-force trauma came from a blow to the back of the right knee around the time of death.

Figure 4.4. Right femur of Body Number 33 (posterior view) displaying perimortem trauma to posterior distal shaft. Photograph by Lidio M. Valdez, July 2006.

Figure 4.5. Right knee region (medial view) of Body 33 displaying bending of distal femur and radiating fracturing of proximal tibia from trauma. Photograph by Lidio M. Valdez, July 2006.
Body Number 36 is a child between 5 and 8 years of age with a perimortem fracture of the inferior surface of the 4th left rib. Excluding the infant, individuals of all age categories exhibited perimortem trauma (Figure 4.6).

![Figure 4.6. Distribution of Perimortem Trauma of Individuals at Amato, Peru.](image)

Other trauma occurred in scapulae, clavicles, and metacarpals of the male population. Clavicular fractures are most often caused by a fall onto the shoulder, while scapular fracturing is associated with direct trauma to the shoulder or upper back (Lovell 1997:160). Fracturing of hand bones is interpreted differently, however. Body Number 40 exhibits multiple fractures of
the hand (Figure 4.7), in addition to the perimortem ulna fracture described above. This individual displays a complete perimortem fracture of the right second metacarpal as well as a complete perimortem fracture of the left third proximal manual phalanx. Metacarpals are common sites of trauma, usually due to a closed fist thrust, such as a punch. Also, manual phalanges may break due to forced hyperextension or adduction of the fingers, which may occur from punching or having ones fingers snapped back (Lovell 1997:164).

Figure 4.7. Body Number 40 displaying fractures of the right second metacarpal and the left third proximal manual phalanx. Photograph by Lidio M. Valdez, July 2006.

While Valdez et al. (2001:13) stated that rib fractures were the most common perimortem injury, I had difficulty differentiating perimortem and postmortem breakage of the ribs. Because dry ribs fromarchaeological contexts break easily during excavation and recovery, I was unable to make the same conclusion about the frequency of perimortem rib injuries. Valdez et al. (2001:13) suggest these rib fractures indicate trauma to the thorax; however, ribs are fragile bones known to incur stress fractures from habitual labor or even habitual coughing or vomiting (Lovell 1997:159).
It is important to note that only one individual showed evidence of healed trauma (Figures 4.8-4.9) and she was not of the sex or age category generally thought to be of warrior status. Body 41 is an older adult female with much degenerative disease and a fracture of the left radius. The left radius has an impacted fracture of the distal shaft where the bone has shortened with circumferential callus formation around the wound. The trauma site was within 3 centimeters of the distal articular surface of the radius, making it a typical Colles’ fracture. Colles’ fractures are usually associated with a fall onto the hand (Lovell 1997:161).

Figure 4.8. Left radius of Body Number 41 displaying healed fracture of the distal shaft. Photograph by Lidio Valdez, July 2006.

Figure 4.9. Healed radial fracture of Body Number 41. Photograph by Lidio M. Valdez, July 2006.
The trauma patterns indicate only 21.4 percent of sub-adults, 33 percent of young adults, and 37.5 percent of older adults sustained perimortem trauma, excluding the individuals that could not be aged. The highest percentage is among the older adults of whom six out of 10 displayed trauma. The most common perimortem trauma was of the ulna. Taken together, the Amato mass burial contained 11 individuals with perimortem trauma, which is 30.5% of the burial population that has been analyzed. This value is considered a high percentage of trauma in comparison to cemetery populations studied in the Nazca and Acari Valleys. (Similarly, Verano (2001:118) stated that 26% of a burial population exhibiting trauma was a “very high frequency” in the Moche Valley.)

Interpreting forearm fractures as defensive traumas (parry fractures) may be problematic, however. Lovell (1997:165) believes that some paleopathologists often misinterpret ulna fractures. Clinically, she states that the ulna and radius are the most common skeletal elements to sustain injury and the cause is rarely from assault. Causes for ulna fractures vary, including forced pronation of the arm and stress fracturing related to occupation. However, Lovell admits that a true parry fracture of the forearm would be caused by a direct blow to the forearm. A number of decapitated individuals in the mass burial at Amato display perimortem forearm fractures as well as other trauma. The injuries were probably sustained due to the circumstances surrounding their deaths, from parrying blows or from falls.

All young adults (n=3) recovered from Amato display cutmarks on their uppermost cervical vertebrae. This pattern of trauma suggests these young adults had been alive at the time of head removal. It is very difficult to sever cleanly all the tough, fibrous neck muscles and remove a human head without leaving cutmarks on the remaining cervical vertebrae. Yet only five out of 14 sub-adults (Figure 4.10) and four of 16 older adults have cutmarks on cervical
vertebrae, meaning that 57 percent of subadults and 75 percent of older adults do not display cutmarks.

It is hard to imagine how so many individuals in both age categories somehow escaped receiving cutmarks on remaining cervical vertebrae. The intervertebral joints of cervical vertebrae are very small. Their heads may have possibly been removed after some decomposition had occurred and the muscles had become easier to sever. Yet there is no evidence that the bodies were left exposed on the surface, no pupae casings were documented during recovery, nor were there any indications of sun bleaching or scavenging of the bones. Additionally, there is no evidence that the bodies were dug up for head removal, as their skeletal articulation suggests primary burial.

The general lack of cervical cutmarks could be explained of the victims were dead or sedated at the time of decapitation. If the victim offered no resistance, the decapitators could gently saw at the neck muscles and position the knife between the vertebrae as they became

Figure 4.10. Body Number 37 is a sub-adult displaying multiple perimortem cutmarks of the right articular facet of C5. Photograph by Lidio M. Valdez, July 2006.
exposed. Perhaps this was an easier method for head removal. The sedation theory can also explain those few individuals that do display cutmarks. Even while sedated, the victims may still have been able to resist to some degree, or the decapitators may have been slicing too hard as they approached the bone. Using a stone knife for such a procedure would surely render some degree of imprecision. The major flaw of the sedation theory is that it cannot be tested. There is no archaeological evidence to validate such an idea because the presence of drugs cannot be detected and the perimortem trauma inflicted cannot be more precisely interpreted.

