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Mortuary Practices and Social Identity at Matrix 101, La Leche Valley, Peru

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MORTUARY PRACTICES AND SOCIAL IDENTITY AT MATRIX 101, LA LECHE
VALLEY, PERU

A Thesis

Submitted to the Graduate Faculty of
The Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
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in

The Department of Geography and
Anthropology

by
Jenna R. Hurtubise
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Abstract

This thesis focuses on the social identity of the individuals buried at a Late Middle Sicán (A.D. 1050-1120) mass grave designated Matrix 101. Matrix 101 is located in the Great Plaza of the Pomac forest archaeological complex in the La Leche Valley, north coast of Peru. My objectives are threefold: (1) to understand the social identities of the individuals, (2) to examine the complex mortuary practices that took place during the construction of the burial, and (3) to infer socio-political reasons for the construction of Matrix 101 and to see how they might relate to the Sicán societal collapse.

Initial excavations were conducted during the summer of 2011 by the National Sicán Museum led by José Pinilla with later participation from the Lambayeque Valley Biohistory Project, led by Dr. Haagen Klaus. During the summers of 2012 and 2013, I participated in the excavation of the interments and collected osteological data. These data are the foundation of this thesis which revolves around the mortuary rituals performed at Matrix 101 and the social identity ascribed to the interred individuals through material, performative, and symbolic aspects. I combine bioarchaeological, taphonomic, and mortuary archaeological techniques, allowing for a holistic approach to the burials. Furthermore, I utilize a comparative data set of over 300 Middle/Late Sicán burials from the published literature to answer questions revolving around social identity.

Spatial analysis of burial depths led to the conclusion that Matrix 101 was constructed in three associated phases where three groups of individuals were interred. Body positions, grave goods, and present frequencies of biological stress allow for social identity of the deceased to be constructed. I argue that these individuals represent elite to middle elite individuals from Late

Middle (A.D. 1050-1120) Sicán society whose identities were transformed through death. Based on evidence that Matrix 101 occurred in association with an El Niño event, I infer that Matrix 101 was a mass sacrificial context that was created as a crisis-ritual event. I conclude that Matrix 101 provides clues in understanding the abandonment of the Sicán religious precinct and the eventual demise of Sicán society. This research sheds light on Sicán mortuary practices and the events involved in Sicán's political collapse. More broadly, the research brings insights into the relationships between death rituals and politics in Andean civilizations.

Chapter 1: Introduction

The study of funerary practices has a long history in archaeology. Archaeologists in the early twentieth century were drawn to burials with elaborate grave goods, such as royal Maya tombs (Fitzsimmons 2009) or Pharaoh Tutankhamen's tomb (Edwards et al. 1976). The splendor and wealth of these mortuary contexts pointed to the elite status held by the deceased during life. Since these early explorations, archaeologists, alongside bioarchaeologists, continue to contribute to our knowledge on mortuary practices and social identity (Binford 1971; Buikstra and Beck 2006; Buikstra and Scott 2009; Goldstein 1981; Hodder 1986; Knudson and Stojanowski 2009; Parker Pearson 1982; Saxe 1970; Shanks and Tilley 1982, 1987).

Burials contain an abundance of information about deceased individuals as well as society's ideological beliefs. The way a body is positioned, types of grave goods, and osteological components including age, sex, indicators of health, and evidence of trauma, provide details of social identity (Knudson and Stojanowski 2009). Additionally, the amount and quality of grave goods can point to differential social classes. The material remains provide information on the complexity of burial rituals (Binford 1971).

Burial practices are typically standard within cultural groups during specific time periods. However, conceptualizing individual or group identity can become problematic when examining non-modal or deviant burials (Murphy 2008). This thesis focuses on understanding a non-normative burial context at Matrix 101, a Sicán Late Intermediate Period (A.D. 1000-1470) mass grave, located in the La Leche Valley, north coast of Peru. The variety of body positions, inversed conical burial structure, and underrepresentation of grave goods all deviate from modal

Sicán burial trends. Through examining the mortuary context and osteological data, I aim to understand how this mass grave was created and the social identity of those interred.

Due to the large scale of the mortuary context and apparent deliberate manipulation of the skeletal remains, preliminary research points to the special nature of Matrix 101. I hypothesize that Matrix 101 represents a mass grave which was constructed in three closely timed events surrounding an El Niño ca. A.D. 1050. I argue that the presence of burial manipulation, specific body positions, and evidence of sharp force trauma provide evidence of ritual killing. Identity of the deceased materializes through examining contextual (i.e., varying body positions, scarcity of grave goods) and bioarchaeological components (i.e., frequencies of biological stress).

This thesis is organized into seven chapters. In Chapter 1 I present a theoretical examination of social identity and how it is materialized in the archaeological record through mortuary practices. I provide definitions of social identity, agency, personhood, selfhood, and embodiment. Next, I examine and compare how processualists and post-processualists conceptualize social identity and how it is represented in funerary contexts. Finally, I explore the concept of transformation and how social identity is altered and placed within the transitional phase through sacrificial and burial practices.

In Chapter 3, I explore Moche and Chimú funerary and sacrificial contexts on the north coast of Peru. I discuss Moche culture, including an overview of their social and political characteristics. I then compare Moche elite and commoner graves and define burial trends through cultural and historical developments. I present Moche sacrificial contexts at Huaca de la Luna and deviant burials at Huambacho as possible comparative cases. The following section focuses on Chimú burial trends. After a summary of their cultural characteristics, I review elite

and commoner burial practices. Finally, I examine evidence of Chimú sacrifice through iconographic depictions and sacrificial contexts at Pacatnamú and Huanchaquito-Las Llamas.

Chapter 4 includes a summary of Sicán development during the Late Intermediate Period (A.D. 1000-1470). I discuss the origins of Sicán and the history of archaeological research on Sicán society. I then examine cultural developments during the Early Sicán (A.D. 880/900-1000) and trace the trajectories of different social segments in Sicán society. A discussion of the substantial social and political growth seen during the Middle Sicán (A.D. 1000-1100) follows. I examine Sicán economy, social and political stratification, craft specialization, and ideology. Next, I discuss Late Sicán (A.D. 1100-1375) and the decline of Sicán society. Finally, I examine burial trends seen in elite, commoner, and sacrificial contexts to set expectations to analyze Matrix 101.

In Chapter 5 I define Matrix 101's geographical and physical settings. I discuss field methods used during excavation and in burial removal. I then explain laboratory methods and the spatial analysis. In Chapter 6, I analyze the three different burial groups seen in Matrix 101. I discuss each group separately and examine their demographic structure, burial positions, grave goods, and indications of trauma. Then, I complete a confidence interval test within the first two groups to compare percentages of enamel hypoplasia, porotic hyperostosis, and periostosis among Sicán elites, Muchik commoners, and individuals from Matrix 101. Finally, Chapter 7 discusses interpretations of the construction of Matrix 101. I present three associated interment events based on spatial and depositional information. Finally, I explore possible reasons why this mortuary context was created and how this data set adds and impacts our growing knowledge on Andean mortuary practices.

Chapter 2: Theoretical Background

Since the late 1960s, archaeologists have been increasingly interested in the various aspects of identity such as ethnicity (Barth 1969; Cohen 1969, 1974; Gluckman 1958), age (Baxter 2005a, 2005b; Gilchrist 2000, 2004; Gowland 2006), sex and gender (Conkey and Spector 1984; Schmidt and Voss 2000), disability (Cross 1999; Fay 2006), and social status (Hodder 1984; Miller and Tilley 1984; Parker Pearson 1982, 1999; Shanks and Tilley 1982), and how their aspects materialize within the archaeological record. This chapter focuses on the identification of social identity through funerary practices. I define identity and discuss components of identity including agency, personhood, selfhood, and embodiment. I then explore how processual and post-processual archaeologists examine identity. Finally, I relate the concept of transformation to identity in mortuary contexts.

2.1. Identity, Theory, and Archaeology

Identity is fluid and multifaceted and can be difficult to recognize archaeologically. Fortunately, funerary contexts provide ideal opportunities to examine individual and group identity. The type of funerary structure, the amount and quality of grave goods, body positioning, and the skeletal remains all provide information on the complexity of a society's mortuary practices and present a display of social memories and identities (Chesson 2001:1). Chesson (2001:3) describes funerary ceremonies as public events where the deceased's identity was communicated and assessed. Through the reconstruction of funerary performance, researchers are able to examine the interplay of social structures including personhood.

Meskell (2002:279-280) defines identity as “the ways in which individuals and collectives are distinguished in their social relations with other individuals and collectives.” Identity is an amalgamation of criteria, including age, sex, gender, and status that guides people through life and affects the way they perceive the world (Heilen 2012:36; Knudson and Stojanowski 2009:1). The formation of identity is based on social constructs and is “tied to diet, dress, subsistence, health, living conditions, mortality, work practices, economy, politics, and power relations” (Heilen 2012:36). Social identity is an individual’s perception of him or herself and his/her conceptualization of his/her place within society and can be expressed through political and religious means. Early research on identity focused on how ethnicity was manipulated and perceived within communities (Barth 1969; Cohen 1978; Gluckman 1958). As early anthropologists focused on shared social identities, research during the 21st century emphasized the plurality of identity as individuals can have numerous social, political, and religious identities that change throughout one’s lifetime (Diaz-Andreu et al. 2005; Schortman et al. 2001). To understand the complexity of social identity, I discuss definitions of agency, personhood, selfhood, and embodiment.

2.1.1. Social Identity Definitions

Identity research focuses on understanding how people perceive themselves and how they advertise this identity through personal and social means. Common research questions revolve around how singular and multiple identities manifest in the archaeological record and how these identities shift through time (Knudson and Stojanowski 1996:5).

Agency refers to an individual or a group’s ability to make decisions and choices within the boundaries of one’s own culture and its structures and expectations (Buikstra and Scott

2009:43). Although definitions of agency vary between different schools of thought, it is generally agreed that agency is multiscalar and that the focus of research should be on the quality, not the type, of action performed (Buikstra and Scott 2009:43). In response to the processualist view that an individual's actions could not significantly affect social conditions, post-processualist researchers, such as Shanks and Tilley (1987a, 1987b), state that individual actions could induce change. They argue that actions were not determined by cultural forces and systems but instead by individual interests. Recently, scholars such as Hegmon and Kulow (2005) discuss the relationship between agency and structure based on Giddens's (1984) concept of structuration. Hegmon and Kulow (2005:316) state "structure exists only in so far as it is reproduced by the conduct of actors, so the exercise of agency can reproduce, reinforce, or transform structure."

Personhood can be embodied, is related to agency and performance, and is socially active, even after people are deceased (Harris 1989). Fowler (2004:7) makes the distinction between person and personhood. A person is contextually considered an organism who has agency and consists of the mind, soul, and physical body. Personhood is the state of being of a person, and throughout one's life and death this state is "constituted, altered, and maintained in social practices." Personhood has been considered by some to be an individual's essence (Mauss 1985) while others view personhood as a constantly expanding entity that grows until death (Fortes 1971).

Henson (2012) espouses a semiotic approach to personhood. In her view, personhood is defined by an individual's relationship with other humans and objects. These relationships transcend the physical body and exist outside of time and space (Henson 2012:84-85). Social relationships help construct what Hickman (2014) terms an ancestral personhood. In his opinion,

personhood is constructed through kinship and is reinforced through family rituals and discourse. Ancestral personhood has moral implications as personhood affects an individual's agency and how he or she will make decisions throughout his or her life and as ancestors. Likewise, Gillespie (2001) argues that personhood is derived from the collective social group's mortuary practices and iconographical depictions.

Selfhood pertains to the "human being as a locus of experience, including experience of that human's own someoneness." (Harris 1989:601). Harris (1989) states that a person's self is both active and passive where selfhood allows for the ability to both act and perceive action against the self. Meskell (1998) and Tarlow (1999) apply the concept of selfhood to the archaeological record, specifically in mortuary practices. Meskell (1998:155) argues that age, sex, gender, social status, and ethnicity are not criteria that define one's identity. Instead, through analyzing single burials versus family burials, she explains how differing burial practices display constructions of selfhood and identity. Tarlow (1999) examines material culture, such as memorial inscriptions, for evidence of aspects of selfhood and the deceased's identity.

Finally, although definitions vary, embodiment is the way a body is shaped during a person's lifespan through individual and social experiences (Joyce 2000, 2005; Mauss 1979[1950]; Meskell 1999). Mauss (1979[1950]:97) made this term popular as he defined it as "body techniques" that were constructed through a society's knowledge on how one could utilize the body. Meskell (1998:159) defines embodiment as a "lived experience where the interplay of irreducible natural, social, cultural, and psychical phenomena are brought to fruition through" societal structures and agency.

Joyce (2005) views the body as an artifact that can be studied through material culture. Instead of viewing the human body as a record of cultural data, such as diet and health, Joyce

(2005:139) views the body as the “site of lived experience, a social body, and site of embodied agency” where bodies were inscribed with meaning through cultural practices and material culture. For example, Blomster (2014) argues that the Olmec projected their fluid identities onto figurines. Tradition and repeated performances and rituals would reinforce the embodied experience (Joyce 2000). Applied to bioarchaeological studies, Sofaer (2006) relates embodiment to materiality, where the material culture has a direct impact on the embodied self. Through burial, the body becomes material culture and hence an agent of its own. Unlike Sofaer’s viewpoint that the grave is a direct link between the living and deceased, Buikstra and Scott (2009:45) recognize that graves are constructed by the living and not the deceased.

In the 1970s, a paradigm shift in archaeology led to a focus on systemic processes and cultural change (Binford 1971; Saxe 1970, 1971). Researchers who follow this school of thought center their studies on the group rather than the individual, which influences how archaeologists perceive identity. The following section examines how processualists view identity through mortuary practices and how they could be spatially identified.

2.2. Identity and New Archaeology

With the publication of Binford and Saxe’s research in the 1970s, social identity took on an important role in the processualist movement (Chapman and Randsborg 1981; Fowler 2013; Heilen 2012). One of the terms focused on was social persona. Goodenough (1965) examines this concept of social persona by analyzing individual and group duties and rights to understand different systems of relationships and interactions. Due to his observation that individuals have multiple social identities, he defines social personas as the socially accepted and specific identity chosen for a particular interaction (Goodenough 1965).

Binford (1971) and Saxe (1970) both argue that social personas can be understood through mortuary analysis. The Binford-Saxe argument was that the deceased are represented in burials as a direct reflection of their social identity during life. Binford (1971:17) defines social persona as “a composite of social identities in life and recognized as appropriate for consideration at death.” Although Goodenough (1965) argues that individuals had multiple social identities, Binford (1971) argues that mortuary practices reflect a singular, fixed social persona chosen from the multiple identities played out throughout life. Through an analysis of mortuary practices, information on the deceased’s age, sex, social status and rank can be understood. Mortuary practices are also used as indicators of cultural complexity as burial variability equate differential social organization. Differences in social standing and identity can influence burial construction, grave goods, grave orientation, and the funerary rites (Binford 1971; Saxe 1970, 1971).

Tainter (1978) expands Binford’s examination on the connection between mortuary rites and social ranking through the concept of energy expenditure. He argues that the amount of energy spent on burial construction, grave goods, and the lavishness of the funerals have direct correlations with the social status of an individual. Burial practices that are highly complex signify greater corporate involvement than simpler burials (Tainter 1978). Carr (1995) applies Tainter’s methods and demonstrates how vertical and horizontal social position can be analyzed. Vertical social position, where personal status increases, is seen through the quality of grave goods. Horizontal social position, where status stays the same, is seen through types of grave goods connected to specific personal or group social identities. Chapman and Randsborg (1981:9) disagree with applying energy expenditure to define social status because burials may

be misrepresented. The amount of energy spent can be subjective, individuals with different, yet parallel, status may be missed. Incomplete burials may be accidentally labeled as low status.

2.2.1. Identity and Spatial Analysis

Alongside social and biological aspects of burials, archaeologists look at their spatial patterning (Goldstein 1976, 1981; Joyce 2001; Saxe 1970). Mortuary patterning reveals aspects of social identity from the individual to the group as well as provides information on an individual's worldview (Ashmore and Geller 2005:82). Within Saxe's hypotheses on the social dimensions of mortuary analyses, Hypothesis Eight focuses on burial spatial location.

Hypothesis Eight states that formal disposal areas (i.e., cemeteries) are a direct reflection of social structure. The fewer the burials that are bounded by specialized territories, the more likely the associated society is a non-state society. Specific social groups maintain burials within specialized territories to assert resource rights to the area surrounding the burials, which are legitimized by inheritance through the presence of their ancestors (Saxe 1970:119-121).

Goldstein (1976) elaborates on Hypothesis Eight through her examination of ethnographic examples. She reaffirmed that by maintaining specialized burial areas, corporate groups can maintain and legitimize their rights over resources through kinship. However, the absence of a formal disposal area does not necessarily mean that corporate groups do not practice ancestor veneration (Goldstein 1976:61).

Goldstein (1981:57) views mortuary areas as "multidimensional systems" where researchers can use the spatial aspects of the burials as an organizational framework. She argues that the spatial organization informs on two aspects: (1) the spatial array of burials shows social organization; and (2) spatial analysis leads to an understanding of personal and group

relationships, such as hierarchical differentiation and kinship/ancestral ties (Goldstein 1981:57). Goldstein states that the best way to conceptualize spatial patterning in mortuary contexts is through visual and quantitative methods instead of through spatial-analytical techniques. She argues that these techniques are not designed to study funerary deposits and thus not able to answer associated research questions (Goldstein 1981:58). Goldstein (1981:57) discusses that the “spatial component is multi-dimensional” and placement of individuals within the grave, placement of groups of burials, and placement of the burial itself within the larger societal organization are examples of different spatial relationships (Goldstein 1981).

Joyce (2001) employs visual and quantitative methods to analyze spatial clustering of Mexican Formative mortuary contexts. She views funerary practices as social media that are transmitted to the living who construct social memories. Mortuary rites do not begin at death but instead during life as identity is shaped by society. At the time of death, the type of mortuary treatment chosen and enacted depicts an identity that can persist or change through time (Joyce 2001:12). Joyce (2001:14) argues that unique orientation of burial clusters associated with residential structures reflect differential mortuary activities based on familiar lineages. Within these restricted spaces, reuse and reincorporation of older burials with newer burials is possible. These burials reflect the social practices that continued over successive generations.

In response to the Binford/Saxe argument that burials are direct reflections of the deceased’s social identity, postprocessualists argue that identities are manipulated by the living during mortuary practices (Brown 1995; Carr 1995; Hodder 1982; Joyce 2001; Morris 1991; O’Shea 1996; Parker Pearson 1982, 1999).

2.3. Identity and Postprocessualism

Most researchers agree that elaborate burial treatment and wealth likely indicate an individual of higher social status (Hodder 1984; Shanks and Tilley 1982; Tilley 1984). However postprocessualists state that the living take an active role in mortuary practices and potentially manipulate symbols of identity. They question the argument that variation necessarily equates with social complexity, instead noting that variation may signify individual differences (Hodder 1982; Parker Pearson 1982, 1999). These researchers are “concerned with how identities and social memories of the living and the dead can be asserted, challenged and negotiated within the context of a mortuary ceremony” (Chesson 2001:2). For example, O’Shea (1996) shows how for Early Bronze Age Maro villagers in the Carpathian Basin material culture was connected to social identity. Mortuary practices within the village manipulated these identities to convey the political structure to the rest of the living community.

Parker Pearson (1982) argues that living societies play an active role in deciding burial location and utilizing the deceased as a means of social advertisement. Instead of a representation of the social structure, mortuary practices should be seen as the “material expression and objectification of idealized relationships formulated about the dead by different individuals or groups within society” (Parker Pearson 1982:110). Shanks and Tilley (1982:151) further this argument as they suggest that mortuary practices act as a way to sustain social order. Shanks and Tilley’s (1982) analysis of Neolithic tombs demonstrates that ritual activities focus on the collective, not the individual, and allow for social relations to be reflected, but also inverted and misrepresented. Hodder (1984) demonstrates how social identity and funerary practices were connected to Neolithic architecture. Burials found in long houses were a representation of the houses themselves. Hodder (1984) also highlights that as territory

diminished, burials of women and associated female identities were used as vehicles to connect to the supernatural and solidify lineage control.

Overall, postprocessualists are concerned with people's agency and why they made certain decisions. Through focusing on the "why," researchers view burial as an active, not static, representation of the deceased's identity. Therefore, the deceased's identity may be misrepresented. The burial context may even represent the imagined past rather than an exact reflection of actual social reality (Parker Pearson 1999:32). Recently, this argument has been expanded to re-imagine social identity as an entity that is in constant flux, plural, and fragmented (Insoll 2007; Meskell 2001; Thomas 2002; Voss 2005, 2008).

Schortman (1989) terms these fluctuating identities "salient identities." He states that salient identities are the different identities that people portray in specific social settings (1989:54). Identities may be hidden, displayed, and used in different ways according to the social contexts and rules (Heilen 2012:37). Although some identities are used more than others, such as social status and ethnicity, they are used to establish and maintain relationships with individuals and groups to achieve a goal or to gain advantages (Schortman 1989:54). For example, Sharratt (2010) argues that Tiwanaku burials were socially constructed media that redefined salient identities during collapse of their polity.

The above argument challenges the assumption that identities portrayed through mortuary practices solely reflect the social identities of the deceased (Heilen 2012:37). Identity is created by the living who are able to make choices on what aspects of the deceased's past life is and is not represented. Therefore, mortuary practices become not a statement of who the deceased was during life, but instead a statement of how the living community members use the dead for their own social agendas (Cannon 1989; Parker Pearson 1982, 1999).

2.3.1. Identity and Deviant Burials

Burials that do not match burial treatments performed on the majority of a community are termed “deviant” or “non-normative.” Special burial location and characteristics, body position, and grave goods are all aspects that can indicate a deceased's deviant social identity (Murphy 2008:xii). A deviant social identity can include criminals, marginal groups, and unusual deaths. However, I use the term “deviant” to refer to non-normative burial practices that can transform a normative social identity (Aspöck 2008). Tsaliki (2008:2) describes common indicators of deviant burials that include mass graves, burials in non-normative location and/or position, and isolated burials with associated ritualistic behavior, such as human sacrifice indicated by sharp force trauma or cut marks.

Derived from studies in sociology and ethnographic accounts, Shay (1985) discusses the connection between deviancy and social identity. She discovered that the deceased's social identity displayed through the funerary context was not the individual's identity during life, but instead the social identity acquired through political and/or religious transformative factors. This argument differed from Saxe's (1970:10-12) definition of a deviant social persona. To Saxe, the deviant identity would have been a direct reflection of the circumstances surrounding death. In his opinion, deviant burials were under appreciated by the community. Therefore, normative burial practices indicating such criteria as age, sex, and status were not upheld and performed. As deviant burials alter social identity, similarly, mortuary practices may possess a transformative component.

2.4. Identity and Transformation

A deceased's persona can be transformed through the process of one's death (Fowler 2013; Hill 2003; Parker Pearson 1999; Shay 1985). The concept of transformation was developed by van Gennep (1960) and Turner (1969). Van Gennep (1960) argued that human beings go through rites of passage throughout their lifetime. Rites of passage include three phases: separation, transition, and incorporation. During the separation phase the individual is disconnected from a fixed cultural or social state which allows him/her to pass into the transitional phase. The transitional phase is a time of change, where individuals have no identity and are undergoing processes in developing a new social state. Finally, in the incorporation phase, the individual rejoins society with a new identity (van Gennep 1960:10-11).

Turner (1969:95) redefines and expands the transitional phase into what he calls the liminal space. In the liminal space, or phase, individuals are "neither here nor there; they are betwixt and between the positions assigned" by their societal structures. During mortuary practices, normality is reversed where aspects of social identity are removed or destroyed (Turner 1969). Turner (1969:166-169) argues that the deceased's identity can be transformed into an elevated status for the living community (e.g., ancestor worship).

Parker Pearson (1999:71) supports the concept of transformation when he states that the "body is not a biological entity but is a carefully crafted artifact which is further transformed after the moment of death." Through "reading the body," anthropologists are able to understand changes in identity and how the body was reworked and integrated into society during funerary rites (Douglas 1973; Parker Pearson 1999:45). Fowler (2013:513) argues that it is the mortuary context that causes a transformation through political and religious means. During funerary rites, burials act as media where power relations and social personas are negotiated. Fowler (2013:515,

518) points out that burials are media created by the living. Social identity becomes idealized and desired within the community as aspects of identity may be manipulated in order for certain political or religious messages to be transmitted.

An example of burial transformation is seen in Hill's (2003) analysis of Moche sacrifices. She argues that through sacrifice and dismemberment, "Moche bodies are alternatively emptied of meaning (depersonalized) and then 'repackaged' in sacred (commoditized?) form" where they become the "sacra" (Hill 2003:286). During sacrifice, the Moche prisoner became a sacred object which allowed for communication with the supernatural. The sacrificed body then went through a second transformation during dismemberment. The multiple pieces of the body became distributable material objects that contained the sacrificial essence (Hill 2003:290).

2.5. Summary

As seen above, social identity presented in mortuary contexts can be viewed as a direct and static reflection of an individual's life (Binford 1971; Saxe 1970), a negotiated and manipulated entity (Hodder 1984; Parker Pearson 1982), or a component that can be socially and politically transformed (Fowler 2013; Hill 2003; Parker Pearson 1999). Matrix 101 presents an unprecedented burial context as it contains unusual Sicán burial practices. The uniqueness of this context, including the lack of grave goods and variability of body positions, presents a number of difficulties in understanding the mortuary practices performed and the individuals' social identities. Rather than focusing on one theoretical bent, I use elements of various approaches to examine social identity.

