

2014

Early Horizon Defensive Structures and the Role of Warfare in the Lower Nepeña Valley, Peru

James Steven Treloar

Louisiana State University and Agricultural and Mechanical College, jtrelo1@tigers.lsu.edu

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_theses



Part of the [Social and Behavioral Sciences Commons](#)

Recommended Citation

Treloar, James Steven, "Early Horizon Defensive Structures and the Role of Warfare in the Lower Nepeña Valley, Peru" (2014). *LSU Master's Theses*. 1354.

https://digitalcommons.lsu.edu/gradschool_theses/1354

This Thesis is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Master's Theses by an authorized graduate school editor of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.

EARLY HORIZON DEFENSIVE STRUCTURES AND THE ROLE OF WARFARE IN THE
LOWER NEPEÑA VALLEY, PERU

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Geography and Anthropology

by

James Steven Treloar

B.A., Kansas State University, Manhattan, 2012

December 2014

ACKNOWLEDGEMENTS

First and foremost, I want to thank my wife, Tiffany, who has served as my beacon throughout the years. She has always been quick to encourage me during my darkest moments, and never has she protested my academic pursuits. I thank Dr. Chicoine who has constantly provided me with the insight and the wisdom necessary to ensure my success. Moreover, this thesis has truly been enriched by the guidance of my committee members, Dr's. Heather McKillop, and Kent Mathewson.

I am grateful to LSU for providing me with the West-Russell Travel Grant. To the Solari family, our host family in Peru, I want to extend a sincere and heartfelt thank you. Their sincerity, warmth, and concern for our well-being is a rarity the world over. In addition, I want to thank Kimberly Munro for helping me with this research. Her thorough knowledge of GIS applications and her help during my survey of Caylán, Samanco, and Huambacho proved to be invaluable. I am likewise indebted to Karina Tahu Espinoza who, not only assisted the survey, but taught me how to better my drawing technique as well.

My decision to study the subject of warfare amongst early complex societies is due in part to suggestions made by Dr. Chicoine, and also due to my military experience. As a result, I want to thank my brothers-in-arms who I have served with over the years. These include the Marines of Kilo Company, 3rd Battalion, 6th Marine Regiment, and the Soldiers of "Bandido" Charlie Company, 1st Battalion, 16th Infantry Regiment. The bonds we forged as a result of arduous times overseas has served as a constant inspiration during the writing of this thesis.

Finally, to my mother Lisa Simoneaux, my father Jim Treloar, and my brothers and sisters, thank you for your love and encouragement. In this day and age, a good family support network can be hard to come by. I believe this thesis is a testament to such support.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	v
ABSTRACT.....	vi
CHAPTER 1: INTRODUCTION.....	1
1.1 THE NEPEÑA VALLEY.....	4
1.2 SITES SURVEYED IN THE LOWER VALLEY.....	5
1.3 ORGANIZATION OF THE THESIS.....	13
CHAPTER 2: THEORETICAL BACKGROUND: THE ANTHROPOLOGY AND ARCHAEOLOGY OF WARFARE.....	14
2.1 THE ARCHAEOLOGY OF WARFARE: MATERIALIZATION AND ORGANIZATIONAL VARIABILITY.....	17
2.2 THE ARCHAEOLOGICAL VISIBILITY OF DEFENSIVE ARCHITECTURES.....	27
2.3 RITUAL VERSUS TRUE WARFARE.....	33
2.4 EXAMPLES OF THE VARIABILITY OF RITUAL IN WARFARE.....	35
2.5 BEYOND THE DICHOTOMY OF WARFARE.....	38
CHAPTER 3: A CHRONOLOGY OF WARFARE IN ANCIENT PERU AND THE NEPEÑA VALLEY.....	40
3.1 THE INITIAL PERIOD.....	41
3.2 THE EARLY HORIZON.....	42
3.3 THE EARLY INTERMEDIATE PERIOD.....	47
3.4 THE MIDDLE HORIZON.....	49
3.5 THE LATE INTERMEDIATE PERIOD.....	50
3.6 THE LATE HORIZON.....	50
CHAPTER 4: METHODOLOGY.....	52
4.1 ANALYSIS THROUGH GEOGRAPHIC INFORMATION SYSTEM APPLICATIONS.....	52
4.2 CAYLÁN (PV31-30) SURVEY AREA.....	54
4.3 HUAMBACHO (PV31-103) SURVEY AREA.....	62
4.4 SAMANCO (PV31-4) SURVEY AREA.....	64
4.5 LOWER VALLEY SITES NOT INCLUDED IN SURVEY.....	66
CHAPTER 5: GEOSPATIAL INTERVISIBILITY.....	68
5.1 VIEWSHED ANALYSIS OF CAYLÁN LOOKOUTS.....	69
5.2 VIEWSHED ANALYSIS OF HUAMBACHO.....	71
5.3 VIEWSHED ANALYSIS OF SAMANCO.....	72

CHAPTER 6: DISCUSSION.....	73
6.1 SCALE AND INTENSITY OF CONFLICT.....	74
6.2 POLITICAL INTEGRATION AND ORIGIN OF THREATS.....	76
6.3 COMPARATIVE PERSPECTIVES: THE NATURE OF WARFARE.....	79
6.4 REFLECTIONS ON THE BROADER IMPORTANCE OF WARFARE IN THE STUDY OF COMPLEX SOCIETIES.....	84
6.5 FUTURE AVENUES OF RESEARCH.....	85
REFERENCES.....	90
APPENDIX: MAPS AND FIGURES.....	106
VITA.....	144

LIST OF TABLES

Table 1. Carbon dating for Early Horizon sites in the Nepeña and Casma valleys.....	7
Table 2. Idealized scheme of societies and fortification patterns.....	19
Table 3. Chronology of the central Andes.....	40

ABSTRACT

In this thesis I examine the presence and distribution of defensive structures in Nepeña, Ancash, Peru, during the Early Horizon (ca. 900-200 B.C.). Data are gathered from pedestrian surveys, GPS coordinates, drawings, and photographs. I analyze architectural and spatial data using Geographic Information Systems (GIS) tools. I integrate these methods to investigate the organization and distribution of defensive structures in the lower Nepeña, in particular at the archaeological complexes of Caylán, Samanco, and Huambacho. Caylán is a multi-component archaeological complex with a major Early Horizon occupation, and serves as the primary site while the others are used to draw a comparative analysis. Questions I attempt to answer include: (1) What form of warfare occurred in the Nepeña Valley during the Early Horizon? (2) Were the sites of Caylán, Samanco, and Huambacho consolidated communities? (3) What were the implications and origins of conflicts? I endeavor to answer these questions by delineating fortification strategies including the direction of enemy approach, size and strength of defending and opposing forces, and the scale of conflict. Data were obtained from a survey conducted between June 27th, and July 25th, 2013. The project benefits from the financial support of the West-Russell Travel grant, provided by Louisiana State University, and the Louisiana Board of Regents (PI: David Chicoine).

Results of systematic surface surveys and excavations at the aforementioned sites indicate the increased importance of armed conflicts and intercommunity violence, mostly during the second half of the first millennium BC. Although warfare is likely to have played a major role in shaping local sociopolitical and ritual landscapes, spatial and architectural data have yet to be systematically collected and analyzed. Ancient conflicts are materialized in the presence of fortified walls, observation posts, and hilltop forts. The formal and spatial characteristics of these features are described to shed light on the presence of defensive architecture.

CHAPTER 1: INTRODUCTION

Coastal Peru has been identified in a primary case study of warfare as a mechanism for the formation and evolution of state societies (Carneiro 1970). On the coast of Peru, the Early Horizon (900-200 B.C.) provides the first example of systematic, institutionalized warfare in the Andes. This form of warfare consists of large-scale, permanent engagements that occurred between groups, and are made evident through the presence of permanent defensive structures. The north-central coast in particular exhibits fortification strategies and settlement shifts which suggest that warfare played an integral role in the development of complex societies, specifically during the Early Horizon (Brown Vega 2008:28; Daggett 1987:70; Pozorski and Pozorski 1987).

Warfare as inter-personal violence is axiomatic; however, the presence of institutionalized warfare suggests large-scale social change (Vandkilde 2006:393). The impetus of institutionalized warfare on the north-central coast remains ambiguous, yet one likely factor may have been the intensification of agrarian practices, particularly the introduction of maize. The implementation of maize farming likely placed strains on the management of land. Moreover, the sharing of water through irrigation would have exacerbated tensions as well. Other potential motives to consider are extensive trade interactions, or perhaps ritual practices that could likewise give rise to institutionalized warfare.

In contrast, this thesis does not focus so much on the causes of fighting, rather it informs on the organization of defensive strategies at the settlement level. In the context of institutionalized warfare in the Nepeña Valley, these strategies rise to extraordinary levels that are visible in the construction of fortified structures. These features include fortresses, refuges, ditches, defensive walls, parapets, and lookouts.

The lower Nepeña Valley is a region that saw the development of a centralized multi-tiered polity during the second half of the Early Horizon (roughly 450-150 B.C.) (Chicoine 2006; Chicoine and Ikehara 2010). The nature of warfare, and how it relates to changes in sociopolitical composition in this region, is debated. In this thesis, I focus on the defensive strategies at three archaeological sites in the lower valley in order to illuminate the implications of Early Horizon warfare. In this thesis, I focus on the defensive strategies at three archaeological sites in the lower Nepeña Valley in order to illuminate the implications of Early Horizon warfare: Caylan, Samanco, and Huambacho.

Previous analysis of ceramics and architecture indicate analogous stylistic trends, suggesting the existence of a peer network within the lower valley (Chicoine 2006; Chicoine and Ikehara 2010). All three sites were constructed and occupied over a relatively similar time span during the Early Horizon. Other contemporary sites are known to have existed in the lower valley such as Sute Bajo, Pañamarca, and Cerro Blanco. These sites were not considered for survey due to their lack of identifiable defensive structures such as walls, parapets, or naturally defensive geographic features. In addition, the location of these sites along the valley floor leaves them in untenable positions.

One concern addressed in this thesis is the form, scale, and intensity of warfare during the Early Horizon. Warfare is scalar, and contrasts in size and intensity depending upon multiple variables which may include raiding for slaves or the conquest for territory. Other variations of warfare to consider are its ritualistic implications versus what may be referred to as true or actual warfare (Brown Vega 2008).

The next issue I address is the potential implication of community consolidation as a result of the presence of defensive structures at Caylán, Samanco, and Huambacho. Was there an overarching defense network in place that would suggest the presence of a common enemy? The composition of fortification strategies at each site possess the potential to inform on the manner of interaction between Early Horizon communities. Furthermore, a juxtapositioning of site defense with previous analysis (Chicoine et al. 2014; McNabb 2013) may likewise inform on site interaction, and emphasis on protecting specific interests.

Finally, what were the implications and origins of conflicts? Did conflict occur as a result of ritual warfare which has been proposed for the site of Chankillo in the neighboring Casma Valley? Or, were fortifications in place to ward off raiding parties who sought to plunder items such as trade and agricultural goods, or perhaps individuals? Origins of threats to the sites in the Nepeña Valley have only been speculated (i.e., Wilson 1988, Daggett 1984, 1987). As a result I apply various Geographic Information Systems (GIS) analyses to determine a potential origin of enemy threat for the sites of Caylán, Samanco, and Huambacho.

Heretofore, the application of GIS analyses to fortified archaeological sites in the Nepeña Valley have been restricted to documenting the sites and the various elements therein; to include artifacts and architectural features. While these GIS applications include the documentation of defensive structures and features (i.e., parapets, bastions, baffled gateways), no attempt has been made to confirm the orientation of these features through analyses such as viewshed or line of sight. Recently, similar research was conducted to test the visibility of monuments within the Nepeña Valley in order to determine how ritual structures shaped the cohesiveness of communities through visual experiences (Chicoine et al. 2013).

In sum, this thesis combines the data accumulated during the 2013 survey with an analysis of visibility patterns associated with defensive structures at Caylán, Samanco, and Huambacho. As a result, I identify areas within the lower valley that occupants may have found pertinent to defend. In doing so, defensive methods, such as the monitoring of and reacting to enemy threats, as well as threat origins are postulated.

1.1 THE NEPEÑA VALLEY

The Nepeña Valley lies 393 km to the north of Lima, the modern-day capital of Peru. It is one of six valleys, including Lacramarca, Casma, Seco, Huarney and Culebras found on the north-central coast (Willey 1953). At its maximum breadth, the Nepeña Valley is approximately 8 km wide with a length of 74 km, and running northeast to southwest. The Nepeña River originates in the Laguna Chupicocha, located in the Cordillera Negra, and flows to its terminus in the Pacific Ocean (ONERN 1972). The mid-to-lower valley consists of steep hills on either side, which are typically separated by *quebradas* or open pampa.

Postulations on early state development in the Nepeña, as in other valleys along the north-central coast, are varied and continue to evolve as more research is conducted (Daggett 1987; Pozorski and Pozorski 1987; Rowe 1963; Schaedel 1978; Topic and Topic 1987). Initially, Tello (1943), as a result of excavations at Cerro Blanco and Punkurí, proclaimed that the artifacts associated with these two sites provided proof of the radiation of Chavín culture to the coast (Tello 1943:136). Subsequent research at Cerro Blanco and Punkurí lead to the allegation that these sites predated Chavín, and were perhaps part of the Cupisnique culture which might have actually influenced the development of Chavín (Daggett 1987; Larco 1963:149; Shibata 2004). Yet another argument posits that settlements on the north-central coast developed completely independently from the Chavín influence (Burger 1993; Chicoine 2006).

What is clear is that the transition from the Initial Period (1800-900 B.C.) to the Early Horizon is marked by sociopolitical unrest and turmoil on the coast (Burger 1992:184). Settlements in the Nepeña and Casma valleys shift from U-shaped mound structures to wall enclosed compound residential structures in the valley margins (Chicoine 2010:194-195; Daggett 1987; Pozorski and Pozorski 1987). The source of this crisis, and subsequent shifts in settlement patterning, is the subject of continuing research and will be discussed further in Chapter 3. In response to inquiries regarding the type, size, and origin of warfare in the lower Nepeña Valley, my research illuminates such queries by interpreting the implications of the defensive features. By applying analyses to these structures and comparing my findings with previous research, I endeavor to further our understanding of the turbulent sociopolitical climate of this region during the Early Horizon.

1.2 SITES SURVEYED IN THE LOWER VALLEY

As I indicate in the introduction, the sites of Caylán, Samanco, and Huambacho were selected for analysis due to their similarities in ceramic assemblages, architecture, and the presence of fortifications which tie them to the local Nepeña (900-450 B.C.) and Samanco (450-150 B.C.) phases of the Early Horizon (See Appendix, a1, pg. 106). Ceramic assemblages include stamped circle-and-dot patterning, neckless jars (*ollas*), ceramic discs, and ceramic panpipes (Chicoine 2006; Chicoine et al. 2014). Architectural similarities between the three sites are described by Helmer and colleagues (2013) as being a prominent form of Early Horizon communal construction which utilizes stone wall enclosure compounds. Moreover, enclosed compounds are found elsewhere on the North-Central coast to include the Casma (Ghezzi 2006; Pozorski and Pozorski 1987), Santa (Wilson 1988), Virú (Collier 1955), Moche (Billman 1996), and Jequetepeque (Warner 2010) valleys. These enclosed structures consist of rectangular

configurations which varied in dimension, and composed of locally quarried rocks set in mud mortar (Helmer et al. 2013:90). Structure walls were erected using the orthostatic technique which involves the use of vertical stone slabs, or orthostats, to form the base of a structure (Chicoine 2006; Fleming et al. 1998:416). Chicoine (2006:8) describes this technique at Huambacho stating “stone slabs (up to ca. 80 cm long) were set vertically in the ground, with their lower sections buried, in order to create a chamber. Slabs were held together by mud mortar and the chamber was filled with smaller stones and rubble. Subsequent layers of flat, quarried stone and mud mortar were then placed horizontally on top of the orthostats.” There is also a reliance upon the use of plaza space for various functions which included ritual ceremony, public gathering, and domestic use (Chicoine et al. 2014). Further supports the ceremonial use of these monumental spaces is the geometric clay reliefs that adorn many of them. Structural and iconographic forms reflect an overall abandonment of the earlier Initial Period (1800-900 B.C.) architectural canons (Chicoine 2006). This abandonment includes a shift from the use of the aforementioned U-shaped ritual mound structures, and the discontinuation of feline and supernatural iconography (Shibata 2010).

The fortifications associated with Caylán, Samanco, and Huambacho include walls, parapets, and lookouts which will be defined in Chapter 4. The presence and distribution of fortified structures vary at each site. Distribution of these features can be used as a proxy for the origin of enemy threat and emphasis on protecting certain interests (i.e., protecting people versus protecting goods). Additionally, the orientation of the defensive features at each site hints at a coordinated defense network whereby each site defended against a common enemy.

Furthermore, radiocarbon dating from Caylán and Huambacho indicates that these sites were constructed and occupied during roughly the same time frame. These dates correspond with those of other Early Horizon sites within the Casma Valley including Pampa Rosario, San Diego, and Chankillo (Pozorski and Pozorski 1987b:17) (Table 1). At present there are no ¹⁴C dates for Samanco. Therefore, I draw on stylistic continuities between it, Caylán, and Huambacho.

The local chronology for this occupation is referred to as the Nepeña and Samanco phases as proposed by Shibata (2010, 2011). As a result of excavations at Cerro Blanco and Huaca Partida, Shibata has implemented a local chronology consisting of four phases: (1) Huambocayán (1500-1200 cal B.C.), (2) Cerro Blanco (1200-800 cal B.C.), (3) Nepeña (800-450 cal B.C.), and (4) Samanco (450-150 cal B.C.).

Table 1. Carbon dating for Early Horizon sites in the Nepeña and Casma valleys (Chicoine 2006; Chicoine and Ikehara 2011; Pozorski and Pozorski 1987) (credit: Steve Treloar).

Site	Radiocarbon Years B.P.	Calendar Age	Location
Caylán	2480 ± 40 to 2090 ± 40	800-100 B.C.	Nepeña
Huambacho	2490 ± 70 to 2250 ± 40	800-200 B.C.	Nepeña
Pampa Rosario	2760 ± 75 to 2400 ± 70	750-400 B.C.	Casma
San Diego	2510 ± 115 to 2245 ± 60	750-400 B.C.	Casma
Chankillo	2292 ± 80 to 2070 ± 100	342-120 B.C.	Casma

1.2.1 Caylán

Caylán (800-1 cal B.C.) is named after the adjacent eponymous lagoon, and is located approximately 15 km inland from the Pacific coast. It is strategically nestled between the hills of Cerro Caylán, Cerro Pan de Azúcar, and Cerro Cabeza de León (See Appendix, a2, pg. 107). The urban core of Caylán spans 50 ha with a total of ~80 ha. The architecture of the urban core consists of residential compounds situated around benched plazas, colonnaded patios, and low mounds which are dispersed throughout the site (Chicoine and Ikehara 2011; Chicoine et al. 2014). Directly to the south of the stone and mortar structures lies residential structures composed mostly of adobe brick and reeds attesting to the presence of lower status residents. The area of archaeological protection delimited for Caylán encompasses ~200 ha. Daggett (1987:74) describes the site as expanding over roughly half a square kilometer, and comprising of three main features. The first is Cerro Cabeza de León which possess a *pukara* (Brown Vega 2008), or hilltop fortified structure which is situated at the southwestern portion of the site overlooking the valley to the south, and the main complex to the northeast. Second is the residential complex consisting of hundreds of stone-and-mud structures. Last is Cerro Pan de Azúcar which is a large hill to the northeast of the main complex, and is encircled by a series of walls with a large platform structure on its summit.

Excavations were conducted at Caylán during 2009 and 2010 (Chicoine and Ikehara 2009, 2011). Spatial and material evidence indicates that the site was an urban-like complex where co-resident groups erected elaborate elite compounds (Chicoine and Ikehara 2014). Caylán contains 15 plazas with an average surface area of between 471 and 3564 m². Many of them possess colonnades, benches, and geometric sculpted clay friezes which utilize light and shadow effects

(Helmer et al. 2013). Each plaza is associated with a residential compound and varies in size depending on the sociopolitical influence of the elite residing there (Chicoine et al. 2014:12).

Chicoine and Ikehara (2014) suggest that the sociopolitical configuration at Caylán included a community with centralized leadership that coordinated the construction of features such as streets, canals, fields, and fortifications. Furthermore, in order to maintain this communal organization, emphasis was placed on the hosting of public events in. Caylán is also the largest settlement in the lower valley with the greatest concentration of defensive structures.

In addition to the defensive features encountered during the 2013 survey, artifacts that may attest to militarism at Caylán include ground slate blades (See Appendix, a3, pg. 108), mace heads, and cores found in a structure designated ‘Plaza A’ (Chicoine and Ikehara 2010; Daggett 1984). The plaza is approximately 45 x 45 m, and is located in the southeastern portion of the residential core. According to Helmer and colleagues (2013), it is one of the larger known plazas at Caylán. Moreover, excavations there provided significant data regarding the civic landscape at the site. Weapons unearthed at Plaza A were found in association with other objects, such as stone pendants, colored clothing, and decorated vessels which suggests that these artifacts might have been used as “display items” which could have added to the ceremonial experience encountered at Caylán (Helmer et al. 2013: 100-103). The artifact assemblage at Plaza A is significant in denoting the multivocality of events taking place at Caylán (Chicoine et al. 2014).

1.2.2 Huambacho

Huambacho (600-200 B.C.) is located on the southern margin of the Nepeña Valley. The elite center (Chicoine 2006) sits relatively undefended on the valley floor. Its composition is similar to Caylán with its wall enclosed compound consisting of several bench-lined plazas, colonnaded patios, and raised platforms (Chicoine 2011: 438). The Main Compound at

Huambacho compound covers 8 ha. The site also possesses a second compound to the southeast, the North Compound, which has recently been destroyed due to agricultural encroachment (Chicoine 2006: 5). Taken together, both compounds at Huambacho constitute an area of ~12 ha. Cerro Popo is a small hill associated with Huambacho that stands at ~200 masl, and lies adjacent to the west of the core complex (See Appendix, a4, pg.109).

Initially, Chicoine (2006, 2010) conducted excavations at Huambacho in 2003-2004 whereupon he identified the site as being an elite complex. His data have revealed Huambacho to be a locale for elaborate feasting and ceremony whereby elites would gather from surrounding areas in order to promote community identity while maintaining inequality through ritual practice (Chicoine 2011:432). The site was primarily occupied during the Early Horizon with successive reoccupations indicated by the presence of multiple intrusive burials (Chicoine 2006:6). The main compound consists of colonnaded patios, plazas replete with decorative friezes, serving vessels, non-ceramic artifacts (i.e., Spondylus shell beads), and food refuse (Chicoine 2011). Chicoine (2006:7) describes the presence of war club heads (See Appendix, a5, pg. 110) (Chicoine 2006:7). The plaza spaces at Huambacho mirrored those at Caylán; however, on a smaller scale. The activities here are argued to have consisted of integrative events for small groups with exclusive feasting conducted in adjacent halls (Chicoine 2011; Chicoine et al. 2014). An overall lack of items such as sleeping quarters and food preparation areas suggests that Huambacho was not a residential complex (Chicoine 2006:9).

There is little evidence at Huambacho to suggest that it was a heavily fortified site. Atop Cerro Popo sits a rectangular structure which has since been built upon to facilitate a platform holding a cross used for Christian ceremony. A large 2 m-high wall, much like walls found at Caylán and Samanco, encircles the lower portion of Cerro Popo. An alternative interpretation,

discussed in Chapter 6, is that the structure atop Cerro Popo, and the large wall associated with it, might have functioned as a refuge. Even though this may not be a fortified site, it may have served in a ritual capacity; thus, making it a possible target which would necessitate some form of defensive feature capable of deterring an enemy from defacing the ritual edifice (Arkush and Stanish 2005:11).

1.2.3 Samanco

The Early Horizon coastal center of Samanco (~800-1 cal B.C.) is a residential site which consists of stone and mud mortar structures situated on the northern margin of the valley (See Appendix, a6, pg. 111) (Chicoine 2006:5; Daggett 1984:213-218). Samanco was occupied until the end of the first millennium B.C. when it was abandoned. The site was not reoccupied until the Late Intermediate Period sometime after A.D. 800 when it was used as a cemetery. The archaeological complex encompasses 36 ha with a 20ha residential core. Daggett (1984:434) states that Caylán and Samanco exhibit analogous settlement patterns and chronologies. Like Caylán and Huambacho, Samanco possesses several enclosed compound areas (n=6), with hundreds of angulated rooms consisting of plazas and colonnaded patios (Chicoine et al. 2014:14). Compounds 1, 2, 3, 5, and 6 are constructed with locally quarried stones set in mud mortar while Compound 4 is built with adobe brick and canes similar to the lower status residents at Caylán (Helmer 2014: personal communication).

Several aspects are contrasted Samanco with Caylán and Huambacho (Chicoine et al. 2014). Samanco utilizes extensive terracing that extends into the hillside. These terraces are generally separated by 25 m intervals between higher and lower structures. Plaza Mayor is Samanco's singular major plaza encompassing ~50 by ~30 m. Unlike the plazas at Caylán and Huambacho, Plaza Mayor appears to lack representational art such as the geometrically sculpted

clay friezes (Chicoine et al. 2014). Lack of art does not indicate a lack of ritual significance. Excavations at Plaza Mayor revealed several artifacts which attest to its multivocality as well as to the site's continuity with Caylán and Huambacho. Among the artifacts recovered were pan pipes, spindle whorls, textiles, and ceramics decorated with stamped circle-and-dot, and local zoned punctate and textile impressed designs (Chicoine et al. 2014). These findings attest to a domestic and ritual use of plaza space. In addition, Samanco facilitated elaborate festivities which served to solidify, validate, and maintain political administration and alliance with other groups (Navarro 2013). Due to the profusion of mollusk remains and fish bones, Samanco has been identified as a settlement of which exploitation of marine resources served as the primary economic function of this site (Navarro 2013). Helmer (2014: personal communication) has interpreted Samanco as possessing a communal identity that centered around the trade of maritime and exotic goods with inland peer polities such as that at Caylán.

Fortifications at Samanco include several walls that occupy hilltops and ridgelines of Cerro Botella to the north, and Cerro Partido to the east. Approximately 520 m to the west of the core complex at Samanco lies a hilltop fortified structure. Helmer (2014: personal communication) has also documented what appears to be a defensive wall which extends the southern length of the site from compound 1 to compound 6. Weaponry such as slate points and obsidian blades have been found (See Appendix, a7, pg. 112) (Helmer 2014: personal communication). The presence of these artifacts in conjunction with the distribution of defensive features such as ridgetop walls to the east, and a fortified hilltop structure to the west of the residential core, imply a concern with defense. The implications of these different security measures are highlighted further in Chapter 6.

Previous research has produced strong evidence which supports the existence of a peer network between Caylán, Samanco, and Huambacho (Chicoine 2006; Chicoine et al. 2014; Daggett 1984). These observations, in conjunction with the current survey, suggest a level of community alliance whereby a potential communal defense system could be implemented for stronger protection against a common enemy (Haas 2007:339). Due to the presence of warfare, communities not only develop defensive systems, they also increase in collaboration and exchange.

1.3 ORGANIZATION OF THE THESIS

Up to this point, I have described the sites of Caylán, Samanco, and Huambacho. I have highlighted the stylistic trends which connect them and anchor them firmly within the Early Horizon. In the proceeding chapters I provide a theoretical background by highlighting warfare as interpreted archaeologically and anthropologically. I describe the materialization and organizational variability of warfare as it applies to multiple cultures at various stages of sociopolitical complexity throughout the world. I apply these interpretations to the state of warfare in Peru during the Early Horizon. These interpretations are then applied to the lower Nepeña Valley during this period. I discuss the research methods and results from the 2013 survey of Caylán, Samanco, and Huambacho. I interpret these results while highlighting the implications of the sociopolitical situation in the lower valley for the anthropological and archaeological study of warfare in complex societies. Finally, I consider future applications of research that might serve to enhance our understanding of Early Horizon warfare in the Nepeña Valley.

CHAPTER 2: THEORETICAL BACKGROUND: THE ANTHROPOLOGY AND ARCHAEOLOGY OF WARFARE

Warfare has a multitude of alternative definitions. Ferguson (1984:5) defines warfare as the collective action of one group against another which may or may not be similarly organized. The resulting conflict between two groups is marked by the actual or potential use of deadly force. Keeley (1996: x) gives a broader definition indicating that warfare is simply “armed conflict between societies.” Countering Keeley’s definition is the argument that combat may have occurred in pre-industrialized societies without the consensus of the society as a whole, and as a result would have given rise to warfare as a conflict between “members of different territorial units” (Ember and Ember 1992:248). Otterbein (1970:3) categorizes warfare by stating that conflict which occurs within communities of the same culture is referred to as “internal war.” Correspondingly, conflicts which take place between communities of differing cultures are considered to be “external war.”

Anthropologists agree that warfare is deeply rooted in the sociopolitical development of a culture (Allen and Arkush 2006; Snyder 2002). Alternatively stated, warfare acts as a primary mover in the production of culture throughout the world (Lau 2004:163). It has even been argued that warfare might be a catalyst for cultural evolution (Chagnon 1988:985). However, due to the sporadic intermingling of conflict and peace, scholars suggest that warfare is not an inherent part of human nature (Arkush 2011:5; Grossman 1995). Lau (2004:163) observes that “Organizing the practice of violence, armed conflict, and the taking of human life for whatever purpose transcends everyday modes of social interaction and expectations, even for societies in which such practices are quite normal, naturalized, or requisite.”

Still, it is evident through ethnography that warfare and internal/external violence is present in all types of societies (Ember and Ember 1992:242). This approach is inadequate when considering a protracted timeframe for organized conflict. Anthropologists typically study more recent occurrences of warfare. Thus, archaeological interpretations of warfare in a prehistoric context are required (Haas 2007:330). Moreover, ethnographies can only serve to support speculative scenarios not concrete observations. In relation to the archaeological record they are, as Wobst (1978) argues, untestable hypotheses.

Archaeologists are no longer asking if war existed, but when it originated (Ferguson 2006: 469). According to some scholars, warfare began to develop during the Neolithic Period (Cioffi-Revilla 1996; Haas 2007; Keeley 1996). Consequently, we are unable to know whether or not all societies were the result, to some extent, of conflict (Arkush and Stanish 2005: 3). Yet, its presence in the archaeological record yields a wealth of knowledge which aids in understanding sociopolitical development through time and space (Flannery 1972). In short, the study of warfare in archaeology provides scholars with a “depth”, or diachronic approach, to understanding its materialization and implications for the onset of sociopolitical complexity (LeBlanc 2007:13). War has operated as an influential element in the sociocultural development of political landscapes in multiple regions across the globe (Allen and Arkush 2006; Carneiro 1970; Daggett 1987; Haas 2007; Keeley 1996; Lambert 2002; Thorpe 2003).