Perimortem trauma suggests injury around the time of death, but it cannot be determined from the trauma site if the injury was inflicted shortly before or after death of the individual. These perimortem breakage patterns only prove the bones were broken when the bone was fresh, containing blood and fresh marrow in the medullary cavity in contrast with dry bone (Johnson 1985:160; Sauer 1998). There is no set time limit after which fresh bone becomes dry, but Johnson (1987:183) states that bone a few months old cannot be considered fresh. Bone drying is subject to environmental conditions, and in the desert environment of the south coast of Peru it may only take a few days for bones to lose enough moisture that their breakage patterns will differ from those of fresh bone. If the bodies had somehow been protected against sun, wind, carnivores, and outside agents for a number of days, then head removal may have been less damaging to the decomposed bodies and may have still yielded perimortem cutmarks on the cervical vertebrae. However, it is hard to image keeping 36 bodies indoors in the Peruvian desert and later removing the heads from the rotting corpses. Also, flies would have found a way into the structure and permeated the corpses, but as previously noted, no pupae casings or other evidence of infestation have been found.
Body Number 12

Despite the excellent preservation of the dry climate of the South Coast, few textile fragments were found in the fill at Amato. In fact, none were directly associated with the individuals of the mass burial. In contrast, ropes were well preserved and in one pit the victims were still bound at the wrists and ankles (Figure 4.11).

![Figure 4.11. Individual with rope preserved around ankle. Photograph by Lidio M. Valdez, 2005.](image)

There was one individual that was buried with preserved textiles, presumed to be a high status individual (Valdez 2006:17). Valdez states that the lack of textiles in the mass burials indicates the victims had been naked at the time of their death. Because there was only one individual buried in textiles, this indicates mortuary treatment not afforded to the mass burial victims. This individual, Body Number 12, was also discovered during the same 2005 field season but differed from the rest because he was a complete individual, with his skull remaining in articulation. He was an old adult male (well over 30 years) who suffered from much degenerative disease. Body number 12, called ‘Amato Man’ by the team, was buried in a flexed, seated position (Sprague 2005:10-12) facing north with textile wrappings and grave goods. The
fact that textiles survived with this individual and not with any others leads one to assume the
decapitated victims had all been naked and did not receive customary burials, as no traces of
textiles or grave goods were found in the burial pits with the victims.

Amato Man, on the other hand, was found associated with a gourd container, pottery
sherds, peanut pods, worked *spondylus* pieces and beads, a necklace of several dozen tiny bird
bones, and five juvenile camelids. The camelids were found in full anatomical articulation with
no evidence of butchering. These goods are not typical of burials in Acari in the EIP and
indicate Body Number 12 was given special treatment (Valdez 2005, 2006:18). It may be that
the 36 decapitated individuals were sacrificed and interred as offerings upon Amato Man’s death,
but the radiocarbon dates are imprecise and the stratigraphy too ambiguous to confirm this
possibility.

Amato Man was buried in a position typical of other EIP sites of the Acari Valley
(Valdez 2005) and was in poor health. He had lost all but one of his molars during life as
indicated by the maxilla and mandible bone being completely resorbed in those areas. He was
also missing all but one of his mandibular incisors, with partial bone resorption. He suffered
from arthritis of the neck, as indicated by pitting and lipping of the bodies of the cervicle
vertebrae as well as osteophytic developments on the thoracic and lumbar vertebrae. Further
evidence of severe degeneration comes from the lower spine. Lumbar vertebrae L3-L5 were
ankylosed (fused) bilaterally with L5 ankylosed to the sacrum, and the sacrum fused to the right
*os coxa*. Fusion in the lower lumbar region resembles large clumps of candle wax dripping
down the bodies of the vertebrae. The severity of Amato Man’s vertebral degeneration lead
Valdez et al. (2006:17) to assume he was disabled.
Interpretations

The age and sex patterns of the Amato victims are difficult to interpret. In a raid, a high incidence of older adults might be expected in the archaeological record if young women and children had been abducted by their captors (Lowell 2007; Redmond 1994:67). While there is a high incidence of older adult victims at Amato (n=16), it is not drastically different from the number of sub-adults (n=14). The paucity of young adults (n=3) suggests that they were away or had not been selected at the time of the Amato decapitations. The young adult men may have been away on a war or hunting party, and the young adult women may have been taken captive. The reason for massacring the children is unexplained.

However, if the decapitations were done for ritual or ceremonial purposes, then it is possible that the victims were chosen for specific qualities. Children have been documented ethnohistorically as the ideal, sacred victims for sacrifice among the Inca (Kubler 1945; Maxwell 1956; Schobinger 1964:419). In addition, Bourget (2001a:93) has interpreted decapitated children at Huaca de la Luna in the Moche Valley as being linked to the ancestors through the practice of ritual warfare, capture, and sacrifice. Other victims of Huaca de la Luna were young adults, age 15-25, with perimortem trauma indicating violent capture and death. This age pattern is inconsistent with Amato, where there were only three young adult victims and many older adults. However, the perimortem trauma pattern of Huaca de la Luna remains compatible with Amato. If children had been chosen as sacred sacrifice victims at Amato, then the number of older adults remains unexplained.

In terms of the four theories of decapitation, it is clear that the Amato assemblage were not victims of battle. A battlefield would contain the bodies of primarily young adult men. Backo (1998:51) states, “Those who are too young and inexperienced, or too old, are rarely
engaged in battle.” The Amato demography also shows too many children to be expected of the ancestor worship hypothesis. In addition, the perimortem trauma is more indicative of a violent encounter rather than the removal of body parts after burial for ancestor worship (Backo 1998:51).

Raiding produces demographic characteristics similar to those of Amato. Men, women, and children of all ages can be expected. Perimortem trauma is also common in raids or massacres. Lastly, the characteristics of Amato could also be explained by human sacrifice. People of all ages have been documented archaeologically and ethnohistorically to be victims among societies that practice human sacrifice. Unfortunately, it is difficult to determine the intent of the decapitators at Amato archaeologically.

Two hypotheses of human decapitation remain for Amato. In a raid, people are often surprised by their attackers and are killed in habitation or activity areas. While Amato is an activity area, it is not currently thought to be a habitation area (Valdez 2006). The preponderance of ritual and ceremonial paraphernalia and the lack of utilitarian goods suggest Amato was a ritual center instead of a habitation site. The victims of Amato may have been victims of a raid and killed while participating in a ceremony. This scenario seems unlikely because ritual significance of trophy heads and decapitation is documented in the South Coast. The coincidence of a village being raided and its residents beheaded during a ceremony is unlikely.