Based on Binford's (1971:25) view that frequencies of differing mortuary practices symbolize important ritual meanings, I take a similar approach in quantifying the grave goods,

body positions, and health of the individuals interred in Matrix 101. I utilize Goldstein's (1981) approach at examining the spatial "multi-dimensional" placement of the individuals interred to display different social relationships. Additionally, I take a contextual approach using qualitative data to infer meaning from the mortuary rituals at Matrix 101. I examine the symbolism behind Matrix 101's continued manipulation to understand the social message the living created. Finally, I expand on Fowler's (2013) and Hill's (2003) claim that the deceased were transformed for political and religious means. I examine how the individuals in Matrix 101 went through a transformation through burial and the ways through which they acted as media transmitting meanings to the living community. To show how Matrix 101 fits within the broader context of Andean mortuary practices, I examine Andean burial practices during the Early Intermediate (200 B.C. - A.D 600) and Late Intermediate periods (A.D. 1000-1470).

Chapter 3: Andean Funerary and Sacrificial Practices

Andean mortuary practices have been studied and explored for more than a century (Larco 1938, 1939, 1945; Uhle 1913). Numerous societies and periods have been characterized and demonstrate the variability in burial practices throughout antiquity. This wide range of topics includes the analysis of Preceramic period burial practices and what they reveal of groups in transition from hunter-gatherers to sedentary horticulturalists (Quilter 1989), Wari burial practices and the use of *chullpas* (Isbell 2004) and ritualized violence (Tung 2007, 2012a, 2012b), Nazca burial practices and the symbolism behind trophy heads (Browne et al. 1993; Carmichael 1988), Moche burial practices involving the study of social organization (Donnan 1995; Donnan and Mackey 1978; Millaire 2002) and Inca burial practices and the mummified remains of adolescent girls who were offered as sacrifices to the supernatural (Besom 2010; Ceruti 2004).

As this thesis focuses on the Middle Sicán culture during the Late Intermediate Period (A.D. 1000-1470) on the north coast of Peru, it would be cumbersome to review all burial practices in Peru's prehistory. Instead, I take a geographical focus in examining Moche and Chimú burial practices. Both of these cultures' territory spanned the north coast, and temporally, they bracket the Middle Sicán era. The Moche developed during the Early Intermediate Period (A.D. 100-800), and the Chimú during the Late Intermediate Period. Similar geographical location and temporal overlap, make the Moche and Chimú good comparative examples. I provide an overview of Moche and Chimú social/political structure followed by an examination of their ideological beliefs. Lastly, I describe Moche and Chimú mortuary trends present in elite, commoner, and sacrificial funerary contexts.

3.1. Moche Culture

The Moche sphere of influence developed during the Early Intermediate Period (A.D. 100-800). Their territory is located within the fertile floodplains along the arid Peruvian north coast, with sites in proximity to lowland river valleys (Figure A.1). At the height of their culture, Moche influence reached as far north as the Piura Valley and as far south as the Nepeña Valley (Millaire 2002:18). Based on morphological and stylistic changes seen in Moche stirrup spout vessels (Larco 1938) and correlations with radiocarbon dates, Moche culture is divided into five phases: Moche I (A.D. 50-100), Moche II (A.D. 100-200), Moche III (A.D. 200-450), Moche IV (A.D. 450-550), and Moche V (A.D. 550-800) (Millaire 2002:3).

Moche subsistence relied heavily on irrigation agriculture that transformed the dry coastal desert into an oases allowing for numerous crops to grow, such as maize, manioc, squash, potatoes, and beans (Bourget 2006:1). Apart from agriculture, Moche subsistence also was dependent on the abundant marine resources sustained by the Humboldt or Peruvian Current. This current carries cold water from the Antarctic, and creates an upwelling along the coast that provides nutrients to phyto- and zooplankton. These microscopic organisms provide the base for a rich large food chain that includes a variety of shellfish, fish, birds, and sea mammals (Burger 1992:14). Periodically, this current is disrupted by occurrences of El Niño or ENSO (El Niño Southern Oscillation) events. ENSO played an active role in Moche ritual life, iconography, mortuary practices, and ritual killing (Bourget 2001).

Once thought to be homogeneous state society, the Moche world is now more widely considered to have contained diverse peer polities within and between the various river valleys united by a common religious ideology (Millaire 2002:4; Pillsbury 2001:11; Quilter and Koons 2012). Moche centers contained residential and non-residential architecture (Millaire 2002:7)

organized, in some cases, into urban settlements (Chapdelaine 2001). Russell and Jackson (2001:161) hypothesize that lords who were stratified from the principal lord down to lesser nobles controlled these polities. Moche society included artisans, warriors, engineers, and local and regional administrators (Millaire 2002:8-9).

3.1.1. Moche Religion and Ideology

Most of what is known about Moche religion is provided from iconographic analysis and burial practices (Donnan 1978). Religious concepts held by the Moche were portrayed through various media including murals, ceramics, and textiles (Trever et al. 2013). Rituals depicted in Moche iconography revolve around two dozen themes portraying such religious events as creation stories, ritual processions, ritual warfare, and burial and sacrificial ceremonies (Donnan 1978; Hill 2013:601; Moseley 2001:184). Central figures present are the warrior priest (also known as “wrinkle face”), associated with an anthropomorphized iguana, as well as skeletons alongside decaying individuals (Bourget 2006:8-9). Hill (2003) and Swenson (2003) argue that the interplay between iconography and ritual events allowed for an ideological system that supported Moche stratified hierarchal society. Verano (2005:288) states that these common themes “reaffirm[ed] the religious and political power of major centers” such as Huaca de la Luna or Pacatnamú.

3.1.2. Moche Burial Practices

Archaeologists (Bourget 2006; Donnan and McClelland 1979) derive the current understanding of Moche mortuary practices from iconography and funerary contexts. Donnan and McClelland (1979) examined fine line paintings on a series of ceramics that they suggest

represent a continuous narrative about the burial of an elite personage. The Burial Theme is broken down into four separate events: the Burial, the Assembly, the Conch Exchange, and the Sacrifice (Donnan and McClelland 1979). Though agreeing that this theme depicts funerary rituals and Moche conceptions surrounding death and burial, Bourget (2006) argues that these events actually represent the removal of the elite burial from the ground. He suggests that the assembly takes place first, followed by the removal of the coffin, the conch ceremony, and finally the sacrifice, therefore, reinstating the dead lord's position in the afterlife.

Social differentiation is also seen through burial contexts. Typically, Moche buried their dead in an extended position with the individual's hands placed either at his/her side or over the pelvic region. Ankles were crossed or placed side-by-side (Donnan 1995; Donnan and Mackey 1978; Millaire 2002:3). Grave goods that are ubiquitous, regardless of economic and social position include ceramics, gourds, and copper (Donnan 1995:145-147). Burial variability is seen through differing encasements, burial construction, quality and quantity of grave goods, and location (Donnan 1995; Millaire 2002). Millaire (2002:170) argues that there was no strict division between elite and commoner burials. Instead, he sees a gradual continuum reflected through mortuary practices.

Although variability existed between social groups, Donnan (1995:156) argues that all members of Moche society upheld standard funerary practices. Millaire (2002:166) agrees with Donnan's (1995:156) argument, stating that Moche "funerary treatment was guided by a combination of burial rights related to a lineage group system, and differential access to resources probably based on personal qualities of the deceased." For example, a ceramic sherd placed in the individual's hand may take the place of copper in lower status burials, thereby allowing burial standards to be maintained (Donnan 1995:156) in an expression of *pars pro toto*

magical thinking (Hecker and Hecker 1992). Overall, researchers agree that Moche burials represent a stratified society, though differentiations between vertical and horizontal status positions may be harder to determine (Millaire 2002:10). Sacrificial contexts, such as those seen at Huaca de la Luna, may also represent the deaths of members of a separate social class within Moche society (Bourget 2001, 2006; Verano 2001). The following section examines burial trends seen in Moche elite, commoner, and sacrificial funerary contexts.

3.1.3. Moche Elite Burial Practices

Moche elite burials have been found at Sipán (Alva 2001), Dos Cabezas (Donnan 2007), Huacas de Moche (Bourget 1998; Uceda 2001), El Brujo (Franco et al. 1999), San Jose de Moro (Castillo 1993; Donnan 1995; Nelson 1998), Huanchaco (Donnan and Mackey 1978), and Huaca de la Cruz (Strong and Evans 1947). Elite burials were located in cemeteries and non-residential areas, such as religious centers. Individuals were typically encased in plank or cane coffins within large boot-shaped or rectangular chambers and are buried with an abundance of high quality grave goods (Donnan 1995; Millaire 2002). For example, the tomb of the Lord of Sipán contained over 400 grave goods, including gilded metal banners, numerous *Spondylus* bead pectorals, ear ornaments, a gold and silver peanut necklace, gold and silver scepters, and 212 simple ceramic vessels (Alva 2001:226-228).

Another common indicator of higher economic and social position is the inclusion of retainers or secondary burials accompanying an individual. These interments are either in close proximity to the principal person, indicating a personal relationship during life, or act as a guardian to the grave. Individuals acting as retainers are sacrificial or secondary burials saved for when the principal person passed away (Millaire 2002:135). For example, the Lord of Sipán's

grave included three adult males, one adult female, three adolescent females, and one child (Alva 2001:226-228).

3.1.4. Moche Commoner Burial Practices

Moche commoners have been found buried at Huacas de Moche (Chapdelaine et al. 1998; Topic 1977), Pacatnamú (Donnan and McClelland 1997), and Huanchaco (Donnan and Mackey 1978). Commoner burials are found in residential areas (i.e., underneath household floors, refuse pits), cemeteries, and along river valleys. Lower social status is reflected through simple burial pits while small boot-shape and rectangular chambers indicate a moderate level of social status. Encasements range from simple cotton shroud wraps to cane frames and tubes (Donnan 1995; Millaire 2002). Variability between encasement type, burial construction, and quality and quantity of grave goods is seen through low status individuals' graves, especially when placed in cemeteries (Millaire 2002). In addition to vertical social status, age is also a structuring factor in the quantity of grave goods and type of encasements. Shroud wrapped young children (< 15 years old) are buried in simple pit burials with few to no grave goods, while more energy expenditure is placed on adult burials of the same social class (Donnan and McClelland 1997:28).

Although variability exists between characteristics of the grave, body position of commoners followed the same patterns as seen in elite burials. For example, at Pacatnamú, all individuals were in extended position, ankles either crossed or side-by-side, and hands placed either beside the body or over the pelvic region (Donnan and McClelland 1997:21). Body orientation was mainly north-south with the head placed towards the south, though a few were found oriented east-west with the head placed towards the east (Donnan and McClelland

1997:28). Commoner burials tend to contain single individuals, although burials with multiple individuals have been found suggesting kin ties (Millaire 2002). Common multiple burials contain an adult and subadult, which Millaire (2002:107) suggests may indicate a parent-child relationship. A summary based on Donnan (1995) and Millaire's (2002) research into Moche elite and commoner burial characteristics are presented in Table 3.1.

3.1.5. Moche Sacrificial Contexts

Sacrificial contexts have been found at Dos Cabezas (Cordy-Collins 2001), Huaca de la Luna (Bourget 1997, 1998; Bourget and Millaire 2000; Verano 2001, 2005), and Huambacho (Chicoine 2011). Human sacrifice was an important ritual that reaffirmed Moche elite political and economic control (Verano 2005:288). Young male warriors were captured, possibly tortured, and then sacrificed (Verano 2001). For example, in Plaza 3A at Huaca de la Luna, Steve Bourget (2001) came across over 15 strata of adult male skeletal remains, representing at least five separate rituals (Bourget 2001:96) that transpired around A.D. 550. These individuals were mostly found disarticulated and scattered, although some of the skeletons were found intact. An examination of the skeletal remains showed osteological evidence for throat slashing and decapitation, blunt force trauma to the head, removal of the jaw and de-fleshing of the face (Bourget 2001:97-99). Also at Huaca de la Luna, the preceding Plaza 3C, Verano (2005:282) discovered another group of sacrificed male warriors. Ropes were found around necks, wrists, and ankles; skeletal remains showed evidence of de-fleshing and dismemberment. Unfired clay figurines were found at both Plaza 3A and 3C depicting seated prisoners that were intentionally broken as part of the sacrificial ceremony (Verano 2005:283). At Plaza 3C, Verano (2005:284) also found textiles, food refuse and gilded copper plates alongside the sacrificial victims.

Table 3.1: Moche elite and commoner burial characteristics

	Moche Elite	Moche Commoners
Location	Inside pyramids Inside platforms In front of pyramids Cemeteries	Household floors and refuse pits Sterile soil along the river valleys Cemeteries (low and moderate status)
Encasement	Plank coffins Cane coffins	Ceramic casing Splint reinforced Shroud wrapped Cane tube (moderate status) Cane frame (moderate status)
Burial Construction	Large rectangular chambers Large boot-shaped chambers	Simple pit Small boot-shaped chamber (moderate status) Small rectangular chamber (moderate status)
Grave Goods	Ceramics Gourds Camelids (complete or head missing) Gilded copper, silver, and gold Metal objects (e.g. metal sandals, rattles, staffs, jewelry, masks) Nose ornaments Earrings made of gold, silver, and copper with inlays of turquoise and lapis lazuli <i>Spondylus</i> shell Retainer burials	Ceramics Gourds Camelid body parts Copper Earrings made of wood or bone with inlays of shells and iron pyrite Spinning, weaving, and fishing implements

Bourget and Millaire (2000) argue that Moche sacrifice acted as a response to environmental crisis caused by El Niños. At Plaza 3A, Bourget and Millaire (2000) found evidence that it was raining while the warriors were sacrificed. Bourget (2001:115) further claims that this ritual was tied to the world of the sea and the killing of sea lions. Verano (2005) and Hill (2003) argue that sacrifice was used as a tool to strip the warriors of their identities and

display their remains. Hill (2003) claims that through sacrifice, the warrior's body was transformed into a sacred object. By dismembering the body, each body part became the "sacra" and suitable for offerings to the supernatural. Based on iconographic depictions of dismembered limbs alongside sacrificial victims, Verano (2005:288) hypothesizes that de-fleshed and dismembered body parts may have been suspended and used for display.

At Huambacho, Chicoine (2011, in press) found manipulated burials that may depict evidence of sacrifice by strangulation. Individuals were found in extended prone position, which deviates from the modal extended supine position seen in elite and commoner burials. Prestige goods, such as ceramics, metals, shell pendants, and coca leaves, were included in the interments. Although there was no skeletal evidence of sharp or blunt force trauma, Chicoine (2011:539) suggests that some might have been strangled from behind. Additionally, the contorted appearance of the body could be evidence of strangulation and a possible struggle (Chicoine 2011:541). Chicoine (2011:544) argues that due to the central location of the burials within Huambacho, the presence of grave goods, and the prone position may indicated the special status and symbolic importance of these individuals.

Moche civilization declined and reorganized between A.D. 600-800 as political power shifted north to Pampa Grande, possibly in part to the effects of a mega El Niño and subsequent multi-year drought (Shimada 1994). As centers of power dispersed, the Chimú and Sicán civilizations emerged (Moseley 2001). Donnan and Mackey (1978:215) state that Chimú occupation in the Moche Valley showed a direct continuation of Moche settlement and agricultural practices, although the older view (as inspired by the Chan Chan-Moche Valley Project) of direct Moche to Chimú continuity has been shown to be far more complex and

nuanced over recent decades (Shimada 2000). I focus on the Middle Sicán more fully in the next chapter but for comparative purposes I review Chimú mortuary practices below.

3.2. Chimú

Following the Moche, with possible influence from outside groups the Chimú empire emerged during the Late Intermediate Period. The Chimú sphere of influence covered, at some point, two-thirds of coastal Peru (Moseley 2001:261). Their territory was centered in the Moche Valley, with their capital at Chan Chan (Figure A.2). Based on archaeological survey and excavation, Chimú development can be divided into three separate phases; Early Chimú (A.D. 900/1000-1200), Middle Chimú (A.D. 1200-1300), and Late Chimú (A.D. 1300-1470) (Dulanto 2008:762), although Chimú chronology continues to need further refinement (Shimada 2000). The imperial status of the elites at Chan Chan and their ability to expand long-distance trading networks allowed for increases in population and technological improvements. They expanded irrigation networks along the coast and created sunken gardens (*pukios*) (Donnan and Mackey 1978:215, 219). Resources were controlled by the state and contained in storerooms for redistribution (Pozorski 1982).

During the Middle Chimú (A.D. 1200-1300), Chimú culture reached its height as their capital, Chan Chan, prospered (Donnan and Mackey 1978:289). Chan Chan was an immense site covering 20 square kilometers with the central core covering nine square kilometers. Monumental architecture in the capital's core consisted of nine rectangular structures with 2.5m-thick walls that were between 200-650m long. Built for the kings of Chimor, six of these enclosed structures were divided into three sections that included courts, storerooms, residential areas for the elite and officers, and a mortuary platform (Donnan and Mackey 1978:289).

Domestic architecture and craft workshops surrounded the civic center (Donnan and Mackey 1978:295). Irregularly shaped cane houses with patios and workshops composed the densely packed neighborhoods. At the height of Chimú civilization, Moseley (2001:270) estimates that 26,000 craftsmen and craftswomen resided in these communities, while an additional 3000 lived closer to monumental architecture. Lower status fishermen and farmers lived outside the perimeters of Chan Chan (Moseley 2001:270).

3.2.1. Chimú Burial Practices

Alongside differentiating architecture separating social classes, social stratification is also seen through Chimú burial practices. Unfortunately, this picture is not complete due to large-scale looting. However we do know that mortuary practices range from elaborate to simple burials. Social and political organization is seen through the varying components of the burial, such as location and the quality and quantity of grave goods. At Chan Chan, lower status individuals are buried with a few ceramics and interred in scattered cemeteries around the perimeter of the site, including one on the south side and one on a bluff in close proximity to the site (Conrad 1982:87). Higher social status is represented by those burials located within the civic center, such as burials in U-shaped rooms (*audiencias*) (Conrad 1982). The most elaborate mortuary practices were reserved for the kings of Chimor, who were placed in specialized funerary structures found within the *ciudadelas* (Conrad 1982:87). Despite differences in location and grave goods, both elite and commoners are buried in flexed, seated position. There is no standard orientation for the body and head (Donnan and Mackey 1978:340), but their small sample was by no mean a representative cross-section of the population at large.

3.2.2. Chimú Elite Burial Practices

Chimú elites were buried in monumental funerary platforms that were located in the back of each *ciudadela*. The principal person was placed in the center of the platform in a large T-shaped shaft tomb, with the top of the “T” oriented north (Conrad 1982:92). Unfortunately, these funerary structures have been subject to multiple episodes of looting, skewing our data on the actual amounts of grave goods associated with the main individual (Conrad 1982:99). Despite the looting, excavations recovered vast quantities of high quality grave goods including intricate textiles, fineware ceramics, carved wooden sculptures, metal objects, weaving implements, and *Spondylus* shell (Conrad 1982:99; Donnan and Mackey 1978:295).

Human and animal sacrifice played a central and ongoing role in the death of elite Chimú. Each principal shaft tomb was surrounded by a vast quantity of secondary simple shaft or boot-shaped tombs. For example, the funerary platform in the *ciudadela* Laberinto contained 25 cells holding over 90 young females and camelids. None of the women were over the age of 30 and majority age ranged between 17 and 24 years old (67%) (Donnan and Mackey 1978:343). Excavations at one of the larger burial platforms, Las Avispas, found one cell to contain 13 stacked young females. Alongside the Chimú ruler, the mass burial contained hundreds of sacrificed young women (Pozorski 1971). Keatinge and Conrad (1983) also found Chimú elite burials at Farfán. Although they were not as prestigious as the kings of Chimor burials, the deceased were placed in the center of a burial platform alongside similar high quality goods seen in Chan Chan’s elite graves.

3.2.3. Chimú Commoner Burial Practices

Donnan and Mackey's (1978) analysis of burial practices throughout the Moche Valley contains limited information on Chimú commoner burial practices. Chimú cemeteries are sites of extensive looting, leading Donnan and Mackey (1978) to interview looters to gain information on the burial context and body position. Simple burials were in simple pits in sand, or soil mixed with mud bricks. Bodies were typically placed in flexed, seated position. Some of the burials contained niches used for head placement. A possible continuation of some elements of Moche burial practices are noted in the use of metal objects, such as a folded copper item placed in the mouth, hands, or feet. Other grave goods included cooking *ollas*, large jars, camelid body parts (usually skulls and lower limbs), and guinea pigs (Donnan and Mackey 1978:340).

3.2.4. Chimú Sacrificial Contexts

Chimú sacrificial practices are less visible in their artistic record when compared to the prolific Moche, but windows may still be opened through iconographic depictions and archaeological contexts. Sacrificial iconography includes painted textiles that display naked, bound prisoners and decapitated body parts (Lapiner 1976:279-282) and wooden carvings of bound and injured captives (Verano 1986:134). Aside from retainer sacrifices seen in the *ciudadelas*, Chimú sacrifices have also been found at Pacatnamú (Verano 1986) and Huanchaquito-Las Llamas (Prieto et al. 2015). Similar to the Moche, sacrifices were used as a way to legitimize the state and “guarantee the establishment of social, political, and economic control” (Prieto et al. 2015).

At Pacatnamú, Verano (1986) discovered 14 young males who were buried outside the perimeter of the ceremonial center deep inside a defensive trench. All of the individual's ages

ranged from 15-35 years old, with an average of 21 years old. Multiple old and healed injuries suggest that they were warriors of some kind (Verano 1986:132-133). Separated into three distinct events, the young men were sacrificed before being placed in the trench (Verano 1986). Differential sacrificial methods were used during the three separate phases. The first group showed evidence of repeated stabbing to the chest and abdomen. The high number of stab wounds and variability in direction indicate that the victims were restrained and perhaps stabbed by multiple people. Additionally, all executed males of the first group were missing their left radius, which was cut from their forearm (Verano 1986:122). Sharp force trauma in the second group included throat-slitting, blows to the head, neck and limb, fractures, decapitation, and dismemberment (Verano 1986:128-129). Finally, the third group showed evidence of decapitation and chest opening (Verano 1986:129-130). Bone bleaching and presence of insect activity indicates that the victims were exposed for some time before being placed in the trench (Verano 1986:132).

Prieto et al. (2015) discovered a mass sacrificial context of 43 subadults and 74 young camelids. Out of the 43 subadults, 27 were young children (6-8 years old), 10 were adolescents (11-15 years old), and six were of undeterminable (Prieto et al. 2015). Although it is impossible to sex subadult skeletons, Prieto et al. (2015) hypothesize that these young children are males. They make this hypothesis based on the children's short hair and correlations with the male sacrificial victims discovered at Pacatnamú. Body positions deviate from normal flexed and seated Chimú burials as subadults were placed in extended position with their limbs flexed, laterally flexed, hyper-flexed, or in a kicked out position with an extended arm (Prieto et al. 2015). Sharp force trauma included chest cuts (Prieto et al. 2015). Agreeing with Bourget's (1997) argument that sacrifices in the Moche Valley were tied to ENSO-related rainfall, Prieto et

al. (2015) argue that this sacrificial context was connected to climate and asserting state control over the population.

3.3. Summary

Overall, Moche and Chimú burial practices follow specific trends that adhered to different levels of social and economic rank. In general, commoner burials are simpler while elite burials, such as Moche elites at Sipán (Alva 2001) and Chimú elites at Chan Chan (Conrad 1982; Donnan and Mackey 1978), were elaborate. Moche and Chimú sacrificial contexts all deviate from normal burial practices and follow a trend of using captive male warriors as sacrificial victims (Bourget 2001a, 2001b; Verano 2001, 2005). Additionally, Chimú sacrifices also included male children (to the supernatural) (Prieto et al. 2015) and young females (to deceased rulers) (Conrad 1974). During Chimú occupation in the Moche Valley, the Middle Sicán controlled the northern Lambayeque Valley Complex (Moseley 2001:263) and had direct influence and political presence from Puirá to the north to the Jequetepeque and Chicama valleys to the south. The following chapter discusses Middle Sicán culture history, society, and burial practices.

Chapter 4: History of the Sicán Culture

The Sicán culture had its origins during the end of the Middle Horizon (A.D. 800-900) and developed into the Late Intermediate Period (A.D. 1000-1470). Over this span of time it emerged as the most dominant society of the northern north coast. Their core territory is located in the Lambayeque Valley Complex on the north coast of Peru. Main secondary centers of Middle Sicán control were at Chotuna-Chornancap, Túcume, La Pava, Illimo, and Huaca Pared-Uriate while their primary center and religious precinct is located with Pomac forest of the La Leche valley (Shimada 2014) (Figure A.3). Based on Shimada's (1990) five-stage chronology constructed from morphological and stylistic changes in stirrup spout vessels and correlated with radiocarbon dates (Shimada 1990:306-307), the Sicán cultural sequence is separated into three phases: (1) Early Sicán (A.D. 750/800-900), (2) Middle Sicán (A.D. 900-1100), and (3) Late Sicán (A.D. 1100-1375).

This chapter provides a historical overview of Middle Sicán social and political structure and funerary practices. I examine the history of research in the Lambayeque Valley Complex and describe how perspectives of Sicán culture have changed over time. I then examine Early Sicán society, possible cultural continuities from Moche V, and their cultural origins. The following section discusses the substantial growth seen during the Middle Sicán period. I then describe current understandings of Middle Sicán social and economic stratification, craft specialization, and ideology and visual arts. Next, I discuss the Middle Sicán collapse and the abandonment of Batán Grande in Late Sicán times. Finally, I examine Sicán mortuary patterns in elite and commoner, and sacrificial contexts. These burials trends are then compared to expectations for Matrix 101.