Haas (2007) provides a timeline for the appearance of warfare within various world regions. He states that the earliest evidence of violence can be traced back approximately 30,000 to 20,000 years ago in Paleolithic Europe and Egypt. Furthermore, violence appeared alternately in the Paleoindian period 12,000 to 7,000 years ago. Correspondingly, limited occurrences of what scholars might refer to as warfare are found in the Mesolithic rock art of Europe and

Australia (20,000-10,000 B.C.), and a cemetery at the site of Gebel Sahaba, Egypt (12,000-10,000 B.C.), which exhibits repeated use for remains which display wounds sustained in conflict. Lastly, Haas (2007:333) describes the emergence of conflict (8,000-2,000 B.C.) in the Eastern Woodlands and West Coast of North America. Similar events occurred at sites located on the Peruvian coast at about the same time.

Although evidence of interpersonal violence exists for the Paleolithic and Mesolithic, an increase in severity and frequency of violence did not appear until the Neolithic (Haas 2007). This proliferation of warfare, according to Vencel (1984), was due to the advent of agriculture and more sedentary lifestyles. A prime example is the Linearbandkeramik culture of Europe. Here, the origins of warfare appear linked to property acquisition, and issues of ownership and political leadership. This led to the use of warfare to maintain the socioeconomic interests of developing complex societies (Vencel 1984:120).

An alternate explanation of how agriculture contributed to the rise of sociopolitical complexity and increased warfare can be found in a description of the Neolithic Revolution and the subsequent Bronze and Iron ages by Meggers (1954). Meggers argues that advances in agricultural technology, such as the advent of the hoe and the plow, increased crop yields which resulted in individual distinction and separation by rank. Consequently, warfare and the fortification of settlements become more prominent. Furthermore, with the introduction of iron, cheaper tools were produced more abundantly, and thus demand for agricultural labor was reduced. This demand led to further cultural development and an increase in conflict (Meggers 1954:813). This Darwinian approach suggests that the adoption of new technologies by one culture allows for a level of adaptation which, in turn, permits that group to exert its dominance over others (Service 1962:110).

Yet another possibility is that of population growth and outward expansion (Carneiro 1978:210). According to Carneiro (1970), during the Neolithic, populations began to expand beyond small bands into larger units. Thus, as a result of demographic pressure, agricultural land and other pertinent resources became scarce requiring that population to subordinate other groups through war.

2.1. THE ARCHAEOLOGY OF WARFARE: MATERIALIZATION AND ORGANIZATIONAL VARIABILITY

There are multiple ways in which warfare can be studied in the archaeological record. These include the study of bioarchaeological remains, whereby sustained trauma from interpersonal violence (i.e., blows to the body, projectile wounds, and trophy taking) (Arkush and Tung 2013), and iconography, which indicates elements such as weapons and the manner in which they were used (Lau 2004; Vencl 1984). A third area of study which aids in both determining the extent of warfare while giving insights into the level of sociopolitical complexity is architecture. As a result, I developed a survey strategy to map and record walls and other defensive structures. Evidence for warfare can be found in indirect remnants such as settlement patterns and site construction (Solometo 2006:25).

Defense of a settlement or region is a costly endeavor taking into account the materials, labor, and time involved (Elliot 2005; Rowlands 1972:454-455). Due to the costly nature of defense, according to Arkush (2005), societies tend to construct fortifications which are commensurate with the size or scale of enemy threat. Therefore, inquiry into a society's defensive strategies may indicate several factors such as political landscape, size of enemy and defense forces, directionality of conflict, and the aims of warfare during a given time period (Arkush 2005:60).

The organizational variability of warfare can range from small raiding parties to large, multicomponent, standing armies (Otterbein 1970:19). For example, tribal societies might engage in violent conflict for prestige, territory expansion, slave and resource acquisition, or ideological objectives (Allen and Arkush 2006:5; Solomoto 2006:29). This is in stark contrast with modern warfare when conflict consists of large mechanized armies, and is oriented toward what Haas (2007:330) has referred to as “the ideological, economic, environmental, and demographic relationships of the modern nation-states and a global economy.”

Arkush (2011), provides an example of the variations of warfare utilized by societies of differing sociopolitical complexity. What Arkush indicates is that there are several predominant patterns that can be identified. As a result, she provides a template from which to make comparisons (Table 2). I provide a brief overview of the ethnographic and archaeological evidence which highlight the variation of warfare among groups of different social complexity throughout the world. Significant among these is the complex chiefdom. In succeeding chapters I demonstrate the applicability of such a category to the warfare and sociopolitical structures in practice in the Nepeña Valley during the Early Horizon.

Moreover, it is important to acknowledge arguments by scholars such as Pauketat (2007), who state that caution should be used when placing groups within neatly defined taxonomies. In doing so, researchers tend to represent past life-ways in terms that they themselves have established. This runs contrary to representing the worldviews unique to the individuals under study. Lastly, taxonomies oversimplify the complexities and variations of past societies. As a result, I draw on these classifications only as a means to provide a *general*, or base, overview of sociopolitical development.

Table 2. Idealized scheme of societies fortification patterns (credit: Arkush 2011:61)

Sociopolitical System	Primary Aims of War	Fortification Pattern	Example
Decentralized Tribal Societies	Various: revenge; seizing of stores, livestock, and lands; taking women captive; personal prestige; human trophies	Settlements are defensive / fortified or have refuges nearby; stronger defense of settlements near ethnic borders; sometimes, buffer zones at ethnic borders.	Amazonian lowlands; highland New Guinea
Weakly Centralized Chiefdoms, Tribal Confederations	Various (see above)	Clusters of fortified settlements. Unfortified settlements have forts or refuges nearby; buffer zones between polities or confederations.	Maori; American Southwest
Simple Chiefdoms, States	Slave-raiding; war captives for sacrifice	Preyed-on societies: major towns may be fortified, especially near borders or coastlines. Dispersed hinterland refuges for periodic flight.	Philippine chiefdoms; East Africa
City-State, Regional State, Complex Chiefdom	Conquest and indirect control: subjugation and tribute rights. Elite status rivalry; seizure of key resource zones and trade routes; border disputes	Fortified capital or fortified elite residences; borders may have fortified settlements, refuges, wall systems, and / or empty buffer zones.	Maya; Hawaii; Mississippian chiefdoms
Expansionistic State / Empire	Conquest and direct administration or indirect control; seizure of key resource zones and trade routes; defense of territory	Capital sometimes fortified or includes a citadel; heartland settlement is non-defensive; special-purpose fortresses, wall systems, and / or empty buffer zones.	Inca; Rome

2.1.1 Tribes

A tribe is defined as a political unit which is greater in number than a clan, yet significantly smaller than a nation (Barnard and Spencer 1996:626). Moreover, Service (1962) associates the rise of tribal societies with the advent of the Neolithic Revolution. He defines a tribe as being a large collection of bands, or “kinship segments which are composed of families.” (Service 1962:111). Consequently, warfare among tribes is a means of amalgamation through group cooperation rather than large-scale conquest (Haas 1990:173). Hit-and-run raids are the most typical method of warfare, with the objective being to harass and terrorize for items, such as cattle, and to prevent enemy expansion (Allen and Arkush 2006:5; Service 1962:115). Chagnon (1990:79-82) focuses intertribal violence on the individual (as opposed to conflict between groups) by arguing that these conflicts tend to stem from differences between individuals within a single group. From this point, members of the group divide as they ally with the individual whose kinship and interests most closely align with their own. Chagnon (1990:82) divides these conflicts into two categories: somatic and reproductive. Somatic efforts refer to the survival interests of a group while reproductive efforts pertain to a group’s fitness. Therefore, ensuing warfare is a prolonged response to efforts such as defense, shelter, and resources, or a reproductive efforts such as mating, parenting, and nepotism.

The Yanomamö of Brazil and Venezuela provide a modern-day example of tribal warfare and its societal role. According to Chagnon (1992), this society displays alternative forms of violence, such as club fighting, and chest-pounding duels, which are a means to resolve grievances without having to resort to lethal combat (Chagnon 1992:185). When violence erupts into warfare, however, raiding is the standard, or what Chagnon refers to as “warfare proper.” Moreover, the objective of the raid is to infiltrate enemy territory, kill one or more individuals,

then retreat without detection. Finally, if the raiding party is detected and suffers a loss then the raid is considered unsuccessful even if the number of enemy killed outnumbered that of the raiding party's losses (Chagnon 1992:189). The Iroquois, though a confederacy, also held minimal loss of life in higher esteem than extensive losses inflicted upon the enemy (Carpenter 2001:35). Chagnon's account of the difficulties of detecting certain aspects of conflict in the archaeological record, as villages in conflict with each other are usually separated by a no-man's lands or buffer zones (Chagnon 1992). Consequently, the materialization of features such as defensive structures is limited or completely nonexistent.

2.1.2 Tribal Confederacies

Confederacies are known to vary in centrality from being highly centralized, such as the Iroquois Five Nations (Spielmann 1994:49), or completely decentralized, as was the case with the Three Fires Nation (Cornell 1986:12). The Iroquois confederacy consisted of five nations: the Seneca, Cayuga, Onondaga, Oneida, and Mohawk (and later the Susquehanna) (Richter 1983:529). The tribes within the Iroquois confederacy were arranged hierarchically (i.e., the Mohawk and Seneca were referred to as the "older brothers," while the Cayuga and Oneida were the "younger brothers"), with sachems who represented their respective tribes (Crawford 1994:358). The Hurons are asserted to be an example of a semi-centralized confederacy with a four-tiered system of political units which began at the matrilineal clan, continued through the village council, to the tribe, and concluded with the confederacy council (Spielmann 1994:49). The Three Fires consisted of the Ottawa, Potawatomi, and Ojibwa who were organized according to kinship terms elder brother, older brother, and younger brother, respectively, and maintained amicable relations while ensuring protection of each other's territories from outside groups (Cornell 1986:12).

The outcomes of tribal warfare appear analogous as societies transition into larger units or confederacies (Arkush 2011:61). Ethnographic evidence from the Iroquois attests to raiding as a predominant form of warfare. Lee (2001), for example, states that warriors tended to ascribe primarily to ambush and raid tactics which contributed to wars varying in duration. Moreover, these small-scale raids were intended to result in minimal friendly casualties, though protracted sieges were not unheard of. Large conventional battles between Native American groups, such as would be recognized by Europeans, were rare (Lee 2001:272). It is also noted that success in combat was often rewarded with prestige and political advancement (Aquila 1978:217). Richter (1983) has described participation in war parties as being the “benchmark” for young up-and-comers in Iroquoian society. Consequently, success in conflict was one mean by which an individual could be validated as a community leader, and later, as a sachem (Richter 1983:530).

2.1.3 Chiefdoms

Scholars have defined chiefdoms as regional polities whose numbers range from several thousands to tens of thousands (Earle 1987, 1997; Carneiro 1981). Despite this variability in numbers, chiefdoms usually consist of a series of hierarchies utilized to reach resolutions (Johnson 1982). Carneiro (1990:190) has argued that the arrival of chiefdoms hailed “the first great step in political evolution” in which war was the mechanism for such political development. He asserts that local autonomy was adamantly adhered to prior to the rise of chiefdoms. Consequently, only through the application of force could these autonomous units be coalesced into larger “multi-village political units” (Carneiro 1990:190). Thus, as complexity transitions so too do the aims and frequency of warfare among such groups. In the following chapter, I demonstrate that the applicability of this principle can be applied to the Early Horizon settlements in the lower Nepeña Valley, Peru.

According to Allen (2006), the Maori (A.D. 1500) of New Zealand constructed elaborate *pa*, or fortresses, along the coast. *Pa* were associated with arable agriculture, and made use of massive storage pits in order to preserve produce yielded from the fields. In turn, these pits became the alluring targets of raids, and thus required the protection of the *pa*. Allen (2006:195) describes these fortresses as consisting of palisades constructed out of timber posts, and other defensive features such as escarpments, ditches, and raised “fighting stages” that were used as elevated positions from which to hurl rocks down on an advancing enemy. Furthermore, *pa* structures were constructed utilizing naturally defensible landscape such as hilltops, ridges, islands, and swamps. The Maori *pa* echo descriptions of the Early Horizon defensive stone architecture found on the north-central coast of Peru, which I describe in greater detail in Chapter 4.

In East Africa, Kusimba (2006) states that the fortified rock shelters in Kasigau, Kenya implicate the consequences of slave trade on developing societies. He states that there existed an extensive trade network between tribes in coastal and inland regions which was bound together by fictive blood ties. These amicable interactions were halted when some of these groups, such as the Swahili and Akamba, began to accumulate wealth by raiding for slaves in support of the European slave trade economy (Kusimba 2006:223-224). Consequently, the groups subject to raiding fled and sought refuge in fortified rock shelters which, in conjunction with hidden exit ways, allowed refugees to flee these areas relatively undetected. Slave-raiding warfare initiated the collapse of many of the farming chiefdoms and states of East Africa (Kusimba 2006:237-238). The use of rock shelters for defense lends credence to the argument that complex societies does not necessarily correlate “advanced” defensive systems. This example shows that extenuating circumstances, such as slave raiding, might limit opportunities for innovation such as the development of efficient farming techniques.

Earle (1997:109) argues that as chiefdoms develop into increasing levels of complexity, the aims of warfare are fundamentally changed. He states that warfare no longer facilitates competition between groups, it becomes a means by which one group conquers and subverts another. Through conquest, the victor is then able to capitalize on the surplus which drives the political economy (i.e., fish, animals, and agriculture). Models of this form of warfare among complex chiefdoms are found among the competing Hawaiian chiefdoms (A.D. 800-1824).

According to Earle (1997), competing Hawaiian chiefdoms used warfare to incorporate smaller “interstitial” islands in an attempt to expand the victor’s financial source. These financial bases consisted of procurement facilities that included agricultural fields and fishing ponds. Conversely warfare served to validate a chief’s right to rule and an heir’s right to succeed. Thus, if a leader failed to be victorious in battle, a new leader was chosen.

Warfare among the Hawaiian chiefdoms is interesting in that there is an overall lack of fortifications. The only fortifications identified have been reinforced lava tubes that served as refuges for fleeing communities. Apart from these refuges, warfare has manifested itself in the form of weaponry which includes sling stones, short spears, lances, short clubs, and daggers. Rather than defending structures, Hawaiian chiefdoms often faced off against each other on open terrain, or no-man’s land, between settlements (Earle 1997:135).

The chiefdoms of Fiji also exemplify chiefdoms of significant complexity. Williams (1870:34) described the Fijians as “rarely being free from war and its attendant evils. Several causes exist for this, such as the pride and jealousy of the chiefs, and the fact of there being so many independent governments, each of which seeks aggrandizement at the expense of the rest.” He indicates that all able-bodied men participated, and that war was so commonplace that they were armed at all times.

Carneiro (1990) expands on Williams' description of the Fijians stating that prior to war, a summons was sent to all who fell under the jurisdiction of a particular chief. Those who refused the summons were later met with retaliation. He indicates that combat units typically consisted of individuals numbering in the hundreds (occasionally reaching the thousands). According to Carneiro (1990), these armies fell under the command of a paramount chief whose authority was derived from three distinctions: his previous successes in battle, his ability to exact tribute, and his success in expanding territory. Below the chief were six successive divisions or classes of individuals that ranged from town chiefs to commoners.

Conflicts between warring groups often consisted of hand-to-hand combat with clubs, spears, bows, and slings (Carneiro 1990:197). Furthermore, these engagements rarely took place on an open field, but rather took place against an enemy's fortified mountain refuge. These refuges usually consisted of stone palisades and breastworks (Williams 1870:39). Villages were also prone to attack. Williams (1870) describes these village fortifications as consisting of a six-foot-thick earthen rampart and moat which encircled the village. The rampart was faced with large stones while surmounted with a reed fence or coconut tree trunks.

In his concluding remarks on Fijian warfare, Carneiro (1990:207) remarks that chiefdom-level warfare was often degenerating. By this he means that this form of conflict tends to destroy and dissipate populations rather than consolidate and expand them. As a result, warfare primarily serves to increase the legitimacy and influence of the paramount chief rather than expand the chiefdom's domain. Carneiro indicates that chiefdoms are in a constant state of turbulence, and as such they might expand due to conquest or return to a previous state of sociopolitical complexity.

2.1.4 States

Over time, as a chiefdom increases in size and complexity through the subjugation and acquisition of subordinate groups, it metamorphoses into what might be referred to as a state (Carneiro 1990:208). Service (1975) defines states as highly ranked and stratified. They possess a strong central government capable of levying taxes, waging war, and exacting tribute. The state likewise possesses public works systems, public buildings, state art, and a state religion with full-time religious specialists.

The emergence of city-states heralds a substantially more complex form of warfare. Here, examples can be drawn from the Classic Maya of Central America. The Classic Maya city-states consisted of multiple competing polities ruled by kings and queens, during periods of alternating alliances and extensive violence (McKillop 2004:155). In outlying areas, sites such as the Classic period center of Telocote, Guatemala, were governed by Maya lords (Scherer and Golden 2009). The Maya were unique in that they had developed an epigraphic system of hieroglyphs by which to document the names and histories of rulers and their victories in combat. These hieroglyphs also include the date of said conflict (Scherer and Golden 2009:285).

During the 1940s and 1950s scholars were guided by the notion that the Maya were a relatively peaceful people until epigraphic studies had proven otherwise (Demarest et al. 1997:229). The sources of conflict for the Maya consisted primarily of competition, and ensuing upheaval, between ruling elites which is evidenced in occurrences such as Maya art, and the destruction of a site's architecture by victors (Chase 1989). In conjunction with this evidence, patterns of warfare are indicated by Maya defensive strategies. Demarest and colleagues (1997) provide examples of defensive features utilized by the Classic and Late Classic Maya (between A.D. 760 and 830) at sites in the Petexbatún region of Belize. These include the use of hilltop

fortifications with wooden palisades which were erected atop low stone walls which encircled the epicenters of settlements. Additional defensive features include dry moats and baffled gateways which lead aggressors into what Demarest et al. have referred to as “killing allies” (Demarest et al. 1997:231). What these features indicate are highly defensible settlements whose fortifications were erected by a massive expenditure of labor in response to an increase in warfare (Demarest et al. 1997:229). Scholars assert that the increase of warfare during the late eighth and early ninth centuries was due to the fragmentation of political units and competition amongst elites (Demarest et al. 1997:247).

2.1.5 Empires

Schreiber (1987), when describing the development of the Wari Empire of Peru, argues that empires have been differentiated from states due to factors such as the rate of expansion. Historical examples have shown that empires exhibit rapid expansion to an area significantly larger than the heartland of the expanding culture. This expansion is followed by a period of consolidation whereby diplomacy, in conjunction with military force, is utilized in order to bring subordinate populations into the empirical fold (Schreiber 1987:95).

Other expansionistic states include groups such as Rome and the Inca (Arkush 2011:61). During their expansion, these cultures often resorted to warfare as a means to subjugate groups in the periphery, or hinterland. After communities were subjugated, warfare was utilized to maintain the allegiance of subordinate communities (Arkush and Tung 2013:32).

2.2 THE ARCHAEOLOGICAL VISIBILITY OF DEFENSIVE ARCHITECTURE

McLeod and Holmes (2001:208) observe that “For as long as man has required protection and prestige he has built fortifications.” The archaeological visibility of fortifications and defensive architecture varies from region to region. As demonstrated in the organizational

variability of warfare, defensive strategies vary depending upon circumstances. Examples include the Maori use of *pa* to guard stored goods, or the Classic Maya use of fortifications to protect entire settlements.

Evidence has also suggested that fortifications do not necessarily indicate a need for defense (Brown Vega 2008:15). Fortifications may serve as a deterrent (Cioffi-Revilla 1999) or display of prowess, such as is evident in the Palauan defensive terraces of the 1st millennium A.D. (Liston and Tuggle 2006:151). They might also function as administrative centers yielding evidence of activities such as feasting (Moseley et al. 2005).

I define fortifications, and the implications thereof. The fortifications identified include naturally defensive fortified landforms, walls, ditches, parapets, lookouts, bastions, baffled entryways, and forts (See Appendix, a8-14, pp. 113-114). There are a multitude of defensive features; however, I have chosen these particular structures based on their universality in Peru and other parts of the world. In Chapter 4, I identify these features and their distribution at the sites of Caylán, Huambacho, and Samanco.

2.2.1 Fortified Landforms

Fortified landforms can be considered geographical features that provide a natural barrier against an enemy threat. Again, the construction of fortifications is an expensive endeavor (Arkush 2011:60). As a result, the availability of fortified landforms minimizes the accumulation of material and labor output. These defensible features include steep hills, ridges, cliff faces, and bodies of water.

Hilltop fortifications are evident in Andean archaeology beginning in the Early Horizon (Arkush 2011; Brown Vega 2008; Daggett 1984). The construction of a settlement atop steep hills or ridges affords occupants visibility over terrain. As a result, defenders are able to detect

movement and protect the site from an elevated position. Thus, enemy advances are impeded due to the steep terrain (Arkush 2011:13). Another example includes the Early Horizon sites in the lower Nepeña Valley that make use of steep V-shaped hill regions to surround settlements, thereby reducing the necessity for additional fortified features such as walls.

The use of cliff faces is best known amongst the ancestral Pueblo Anasazi of the North American Southwest (A.D. 1250-1400) (Lambert 2002:219; Schaafsma 2007). The cliff dwellings of sites such as Mesa Verde are elevated with limited access. In addition to their elevated positions, the cliff dwellings were protected by walls containing “loop holes targeted toward trails, springs and storage units, indicating the need for protection while defending strategic locations” (Schaafsma 2007:117).

Finally, the Classic Maya settlement of Punta de Chimino (in the Petexbatun region) provides an example of the use of a body of water as a natural defense (Demarest et al. 1997). The site is situated on a Punta de Chimino peninsula that extends out into the Laguna Petexbetun. The peninsula is narrow at its base, and expands outward into a ‘balloon’ shape upon which the settlement is erected. As a result, assailants are forced to bottleneck while attempting to cross. Movement is further impeded by the presence of three moat and wall systems built across the neck of the peninsula (Demarest et al. 1997:238).

2.2.2 Walls, Parapets, and Ditches

Walls are often referred to as palisades, or structures which completely or partially circumscribe a settlement (Farmer 1957:249). Alternatively, Keeley and colleagues (2007:57-58) refer to a defensive wall as one in a group of *enceintes*, or structures that limit access and vision into a specific location. Other *enceintes* include daubed wooden palisades, embankments of earth, adobe brick walls, and walls constructed of natural or shaped stone. Walls are further

identified as ‘curtains’ which serve in conjunction with ditches to shield a site from enemy advance. Keeley and colleagues also echo previous descriptions of fortifications by arguing that walls will always function as curtains or barriers, but they are not always utilized for military ends. Examples include the use of walls to channel people and goods during trade, or shielding elites from the gaze of outsiders. All of these elements will come to bear on the results encountered in the 2013 survey of Early Horizon fortifications in the Nepeña Valley.

Walls that possess parapets, or raised benches allow defenders to step up, engage the enemy, then step down to avoid being struck by projectiles. In other words, they increase the maneuverability and accuracy of defenders and their weapons while limiting that of the adversary (Keeley et al. 2007:57). Parapets have been utilized as common defense features during multiple time periods the world over. Examples of the use and diversity of parapet fortifications range from those of the Iroquois of North America, to the countries of medieval Europe, to the ancient Hittite fortresses of the 14th and 15th centuries B.C. (Keener 1999; Nossov 2008; Toy 1955).

2.2.3 Lookouts

These configurations are used primarily as points of visibility from which the landscape might be surveyed for enemy approach. It is unlikely that these structures would be utilized as staging points to launch advances on the enemy (Brown Vega 2008:63). For a more descriptive definition of this feature, I draw from the United States Army’s *Field Manual for the Infantry Rifle Platoon and Squad (FM 3-21.8)*. A lookout, or observation post, acts as an early warning system, and the first line of defense for an occupying force. Moreover, from a lookout, defenders are able to better assess factors such as size, activity, equipment, location, and estimated time for attack. Consequently, lookouts are usually located on elevated positions along avenues of

approach. Lookouts are arranged so that fields of view overlap. Overlapping fields of view permit constant observation of enemy movement (See Appendix, a15, pg. 114). The linear positioning of these lookouts allows for the rapid transmission of warning reports to the command element in the rear (Headquarters Dept. of the Army 2007:1384).

2.2.4 Bastions

Bastions are extensions that protrude out from fortifications. Like lookouts, bastions rely on overlapping fields of view in order to be effective (Keeley et al. 2007). Their overlapping fields of view allow defenders to barrage enemy combatants with projectiles at all points along the curtain, or defending wall. Bastions are similar to parapets as well in that they provide defenders with concealment while denying the enemy the opportunity to return fire. As is the case in the construction of any fortification, bastions are costly (Keeley et al. 2007:70). As a result, their number and distribution around a fortress may depend largely on necessity.

2.2.5 Baffled Entryways

These entryways typically consist of an obstruction which prohibits the rapid entry of a structure by the enemy. In addition, they force the enemy into a choke point which exposes their flanks to fire from defenders (Keeley et al. 2007:62). Examples include the screened entryway which consists of a segmented wall placed in front of the entrance. An alternative is the serpentine entryway which slows the enemy's advance by forcing the attackers to move in a series of zig-zag motions in order to gain access to the inside of a structure. These baffled entryways, when used in conjunction with multiple perimeter walls, force a large enemy into small spaces known as "killing alleys" (Brown Vega 2008; Demarest et al. 1997). With restricted movement and exposure overhead, the enemy is then subjected to projectile fire by the occupants.

Baffled entryways are some of the most ancient and enduring systems of fortification (Keeley et al. 2007:62). They occur in a variety of forms (i.e., screened or serpentine) and serve multiple purposes in the defense of a structure or settlement. As testament to their efficiency in defense, they can still be observed at the entrances to most military installations today.

2.2.6 Forts

Farmer (1957:249) defines a fort as a singular structure which is associated with a settlement or in an isolated position. He states that forts are situated on elevated positions in conjunction with other defensive features such as walls. Forts can be utilized as permanent habitation sites or occupied only during times of attack. Arkush (2011:67-68) elaborates on the potential use of fortifications and their implications. She argues the scale of a fort indicates the frequency and intensity of conflict in a given area. For example, a fort which serves as a refuge implies infrequent and perhaps predictable violence whereby occupants are forewarned of an approaching threat and can seek safety in the nearby fort. In contrast to a refuge, forts might be heavily fortified, and indicate a need to defend against a larger force such as a standing army. Finally, the placement of a fort in relation to communities, fields, water sources, and stored goods speaks to the focus of enemy raids.

Brown Vega (2010) calls for a distinction between what may be referred to as a fortress or citadel versus a fortified city. She argues that a fortress is considered to be a site located on an elevated position, and surrounded by perimeter walls. Additionally, she states these sites are associated with two or more corroborating features such as bastions, parapets, and baffled doorways. This description runs contrary to a fortified city which merely a defensive unit that possesses elements that include ditches, walls, lookouts, or refuges (Farmer 1957:250).

Examples include the fortresses and fortified settlements of the Peruvian North-Central coast during the Early Horizon. Such distinctions might be made between the fortification of sites such as Caylán and PV31-163. These distinctions will be discussed in further detail in Chapter 6.

2.3 RITUAL VERSUS TRUE WARFARE

The study of warfare amongst complex societies has often been subject to dichotomization by being defined by archaeologists as either ritual warfare or true warfare (Arkush and Stanish 2005:10; Brown Vega 2008:16; Keeley 1996; LeBlanc 2003; Topic and Topic 1987:568). Ritual warfare has been assigned to societies considered to be simple in sociopolitical development (Brown Vega 2008:15; Keeley 1996). Moreover, ritual violence is believed to have consisted of marginal aggression which resulted in relatively limited injuries or death. Ghezzi (2006) refers to ritual warfare as a type of social collaboration whereby the preservation of the opposition supersedes annihilation.

In contrast, true warfare has been typically defined in the context of centralized societies. These complex groups are believed to have engaged in conflict as a means to fulfill political endeavors such as the acquisition of new territory (Brown Vega 2008:15-16; Quilter 2002:167). Furthermore, it is seen to be a more organized form of conflict typical of state societies in possession of larger forces (Ghezzi 2006:69). Yet, archaeological and ethnographic evidence exists in Peru and elsewhere which suggests that these hypotheses are insufficient. Put simply, ritual can serve as an integral part of exerting political influence of a state over a group (Lucero 2003). While larger centralized societies might use ritual warfare for political ends, loosely centralized or decentralized societies might utilize this form of warfare to elicit different results (Lucero 2003). Conversely, it is speculated that smaller scale groups such as those in North America, engaged in combat for “no less rational and no more savage purposes than did the

nation-states of Europe” (Richter 1983:528-529). Thus, Brown Vega (2008) argues that the difference between simple and complex societies is scalar in significance, and that archaeologists must avoid the inadvertent downplay of both the intensity of ritual warfare as well as the prevalence of ritual in what is considered to be true warfare.

Researchers caution against dichotomizing ritual and actual warfare, when perhaps there should be a differentiation as to the use of ritual in *religious* warfare versus its use in *secular* warfare. When considering ritual alone, there is a certain amount in any given form of warfare as ritual is a repetitive, prescribed, action (Webster New American Dictionary 2006:612). For example, a commander might rally his troops whereby they execute a series of prescribed movements in order for the leader to determine their suitability for combat. Contrastingly, warriors might ritualistically pray at an altar to their deity so that they might be victorious in battle. In the first case we see a secular application of ritual while in the second we observe a mythological (or spiritual) application.

Certainly, ritual is of paramount importance to religion. According to Wallace (1966:102), ritual is the “phenomena of religion.” He defines religion as being a conviction, reinforced through ritual, in respects to mystic or supernatural beings and powers. Furthermore, religion possesses certain moral and cosmological aspects which are heavily interwoven into ideological worldviews (Rakita and Buikstra 2008:4). Yet, one must not forget that there is practicality to ritual. This practicality has led scholars such as Nilsson Stutz (2003) to argue that ritual is a survival strategy that structures individual’s lives. In other words, it transcends exclusivity in use as a religious tool, and is considered to be a fundamental part of humanity. Thus, in warfare we may expect to see degrees of variability whereby religious ritual is pronounced more so than secularism and vice versa. In the following section, I provide examples

that attest to this variability. In Chapter 6 I discuss how this variability in warfare might fit into comparisons between the Early Horizon sites in the lower Nepeña Valley and other known Early Horizon sites elsewhere in Peru.