Instead, the evidence at Amato suggests most likely that, the individuals had been victims of human sacrifice. The ritual significance of trophy heads in the South Coast, the ceremonial paraphernalia of the site of Amato, and the positioning of the bodies that had been tied together
suggest that victims had been brought to Amato for ritual decapitation. It cannot be determined, lamentably, where the victims came from or how they were selected.
Chapter 5
Conclusions

A review of the archaeology of the Nazca Valley indicates that the idea of Nasca as an imperialistic state-level society is an old one. This idea was proposed by some of the first investigators to the South Coast and has persisted, unchallenged, for decades. Recent archaeological work in the Acarí Valley, a South Coast polity, suggests that the valley may not have been a conquest of the Nasca state after all. In fact, the Nasca were probably not a state-level society.

Nasca as a State-Level Society

Some of the characteristics of a state include urban areas, full-time craft specialization, social stratification, central authority, and military force (Fagan 2005). While some of these attributes may be difficult to identify archaeologically, most are missing from the Nazca and Acari valleys archaeological records. Full-time craft specialization among the Nasca has been assumed by Andeanists because of the beautiful and complex pottery vessel decoration and diverse pottery vessel types. No definitive pottery production workshops have been found during the EIP in the Nazca Valley. Researchers now believe the polychrome pottery allegedly could have been produced at the household level.

Recent archaeological advances by Valdez (1998) and Silverman (1995; Silverman and Proulx 1995) have found no evidence of urban areas in either of the valleys. Additionally, Carmichael (1988, 1995) and Valdez (1998, 2005) have found no evidence of social stratification in burial patterns of the Nazca and Acarí valleys that is indicative of a state-level society.
Instead, Silverman and Proulx (1995) suggest the Nasca reached the level of a chiefdom society based on the archaeological evidence of the Nazca Valley.

No researcher has posited that the Acarí Valley was a state-level society, only that the inhabitants of Acarí may have been subjects of the Nasca state. However, the case study of Amato may be provide evidence for social stratification in the Acarí Valley. Amato Man is an individual whose head remained in articulation. He was also buried with textiles and grave goods. The types of grave goods buried in association with Amato Man are unique among Acarí burials. There have been no other graves discovered in the Acarí Valley that contained numerous camelid burials, bird bone necklaces, and worked *spondylus*. Additionally, the possibility remains that the Amato decapitation victims had been offerings to this individual, indicating his high-status.

*Warfare and Militarism in the South Coast*

Military force exerted by a central Nasca authority is not currently proposed for the Acarí inhabitants because there is little evidence for warfare. A Nasca expansionist state with an army would have produced archaeological evidence in the form of weaponry and evidence of conquest in neighboring valleys (Redmond 1994). The only suggestion of a Nasca presence in the Ica or Acarí Valleys is the presence of Nasca pottery (Rowe 1956). Recent surveys and excavations have indicated the Acarí Valley contained much less Nasca pottery then previously believed (Valdez 1998). The most logical explanation for foreign pottery in the valley is exchange (Carmichael 1988, 1991). It is well known that long-distance trade occurred between the South Coast and other regions of Peru and Ecuador. The presence of *spondylus* shell from Ecuador at Amato does not support an Ecuadorian invasion any more than Nasca pottery sherds indicate a
Nasca invasion. Additionally, local variations in Nasca pottery among the Nazca, Ica, and Acari valleys suggest that the inhabitants of these valleys were exchanging and possibly making local copies of Nasca pottery. The presence of Nasca pottery sherds in the Acari Valley does not confirm conquest because the sherds could be evidence of trade or imitation.

*The Walls of Amato*

The walled sites of Acari are believed to be ceremonial areas where the walls served to delineate space. The commonly accepted criteria for a fortified site are defensible location, presence of parapets, dry moats, and caches of slingstones (Wilson 1983). These features are not present at Amato, with the possible exception of dry moats. The walled settlements of the Acari Valley may not have served a defensive function. Instead, Amato has triple-wall and ditch (dry moat?) construction and ceremonial paraphernalia including *spondylus* artifacts, camelid burials, panpipes, and headless mummified birds. This evidence is more indicative of a ritual/ceremonial function than military defense.

*Interpretations of Nasca Iconography*

Nasca iconography also refutes the idea of militarism in the South Coast during the early EIP. It had been believed that the Nasca state exerted militaristic force upon surrounding valleys, but the iconography gives no indication of this occurring. If iconography can be considered evidence of Nasca society, it is not until Late Nasca Phases (AD 500-700) that militaristic themes appear on ceramics. The iconography of the Early Nasca Phases (AD 1-500) that is contemporaneous with the site of Amato depicts mythical beings and supernatural themes in association with trophy heads. The act of decapitation is not commonly shown in Nasca
iconography, which suggests the act of beheading individuals was not as sacred as the ritual use of the trophy heads.

**Osteological Interpretations of South Coast Decapitation**

The osteological evidence of decapitation is ambiguous. Evidence from most South Coast sites indicates that decapitation was the result of interpersonal violence or human sacrifice. While some trophy head collections of the South Coast have demographic characteristics that seem to indicate ancestor worship or decapitation of warriors during battle, they are a minority of cases. Different areas of the South Coast could have engaged in different decapitation practices with the goal of obtaining trophy heads. The Nazca and Acarí valleys may have had similar beliefs about the ritual use of trophy heads, but their method of procurement may have differed.

Osteological evidence from Huaca de la Luna, Moche Valley, is similar to Amato because it was a mass burial of victims that retained post-cranial elements. This study was useful to calibrate interpretations of Amato, because comparisons and differences were noted regarding perimortem trauma and cutmark patterns of the post-cranial skeleton. Of the more than 70 males at Huaca de la Luna, some individuals had been decapitated, dismembered, defleshed, tortured, or disfigured. Eighteen of the individuals exhibited perimortem trauma, mostly in the form of parry fractures like those of Amato. The decapitation method differs from Amato, however, because the cutmark pattern of Huaca de la Luna skeletons indicates throat slitting. Also, the Huaca de la Luna assemblage consisted of only healthy males and three children, while Amato had males, females, children, older adults, and diseased as well as healthy individuals represented.
Previous osteological evidence from the South Coast consists mostly of trophy heads, and not headless bodies. A mass burial of trophy heads was found at the Nazca site of Cerro Carapo that was dated to Nasca Phase 5 or later. The site of Cahuachi has yielded a number of trophy heads including those of men, women, and children. The similarities between the sites of Cahuachi and Amato are important because both can be identified as ceremonial sites by the ritual paraphernalia and lack of domestic refuse. Using Cahuachi as an example of a ceremonial site with ritual paraphernalia, I conclude that Amato was also a ceremonial site (Valdez 1998). Additionally, the demographic characteristics of the heads of men, women, and children from Cahuachi are similar to those of Amato.