4.1. History of Research

The nomenclature of the Sicán culture has changed many times throughout history as the archaeological study has continuously improved upon its understandings. It has been called Chimú (Bennett 1939; Kroeber 1925, 1926, 1930), Eten (Uhle 1959) and Lambayeque (Larco 1948, 1962). Kroeber (1925, 1926, 1930) based his terminology on ceramic similarities with the Chimú and suspected that ceramic style originated from the Lambayeque Valley. While the name Eten (Uhle 1959) never gained popularity (Shimada 2014), Lambayeque was the most frequently used term/nomenclature before 1983. The Lambayeque terminology was based on the fact that sites of this cultural variety are found in the Lambayeque region. Today, some scholars still choose to use the Lambayeque cultural classification, although it is based on a geographically inaccurate assessment from decontextualized, looted grave goods (Shimada 2014). In 1983, Shimada implemented the name Sicán (Shimada 2014). Derived from the Muchik native word for “house or temple of the moon” that was the local place name for their capital (Shimada 1983), Sicán can also be written as “Signan” or “Sian” (Shimada 2014:16).

Early research in the Lambayeque Valley began during the 1930s when looting activity caught attention of the archaeological community (Muro and Shimada 1985). Elaborate grave goods were uncovered by looters in 1936-1937 at Huacas la Merced and Las Ventanas (Valcárcel 1937). Drawn to the region by the intense looting, Tello (1937a, 1937b) attempted early yet unsuccessful salvage excavations at Huaca Las Ventanas. In the 1940s, Ford (1949) completed an examination of the Lambayeque Valley and associated ceramics, yet did not publish his work. In the 1970s, historian Jorge Zevallos Quiñones (1971, 1989) spent time studying this culture, and popularized the current parallel use of the term “Lambayeque culture”. A large amount of research is based on private ceramic collections and focused on examining

and interpreting iconography (Carrión 1940; Kauffmann 1983; Zevallos 1971). Finally, some researchers (Donnan 1972; Kosok 1959, Nolan 1981) conducted limited small surface surveys of Sicán sites.

Beginning in 1978, Shimada began systematic excavation in the La Leche and Lambayeque Valley to first define Sicán chronology, environment, and technology, and later, examined elements of Middle Sicán ideology, politics, and population biology (Shimada et al. 2004). Early work at residential and workshop structures at Huaca Pueblo Batán Grande (HPBG) (Shimada 1990) and elite tombs at Huaca de Loro (Shimada 2000, 2014) examined thousands of diagnostic ceramics which covered 1000 years (A.D. 500-1532). Seriations of these ceramics led Shimada and colleagues to recognize long-term trends in pottery styles and allowed for a better understanding of Sicán chronology (Shimada 1990). Though most research has focused on Middle Sicán era, a few burials and architectural elements provide information on Early Sicán.

4.2. Early Sicán and Cultural Origins

What we know today about Sicán early development is derived from a small sample of burials and some iconographic evidence (Shimada 2014:22). Sicán society began somewhere in Lambayeque Valley Complex and surrounding areas around A.D. 750-800, although these developments have no clear physical locus as of yet. Shimada (2014:22) states that Sicán society was formed and shaped by cultural and environmental inputs. In the sixth century A.D., a severe drought followed by a massive El Niño caused social and political shifts along the north coast of Peru (Shimada et al. 1991). Environmental degradation led to the collapse of Moche political structure around A.D. 750. Around the same time as the Moche collapse, waves of Wari expansion spread to the coast. Shimada (2014:22) argues that the Moche decline and Wari

expansion on the coast created an amalgamation of traits that eventually led to Sicán cultural developments. Additionally, Shimada (1985) states that cultural continuities from Moche V (A.D. 550-800) are visible into Middle Sicán (A.D. 900-1100), such as the presence of chamber-filled ceremonial architecture and similar funerary practices (Muro and Shimada 1985). Although not mutually exclusive, while Shimada and other archaeologists suggest that elite Sicán origins might be rooted in migration (Schaedel 1972; Shimada 1982, 1985), other researchers focus on possible cultural origins rooted in mythology (Donnan 1990; Kosok 1965).

4.2.1. Legend of Naymlap

Early Sicán research focused on an analysis of Sicán iconography and centered on depictions of the Sicán Deity (also known misleadingly, as the “Huaco Rey,” or “King Ceramic”). Portrayed on stirrup-spout ceramic vessels, metal semi-circular knives (*tumis*), and murals, representations of the Sicán Lord dominated Middle Sicán iconography (Matsumoto 2014:230). The Sicán Deity’s characteristics (Figures A.4a,b) consist of a rectangular face with a rounded jaw, almond-shaped eyes, and a pointed nose. It was adorned with elaborate headdresses and large circular earrings (Muro and Shimada 1985:64). At Huaca Las Ventanas, depictions on a painted textile have shown the deity holding a tumi-knife and a trophy head (Shimada 2000:52-53). These defining features resemble avian characteristics, which lead some researchers to believe that the Sicán Lord is a representation of the mythical ruler Naymlap (Alva and Alva 1984; Donnan 1990; Kauffmann 1973).

Recorded once in 1568 by the by Jesuit priest Cabello Valboa, and again by a local priest in 1782, the legend of Naymlap is a mythical tale of a royal family, led by a culture hero named Naymlap, who arrive on the north coast of Peru with his royal court on balsa rafts. Naymlap

established his temple at a place called Chot and erected a green stone idol of himself (Elera 2006:65). The oral tale describes his death and 12 successive rulers and their history (Matsumoto 2014:231). Alva and Alva (1983) argue that depictions of Naymlap and his royal family's arrival is depicted on murals at Úcupe in the Zaña Valley, although the generally non-narrative visual structure of these polychrome mural may be more akin to simply stylized representation of the Sicán Deity.

Considering alternatives to direct connections to the mythical legend, Shimada (1990) considers evidence discordant with the legend which may not hold much literal veracity at all. He notes that the pointed nose and almond-shaped eyes represent long-established Moche and Wari stylistic influences. Similarities between Moche and Huari religious iconography “provided the basis for the rapid but selective syncretism” in Sicán iconography (Menzel 1977:61). Additionally, Shimada (2014) argues that the Sicán Deity is associated with the cosmological water symbolism - and not a legendary personage, *per se*. Shimada (2014:33) interprets that tears located underneath the Sicán Deity's eyes and the use of emeralds as pupils on masks, both symbolize rain. The Sicán Deity is also commonly accompanied with *Spondylus* shells, frogs, parrots, and iguanas. These specific animals only appear in abundance at times during immense rainfall during El Niño events (Shimada 2014:32). The presence of these figures as well as painted canvases depicting crops implies the importance and necessity of securing water resources, as well as the Deity representing the symbolic source of water and life in the world (Shimada 2014:32).

4.2.2. Foreign Elites, Muchik Commoners

The debate between the connection with Naymlap versus Moche cultural continuities is but one theoretical thread where Sicán origins have been studied. An independent attempt to uncover Sicán origins has led to the examination of whether Sicán elites were intrusive in the area and if they were genetically similar to the local Muchik population who likely descended from the earlier Moche. Archaeological and osteological data, along with inherited dental traits and ancient DNA analysis provide a reconstruction of Middle Sicán society (Shimada et al. 2004, 2005). Klaus (2008:151) states that Middle Sicán culture “appears to have been a complex, multiethnic, hierarchical society comprised of three to four social classes organized along fairly rigid boundaries.” Sicán elites may have been foreign to the area. Ancient DNA analysis from skeletal material in Sicán elite tombs indicates similarities between the Sicán elite and northern populations suggesting one possibility that Sicán rulers originated from coastal Ecuador (Shimada et al. 2004, 2005).

Mitochondrial DNA analysis of elite and commoner skeletal material gathered from Middle Sicán sites suggest some, if not many commoners were related to the Moche. Shimada et al. (2005) discovered mitochondrial DNA connecting Middle Sicán commoners to Moche royal tombs at Sipán. In line with this evidence, Klaus (2008:154; 2014) argues that the material culture suggests the endurance of Muchik identity. For example, at Huaca Loro, a painted textile depicting warriors holding decapitated heads is reminiscent of Moche depictions of warriors and sacrifice. Klaus (2008:155) suggests that the elite, as they crafted a new sociopolitical and religious system, incorporated well understood local symbols to “legitimize their hegemony and configuration of religious ideology.” Cleland and Shimada (1998:141) examine ethnoarchaeological and archaeological patterns of paddle-and-anvil ceramics. Associated with

the Muchik, Cleland and Shimada (1998) argue that the production of these simple ceramic vessels were exempt from state control.

4.3. Middle Sicán

During the Middle Sicán period (A.D. 900-1100), Sicán society experienced explosive growth as its political, religious, and economic influence spread from the Lambayeque valley to the Moche valley, and possibly a colony associated with to Pachacamac in central Peru (Segura and Shimada 2014; Shimada et al. 2004). Monumental adobe brick platform mounds (*huacas*), such as Huaca Las Ventanas and Huaca Loro, were constructed as the polity expanded throughout the La Leche and Lambayeque regions (Shimada 1990). Klaus (2008:143) states that Sicán elite “used the monumental huacas as political propaganda, symbols of their secular authority on earth.” Shimada (2000:60) classifies Sicán as a “state-level religious polity” where the rulers controlled resource distribution for the maintenance of the economy. Political and economic organization centered on control of production (agriculture, camelid herding, fishing), crafts (metal production), and long-distance trade (Klaus 2008; Klaus et al. 2010; Shimada 1995, 2000, 2014).

Middle Sicán society was strongly stratified, as ostentatious elites controlled access to goods and information. Elites seem to have governed through a centralized hierarchical administration centered in the heart of the religious precinct (Shimada 2000:61). Religious and political temples with dedicatory offerings were surrounded by elite residences, storage structures, and craft workshops (Shimada et al. 2004). Less understood is the presence of a lower nobility, which Klaus (2008:153) hypothesizes were in charge of labor organization and regional governance. Small commoner residential centers were positioned around the periphery of the

Middle Sicán religious-funerary precinct and housed farmers, fishers, and artisans (Klaus 2008; Shimada 2000).

Skeletal biological data from over 300 Sicán graves indicate differences in overall frequencies of biological stress (Farnum 2002; Klaus et al. 2010; Klaus et al. in press; Shimada et al. 2004). Biological stress is defined as disruptions in homeostasis (Temple and Goodman 2014:190) and can be reflected through the presence or absence of enamel developmental defects, and pathological conditions resulting in lesions and periosteal reactions (Goodman et al. 1984). Typically, Middle Sicán elite individuals have a low prevalence of bone disease, joint disease, and enamel hypoplasia as well as low prevalence of dental caries and abscesses (Klaus et al. 2010; Haagen Klaus, personal communication 2013). Comparatively, commoners typically have a high prevalence of bone disease, joint disease, and enamel hypoplasia, as well as a high prevalence of caries and abscesses (Klaus et al. 2010; Haagen Klaus, personal communication 2013). Differences in biological stress between Sicán elite and commoners are due to preferential access to food and to different labor and living experiences. Table 4.1 provides an outline of how social status materializes in Sicán society.

4.4. Late Sicán

The end of Middle Sicán began in A.D. 1050 when a strong El Niño occurred, which resulted in flooding followed by a 30-year drought (Klaus 2008:158). Simultaneously, all principle religious constructions at religious precinct, including Huacas Loro, Lercanleche, El Corte, Ingeniero, and Las Ventanas were set on fire. As the severe drought no doubt strained agriculture production, Shimada (2000:61) argues that the “inability of the leadership to minimize or reverse these adverse effects may have culminated in the temple destruction.”

Furthermore, the temple destruction may also represent an internal revolt caused by the increasing overwhelming burden of the costly ancestral cult seen during the Middle Sicán (Shimada 2000:61-62). Following the fire, the Sicán religious precinct was all but abandoned and power shifted 12 km southwest to Túcume, while Late Sicán cultural influence continued in the northern Piura region to the southern

Table 4.1: Materialization of social identity in Sicán society

Variables of Social Identity	Sicán Elite	Muchik Commoners
Location of residences	Near the religious precinct	Around the perimeters of the religious area
Location of Burials	In proximity to the huacas	Under residences
Types of Burial	Deep shaft tombs	Simple burial pits
Grave Goods	Elaborate grave goods (metal, <i>Spondylus</i> , ceramics)	Simple grave goods (ceramics, gourds)
Body Adornments	Ear spools, pectorals, textiles, metal clothing	Wrapped in simple textiles
Occupations	Rulers, nobles, administrators, warriors, bureaucrats, artisans	Farmers, fishers
Sex	Male biased	Male and females
Age	All ages	All ages
Biological Stress Patterns	Low prevalence of pathological lesions	High prevalence of pathological lesions

Jequetepeque region (Shimada 1990:436, 2000:62-63). Additionally, all iconography of the Sicán Deity disappeared very rapidly (Shimada 1990:311). Besides the absence of the Sicán Deity, stirrup spout vessel form and flanking creatures continue with the new addition of geometric decorations (Shimada 1990:332).

4.5. Middle Sicán Ideology

Sicán religious ideology is most elaborate and materially explicit during the Middle Sicán period. Religious ideas were integrated into various forms of media including textiles, ceramics, metal objects, and murals (Shimada 2014). Depictions of the Sicán Deity are present on all media forms, and it is seen in several positions: standing and holding a *tumi* or decapitated head, seated and cross-legged, and seated or standing with accompanying figures (Shimada 1990:325). During the Middle Sicán, murals and elite metal objects were publicly displayed and metal became a prominent aesthetic locus. Even utilitarian vessels are decorated with the Sicán Deity's face (Shimada 1990:324-325). The image of the Sicán Deity also contained religious power. Funerary masks depicting the Sicán Deity's face were placed on the deceased to bestow "supernatural qualities of the Sicán Lord upon the users" (Shimada 1990:325). Matsumoto (2014:252) argues that the funerary mask was the "symbol of ancestral collectivity and help a deceased ruler transform into an ancestor and join the ancestral collectivity."

Religious architecture was also inseparable from Sicán ideology. Aside from their political importance, temple mounds or *huacas*, such as Huaca Las Ventanas and Huaca Loro, are believed to represent family lineages of past Sicán elites. At the Sicán religious precinct, Shimada (1986) interprets each *huaca* as representing one or more lineages integrated through

ancestor worship. Also, royal tombs often were placed adjacent to the mounds (Klaus 2008; Shimada 1986), thereby connecting the living to the dead (Matsumoto 2014).

4.5.1. Middle Sicán Burial Practices

Burial patterns in Middle Sicán society present evidence of a stratified socio-political organization (Tschauner 2001, 2014). Middle Sicán society consisted of a four-tier social rank that was based on degree of administration and amount of production. Middle Sicán mortuary practices reflect these different social statuses through location, depth of burial, and the quality and quantity of grave goods (Klaus and Shimada in press). A discussion of Sicán elite, commoner, and sacrificial contexts follows.

4.5.1.1. Middle Sicán Elite Burial Practices

Middle Sicán elite tombs vary in shape, size, and depth, and in the quantity and quality of grave goods (Shimada 2000:56). Typically, elite individuals were buried in a seated position inside a large (~12m deep) shaft tomb. Elite burials are located in what Matsumoto (2014:266) defines as the “Middle Sicán Mortuary Complex.” The highest elite burials, representing the Sicán ruling lineage, are located near and associated with a ceremonial mound (Shimada 2014:74). Although not associated with a particular *huaca*, second tier elites were similar as their burials are located within the religious precinct and the deceased were placed in seated position. However, second-tier burials are not buried as deep as the ruling class. All elites were buried with a funerary mask and elaborate grave goods. Ruling class burials contain the most extravagant grave goods, including retainer burials, gold, silver, necklaces, stirrup spout vessels depicting the Sicán Deity, and exotic goods such as *Spondylus* shells and lapis lazuli (Muro and

Shimada 1985:62). Distinctions are made between the elite tiers and between sex in the types of metals that are included. High Sicán elite male burials contain gold and all other gilded metals while female burials contain silver and copper. Low Sicán elite male burials contain all alloys except gold, while female burials contain only gilded silver and copper (Shimada 2014).

Examples of elite burials are the West and East Tombs found at Huaca Loro (Shimada 2000; Shimada et al. 2004, 2005). The West tomb is a 12m deep shaft tomb with a main individual placed in the center in a seated position. On both north and south sides of the main burial were six sub-floor pits and ten wall niches containing the retainer burials of 20 women and one male adolescent (12-13 years old) (Shimada 2000; Shimada et al. 2004, 2005). The East tomb's shaft is also 12m deep with the principal deceased, a male, placed in an inverted seated position and covered in gold accouterments. Throughout the tomb was over 1.2 tons of elaborate grave goods including *Spondylus* shells and arsenic copper, as well as four retainer burials of two women, one adolescent, and one child (Shimada 2000, Shimada et al. 2004, 2005).

4.5.1.2. Middle Sicán Commoner Burial Practices

In contrast, typical Sicán lower status, or commoner, burials are located on the peripheries of political and religious centers. These are usually found underneath residential structures and workshops. The sub-floor burials have little variability in shape. None exceed two meters in depth and length (Shimada 2000, Shimada et al. 2004, 2005). Typical body positions in commoner burials are extended with the head pointing either to the south or to the east (Shimada et al. 2004). Simple grave goods of utilitarian vessels and gourds are found in commoner burials. Higher ranked commoners are buried with copper alloys, while no metal items are placed in lowest ranked commoners (Klaus and Shimada in press). Klaus and Shimada (in press) argue

that these mortuary practices were an expression of Muchik identity and some kind of a continuation of Moche funerary practices.

4.5.1.3. Middle Sicán Sacrificial Contexts

Aside from retainer burials, Middle Sicán sacrificial contexts have been found at Huaca Las Ventanas (Shimada 1990, 1995). On top of Huacas Lercanleche and Loro, many females and some men were tied to wooden posts and placed into the top floor as subfloor columnar box burials. Most likely as dedicatory offerings to the temple, these individuals were un-mutilated with no evidence of sharp or blunt force trauma. However, the young women could have been strangled, poisoned, buried alive, or died in other ways that do not affect the bone.

While retainer burials and human dedicatory burials in the religious precinct are connected to elite activity, Klaus et al. (2010) state that during the Middle Sicán (A.D. 900-1100) the inferred Muchik peoples practiced their own sacrifices in the countryside. At Cerro Cerrillos, archaeologists uncovered more than 80 intrusive burials from Platform 1. Aside from some associated camelid remains, the burial contexts were absent of grave goods (Klaus et al. 2010:1105-1107). Sharp force trauma was found on 22 of the 29 individuals that included throat slitting, chest opening, and semi decapitation (Klaus et al. 2010). Klaus et al. (2010:1115) argue that the Muchik were selecting people within their ethnic group to sacrifice. Through an examination of the mortuary context and osteological evidence, they conclude that the Muchik specifically chose certain individuals to be sacrificed. These individuals were transformed into religious offerings and were buried in ritually charged areas (Klaus et al. 2010:1115). Various methods of sacrifice may have continued from Moche society (Klaus et al. 2010:1117).

4.6. Expectations with Matrix 101

The above funerary contexts represent distinct burial trends in Middle Sicán society. The following table displays variables to analyze Matrix 101 remains/contexts. Table 4.2 lists the material variability of Middle Sicán status between elite and commoner burials with the burials in Matrix 101 (Klaus 2008; Klaus et al. 2010; Shimada 1986, 1990, 1994, 1995, 1999, 2000; Shimada et al. 2004, 2005). The division between modal elite and commoner burial trends are distinct.

Table 4.2: Materialization of Sicán status in mortuary treatment

Variable	Sicán Elite	Muchik Commoner	Matrix 101
Metal objects	x		
>5 Pottery vessels (per individual)	x		
<5 Pottery vessels (per individual)		x	x
Retainer burials	x		
Seated position	x		
Supine position with head facing the east		x	
Other body positions			x
Deep shaft tombs	x		
Simple pits		x	
Buried near the Huacas	x		x
Buried in the residential sector		x	

4.7. Summary

Overall, Middle Sicán society was a state level society ruled by kinship-based corporate groups that revolved around the ancestral cult and the Sicán Deity (Shimada 2000:61). Mortuary practices between Sicán elites and Muchik commoners follow distinct differentiated burial trends. Elites were typically buried in shaft tombs wearing extravagant masks and placed in seated position with accompanying retainer burials and elaborate grave goods, such as gold, silver and copper and *Spondylus* shells (Shimada 2000). Muchik commoners sustained their ethnic identity through the continuation of Moche mortuary and sacrificial practices (Klaus and Shimada in press). The combination of environmental crises and internal revolt during the Late Sicán led to the end of the height of Sicán control and the shift of power to El Purgatorio at Túcume (Shimada 2000:61-62). Matrix 101 may provide significant information on this social and political transition. In the following chapter I define the spatial and temporal attributes of Matrix 101. I also provided the methods completed in the field and laboratory.

Chapter 5: Matrix 101 and Methods

In this chapter, I describe the archaeological context of Matrix 101 and discuss field and laboratory methods employed in the study of this find. I place Matrix 101 within its geographical location and discuss the broader region and contemporary sites. I then discuss the Sicán religious-funerary precinct and the various *huacas* and areas within the site, including Huaca Las Ventanas located in close proximity to Matrix 101. Next, I describe Matrix 101 and the archaeologist's interpretation on how the context was created. I discuss the excavation methods used in removing skeletal remains. I describe laboratory methods, including how MNI was obtained and how sex, age, and pathological conditions were examined. Finally, I cover spatial methods and how maps were created using Adobe Illustrator.

5.1. Geographical Region

The coast of Peru consists of a series of valleys bisected by ca. 40 diverting rivers originating in the Andes (Moseley 2001:42). Rivers separate the coast into valleys and create productive oases (Raymond 2006:15). River systems are complex and can change with the seasons. The north coast consists of five large rivers (La Leche, Lambayeque, Reque, Zaña, and Jequetepeque) that make up the Sicán territorial core (Raymond 2006:15). As the Andes in this region are further from the coast than in the South, there is a greater amount of arable land allowing for high agriculture productivity (Raymond 2006:15).

Although the coast is considerably dry, the climate in the La Leche drainage is more humid, with a combination of arid desert and forest. Due to temperature inversion caused by the contrasting cold ocean water and hot land mass, the coast rarely experiences periods of rain. The

exception to limited rainfall in this region is the rare occurrence of El Niño events occurring on the coast (Raymond 2006:16). Approximately every ten years, warm waters displace cold coastal waters causing El Niños to begin in December and create rains and flooding along the coast from April to October (Burger 1992:14; Cane and Zebiak 1985; Pillsbury 2001:12). During heavy rains, agricultural fields are destroyed from clogged canals that flood, and marine life is killed off from temperature changes in the ocean (Raymond 2006:16). This period is often followed by droughts that can last for years (Cane and Zebiak 1985).

5.2. Sicán Religious-Funerary Precinct

The Sicán religious-funerary precinct is located within the alluvial valley created by the La Leche River (Shimada 1986:164). This area consists of the Pomac forest (today, part of the Pomac National Historic Sanctuary) and is part of the Equatorial Dry Forest Tumbesian Eco-Region (Elera 1996:62). Today, the archaeological complex is in the Pítipo District, near the modern city Ferreñafe (Museo Nacional Sicán 2013) (See Figure A.3). Constructed over 3000 years and surrounded by cemeteries, the religious precinct covers approximately 55 sq kms and contains approximately 50 pyramids and platforms (Shimada 1986:164, 2014:16). The religious precinct center is T-shaped, 1600m east to west, 1000m north to south, and includes a dozen monumental adobe pyramids (Shimada 1990:307).

Matrix 101 is situated in the Middle Sicán religious-funerary precinct and is in close proximity to Huaca Las Ventanas and Huaca Loro (Figure A.5). The other four main *huacas* within the complex are Huacas La Mercel, Lercanleche, El Corte, and Sontillo. *Huacas* that surround the plaza make up what Matsumoto (2014:266) classifies as the “Middle Sicán Mortuary Complex,” an area for elite burials and space for ceramic and metal artisans to prepare

funerary objects. The Great Plaza was used as a large, open area for public activities revolving around religious and ceremonial activities (Klaus 2008; Matsumoto 2014:266). The following section discusses Matrix 101's spatial attributes and field methods employed during excavation and removal of skeletal remains.

5.3. Matrix 101

Excavations were completed from 2011 to 2013 by archaeologists of the Nacional Sicán Museum and the Lambayeque Valley Biohistory Project. In-depth information on methods used can be found in the Informe Arqueológico Preliminar Temporada de Gabinete (National Sicán Museum 2013). In preparation for the next El Niño, Matrix 101 was discovered by happenstance in 2011 by archaeologists from the Nacional Sicán Museum during the construction of a drainage channel to ensure that the Grand Plaza would not flood. The Lambayeque Valley Biohistory Project joined in 2012 with the goals of extracting and analyzing the skeletal remains within the large funerary context. Burial number is designated by a number based on overall site-wide sequence. Thus, assigning burial numbers was not limited to Matrix 101 and, therefore, the sequence was frequently interrupted by finds in other sectors of the Sicán religious-funerary precinct (Museo Nacional Sicán 2013).

The total excavation area of Matrix 101 is approximately 35m in diameter and 15m deep (Haagen Klaus, personal communication 2013). Matrix 101's name is derived from the sequence of burial cuts or intrusive features that were discovered in successive sequence, and this simply happen to be the 101st in the broader sequence registered by the Sicán Museum project. All burials uncovered afterwards in the defined area were placed within the Matrix 101 feature.