2.4 EXAMPLES OF THE VARIABILITY OF RITUAL IN WARFARE

In the Andes, and other parts of the world, there are multiple lines of ethnographic evidence which attest to the scalar variance of ritual conflict. Examples range from the *tinku* (Hastorf 1993) which occurs between the small farming communities of Peru and Bolivia, to the mourning wars of the Iroquois confederacy (Carpenter 2001). Below, I provide a collection of ethnographic data from which comparisons might be drawn between the motives of the Early Horizon settlements within the lower Nepeña Valley, and recent accounts.

An ethnographic example of ritualized warfare among centralized societies outside of Peru can be found in the Iroquois of North America. The Iroquois were a confederacy of nations who engaged in mourning wars with their enemies. Crawford (2001) states that the primary objective of a mourning war is to replace relatives and loved ones lost to instances such as violence or disease. Consequently, these wars were not the result of polity consolidation, the expansion of territories, or the acquisition of resources. The mourning wars were instead a means to maintain the Iroquois population. Upon the petitioning of community members, war parties were assembled with the intent being the capture of prisoners while maintaining a minimal loss of life (Carpenter 2001:35; Keener 1999). Captives were brought back to Iroquois settlements so that they might be selected to either replace the voids left by recently departed family members. Adoption of captives meant these individuals were to run a gauntlet whereby they were beaten and, in many cases, marked by the removal of a finger before being brought in as an acknowledged family member. Those not selected were ritualistically tortured to death.

On the Peruvian north coast, the Moche engaged in ritual warfare that has been depicted in their iconography. Moseley (1992) describes the ritual warfare of the Moche as occurring between elites similar to the *kuraka* warriors associated with the Inca. He states that the iconography on Moche vessels portray regal combatants in hand-to-hand combat with an enemy in elite attire. Furthermore, the Moche prisoners are depicted as having their garments removed, then paraded naked prior to being ritualistically sacrificed (Moseley 1992:193). Thus, ritual warfare was the station of “warrior priests,” with connections to the gods (Moseley 1992:194). In contrast to this assertion, some scholars argue that warfare involved lower-classed individuals, which indicated that warfare might have included territorial expansion and not simply elite ritual sacrifice (Billman 1997; Lumbreras 1980).

Bourget (2001: 93) indicates that these battles took place under the watchful eye of regulating officials who issued orders and regulated activities on the battlefield. Moche appear to have drawn analogies between deer hunting and ritual warfare. According to Donnan (1997:59), warfare nor hunting is conducted to kill, but to sacrifice. Benson (1997:36) proposes that due to the deer’s agility, heightened senses, and weapon-like horns, it is similar to the ideal Moche warrior. Hill (2003) expands the issue by identifying two forms of “bodily transformation” which include sacrifice and dismemberment. She argues that the sacrifice of a victim transformed the body into a sacred object. Afterward, the dismemberment of the body transforms the sacrificed body “into a series of ritually efficacious parts worthy of exchange” (Hill 2003:289). Alternately stated, dismemberment imbues the body parts with mystic energy and meaning. As a result, the body becomes a “spectacle” for the spectators (Hill 2005).

Another spectacle is the Maya ballgame which is associated primarily with the culture's origin myth (McKillop 2004:94). Nevertheless, it has been posited that the game extended its allegorical constructs to serve as a form of ritual warfare (Fox et al. 1995:105; McKillop 2004). Miller (2001:82) describes the dawning of deer headdresses, or "hunting hats." Thus, the Maya appear to echo the Moche as hunting and war were believed to be interchangeable since war was essentially the "hunting of men" (Miller 2001:82).

Moreover, Kowalewski and colleagues (1991:43) identify the ballgames of the Oaxaca Valley as a training apparatus which served to maintain warrior readiness for combat. Furthermore, ballgames functioned as events that mediated conflict and maintained boundaries. Ballgames as a substitute for war is supported in Maya iconography at sites such as Toniná, which depicts a chief or dignitary in a mediator's position in the middle of the court (Taladoire and Colsenet 1991:174). Similarly, Weigand (1991) has stated that ballgame players were warriors, and that the game was not dissimilar to gladiatorial events or medieval jousting. Comparable examples include the ball courts at the Terminal Classic sites of El Tajín and Cantona, which have been described as a locale for forging alliances, validating authority, and conducting warfare-related rituals (Day 2001:75). Ritual warfare amongst these societies did not always require a literal battlefield or sizable enemy force to be considered such. The Maya conducted ball games which often represented figurative fields of battle. McKillop (2004:213) indicates that the victories in battle were ritualistically recreated on the ball court where the defeated, usually elite individuals, were sacrificed.

Institutionalized forms of ritual warfare can be found in modern Andean communities. *Tinku* is a form of ritual warfare that predominantly takes place between agricultural communities. These communities utilize this form of "conflict" as a means of tension release and

conflict resolution (Hastorf 1993:54). Platt (1987:164-165) indicates that the spilling of animal and human blood during *tinku* has cosmological significance linking blood to fertility and protection against witchcraft.

Ethnographic evidence of ritual warfare among small, decentralized societies outside Peru include the Plains Indians of North America. Grinnell (1910) indicates occasions whereupon opposing groups would engage in combat without the intent to kill one another. He argues that, for the Plains Indians, touching an enemy combatant with a handheld object, such as a “coup stick” was considered the single bravest act to occur on the battlefield. Thus, instead of exercising lethal violence upon each other, Grinnell describes situations where an individual might leave his group; cross the battlefield; strike an individual; then ride back to his allies. Furthermore, this act of “counting coup” was acted out in hunting parties among males who were yet too young for combat (Grinnell 1910:297).

2.5 BEYOND THE DICHOTOMY OF WARFARE

Not only is there a need to dispel the tendency to categorize prehistoric conflict as either ritual warfare or true warfare; there also exists a need to apply such a distinction to the function of archaeological sites (Keeley et al. 2007). It is important to note that there exists a plethora of reasons why societies choose to defend significant locales (Rowlands 1972:448). In Peru, some fortified sites are speculated to have functioned as shrines or holy places (Brown Vega 2008; Ghezzi 2006). Therefore, they could be identified as significant in a ritual sense without contradicting their prospective station within the realm of conflict (Ghezzi 2006). Often times, defensive features and iconography are dismissed as “ritual” without having any significance in conflict; thus, rendering a skewed interpretation of otherwise defensive features (Arkush and Stanish 2005).

Rowlands (1972:448) counterpoints this argument in his description of the multi-walled enclosures which guard “temple cities” sanctuaries in Bali, India. He maintains that these walls are completely symbolic in significance. They were erected in order to defend the sanctuary from the intrusion of evil spirits. Furthermore, the construction of fortifications might serve other purposes outside of defense, perhaps serving no defensive purpose at all (Rowlands 1972:448-449).

The archaeological site of Chankillo, in the Casma Valley, Peru, serves as an example of the necessity to refrain from reducing material evidence of conflict to clearly delineated categories. Ghezzi (2006:67) describes the fortress of Chankillo as being not just a fortress, but a “ceremonial center, and a cloistered temple.” He asserts that the fortress was built illogically in regards to defense as it is removed from the main settlement and water resources, with locks on the outside of its multiple entrances; all of which lends credence to Chankillo functioning primarily as a ritual center. However, Ghezzi argues that these fortifications required a considerable amount of time and effort to construct which supports the existence of prolonged conflict. As a result, the fortress at Chankillo might have served as a form of shelter from attacks on the settlement. Thus he concludes that it is imperative that archaeologists refrain from making impermeable distinctions about the function of archaeological sites (Ghezzi 2006).

**CHAPTER 3:
A CHRONOLOGY OF WARFARE IN ANCIENT PERU AND THE NEPEÑA VALLEY**

The following is a general chronology derived from the model set forth by John Rowe (1960), who placed the manifestation of particular cultures within horizons (Lumbreras 1974: 13). Though several chronologies exist, this chronology is widely accepted among Peruvian archaeologists.

Table 3. Chronology of the central Andes (Rowe 1960; Shibata 2010) (credit: Steve Treloar).

	Date	Central Andes	Nepeña Valley
Late Horizon	1470-1535	Inca/ Chimu	Inca Influence
Late Intermediate Period	1100-1470	Inca/ Chimu/ Lambayeque/ Lupaca/ Colla	Chimú Influence
Middle Horizon	600-1100	Wari/ Tiwanaku/ Moche/ Nasca	Casma Influence Moche Influence (A.D. 500-800)
Early Intermediate Period	200 B.C.-A.D. 600	Moche/ Lima/ Requay/ Paracas	Gallinazo/ Virú (A.D. 1-300)
Early Horizon	800-200	Chavin/ Pacopampa/ Kuntur Wasi	Samanco (450-150 B.C.) Nepeña (800-450 B.C.)
Initial Period	1800-800	Sechín/ Kotosh/ Caral/ La Galgada/ Manchay/ El Paraiso	Cerro Blanco
Preceramic	3000-1800	Paloma/ Aspero	Huambocayan (1500- 100 B.C.)

In Perú, scholars have observed that complex societies began to develop in relation to sedentary forms of community organization towards the end of the Preceramic (5000-3800 B.C.) along the northern coast (Arkush and Tung 2013:12). These settlements rely primarily on maritime subsistence, and by 3000 B.C. are characterized by the presence of what Moseley (1975) refers to as corporate architecture. These archaeological sites include, but are not limited to, Aspero, El Paraíso, and Caral (Stanish 2001).

Regarding the earliest accounts of widespread warfare in the development of these complex societies, the Ostra site in the Norte Chico region, displays evidence of warfare (i.e., slingstone piles) dating back to 3,500 B.C., however this evidence has been discounted due to its occurrence being limited in size and frequency (Haas et al. 2005:44). Arkush and Tung (2013) argue that a clear increase in warfare-related violence is not detected until approximately 400 B.C. as localized frictions develop from issues such as sociopolitical integration, population expansion, and an increased demand for resources. This argument has been supported by previous research into the development of social complexity on the desert coast of Peru (Carneiro 1970:735).

3.1. THE INITIAL PERIOD

The Casma Valley, to the south of the Nepeña, provides an example of what could be the earliest materialization of warfare at the Initial period (1800-1000 B.C.) site of Cerro Sechín (Pozorski and Pozorski 1987). Scholars argue that though the iconography at this site appears to depict warfare (i.e., warriors, dismembered bodies, and weapons), it is insufficient for explaining the prevalence and severity of warfare at the time (Arkush and Tung 2013:16; Brown Vega 2008:26; Pozorski and Pozorski 1987). Instead, warfare in Peru manifests in the latter part of the Early Horizon with the appearance of hilltop fortifications (Brown Vega 2008:28; Daggett 1987:70; Pozorski and Pozorski 1987), and is associated with collective ideological or sociopolitical material culture (Brown Vega 2008:29). Arkush and Tung (2013:19-20) assert that warfare at this time consisted of raiding in an attempt to expand territories and compete for goods.

3.2 THE EARLY HORIZON

The transition from the Initial Period to the Early Horizon was marked by a shift in construction and settlement patterns (Pozorski and Pozorski 1987; Wilson 1988). In Nepeña, as well as other valleys, a transition occurred from Initial Period U-shaped structures, such as Cerro Blanco (Shibata 2008) to the construction of enclosed centers such as Caylán (Chicoine and Ikehara 2011; Helmer et al. 2013). In the highlands, this shift was marked by a movement to naturally defensible ridges and hilltops (Burger 1992:187). The shift in settlement patterning has been attributed to heightened tensions.

Burger (1992) posits that increased tensions might have been related to attempts by socio-religious leaders of the Initial Period to convert their ritual authority into coercive power (Burger 1992:189). In other words, emergent leaders were attempting to transform from a position, which Fried (1967:13) defines as channeling “the behavior of others in the absence of the threat or use of sanctions,” to a position in which threats and sanctions were warranted. Burger argues that such a transition might have called into question their status as keepers of sacred knowledge versus wielding control over subordinates. Consequently, the need to make such a transition might have stemmed from the development of complex, stratified, societies in the highlands (Burger 1992:189).

Shelia and Thomas Pozorski (1987) have argued that drastic change on the coast may have stemmed from an invasion by highlanders. The evidence, they assert, is in the iconography of sites such as Cerro Sechín and the termination (and subsequent abandonment) of sites within the Casma Valley (Pozorski and Pozorski 1987:119). The origins of this invasion have been asserted to be either in the highlands of the Nepeña Valley, or perhaps “a source farther to the north and east” (Pozorski and Pozorski 1987:127).

Lastly, Chicoine (2010) asserts that sociopolitical innovations on the north-central coast were related to changes in elite strategies. He contends that these changes are indicated by the transition from the U-shaped structures of the Initial Period to smaller enclosed compounds. For him these structural reformations are due to elites exercising control over the access to ceremonial spaces “and the increased importance of network strategies for local politics” (Chicoine 2010:195).

3.2.1 Early Horizon Warfare in the Nepeña Valley

In the Nepeña Valley, there exists a sharp contrast in the settlement patterning, architecture, and fortification strategies between the upper and lower valley (Daggett 1984, 1987). According to Proulx (1985) and Daggett (1984) there are at least five, possibly six, settlement clusters dispersed throughout the upper valley with perhaps one being present in the middle valley during the latter portion of the Early Horizon. The administrative centers for these clusters include the Early Horizon sites of Kushipampa, Motocachy, Paredones, Virahuanca and perhaps Santa Lucia (See Appendix, a16, pg. 115) (Proulx 1985:271). Each cluster consists of multiple sites, each with a specific function. The function of each site includes administrative, defensive, ritual, and residential (Daggett 1987:79). The sites within these clusters tend to be separated by just more than one kilometer, while the cluster as a whole is separated from other clusters by at least two-to-four kilometers (Ikehara and Chicoine 2011).

The clustering of sites, and the motives for conflict, in the upper valley may be due in part to multiple factors. One argument posits that the presence of canals indicate clustering as a result of irrigation agriculture and the need to control water resources in addition to the incorporation of new ideas and technologies from the Casma Valley (Proulx 1985:261). In turn, the introduction of new agricultural technologies enhanced social complexity by spurring the

need for management of water sources, land disputes, and defense. Put simply, these developments necessitated military regulation (Proulx 1985: 265) Finally, Daggett (1984: 434) states that changes in upper valley settlement patterns may have resulted from conflict over intervalley trade routes.

In the lower valley, however, there appears to be a settlement pattern which differs markedly from that of the upper valley. The sites of Caylán, Samanco, and Huambacho exhibit contemporaneous developments such as open courtyards, elevated platforms, and clusters of rooms; all constructed with the same stone and mortar medium. Although these similarities suggest a settlement cluster, these sites are separated by distances of eight kilometers or greater. Furthermore, there appear to be similarities between sites in the Casma Valley to the south, including San Diego and Pampa Rosario (Pozorski and Pozorski 1987). Additionally, semblances are found at the site of Las Huacas in the Santa Valley to the north (Wilson 1988). The continuities shared between sites within the Casma, Nepeña, and Santa indicate a possible chain of cultural affiliations along this short segment of the north-central coast.

The existence of separate settlement patterns within the Nepeña might indicate different cultures which arose out of the segregation of different industries: fishing and agriculture (Chicoine and Rojas 2013). Ethnographic accounts of sixteenth-century fishing settlements indicate that while fishing and agricultural communities interacted via exchange, they developed separately, perhaps to the point of differing language, social structure, and religious establishment (Rostworowski 2004). Speculatively, this scenario could apply to EHP communities on the north-central coast as well.

3.2.2 Ritual and Raiding

The atmosphere of the north-central coast during the Early Horizon has been described as one of social, economic, and military upheaval (Daggett 1984; Ikehara and Chicoine 2011; Pozorski and Pozorski 1987; Wilson 1987, 1988). The source of turmoil and stress in Nepeña, and its neighboring valleys, is a subject of debate over which multiple interpretations have been made (Burger 1992:188; Chicoine 2011; Chicoine and Ikehara 2011; Daggett 1987; Pozorski and Pozorski 1987a; Wilson 1988). What is clear is that settlements in the upper valley moved to strategic, fortified, hilltop settlements while those in the lower valley constructed fortified residential complexes in the valley margins. Additionally, research conducted at Caylán, Samanco, and Huambacho reveals the pertinence of ritual, or ceremonial, practice during the Early Horizon (Chicoine 2006; Chicoine and Ikehara 2011).

Unclear, however, is the degree to which ritual might have impacted the nature of warfare in this region. Nilsson Stutz (2003) argues that ritual is an essential part of humanity. In other words, it is through repetitive acts (i.e., ritual) that we structure our existence. Therefore, as I have indicated earlier, ritual can occur within secular and religious realms. Moreover, these realms might overlap depending on the desired outcome. In the ensuing chapters, I assess the distribution and orientation of fortifications at the sites of Caylán, Samanco, and Huambacho. In doing so, I not only determine the size and origin of enemy attackers, I also compare these findings with previous research in order to determine the nature of warfare in this region, and to include the degree which ritual or religion are inculcated.

The construction of fortifications is an expensive undertaking and is therefore implemented only to meet, not exceed, the threat at hand. Thus, as a result of the size and scale of fortifications encountered at Caylán, Samanco, and Huambacho, I demonstrate that raiding constitutes a

majority of the warfare encountered in this region. The distribution of these fortifications also indicates what might have been the focus or objects of these surprise attacks. The absence of storage facilities (demonstrated in Chapter 6) suggests occupants were not concerned with prolonged sieges that are indicative of a standing army.

3.2.3 Implications of Warfare on Trade

Chicoine et al. (2013:22) indicate that Caylán, Huambacho, and Samanco form a hierarchical system which frequently engaged in trade. Caylán, due to its size, might have served as the capital. Furthermore, Samanco is a residential and industrial complex which harvested and processed marine resources which were distributed to Caylán, Huambacho, and associated trade networks (Helmer 2014: personal communication). Huambacho on the other hand is an elite center where elaborate feasting and ceremony are evident; however, there is no evidence of residency (Chicoine 2006, 2010, 2011). At Huambacho, elite members of the coastal sphere of influence would have performed elaborate gatherings, replete with rituals, music, feasting, and libations which served to cement both community identity and the role of the elites within that community. These festivities might have likewise served to cement relationships with the elites of communities further south (Chicoine 2010). Lastly, Caylán may have functioned as both an elite residential complex and administrative center which oversaw the exchange of goods and acted as a gateway to both the upper valley and to trade routes to the Santa Valley. Evidence to support this hypothesis is presented in the form of camelid remains encountered at Caylán and Samanco (Chicoine and Ikehara 2011). Browman (1975:325), in his description of trade routes in the central highlands during the EHP, provides an example that potentially informs on trade environments along the coast. He states that along any given trade route, a caravan would have conducted business with settlements for products which included agricultural goods and pottery

in addition to acquiring a variety of objects to trade with settlements in other regions. In addition to trade he argues “llama caravans would have performed an educational function as well as fulfilling an economic need; new ideas and news of current events would be carried from one community to another along with the trade goods” (Browman (1975:325). Therefore, the defensive strategies in the lower valley might potentially illuminate the role of warfare in trade as well.

3.3 THE EARLY INTERMEDIATE PERIOD

Scholars define the Early Intermediate Period (A.D. 200-600) as a time of regional florescence exemplified through the development of the Moche, Recuay and Nasca cultures (Lanning 1967; Lumbreras 1974). This time period saw the development of militaristic polities which were preoccupied with the veneration of armed combat (Lau 2004:164-165). Arguably, through iconography, these cultures portray a more ritualistic form of warfare. According to Shimada (1994), arguments have been made for warfare as a mode of territorial expansion for the Moche people. Conversely, iconography in conjunction with archaeological evidence (i.e., clubs from Huaca de la Luna, Huaca Cao Viejo, and Dos Cabezas) suggests a greater use of ritual warfare over secular (Bourget 2001:94). Conversely, Nasca iconography (though it includes depictions of ritual decapitation) and bioarchaeological remains point to a secular form of warfare amongst local chiefdoms (Proulx 2001).

During the Early Intermediate Period, the Moche (A.D. 1-800) occupied the north coast and consisted of several religio-political regions (Chicoine 2011:526). The northern most region extended to Piura with its southernmost region being Ancash, of which the Nepeña Valley is a part (Chicoine 2011:526-527). According to Shimada (2010), these regions developed in different stages and varied in cultural and sociopolitical composition. The termination of Moche

architectural and hegemonic influences beyond the Nepeña Valley suggest that the valley constituted the southern boundary for the Moche; though their political influence is believed to have reached further south (Conklin and Moseley 1988:150).

Though physical remains of fortifications are not common for this time period it is argued that warfare played a major role (Topic 1982:262). Much of what is known of Moche warfare has been depicted in the iconography found on pottery and bioarchaeological remains (Quilter 2002; Sutter and Cortez 2005). It has been argued that combat consisted largely of fighting between elites; the victims of which were ritualistically sacrificed (Moseley 1992:193). As a result of research at the Moche site of Huaca de la Luna, Steve Bourget (2001) argues that these ritual sacrifices often corresponded with natural events such as the El Niño. Sutter and Cortez (2005:532), as the result of research conducted on mortuary samples in the Moche and Jequetepeque valleys, conclude that warfare occurred due to competition between Moche polities. As a result, sacrificial victims were war captives drawn from within the Moche people.

The Ancash region likely experienced warfare which involved “peer polities” ensconced in a series of conflicts and alliances with each other (Chicoine 2011:529). It is likely that the sites in the Nepeña Valley consisted of intrusive and non-defensive settlements which had replaced the early settlement patterns existing in the lower and middle valley (Proulx 1985). Proulx (1982:83-84) has described the occupation of the Nepeña by the Moche as being “fragmentary and tenuous.” Moreover, Moche ritual and administrative structures were built atop earlier sites with settlements located primarily on the valley floor, or low hills. Finally, the focal site for the Moche in the Nepeña Valley appears to be the large pyramid site of Pañamarca. This site contains several friezes which appear to depict warriors and priests.

The Moche were not the only people to occupy the Nepeña Valley during the Early Intermediate Period. In his surveys of the Nepeña Valley during 1960s and 1970s, Proulx (1982) identified approximately 42 upper valley settlements with pottery styles which associated them with the Recuay culture. He argues that these Recuay settlements were built upon older ones. Proulx describes the sites associated with Recuay occupation as being either hilltop platform mounds, habitation sites, or fortified sites. Furthermore, he states that the presence of iconography on a Moche IV stirrup spout bottle indicates that the Moche were in fact engaged in combat with the Recuay.

3.4 THE MIDDLE HORIZON

The Middle Horizon (A.D. 600-1100) marked the advent of the development of the imperialist states of the Wari and Tiwanaku (Janusek 2004; Kolata 1993:17; Tung 2007:941). Evidence suggests that the two cultures engaged primarily in exchange while maintaining defensive postures towards each other at their boundaries (Brown Vega 2008: 29-31). Williams (2002:366) states that, through examination of features such as Wari canals in the Torata Valley, there existed a strong competition for resources. Yet, while conflict between the two empires might have been minimal, the militarism and violence exhibited in their expansion is quite prevalent (Tung 2007).

The Wari Empire has been described as dominating a vast domain of the Andean landscape which would only be surpassed by the Inca just after the Wari's collapse (Tung 2008:296). Warfare in Wari times was a means to forcefully subjugate populations during the expansion of the empire (Lumbreras 1974). Tung (2007) offers an alternative viewpoint arguing that it is possible that the Wari, whether directly or not, altered their socio-political relationships between subordinate groups in a manner which fostered conflict (Tung 2007:943).

According to Proulx (1992:16), the Nepeña Valley witnessed an exponential increase in population during the Middle Horizon. He refers to these groups as “Wari-influenced” peoples. The intrusion of the Wari is argued to have led to an amalgamation of the Wari and Moche cultures on the north coast. Thus, this intermixing of cultures gave rise to the Chimú Empire (Bawden 1982:288). Recent studies, however, indicate that there was little direct Wari influence in the Nepeña Valley (Vogel 2011). Instead, there existed a Casma state polity which was based out of the archaeological site El Purgatorio.

3.5 THE LATE INTERMEDIATE PERIOD

The beginning of the Late Intermediate period (A.D. 1100-1470) marked the collapse of the Wari and Tiwanaku states, which were followed by the rise of the Chimú (Arkush and Tung 2013:29). The Chimú contrasted with previous states due to its use of warfare to consolidate large swaths of territory which resulted in defensive structures being erected by defending and opposing forces (Arkush and Tung 2013:29). Examples of architecture constructed to resist Chimú expansion include the “great wall,” in the middle Nepeña Valley (Proulx 1973:94), and the fortress of Acaray, in the Huara Valley (Brown Vega 2009:264).

Proulx (1973) was able to identify approximately 40 archaeological sites within the Nepeña Valley that could be associated with the Chimú occupation. These sites were centered on primary centers such as the Chimú administrative center of Huacatambo, in the lower valley; PV 31-29, in the middle valley; and the Tomeque region in the upper valley.

3.6 THE LATE HORIZON

During the Late Horizon (A.D. 1470-1532), the Inca emerged as “the premier example of Andean militaristic imperialism” (Arkush and Tung 2013:30). According to D’Altroy (2003), while the Inca were noted for practicing diplomacy, retribution and enculturation, warfare served

as the baseline for expansion. He contends that initially, the Inca relied on diplomacy such as gift-giving and favorable terms for the surrender of other groups as means to marshal the power needed to overtake larger enemy forces. Furthermore, once the Inca had expanded significantly, they altered their strategies to include the maintenance and security of their borders.

Consequently, the majority of the Inca fortifications were constructed near hostile frontiers.

D'Altroy (2003:207-209) concludes that the relationships between the Incas and frontier peoples were dynamic with the Incas becoming as aggressive or amiable as the situation dictated.

Correspondingly, Proulx (1973) indicates that there was minimal Inca presence in the Nepeña Valley. He contends that the lack of evidence might be due to a change in Chimú plainware pottery after Inca occupation. Proulx posits that the population within the valley had greatly decreased by time the Inca arrived. Consequently, the valley was mainly rural, and under the charge of Inca lords (Proulx 1973:83).

CHAPTER 4: METHODOLOGY

In the summer of 2013, I spent one month surveying the archaeological sites of Caylán, Samanco, and Huambacho with David Chicoine, Kimberly Munro, and Karina Tahua. Data were primarily acquired through pedestrian survey with Garmin[®] handheld GPS units (with 3-4 m of deviation) used to locate, document, and describe the location, construction, and distribution of defensive features. In addition to GPS points collected, photos were taken, features were drawn, and measurements were made of selected features and artifacts. GPS points were then uploaded into ArcGIS 10.0[®] for analysis. Utilizing the ArcGIS software permits me to decipher the distribution and orientation of fortifications at each site. The viewshed application in ArcGIS allows me to identify potential areas of concern for these defensive features and is the subject of Chapter 6.

The combined survey area of these three sites is slightly greater than 20.78 km² (See Appendix, a17, pg. 116). Fifty-five walls were documented at Caylán that comprise a total length of 7,171.39 m. Twenty-nine additional features including 25 lookouts, three parapets, and one fortress are identified as well. At Samanco, 36 walls equaling a total length of ~ 2,516 m are identified. A fortress is present; however, no lookouts or parapets are known. Huambacho contains 6 walls, ~ 1,171 m in total length, and only one rectangular structure which could have served as a lookout. . In sum, Caylán possesses 66% of all defensive features documented; followed by Samanco with 27% and Huambacho with 5%.

4.1 ANALYSIS THROUGH GEOGRAPHIC INFORMATION SYSTEM APPLICATIONS

Wheatley and Gillings (2000:2) state that GIS applications have the potential to “revolutionize our understanding of past landscapes”. GIS has become increasingly relied upon by archaeologists due to the range and diversity of its uses (Lake et al. 1998:27). An example of

this diversity includes the use of mobile, or handheld, GPS units that allow an archaeologist to make accurate analysis while on survey (Tripcevich 2004). Combining handheld GPS units to mark features with analyses via GIS software minimizes time and labor expenditures for archaeologists. As opposed to manually constructing maps and conducting analyses in the field, researchers can collect data then assess them on a computer in the laboratory. They are thereby permitted to optimize their time and energy addressing other aspects of their fieldwork.

One way in which GIS is relevant to my research, and to archaeology, is that it can be used to analyze the impact of the landscape on the social structures of pre-historic societies. Kosiba and Bauer (2013) state that the perception of an environment and how it influenced ancient social and economic structures has been a source of interest for archaeologists for some time. Moreover, they contend that the use of GIS has become an indispensable tool for addressing these issues. ArcGIS is a mapping software program that allows archaeologists to create three-dimensional digital representations of landscapes that can be manipulated to view the geography of a landscape as it might have been observed prehistorically. In other words, scholars are able to interpret the potential significance of a particular location for past societies (Kosiba and Bauer 2013).

I begin the GIS analysis of the collected data by transferring the manually collected GPS points to an Excel spreadsheet, and then applying the data to a map using GIS software. Next, I upload a layer with known spatial value, such as a base map. An image (i.e., satellite image, drawing, or aerial photo) is then georectified to that layer in order to provide a visual model on which to place the collected GPS points. I then upload the GPS points as an additional layer, which results in a detailed map depicting all the features located during the survey.

All walls that appear defensive in nature, along with possible lookouts, are assigned points. Random points taken at various loci along walls are used to reconstruct wall dimensions and distribution. I then use the editor feature in ArcMap[®] to trace the walls, which allows for clearer delineation. Smaller features, such as lookouts and other unidentified structures, are assigned one point to designate their location.

To establish the size and construction pattern of the features at Caylán I have selected several different 1 x 1 m and 2 x 2 m sections of walls to be drawn. I make complete drawings of some features (i.e., lookouts) which are not extensive in length. These features are identified by their preferable state of preservation and diagnostic value. Hand drawn plan and profile views are digitized with Adobe Illustrator. Once they are transferred into Illustrator, I trace a digital image over the original sketch. Once the sketch is removed a clear depiction of the wall and its features remain. The resulting images are compared with photographs of the original structure which aids in analysis. Due to the prevalence and variety of defensive structures at Caylán all sketches are completed there.

4.2 CAYLÁN (PV31-30) SURVEY AREA

At Caylán, an area of approximately 19.5 km² was surveyed (See Appendix, a18, pg. 117). Our team began at the southernmost portion of the site and proceeded to the north where we found what appeared to be the possible terminus for defensive positions associated with the northernmost periphery of Caylán. We made a sweep of the western and eastern peripheries of in an attempt to identify the terminus of defenses running longitudinally to the site. Caylán possess the greatest array of defensive structures which ranged from parapet walls to lookouts. Currently, I have identified 110 structures exhibiting defensive attributes associated with Caylán.