The Kroeber collection of trophy heads comes from various South Coast sites and also exhibits a spread of ages and both sexes. Unfortunately, the report of Chaviña, Acari Valley, did not have age and sex characteristics. This study could have been useful as the only site of trophy heads from the Acari Valley. Because so many trophy heads are misplaced or in private collections, there may be some that have not been systematically studied. Additional obstacles to the systematic study of trophy head-taking are the poor excavation methods, preservation, and storage of trophy heads recovered early in the 20th century that have rendered some trophy heads unable to be reliably sexed or aged.

Implications for Amato

The archaeology of the South Coast is important to establish the context of the site of Amato. South Coast societies during the EIP had an institutionalized practice of head-taking that has never been fully understood. The site of Amato provides the first mass burial of headless skeletons of the South Coast. The study reported here analyzed 36 decapitated skeletons from
Amato and one individual who was interred with his head. I determined that the demography of the mass burial - consisting of sub-adults, older adults, and females - was not consistent with the ancestor worship or victims of battle hypotheses. I was able to conclude, by considering the nature of the site of Amato and the patterns of perimortem trauma, that the individuals had been ritually sacrificed. What is not clear, however, is whether the victims were taken in a raid or somehow otherwise chosen for sacrifice.

The demography of a burial population must always be assessed to determine if it was a catastrophic death assemblage or a regular cemetery. In this case, a mass burial of headless skeletons certainly suggests factors other than natural death and inhumation because of the high frequency of perimortem trauma (30.5%) and cutmarks on cervical vertebrae (36%). If the interpretation of parry fractures as evidence of a defensive posture is accurate, the most common perimortem trauma at Amato was defensive in nature. The abundance of sub-adults and older adults is another interesting characteristic that does not have precedence in the South Coast literature. It can be concluded that the individuals at Amato were not ancestors being venerated or fallen warriors whose heads had been taken by enemy combatants. The skeletal assemblage of Amato appears to have originated as mass human sacrifice. The ritual context of the headless bodies indicated by South Coast iconography implies a ceremonial significance of trophy heads and seems to corroborate the evidence for sacrifice from Amato.

The interactions between the Nazca and Acarí Valleys have only begun to be understood through excavation and research. Until we understand the relationship between the valleys, we cannot confirm claims about the practice of head-taking of the South Coast based on the assemblage of Amato. Whether the Amato individuals had been sacrificed as offerings upon the death of Amato Man or an unrelated ceremony is unclear. This study shows that the victims of
Amato had been unwilling participants in a gruesome ritual that left their headless skeletons still bound together with ropes in the archaeological record.
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Byers, Steven N.  

Carmichael, Patrick H.  


Clarke, David  

Coelho, Vera Schattan P.  

Cordy-Collins, Alana  

DeLeonardis, Lisa  

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Redmond, Elsa M.
Riddell, Frances A.

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Rowe, John H.


Sauer, Norman J.

Scheuer, Louise

Scheuer, Louise, and Sue Black

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White, Tim

Wilson, David J.

APPENDIX

Skeletal Data Sheets

(Forms from Buikstra and Ubelaker 1994)
Indeterminate sex/age

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: N15-16 W25
Observer/Date: 8/23/05 initial

Missing 5th metatarsal & all phalanges except 1st proximal

Bone of dislocated 1st metacarpals
2 intermediate phalanges
Distal phalanges of hands & 4th intermediate foot phalanx

Talus, 3 cuneiforms & navicular present
Indeterminate sex, 1-3 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM

a. CHILD ANTERIOR VIEW

Observer/Date: 8/23/05 initial
7/7/06 BH

[ ] missing C1-C2
[ ] sternum in sections
[ ] deltoid muscles activating
Male, 19-25 years

Adult Skeleton Recording Form: Anterior View

Series/Burial/Skeleton: N15-16 W30
Observer/Date: 8.18.05 initial 7.16.06 RH

- Glenoids have epiphyseal lines
- Missing C4-C7
- C5 has cutmarks, see path sheet
- Sternum, corpus, & manubrium fused & curved; no xiphoid
- Unfused S1 line
- Fracture; perimortem
- Hand mummified
- Parry fracture of ulna
- No Antecriles
Male, 19-25 yrs.

Series/Burial/Skeleton: 14 N15-10W30
Observer/Dates: 7/14/10 10 BH

5.0 Fractures

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6.0 Porotic Hyperostosis

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Comments:

Right ulna has a possible perimortem fracture on distal 1/3 of shaft; complete fracture due to trauma.

Left ulna has a perimortem fracture on the distal 1/3 of shaft; complete fracture due to trauma that is still held together in humified tissue.

Attachment 25: CHAPTER 10
cutmarks

male, 19-25 yrs

Series/Burial/Skeleton: 47 NS/616 W 30

Observer/Date: 7/1/00 AB

COMMENTS

(3) has (9) cutmarks on spinous process. There are (4)
on the left, (3) in the center and (2) on the right of the
spinous process.
Male, 30-50

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 57 NL6 Wab
Observer/Date: 8/19/05 initial

Right hand missing

Intravital C1-C4

Manubrium and corpus unfused
Xiphoid and corpus fused

PV 74-19  2005 FIELD SEASON  AMATO, PERU

CHAPTER 2: Attachment 3a
Indeterminate Sex, 9-11 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM

a. CHILD ANTERIOR VIEW

Series/Burial/Skeleton: N15-16 W30
Observer/Date: 8/2005 initial

Right ulna epiphysis not fused, left is.
Median epicondyle is not fused on humerus, but lateral epicondyle is.
Radius fractured, see Sheet
Pelvis fragmented
Septal aperture
Radius has indentation on proximal epiphysis

missing C1-C2

PV 74-19  2005 FIELD SEASON  AMATO, PERU  CHAPTER 2: Attachment 5a
Indeterminate sex, 9-11 yrs.