Diagnostic ceramic sherds and complete vessels found alongside the burials date Matrix 101 to the terminal Middle Sicán period, henceforth called the Late Middle Sicán period (A.D. 1050-1120). This date follows Shimada's (1990:327-332) five-stage chronology based on diagnostic features found on blackware ceramic stirrup-spout vessels. Based on alluvial deposits observed by José Pinilla (lead archaeologist for the Sicán National Museum), and personal communication from José Pinilla and Haagen Klaus (head of the Lambayeque Biohistory Project), Matrix 101 seems to have been initially was created after a flooding event sometime between A.D. 1050-1100 and consists of three formation events. According to José Pinilla, around 70 individuals were initially interred in the mass grave. The context was then filled allowing the bodies to decompose enough so that during the second event, they were all manipulated and disarticulated by hand. During the second event, the funerary context was reopened and the remains from the first event were moved aside and shuffled to make room for a new group of individuals. Finally, after the second group of individuals had disarticulated, the third event involved limited reopening of the funerary context and manipulation of various bodies. This interpretation of events is based on field observations and not on extensive laboratory or stratigraphic analysis, and is thus open to interpretation.

5.3.1. Field Methods

Field methods used in removing skeletal remains are the standards set by the members of the Lambayeque Valley Biohistory Project. During the 2012 season, methods revolved around removing the skeletal remains from the context. The goal of excavation was to document the separate construction phases of the mass grave as well as to record the burials *in situ* and securely/scientifically remove them from the context for bioarchaeological analysis. Once the

outline of a grave was established, excavation was conducted by uncovering stratigraphic layers. During the process, all archaeological features, including evidence of construction, burials, and ceramics, were drawn, recorded, mapped, and photographed (Museo Nacional Sicán 2013). Excavated soils were not screened.

Damage caused by springtime rain and flooding of the La Leche river in 2012 created a clay-like concrete stratum covering the excavation area. Due to the composition of the matrix surrounding the interments, team members used atypical techniques in the removal of the individuals. The matrix surrounding skeletal remains was carefully sprayed with water to loosen the surrounding dirt, since the matrix otherwise was nearly rock-hard. Before removal, team members fully exposed remains and took photographs. During removal, bamboo sticks commonly used for the excavation of bones proved insufficient due to the hardness of the matrix. Therefore, team members used metal tools, such as dental picks and short bladed pig-butcher knives, to undercut large bones, such as the skull and long bones, while dental picks were used to undercut more fragile and smaller bones, such as ribs and vertebra. Paraloid B72, a thermoplastic resin, was used on exceptionally fragile and cracked bones to enable complete removal from the matrix. This resin created a glue-like surface over the bone allowing fragmented bones to stay intact. Burials that were too damaged and fragile for excavation were removed in blocks, as removal of skeletal remains alone in these situations would have resulted in breakage of bones and consequent loss of osteological data.

Preliminary cleaning of the skeletal remains was conducted on site. Cleaning consisted of scraping the remains with bamboo sticks, applying alcohol to areas of compact and hardened matrix, and brushing the remains. Once cleaned, the remains were placed in a clear, labeled bag grouped by anatomical region; for example, the left shoulder, arm, and hand were grouped

together. Each burial was then placed in a box for transport to the laboratory located at the National Sicán Museum in Ferreñafe.

5.4. Laboratory Methods

In the lab, minimum number of individuals (MNI) was calculated in two steps. Skeletal remains from the first burial event were examined, which consisted of scattered bones found in a layer above Matrix 101. This event also included the skull and long bone piles and loose bones that were intentionally placed with complete burials. These remains were placed in large bags; bones were not bagged by categories but instead were randomly bagged as they were collected. Once in the lab, the remains were separated into human and animal bones. Common animal species included camelids and rodents, likely llamas and guinea pigs, respectively. Human skeletal remains were sorted by each skeletal element, documented, sided, and tallied in an Excel spreadsheet by myself and other students under the direction of Haagen Klaus. I personally inventoried 5-6 bags. If applicable, length of long bones, age, sex, and pathological conditions were recorded. Once all the bags were examined, the final tallies of each skeletal element were counted, presenting an MNI of 77 based on the presence of 77 left femora. These 77 individuals comprise the first event of burials. This MNI was added to the 102 excavated individuals from Matrix 101. As burials 169, 170, 174, 175, 176, 177, and 211 were removed from the analyses because they were outside the perimeters of Matrix 101 and likely outliers, the final initial MNI of Matrix 101 is 172.

Sex, age, pathological conditions, and trauma were scored by myself, Haagen Klaus, and students from Utah Valley University using the methods and codes outlined by Buikstra and

Ubelaker (1994) Cox (2008), and forms created by Haagen Klaus. I examined 30-40 individuals out of the total 102 excavated burials during the 2012 and 2013 seasons.

Sex was determined using features of the *os coxae* and cranium. In all populations, differences can be seen between male and female pelvic anatomy (White and Folkens 2005:392). For example, besides being smaller and more gracile than males, female pelvic traits include a longer superior pubic ramus, a wider subpubic angle, preauricular sulcus, and a smaller acetabulum (White and Folkens 2005:394). Primary features on the pubic bone were examined to assess the biological sex of an individual including the subpubic concavity, the presence or absence of a ventral arc, and the ischiopubic ridge's morphology. For example, male pubic traits include a non-concave pubic ramus, the absence of the ventral arc, and a broad and flat ischiopubic ridge (Buikstra and Ubelaker 1994; Phenice 1969; White and Folkens 2005:397). In cases where the pubic bone was not preserved, the greater sciatic notch and preauricular sulcus were examined on a five-point scale in Buikstra and Ubelaker's (1994) Standards. At the lower end of the range (0-2), female traits include a broad greater sciatic notch and a wide preauricular sulcus. However, these two features can lead to a higher percentage of error in sex estimation (Walker 2005).

In cases where the *os coxae* were not preserved, estimation of sex was based on the cranium. As diagnostic features on the cranium can be ambiguous, a greater percentage of error can result if comparable data from the pelvis are not available (Meindl et al. 1985). Additionally, population variation in cranial features can lead to further error (White and Folkens 2005). However, typically male skulls are more robust than gracile female skulls (White and Folkens 2005: 386). White and Folkens (2005:386) describe male cranial features as “relatively large, broad palates, squarer orbits, larger mastoid processes, larger sinuses, [...] larger occipital

condyles [...] squarer chin, more gonial eversion, deeper mandibular rami, and more rugose muscle attachments.” Features examined in this project were the mastoid process, nuchal crest, supraorbital margin, and glabella on the cranium, and the mental eminence on the mandible. These features were evaluated using the scale provided in Buikstra and Ubelaker’s (1994) Standards. Assigning sex was based on a five-point scale where the more feminine and gracile characteristics are at the end of the range (White and Folkens 2005:387).

Age at death was estimated using various morphological traits on the cranial and postcranial skeleton. Subadult age was estimated by analyzing dental eruption, long bone length, and the stage of epiphyseal fusion (Scheuer and Black 2000; Ubelaker 2000). White and Folkens (2005:364) state that dental eruption represents chronological age rather than overall development, as dental formation is more genetically controlled than other skeletal elements. The stage of dental eruption was examined through comparing the individual's teeth to a chart in Buikstra and Ubelaker’s (1994) Standards containing age means for specific points in dentition development. This chart is based off Ubelaker’s (1989) study of Native Americans’s dental formation and eruption. Long bone length was measured with either a PaleoTech field osteometric bone board or Mitutoyo digital calipers and was compared to tables found in Schaefer et al. (2009) containing bone lengths of juveniles from fetal age to 18 years old. Utilizing a form created by Haagen Klaus, fusion of epiphyses with long bones and of the os coxa were designated as either open, united, or fully fused, and was matched with associated fusion age ranges. Although fusion can vary by population and sex, most epiphyses fuse between the ages of 15 and 23 (White and Folkens 2005:373).

Adult age was estimated using suture closure on the ectocranial vault, and the stage of metamorphoses of the pubic symphysis and auricular surface of the ilium (Buikstra and Ubelaker

1994). Following Meindl and Lovejoy's (1985) criteria on suture closure, cranial sutures were recorded on a scale from 0 (open) to 3 (complete obliteration). Scores for all cranial sutures were then added to form a composite score that matched a specific age range (Buikstra and Ubelaker 1994). As humans age, changes in the symphyseal surface of the pubic symphysis and auricular surface follow a generally predictable pattern. For example, White and Folkens (2005:374) describe the appearance of a young adult's pubic symphysis as having a "rugged surface traversed by horizontal ridges and intervening grooves." Stages of the degeneration of the pubic symphyseal face followed Suchey-Brooks six stage scoring system (Brooks and Suchey 1990; Buikstra and Ubelaker 1994). Stages of change to the auricular surface of the ilium were based on Lovejoy et al.'s (1985) eight stage scoring system. In younger adults, this surface appears fine-grained with regular billowing. In later stages, the surface begins to display microporosity and the surface becomes irregular and dense (Lovejoy et al. 1985; White and Folkens 2005:380-381). Each individual student, including myself, determined skeletal age based on the observed phases of the above features. This age range was then used by Haagen Klaus to place the individuals into six age classes (0-4.9, 5-14.9, 15-24.9, 25-34.9, 35-44.0, 45+).

Overall indicators of the individual's lifestyle and prevalence of biological stress were examined through the presence of degenerative joint disease, linear enamel hypoplasia, porotic hyperostosis, cribra orbitalia, and periostosis. Degenerative joint disease, which develops with age and repeated use, is found on amphiarthrodial (e.g., intervertebral bodies) and diarthrodial (e.g., knee) joint surfaces. Degenerative joint disease consists of an inflammation of the joint caused by either osteophytosis or osteoarthritis (Larsen 2015). Traits of degenerative joint disease include bony spur lipping marginal to the articular surface, porosity of the surface, and eburnation (bone-on-bone polish) (Buikstra and Ubelaker 1994:122). For example, Figure A.6

depicts a lumbar vertebral body with stage 3 lipping. Skeletal elements assessed were vertebrae, sacrum, and the proximal and distal ends of long bones (i.e. humeri). Characteristics of degenerative joint disease were recorded on a scale from 1 (i.e., barely discernible) to 3 (i.e., extensive presence) according to Buikstra and Ubelaker's (1994) standards.

Linear enamel hypoplasia are non-specific stress indicators caused by an environmental factor that results in metabolic disturbance during childhood. These disturbances cause a temporary arrest in dental development that is then resumed. Hypoplasias are characterized as deficiencies in the enamel and vary in appearance from deep linear grooves to single pits (Figure A.7) (Buikstra and Ubelaker 1994:56; Larsen 2015). Discoloration of the enamel can occur and is recorded as either yellow, cream/white, orange, or brown (Buikstra and Ubelaker 1994:57). According to Larsen (2015), linear enamel hypoplasia are caused by three circumstances: "systemic metabolic stress, hereditary anomalies, and localized trauma." Although these defects can appear on any tooth, the cervical and middle crowns of the anterior teeth are most susceptible (Condon and Rose 1992). Measurements and descriptions of the lines were recorded according to Buikstra and Ubelaker's (1994) standards. Measurements were made using digital calipers to record the distance of the occlusal aspect of the defect from the cemento-enamel junction (Buikstra and Ubelaker 1994:57). Measurements were taken twice to reduce intra-observer error.

Porotic hyperostosis and cribra orbitalia pertain to porosity that is caused by iron deficiency and affects the cranial vault and orbits, respectively. Iron deficiency can be caused by multiple factors including deficiencies in diet, parasitic infestations (e.g., hookworm), low birth weights, and genetic diseases (e.g., sickle cell anemia) (Larsen 2015). Aside from only claiming iron deficiency as the cause of porotic hyperostosis, Walker et al. (2009:109) suggest that porotic

hyperostosis can also be caused by the loss and rapid overproduction of red blood cells.

Typically, porotic hyperostosis appears on the cranium around the lambdoid, coronal, and sagittal sutures and can be identified by the presence of cancellous hypertrophic porosity (Figure A.8) (Buikstra and Ubelaker 1994:120-121). These lesions were documented using Buikstra and Ubelaker's (1994) standards. Beside location of the defect, the degree of porosity (scale of 1 [barely discernible] to 4) and state of activity (active, healed, or mixed reaction) were recorded.

Finally, periostosis, typically found on the tibia, is a sclerotic reaction on the periosteal envelope of a bone often attributed to nonspecific infections and traumatic injuries. Lesions are characterized as typically localized irregular elevations of bone surfaces (Figure A.9) (Larsen 2015). States of progression were recorded as active or healed following Buikstra and Ubelaker's (1994) standards. The majority of periostosis observed was located on the tibia. Unhealed lesions appear as loose organized woven bone, while healed lesions appear incorporated into the cortical bone with a smooth surface (Buikstra and Ubelaker 1994; Larsen 2015).

Presence or absence of antemortem (before death), perimortem (around the time of death), and postmortem (after death) trauma was also documented. Antemortem trauma showcases completely healed or partially healed trauma as indicated by the formation of a woven bone callus. Perimortem trauma is characterized by no signs of healing. Perimortem breaks and cuts are the same color as the surrounding bone (Buikstra and Ubelaker 1994:120). Postmortem trauma is identified by clean breaks and typically occurs during excavation. The fragile condition of the skeletal remains led to accidental breakage that had to be considered when analyzing postmortem trauma. Additionally, the use of dental picks and metal knives created scratches on some of the bones. Scratches caused by metal objects were able to be distinguished from perimortem cuts or scratches, as metal scratches on dry bone were a shiny, light metallic color.

5.4.1. Spatial Analysis

Researchers at The National Sicán Museum created a map of Matrix 101 in 2014 using AutoCAD. This map contains the outline of Matrix 101 as well as drawings of the burials. As some of the burials were missing from the map, these were then added in later, using the field report as a reference. In Adobe Illustrator, coordinates were used from the excavation to locate them on the map, with the burial number as a placeholder (Figure A.10). Different layers were created in Adobe Illustrator to create maps based on sex, age, overall health, body position, depth within Matrix 101, and manipulated versus non-manipulated burials, to see if there were patterns and spatial differences. Once the maps were created, apparent spatial groups were examined.

Data used for sex, age, and health were based on the information gathered on the skeletal remains during laboratory analysis. While all individuals were examined, only some were able to be sexed. Ambiguous and adolescent skeletal remains were not sexed and, therefore, were excluded from the map. Age was separated into six age classes: 0-4.9, 5-14.9, 15-24.9, 25-34.9, 35-44.9, and 45+ years old. Health characteristics documented include porotic hyperostosis, linear enamel hypoplasia, and periostosis. I chose these three pathologic conditions based on the data available for comparison between Middle Sicán elites and commoners (personal communication Haagen Klaus 2013).

Body position was determined from examining excavation photos taken by José Pinilla (National Sicán Museum 2013) and Haagen Klaus (personal communication, year?). Positions were categorized as supine, hyper-flexed, semi-flexed, sprawled on front, sprawled on back, bound position, or position unknown. Supine position is defined as the individual on his/her back with legs straight out and arms straight beside the body (Figure A.11). Legs may be parallel side-by-side or crossed at the ankles, while hands may be beside the torso, or crossed on the pelvis or

the chest. A hyper-flexed position includes individuals in fetal position with legs and arms tightly flexed into the body (Figure A.12) or individuals on his/her back with knees tightly drawn up to the chest, arms tightly flexed beside the body, and hands by the face (Figure A.13). Semi-flexed position is defined as individuals who have legs loosely flexed. Placement of the arms varies within this body position (Figure A.14). Individuals who are either sprawled on his/her front or back are those who are either on his/her backs or face down with the legs and arms in various, haphazard orientation (Figure A.15). Bound position refers to individuals who are facedown with the legs flexed onto the backs, with hands either by his/her sides or on his/her backs (Figure A.16). Finally, positions unknown included those disarticulated and manipulated so extensively that the original position was indeterminate (Figure A.17).

Depth (gathered by total station) was gathered from the 102 burials listed in excavation photos and the Informe Arqueológico Preliminar Temporada de Gabinete (Museo Nacional Sicán 2013). Depth is recorded as meters above sea level (m asl). As burial depth differed between all 102 burials, I grouped them within 50 cm increments. Depth was recorded to the second decimal, which I rounded up to the nearest tenth; therefore, a depth of 69.96m asl would become 70.00m asl. Burial depth groups recorded were half meter intervals from 63.5-75.5m asl. Finally, I categorized burials by non-manipulated and manipulated status. Non-manipulated burials are defined as complete burials where skeletal material is in its original burial position. Manipulated burials refer to those who are missing body parts, such as their arm or cranium, and completely disarticulated remains.

Chapter 6: Results

In an attempt to understand the stratigraphy and the events that took place during construction of Matrix 101, I classify graves by depth. Through this examination, it appears that the burials were deposited in three phases. I term those Burial Group 1a (63.5-65.5m asl) and Burial Group 1b (66.0-67.5m asl). Burial Group 2 (68.0-75.5m asl) represents burials that are not associated with Matrix 101. These phases appear to correspond to distinct burial locations and spatial groupings within specific depth ranges. The following sections describe each burial group and a synopsis of the burials within. I discuss sex, age classes, body positioning, presence or absence of burial manipulation, trauma, and grave goods. I provide a statistical analysis that compares the prevalence of biological stress in Groups 1a and 1b to frequencies seen in Sicán elites and Muchik commoners. Finally, within each section, I describe burials that have unique and/or miscellaneous burial positions. Those data are the foundation of my discussion of the social identities at Matrix 101.

6.1. Burial Group 1a

Burial Group 1a is found between 63.5m asl to 65.5m asl (Figure A.18). With the exception of Burial 223, burials are found in two clusters at the center of Matrix 101. The clusters are adjacent to each other and form two circular rings (Figure A.19). This group is composed of 45 burials with 20 males, four females, and 21 individuals of indeterminate sex (Figure A.20). Table 6.1 presents the different age classes present (Figure A.21).

Table 6.1: Group 1a age classes

Age Class (years)	Number of Burials
0 - 4.9	1
5 - 14.9	6
15 - 24.9	4
25 - 34.9	15
35 - 44.9	10
45+	2
Age unknown (adult)	7

6.1.1. Body positioning

Body positions and presence or absence of manipulation varies within Burial Group 1a with 35 non-manipulated burials and 10 manipulated burials. 60% (6 out of 10) of the modified burials are missing crania signifying the importance of cranial removal in body manipulation (Figure A.22). Concerning burial positions, there are two supine burials, six bound burials, 19 hyper-flexed burials, 15 semi-flexed burials, two sprawled face-down and one position unknown based on the disarticulated skeletal material (Figure A.23).

6.1.2. Biological Stress Markers

Pathological conditions that indicate biological stress and are used for analysis are periostosis, linear enamel hypoplasia, and porotic hyperostosis. Although degenerative joint disorder (DJD) was examined in the lab, I did not include it in my analysis. Out of 45 burials, 22 individuals (37.8%) have either periostosis, linear enamel hypoplasia, and porotic hyperostosis, or a combination of two or three of the pathological conditions (Figure A.24). Out of these 22

individuals, five individuals show evidence of periostosis (22.7), seven have linear enamel hypoplasia (31.8%), and ten have porotic hyperostosis (45.5%). Six skeletons were missing crania, therefore linear enamel hypoplasia or porotic hyperostosis could not be assessed for those individuals. Additionally, 22 crania and skeletal remains were too damaged for observations. A statistical analysis and comparison to known Sicán elite and Muchik commoners follows.

I compare the percentage of individuals in Burial Groups 1a and 1b with pathological conditions to overall percentages seen in Sicán elite and Muchik commoners, through a confidence interval. To calculate the confidence interval, I used the formula $CI = P \pm Z (s_p)$

where $s_p = \sqrt{\frac{P(1 - P)}{n}}$ (Caldwell 2010:138). P represents the proportion under examination

and Z is the appropriate Z score (which, in this case, for the 0.05 confidence level, is 1.96). A confidence interval allows for the observation if there is any overlap between group samples based on percentage range. The group samples, Group 1a, Sicán elites, and Muchik commoners, are used as estimates and representatives of the population mean. Thompson (2012:39) states that a confidence interval “has a given high probability of containing the true population value.” Therefore, I am using confidence intervals to see if the potential true population values of the individuals from Matrix 101 might overlap with Sicán elites and Muchik commoners in each biological stress category.

The data sets used to calculate the confidence interval with Group 1a include Sicán elite (45 individuals), and Muchik commoners (172 individuals). This information was gathered by the Lambayeque Valley Biohistory Project under the supervision of Haagen Klaus since 2003 (personal communication, 2014). Due to missing skeletal information (e.g., missing crania, destroyed remains) for linear enamel hypoplasia and porotic hyperostosis 35 individuals and for

periostosis 41 individuals from Group 1a were examined. Table 6.2 contains the percentages of each indicator of health and population size. Table 6.3 is the result of the confidence interval equation mentioned above. Table 6.4 is the final calculated percentages and range of possible variation. Finally, I provide a visual representation of the information from the third table (Figure 6.1: A-C). For example in Group 1a 20% of individuals (7/35) have enamel hypoplasia (see Table 6.2). Using the formulas mentioned above, the interval limits for this group are +/-0.13 (see Table 6.3). Finally Table 6.4 displays the confidence interval range in percentage. Therefore, in Group 1a, the sample mean of the population for linear enamel hypoplasia is between 7 and 33% (see Table 6.4). This percentage range can then be compared with confidence interval range seen in Sicán elites and Muchik commoners.

Table 6.2: Group 1a comparative percentages

	%Enamel Hypoplasia	%Porotic Hyperostosis		%Periostosis
Elite Sicán (n=45)	27.1	19.2		4.5
Burial Phase 1 (n=35)	20.0	28.6	Burial Phase 1 (n=41)	12.2
Muchik Commoners (n=172)	70.0	63.9		13.7

Average percentage of different indicators of health in the Lambayeque Valley. Percentages from Burial Phase 1 are compared with known Sicán elite and Muchik commoners.

Table 6.3: Proportional results of confidence interval calculations for Group 1a

	Enamel Hypoplasia	Porotic Hyperostosis		Periostosis
Sicán Elite (n=45)	0.13	0.12		0.061
Burial Phase 1 (n=35)	0.13	0.15	Burial Phase 1 (n=41)	0.10
Muchik commoners (n=172)	0.068	0.072		0.051

Proportional results of confidence interval calculations

Table 6.4: Group 1a percentage confidence intervals

	Enamel Hypoplasia	Porotic Hyperostosis		Periostosis
Sicán Elite (n=45)	27.1 +/- 13	19.2 +/- 12		4.5 +/- 6.1
Burial Phase 1 (n=35)	20.0 +/- 13	28.6 +/- 15	Burial Phase 1 (n=41)	12.2 +/- 10
Muchik commoners (n=172)	70.0 +/- 6.8	63.9 +/- 7.2		13.7 +/- 5.1

Percentage confidence intervals

6.1.3. Trauma

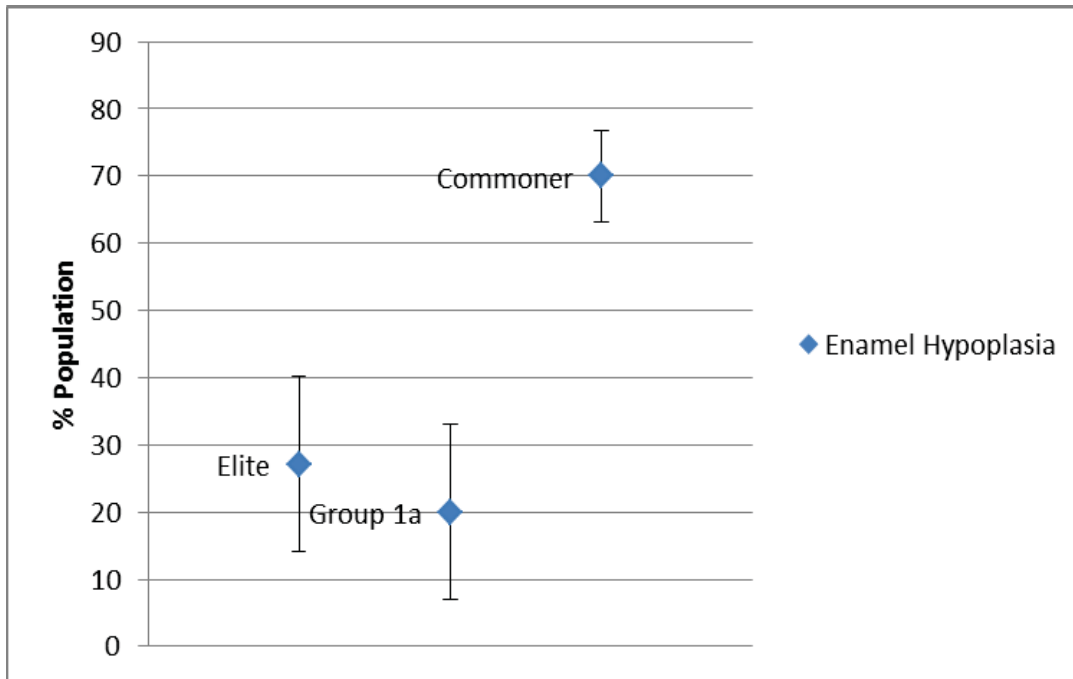
Evidence for sharp force trauma was found in 11.1% (5/45) of burials in Burial Group 1a (Table 6.5). Along with existing trauma, Burials 130 and 148 portray miscellaneous and special burial positions. Burial 130 is a 45+ year old male who is buried in bound position with his head facing towards the ground. This individual is associated with Burial 131 which is immediately adjacent (Figure A.25). Burial 148 is a 33-44.9 year old male who is in hyper-flexed position. His hands are clasped and are in front of his face (Figure A.26). Both of these individuals appear to be bound, suggesting struggle and, thus, some kind of violence associated with their deaths.