Initial survey at Caylán was dedicated to making a general assessment of the overall layout of the main residential complex, and the EHP walls within the immediate vicinity. Each wall was assigned a number and is catalogued with handheld GPS. Within the core complex we identify four perimeter walls (See Appendix, a19, pg. 118). To reiterate, previous excavation has tied these features to the Early Horizon due to the use of orthostats in constructing their bases (Chicoine 2006; Chicoine and Ikehara 2011). Additionally, Willey's (1953) survey of the Viru Valley to the north indicates that the use of small chinking stones to stabilize larger stones in wall construction is another indicator of Early Horizon structures.

Two of the walls (Walls 3 and 4) enclose the southern and eastern edges of the complex. Another wall (Wall 2) bisects the residential complex from southwest to northeast. The first wall documented (Wall 1) extends to the northwest from the middle of Wall 2. This wall is ~1 m in height by ~1 m in width, and is approximately 285m in overall length. Originating at the bisecting wall in the south, this wall terminates up a hill slope to the north. It appears to have been expediently built with larger rocks on the bottom, and smaller rocks on the top. The fill component consists of a mud and gravel mortar. A photo was taken of a 1m section of the wall to document composition and building technique (See Appendix, a20, pg. 119). Due to the presence of a substantial amount of collapse, I estimate this wall to have originally stood at a height of approximately 1m. Its short stature and location within the main residential complex suggests that it may have fulfilled some other purpose than defense.

Wall 2 is approximately 790 m in length, and completely crosscuts the northern portion of the residential complex. It begins on the northeastern slope of Cerro Caylán, and terminates at an intersection with easternmost wall. The dimensions are ~1m high by ~1.8 m thick. A 1:10-scale drawing was made of a segment of the wall (See Appendix, a21, pg. 119). As was noted

with the adjacent wall, substantial collapse indicates that this bisecting wall might have originally stood at 2m in height. A total of six GPS points have been taken to indicate several features that were located along the wall. Where this wall intersects with the first, there is what appears to be a parapet section which measures 1.6 m wide by 1.6 m tall. Toward the western end of the bisecting wall, another parapet section was located in close proximity to what appears to be either a staircase or room that is oriented in an east-west direction. The dimensions of this feature are 3.43 m by 1.26 m. The location of the wall is significant, because it constitutes a shift in site formation as the structures to the north of the wall were abandoned. The stones from these structures were then used to construct this defensive wall (Chicoine and Ikehara 2011).

During excavations in 2009, the Caylán team documented a potential parapet while excavating unit HP-3 along the eastern portion of Wall 2 (See Appendix, a22-23, pp. 110-121) (Chicoine and Ikehara 2009:33). Excavations revealed that the bisecting wall was built atop a previously existing wall that had originally been associated with a plaza. In contrast to earlier periods this wall was built without the use of mud mortar. The wall was erected with stones from earlier structures to the north of the wall which suggests that portions of the walls at Caylán were built during a late phase of occupation during the Early Horizon (Chicoine and Ikehara 2014:12). This is further substantiated by radiocarbon dating which places the construction of Wall 2 between 405 and 380 B.C.

Excavations also documented a cane roof in association with this parapet. The roof might have provided shade from the sun and temporary protection from incoming projectiles; however, it would have greatly interfered with the use of slings in hurling projectiles at the enemy. If cane roofs were associated with the parapets at Caylán this may call into question the type of weapons being used in the defense at the site. I discuss the implications of reed roofs further in Chapter 6.

Extending from northwest to southeast for approximately 130 m, Wall 3 is relatively short and fragmented. It is possible that it extended the entire eastern portion of the residential complex from the bisecting wall to the south wall; however, due to collapse and the intrusion of vegetation, it is difficult to tell. The dimensions of the Wall 3 were taken at its southern terminus, and are 1.03 m high by 1.3 m wide. There is ~80 cm of rubble which would have made the wall approximately 2m in original height.

Wall 4 begins on the eastern slope of Cerro Caylán, and runs northeast along the southern edge of the fort, Cabeza de León, and terminates at the far southwest corner of the residential complex. The total length is approximately 908 m. The dimensions are 1.1m high by 1.5m wide with approximately 1m of associated collapse. An exceptionally preserved parapet was encountered at approximately 700 m from the walls west end. The dimensions of the parapet are ~4 m long by a total height of 1.4 m and a total width of 1.4 m (See Appendix, a24, pg. 122).

Moving further along the wall, to the east, there is a large depression suggesting a possible dry moat. This is unusual, however, as the dry moat is located on the inside of the wall. In this area the south wall stands at 2.19 m tall by ~93 cm wide. Due to the significant amount of collapse, it is possible that the wall might have originally stood at a height of ~4 m. Beyond this depression, the south wall resumes its average height of 1.6 m.

At the southwest corner of the core complex, is the hill Cabeza de León. This hill is encircled by a series of walls, and is surmounted by a rectangular structure referred to as Fortress Caylán. The perimeter of the structure measures approximately 286 m and contains several small rooms and compartments within it. At present, the fortress has not been excavated and does not appear to be associated with fortifications such as parapets and bastions; however, it is in a defensible position adjacent to the residential structures which makes it a potential refuge for

occupants seeking shelter from an advancing enemy. Similar structures are encountered at Samanco and Huambacho. They have also been identified in surveys of the Moche Valley to the north (Topic and Topic 1978). I discuss the implications of these structures further in Chapter 6.

Traversing outward away from the residential core of Caylán we encounter several walls that are concentric in construction, yet varying in length. Several segmented walls sit atop Cerro Caylán, and along its southwest slope. Additionally, we documented segments of walls running along the ridge of the hill to the north of the residential complex. I have interpreted segmentation of these walls as a result of their association with steep inclines and cliff faces. The steep terrain makes it unnecessary to construct defensive features over it.

Approximately 348 m to the northwest of the residential core, we encountered a series of walls running southeast to northwest between Caylán and the adjacent Cerro Pan de Ázucar. These walls do not appear to be associated with defensive features such as parapets or moats. They lie to the west of a larger, potentially later, wall (Wall 5) that likewise appears to separate Caylán from Cerro Pan de Ázucar.

This larger wall is approximately 602 m in length, and is the tallest wall encountered during this survey; some sections standing at a height over 5 m. It exhibits multiple, possibly three, construction phases (See Appendix, a25, pg. 123). The lower third of the wall is assembled with large stones heavily interlaid with smaller chinking stones which is indicative of Early Horizon construction (Willey 1953). The remaining portion of the wall is constructed with loosely stacked large stones. Though chinking stones are still being used, they appear to occur in lower frequency. In addition, the wall appears to have been constructed, horizontally, in segments. Due to poor preservation, I am unable to get an exact measurement of these segments.

Collapse along several points on this wall reveal a fill layer between the stones which consists of sand, soil, plant material, and potsherds; suggesting that during the later construction phases, trash was used as a source of fill. Photos are taken of the potsherds found in the fill from the upper portion of the wall to give a general chronology of its construction. The potsherds found appeared to be Casma-style sherds consisting of raised stamped circle-and-dot, punctated, and a combination of the two (See Appendix, a26-27, pg. 124).

To the northwest, approximately 611 m from the residential core, lies a ridgeline wall with similar dimensions (~90 cm high by ~1 m wide) to those encountered in the immediate vicinity of Caylán. It begins on a ridgetop to the north of Cerro Caylán, and meanders along northwest for ~1,082m. Apart from its length, this ridgeline wall is unique for its association with several structures with an orientation towards the pampa that parallels the western periphery of Caylán. The wall is fairly short in stature which calls into question its tenability; however, its position along the ridgeline allows for concealment of personnel in addition to visibility of the pampa below, which may elude to its use as concealment for observation of the neighboring pampa.

The first features encountered along the ridgeline wall include three small rock piles approximately 47 m north from the start of the wall. The piles consistently measure ~1 m high and ~2 m across which might suggest positions to hide behind as well as act as possible vantage points. Further north along the wall, at approximately 300 m, another series of rock piles with similar dimensions were documented.

The second set of features identified are three semicircular structures which lie ~311 m south of the terminus of the ridgeline wall (See Appendix, a28, pg. 125). These structures appear to be a small cluster of lookouts. I have defined these structures as lookouts due to their shape

and placement along elevated vantage points. These structures do not fit the current definitions of lookouts encountered on the coast of Peru as they are not associated with other fortified structures (i.e., parapet walls, bastions, or towers) (Brown Vega 2008). I define these features in detail in Chapter 6, and provide viewshed analysis to support this interpretation.

The lookouts measure 2.5 m wide by 2.5 m in breadth are positioned on eastern side of the ridgeline wall overlooking the pampa to the west. Further survey of the ridge tops along the hills which make up the northeastern periphery of Caylán, revealed an additional 22 of these lookout structures (See Appendix, a29, pg. 126). While the size and shape of these structures slightly vary, their orientation is consistently directed to the north-northwest, and there appears to be a pattern to their distribution.

Several other structures have been encountered, the functions of which have yet to be determined. One such example includes a wall which bisects the pampa to the northwest of Caylán. This wall is ~243 m in length, and can be viewed from atop the ridgeline at the end of the ridgeline wall. It is unique as it possesses what appear to be partitions extending off of its northern face away from Caylán. These partitions are constructed at 3 m intervals, extending 3 m away from the face of the wall.

Currently, we posit that if the wall served a defensive purpose, it could have been a staging point from which raiding parties could disembark towards Caylán. If this be the case, two questions are posed: (1) How could the enemy effectively stage themselves behind a wall that is clearly visible to defenders occupying the ridgeline wall, and (2) What might this wall imply about the form of conflict taking place between Caylán and its aggressors?

Two walls located ~5 km to the northeast of the core complex are equally perplexing. The first is a segment of wall approximately 175 m and oriented east to west. It parallels another wall which lies directly south. Both appear to possess parapets which are oriented to the south towards Caylán. The second wall forms a ‘dogleg,’ whereby it crosses a modern road and continues ~5km to the east where it terminates somewhere the north of the modern town of Nepeña. Though the exact implications of these walls cannot be discerned, I provide model for their potential use in Chapter 6.

There are several structures of currently unknown function. These structures range in size and construction as well. Further analysis may shed light on the intended usage of these features. Currently, I refer to these structures as ‘outposts’ as opposed to simple lookout structures. Outposts appear to have been large enough to have potentially housed individuals and goods such as food and weapons. Remnants of activity at these structures are evidenced by the appearance of items such as shell remains and quartz debitage (See Appendix, a30-31, pg. 127). Not all of these structures are associated with artifacts, thus further impeding potential interpretation.

One such example is the structure, Outpost A, located on a hill 2.5 km to the north of Caylán, and to the west of Cerro Pan de Azúcar (See Appendix, a32, pg. 128). It consists of a semicircular fragmented wall associated with what appear to be rooms. To the north of these rooms are a series of terraces descending the northern slope of the hill on which this structure sits. The terraces are not easily discernable, and there are no surface artifacts present to suggest a possible function for this structure.

Lying approximately 2 km north of the previous feature is a ~6 m by ~4 m L-shaped structure (See Appendix, a33, pg. 129). This structure possesses two, possibly three, partitioning walls which extend to the east away from the ~6 m portion of the edifice. These partitioning walls extend between ~2 m to 2.5 m outward. Again, there are no surface artifacts present to suggest potential activity here.

To the northeast of Caylán (<1.5 km), lies another unknown structure consisting of several fragmented walls. It is difficult to interpret the overall layout of the structure. It looks like a constructed feature due to the uniformity of masonry present in each wall segment (See Appendix, a34, pg. 130). This structure, and those mentioned above, exhibits such a degree of collapse that (in conjunction with the lack of artifacts) makes it difficult to determine what time period it is associated with.

During the survey at Caylán we encountered an open area of land to the east of the northern ridgeline wall which was covered in *Tillandsia* plants. These plants, in conjunction with the open landscape, have been depicted in the battle scenes in Moche iconography and might serve as a marker for possible battlefields. This observation highlights the potential to use iconography in order to identify otherwise undetected elements of warfare in the archaeological record; however, this methodology is inefficient (See Appendix, a35, pg. 131).

4.3 HUAMBACHO (PV31-103) SURVEY AREA

The same methods of survey at Caylán were used to delineate the defensive structure distribution at Huambacho. As I have identified in Chapter 1, Huambacho shares stylistic similarities (architecture and artifact assemblage) with Caylán. In contrast to Caylán, the main plaza complex at Huambacho appears to lack any discernable fortifications. The Monumental Core also lies exposed on the valley floor.

As a result, we determined the best course of action was to document the walls at Cerro Popo, a small hill to the west of monumental core (See Appendix, a36, pg. 132). This hill appears to be similar to Cerro Cabeza de León at Caylán in that it possesses features that may suggest its role as a fortified refuge. The extent of the features at Cerro Popo constitute a survey area of approximately .28 km², and consist primarily of a series of walls; the functions of which have yet to be determined. One large wall encircled the base of Cerro Popo while the remaining five walls were segmented and appeared to be randomly placed.

Wall 1 encircles the majority of the southern portion of Cerro Popo (roughly three quarters). It is constructed with larger rocks than the previous two, and is ~1 m wide by ~30 cm tall in some places while standing as tall as ~1 m in other areas toward the eastern portion of the hill (See Appendix, a37, pg. 133). Significant rock fall suggests that the wall might have originally stood at a height of ~2 to ~3 m. On the eastern side of Cerro Popo, there exists a small rectangular structure overlooking the portion of pampa running north to south between it and the main complex at Huambacho.

Wall 2 is approximately 136 m in length, and is oriented in a north-south direction along the western slope of Cerro Popo. It is constructed with small rocks, and associated with relatively little collapse. The dimensions of this wall are ~50 cm wide by ~10 cm tall. Approximately 65 m to the west, further down the western slope of Cerro Popo is another wall. This wall is the same dimension as the first, and measures 150 m in length running north to south.

The remainder of the walls are segmented and short. For example, three segmented walls were encountered along the ridge extending to the adjoining peak south of Cerro Popo. Wall 3 measured ~2 m wide by only ~57 m long. Wall 4 was likewise ~2m wide, but only ~4 m long.

Due to the amount of wall collapse and their orientation, it is unclear if they were part of a larger whole, or as a lookout. Wall 5 is a relatively short as well, measuring ~26 m in length, ~1 m high, and ~20 cm wide.

At the peak of Cerro Popo, there is a rectangular stone structure; however, a cement platform has since been erected over the structure in order to facilitate the placement of a cross during Christian ceremonies. The dimensions for this structure are ~8 x ~10 m. Several small rooms, which have been labeled “recintos,” are situated to the south of the cement platform. They did not appear to be arranged in the same manner as the lookout structures observed at Caylán. Without excavation, it is difficult to make a definitive assessment as to the purpose of these rooms.

The walls and rectangular structure at Cerro Popo do not possess parapets nor do they delimit complete areas, with the exception of the large wall encircling the base of the hill. I will demonstrate that one potential function of these structures might have been as a refuge for the occupants at the Main Compound at Huambacho (I elaborate on this in Chapter 6). While excavations have only been conducted at the main compound (Chicoine 2006), there has yet to be any post-EHP structures identified within the vicinity of Huambacho. This negative evidence, in conjunction with an abundance of Casma phase cemeteries to the east and west of the site, lends weight to the structures on Cerro Popo dating to the EHP.

4.4 SAMANCO (PV31-4) SURVEY AREA

At Samanco, we have surveyed an area of approximately 1 km² (See Appendix, a38, pg. 134). Fortifications at this site consist of a series of ridgeline walls to the east and north, and possibly a defensive wall which enclosed the southern portion of Samanco’s residential and monumental core. Other features associated with the walls, such as parapets and lookouts, do not

appear to be present. It is evident, however, that the occupants of Samanco employed the use of naturally defensive geography in conjunction with their fortifications. All of the documented walls are associated with steep terrain that impedes, or completely halts, potential enemy advances. Approximately 5 km to the west lies the Pacific Ocean, while to the south Samanco commands a view of the valley floor. To the east, however, there is a spur which juts to the south impeding view of the pampa which runs from north to south between Samanco and Caylán. We decided not to pursue a survey into the northern periphery of Samanco, or past the boundaries immediately to the east, west, and south due to the positioning of Samanco in the surrounding geography.

The walls located on the slope of the eastern spur were constructed in a similar manner as those encountered at Caylán and Huambacho (i.e., quarried stones set into clay mortar). The Samanco walls differ in that they are situated very much like retaining walls whereby the interior is built into the hillside leaving on the top and exterior portions of a wall exposed. These walls were capped with a layer of reeds and mud, or clay, mortar which allowed for individuals to walk along the top of a wall (See Appendix, a39, pg. 135). The incline of the spur was such that it did not require any form of fortification built into it. Therefore, the presence of these walls, and the manner in which they were erected on the spur, has lead me to believe that these walls might have served as elevated observation platforms whereby individuals were able to see activity occurring to the east of Samanco further up-valley.

The larger walls at Samanco are relatively similar in size ranging between ~80 cm to 1.6 m in width by ~90 cm to 1.2 m in height; all of which depends on the level of collapse present at each wall. Prior to collapse, these walls appear to have originally measured approximately 2 m in width by 2 m in height. These dimensions are consistent with those present at Caylán and

Huambacho. As was previously mentioned, these walls were found to be associated with reed and mortar walkways which were built atop the walls in order to provide for possible observation of areas further inland. Additionally, there are several small walls which appear to be retaining walls in a small gully which served to prevent washout. Collectively, they measure approximately 50 cm in height by 50 cm in width. They appear to have been constructed with much smaller stones as compared to those used the larger walls.

4.5 LOWER VALLEY SITES NOT INCLUDED IN SURVEY

Caylán, Samanco, and Huambacho are selected based on the presence of potential defensive structures. Nevertheless, they are not the only Early Horizon sites to be documented in the lower valley. Additional sites include Cerro Blanco, Pañamarca and Sute Bajo. Cerro Blanco is described as ritual centers which were originally constructed during the Initial Period, then abandoned around 1000 B.C. This abandonment was followed by a period of megalithic renovation in the upper valley during the Nepeña Phase (Shibata 2010). Similar megalithic architecture is documented at a small temple at Pañamarca. These renovations correspond with the development the packed wall enclosure compounds at Caylán, Samanco, Huambacho, and Sute Bajo. The primary occupation of these sites occurred during the Samanco Phase after 500 B.C. (Chicoine 2011:436-437). The ritual significance is made evident at Cerro Blanco via elaborate jaguar, or feline, murals in association with multiple feasting events (Shibata 2010). Sute Bajo is reported to possess characteristics similar to Huambacho, such as public ceremony and administration from a group of elites (Cotrina et al. 2003). To date, no defensive architecture or weaponry has been identified in association with either Cerro Blanco, Pañamarca or Sute Bajo.

The temporal evidence which supports the renovation of these sites around the time of Caylán, Samanco, and Huambacho could conceivably point to the presence of ritual warfare whereby defenses might not be necessary.

4.5.1 Similarities Outside Nepeña

Similar patterns of Early Horizon settlement, architecture, and material culture are reported from the Casma Valley to the south (See Appendix, a40, pg. 136). These parallels suggests a coastal interaction sphere extended outside the Nepeña. Shelia and Thomas Pozorski (1987) have argued that sites such as Pampa Rosario and San Diego share cultural similarities with sites in the lower Nepeña.

San Diego, for example, is the largest Early Horizon site in the lower Casma Valley (Pozorski and Pozorski 1987:53). According to the Pozorskis' (1987), the architecture at San Diego shares striking similarities with Caylán. They describe the site as “covered by a series of interconnected architectural units including large and small rooms, corridors, plazas, courts, and small platform mounds,” consisting of locally quarried stone laid into silty clay mortar (Pozorski and Pozorski 1987:53). Moreover, they state that Pampa Rosario is constructed in much the same manner. Finally, they argue that the occupation of the Casma and Nepeña valleys consisted of multiple settlements which date back to the Preceramic. These settlements were later dominated in the Initial Period by invaders from around the upper Nepeña Valley, or beyond. Chicoine (2006:5) argues that this may not be the case, and that tenuous transitions in the Initial Period and Early Horizon are due to environmental and social factors; not as the result of outside invasion. Consequently, fortifications have yet to be documented at San Diego and Pampa Rosario. Weapons have only been documented at San Diego, and consists of a single mace head and ground slate points (n = unspecified) (Pozorski and Pozorski 1987:59-62).

CHAPTER 5: GEOSPATIAL INTERVISIBILITY

Another important GIS application that I apply to my research is viewshed analysis. A viewshed analyzes the “area on a three-dimensional surface that is visible from a specified set of points” (Price 2012:592). Therefore, viewshed analyses aid to determine fields of visibility from the defensive features documented in our survey. Thus, I am able to determine potential areas of focus and perhaps origins of enemy assaults.

Research in Peru attests to the limitations and the benefits of the use of GIS (Contreras 2008, 2010; Lambers and Sauerbier 2006). Lambers and Sauerbier, for example, caution against an over-reliance on the validity of viewshed analysis. They argue that the data that archaeologists use are drawn from a recent and corrupted landscape. Furthermore, the landscapes of the past have been altered over time as a result of geological and human processes (i.e., erosion, deposition, agriculture, and damming). Consequently, inferences made as a result of viewshed analysis will inevitably be fragmentary (Lambers and Sauerbier 2006:2).

Contreras (2009: 1006) counters this assertion by stating that the incomplete data can be rectified with a GIS-based interpolation tool. He argues that a baseline can be established from which successive strata can be reconstructed. Put simply, Contreras argues that archaeologists can start from a landscape of origin (i.e. a sterile context, or bedrock) then use that base layer to fill in the gaps in the stratigraphy from succeeding time periods.

Fortunately, the landscape within the lower Nepeña Valley, though it has experienced erosion, deposition, and human intrusion, still retains enough of its topography as to conduct relatively accurate viewshed analysis with a minimal margin of error (ie, changes in the valley landscape over the last 2500 years are fairly negligible). I apply this analysis through ArcGIS in order to determine possible areas of observations for the defensive structures at each of the three

sites; particularly at Caylán, as it possesses the majority of these structures. To get a sizable dataset, I conduct a viewshed analysis for 22 defensive positions at Caylán, 11 at Samanco, and seven at Huambacho.

5.1 VIEWSHED ANALYSIS OF CAYLÁN LOOKOUTS

Initially, I was uncertain as to the exact function of these structures, and only hypothesized their function as lookouts. Not until points were superimposed on an image of Caylán and its peripheral regions did a pattern emerge between the lookout posts and a particular semi-secluded region to the north of the Caylán complex. As a result, the lookouts proved to be a key component in my investigation.

Combining the definition provided in Chapter 2 with the orientation and distribution of the structures at Caylán has allowed me to develop a hypothesis regarding their function. I argue that the occupants of Caylán were concerned with defending the site from a threat which originated somewhere in the northern periphery. In order to substantiate this working hypothesis, viewshed, cumulative viewshed, and line of sight analyses are conducted. I propose that any patterns that may materialize as a result of these analyses will permit the identification of several elements: (1) an avenue of enemy approach; (2) overlapping of fields of view delineating an area of concern for the lookouts and supporting constant surveillance of enemy movement; (3) lookouts within view of each other to facilitate lines of communication; and (4) visibility along the coast is limited due to overcast weather conditions throughout much of the day. As a result, I conduct several buffer analyses in order to determine visibility at Caylán, Samanco, and Huambacho during clear and obscured periods of visibility.

The lookout structures, described in Chapter 4, are distributed throughout an area encompassing approximately 3 km². The application of viewshed analyses has revealed that from these positions, the occupants of Caylán were capable of observing much of the region to the north of the residential core (~41 km²). This expanse consists primarily of rugged terrain that includes ravines, washouts, and steep hills. These geographic features conceal movement which, in turn, serves as an ideal avenue of approach for potential enemy elements. As a result, the occupants at Caylán would have needed to erect positions from which to monitor this movement.

Initially, I conducted single viewshed analyses for each lookout structure at Caylán. While these images provide an area of visibility for individual lookouts, they are insufficient for identifying patterns or areas of focus. In addition, viewshed analyses identify all visible areas within a raster which extends beyond the limits of what an individual can observe on the actual landscape. I include an overlay of ancient Inca roads which were originally documented by Proulx in 1973. The relevance of these roads will be explained in Chapter 6.

As a result of the limited inferences permitted from a single viewshed, I apply a viewshed analysis to all 25 lookouts, then combine them via a cumulative viewshed. The resulting image indicates areas which can be observed by most of the sites compared to areas which can be viewed by a limited number of lookouts (See Appendix, a41, pg. 137). As a result, areas that are not highlighted are obscured from the sight of the lookouts at Caylán.

The area with the highest concentration of visibility extends to the south across the open valley floor. I disregard this area, because it can be viewed from multiple positions; to include the main residential complex at Caylán. Instead, the areas with limited visibility are the focus of study, because these areas indicate hard-to-see regions which require the strategic positioning of lookouts in order to monitor them.

When implementing surveillance, present-day security forces often situate lookouts so that fields of view overlap. Overlapping fields of view allow defenders to maintain continuous surveillance over an extended area. Thus, as the enemy moves out of sight, they inevitably cross over into another. Substantiating this observation might indicate that defenders were not only able to monitor enemy movement. They may have also been capable of signaling other lookouts who could, in turn, send support requests back to the main complex at Caylán. In order to validate this theory individual viewsheds are isolated in order to determine which lookouts fall within the field of view of any specified lookout.

Finally, visibility is severely limited by overcast weather conditions which range in intensity throughout the day. As a result, I ran a 1 km and 2 km buffer analysis in order to determine the observable area from Caylán lookouts during any given time. For instance, the previous example (See Appendix, a41, pg. 137) is a cumulative viewshed which encompasses each individual viewshed set at a 2 km limit. In doing so, an area of focus can also be discerned once buffers are applied. The application of buffers to the cumulative viewshed reinforces an orientation and concern for possible infiltration of the region to the north/northwest.

5.2 VIEWSHED ANALYSIS OF HUAMBACHO

A total of seven viewshed analyses are applied to points around Cerro Popo at Huambacho (See Appendix, a42, pg. 138). The decision to conduct analysis of Cerro Popo, as opposed to Huambacho, is based on the reduced visibility at the Main Complex of Huambacho due to its location on the valley floor. The viewshed analyses at Huambacho yields little evidence of specific areas of focus or overlapping fields of view. These viewsheds indicate visibility to the west, north, and east with vision obscured by hills to the south.

There is one rectangular-shaped structure located towards the northeast end of the large wall that encircles Cerro Popo. Conceivably, an observer standing at this point could issue warnings to the core complex at Huambacho. As a result, occupants might seek shelter atop Cerro Popo.

5.3 VIEWSHED ANALYSIS OF SAMANCO

Eleven points are selected for analysis at Samanco. Viewsheds are applied to the four corners of the fortress to the west of the core complex. The remaining seven points are applied to the easternmost portions of the Cerro Partido ridge top walls, and selected points along the walls atop the Cerro Botella to the north. These points are selected according to their perceived vantage over low-lying areas (See Appendix, a43, pg. 139). The issue at Samanco, as at Huambacho, is an overall lack of rectangular or semicircular features which might suggest patterned distribution of observation posts or lookouts. Yet, the viewshed analyses do indicate that sentries patrolling the walls at these locations could monitor movement along the valley floor to the east and south of the core complex at Samanco.

CHAPTER 6: DISCUSSION

The Early Horizon in the Nepeña Valley, as elsewhere along the coast, was marked by increases in sociopolitical development and an abandonment of Initial Period (1800-900 B.C.) complexes and architectural canons (Chicoine 2006). In the lower valley, monumental complexes such as Caylán, Samanco, Huambacho, and Sute Bajo were situated in the valley margins.

Increased tensions have been attributed to many factors. One observation is that an attempt was made by socio-religious leaders of the Initial Period to convert their ritual authority into coercive power (Burger 1992: 189). Another argument posits that drastic change on the coast may have stemmed from an invasion by highlanders. The origins of this invasion are considered to be either from the highlands of the Nepeña Valley, or perhaps from a source outside the upper valley (Pozorski and Pozorski 1987: 127).

During the Early Intermediate Period, the Moche occupied the north coast (Chicoine 2011: 526). The northernmost region extended to Piura with its southernmost region being Ancash, of which the Nepeña Valley is a part (Chicoine 2011:526-527). The cessation of Moche architectural and hegemonic influences beyond the Nepeña Valley indicate that the valley constituted the southern boundary for the Moche; however, their political influence may have extended further south (Conklin and Moseley 1988:150).

The sites in the Nepeña Valley consisted of intrusive and non-defensive settlements which had replaced the early settlement patterns existing in the lower and middle valley (Proulx 1985). Moche ritual and administrative structures surmounted earlier sites with settlements located on the valley bottom, or on low hills. The primary Moche settlement in the Nepeña Valley appears to be the large pyramid site of Pañamarca.

During the Middle Horizon, the Nepeña Valley saw a substantial increase in population. Initially, Proulx (1992:16) attributed this increase to the presence of what he referred to as “Huari-influenced” peoples. Moreover, the intrusion of the Wari is argued to have led to a unification of the Wari and Moche cultures on the north coast. This intermixing of cultures purportedly gave rise to the Chimú Empire (Bawden 1982:288). Conversely, new research indicates there was little direct Wari influence in the Nepeña Valley (Vogel 2011). Alternatively, there existed a Casma state polity which centered out of the archaeological site El Purgatorio.

6.1 SCALE AND INTENSITY OF CONFLICT

At present, the fortifications documented at Caylán, Samanco, and Huambacho display a similarity in defensive strategies. They draw on the use of elevated vantage points for visibility and advance warning to permit occupants to seek shelter in designated refuge structures. This evidence supports the existence of a cooperative defense network between these sites that implies a need to defend against a common enemy.

Similar fortification strategies have been identified in the Virú and Moche Valleys (Topic and Topic 1978; Wiley 1953). In their 1977 survey of the Moche Valley, Topic and Topic (1978) described agglutinated highland and coastal settlements. They state that populations were incorporated into larger walled settlements which possessed a walled fortification which was “distinct from the habitation area,” arguing that with “the development of trade routes and hierarchical patterning of sites, defense of communications routes is emphasized” (Topic and Topic 1978: 618). These observations appear to echo the fortification strategies and site distributions in the lower Nepeña Valley.

Caylán, Huambacho, and Samanco are speculated to have been a multitier polity. As such, raiding becomes more congruent with assertions by scholars, such as Arkush (2006), who have argued that raiding served to harass or terrorize. In addition, using recent ethnographic descriptions of complex chiefdoms indicates that war parties are often small (the raiding parties amongst the Fijian chiefdoms, between 200 and 400, is an example). Evidence of this can be found in the presence of potential refuge structures at each site. These structures appear to be walled enclosures that lack additional fortifications, such as bastions, parapets, or moats to withstand prolonged siege warfare. They do however permit occupants to seek temporary shelter in an elevated position from a small group such as a raiding party. Furthermore, water sources and food storage areas have yet to be identified at Caylán, Samanco, or Huambacho. No such facilities have been identified within the adjacent refuge structures either. Such features are required to sustain against prolonged attacks (Brown Vega 2008). Consequently, we can infer that assaults on these sites were constant enough to merit fortification; however, the enemy elements were small enough so as not to necessitate fortifications designed to defend against a standing army. This could also suggest that battles were carried out away from the settlements, perhaps in the pampas and intermountain areas in peripheries of the sites.