Series/Burial/Skeleton \(\text{[6]} \) N15-Ke W30.
Observer/Date 77106 BH

### 5.0 FRACTURES

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### 6.0 POROTIC HYPEROSTOSIS

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Comments:

Right radius has a greenstick fracture at midshaft that was present due to trauma. The interosseus crest shows evidence of infection.
Male, 45-55

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 7N15 W26
Observer/Date: 7/15/05 initial
                                    7/11/06 BH

[ ] missing C1, C2 & C3;
[ ] C4 arthritis with lipping

[ ] manubrium & corpus sterni fused, not curved; no xiphoid

[ ] 13 ribs on each side

[ ] double dorsum on sacrum,
[ ] osteolitic lipping on L3 (see path sheet)
[ ] L5-sacrum ankylosing w/ bony overgrowth on ventral surface

[ ] perimortem fractures of radius & ulna

[ ] coccygeal elements fused together, but not to sacrum
### 7.0 VERTEBRAL PATHOLOGY

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Comments: More than ½ of right articular facet of C7 (inferior) shows erosion. More than ½ of the right superior articular facet of C7 shows erosion. A careful under the facet there is circumarticular lipping of C7. It has lipping and osteophytes development of superior articular facets. C7 is ankylosed to the atlas and has extensive lipping on carvum body and on right side, as well as on superior articular facet.
5.0 FRACTURES

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6.0 POROTIC HYPEROSTOSIS

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Comments:
Right ulna, promontem, fracture is complete and due to trauma on distal 3 of shaft.
Right radius, distal 5 of shaft is fractured, completely due to trauma that occurred premortem. The fracture is also comminuted.

Attachment 25: CHAPTER 10
Indeterminate sex, 1-2 yrs.
JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

No epiphyseal fusion of long bones
No pathology
No cutmarks

Series/Burial/Skeleton: N16 WAG
Observer/Date: 7/14/06 BH

Missing C1-C3
L3-L5 spinous processes fused to bodies

Postmortem break

PV 74-19 2005 FIELD SEASON AMATO, PERU

CHAPTER 2: Attachment 5a
Indeterminate Sex, 5-8 yrs.
JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Mostly mummified
No cutmarks visible
No visible pathology

Series/Burial/Skeleton 9 N15 W26
Observer/Date 7/14/06 87

[missing C1-C3]

Entire thorax mummified with arms mummified and crossed over chest

Sacroccum mummified in tissue

Left leg mummified tightly flexed at knee
Indeterminate, Adult

Cutmarks

COMMENTS

CS has (4) cutmarks, all on right lateral side between supra & infra facet. (2) small ones on supra facet and a deep one just below those two. The 4th cut on infra facet is also deep.
Indeterminate, Adult

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 10 N16 W28
Observer/Date: 7/18/05
7/14/06 BH

Long bone ends have macroporosities; septal arthritis. See path sheet.

\[ \text{glenoids severely cupped \& porous} \]

\[ \text{large rib heads, vert. deformed at costal art. facets \& lipping} \]

\[ \text{small septal aperture} \]

\[ \text{tibia has osteophytic development on plateau; patella missing} \]

\[ \text{distal femur has no arthritic evidence} \]

\[ \text{severe arthritis of patella; tibial plateau; distal femur on left. Macroporosity \& lipping.} \]

\[ \text{fibulae bowed inward} \]

\[ \text{severe overgrowth of talus \& around calcaneus} \]

\[ \text{toes mummified} \]

\[ \text{missing C1-C4; C5 has cutmarks} \]

\[ \text{ostearthritic lipping on humeral head} \]

\[ \text{sternum \& manubrium not fused} \]

\[ \text{vertebral arthritis \& porosity} \]

\[ \text{extreme porosity \& lipping; withering of forearms. No hands. Huge septal aperture.} \]
Indeterminate Adult
POSTCRANIAL BONES VISUAL RECORDING FORM
LEFT OS COXAE, SCAPULA, CLAVICLE

Series/Burial/Skeleton: 101 N 16 W 28
Observer/Date: 7/8/05 initial 7/14/06 B-1

porosity

lipping of glenoid

superior

porosity

arrow bone eaten away

lipping

in inferior
Indeterminate, Adult
POSTCRANIAL BONES VISUAL RECORDING FORM
RIGHT OS COXAE, SCAPULA, CLAVICLE,

Observer/Date: 7/13/06 initial
7/14/06 BH

porosity

bony growth

lipping

erosion

porosity

superior

lipping

interior

Attachment 9b: CHAPTER 2
Indeterminate, Adult
POSTCRANIAL BONES VISUAL RECORDING FORM
HUMERUS, ULNA, RADIUS

Series/Burial/Skeleton: 101 N16 W28
Observer/Date: 7/8/05 initial 7/14/06 BH

Epiphyseal lines retained on humerus

Porosities/defformities:

Attachment 10b: CHAPTER 2
Indeterminate, Adult
POSTCRANIAL BONES VISUAL RECORDING FORM
FEMUR, TIBIA, FIBULA

Epiphyseal line retained in femur

Series/Burial/Skeleton: 10 N/10 W28
Observer/Date: 7/8/05 initial
7/14/06 BS

Porosity

Lipping

Lip

Large fib. facet

Severe lip

Large facet
Male, 30-45

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: N14W2.8
Observer/Date: 7/11/06 KS & BH

R

L

missing C1-C3

ulna break 1
"butterfly"

ulna break 2, see sheet

ulna break 3
"slow butterfly"

unobliterated epiphyseal
line of prox. medial tibia
### 7.0 VERTEBRAL PATHOLOGY

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Comments: TL has deformed costal notches that exhibit lipping and bony developments as well as circumferential lipping of both the superior and inferior bodies. TL has extensive lipping with cupped spicules on the superior body. This reaction occurs more than 3/4 of TL and is exhibits the same lipping and spicule formation. L3 has less extensive spicule formation.
### 5.0 Fractures

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### 6.0 Porotic Hyperostosis

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Comments:

*Left ulna has complete periostem fracture due to trauma on distal 3 of shaft as well as a complete periostem trauma fracture on the proximal 2 of the shaft. The right ulna also has a complete periostem fracture due to trauma on the distal 3 of the shaft.*
Amato man, 50+ years

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Has hyoid with extra ossification of cricoid cartilage.