6.1.4. Grave Goods

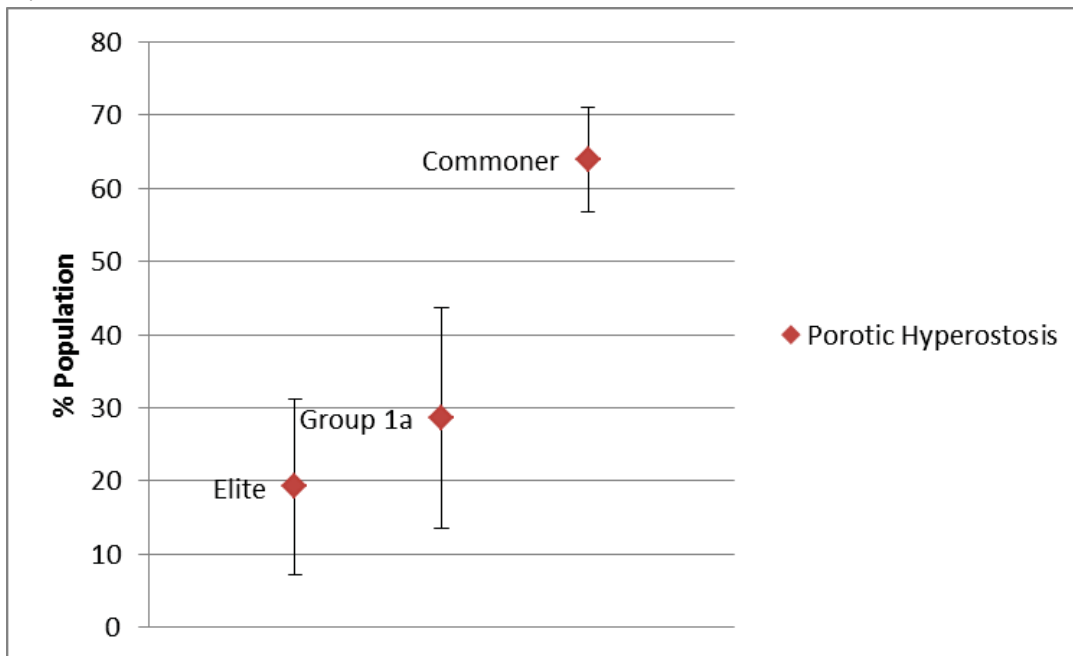
Only four (9%) individuals were accompanied by goods. Half of the burials with grave goods are in bound position (Burial 114 and 140), while the other are either in supine (Burial 172) or hyper-flexed position (Burial 179). Table 6.6 lists information on the individuals and associated grave goods.

Figure 6.1 (A-C): Visualized Percentage Confidence Intervals for Burial Group 1a

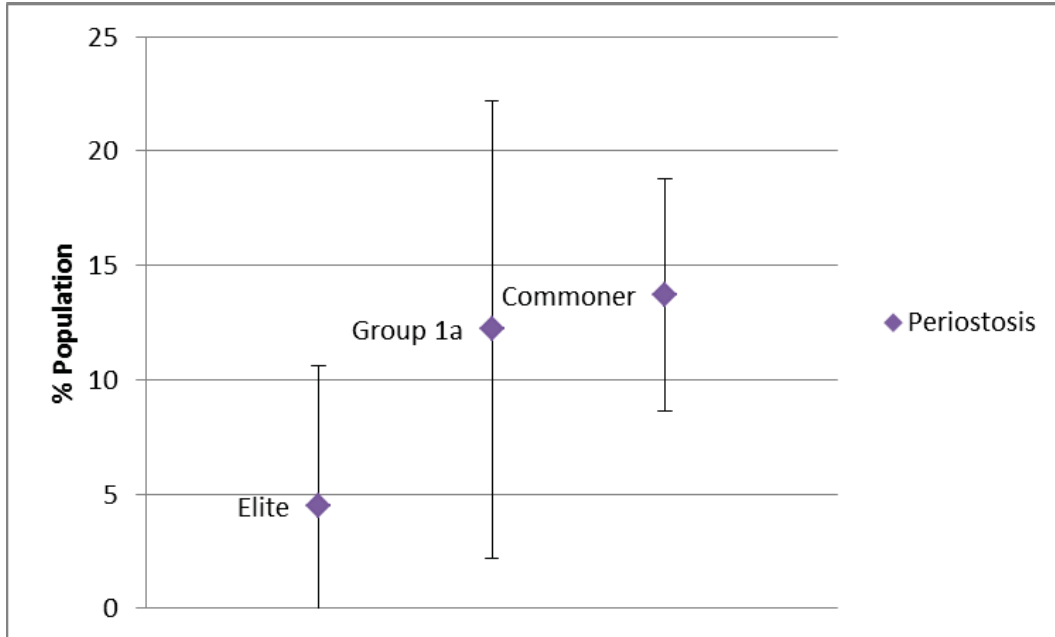
A.



B.



C.



Comparison of percentage intervals for (A) linear enamel hypoplasia, (B) porotic hyperostosis, and (C) periostosis between Sicán elite, Muchik commoners, and Burial Phase 1 at Matrix 101. A and B seem to suggest a potential overlap of Burial Group 1a with elites. C shows all three overlap.

Table 6.5: Group 1a trauma

Burial	Sex/Age	Trauma
Burial 130	male, 45+ yr. old	Antemortem trauma. Fracture, left ulna, midshaft. In the process of healing, nonunionous at time of death
Burial 138	male, 35-44.9 yr. old	Antemortem trauma. Healed right rib fracture
Burial 148	male, 35-44.9 yr. old	Possible perimortem trauma. Possible depression fracture, right knee
Burial 181	female, 25-34.9 yr. old	Antemortem trauma. Healed left and right 5th metatarsal fracture
Burial 196	male, 15-24.9 yr. old	Antemortem trauma. Healed right 2nd metacarpal. Fusion of left 2nd and 3rd metatarsal, possible traumatic origin.

Table 6.6: Group 1a grave goods

Burial	Sex/Age	Grave Goods
Burial 114	Unknown sex, 25-34.9 yr. old	Large broken and burnt ceramic neck jar (placed on the deceased's back)
Burial 179	Unknown sex & age	2 Spindle whorls
Burial 140	Subadult, 5-14.9 yr. old	Individual placed onto a large ceramic chicha vessel
Burial 118	Male, 25-34.9 yr. old	Loose skeletal elements (3 adult os coxae, 1 adolescent femur, and one adult scapula)

6.1.5. Miscellaneous

Seven burials (15.6%) stood out due to unique hand positioning. In Burials 147, 148, 156, 190, and 205, the deceased either have their hands clasped in front of their face or unclasped hands touching their face. For example, Burial 190 is 15-24.9 year old individual of indeterminate sex that is placed in sprawled face down position. The right hand is placed flush on the side of the head (Figure A.27). Similar to Burial 190, Burial 147, a 35-44.9 year old male adult, is also holding his head with a flexed right hand flush against the right side of his face (Figure A.28). In burials 197 and 159, the deceased have one hand either covering the nose and mouth (Burial 159, Figure A.29), or placed within the mouth (Burial 197, Figure A.30).

6.2. Burial Group 1b

Phase 2 is found at an elevation between depth of 66m asl and 67.5m asl (Figure A.31). With the exception of Burial 175, which is located outside the perimeter of Matrix 101, burials in Group 1b surround the two clusters of skeletons from Burial Group 1a (see Figure A.19). This

spatial orientation is significant as it possibly demonstrates planning of Matrix 101's layout, as the deceased were not interred haphazardly. Half of the burials are towards the ridge of the southern circular group, while the others cluster around the northwest section of Matrix 101. Around 66.5 MASL, a non-natural green sediment layer was found throughout Matrix 101's total area. The deposit is anthropogenic and consists of production debris from an above metal workshop. This deposit may represent leaching copper, possibly caused by the placement of copper artifacts, or the presence of copper-rich soil. Burial Group 2 consists of 49 burials, with 28 males, 2 females, and 19 sex unknown (Figure A.32). Table 6.7 presents the age classes present (Figure A.33).

Table 6.7: Group 1b age classes

Age Class (years)	Number of Burials
0 - 4.9	0
5 - 14.9	1
15 - 24.9	9
25 - 34.9	14
35 - 44.9	8
45+	2
Age unknown	15

6.2.1. Body Positioning

During the creation of Group 1b burials, 21 (42.9%) individuals were manipulated (Figure A.34). Seventeen of those are missing their crania. Similar to Group 1a, missing crania are significant as it signifies the importance of grave reopening and skeletal manipulation. With

regard to burial positions, there are eight supine burials, two burials in bound position, 21 hyper-flexed burials, ten semi-flexed burials, four sprawled face down, one sprawled on the back, and three positions unknown (Figure A.35). Head orientations of both clusters vary. The cluster on the edge of Group 1b's burials surround both Group 1a circles. Overall, body placement is mixed and is similar in variability to those found in Group 1a.

6.2.2. Biological Stress Markers

Fourteen individuals (28.6%) in Group 1b had either periostosis, linear enamel hypoplasia, and porotic hyperostosis, or a combination of two or three of the pathological conditions (Figure A.36). Seven individuals show evidence of periostosis, five have linear enamel hypoplasia, and five have porotic hyperostosis. Some (n=17) interments were missing crania making it impossible to say if they contained linear enamel hypoplasia or porotic hyperostosis. Additionally, 21 skulls and five skeletons were too damaged for observations. As in Group 1a, I used confidence intervals to examine a possible overlap between Group 1b burials, Sicán elites, and Muchik commoners (Tables 6.8-6.10). Additionally a visual representation of the overlap is provided (Figure 6.2 A-C).

Table 6.8: Group 1b comparative percentages

	%Enamel Hypoplasia	%Porotic Hyperostosis		%Periostosis
Elite Sicán (n=45)	27.1	19.2		4.5
Burial Phase 2 (n=28)	17.9	21.4	Burial Phase 2 (n=44)	15.9
Muchik Commoner (n=172)	70.0	63.9		13.7

Average percentage of different indicators of health in the Lambayeque Valley. Percentages from Burial Group 1b are compared with known Sicán elite and Muchik commoners.

Table 6.9: Proportional results of confidence interval calculations for Group 1b

	Enamel Hypoplasia	Porotic Hyperostosis		Periostosis
Sicán Elite (n=45)	0.13	0.12		0.061
Burial Phase 2 (n=28)	0.14	0.15	Burial Phase 2 (n=44)	0.11
Muchik commoners (n=172)	0.068	0.072		0.051

Proportional results of confidence interval calculation.

Table 6.10: Group 1b percentage confidence intervals

	Enamel Hypoplasia	Porotic Hyperostosis		Periostosis
Sicán Elite (n=45)	27.1 +/- 13	19.2 +/- 12		4.5 +/- 6.1
Burial Phase 2 (n=28)	17.9 +/- 14	21.4 +/- 15	Burial Phase 2 (n=44)	15.9 +/- 11
Muchik commoners (n=172)	70.0 +/- 6.8	63.9 +/- 7.2		13.7 +/- 5.1

Percentage confidence intervals

Individuals from Group 1b overlap far more with Sicán elites than commoners in terms of prevalence patterns of linear enamel hypoplasia and porotic hyperostosis. Prevalence of periostosis is seen in overlapping confidence intervals in Group 1b individuals, Sicán elites, and Muchik commoners.

6.2.3. Trauma

Evidence of sharp force trauma was found in 14.3% (n=7) of individuals from Burial Phase 2 (Table 6.11). Burial 212 (35-44.9 year old male in supine position) contained the most extensive trauma found in Matrix 101. His wounds indicate that he experienced a violent death. A 7cm wide hole is found underneath the left zygomatic arch with evidence of upward hinging

and radiating fractures. The posterior right frontal and parietal bone contained a massive U-shaped fracture (approximately 12.5 cm) with additional upward hinging and external beveling (Figure A.37a,b). These defects are consistent with the entry and exit wounds that would be produced by forceful impalement, possibly with a projectile. Additionally, this individuals showed a healed blunt force trauma defect on the cranium, V-shaped cut marks on the C2 vertebral body, a possible puncture wound located on the T3 vertebral body, and an unhealed fracture of the right clavicle.

6.2.4. Grave Goods

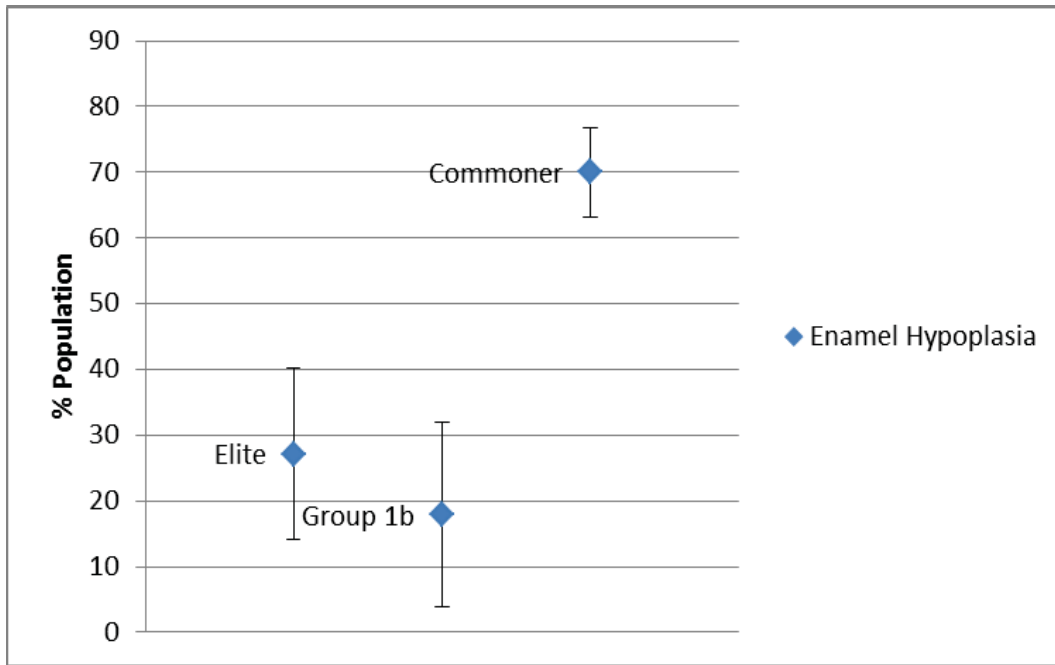
Seventeen burials in Phase 2 (34.7 %) contained grave goods, including ceramic vessels, shell, solid pieces of chalk, stones, and canine remains. The two common ceramic vessels present are a Middle-Late Sicán black ceramic vessel with the representation of the Sicán Deity and an orange globular ceramic vessel with a white slip, conical base, a long conical neck, and stylistic rings (Figure A.38-39). Impressions of a three-tier step is also found on both the black and orange ceramics. Additionally, Burial 216 contains a unique ceramic vessel that resembles a Moche face-neck jar (Figure A.40). Grave goods were directly associated with the burials indicating that they were placed during the creation of the funerary context. Table 6.12 presents a complete list of all grave goods found within Burial Group 1b.

6.2.5. Miscellaneous

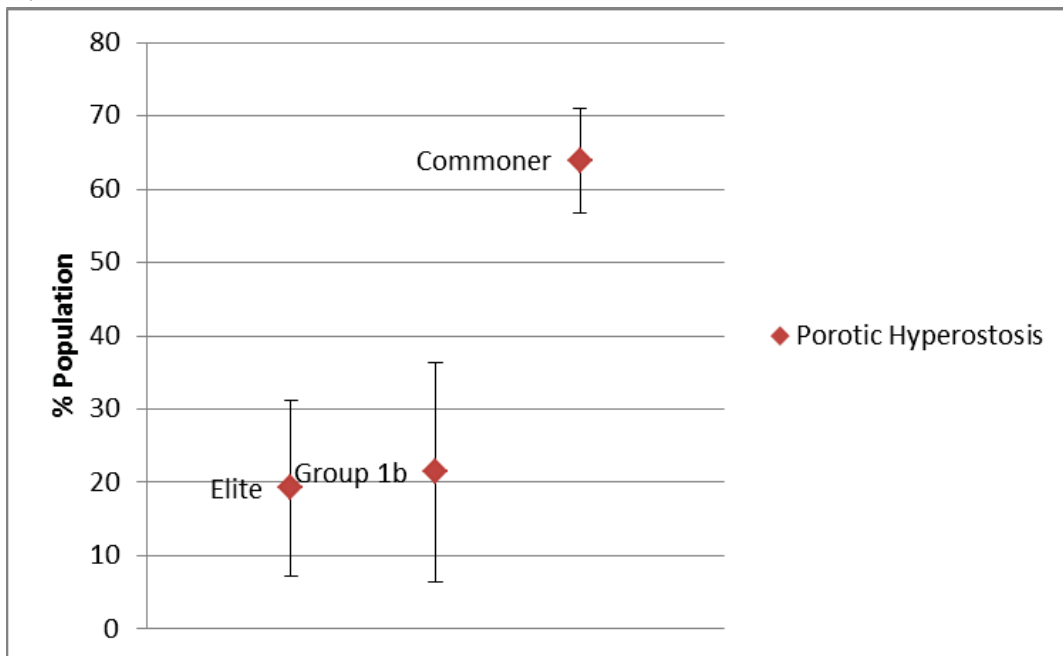
Burial 125 presents a unique body position. It contains a 25-34.9 year old male who appears to have been thrown into the burial pit (Figure A.41). His body position suggests that the person may have been living during interment as his arms are out, possibly bracing a fall. However, the fact that he did not move his arms suggest a swift death after being thrown in the

Figure 6.2 (A-C): Visualized Percentage Confidence Intervals for Group 1b

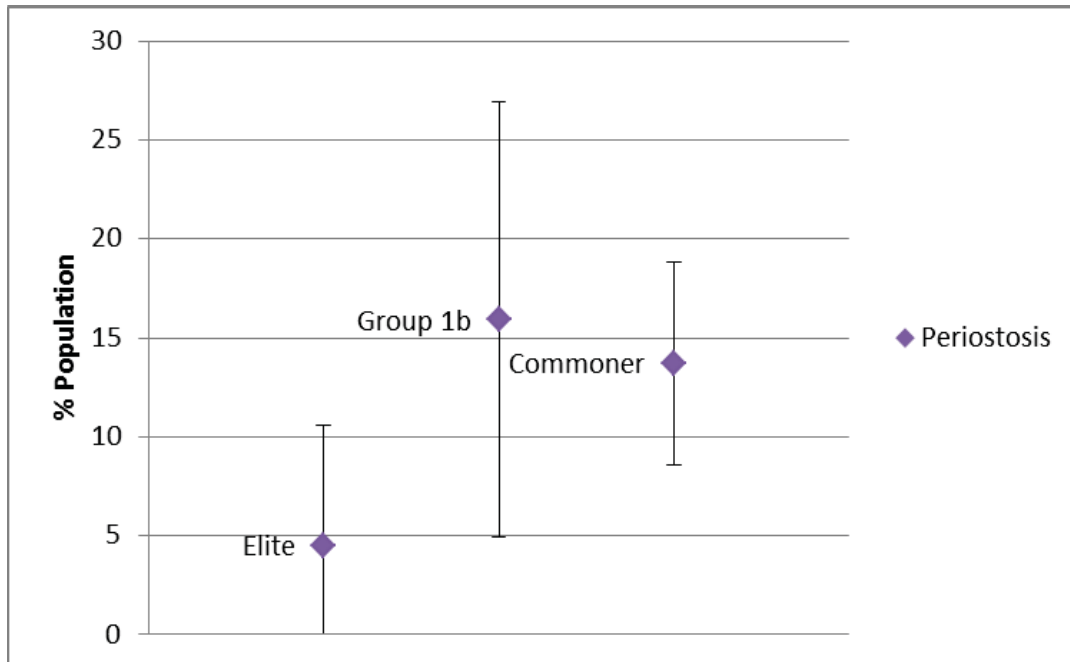
A.



B.



C.



Comparison of percentage intervals for (A) linear enamel hypoplasia, (B) porotic hyperostosis, and (C) periostosis between Sicán elite, Muchik commoners, and Burial Group 1b at Matrix 101. A and B seem to suggest a potential overlap of Burial Phase 2 with elites. C shows all three overlap.

mortuary context. Fifty-three skulls and an undetermined, but likely large number of disarticulated long bones were found piled into two separate mounds (Figures A.42-43). This is even further evidence of grave reopening and it supports and furthers our understanding of the importance of body manipulation in the creation of this mortuary context. These mounds are closer to the middle of Matrix 101 and are on either side of the two clusters present in Burial Group 1a. The 53 skulls most likely originate from the manipulated burials in Group 1a and 1b and the 77 burials disturbed during the interment of Group 1a burials. Therefore the skulls are already included in the 172 MNI. Due to poor preservation, no pathologies were observed. The piled skulls also contained numerous ceramic fragments, including a broken effigy ceramic head, and a dog. Similarly, long bones from both burial events may have provided long bones for the creation of the long bone mounds.

Table 6.11: Group 1b trauma

Burial	Sex/Age	Trauma
Burial 110	Male, 25-34.9 yr. old	Antemortem trauma. Well healed left femur fracture, extensively healed but not well reduced.
Burial 113	Male, 25-34.9 yr. old	Antemortem trauma. Possible first left distal phalanx fracture, healed.
Burial 141	Male, 35-44.9 yr. old	Antemortem trauma. Two healed right rib fractures and healed right foot phalanx fracture
Burial 166	Male, 35-44.9 yr. old	Antemortem trauma. Fourth right rib fracture. In the process of healing at time of death.
Burial 185	Male, 25-34.9 yr. old	Possible perimortem trauma. Possible cut marks on anterior C3, C4, and C5 vertebrae
Burial 209	Male, 25-34.9 yr. old	Perimortem trauma. 13 fine cut marks on anterior C2 vertebra.
Burial 212	Male, 35-44.9 yr. old	Perimortem and antemortem trauma. Possible cranial impalement, cut mark on anterior C2, and possible stab wound to manubrium. Right clavicle midshaft fracture in the process of healing at time of death.

6.3. Burial Group 2

Burial Group 2 deposits are found between 68m asl and 75.5m asl (Figure A.44). Soil between 75.5m asl and surface level was full of cultural debris, but is unrelated to Matrix 101. Although cultural affiliation is indeterminate, this group of burials may represent a Late Sicán attempt to reclaim the site, or a later unknown local group using the area as a funerary ground. With the exception of Burial 211, which is located far outside the perimeters of the map, Burial 170 and Burial 128 are located on the south east side of Matrix 101 and are spatially placed outside the northern boundary of Matrix 101. Burial Group 2 consists of seven burials, with two males and five sex unknown. Table 6.13 presents the age classes present.

Table 6.12: Group 1b grave goods

Burial	Sex/Age	Grave Goods
Burial 106	Unknown sex & age	1 ceramic vessel Red ceramic vessel with cream slip. Painted fine line spirals.
Burial 107	Unknown sex & age	1 ceramic vessel Middle-Late Sicán black ceramic vessel with Sicán deity. Stepped decoration.
Burial 113	Male, 25-34.9 yr. old	1 stone spindle whorl Broken ceramic sherds (found on top of the individual)
Burial 118	Male, 15-24.9 yr. old	1 ceramic vessel -Late Sicán black ceramic vessel. Fine line and pressed stepped decoration
Burial 123	Female, 45+ yr. old	Broken ceramic sherds
Burial 126	Male, unknown age	1 ceramic vessel -Late Sicán black ceramic vessel.
Burial 141	Male, 35-44.9 yr. old	2 ceramic vessels -Late Sicán black ceramic vessel. -Orange double-bodied ceramic vessel. Piece of chalk
Burial 149	Male, 15-24.9 yr. old	Non worked <i>Choromytilus chorus</i> shell (found inside a gourd)
Burial 155	Male, 35-44.9 yr. old	1 ceramic base 1 ceramic vessel -Black globular ceramic vessel with striped bands and stepped design
Burial 164	Male, 25-34.9 yr. old	1 ceramic plate frag. 1 ceramic vessel -Orange ceramic vessel with stepped decoration
Burial 167	Male, 25-34.9 yr. old	Ceramic fragments 1 ceramic vessel -Black globular ceramic vessel with stepped design

(Table 6.12 continued)

Burial	Sex/Age	Grave Goods
Burial 193	Unknown sex, 25-34.9 yr. old	2 ceramic vessels -Both Late Sicán black ceramic vessel.
Burial 206	Male, 25-34.9 yr. old	2 dogs Spindle-whorl
Burial 207	Male, 25-34.9 yr. old	1 ceramic base 2 ceramic vessels -Orange ceramic vessel with stepped decoration -Black ceramic vessel with stepped design Ceramic fragments
Burial 208	Male, 15-24.9 yr. old	2 ceramic vessels -Owl shaped orange ceramic -Black ceramic vessel
Burial 212	Male, 35-44.9 yr. old	Ceramic fragments (place of the individuals chest)
Burial 216	Male, 15-24.9 yr. old	2 ceramic vessels Late Middle Sicán black ceramic vessel with stepped design. Moche-like head ceramic (character portrait) 1 Ceramic base Ceramic fragments Piece of chalk

Burials 169, 174, 176, and 177 were found in an adobe enclosure around 68 to 68.5m asl. The adobes were marked and similar to those found at Huaca Las Ventanas. Due to burial context as well as the burial's short depth, it can be assumed that these burials were not involved overall in Matrix 101. Although these four interments are close in depth to Burial Group 1b, placement of the burials within architecture located around the perimeter of Matrix 101 demonstrates that these individuals were buried after Matrix 101s creation. Six out the seven burials are buried within one meter depth of each other, possibly indicating a similar time frame of deposition. Due to the shallower depth of Burial 128, this interment is most likely intrusive

from a much later date. Only one case of linear enamel hypoplasia was recorded from Burial 170. Unfortunately, the other 6 were too damaged for further observations.