Complex settlements such as these have led scholars to argue that individual fortifications reveal a variability of warfare within a particular region (Solometo 2006; Webster 1998). This variability includes tactical organization, intensity and frequency of conflict, and predictability of enemy movement (Arkush 2011:67). Moreover, fortifications are “light, and tactics reliant on surprise, opportunistic assaults, and projectile fire” (Arkush and Tung 2013:309). Lastly, scholars argue that the construction of fortifications is expensive in the time, materials, and manpower invested (Arkush 2011:60; LeBlanc 1999). As a result, we may expect that the

fortifications encountered at Caylán, Samanco, and Huambacho are commensurate, and thereby, suggestive of the size of enemy forces and the scale on which conflict was waged (Arkush 2011:67). The presence of fortifications also suggests that the occurrence of warfare was frequent enough to warrant their construction (Solometo 2006: 30).

6.2 POLITICAL INTEGRATION AND ORIGIN OF THREATS

Caylán, Samanco, Huambacho, and Sute Bajo may have formed a hierarchical peer polity with Caylán as the capital. Furthermore, stylistic similarities in construction techniques and artifact assemblages hint at an association with Pamapa Rosario and San Diego in the Casma Valley to the south. In the Santa Valley to the north, Wilson (1988:140) argues there exists a possible boundary which would indicate that interaction was not always as peaceful as those with the Casma Valley to the south. Such a boundary is further evidenced by the existence of a possible buffer zone or no-man's land extending 48 km between the Nepeña and the Santa. To the north of the Santa, Wilson asserts that the Virú Valley exhibits contemporaneity with pottery types found in the Santa. He contrasts this with the Nepeña Valley, which possesses a greater variance in pottery styles in conjunction with the presence of defensive architecture. Thus, he concludes, there must have existed some degree of conflict between the Nepeña and Santa valleys. This argument remains untested as there is not sufficient archaeological evidence to support the case.

However, as I have demonstrated through the application of viewshed analyses in Chapter 6, when I compare the defensive features at the sites surveyed with previous research I can begin to determine the origin of said attacks. In addition to the direction of viewshed patterning, ancient pathways or llama trade routes are documented by Proulx during his 1968 and 1973 surveys of the Nepeña Valley. These routes run north to south between Caylán and

Samanco approximately 6km from the Caylán's westernmost defenses. A second route extends from the northwest to southeast approximately 3 km to the east of Caylán. Another route extends southwest to northeast approximately 5 km to the north. There is also a route following the Nepeña River to the upper valley that is approximately 2 km to the south. Consequently, Caylán is situated in an area that is optimal for enemy approach from both the northern and western routes (See Appendix, a44, pg. 140).

Caylán's location at the juncture of access routes to both the middle and upper Nepeña Valley, as well as the Santa Valley places the site in a key position to monitor and regulate a majority, if not all, of the traffic moving along these paths. The east/west path running along the Nepeña River into the highlands can be observed from both the parapets of the southern wall and from the hilltop fortress, Cabeza de León. Access from the Santa Valley may have been regulated by the lookout features which are situated in the northwestern periphery of Caylán. Viewshed analyses of the defensive structures support an overall emphasis on securing the approximately 17 km² of hilly terrain extending north of the main complex. As a result, defenders at Caylán were afforded the opportunity to repel assaults along the series of interwoven washouts and gullies that run throughout this area. Speculatively, these depressions are wide enough to grant raiding parties, numbering in the hundreds, access to the northern limits of the core complex at Caylán. From this point, the enemy could have conceivably executed surprise raids on the main settlement complex and its occupants.

Lookout positions would have permitted small groups of approximately two-to-four defenders to occupy each structure in order to monitor movement in the crevices and washouts in the north. Being located on a ridgeline, lookouts allowed for the potential use of signaling in order to transmit warnings back to the main complex to summon additional troop support.

Alternately stated, these advance warning systems would permit defenders to deny the element of surprise to the enemy (Rowlands 1972:458). Viewshed and buffer analyses indicate that the lookouts were arranged in a way as to allow for overlapping fields of view for added security. Overlapping fields of view allow constant viewing of terrain so that there is never a point at which an enemy can move undetected. It follows then that once defenders at one lookout began to lose sight of an enemy unit, said unit would inevitably cross into the field of view from a corresponding lookout.

Individuals approaching Caylán can gain access by traversing the small *quebrada*, or gully, that serpentine through the hills to the north of Caylán before opening into the valley bottom to the east of the site. This quebrada is an ideal avenue of approach from which the Caylán lookouts are capable of monitoring from the ridgeline above. At the southern end of the quebrada lies a wall which extends east to west. As described in Chapter 4, the wall possesses a series of equidistant partitions on its northern side. The location of the wall, in conjunction with the partitions, has led us to posit that it could have served as a staging point of some kind. Future analysis of this wall could potentially shed light on the significance of the ravines, gullies, and washouts monitored by the Caylán lookouts.

The defenses at Samanco vary somewhat from Caylán, and are a subject of continuing analysis as excavation there is still ongoing. During the survey, we documented ridge top walls to the east and northeast, in addition to Fortress Samanco on the western periphery of the site. Helmer (2014: personal communication) has also documented a potentially defensive wall which extends east to west along the southern portion of the residential complex. Here, as at Caylán, fortifications appear to imply an advanced warning system by which occupants could seek shelter from an advancing enemy (See Appendix, a45, pg. 141).

The easternmost walls at Samanco are built into the sides of descending slope, and therefore prohibit individuals from seeking refuge behind them. They do, however, permit sentries to walk along surfaces consisting of reeds inlaid into mud and clay mortar which provide platforms to conduct surveillance of the valley floor to the east. This is made evident from the aforementioned trade route which runs between Samanco and Caylán. Due to these elevated vantage points, guards might have provided advance warning to the residents at Samanco. At that point they could seek refuge in the Fortress Samanco located atop a hill in the western periphery. The location of this fortified refuge eludes to an emphasis on permitting occupants to seek refuge away from the threat; further supporting an approach from the east.

Huambacho, however, lies in an untenable position on the southern valley floor. Huambacho sits along the ancient route running to the east of Samanco. Upon sighting attackers in this area, Samanco would be able to intercept them before they descended upon Huambacho. In turn, the structure at the northeast portion of the wall that encircles Cerro Popo affords an observer the opportunity to provide warning to occupants at Huambacho should the enemy evade Samanco's observers. As a result, occupants might seek asylum in the structure atop the Cerro Popo (See Appendix, a46, pg. 142).

6.3 COMPARATIVE PERSPECTIVES: THE NATURE OF WARFARE

Turning now to the nature of warfare, I emphasize several factors which might potentially illuminate the question of ritual warfare in the lower valley. I compare the fortified Early Horizon site of Chankillo (Ghezzi 2006; Ghezzi and Ruggles 2007, 2011) with the sites in the Casma and Nepeña valleys. Chankillo, I demonstrate, possesses several features that tie it to the sites surveyed. Conversely, there are other features that potentially distinguish it as a focal point for religious warfare within this region.

There are several similarities between Chankillo, Pampa Rosario, San Diego, and the sites surveyed in the lower Nepeña. Among these similarities is the use of ritual spaces to forge and maintain alliances while reinforcing inequalities between elites and those under their charge. Though these similarities exist, does this necessarily indicate a similar ritual function? Furthermore, there are striking differences in the fortification strategies at Chankillo that also suggests there may have been a variability in the nature of warfare in the Casma and Nepeña during the EHP.

Ghezzi (2006) has described the Early Horizon site of Chankillo as a fortified temple which may have served as the religious hub of a sun cult which was maintained by an elite warrior class. Within the fortress is a structure referred to as the Temple of the Pillars. This temple has been situated within the massive walls of the fort, yet elevated to permit visibility by assemblies of individuals situated outside the fort. He describes the amount of foot traffic in and out of the temple and fortress was high. The outlets which facilitated door bars have been placed on the *outside* of the multiple entranceways. On a ridge to the southeast of the fort lies a row of thirteen towers aligned north to south. Ghezzi and Ruggles (2007:1241) have described these towers as markers for solar observation whereby elites might monitor the movement of the sun, and consequently the changing of the seasons.

Additionally, Ghezzi (2006) has identified a collection of clay figurines depicting warriors clad in high-status items including headdresses, shirts, and nose and chest ornaments (See Appendix, a47, pg. 143). They are depicted carrying elite weapons such as darts, atlatls, slings and shields. Within the temple are a series of low relief murals depicting “two front-facing, alternated anthropomorphic heads, with possible bird and spider attributes” (Ghezzi 2006:74).

These factors, taken in conjunction with its architectural configuration, indicate that Chankillo might have been utilized for activities other than defense. As a result, Ghezzi argues that the construction of the fortress was the result of holy wars that posed a threat to gods and temples. Thus, the potential destruction of religiously significant edifices substantiated a need for the leadership necessary to mobilize labor for the construction of these fortifications. Finally, the establishment of a core of elites capable of dictating religious gatherings and seasonal cycles evidences the presence of a sacred knowledge that others would have fought to obtain (Ghezzi and Ruggles 2007). All of this evidence points to a form of warfare that is potentially different from the conflict taking place in the Nepeña Valley to the north.

The issue that arises when determining the nature of ritual warfare tends to be a conflation about the degree to which ritual, religion, secularism, and warfare intermingle (Fogelin 2007). In other words ritual might be an important component of religious warfare; however, ritual can also serve to means accomplish secular ambitions. Chicoine (2010) describes public ritual which took place at the sites of Caylán and Huambacho. This form of ritual served to reinforce power and status while cementing alliances and communal identities. As I have discussed in Chapter 2, ritual in this context is markedly different from attacking a site for sacred knowledge or in order to acquire victims for sacrifice to a deity (or deities). To further demonstrate this hypothesis, I compare the fortification strategies at Caylán, Samanco, and Chankillo.

Chankillo is a fortress which Ghezzi (2006) describes as fortifications of thick parapet walls and baffled entryways that surround the Temple of the Pillars. Thus, the primary objective at Chankillo was not the defense of people or resources as it is described as being removed from both. The primary objective was the security and defense of its ritual spaces. In contrast, the

defenses at the sites of Caylán and Samanco encircle structures that serve both as residential and monumental cores. Therefore, the emphasis of defense was placed not just on the protection of monumental facilities, but the security of its occupants.

Another line of evidence is the presence of weapons at these sites. According to Ghezzi (2006:72) there are thousands of river-rolled cobbles that litter the hillside upon which the fortress of Chankillo sits. Cobbles such as these are indicative of the use of slings and sling stones to repel attackers (Topic and Topic 1987). Ghezzi has also identified several other weapons associated with the clay figurines found at the site. These weapons include atlatls, darts, and shields. At Caylán and Samanco, only a minimal amount of weaponry has been encountered (Chicoine 2009; Daggett 1984). These weapons consist of ground slate blades and polished mace heads. The lack of artifacts, does not necessarily mean a lack of interpretive value. For example, weapons can be interred with individuals as part of a burial assemblage, and thus not readily visible on the surface. Alternatively, Earle (1997:121) offers a plausible explanation in his description of highland settlements in the Mantaro Valley. He states that surface surveys and excavations of Late Intermediate Period sites reveal only the “odd donut stone or arrow point.” Earle attributes this lack of weaponry as a transition in the *nature* of warfare. As a result, weapons such as spears, clubs, and sling stones were made redundant in favor of fortified structures and “minimally modified stones that could be hurled down at attackers” (Earle 1997:121).

Further differentiating the nature of warfare at sites in the lower Nepeña Valley from one such as Chankillo is their potential association with trade routes. As I have demonstrated Samanco and Caylán appear have situated their defenses in order to cope with threats originating outside of the valley. The presence of defensive structures at Caylán supports its potential

capacity as a fortified administrative center overseeing exchange within the lower valley. These observations, in combination with previous research (Chicoine and Ikehara 2011), indicate that Caylán could have served as the primary trade center which monitored and facilitated the exchange of goods between maritime and agricultural regions or polities (Chicoine and Rojas 2013). Research at Samanco yields evidence, such as the presence of camelid remains, suggesting that it participated in trade networks as well. Caylán's location at the juncture of overlapping regions (i.e., upper and lower valley regions), makes it optimal for facilitating trade transactions between geographically, and perhaps culturally, separated groups. Furthermore, there exists a potential for aggrandizers from outside communities to attack Caylán and Samanco in order to disrupt the production of goods. Similar scenarios have been identified around ports of trade in the Philippines (Junker 1994). Presently, however, features that might support this observation (i.e., storage facilities) have yet to be identified.

In other areas of the world, facilities like Caylán have been referred to as transshipment ports (Andrews 1990:165). These ports are not always associated with seafaring trade, and are often located at the juncture of two or more regions, for example the coast and the highlands. Andrews (1990) describes inland ports of trade that existed amongst the Classic Maya. These ports were part of a network of trading posts which transferred goods from the coast to inland settlements. According to Gallaway (2005), these ports of trade intended to ensure a secure and amicable trading environment between overlapping regions such as the aforementioned coastal and inland regions.

While previous research has revealed extensive ritual practice at Early Horizon sites (Chicoine 2006; Chicoine and Ikehara 2011), its applicability to warfare is not as apparent as at Chankillo. In sum, I propose that this form of warfare may be more secular in nature; not

religious. What this indicates is that warfare amongst early complex societies cannot simply be restricted to instances such as raiding for women, goods, or revenge. The ancient sociopolitical landscape is more complex than the categories researchers use to interpret it.

6.4 REFLECTIONS ON THE BROADER IMPORTANCE OF WARFARE IN THE STUDY OF COMPLEX SOCIETIES

Historically, warfare and its role in the development of complex societies has been a focal point for archaeologists (Carneiro 1970; Haas 2007; Spencer 2003; Wilson 1983). Yet, as Brown Vega (2008: 11-12) indicates, there has been a recent transition in an attempt to understand the social implications of conflict on everyday life. As a result, she argues, scholars such as Arkush and Stanish (2005) and Ghezzi (2006) have attempted to dispel the dichotomization of ritual and real warfare. Finally, Brown Vega (2008: 12) argues that though the attempt to subvert such categorizations, little recognition has been given to “warfare as a social construction imbedded in other aspects of life, and perhaps working in tandem with the making of other aspects of society and culture.”

The findings presented in this thesis buttress Brown Vega’s argument by indicating that in the Nepeña Valley there existed conflict whose nature might have varied greatly from the conflict occurring in the Casma Valley, a valley which the Nepeña is evidenced to be affiliated with. Thus, generalized descriptions of early complex societies only lead to oversimplification (Keeley 1996; Pauketat 2007). Oversimplification has a manifold impact on how early complex societies are interpreted; or more correctly, misinterpreted.

Consider again the Nasca of southern Peru. Proulx (2001) describes images of decapitated heads on Nasca pottery. He also mentions the documentation of hundreds of trophy heads by archaeologists which implies the use of a ritual tradition that has persisted in the Andes for centuries. Yet, when elaborating on his findings, Proulx explains that the trophy heads

depicted on Nasca pottery only show decapitation on the battlefield. There was no depiction of victims being lead off to sacrifice such as are depicted in Moche iconography. Instead, decapitated heads are depicted as lying amongst embattled combatants which suggests the nature of warfare was secular. He concludes that while heads were taken as symbols of victory in battle, they were not immediately utilized in ritual. As a result, the compartmentalization of the nature of warfare only partially reveals the social aspects of conflict within this society. Therefore, partiality leads to a mistranslation of the impact of warfare on the social experiences of individuals within a group.

6.5 FUTURE AVENUES OF RESEARCH

Research that could potentially improve our understanding of warfare amongst early complex societies on the North-Central coast include: (1) continuing excavation and accurate dating of features; (2) broader survey of other EHP sites in the region; (3) a stronger comparison with upper valley settlements; and (4) identification of related funerary deposits and the subsequent bioarchaeological analysis of human remains. In doing so the delineation warfare patterns of systems of interaction might be clearly understood. Furthermore, an accurate interpretation of the nature of warfare and its impacts on these early settlements can be brought to the fore.

Currently, there has only been one documented excavation of a defensive feature in the lower Nepeña Valley. Unit HP-3, at Caylán, is identified as a potential parapet (Chicoine and Ikehara 2009). This excavation revealed the construction of two walls, one atop the other, which suggests two different building phases. The later wall is argued to be associated with a parapet covered by a cane roof. This wall is also constructed without the use of mud mortar which implies that it could have been rapidly assembled; an observation further evidenced by the

borrowing of stones from preexisting structures to erect the wall. Therefore, future excavation at Caylán, Samanco, and Huambacho might confirm a specific event, or events, which spurred the immediate construction of fortifications. Furthermore, there have been no excavations of the fortresses, or what I have referred to as refuge structures at these sites. Data gathered from the excavation of these features may confirm their use as refuges or perhaps reveal them to be sacred fortified structures.

Datable material may likewise allow for the identification of a chronology of conflict. Then, we might approximate the onset of hostilities within this region. In addition, the U-shaped structures I have determined to be lookouts, are speculatively associated with the main fortifications surrounding Caylán's monumental core. Excavations and subsequent dating of these features are needed to confirm this.

Moreover, my studies have shown that sites in the lower Nepeña were fortified during the Early Horizon. They do not, however, address later periods whereby fortifications would again play an important role in settlement defense. Previous research attests to the reuse of defensive structures on the north-central coast and in other valleys further south such as the Huaura (Brown Vega 2008: 263; Wilson 1995: 205). According to Brown Vega (2008: 264) these fortified structures were hastily erected in the *norte chico* and northern valley regions around the Middle of the Late Intermediate Period (A.D. 1280-1470). She attributes this phase of construction to the expansion of the Chimú Empire.

Wilson (1995: 205) identifies these structures in the Santa, Nepeña, and Casma valleys by their association with Casma-incised pottery. During the 2013 survey, we encountered similar evidence around Wall 5 at Caylán (Chapter 4). This wall exhibited multiple construction phases. During one of the subsequent stages of construction, Casma-incised sherds were used as part of

the fill within Wall 5 indicating its renewed use in later periods. The reuse of these defensive structures adds a certain level of complexity to interpreting fortification strategies at sites such as Caylán. Thus, excavations permit a clearer interpretation of defensive strategies as they apply to specific time periods. Furthermore, such analysis might speak to differences in defensive focus (i.e., what occupants deem necessary to protect), and variations in the sociopolitical landscape over time.

The 2013 survey of the lower valley is limited to Caylán, Samanco, and Huambacho. In compiling the information for this thesis I am made aware that a broader survey of the lower valley is needed. Our survey encompassed the northern and southern portion of the lower valley. As a result, we have not identified additional defensive features that might further illuminate the impact of warfare amongst these settlements. Future survey may also identify a southern boundary between the Nepeña and the Casma. Presently, fortifications have yet to be identified in this part of the lower Nepeña. The presence, or absence, of a border between the two valleys can inform on the nature of interactions between the two.

Moreover, during the survey I only obtained information on defensive fortifications. LeBlanc (1999: 2) has stated quite cogently that “No group will be solely on the defensive if avoidable. Some form of offense is necessary to make the other side spend resources on defense. Otherwise, the opposing force gains an enormous military advantage.” In other words, it would be erroneous to assert that the occupants of Caylán and Samanco were incapable of mounting an assault on enemy elements. As a result, an extensive survey of the possible buffer area to the north of the Nepeña might aid in the identification of zones of contact, or battlefields, where forces engaged each other.

Speculative evidence does exist which may add some weight to Wilson's claim of conflict between the Nepeña and Santa valleys. First, Wilson indicates that the distance between the Santa and Nepeña valleys is only 48 km, which can easily be traversed by traders and raiding parties. Second, the majority of the lookout features and the northern ridgeline wall, at Caylán, appear to be oriented toward the north in the direction of a route that was known to have been used in trade routes. Unfortunately, current scholarship has only been able to hypothesize about the origin of conflict, such as that which might have existed between the Nepeña and Santa valleys (Wilson 1988), or a possible invasion from the highlands (Daggett 1987; Pozorski and Pozorski 1987).

Another way in which this research might be expanded is through a closer comparison of upper and lower valley settlements. Previous research states that fortification patterns at upper valley settlements suggest competition between settlements in conjunction with attacks from outside the valley (Daggett 1984; Wilson 1988). Perhaps the applications used during this survey (i.e., viewshed analyses) might elucidate additional avenues of enemy approach. In turn this may inform on the relevance of outside threats to the Nepeña Valley as a whole. In other words, inferences might be made as to whether the upper and lower valleys shared a common enemy.

What is certain is that this thesis has revealed a pertinent topic and understudied aspect of prehistoric sociopolitical affairs during the Early Horizon. In touching upon the subject of warfare in the formation of complex societies in the lower Nepeña, I have indicated a potential raiding force from outside the valley. The focus of these attacks was toward the harassment of occupants. It is evident by the fortification of residential complexes, advanced lookout systems, and the presence of potential refuge structures. The sociopolitical implications of these defensive systems suggests that though public ritual might have played an important role at Caylán,

Samanco, and Huambacho, its relevance to the conflict which engulfed them is yet to be clearly determined. This point is made evident when comparisons are made with Early Horizon sites outside the valley. Sites like Chankillo in Casma indicate direct ties to the protection of otherworldly knowledge which is substantiated through the fortification of sacred shrines. However, due to the potential association of Early Horizon sites in the Nepeña Valley with those in the Casma Valley, there exists the potential for the occurrence of multiple forms of warfare within this coastal region.

REFERENCES

- Allen, Mark
2006 Transformations in Maori Warfare. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*. Mark Allen, Elizabeth Arkush, eds. Pp. 184-213. Gainesville: University Press of Florida.
- Allen, Mark, and Elizabeth Arkush
2006 Introduction: Archaeology and the Study of War. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*. Mark Allen, Elizabeth Arkush, eds. Pp. 1-22. Gainesville: University Press of Florida.
- Andrews, Anthony P.
1990 The Role of Trading Ports in Maya Civilization. In *Vision and Revision in Maya Studies*. Flora Clancy, Peter Harrison, eds. Pp. 159-168. Albuquerque: University of New Mexico Press.
- Aquila, Richard
1978 Down the Warrior's Path: The Causes of the Southern Wars of the Iroquois. *American Indian Quarterly* 4(3):211-221.
- Arkush, Elizabeth
2011 *Hillforts of the Ancient Andes: Colla Warfare, Society, and Landscape*. Gainesville: University Press of Florida.
- Arkush, Elizabeth, and Charles Stanish
2005 Interpreting Conflict in the Ancient Andes: Implications for the Archaeology of Warfare. *Current Anthropology* 46(1):3-28.
- Arkush, Elizabeth, and Tiffany Tung
2013 Patterns of War in the Andes from the Archaic to the Late Horizon: Insights from Settlement Patterns and Cranial Trauma. *Journal of Archaeological Research* 41(4):1-63.
- Barnard, Alan, and Jonathan Spencer
1996 *Encyclopedia of Social and Cultural Anthropology*. New York: Routledge.
- Bawden, Garth
1982 Galindo: A Study in Cultural Transition. In *Chan Chan: Andean Desert City*. Michael Moseley, Kent Day, eds. Pp. 285-320. Albuquerque: University of New Mexico Press.
- Benson, Elizabeth P.
1997 *Birds and Beasts of Ancient Latin America*. Gainesville: University Press of Florida.

Billman, Brian

1996 *The evolution of prehistoric political organizations in the Moche Valley, Peru*. Dissertation, Department of Anthropology, University of Michigan, Ann Arbor, Michigan.

—

1997 Population Pressure and the Origins of Warfare in the Moche Valley, Peru. In *Integrating Archaeological Demography: Multidisciplinary Approaches to Prehistoric Populations*. R. R. Paine, ed. Pp. 285-310. Carbondale: University of Southern Illinois.

Bourget, Steve

2001 Children and Ancestors: Ritual Practices at the Moche Site of Huaca de la Luna, North Coast of Peru. In *Ritual Sacrifice in Ancient Peru*. Elizabeth Benson, Anita Gwynn Cook, eds. Pp. 93-118. Austin: University of Texas.

Browman, David L.

1975 Trade Patterns in the Central Highlands of Peru in the First Millennium B.C. *World Archaeology* 6(3):322-329.

Brown, Paula

1990 Big Man, Past and Present: Model, Person, Hero, Legend. *Ethnology* 29(2):97-115.

Brown Vega, M.

2008 *War and Social Life in Prehispanic Peru: Ritual, Defense, and Communities at the Fortress of Acaray, Huaura Valley* (Dissertation), Department of Anthropology, University of Illinois at Urbana – Champaign, Urbana, Illinois.

—

2009 Prehispanic Warfare during the Early Horizon and Late Intermediate Periods in the Huaura Valley, Peru. *Current Anthropology* 50(2):255-267.

Burger, Richard L.

1992 *Chavin and the Origins of Andean Civilization*. London, UK: Thames and Hudson.

—

1993 The Chavin Horizon: Stylistic Chimera or Socioeconomic Metamorphosis? In *Latin American Horizons*. D.S. Rice, ed. Pp. 41-82. Washington, D.C.: Dumbarton Oaks Research Library and Collection.

Carpenter, Roger

2001 Making War More Lethal: Iroquois vs. Huron in the Great Lakes Region, 1609 to 1650. *Michigan Historical Review* 27(2):33-51.

Carneiro, Robert L.

1970 A Theory of the Origin of the State. *Science* 169(3947):733-738.

1978 *Political Expansion as an Expression of the Principle of Competitive Exclusion*. Philadelphia: Institute for the Study of Human Issues.

1990 Chiefdom-level Warfare as Exemplified in Fiji and the Cauca Valley. In *The Anthropology of War*. Jonathan Haas, ed. Pp. 190-211. Cambridge: Cambridge University Press.

Chagnon, Napoleon A.

1988 Life Histories, Blood Revenge, and Warfare in a Tribal Population. *Science* 239(4843):985-992.

1990 Reproductive and Somatic Conflicts of Interest in the Genesis of Violence and Warfare Among Tribesmen. In *The Anthropology of Violence*. Jonathan Haas, ed. Pp. 77-104. Cambridge: Cambridge University Press.

1992 *Yanomamö* (Fourth Edition). Orlando: Harcourt Brace Jovanovich College Publishers.

Chase, Arlen F., and Diane Chase

1989 The investigation of Classic period Maya warfare at Caracol, Belize. *Mayab* 5 (1989): 5-18.

Chicoine, David

2006a *Architecture and Society at Huambacho (800-200 B.C.), Nepeña Valley, Peru*. Dissertation, School of Art, Media and American Studies, University of East Anglia – United Kingdom.

2006b Early Horizon Architecture at Huambacho, Nepeña Valley, Peru. *Journal of Field Archaeology* 31(1):1-22.

2010a Cronología y secuencias en Huambacho, valle de Nepeña, Costa de Ancash. *Boletín de Arqueología* 12:517-547.

2010b Elite Strategies and Ritual Settings in Coastal Peru During the 1st Millennium B.C. In *Comparative Perspectives on the Archaeology of Coastal South America*. Robyn Cutright, Enrique Lopez-Hurtado, Alexander J. Martin, eds. Pp. 191-212. Pittsburgh: Center for Comparative Archaeology.

2011 Feasting Landscapes and Political Economy at the Early Horizon Center of Huambacho, Nepeña Valley, Peru. *Journal of Anthropological Archaeology* 30:432-453.

Chicoine, David, and Hugo Ikehara

2009 *Informe Técnico Final del Trabajo de Campo: Proyecto de Investigación Arqueológica Caylán* (Field Report). Lima: Ministerio de Cultura.

2011 *Informe Técnico Final del Trabajo de Campo: Proyecto de Investigación Arqueológica Caylán* (Field Report). Lima: Ministerio de Cultura.

2014 Ancient Urban Life in the Nepeña Valley, North-Central Coast of Peru: Investigations at the Early Horizon Center of Caylán. *Journal of Field Archaeology* 39(4).

Chicoine, David, Hugo Ikehara, Koichiro Shibata, and Matthew Helmer

2014 *Plazas: Contexts of Performance and Sociopolitical Integration in Coastal Ancash during the Formative Period*. Paper presented at the 79th Annual Meeting of the Society for American Archaeology, Austin.

n.d. Territoriality, Monumentality, and Religion in Formative Period Nepeña, Coastal Ancash. In *Ritual Practice in the Andes*. Silvana Rosenfeld, Stefanie Bautista, eds. Austin: University of Texas Press (in press).

Chicoine, David, and Carol Rojas

2013 Shellfish Resources and Maritime Economy at Caylán, Coastal Ancash, Peru. *The Journal of Island and Coastal Archaeology* 8(3):336-360.

Cioffi-Revilla, Claudio

1996 Origins and Evolution of War and Politics. *International Studies Quarterly* 40(1):1-22.

1999 Origins and Age of Deterrence: Comparative Research on Old World and New World Systems. *Cross-Cultural Research* 33(3):239-264.

Collier, Donald

1955 *Cultural Chronology and Change as Reflected in the Ceramics of the Viru Valley, Peru*. Chicago: Chicago Natural History Museum.

Conklin, William, and Michael Moseley

1988 The Patterns of Art and Power in the Early Intermediate Period. In *Peruvian Prehistory*. R.W. Keating, ed. Pp. 145-163. Cambridge: Cambridge University Press.

Contreras, Daniel A.

2008 Reconstructing Landscape at Chavin de Huantar, Peru: A GIS-based Approach. *Journal of Archaeological Science* 39(2009):1006-1017.

-
- 2010 Reconstructing an Engineered Environment in the Central Andes: Landscape Geoarchaeology at Chavín de Huántar, Peru. In *The Archaeology of Anthropogenic Environments*. R. M. Dean, ed. Pp. 225-249. Board of Trustees, Southern Illinois University, Carbondale, IL.
- Cornell, George L.
1986 Introduction. In *The People of the Three Fires: The Ottawa, Potawatomi, and Ojibway of Michigan*. James A. Clifton, George L. Cornell, James M. McClurken, eds. Pp. iii-v. Grand Rapids: The Michigan Indian Press.
- Cotrina, J., V. Pena, A. Tandaypan, and E. Pretell
2003 Evidencias Salinar: sitios VN-35 y VN-36, Sector Sute Bajo, valle de Nepeña. *Revista Arqueología SIAN* 14:7-12.
- Crawford, Neta C.
1994 A Security Regime among Democracies: Cooperation among Iroquois Nations. *International Organization* 48(3):345-385.
- Daggett, Richard E.
1984 *The Early Horizon Occupation of the Nepeña Valley, North Central Coast of Peru*. Dissertation, Department of Anthropology, University of Massachusetts, Amherst, Massachusetts.
-
- 1987 Towards the Development of the State on the North Central Coast of Peru. In *The Origins and Development of the Andean State*. Johnathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 70-82. New York: Cambridge University Press.
- D'Altroy, Terence N.
2003 *The Incas*. Malden: Blackwell Publishing.
- Day, Jane
2001 Performing on the Court. In *The Sport of Life and Death: The Mesoamerican Ballgame*. Michael Whittington, ed. Pp. 65-77. London: Thames and Hudson.
- Demarest, Arthur, Matt O'Mansky, Claudia Wolley, Dirk Van Tuerenhout, Takeshi Inomata, Joel Palka, and Hector Escobedo
1997 Classic Maya Defensive Systems and Warfare in the Petexbatun Region: Archaeological evidence and interpretations. *Ancient Mesoamerica* 8(1997):229-253.
- Donnan, Christopher
1997 Deer Hunting and Combat: Parallel Activities in the Moche world. *Spirit of Ancient Peru* (1997):51-59.