Spinal osteoarthritis of cervides; ankylosis of C5–C6

1st rib has inner bony spicule and "crab-claw" ossification.

Manubrium, corpus & xiphoid all unfused

Bilateral sacral & pelvic fusion

Strong linea asperas and rugose gluteal areas

Superior spicule formation

Spicule formation on both calcaneuses

Slight knee degeneration on both sides

His left max. lat. incisor never erupted, adult tooth still in crypt.

CHAPTER 2: Attachment 3a
"Amato Man" Pathology

COMMENTS

Spinal column has arthritis of cervicals and diffuse osteophyte formation of lower lumbar.

Transverse articular facet for C2 exhibits pitting and lipping as well as articular surface. The right transverse processes of C3-C7 display lipping and pitting. C5-C6 have ankylosing on right transverse processes as well as the anterior bodies. Disk space preserved. T3 exhibits lipping of posterior inferior body, extending down on to the costal facet of T4. T5 has osteophyte on the superior body of T6, anteriorly. T10 extends upwards onto T9 on right anterior on superior body.

L2 exhibits osteophyte formation of the left side, extending upwards from the superior body to T9 anteriorly. T10 also extends outwards with osteophytes on left and right side of inferior body.

L3-L5 have ankylosed bilaterally with large areas of steophyte formation obscuring the entire bodies with blastic formations in large clumps resembling candle wax. Dis spacing preserved. The sacroiliac joints have ankylosed with osteophyte bridging visible on the right ilium. L5 had fused through osteophyte formation to the body of the sacrum. Slight osteophyte formation and degradation of the femoral-tibial joint, bilateral ** (maybe)

Spiculated bone formation extending superiorly from patellas. Very minimal bony changes to the costal articulations with the spine.

Skull present and complete. Had all upper incisors, right canine and both right premolars with wear. Mandibular teeth: both canines, right lateral incisor, left P4 and left M1 show wear. Rest of teeth lost with complete or partial bone resorption. Slight speculation or spurring on posterior calcaneus.
Indeterminate sex/age
ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 14 N15 W26
Observer/Date: 7/15/05 initial
7/14/06 BH

- epiphyseal line
- arm partially mummified; wrist flexed
- femoral head has epiphyseal line
- mummified knee; tightly flexed
- fibula not mummified; separate from rest of mummified leg

PV 74-19  2005 FIELD SEASON  AMATO, PERU  CHAPTER 2: Attachment 3a
Indeterminate sex, 29-40

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 18N/5-16W29

Observer/Date: 8/23/05
7/7/06 BH

R

L

epiphysial line retention

manubrium, corpus sterni; xiphoid unfused

only lumbar s & 10 lower thoracics present

L5 has partial spinous process unfused to rest of vert.

missing pisiform, 5th metacarpal, 5th proximal phalanx, 4th interm. phalanx,
1st distal & 3-5th distal phalanges

Lower portion missing; no pelvis or left side
Male, 40-50

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 19 N 16 W 28
Observer/Date: 8/23/05 initial
7/7/06 BH

[Diagram of a skeleton with notes:
- Some arthritic lipping of both ulnae
- Septal aperture
- Missing C1-C3]
Indeterminate, 10-15 yrs

Juvenile Skeleton Visual Recording Form
a. Child Anterior View

Series/Burial/Skeleton: 21 N16 W29
Observer/Date: 8/23/05 initial
7/5/06 8H

- Pelvis fused
- Missing C1-C4
- Cutmarks on C5, see sheet
- Bilateral septal apertures
- Sacrum fused; no coccyx

PV 74-19  2005 Field Season  AMATO, PERU

CHAPTER 2: Attachment 5a
Cu has (4) cutmarks on the right side of the spinous process and onto right side of the body.

Pathology: Cu had failure to form the left lip of the superior vertebral body. Has macroprosopogy in its place.

Indeterminate, 10-15 yrs.
Male, 30-45

**ADULT SKELETON RECORDING FORM: ANTERIOR VIEW**

- **Series/Burial/Skeleton:** 22 JN164 W29
- **Observer/Date/Initials:** 8/22/05, 7/15/06, 8H

**Notes:**
- C6-C7 show arthritis of neck, slipping
- Right clavicle longer than left
- Manubrium & corpus fused & curved; xiphoid not fused
- Pronounced deltoid tuberosities bilateral
- Septal aperture
- Comminuted & complete perimortem parry fracture of ulna
- Rugose linea asperas; left has some bony growth

1st ribs becoming circular in shape at sternal ends. Both had circular, ossified cartilage that was separate & formed a joint with 1st ribs. Costal notches of sternum deformed where 1st ribs attach.

All ribs have crab-claw overgrowth of ossified cartilage.
5.0 FRACTURES

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6.0 POROTIC HYPEROSTOSIS

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Comments:

Left ulna less periosteal fracture on distal 1/3 of shaft that is comminuted and complete and due to trauma.
Male, 35-45

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

C1 & C5 have cut marks; see path

Sheet missing C1-C3

Manubrium, corpus sterni & xiphoid all fused & curved

Pronounced deltoid tuberosity

Septal aperture

Coccyx unfused

Tissue still present on tibia, so no epiphysial lines are evident; patella is mummified to the tibia

Lateral bowing of both fibulae
C4 ventral body

COMMENTS

Male, 35-45 yrs.

C4 has (4) cutmarks. Two are on the right side of the articular facets and (3) are on the ventral surface of C4 body.

C5 has (2) cutmarks on right side of articular facets.
Male, 35-44

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 27 M16 W28

Observ.: Date: 8/22/05 Initial

Rugose & large clavicular tubercles; sternal ends of clavicles are elongated

I missing C3-C4

I missing left foot

No cutmarks or pathology

CHAPTER 2: Attachment 3a
Indeterminate sex, 3-6 mos. ± 2 mos. (from osteometrics)
JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

No cutmarks

Series/Burial/Skeleton: 29 N5-16 W29
Observer/Date: 02/28/05 initial

R

J missing Cr-C4

L

A bifid thoracic body with butterfly centrum
Male, 25-29

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 29 N15-16 W 29
Observer/Date: 6/23/05 initial 7/11/06 BH

- manubrium, corpus sterni & xiphoid unfused
- S1 unfused; all 5 coccygeal elements unfused
- lack of fusion of spinous process to body of L4
- strong muscle attachments to femurs
- missing C1-C2, C3 has cutmarks, see sheet unfused clavicles
COMMENTS

Cutmarks

Male, 35-29 yrs.