Table 6.13: Group 2 age classes

Age Class (years)	Number of Burials
0 - 4.9	0
5 - 14.9	1
15 - 24.9	2
25 - 34.9	2
35 - 44.9	0
45+	0
Age unknown	2

Chapter 7: Discussion

Matrix 101 provides a unique insight into Middle Sicán mortuary practices. The large number of skeletons, the presence of non-modal body positions, and the absence of typical material markers of status are unprecedented during the Late Middle Sicán period. Data suggest that there were three associated burial events: the initial 77 individuals (the disarticulated skeletal remains examined in the lab), Burial Group 1a (63.5-65.5m asl, n=45), and Burial Group 1b (66-67.5masl, n=49). Burial Group 2 (68-75.5m asl, n=7) was created later in time and does appear directly associated with the individuals from groups 1a and 1b. In this chapter, I discuss the results of the analyses and present hypotheses regarding the sequence of events and mortuary practices at Matrix 101. I focus here on the meaning and implications of Burial Group 1a and 1b contexts. I am especially interested in reconstructing the social identities of the individuals as seen through archaeological and osteological evidence. I attempt to understand the social identity of these individuals, possible reasons why they were buried in such an unusual way, and whether Matrix 101 represents a sacrificial context. Finally, I examine the implications of Matrix 101, how it affects our current knowledge in Andean mortuary practices, and avenues for future research.

7.1. Matrix 101 Sequence of Events

Based on horizontal and spatial distribution, the presence of multiple events of skeletal manipulation, and personal communication from project leaders (José Pinilla and Haagen Klaus, 2013), the results presented in this thesis support that Matrix 101 was constructed in three events.

According to Haagen Klaus and José Pinilla (personal communication 2014), the creation of Matrix 101 began with the interment of 77 individuals (Event 1). Alluvial deposits observed by José Pinilla revealed that it was raining at the time of initial construction. Once these individuals were buried, enough time passed allowing for human body decomposition. The funerary context was then reopened for the interment of Group 1a burials (Event 2). Horizontal distribution demonstrates that Burial Group 1a used the middle area of Matrix 101 while Burial Group 1b used the side areas, mostly the Northwest and Southeast sections. During Event 2, 45 individuals (Group 1a) were interred, forming two circular spatial clusters, classified as Cluster 1 and Cluster 2 (see Figure 19). Both clusters are similar in appearance and almost mirror each other. In Cluster 1, Burial 140 (64.5m asl) is centrally placed within Matrix 101, making it a possible focal point. This subadult was found on top of a large chicha vessel, the only vessel of this type found. In Cluster 2, Burial 172 (63.5m asl) is the deepest and located as the group's focal point. This adult male was the only individual to be buried alongside human remains, possibly signifying the symbolic importance attached to body manipulation. The rest of the burials in each cluster form circles. Lack of sun-bleaching and insect activity imply that after the individuals from Group 1a were interred, the context was covered with soil.

The third event consisted of the inclusion of 49 burials (Group 1b) and occurred shortly after the placement of Group 1a burials. Group 1b burials were placed surrounding the two clusters in Group 1a. Evidence of burial addition is seen through skeletal manipulation and cranial removal of some (n=10) Group 1a burials. Lack of cut marks on individuals who are missing heads and the skulls included in the mound from Burial Groups 1a and 1b does not just support but is unequivocal that crania were removed postmortem. Additionally, some of the crania found in the mound were still connected to the C2 and C1 vertebrae. This evidence

suggests that deterioration had occurred long enough for the crania to be easily pulled from an individual's body so that cutting was not necessary. Overall, the time extent, from the creation of Burial Group 1a to the final completion of Burial Group 1b, would take a minimum of six weeks (Toyne 2015). Although time between these events may have been much longer, it is likely that construction of Matrix 101 occurred within genealogical memory.

Alluvial deposits found in both Burial Groups 1a and 1b suggest that it was raining during burial placement, reopening, and manipulation. The occurrence of rain and transitioning ceramics may indicate that both phases took place during the A.D. 1050 El Niño and before the Sicán religious precinct was abandoned. Once burial was completed, the context was closed and a layer of disarticulated bones was placed over the burials.

7.2. Social Identity at Matrix 101

An analysis of the mortuary context and skeletal remains allows for an examination of social identity. Sex, age, grave goods, burial position, and indicators of pathologic conditions all express aspects of the deceased's identity as well as the identity that the living wanted to portray (Knudson and Stojanowski 2009). Typically, Middle Sicán mortuary practices display standardized indicators of status, including burial position and location, types of ceramics, presence of masks, and the presence of different types of metal (copper, *tumbaga* alloy, silver, and gold) (Shimada 1986, 1990, 1994, 1995, 1999, 2000). These factors allow for differentiation between Sicán elites, Muchik commoners, and retainer burials. Matrix 101 is a non-modal funerary context as it does not follow modal Sicán or Muchik burial trends (Shimada 1986, 1990, 1994, 1995, 1999, 2000). Considering the lack of elaborate grave goods and varying body positions, social identity is hard to determine. In the following section, I examine indicators of

social identity in Burial Groups 1a and 1b derived from the mortuary context (e.g., grave goods, body position) and osteological data (e.g., age, sex, indicators of biological stress).

7.2.1. Burial Group 1a

Only 9% (n=4) of Group 1a burials contained grave goods, which included disarticulated, commingled human skeletal elements, broken ceramics, and ceramic fragments found on top of the deceased's body. Located underneath Burial 140, the only complete ceramic vessel is a possible *tinaja*, or a large pot used for brewing *chicha* (Rengifo and Castillo 2015:126). *Chicha*, a fermented maize beer, is associated with religious and political activities and feasting events throughout Andean prehistory (Prieto 2011). Relationships between mortuary practices and *chicha* brewing and consumption are also found in the archaeological record (Rengifo and Castillo 2015). Absence of grave goods may imply that Group 1a individuals were commoners. However, the lack of grave goods also may signify a loss or transformation of status - or that the purpose of these interments did not require grave goods. Hill (2003) claims that Moche bodies were stripped of their former identities through sacrifice, dismemberment, and lack of modal grave goods, and transformed into a sacred object. Similar to Hill's (2003) argument, the scarcity of material indicators of social identity in Group 1a may suggest that identity, at least in death, was altered or differentially embodied during interment.

Osteological analysis indicates that the identifiable majority of sex and age of Group 1a individuals were males (44%, compared to 9% females) between the ages of 25 to 44.9 years (56%). Additionally, the skeletal remains show low prevalence of pathological conditions, suggesting relatively low prevalence of biological stress. When compared to Sicán elites and Muchik commoners, the frequencies of all pathologies individuals from Burial Group 1a are

more similar to Sicán elite than to commoners. Linear enamel hypoplasia and porotic hyperostosis percentages are closer to values seen in Sicán elites than those seen in commoners. Based on confidence interval, periostosis results from elite, commoner, and Matrix 101 contexts show overlap between all three and therefore can be ruled out as an indicator of status.

7.2.2. Burial Group 1b

Grave goods differ between Groups 1a and 1b, implying that different groups or communities are possibly represented in each. Common grave goods include complete ceramic vessels, ceramic fragments, solid pieces of chalk, and two dogs. Middle and Late Middle Sicán ceramics are present in 24.5% (n=12) Group 1b burials. The use of ceramics with the Sicán Deity iconography indicates the possibility of an elite presence (Shimada 1986, 1990, 1994, 1995, 1999, 2000). Of particular interest is the presence of a Moche-like face jar found in Burial 216. Although it is possible that the inclusion of the Mochicoid ceramic vessel (Muchik-Sicán hybrid) is an indicator of Muchik commoner identity, it is also possible that the ceramic was a curated item, such as an heirloom, or other object of importance.

Osteological analysis indicates that sex and age for the majority of Burial Group 1b individuals are males (57%, compared to 4% females) between the ages of 15 to 44.9 years (65.3%). Similar to Burial Group 1a, confidence intervals of linear enamel hypoplasia and porotic hyperostosis percentages suggest that their lifestyle was closer to that of Sicán elite than the Muchik commoners. Unfortunately, due to the high amount of missing crania, the reliability of these percentages is questionable. Similar to Burial Group 1a, periostosis percentages in Burial Group 1b overlap between all three groups.

7.2.3. Circumstances for Burial

If the individuals from both burial groups are elite, then why were they buried differently from standardized funerary practices? Why were they not buried in a seated position? Why were they buried without typical grave goods, such as the Middle Sicán funerary mask and the inclusion of metals? One reason for the creation of Matrix 101 may be the A.D. 1050 El Niño (Klaus and Shimada in press; Shimada 1990:371). Long periods of rain, followed by a long-lasting drought, were some of the leading factors in the collapse of Middle Sicán society (Klaus 2008). Klaus and Shimada (in press) argue that after the El Niño, there was an upheaval of Sicán elite power as the tops of *huacas* were set on fire and the capital was moved 12km southwest to Túcume. They argue that, as there is no evidence of warfare in the area, the social uprising occurred from within the Sicán population (Shimada 2000). Matrix 101 may provide a window into this time of religious collapse and political strife. During the extreme El Niño period (30 year drought conditions [Shimada 2000]), tensions would have been high as flooding and drought caused the agrarian economy to collapse, causing stress among commoners and elites alike. The construction of Matrix 101 may have served as a life-crisis ritual in an attempt to communicate with the supernatural. Life-crisis rituals are performed during individual or group strife that allows participants to transition into another realm (van Gennep 1960). Based on sacrificial contexts, modal Sicán sacrifices consist of elites dedicating commoners (Klaus et al. 2010; Klaus and Shimada in press) as offerings during building construction. As a non-modal Sicán funerary context, Matrix 101 may also have served as a way for the commoners to sacrifice Sicán elites and enact a revolution (see Shimada 2000 for further evidence of a possible internal revolt).

Compared to the Moche who practiced blood sacrifice (Bourget 1997, 1998; Bourget and Millaire 2000; Verano 2001, 2005), Middle Sicán sacrifice victims were non-mutilated and complete suggesting use of poison, ligature, or other means of sacrifice that does not affect bone (Klaus et al. 2010:1103; Klaus and Shimada in press). Klaus and Shimada (in press) state that sacrifices involving elites either occurred during times of crisis, spatial dedications, or the creation of funerary tombs for high status lords. Burials interred at Matrix 101 may represent sacrifices made as offerings to supernatural forces to end social crisis.

Sacrifices and burials created during El Niño events appear throughout Andean prehistory (Bourget 1998; Prieto 2015). Apart from disrupting the ecosystem, these catastrophic events created upheavals in economic and cosmological systems (Klaus and Shimada in press). Based on sea lion iconography and evidence of heavy rain during interment (including ice core and paleoclimatic data) Bourget (1998) argues that disarticulated victims found at Huaca de la Luna's Plaza 3A were sacrificed during an El Niño. If Matrix 101 was constructed during an El Niño, it is possible that it represents a sacrificial context. Additionally, in Huanchaquito-Las Llamas, Prieto (2015) suggests that the Chimú utilized sacrificed children and camelids as offerings to the ocean. Blom and Janusek (2004) argue that the living create a special relationship between humans and supernatural beings when humans are used as dedicatory offerings. These ritualized events are often choreographed and publicly performed in significant locations highlighting the importance of such an event. Human offerings involve status and identity manipulation and negotiations (Blom and Janusek 2004:123-124). For example, at Akapana, human bodies became transformed through sacrifice and "served to define the Akapana as a sacred place" (Blom and Janusek 2004:137).

Postmortem burial manipulation is important as it allows researchers a glimpse into the cosmological views and uses of the body. Buikstra (1995:238) stresses the importance of manipulation where the deceased's identity is intertwined with political control. Tied to a negotiation of power, public leaders used the performance of manipulation as symbolically charged and important political events for the living (Dillehay 1995:20). Weiss-Krejci (2011:22) argues that in times of political strife, during the 7-8th century A.D., the Maya utilized bodies as mediums for expressing political identities and legitimizing control.

In Peru, Millaire (2004:386) describes manipulation as a way for the Moche to "influence the course of their destiny through periodical manipulation of their ancestral remains." Furthermore, Chicoine (2011:528) states that burial manipulation indicates a symbolic connection with the supernatural world and their ancestors. Manipulation in Matrix 101 suggests that there was a spiritual connection created during the removal of skeletal remains and creation of the skull and long bone mounds. Disinterment and movement of the remains allowed for Sicán elites to express their group identity through association with the climatic event and its supernatural origin.

7.2.4. Sacrificial or Dedicatory Burials?

When compared to known Moche, Chimú, and Sicán sacrificial sites, it appears that Matrix 101 also represents a sacrificial context. Table 7.1 illustrates the similarities and differences among these sites. The possible presence of elite individuals in Matrix 101 signifies a non-modal mortuary context.

Although only a few incidences (13.8%) of perimortem sharp force trauma were found in Matrix 101, sacrifice should not be ruled out for the entire group. Absence of skeletal trauma

does not always mean that there is no trauma as there are ways to kill a person without affecting the individual's skeletal remains. For example, poisoning, strangulation, and live burial are efficient/documented ways to kill without resulting in bloodshed (Klaus et al. 2010). Body positions suggest that some of the individuals may have been bound whereas others were buried alive. Bound positions include the bound burial position and clasped hands. Bound position is

Table 7.1: Materialization of sacrifice in the north coast of Peru

Variable	Huaca Las Ventanas	Cerro Cerrillos	Huaca de la Luna	Pacatnamú	Matrix 101
Throat slitting		x	x	x	x
Blunt force trauma		x	x	x	x
Heart removal/Chest Opening		x		x	
Decapitation		x	x	x	
Warrior status			x	x	
Commoner Status	x	x	x		
Elite/Middle status					x
Male		x	x	x	x
Female	x				x
Subadult sacrifice		x	x		x
Adult sacrifice	x	x	x	x	x
Within huaca/religious site	x	x	x	x	x

where individuals are placed on their front while their legs and arms are restrained with ropes thereby restricting movement. Additionally, clasped hands suggest that they may have been tied

together, or holding hands. They may also have been placed that way by the living as a symbol of holding hands in death. Due to the high water table and the poor conditions of the site caused by to flooding, physical evidence of ligature or cordage was not preserved.

Based on hand position, some of the individuals may have been buried alive. For example, Burial 148 was found with one hand in a clenched fist position, placed over the nose and mouth. This particular hand placement could not have been created by those burying the body as rigor mortis would have made it impossible for the living to create a tight fist on the deceased. Similar to Burial 148, Burial 197 was found with one hand inside of the mouth. If they were buried alive, they may have attempted to cover their mouth with their hand. Additionally, Burial 125's body position shows possible evidence that he was thrown into the Matrix 101 while still alive.

If Matrix 101 is indeed related to an El Niño event, the pre-death identity of the individuals buried could have been transformed in order to communicate with the supernatural. Similar to Hill's (2003) argument that bodies were transformed into the "sacra" during Moche sacrifice, Matrix 101 may have acted as an arena where social identity shifted. If the individuals were elites, their social status and elite identity would have been removed during burial as they became an empty vessel and entered into a liminal space (Turner 1969). Through turning elite individuals into sacred objects, it is possible that the living attempted to connect with the supernatural in an effort to stop the continuous rain.

7.3. Implications

The data from this thesis bring new insights into archaeological practice and theory on a number of different scales. I discuss how Matrix 101, as a transformative context for human

remains (Fowler 2013; Hill 2003; Parker Pearson 1999), impacts our current understanding of the Sicán religious precinct and the Middle Sicán civilization as a whole. I explain how this mortuary context increases our view of burial practices on the north coast and the history of Peru in general, especially in relation to non-normative elite-associated sacrifice. Finally, I examine how the data set adds to our growing knowledge in bioarchaeology of complex societies and in mortuary archaeology as a discipline.

Matrix 101 is a unique context that furthers our understanding of Middle Sicán burial practices. The complexity of the mortuary practices enacted adds to our knowledge of Middle Sicán rituals and their possible connection to El Niño events. Matrix 101's spatial and temporal characteristics allow for interpretations that shed light onto events that were taking place around the fall of their politico-religious system. The mass grave's location in the Great Plaza of the Sicán religious-funerary precinct would have allowed for groups to gather and watch as elites were sacrificed. One could imagine that if the context was created during torrential rains, the construction and reopening would have been emotionally charged events, full of tension and hopes that these burials would allow for communication with the supernatural. Further research in the Great Plaza may lead to a better understanding of the events that took place during Matrix 101's creation.

In terms of wider regional implications, Matrix 101 allows for a more refined frame of reference to examine other sites within similar time periods. Similar to Plaza 3A at Huaca de la Luna (Bourget 1997) and Huanchaquito-Las Llamas (Prieto 2015), Matrix 101 may represent offerings to the supernatural as way to cope with crisis. At the time of Matrix 101's construction, Sicán society was in transition. Not long after the creation of Matrix 101, the Sicán capital shifted to Túcume (Narváez 1995, Shimada 1990:311). If it was the elites who were sacrificed

and the symbols of their religious power were destroyed as their *huacas* were set ablaze, it is possible that these events caused high status lineages reunify at Túcume (Shimada 2000).

Finally, the Matrix 101 context allows for a broader understanding of social identity reconstructions and how bioarchaeology can be tied with archaeological research to create a more complete picture of social identity through the contextualized study of lived social experiences. This thesis provides an example of how these two fields can work together to provide complementary information, even with a paucity of socially-significant grave goods. Moreover, it shows how otherwise ‘invisible’ aspects of social identity in archaeologically ‘problematic’ settings can be elucidated. Lastly, interments such as Burial 212, which exhibit extreme cases of violent trauma, extend the literature with more comparative sacrificial examples.

7.4. Future Research Avenues

Overall, this thesis generates many questions. Matrix 101 is a mass grave that does not fit into some of the models of Sicán mortuary practices posited by previous archaeological studies (Elera 1986; Klaus 2008; Klaus et al. 2010; Shimada 1986, 1990, 1994, 1995, 1999, 2000, 2014; Shimada et.al 2004, 2005). One avenue for further research is through a closer examination of the ceramics found in Matrix 101. Since my analysis mainly focused on examining the skeletal remains, information gathered on ceramics was derived from excavation photos and what was published in the *Informe Arqueológico Preliminar Temporada de Gabinete* (Museo Nacional Sicán 2013). Further ceramic analysis (seriation) along with radiocarbon dating of skeletal remains would allow for a more concrete understanding of when Matrix 101 was constructed. Although radiocarbon error range would constrain the accuracy of the results, when combined

with ceramic seriation, these two techniques would produce a viable time frame for the creation and completion of the overall context, not individual events.

A further and clearer examination of social identity would also be aided with isotopic and DNA analyses. Chemical analysis of carbon and nitrogen isotopic variation could help in answering questions involving prevalence of biological stress, residential mobility, and status through diet. Ancient DNA, which has been initiated, will help with identifying kin groups and provide information on social diversity within the individuals interred at Matrix 101. Shimada et al. (2005) have already examined the genetic profiles of Sicán elites and Muchik commoners. Understanding the genetic makeup of the two separate burial phases would add to our understanding of who may have created and were interred in Matrix 101, as well to our overall conception of Middle Sicán culture. Additionally, strontium and oxygen isotope analysis would help us understand if the individuals in Groups 1a and 1b were recent migrants or if they had lived in the area since birth.

Finally, an examination of the DNA of those interred at Matrix 101 would help examine coexistence between elites and commoners in Middle Sicán society. Andean researchers have heavily focused their research around understanding elites in Andean prehistory (Brennan 1980; Donnan 2007). Although some researchers examine household structure and residential complexes (Nash 2009; Stanish 1989), a more concrete examination of the coexistence of elites and commoners is missing from the literature.

Overall, this thesis shows the complexity of social identity, burial practices and sacrificial contexts of a non-modal burial in Middle Sicán society. Matrix 101 is a unique context, not just in Sicán history but also in Andean history. As with other sacrificial contexts (e.g., Pacatnamú), the disjointed and somewhat chaotic nature of this burial contrasts heavily with the well-ordered

and preplanned funerary practices seen in many Andean complex societies. However, the scale of Matrix 101 is unprecedented, especially in terms of inferred elite sacrifices. Additionally the rapid pace of construction and diversity of burial practices (i.e., varying body position, body manipulation, lack of grave goods) point to a socially important event preceding the terminal occupation of an important religious center and its associated politic-religious system. This study provides a few lines of evidence as to the possible transformed social identity of the deceased and the possibility that Matrix 101 was constructed as a life-crisis ritual during an El Niño event. Future research is needed to further understand the monumental event(s) that took place here.