- Earle, Timothy
1997 *How Chiefs Come to Power: The Political Economy in Prehistory*. Stanford: Stanford University Press.
- Elliott, Michelle
2005 Evaluating evidence for warfare and environmental stress in settlement pattern data from the Malpas valley, Zacatecas, Mexico. *Journal of Anthropological Archaeology* 24(2005):297-315.
- Ember, Carol R., and Melvin Ember
1992 Resource Unpredictability, Mistrust, and War: A Cross-Cultural Study. *The Journal of Conflict Resolution* 36(2):242-262.
- Ember, Melvin, and Carol Ember
1971 The Conditions Favoring Matrilocal versus Patrilocal Residence. *American Anthropologist* 73(3):571-594.
- Farmer, Malcom
1957 A Suggested Typology of Defensive Systems of the Southwest. *Southwestern Journal of Anthropology* 13(3):249-266.
- Feldman, Robert A.
1987 Nonegalitarian social systems in coastal Peru. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 9-14. Cambridge: Cambridge University Press.
- Fleming, John, Hugh Honour, and Nikolaus Pevsner
1998 *The Penguin Dictionary of Architecture and Landscape Architecture*, 5th edn. London: Penguin Books.
- Ferguson, Brian R.
1984 Introduction: Studying War. In *Warfare, Culture, and Environment*. Brian R. Ferguson, ed. Pp. 1-81. Orlando: Academic Press.
- 2006 Archaeology, Cultural Anthropology, and the Origins and Intensifications of War. In *The Archaeology of Warfare*. Elizabeth Arkush, Mark Allen, eds. Pp. 469-524. Gainesville: University Press of Florida.
- Flannery, Kent V.
1972 The Cultural Evolution of Civilizations. *Annual Review of Ecology and Systematics* 3:399-426.

- Fox, John, Wendy Ashmore, John Blitz, Susan Gillespie, Stephen Houston, Ted J. J. Leyenaar, Joyce Marcus, Jerry Moore, Patricia Urban, Edward Schortman, and David Webster
 1996 Playing with Power: Ballcourts and Political Ritual in Southern Mesoamerica. *Current Anthropology* 37(3):483-509.
- Fried, Morton H.
 1967 *The Evolution of Political Society*. New York: Random House.
- Galloway, Terrel
 2005 Life on the Edge: A Look at Ports of Trade and Other Ecotones. *Journal of Economic Issues* 34(3):707-726.
- Ghezzi, Ivan
 2006 Religious Warfare at Chankillo. In *Andean Archaeology III: North and South*. William Isbell, Helaine Silverman, eds. Pp. 67-84. New York: Springer.
- Ghezzi, Ivan, and Clive Ruggles
 2007 Chankillo: A 2300-Year-Old Solar Observatory in Coastal Peru. *Science* 315:1239-1258.
- Grinnell, George Bird
 1910 Coup and Scalp among the Plains Indians. *American Anthropologist* 12(2):296-310.
- Grossman, Dave
 1995 *On Killing: The Psychological Cost of Learning to Kill in War and Society*. New York: Back Bay Books/Little, Brown and Company.
- Haas, Jonathan
 1987 Introduction. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 1-4. Cambridge: Cambridge University Press.
- 1990 Warfare and the Evolution of Tribal Polities in the Prehistoric Southwest. In *The Anthropology of War*. Jonathan Haas, ed. Pp. 171-189 Cambridge: Cambridge University Press.
- 2007 Warfare and the Evolution of Culture. In *Archaeology at the Millennium*. G. Feinman, Douglas Price, eds. Pp. 329-350: New York: Springer.
- Haas, Jonathan, Winifred Creamer, and Alvaro Ruiz
 2005 Power and the Emergence of Complex Polities in the Peruvian Preceramic. *Archeological Papers of the American Anthropological Association* 14(1):37-52.

- Hastorf, Christine
1993 *Agriculture and the Onset of Political Inequity before the Inka*. Cambridge: Cambridge University Press.
- Hayden, Brian
1995 Pathways to Power: Principles for Creating Socioeconomic Inequalities. In *Foundations of Social Inequality*. Douglas Price, Gary Feinman, eds. Pp. 15-78 New York: Plenum Press.
- Heider, Karl
1997 *Grand Valley Dani: Peaceful Warriors*. Belmont: Wadsworth Group.
- Helmer, Matthew, David Chicoine, and Hugo Ikihara
2013 Plaza Life and Public Performance at the Early Horizon Center of Caylán, Nepeña Valley, Peru. *Nawpa Pacha: Journal of Andean Archaeology* 32(1):85-115.
- Hill, Erica
2003 Sacrificing Moche Bodies. *Journal of Material Culture* 8(3): 285-299.
- Janusek, John W.
2004 Tiwanaku and Its Precursors: Recent Research and Emerging Perspectives. *Journal of Archaeological Research* 12(2):121-183.
- Junker, Laura Lee
1994 Trade Competition, Conflict, and Political Transformations in Sixth- to Sixteenth-Century Philippine Chiefdoms. *Asian Perspectives* 33(2):229-260.
- Keeley, Lawrence
1996 *War Before Civilization*. Oxford: Oxford University Press.
- Keeley, Lawrence, Marisa Fontana, and Russell Quick
2007 Baffles and Bastions: The Universal Features of Fortifications. *Journal of Archaeological Research* 15(1):55-95.
- Keener, Craig S.
1999 An Ethnohistorical Analysis of Iroquois Assault Tactics Used against Fortified Settlements of the Northeast in the Seventeenth Century. *Ethnohistory* 46(4):777-807.
- Kolata, Alan L.
1993 *The Tiwanaku: portrait of an Andean civilization*. Cambridge: Blackwell.
- Kosiba, Steve, and Andrew Bauer
2013 Mapping the Political Landscape: Toward a GIS Analysis of Environmental and Social Difference. *Journal of Archaeological Method and Theory* 20(1):61-101.

- Kowalewski, Stephen, Gary Feinman, Laura Finsten, and Richard Blanton
1991 Pre-Hispanic Ballcourts from the Valley of Oaxaca, Mexico. In *The Mesoamerican Ballgame*. Vernon Scarborough, David Wilcox, eds. Pp. 25-44. Tucson: The University of Arizona Press.
- Kusimba, Chapurukha M.
2006 Slavery and Warfare in African Chiefdoms. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*. Mark Allen, Elizabeth Arkush, eds. Pp. 214-252. Gainesville: University Press of Florida.
- Lambers, Karsten, and Martin Sauerbier
2005 GIS-based Visibility Studies of the Nasca Geoglyphs at Palpa, Peru. In *Recording, Modeling and Visualization of Cultural Heritage*. Emmanuel Baltsavias, Armin Gruen, Luc van Gool, Maria Pateraki, eds. Pp. 249-261. London: Taylor & Francis.
- Lambert, Patricia M.
2002 The Archaeology of War: a North American Perspective. *Journal of Archaeological Research* 10(3):207-242.
- Lanning, Edward P.
1967 *Peru before the Incas*. Englewood Cliffs: Prentice-Hall.
- Larco, Rafael
1963 A Culture Sequence for the North Coast of Peru. In *Handbook of South American Indians, vol. 2: Andean Civilizations*. Julian Steward, ed. Pp. 149-175. Smithsonian Institution, Bureau of American Ethnology Bulletin, vol. 143. New York: Cooper Square Publisher, Inc.
- Lau, George
2004 Object of Contention: an Examination of Recuay-Mochey Combat Imagery. *Cambridge Archaeological Journal* 14(2):163-84.
- LeBlanc, Steven A.
1999 *Prehistoric Warfare in the American Southwest*. Salt Lake City: University of Utah Press.
- 2007 Why Warfare? Lessons from the Past. *Daedalus* 136(1):13-21.
- Lee, Wayne E.
2001 Early American Ways of War: A New Reconnaissance, 1600-1815. *The Historical Journal* 44(1):269-289.

- Liston, Jolie, and David Tuggle
 2006 Prehistoric Warfare in Palau. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*. Mark Allen, Elizabeth Arkush, eds. Pp. 148-183. Gainesville: University Press of Florida.
- Lucero, Lisa J.
 2003 The Politics of Ritual: The Emergence of Classic Maya Rulers. *Current Anthropology* 44(4):523-558.
- Lumbreras, Luis Guillermo
 1974 *The Peoples and Cultures of Ancient Peru*. Washington D.C.: Smithsonian Institution Press.
- Martindale, Andrew and Kisha Supernant
 2009 Quantifying the Defensiveness of Defended Sites on the Northwest Coast of North America. *Journal of Anthropological Archaeology* 28(2009):191-204.
- McKillop, Heather
 2004 *The Ancient Maya: New Perspectives*. New York: W.W. Norton and Company.
- McLeod, Toby, and Richard Holmes
 2001 Fortifications and Siegecraft. In *The Oxford Companion to Military History*. Richard Holmes, Hew Strachan, Chris Bellamy, Hugh Bicheno, eds. Pp. 308-312. Oxford: Oxford University Press.
- McNabb, Caitlyn Yoshiko
 2013 *Emergent Irrigation Agriculture and Settlement Patterns in the Lower Nepeña Valley, North-Central Coast of Peru* (Thesis), Department of Geography and Anthropology, Louisiana State University, Baton Rouge, Louisiana.
- Meggers, Betty J.
 1954 Environmental Limitation on the Development of Culture. *American Anthropologist* 56(5):801-824.
- Miller, Mary
 2001 The Maya Ballgame: Rebirth in the Court of Life and Death. In *Life and Death: The Mesoamerican Ballgame*. Michael Whittington, ed. Pp. 78-87. London: Thames and Hudson.
- Moseley, Michael E.
 1975 *The Maritime Foundations of Andean Civilization*. Menlo Park: Cummings Publishing Co.
- 1992 *The Incas and their Ancestors*. London: Thames and Hudson.

- Nilsson Stutz, Liv
 2003 *Embodied Rituals and Ritualized Bodies: Tracing Ritual Practice in Late Mesolithic Burials*. Dissertation, Department of Archaeology and Ancient History, Lund University, Lund, Sweden.
- Nossov, Konstantin S.
 2008 *Hittite Fortifications C. 1650 - 1750 B.C.* Great Britain: Osprey Publishing.
- Oficina Nacional de Evaluación de Recursos Naturales (ONERN)
 1972 *Inventario, evaluación, y uso de los recursos naturales de las costa: cuencas de los ríos Santa, Larcamarca, y Nepeña*. Lima: Oficina Nacional de Evaluación de Recursos Naturales.
- Otterbein, Keith F.
 1970 *The Evolution of War: A Cross-Cultural Study*. New Haven: HRAF Press.
- Pauketat, Timothy R.
 2007 *Chiefdoms and Other Archaeological Delusions*. Lanham: Alta Mira Press.
- Platt, Tristan
 1987 The Andean Soldiers of Christ: Confraternity Organization, the Mass of the Sun and regenerative warfare in ritual Potosi (18th-20th centuries). *Journal de la Société des Américanistes* 73(73):139-191.
- Pozorski, Shelia, and Thomas Pozorski
 1987a *Early Settlement and Subsistence in the Casma Valley, Peru*. Iowa City: University of Iowa Press.
- 1987b Chavin, the Early Horizon and the Initial Period. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 36-46. Cambridge: Cambridge University Press.
- Pozorski, Thomas
 1987 The Role of Irrigation Agriculture. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 111-120. Cambridge: University of Cambridge Press.
- Price, Maribeth
 2012 *Mastering ArcGIS (Fifth Edition)*. New York: McGraw-Hill.
- Proulx, Donald A
 1973 *Archaeological Investigations in the Nepeña Valley, Peru*. Dissertation, Department of Anthropology, University of Massachusetts, Amherst, Massachusetts.
- 1982 Territoriality in the Early Intermediate Period: The Case of Moche and Recuay. *Ñawpa Pacha: Journal of Andean Archaeology* 20(1982):83-96.

- 1985 *An Analysis of the Early Cultural Sequence of the Nepeña Valley, Peru*. Amherst: University of Massachusetts.
- 2001 Ritual Uses of Trophy Heads in Ancient Nasca Society. In *Ritual Sacrifice in Ancient Peru*. Elizabeth Benson, Anita Cook, eds. Pp. 119-136. Austin: University of Texas Press.
- Quilter, Jeffrey
2002 Moche Politics, Religion, and Warfare. *Journal of World Prehistory* 16(2):145-196.
- Rakita, Gordon, and Jane Buikstra
2008 Feather Waving or the Numinous? Archaeological Perspectives on Ritual, Religion, and Ideology. In *An Archaeological Perspective on Ritual, Religion, and Ideology from American Antiquity and Latin American Antiquity*. Society for American Archaeology. Gordon Rakita, Jane Buikstra (compilers). Pp. 1-17. Washington, D.C.: The SAA Press.
- Richter, Daniel K.
1983 War and Culture: The Iroquois Experience. *The William and Mary Quarterly* 40(4):528-559.
- Rostworowski, María
2004 *Costa peruana prehispánica: Prólogo a Conflicts over coca fields in XVIth century Peru*. IEP, Instituto de Estudios Peruanos.
- Rowlands, M.J.
1972 Defense: a factor in the organization of settlements. In *Man, settlement and urbanism*. Peter Ucko, Ruth Tringham, G.W. Dimbleby, eds. Pp. 447-462. Cambridge: Schenkman Publishing Company.
- Sahlins, Marshall D.
1963 Poor Man, Rich Man, Big-Man, Chief: Political Types in Melanesia and Polynesia. *Comparative Studies in Society and History* 5(3):285-303.
- Schaafsma, Polly
2007 Head Trophies and Scalping: Images in Southwest Rock Art. In *The Taking and Displaying of Human Body Parts as Trophies by Amerindians*. Richard Chacon, David Dye, eds. Pp. 90-123. New York: Springer.
- Scherer, Andrew, and Charles Golden
2009 Tecolote, Guatemala: Archaeological Evidence for a Fortified Late Classic Maya Political Border. *Journal of Field Archaeology* 34(3):285-305.

- Schreiber, Katharina J.
 1987 The expansion of Wari outside the Ayacucho Basin In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 91-96. Cambridge: Cambridge University Press.
- Service, Elman R.
 1962 *Primitive Social Organization: An Evolutionary Prospective*. New York: Random House.
- Shibata, Koichiro
 2010 Cerro Blanco de Nepeña dentro de la dinámica interactiva del Periodo Formativo. *Boletín de Arqueología PUCP* (12):287-315.
- 2011 Cronología, relaciones interregionales and organización social en el Formativo: esencia y perspectiva del valle bajo de Nepeña. In *Arqueología de la Costa de Ancash*. Miłosz Giersz, Ivan Ghezzi, eds. Pp. 113-134. Lima: Centro de Estudios Precolombianos de la Universidad de Varsovia.
- Shimada, Izumi
 2010 Moche Socipolitical Organization: Rethinking Data, Approaches, and Models. In *New Perspectives on Moche Political Organization*. Jeffrey Quilter, Luis Jaime Castillo, eds. Pp. 70-82. Washington, D.C.: Dumbarton Oaks Research Library.
- Snyder, Jack
 2002 Anarchy and Culture: Insights from the Anthropology of War. *International Organization* 56(1):7-45.
- Solometo, Julie
 2006 The Dimensions of War: Conflict and Culture Change in Central Arizona. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*. Mark Allen, Elizabeth Arkush, eds. Pp. 23-65. Gainesville: University Press of Florida.
- Spencer, Charles S.
 2003 *War and Early State Formation in Oaxaca, Mexico*. Proceedings of the National Academy of Sciences of the United States of America 100(20):11185-11187.
- Spielmann, Katherine A.
 1994 Clustered Confederacies: Sociopolitical Organization In The Protohistoric Rio Grande. In *The Ancient Southwestern Community: Models and Methods for the Study of Prehistoric Social Organization*. Wirt Wills, Robert Leonard, eds. Pp. 45-54. Albuquerque: University of New Mexico Press.
- Stanish, Charles
 2001 The Origin of State Societies in South America. *Annual Review of Anthropology* 30:41-64.

- Sutter, Richard, and Rosa Corte
2007 The Nature of Moche Human Sacrifice: A Bio-Archaeological Perspective. *Current Anthropology* 46(4):521-549.
- Taladoire, Eric, and Benoit Colsenet
1991 "Bois Ton Sang, Beaumanior": The Political and Conflictual Aspects of the Ballgame in the Northern Chiapas Area. In *The Mesoamerican Ballgame*. Vernon Scarborough, David Wilcox, eds. Pp. 161-174. Tucson: University of Arizona Press.
- Tello, Julio
1943 Discovery of the Chavin Culture in Peru. *American Antiquity* 1(1943):135-160.
- Thorpe, I. J. N.
2003 Anthropology, Archaeology, and the Origin of Warfare. *World Archaeology* 35(1):145-165.
- Topic, John, and Theresa Topic
1978 Prehistoric Fortification Systems of Northern Peru. *Current Anthropology* 19(3):618-619.
- 1987 The Archaeological Investigation of Andean Militarism: Some Cautionary Observations. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 47-71.
- Topic, Theresa L.
1982 The Early Intermediate Period and its Legacy. In *Chan Chan: Andean Desert City*. Michael Moseley, Kent Day, eds. Pp. 255-284. Albuquerque: University of New Mexico Press.
- Toy, Sidney
1955 *A History of Fortification from 3000 B.C. to A.D. 1700*. Yorkshire: William Heinemann Ltd.
- Tripcevich, Nicholas
2004 Flexibility by Design: How Mobile GIS Meets the Needs of Archaeological Survey. *Cartography and Geographic Information Science* 31(3):137-151.
- Tung, Tiffany A.
2007 Trauma and Violence in the Wari Empire of the Peruvian Andes: Warfare, Raids, and Ritual Fights. *American Journal of Physical Anthropology* 133(2007):941-956.
- 2008 Dismembering Bodies for Display: A Bioarchaeological Study of Trophy Heads from the Wari Site of Conchopata, Peru. *American Journal of Physical Anthropology* 136(2008):294-308.

- United States Army, Headquarters Department of
2007 *Field Manual (FM) 3-21.8 The Infantry Rifle Platoon and Squad*. Washington, D.C.: Department of the Army.
- Vandkilde, Helle
2006 Warriors and Warrior Institutions in Copper Age Europe. In *Warfare and Society: Archaeological and Social Anthropological Perspectives*. Ton Otto, Henrik Thrane, Helle Vandkilde, eds. Pp. 393-422. Denmark: Aarhus University Press.
- Vencel, Slavomil
1984 War and Warfare in Archaeology. *Journal of Anthropological Archaeology* 3:116-132.
- Vogel, Melissa
2011 Style and Interregional Interaction. *Ñawpa Pacha* 31(2):201-224.
- Warner, John
2010 *Interpreting the Architectonics of Power and Memory at the Late Formative Center of Jatanca, Jequetepeque Valley, Peru*. Dissertation, Department of anthropology, University of Kentucky, Lexington, Kentucky.
- Weigand, Phil C.
1991 The Western Mesoamerican Tlachco: A Two-Thousand-Year Perspective. In *The Mesoamerican Ballgame*. Vernon Scarborough, David Wilcox, eds. Pp. 73-86. Tucson: University of Arizona Press.
- Wheatley, D., and M. Gillings
2000 Vision, perception and GIS: developing enriched approaches to the study of archaeological visibility. In *Beyond the Map: Archaeology and Spatial Technologies*. Gary Lock, ed. Pp. 1-27. Series A: Life Sciences, Vol. A. Ravello: IOS Press.
- Willey, Gordon R.
1953 *Prehistoric Settlement Patterns in the Virú Valley, Peru*. B.o.A. Ethnology, ed. Washington: Government Printing Office.
- Williams, Patrick Ryan
2002 Rethinking Disaster-Induced Collapse in the Demise of the Andean Highland States: Wari and Tiwanaku. *World Archaeology* 33(3):361-374.
- Williams, Thomas
1870 *Fiji and the Fijians* 3rd ed. George Rowe, ed., London: Hodder and Stoughton.
- Wilson, David J.
1983 The Origins and Development of Complex Prehispanic Society in the Lower Santa Valley, Peru: Implications for Theories of State Origins. *Journal of Anthropological Archaeology* 2:209-276.

1987 Reconstructing Patterns of Early Warfare in the Lower Santa Valley: New Data on the Role of Conflict in the Origins of Complex North Coast Society. In *The Origins and Development of the Andean State*. Jonathan Haas, Shelia Pozorski, Thomas Pozorski, eds. Pp. 56-69. Cambridge: Cambridge University Press.

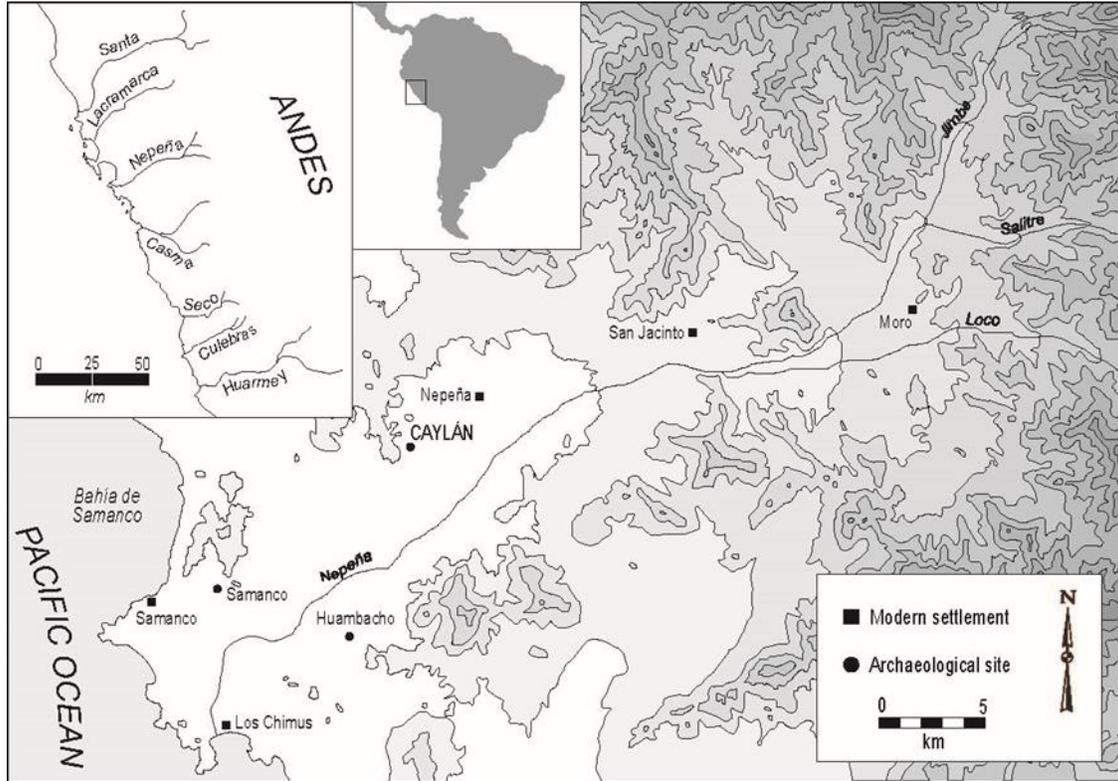
1988 *Prehispanic Settlement Patterns in the Lower Santa Valley, Peru: A Regional Perspective on the Origins and Development of Complex North Coast Society*. Washington, D.C.: Smithsonian Institution Press.

1995 Prehispanic settlement patterns in the Casma Valley, North Coast of Peru: Preliminary results to date. *Journal of the Steward Anthropological Society* 23:189-227.

Wobst, H. Martin

1978 The Archaeo-Ethnology of Hunter-Gatherers or the Tyranny of the Ethnographic Record in Archaeology. *American Antiquity* 43(2):303-309.

APPENDIX: MAPS AND FIGURES



a1. Map of the Nepeña Valley (credit: Chicoine 2011: 237).



a2. Map of Caylán and associated features (credit: Google Earth).



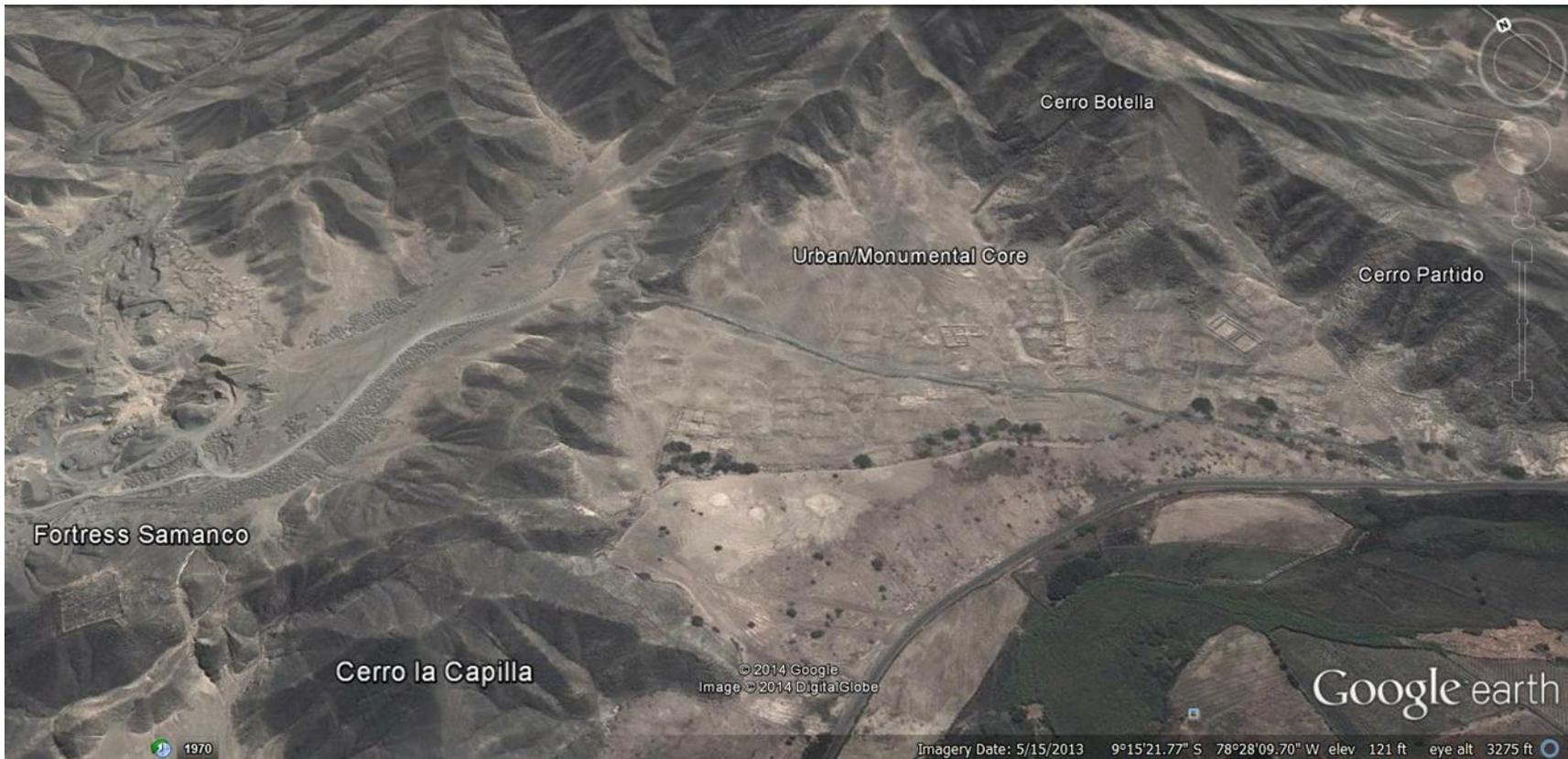
a3. Ground slate points from Caylán (credit: Chicoine and Ikehara)



a4. View of Huambacho, and associated features looking northwest (credit: Google Earth).



a5. Mace head from Huambacho (credit: David Chicoine).



a6. View of Samanco looking northeast (credit: Google Earth).



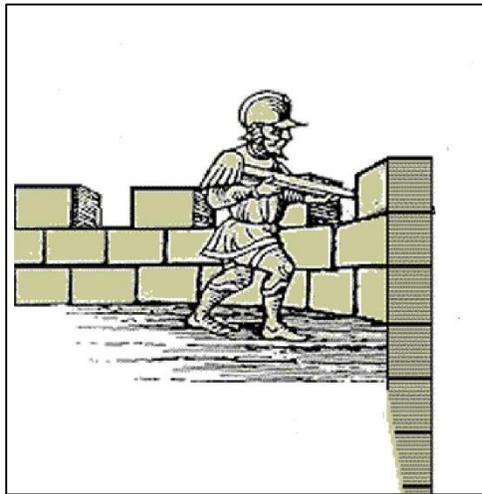
a7. Ground slate points from Samanco (credit: Matthew Helmer).



a8. Defensive wall (credit: ancient.eu.com).



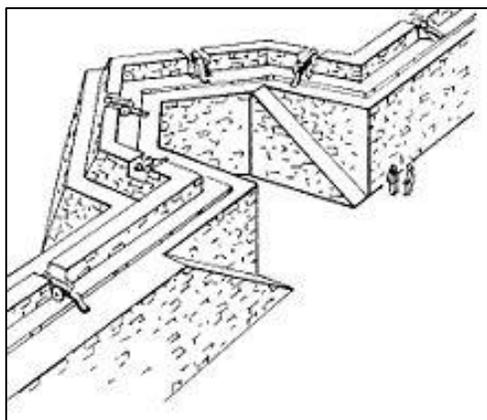
a9. Fortified ditch in Scotland (credit: undiscoveredscotland.co.uk).