C3 has over (9) cutmarks on left dorsal side and (3) deep cutmarks on right dorsal side. All cutmarks are between the articular facets.
Indeterminate Sex, 1-3 yrs.
JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Series/Burial/Skeleton: 331 N106W28
Observer/Date: 8/18/05

R

1 missing C1-C3

L

Deltoid rugosity forming

Severe fracturing of distal 1/3 femur - greenstick perimortem fracture

Blunt force trauma

Greenstick fracture of tibia
5.0 FRACTURES

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6.0 POROTIC HYPEROSTOSIS

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Comments:
The right femur has severe compression fractures on the distal 1/3 of the bone that are parametric and due to blunt round or blunt oval force trauma.
The right tibia has a greenstick fracture covering the proximal 1/3 of the bone due to blunt round or blunt oval force trauma.
The blunt force trauma was caused by a blow to the inside of the right knee at or around the time of death.
Indeterminate, 1-3 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Very fragmented

Series/Burial/Skeleton: 34 N15-16 W30
Observer/Date: 8/22/05 Initial
7/18/06 BH

Sternum in 4 unfused sections

Missing C1-C3

Missing coccyx

Postmortem fractures

PV 74-19  2005 FIELD SEASON  AMATO, PERL

CHAPTER 2: Attachment 5a
Indeterminate sex, 10-13yrs.

JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Bone infection porosity on scapular spines, right ribs, clavicles, linea asperas and macroporosity of ventral sacrum, vertebral bodies.

Series/Burial/Skeleton 35 N15-16 W30
Observer/Date 7/28/05 initial 7/18/06 RH

- missing C1-C2
- deltoid tuberosities on both sides form crests
- bilateral septal apertures

S2-S4 fused; S1 & S5 unfused

A few random tarsals are present
Indeterminate Sex, 5-8 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM

a. CHILD ANTERIOR VIEW

Series/Burial/Skeleton: B61 N15 16W889
Observer/Date: 3/20/96 BH

- Missing C1-C3
- Cy has cut marks on inferior articular surface on right side, one is deep
- 4th right rib has perimortem greenstick fracture on inferior surface
- Ischiopubic ramus fused only on right innominate
- Missing most of right hand

Leg mummified

Foot mummified
Indeterminate Sex, 5-8 yrs.

5.0 FRACTURES

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6.0 POROYTIC HYPEROSTOSIS

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Comments:
The 4th rib on the right has a paramortor greenstick fracture on the distal 3 of rib on the inferior aspect. Cause is ambiguous because there is no other trauma on thorax.

Attachment 25: CHAPTER 10
Indeterminate Sex, 2-4 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

No cut marks
No pathology

Series/Burial/Skeleton: 301 N1576 W29
Observer/Date: 8/28/05 initial
7/18/06 BH

PV 74-19  2005 FIELD SEASON  AMATO, PERU

CHAPTER 2: Attachment 5a
Indeterminate Sex, 12-14 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM

a. CHILD ANTERIOR VIEW

Series/Burial/Skeleton: 37
Observer/Date: 8/17/05 initial

Right foot mummified,
missing calcaneus & talus

bilateral septal apertures -
pelvic elements fused

missing Cl, Cr, C3

no xiphoid

missing C5, see sheet

All vertebral epiphyses fused

Perimortem greenstick fractures to mid radius & ulna

S2-S4 fused
5.0 FRACTURES

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6.0 POROTIC HYPEROSTOSIS

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Comments:
The left radius has a greenstick fracture at midshaft that is periosteum and the result of trauma.
The left ulna has a greenstick fracture on the distal 3 of the shaft that is periosteum and due to trauma.
Indeterminate Sex, 12-14 yrs.

Two deep cutmarks on superior articular surfaces, bilaterally of C5. Three smaller cutmarks on right side between facets.

Attachment 28, CHAPTER 10
Indeterminate sex, 1-2 yrs.

JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Series/Burial/Skeleton 38 N15-16 W30
Observer/Dale 8/21/05 Initial 7/20/06 RH

missing Cl-C4, CS cutmarks, see path sheet

missing most of right hand
cut marks

Indeterminate, 1-3 yrs

Three cut marks on the right side of the spina process. Two deep cut marks on right superior articular facet of C5.
Male, 30-39

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 397 N15-16 W29
Observer/Date: 8/23/05 Initial
7/14/06 BH

Radii have elongated heads and thin notches

Both naviculars have unfused tubercles

Comminuted & complete periartem fracture of ulna

I'm missing C1-C4
5.0 FRACTURES

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Comments:
The left ulna has a comminuted fracture on the
distal 3 of the shaft. The break was complete.
Male, 40-50

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 410 N16 W18
Observer/Date: 7/16/05 initial
7/18/06 RH

- 7 missing C1-C3; C4 cutmark (4 on right side between articular facets)
- Large deltoid tuberosities on both humeri
- Pelvis has some female characteristics: subpubic concavity & elongated pubis
- Perimortem Wna fracture, comminuted & complete
- 3rd prox phalanx has complete perimortem fracture
- Distal femurs have porosity on posterior side & bulbous growth medially

Right elbow mummified at right angle
Septal apertures forming
Punctured cortical, spongy bone showing
Distal radii retain epiphyseal lines
2nd metacarpal perimortem fracture is complete
Strong linea asperas

PV 74-19  2005 FIELD SEASON  AMATO, PERU  CHAPTER 2: Attachment 3a
### 5.0 FRACTURES

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Comments:

*Stabilum comminuted, complete fracture on distal 1/3 of shaft is due to perimortem trauma*
Female, 50-60

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 447 N16 W28
Observer/Date: 8/18/05 initial
7/21/06 BH

manubrium, corpus & xiphoid unfused

left glenoid has slight exaltation - none on humerus

Vert. have porosity; lordosis

L5-T12 ankylosing

Lumbar lipping, porosity & body collapse, see path sheet

Impacted left radius fracture & bone shortened w/ circumferential bulge in bone

Patellar surface of right femur has lateral lipping

Arthritis in both knees; loss of patellar facets, flattened, porous, lipping

Has Lordosis & osteoarthritis

Perimortem sharp force trauma fractures to fibula, tibial distal ends. No trauma on foot.
### PALEOPATHOLOGY RECORDING FORM II
#### VERTEBRAL PATHOLOGY, ARTHRITIS, AND MISCELLANEOUS