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Appendix: Figures

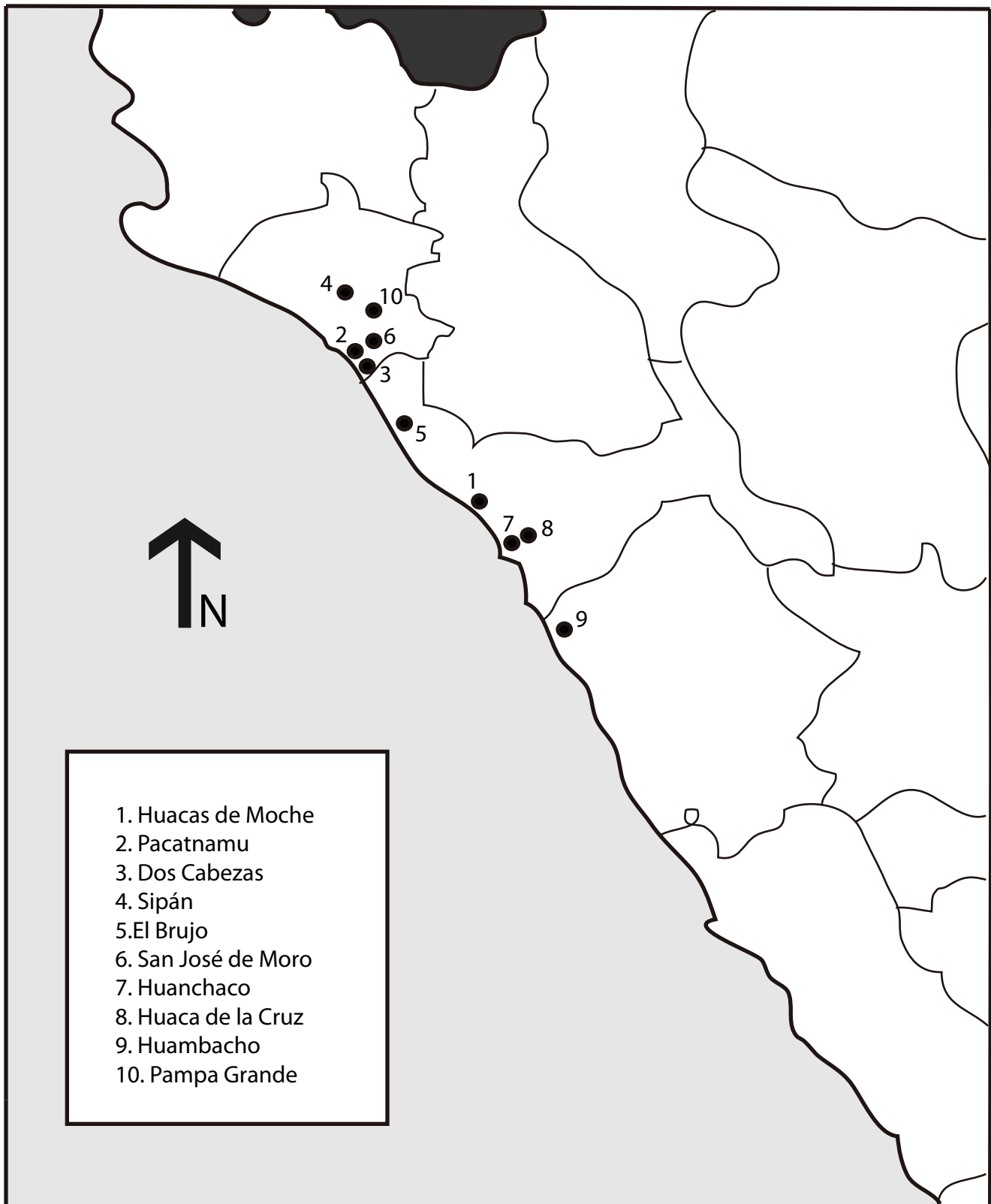


Figure A1: Moche Sites Mentioned in the Text

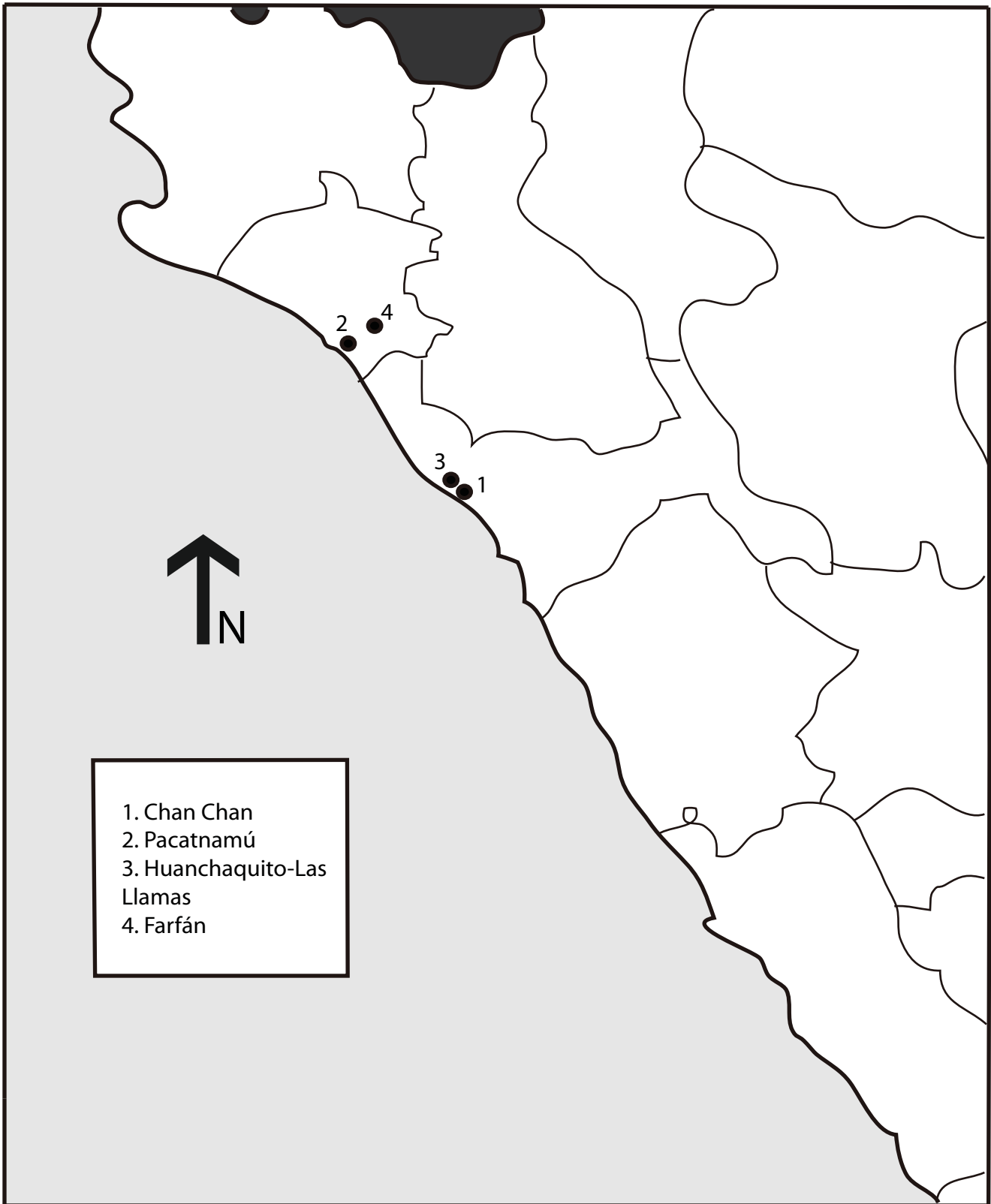


Figure A.2: Chimú Sites Mentioned in the Text

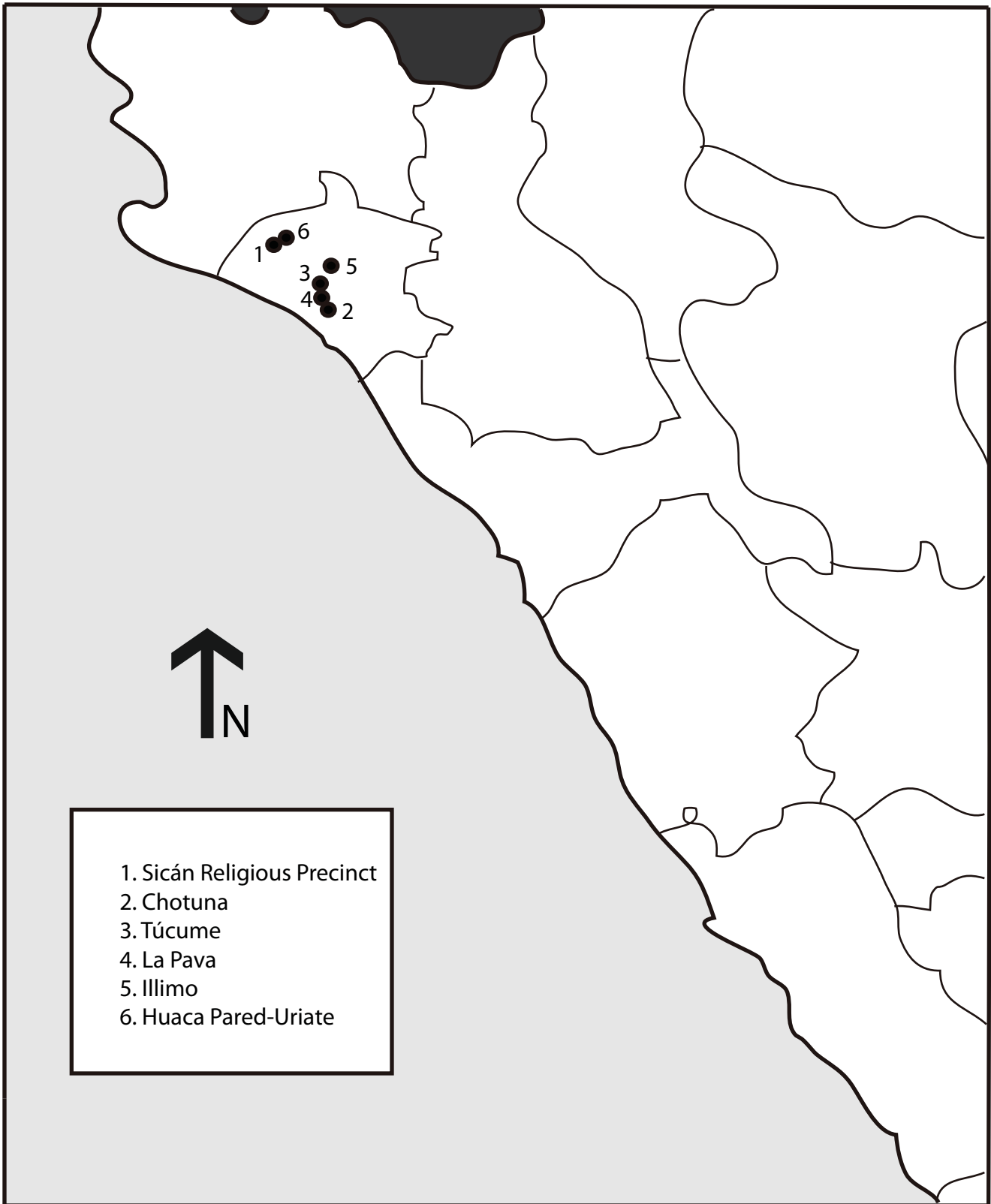


Figure A3: Sicán Sites Mentioned in the Text

4a.



4b.



Figure A.4a: Sicán Deity Mask (Photo courtesy of Haagen Klaus)

Figure A.4b: Reconstruction by Cesar Samillán of the Sicán Deity as a Decapitator from a Painted Textile Found in the South Tomb at Huaca Las Ventañias (Photo courtesy of Haagen Klaus).

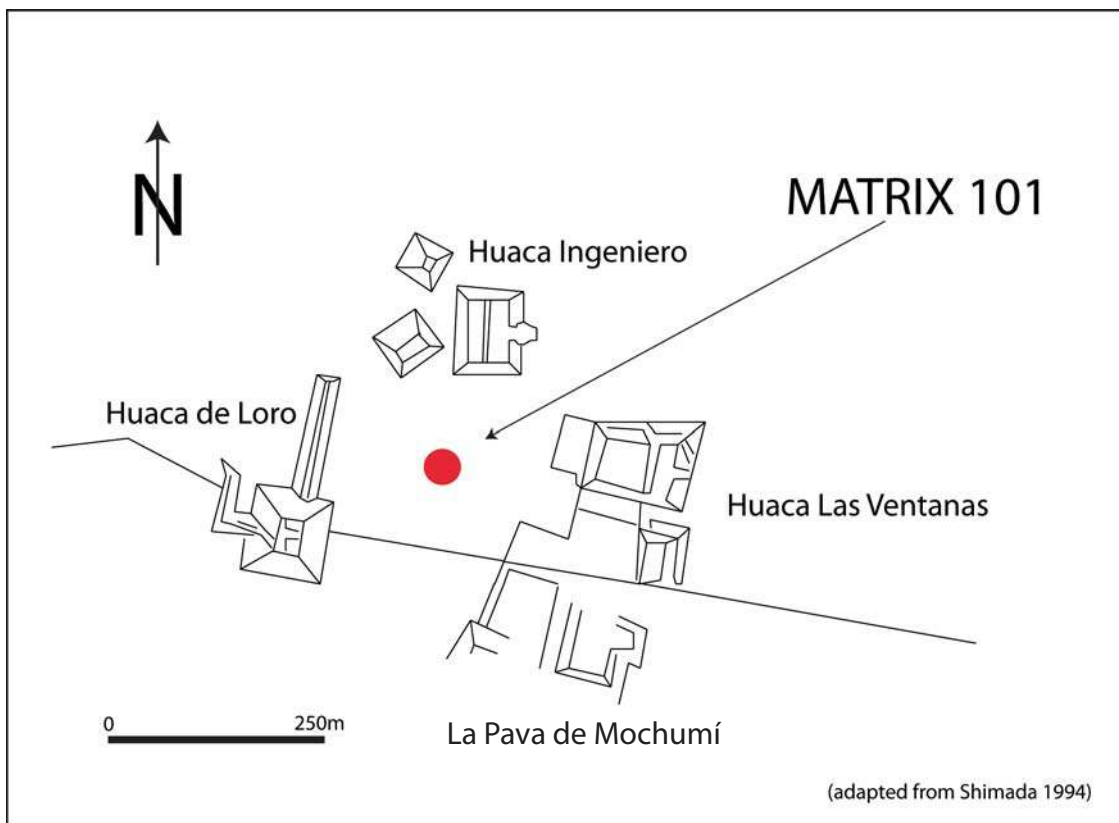


Figure A.5: Location of Matrix 101 within the Sicán Religious-Funerary Precinct (Adapted from Shimada 1994)



Figure A.6: Lumbar Vertebra Depicting Stage 3 Lipping (Photo courtesy of Haagen Klaus)



Figure A.7: Left Mandibular Canine Depicting Horizontal Groove Hypoplasia (Photo courtesy of Haagen Klaus)



Figure A.8: Porotic Hyperostosis (Photo courtesy of Haagen Klaus)



Figure A.9: Sclerotic Reaction on a Tibia (Photo courtesy of Haagen Klaus)

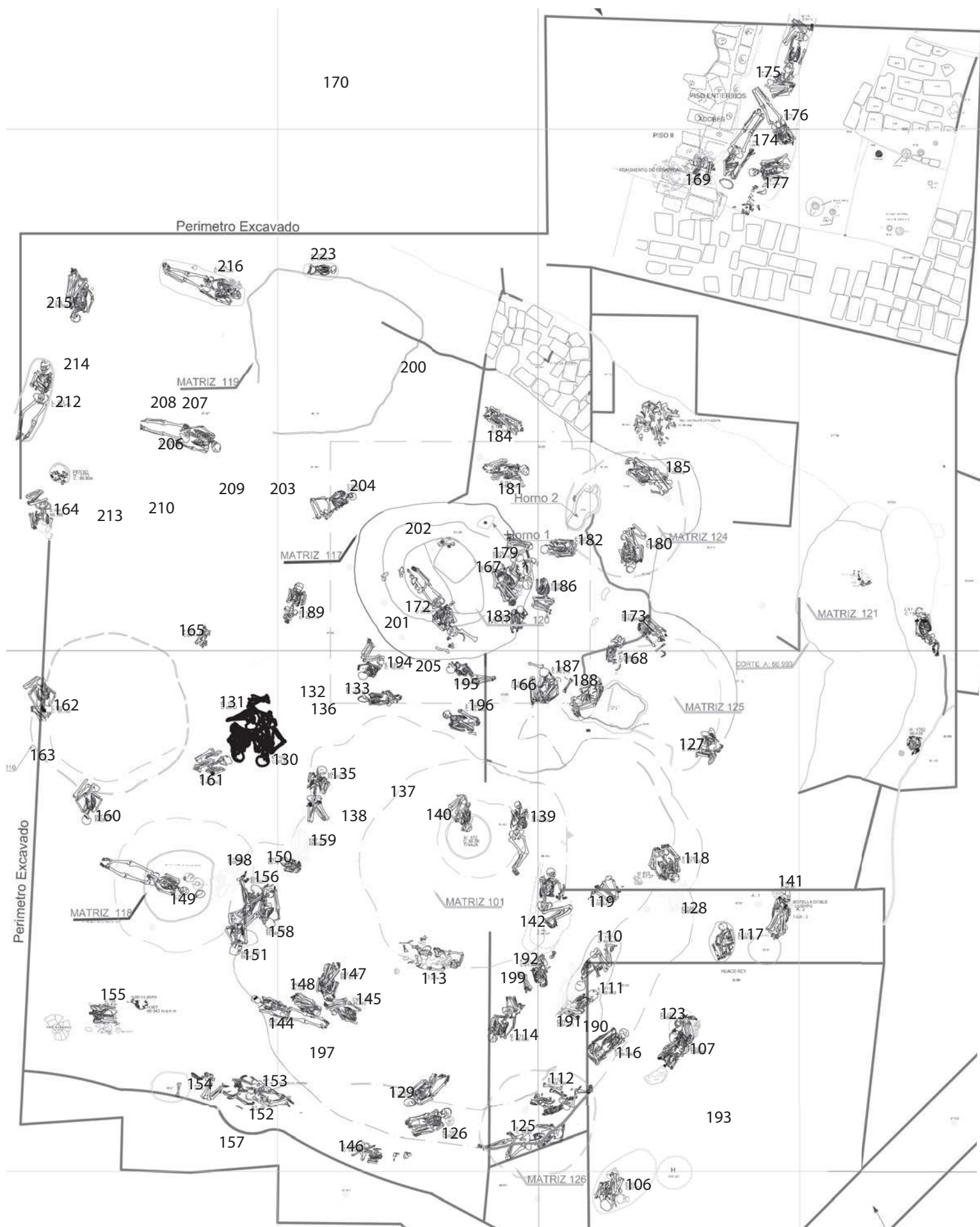


Figure A.10: Map of Matrix 101 Burials (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)



Figure A.11: Supine Postion (Photo courtesy of José Pinilla)



Figure A.12: Hyper-Flexed Position (Photo courtesy of José Pinilla)



Figure A13: Hyper-Flexed Position (Photo courtesy of José Pinilla)



Figure A14: Semi-Flexed Position (Photo courtesy of José Pinilla)



Figure A.15: Sprawled Position (Face Facing Down or Upwards) (Photo courtesy of José Pinilla)



Figure A.16: Bound Position (Photo courtesy of José Pinilla)



Figure A.17: Disarticulated/Manipulated Position (Photo courtesy of José Pinilla)

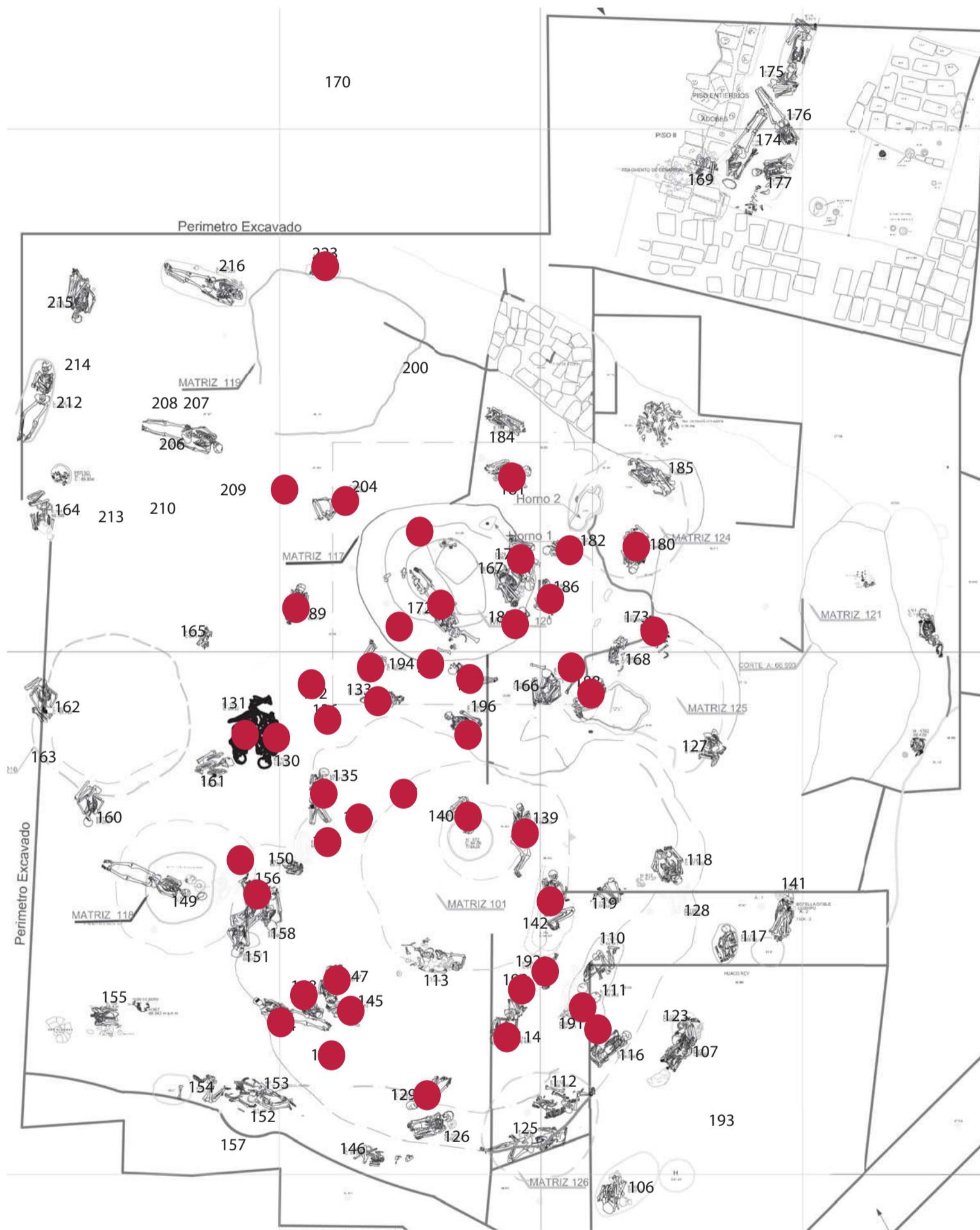


Figure A.18: Map of Burial Group 1a (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

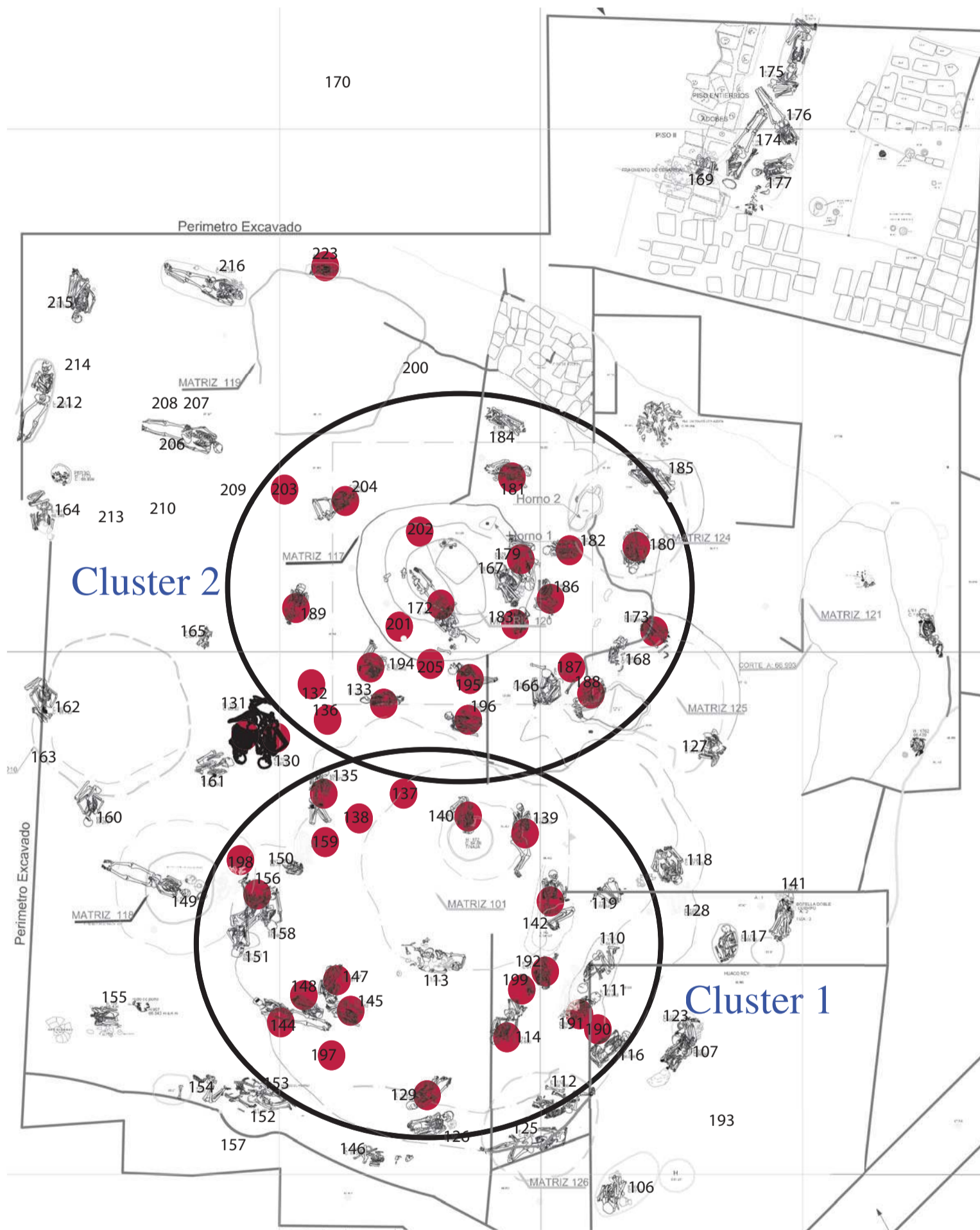


Figure A.19: Map of Burial Group 1a Clusters (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

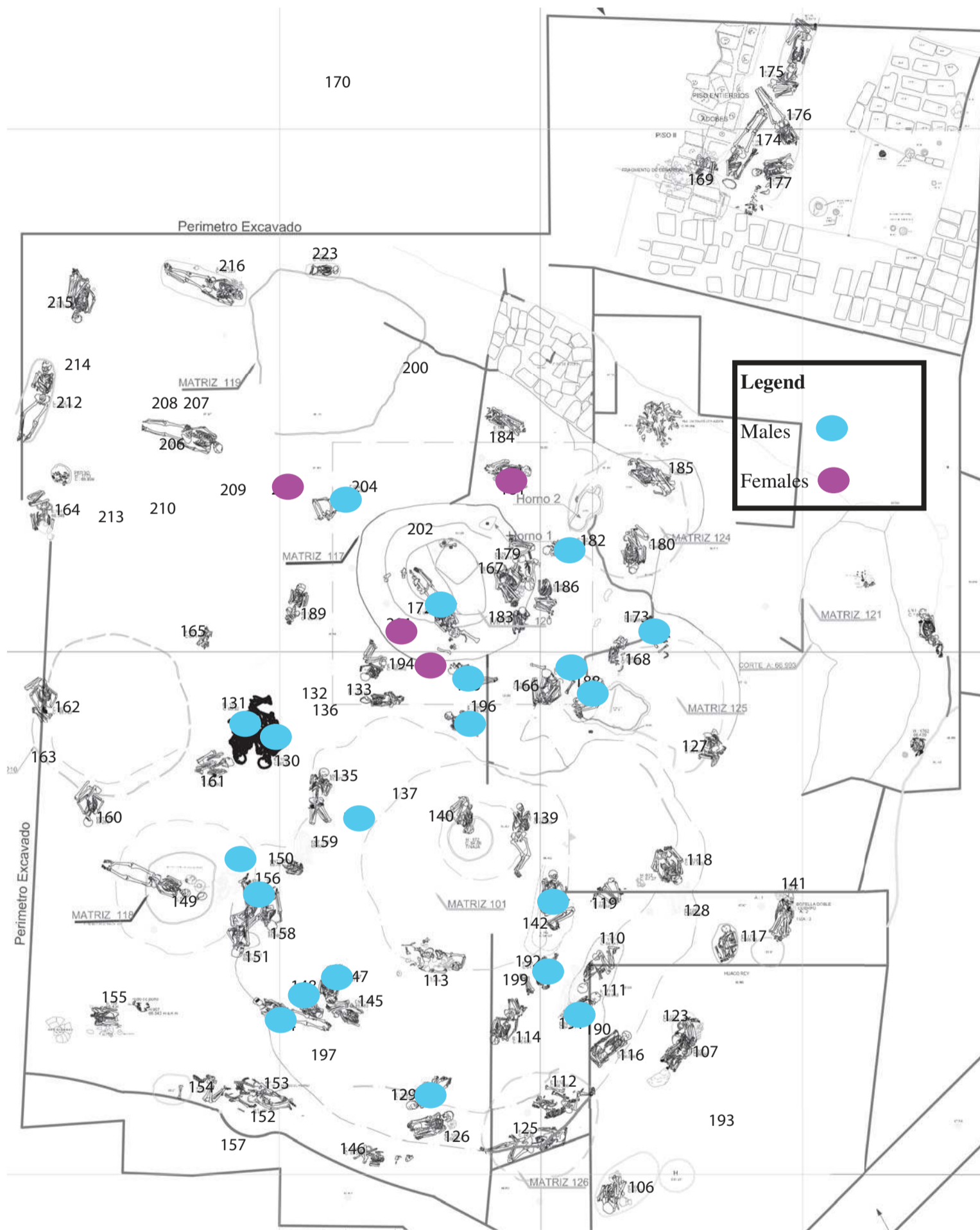


Figure A.20: Map of Burial Group 1a Sex Distribution (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