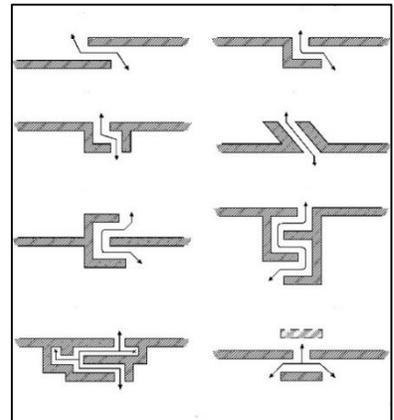
a10. Parapet (credit: dmna.ny.gov).



a11. British lookout in Egypt during WWII (credit: wodumedia.com).



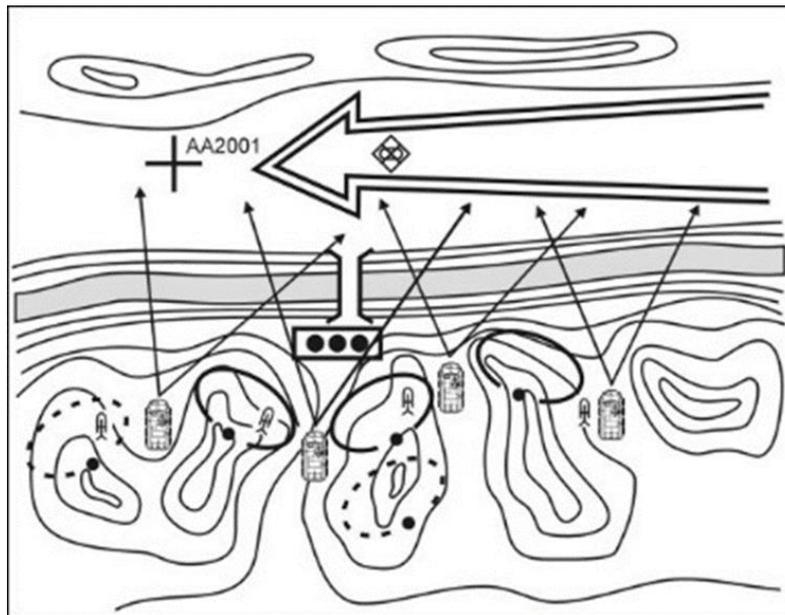
a12. Bastion (credit: Wikimedia.org).



a13. Baffled entryways (credit: Keeley et al. 2007: 63).



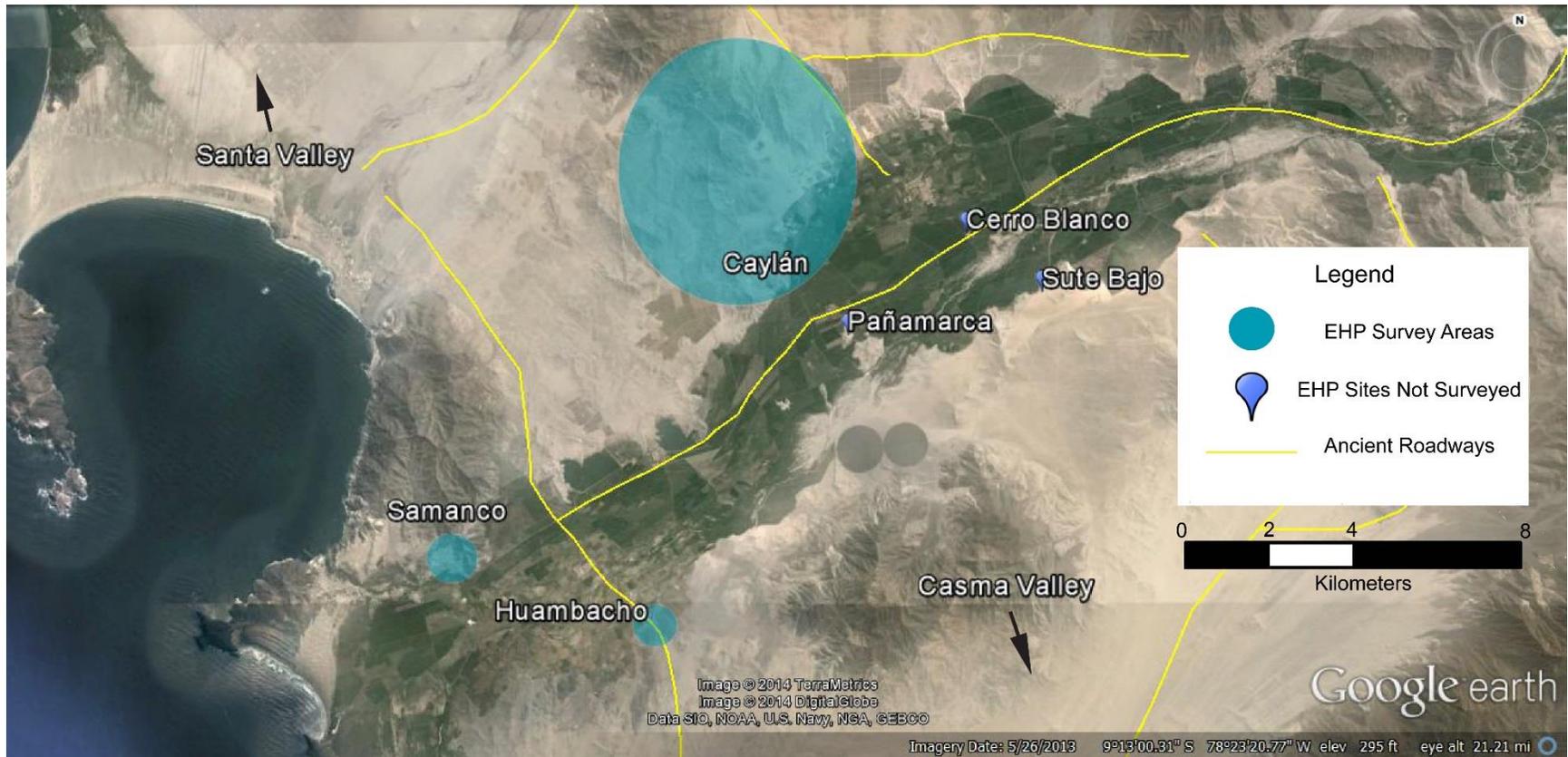
a14: Crusader fortress at Kerak (credit: trekearth.com).



a15. Example of overlapping fields of view (credit: Headquarters Dept. of the Army 2007: 1384).



A16. Five upper valley administrative centers documented by Daggett (1985) (credit: Google Earth).



a17. Survey area for 2013 (credit: Google Earth).



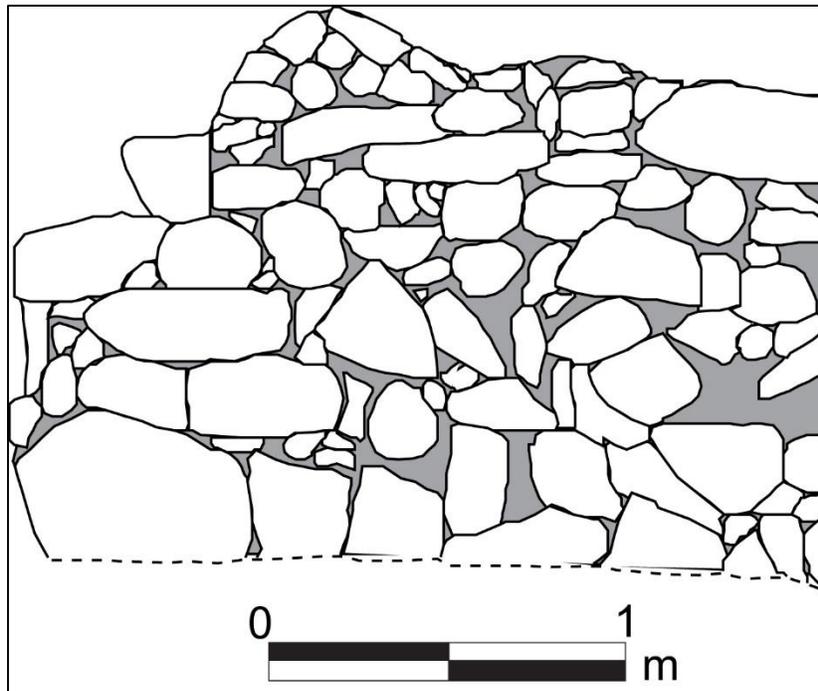
a18. Overview of Caylán survey area (credit: Google Earth).



a19. Walls surrounding monumental core at Caylán (credit: Google Earth).



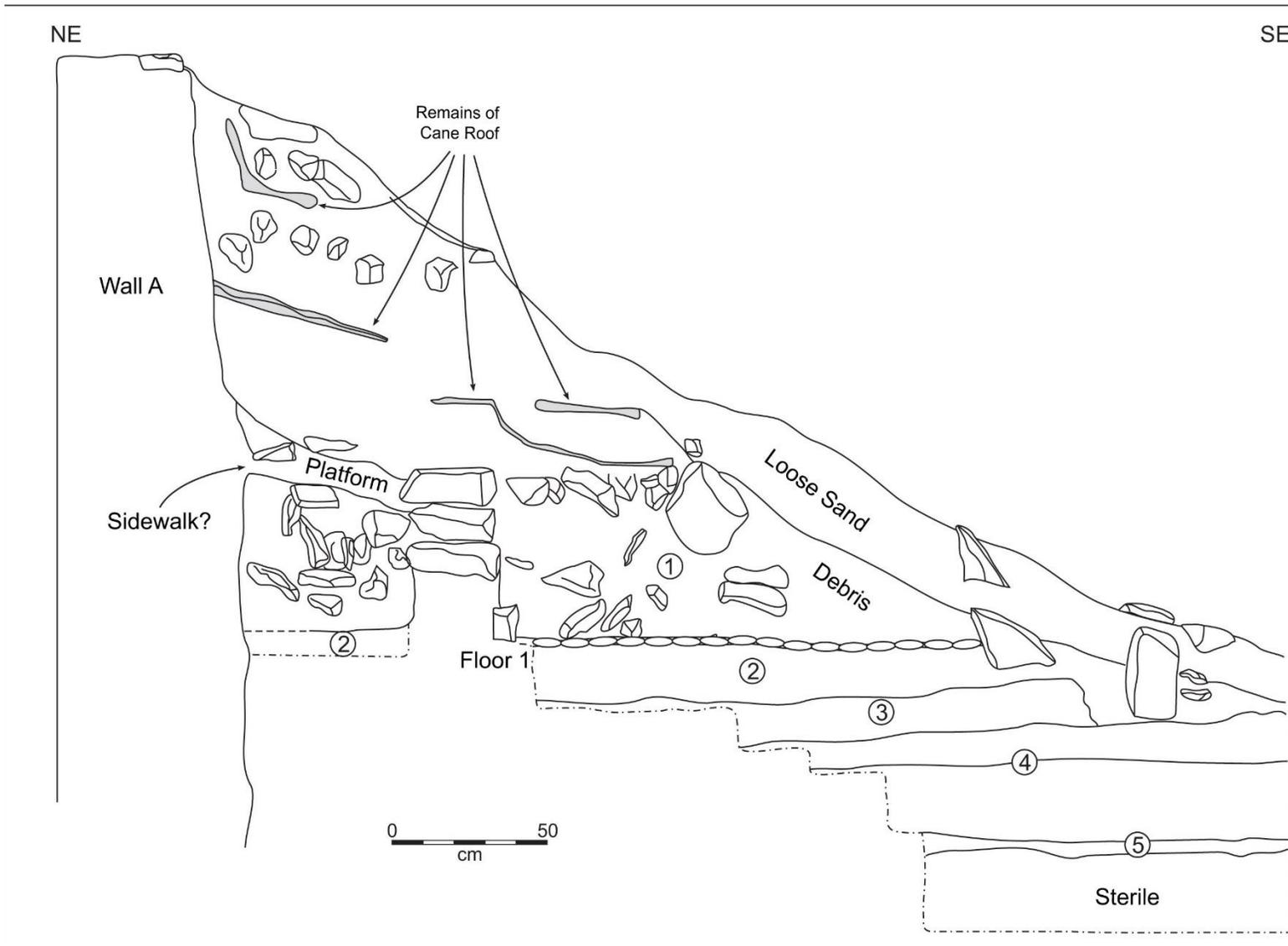
a20. One – meter profile of Wall 1 (credit: Steve Treloar).



a21. Profile drawing of Wall 2 (credit: Steve Treloar).



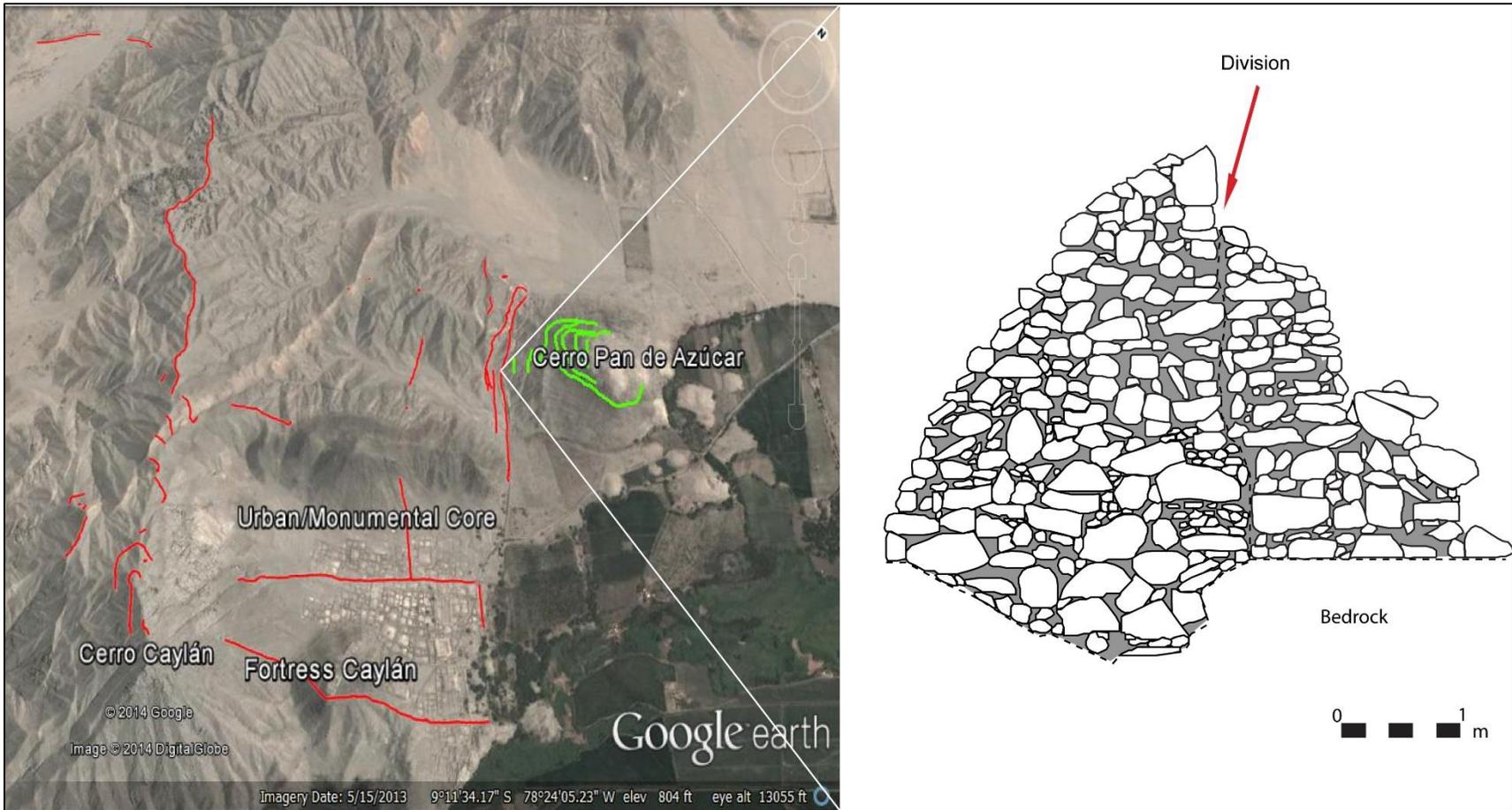
a22. Overview of HP-3 along Wall 2 (credit: David Chicoine).



a23. Sketch of HP-3 adapted from Chicoine and Ikehara 2009 field report (credit: Chicoine and Ikehara 2009: 83)



a24. Preserved parapet at Wall 4 (credit: David Chicoine).



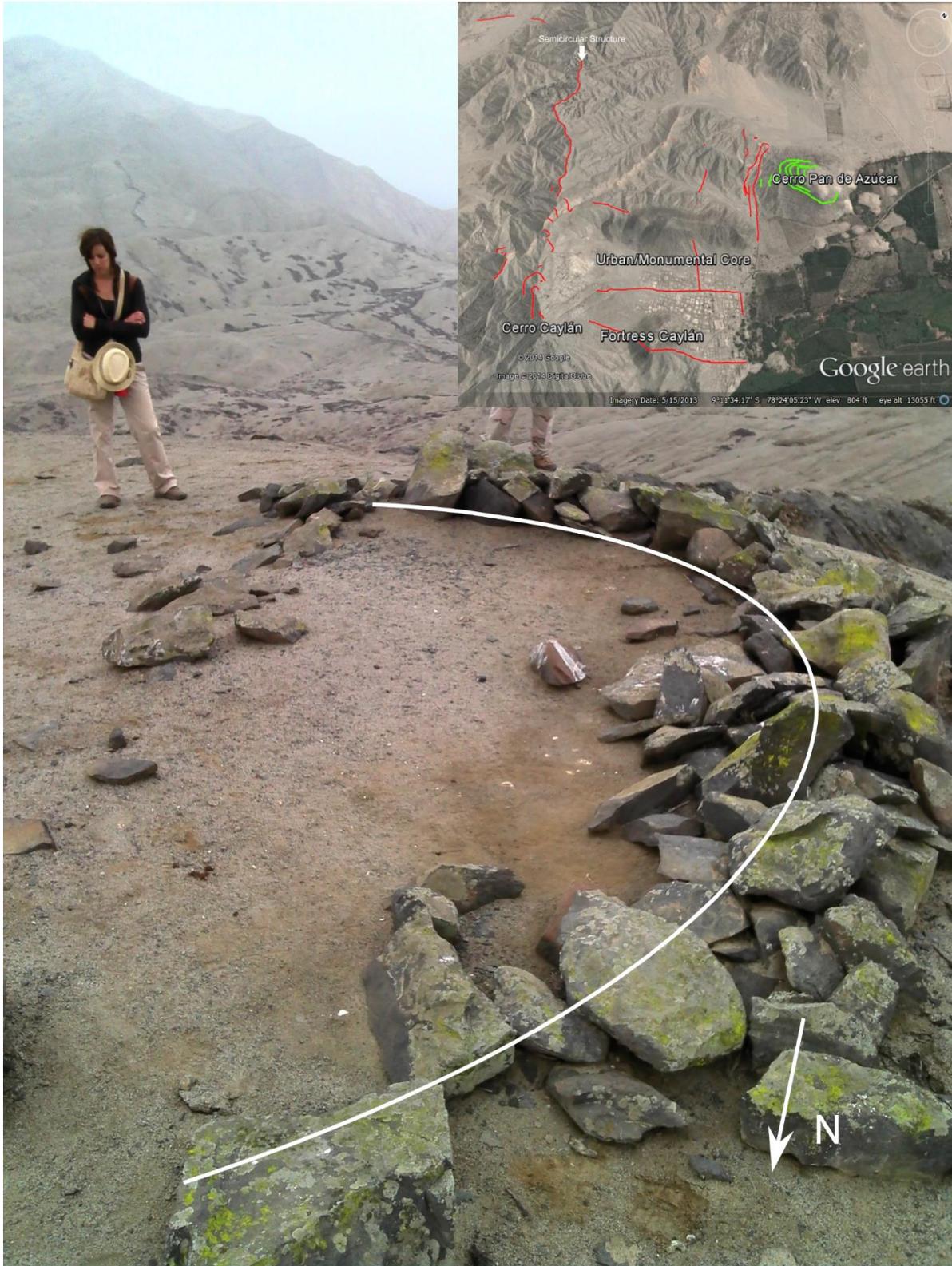
a25. Sketch of two – meter profile of Wall 5 (credit: Karina Tahu Espinoza and Steve Treloar).



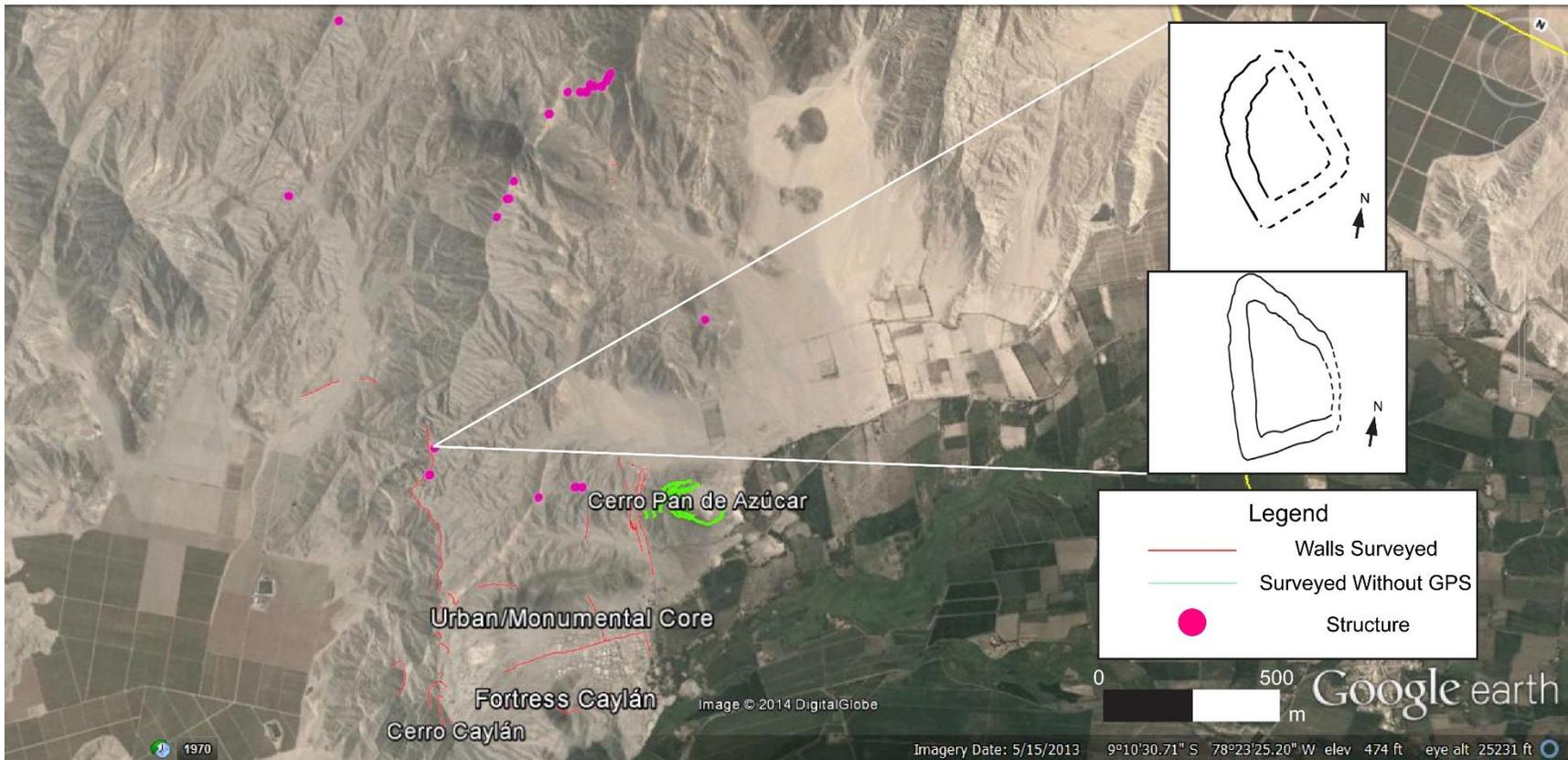
a26. Casma incised potsherds from Wall 5 (credit: David Chicoine).



a27. Stamped circle-and-dot and Zoned Punctate (bottom), along with other Early Horizon wares from Wall 5 (credit: David Chicoine).



A28. Semicircular structure at the end of the Ridgeline Wall (credit: David Chicoine).



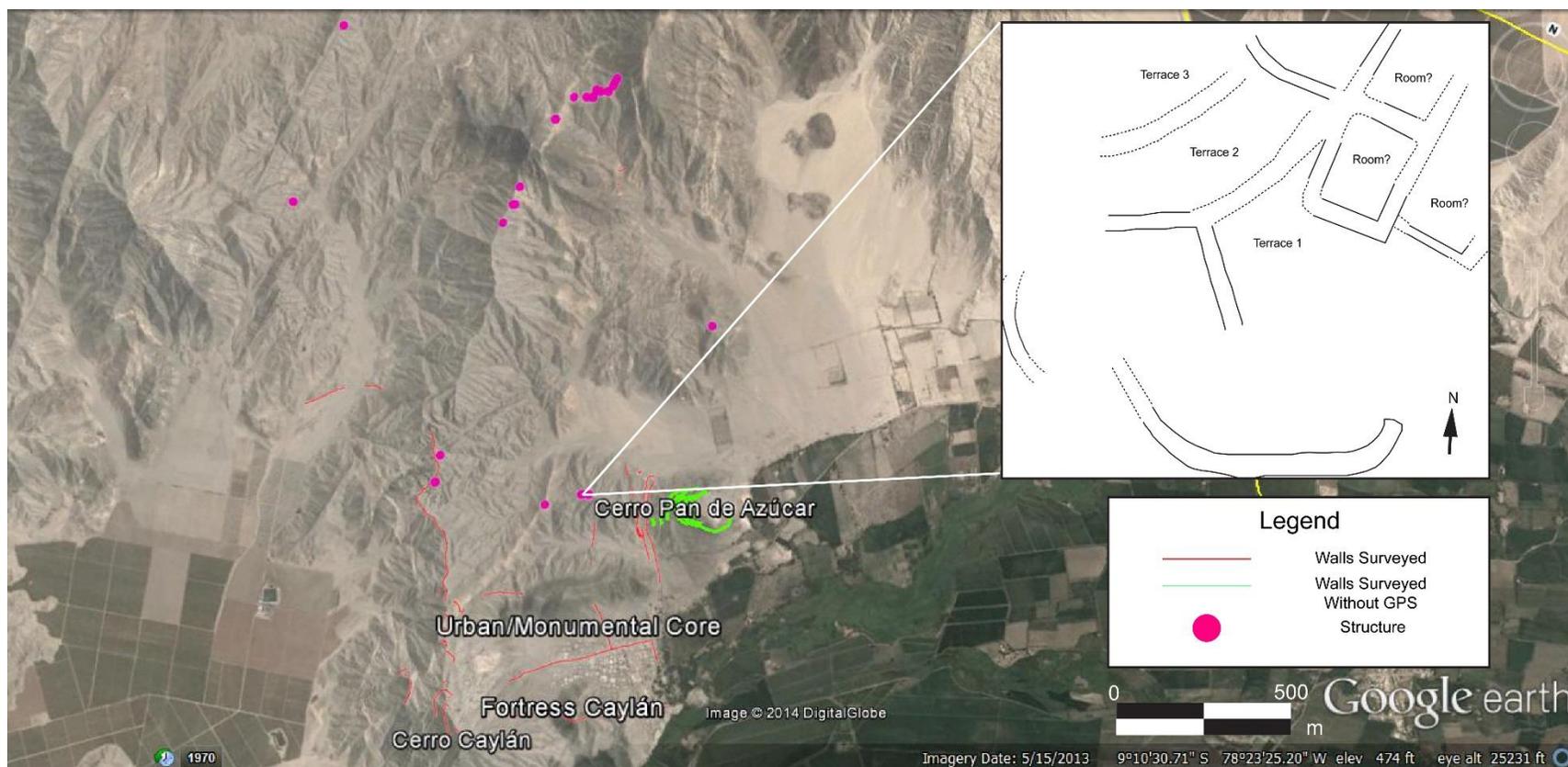
a29. Rough sketch (not to scale) of two semicircular structures at the end of the Ridgeline Wall (credit: Google Earth and Steve Treloar).



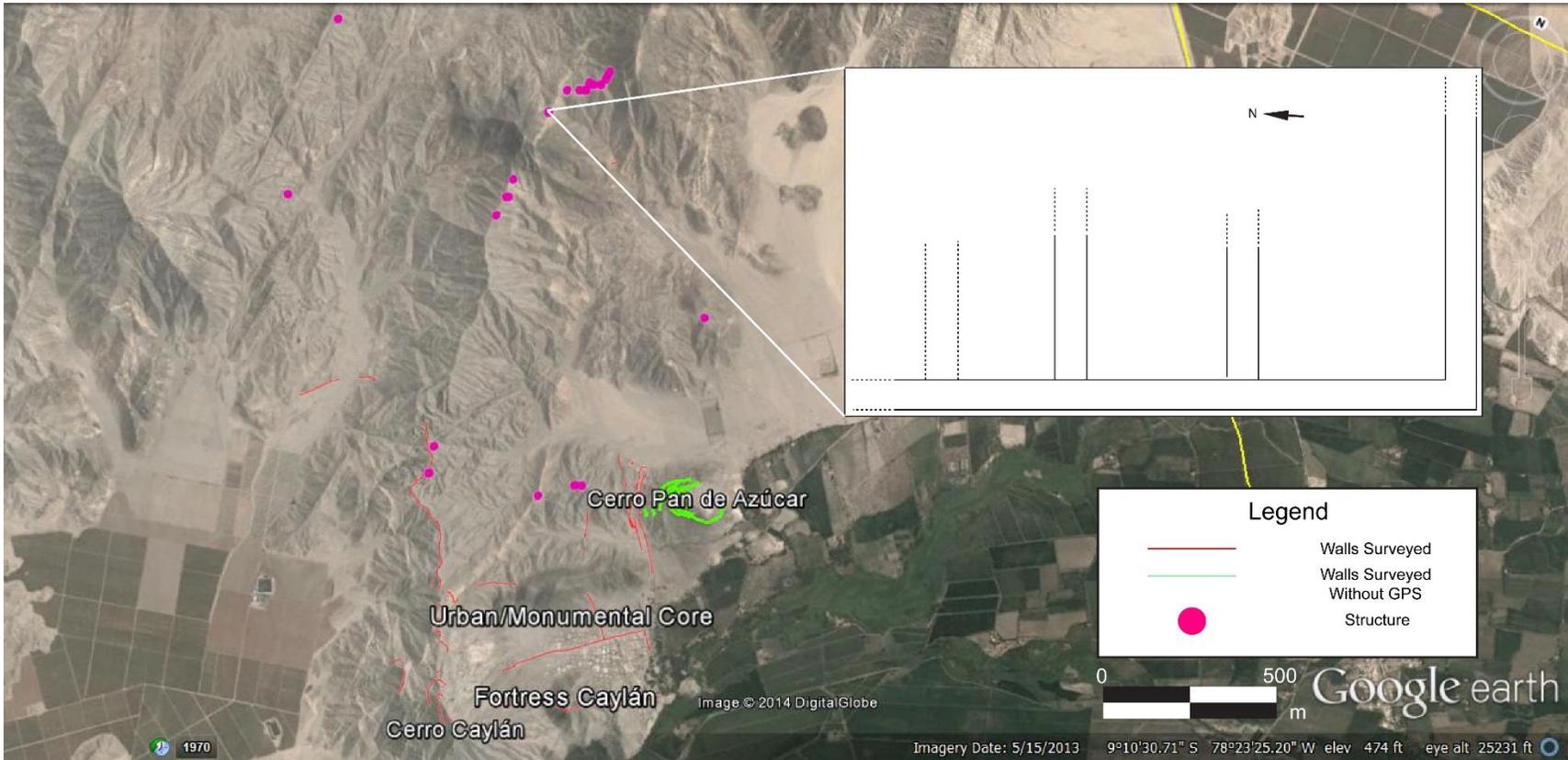
a30. Shell remains found adjacent to structure (credit: Steve Treloar).