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Comments: All vertebrae numbers are pores. All incidents have some degree of imping and severity. T9 has a sharp superior lip over 6% of the surface and porosity of the entire body. T9 and L1 are comparable. L3 has lipping on inferior 5 of the body with osteophytes. L3 also exhibits osteophytes. L4-L5 all have moderate to extensive lipping on both superior and inferior bodies as well as porosity.
Indeterminate, 20-26

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 43 N15-6W29
Observer/Date: 8/23/05 Initial
7/21/06 Review

- Unfused manubrium & corpus - no xiphoid
- No lumbar vert
- Missing C1-C3
- Cutmarks on C4 under left superior articular facet (2)
- Sterebral 1 is fused to the rest of the corpus sterni

Aging:
- Sternum 15-20
- Ribs 20-23
- Clavicles Fused
Female, 40-60

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton: 45 N16 W28
Observer/Date: 8/15/05 Initial
7/2/06 BH

- Missing C1-C4; C5 has cut marks, see path sheet
- Manubrium; corpus fused; no xiphoid
- Deltoid tuberosities
- No vert. path. or lipping
- Very porous left sacroiliac joint, may have made auricular surface look older?

Aging:
Pubic symphysis: 42-47
Auricular: 60+

MANLIKE CURVED SACRUM; SI retains open line
cutmarks

Female, 40-60 yrs.

2 adjacent (3) cutmarks on left between the articular facets. Has (3) cutmarks on the right side that are deeper between the articular facets.
Male, 40-50 ROBUST

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skeleton 47 N16 W28
Observer/Date 8/22/05 initial 7/21/06 BH

- Elongated corpus sterni and fused to xiphoid that is bifurcated. Not fused to manubrium.
- Elbow arthritis in lipping of inside of trochlear notch.
- Elongated sacrum
- Rugose linea asperas
- Lateral lipping of patellar surface of both femurs
- Ster nal ends of clavicle large & costal tuberosity is huge & pointed
- Lumbar lipping, see path sheet
- Large interosseous crests
### PALEOPATHOLOGY RECORDING FORM I

**Vertebral Pathology, Arthritis, and Miscellaneous**

<table>
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<tr>
<th>Site Name/Number</th>
<th>Observer</th>
<th>Feature/Burial Number</th>
<th>Date</th>
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**Burial/Skeleton Number:** Female, 40-50 yrs

**Location of Collection:**

### 7.0 Vertebral Pathology

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### 8.0 Arthritis

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**Comments:** Osteoarthritis of lower back evident in lipping and spicule formation of all 5 lumbar vertebrae. Pinpoint porosity of bodies is both micro- and macro-porous. The cervicals have some minor porosity. Osteoarthritis assumption is consistent with arthritis also found of elbows and possibly the knees as evidenced by the lipping of the patellar surface of the femur.
Indeterminate Sex, 6-8 yrs.
JUVENILE SKELETON VISUAL RECORDING FORM
a. CHILD ANTERIOR VIEW

Diffuse periostitis
vertebral pathology

Series/Burial/Skeleton 901N14 W28
Observer/Date 7/20/06 RH

periostial reaction of
scapular spines

missing C1-C2
cutmarks on C3-C4. Three on C3 and one on C4 on left side between articular facets

T5 bifid:
sagittal cleft

bilateral large septal
apertures

] periostitis;
porous reaction on both prox. femurs

PV 74-19 2005 FIELD SEASON AMATO, PERU

CHAPTER 2: Attachment 5a
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PALEOPATHOLOGY RECORDING FORM I
SHAPE, SIZE, BONE LOSS, FORMATION, FRACTURES, AND POROTIC HYPEROSTOSIS

Site Name/Number ___________________________ Observer BH ___________________________
Feature/Burial Number 107  NY  W28 Date 7/20/06
Burial/Skeleton Number Infragluteal sex, 6-8 yrs
Present Location of Collection ___________________________

1.0 SHAPE
Bone___ Bone___ Bone___ Bone___ Bone___ Bone___
Side___ Side___ Side___ Side___ Side___ Side___
Bone___ Bone___ Bone___ Bone___ Bone___ Bone___
Side___ Side___ Side___ Side___ Side___ Side___
Obs1___ Obs1___ Obs1___ Obs1___ Obs1___ Obs1___
Obs2___ Obs2___ Obs2___ Obs2___ Obs2___ Obs2___

2.0 SIZE
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Side___ Side___ Side___ Side___ Side___ Side___
Obs___ Obs___ Obs___ Obs___ Obs___ Obs___

3.0 BONE LOSS
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Obs4___ Obs4___ Obs4___ Obs4___ Obs4___ Obs4___
Obs5___ Obs5___ Obs5___ Obs5___ Obs5___ Obs5___
Obs6___ Obs6___ Obs6___ Obs6___ Obs6___ Obs6___
Obs7___ Obs7___ Obs7___ Obs7___ Obs7___ Obs7___
Obs8___ Obs8___ Obs8___ Obs8___ Obs8___ Obs8___

Comments: Periosteal reaction on both scapular spines and
proximal femurs as evidenced by increased porosity.
Individual also has a bifid T5 that has a sagittal cleft.
Female, 60+

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Burial/Skleton: 91 N14W88

Observer Date: 7/24/06 RH

R L

ostitis porosity anteriomedial

11 thoracics, T1-T11

4 Lumbers, L1-L4

double dorsum process on median crest of sacrum
Female, 35-45

**ADULT SKELETON RECORDING FORM: ANTERIOR VIEW**

Series/Burial/Skeleton: 1927 N14W28
Observer/Date: 7/25/86 BH

- missing C1-C5; C6 has a cutmark on the left articular facet
- attachment site for pectoralis muscle on clavicle is huge on left side only
- 13 Thoracics
- 4 Lumbar, L1-L4
- S1-S2 line open

Only wrist present on right side
Female, 30-45

ADULT SKELETON RECORDING FORM: ANTERIOR VIEW

Series/Strain/Skeleton: 937_N14_W38
Observer/Date: 7_Feb_2007_BH

pelvis fragmented

osteoitis of tibia, advanced cloaca forming:
Infection covers anterior surface & wraps around to posterior surface of distal half of the tibia.

periostitis of fibula

navicular is the only foot bone for left foot present.