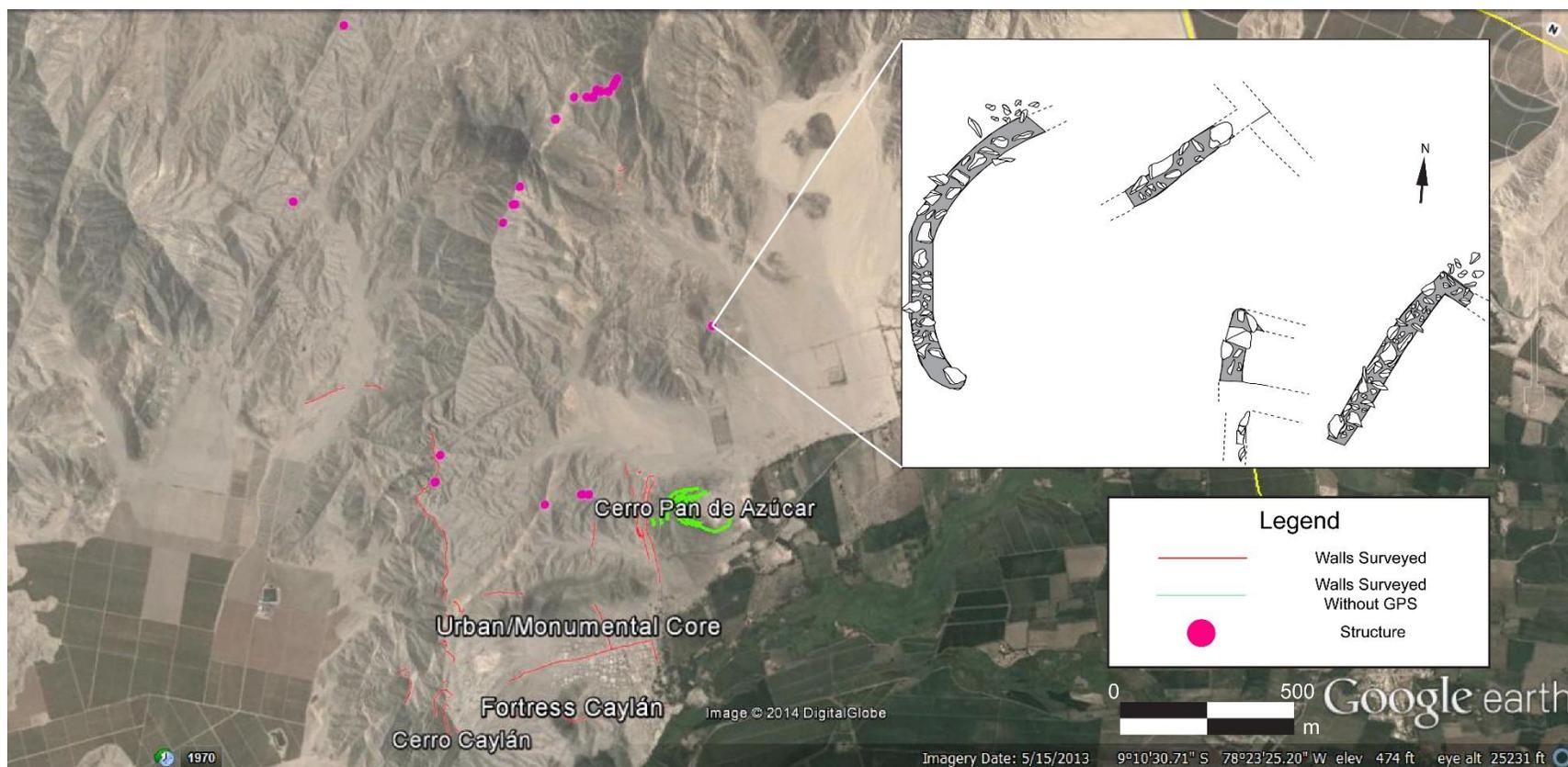
a31. Quartz debitage encountered at structure (credit: David Chicoine).



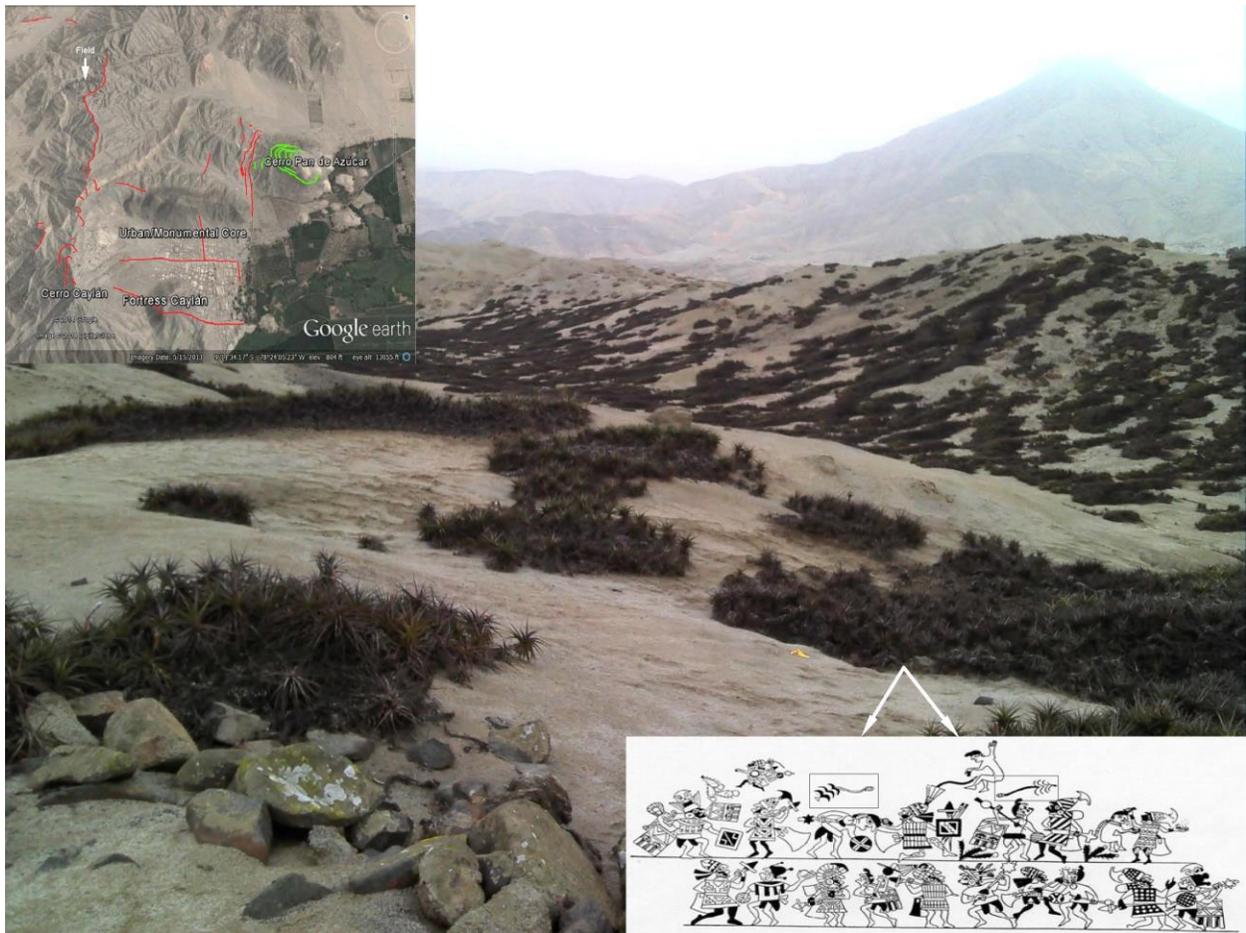
a32. Sketch of Outpost A structure (not to scale) (credit: Google Earth and Steve Treloar).



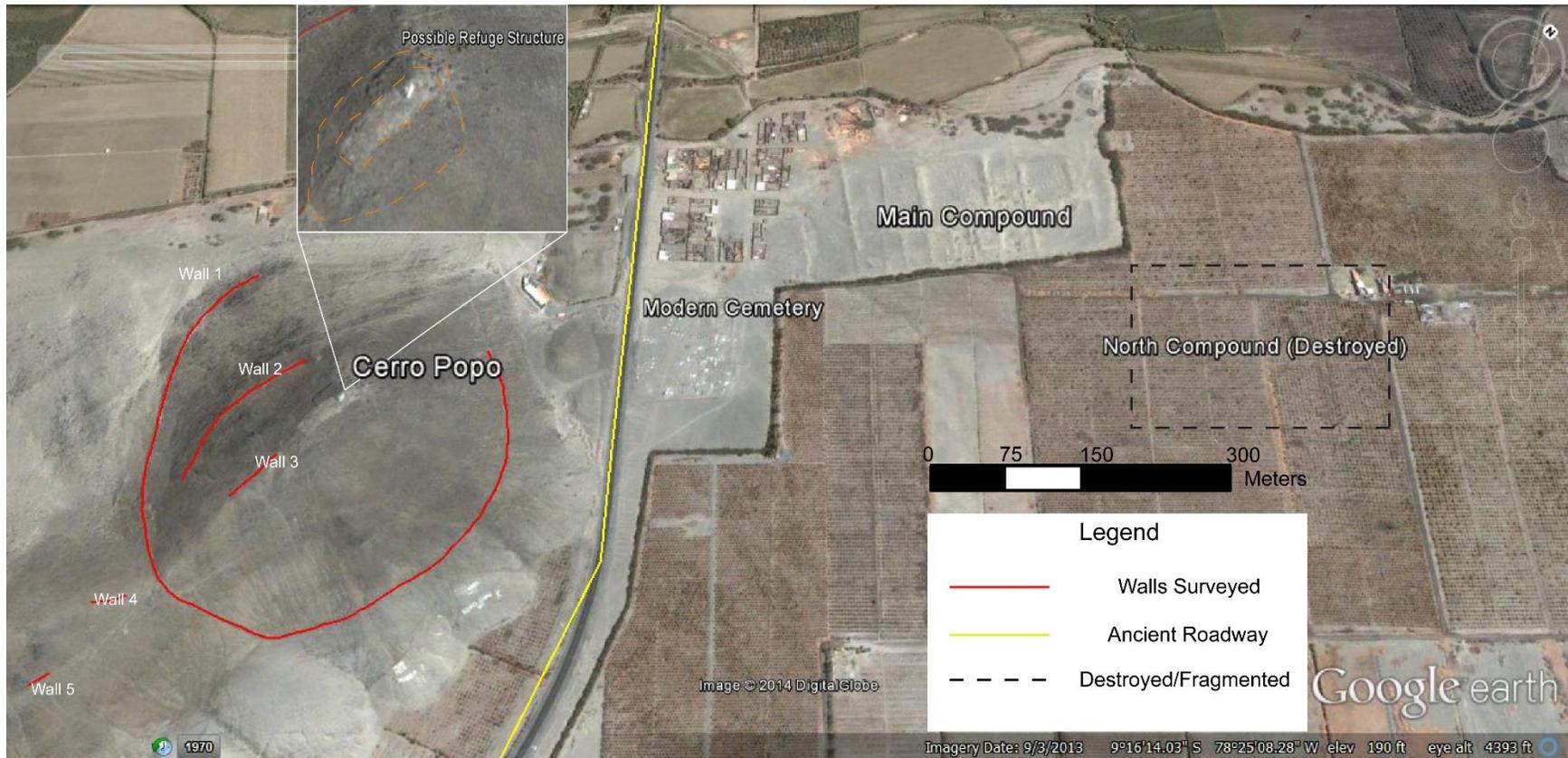
a33. Sketch of Outpost B structure (not to scale) (credit: Google Earth and Steve Treloar).



a34. Sketch of Outpost C structure (not to scale) (credit: Google Earth and Steve Treloar).



a35. *Tillandsia* plants at Caylán which have been associated with battle scenes in Moche iconography (credit: David Chicoine, Google Earth, and David Wilson 1988: 339).



a36. Overview of Huambacho survey area looking northwest (credit: Google Earth).



a37. Segment of Wall 1 on Cerro Popo (credit: Steve Treloar).



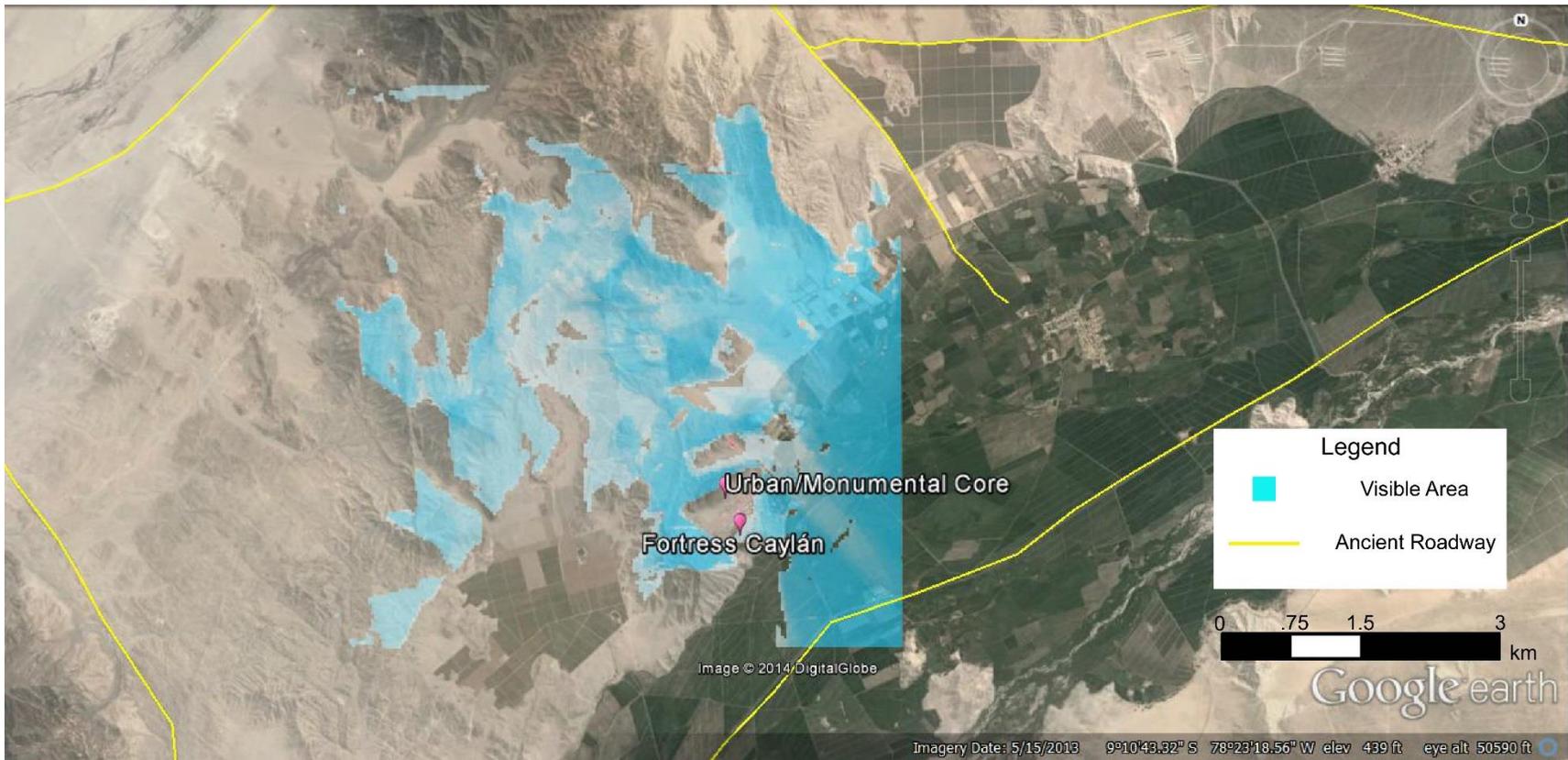
a38. Samanco survey area looking north (credit: Google Earth).



a39. Wall surmounted with reeds laid in clay mortar (credit: Google Earth and Steve Treloar).



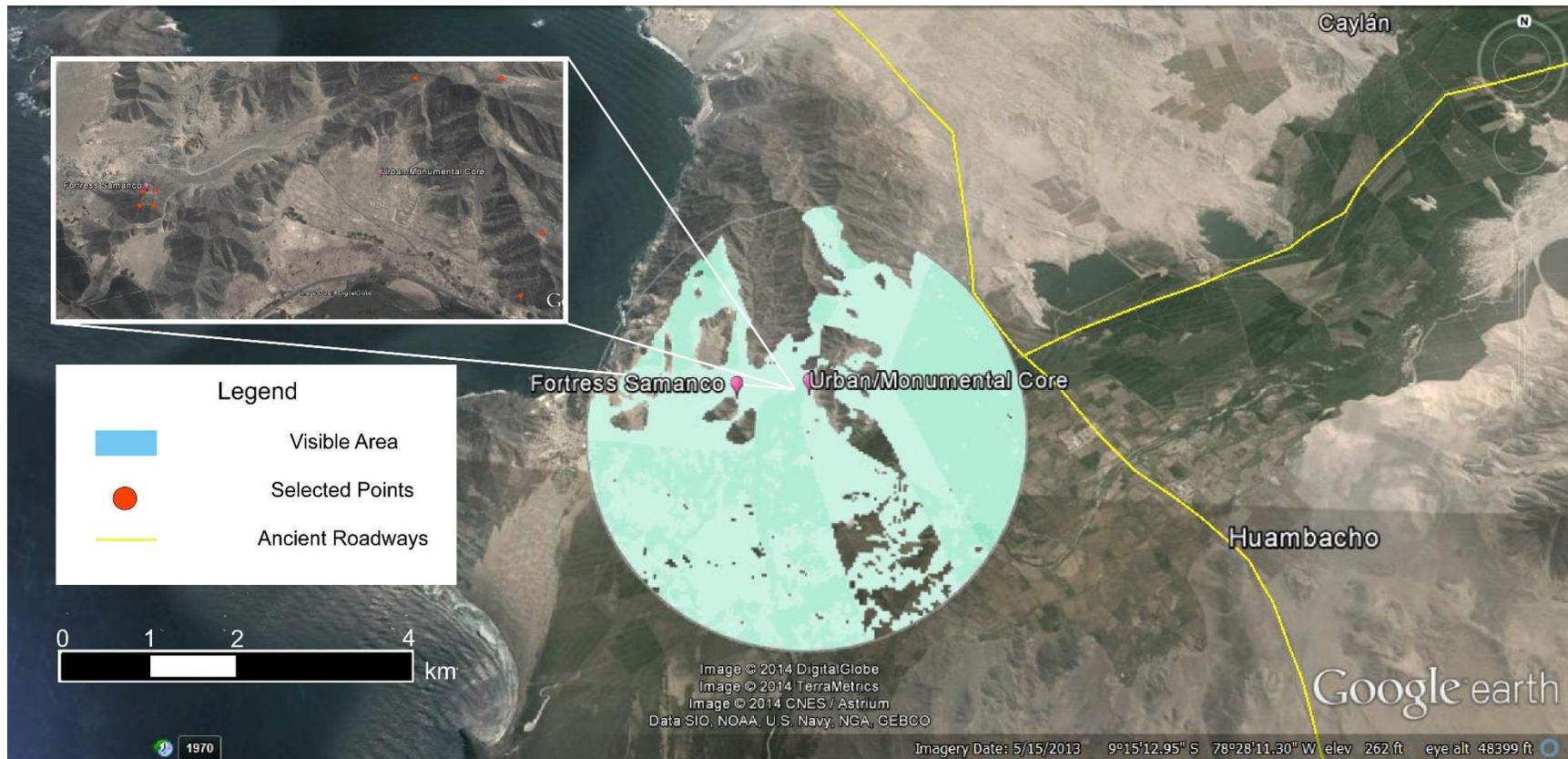
a40. Early Horizon sites in the Casma Valley (credit: Google Earth).



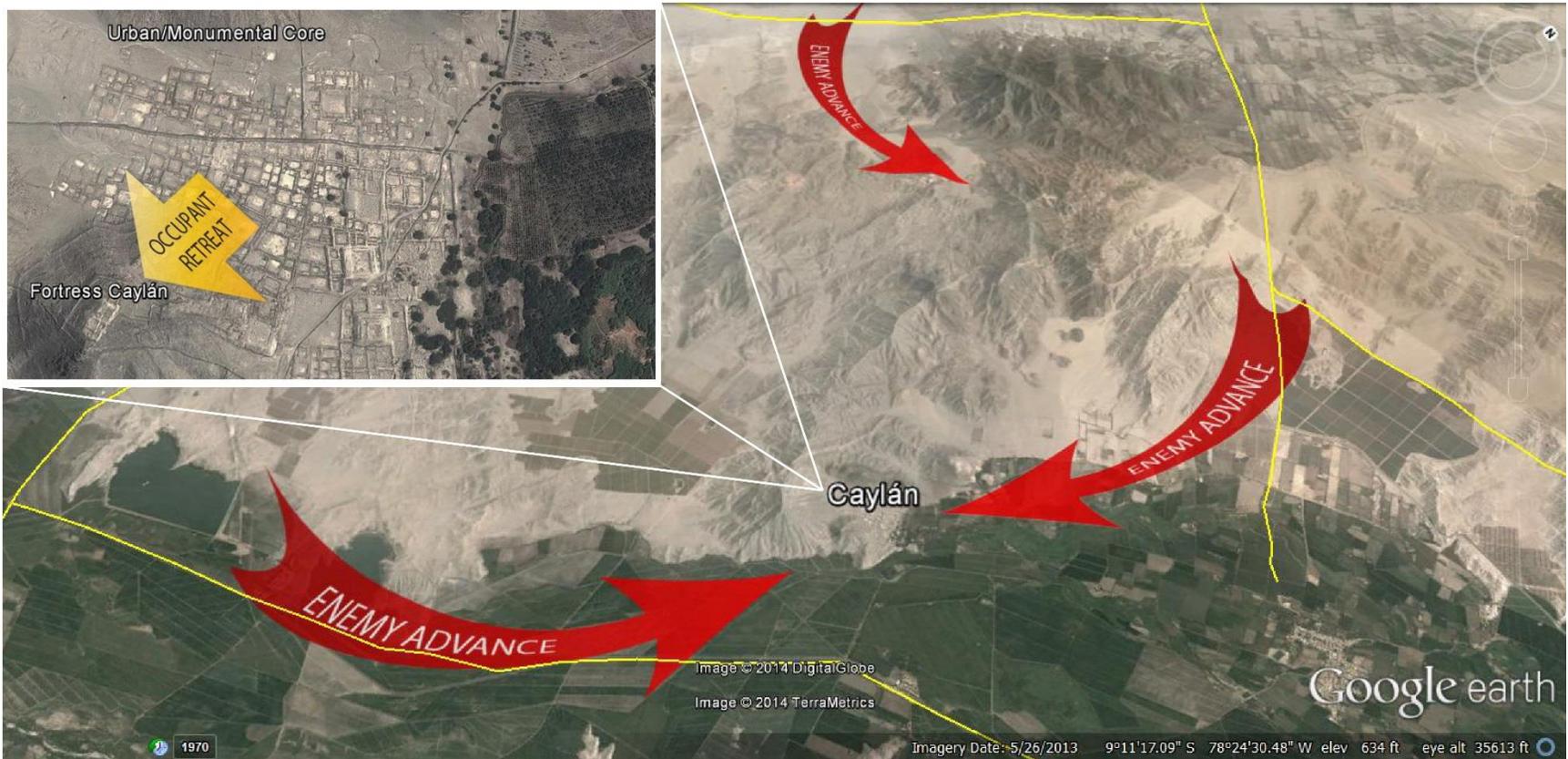
a41. Cumulative viewshed analysis of Caylán lookouts (credit: Google Earth).



a42. Cumulative viewshed of selected points at Huambacho (credit: Google Earth).



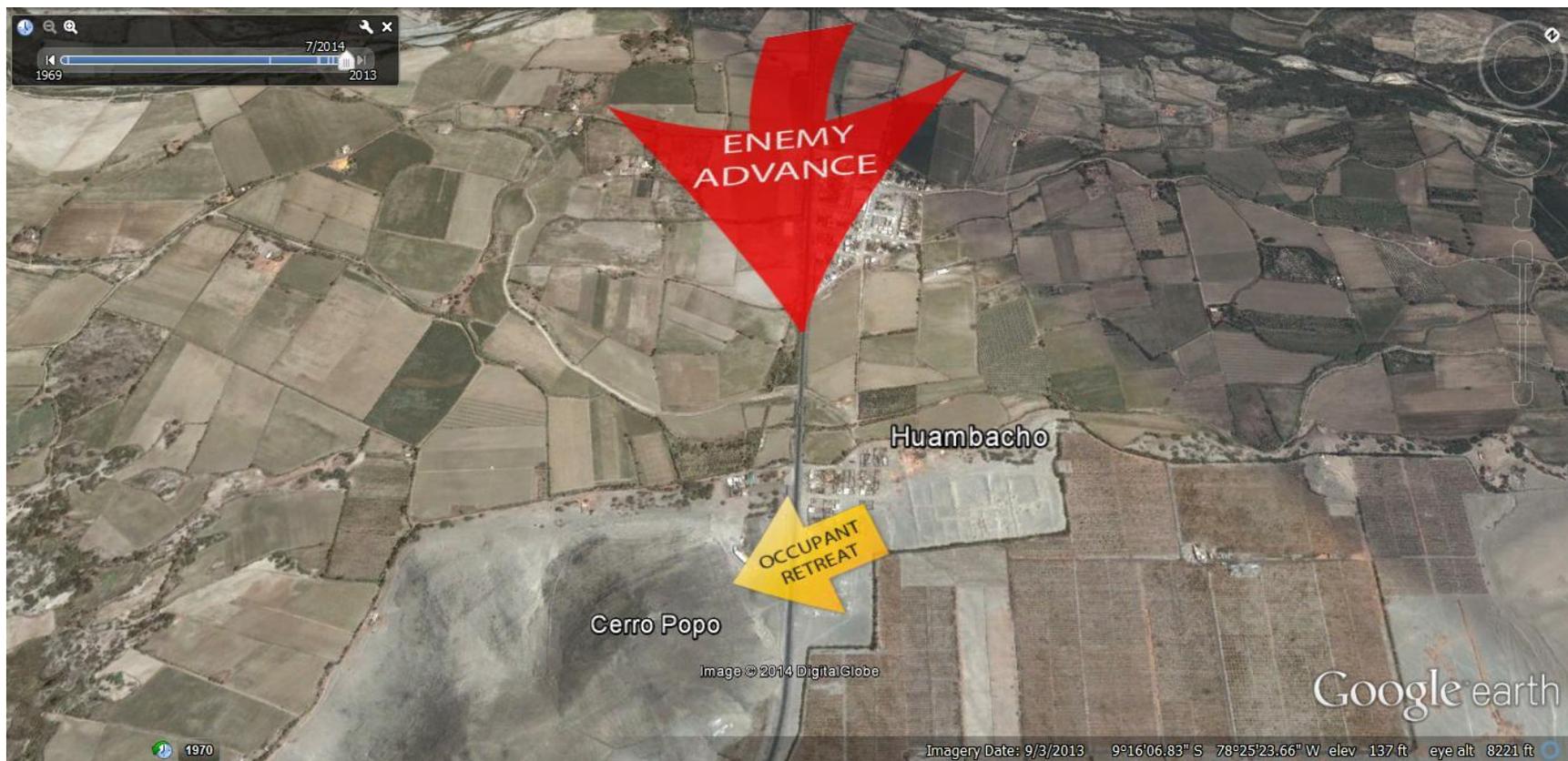
a43. Cumulative viewshed of selected points at Samanco (credit: Google Earth).



a44. Enemy advance and occupant retreat to refuge at Caylán (credit: Google Earth).



a45. Enemy advance and occupant retreat at Samanco (credit: Google Earth).



a46. Enemy advance and occupant retreat at Huambacho (credit: Google Earth).



a) Warrior ceramic figurine; weapon types found at Chankillo: b) spear, c, d, e) maces; f) spear-thrower; g) darts; h) sling; i) shield.

a47. Fortress of Chankillo with image adapted from Ghezzi (2006) (credit: Google Earth).

VITA

James Steven (Steve) Treloar was born in 1981 in Zachary, Louisiana to Lisa J. Simoneaux and James (Jim) Joseph Treloar. Steve is married to Tiffany Treloar. Prior to college, He served in the United States Marine Corps where he participated in combat operations in support of Operation Enduring Freedom, Afghanistan. He then enlisted in the United States Army where he served as machine gunner and unit armorer in support of Operation Iraqi Freedom, Iraq. Steve received his Bachelor of Arts in Anthropology from Kansas State University, Manhattan in 2012. He has archaeological experience in survey, GIS applications, and excavation in the Department of Ancash, Peru, and additional archaeological experience at Tyndall Air Force base, Florida. While working towards his Master of Arts research at Louisiana State University, Baton Rouge, Steve received a research assistantship from the Louisiana Board of Regents as well as an award from the LSU Department of Geography and Anthropology West-Russell Travel Grant. In 2014, he prepared a poster for the 79th Annual Meeting of the Society for American Archaeology entitled *Early Horizon Fortified Settlements and Defensive Strategies in the Lower Nepeña Valley, Peru*. Steve's present research emphasis is on fortification strategies and warfare among early complex societies on the Andean coast.