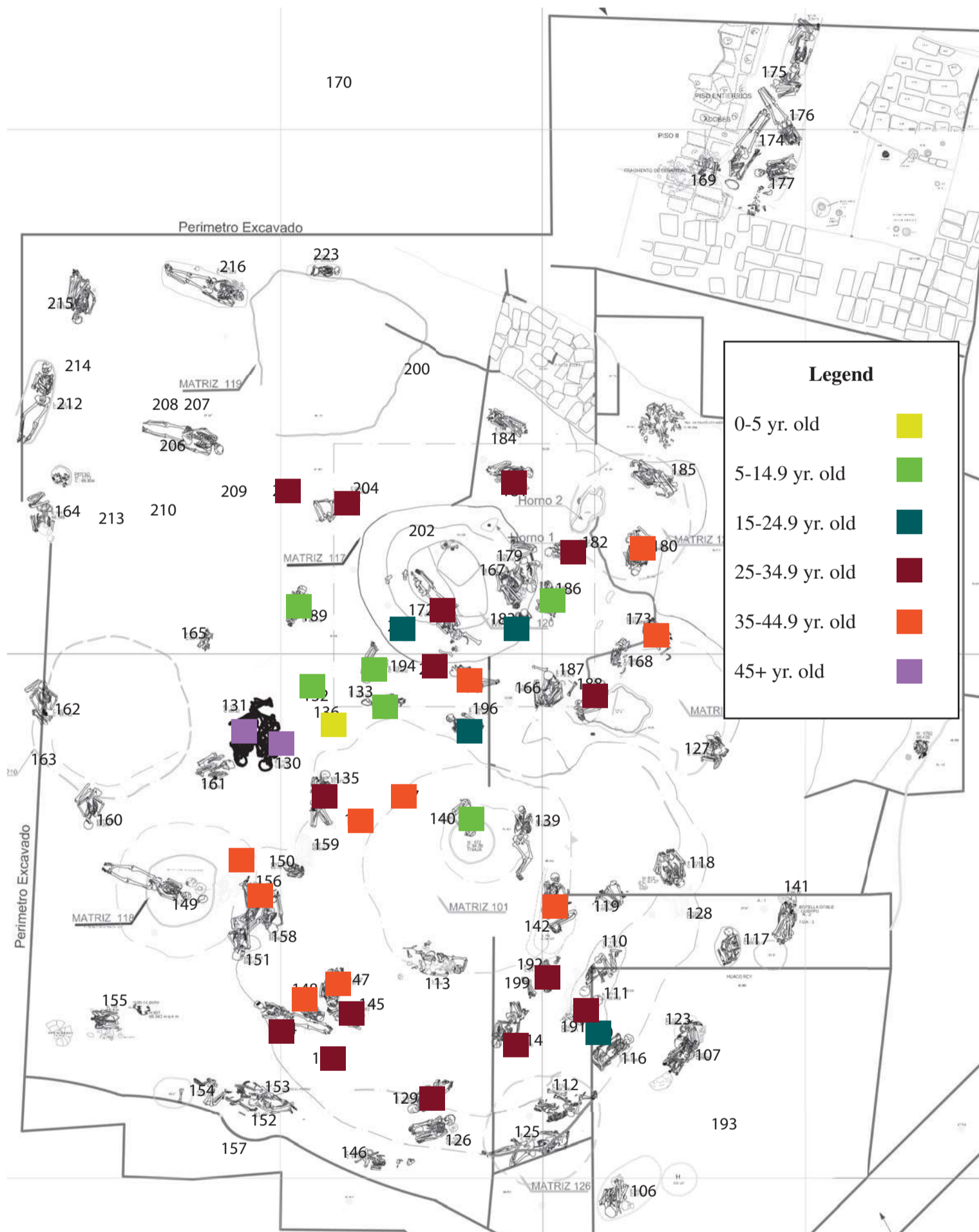


Figure A.21: Map of Burial Group 1a Age Classes (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

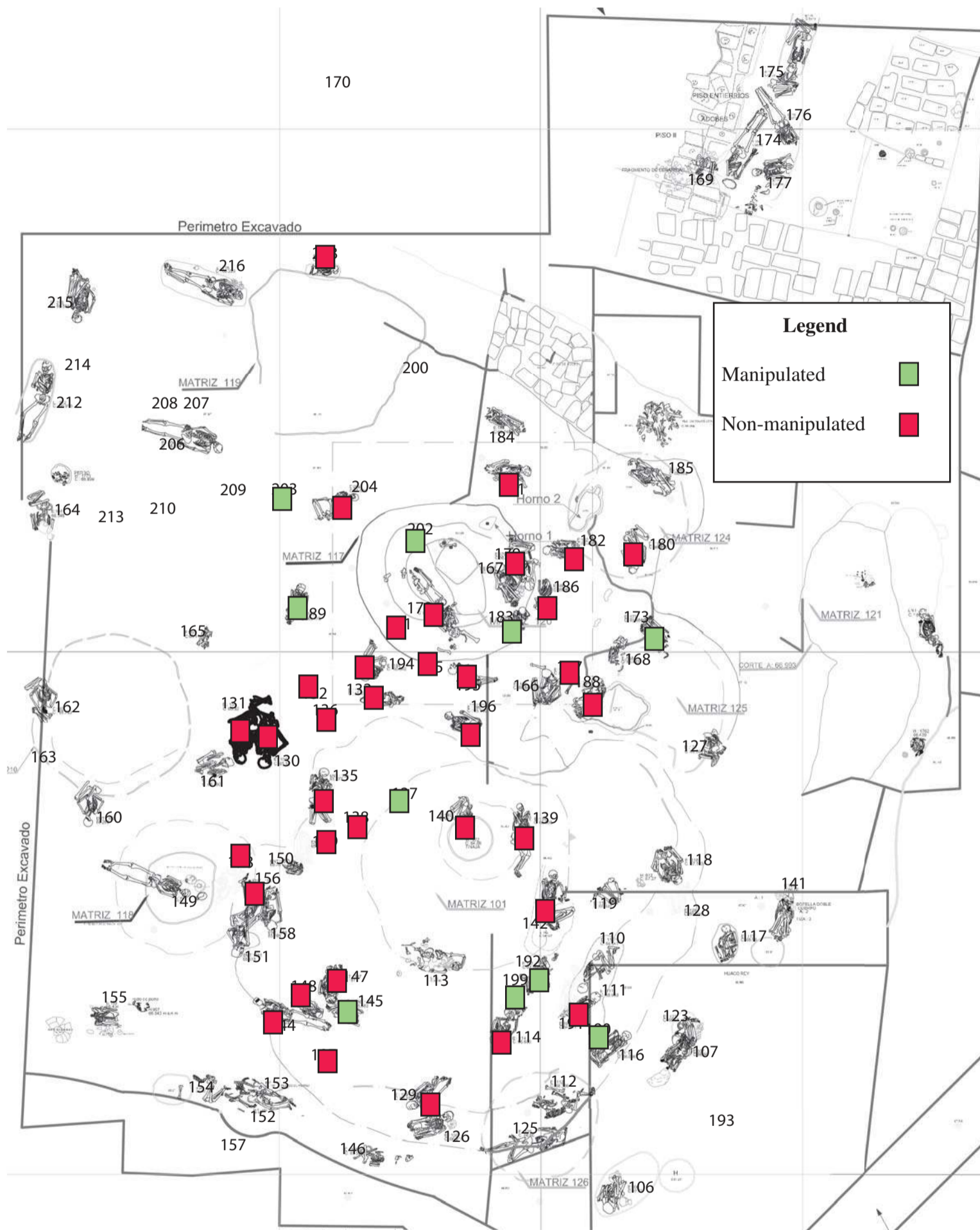


Figure A.22: Map of Burial Group 1a Manipulated vs. Non-manipulated (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

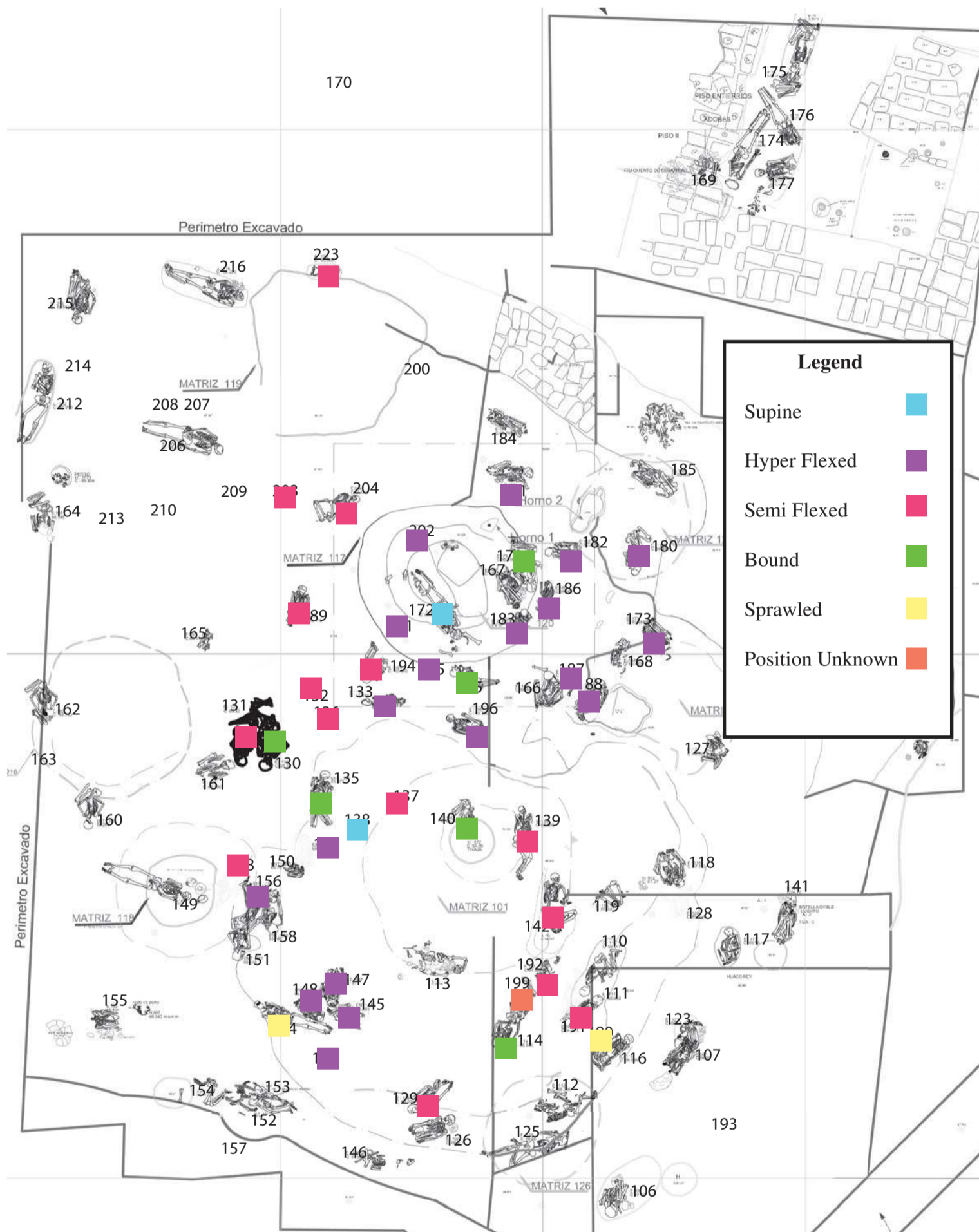


Figure A.23: Map of Burial Group 1a Burial Positions (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

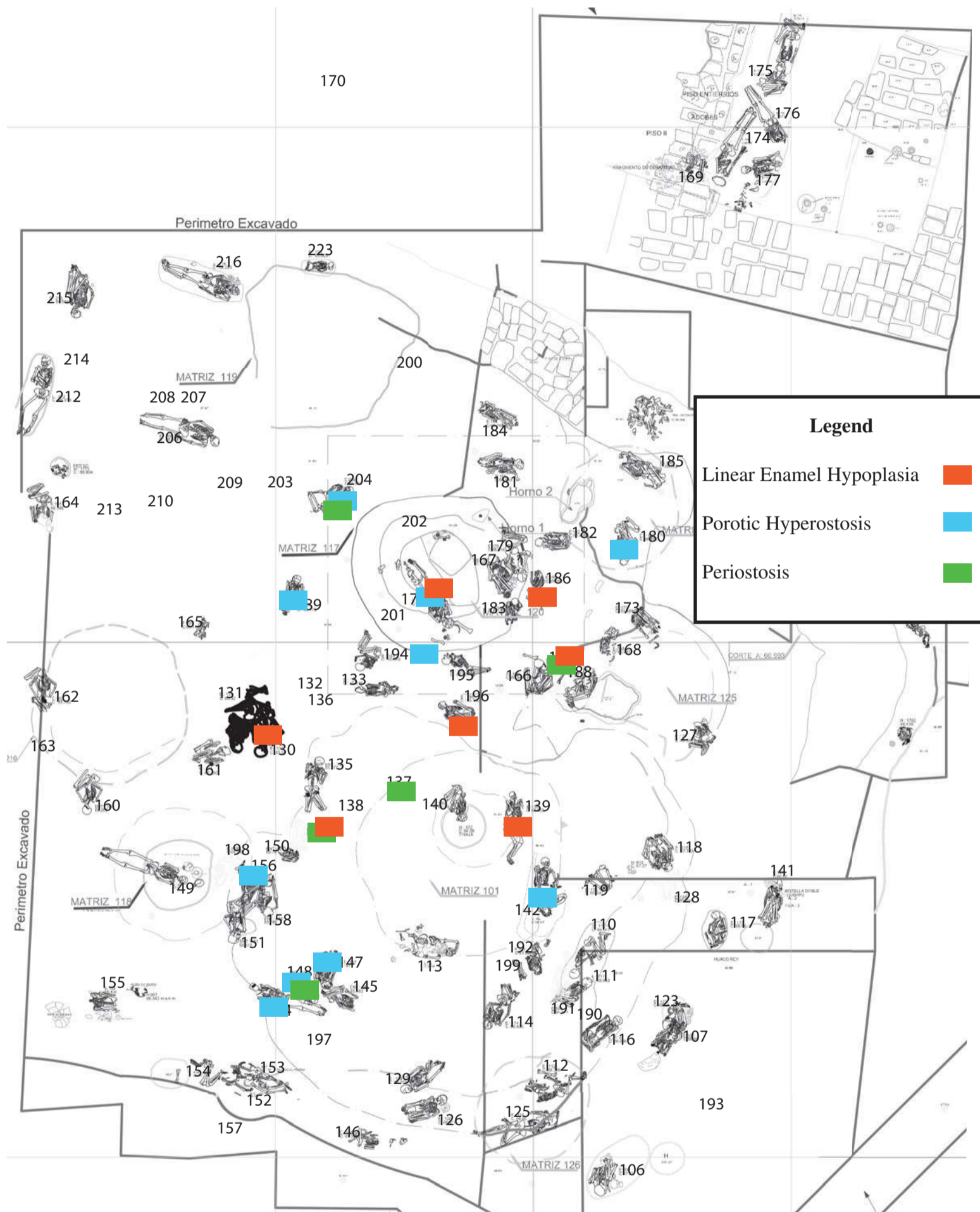


Figure A.24: Map of Burial Group 1a Indicators of Biological Stress (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

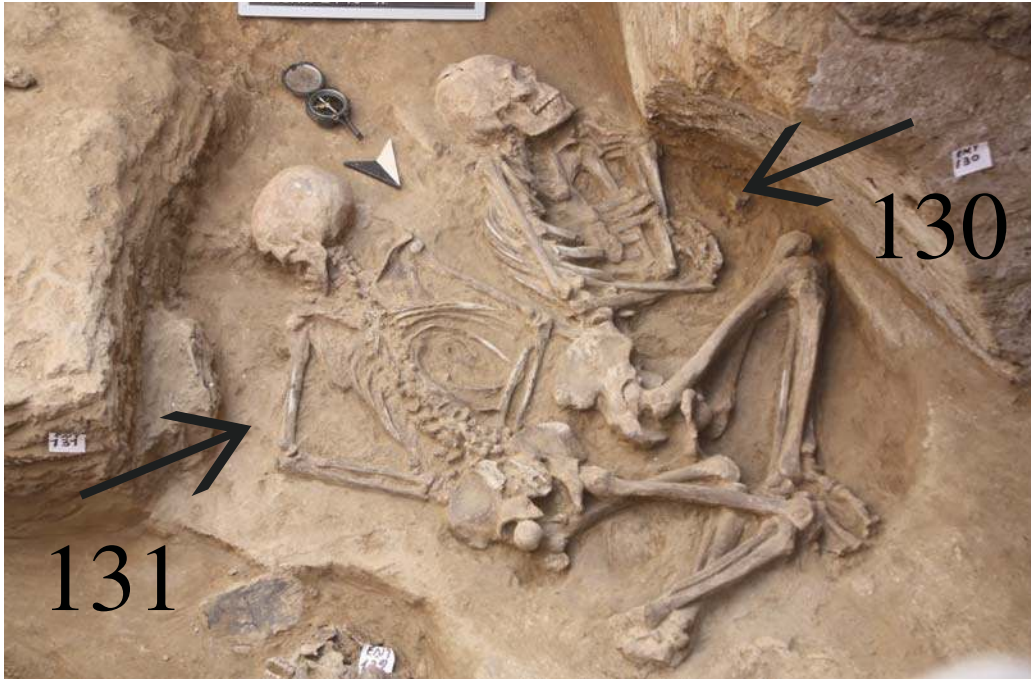


Figure A.25: Burial 130 and 131 (Photo courtesy of José Pinilla)



Figure A.26: Burial 148 (Photo courtesy of José Pinilla)



Figure A.27: Burial 190 (Photo courtesy of José Pinilla)



Figure A.28: Burial 147 (Photo courtesy of José Pinilla)



Figure A.29: Burial 159 (Photo courtesy of José Pinilla)



Figure A.30: Burial 197 (Photo courtesy of José Pinilla)

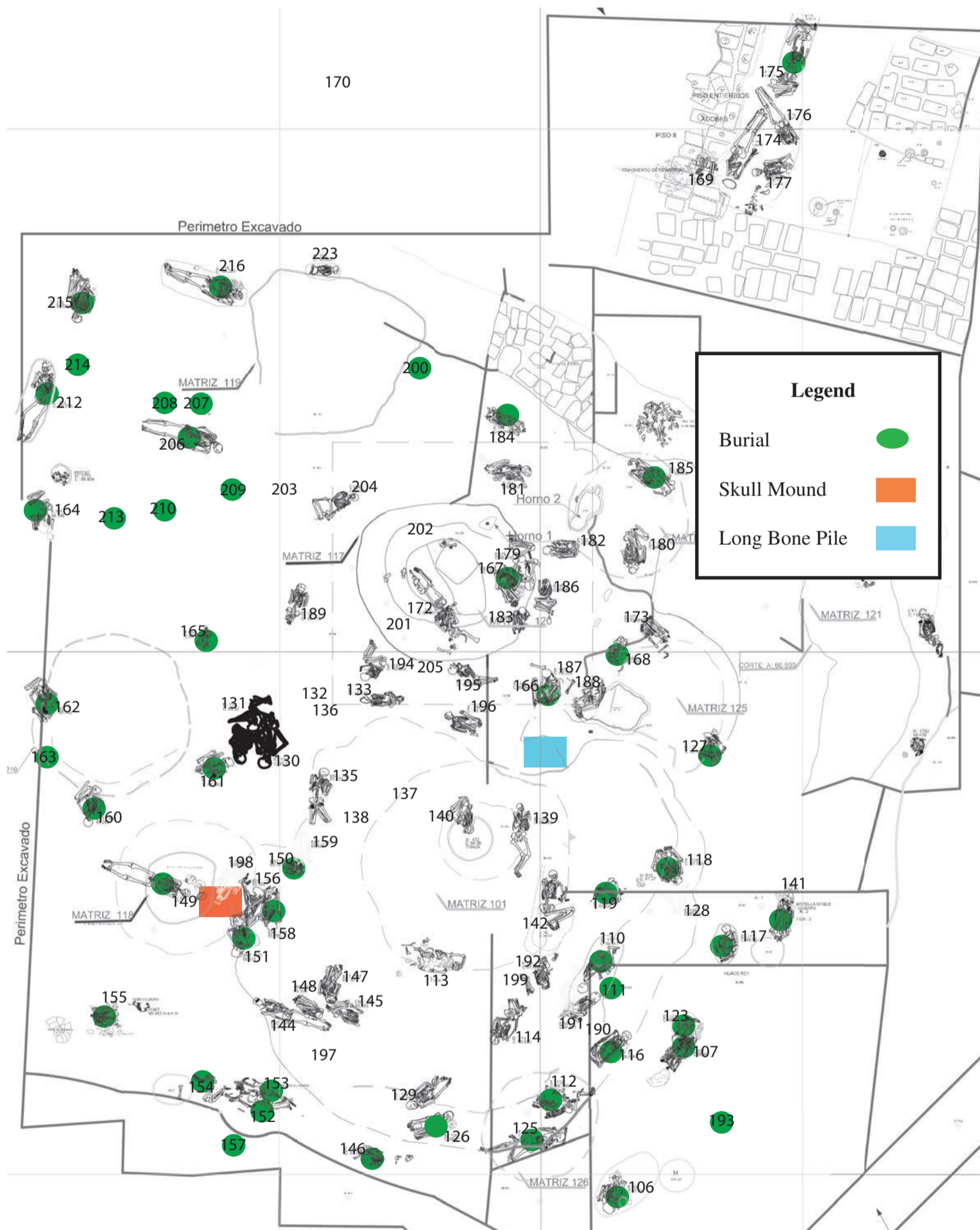


Figure A.31: Map of Burial Group 1b Burials (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

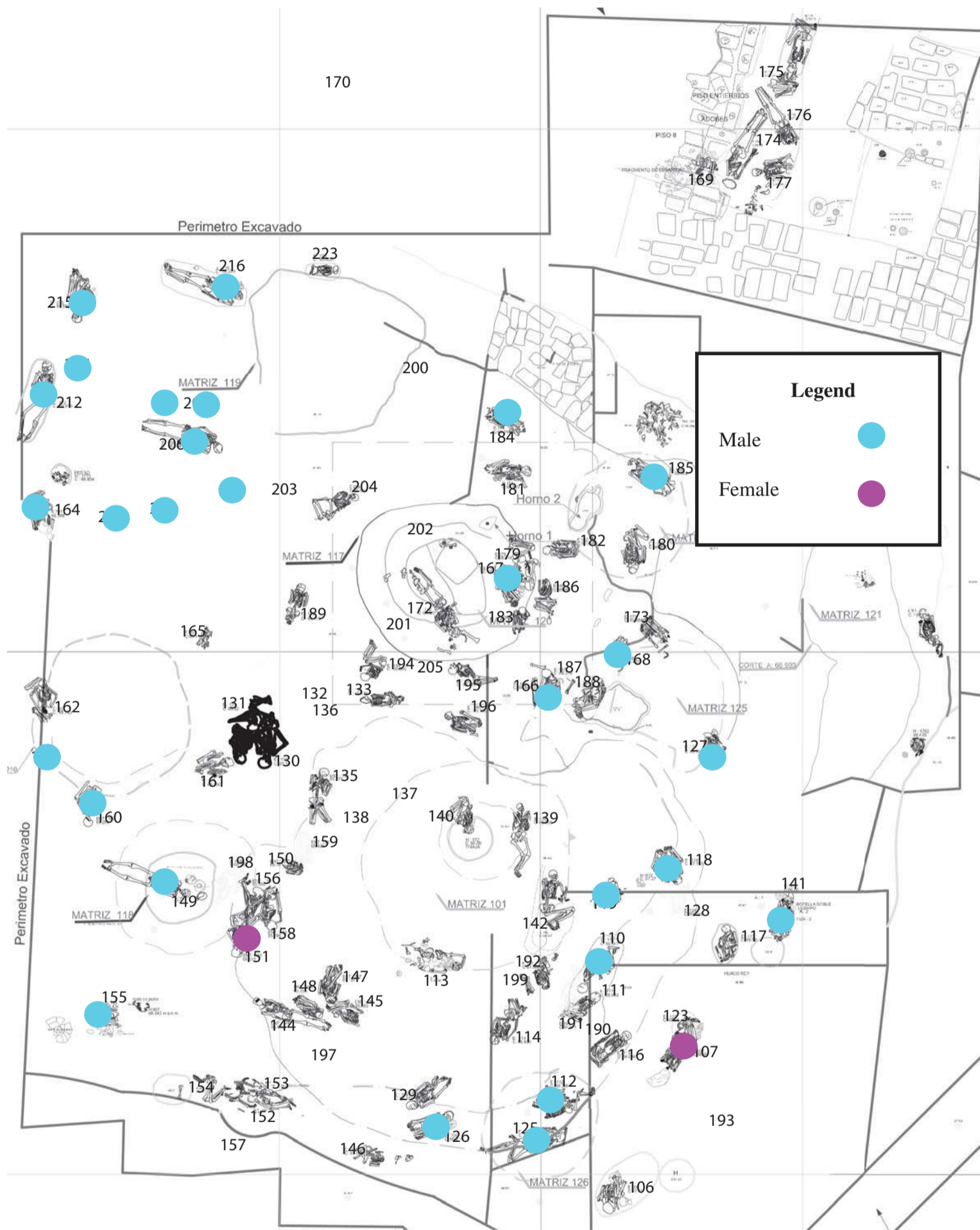


Figure A.32: Map of Burial Group 1b Sex Distribution (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

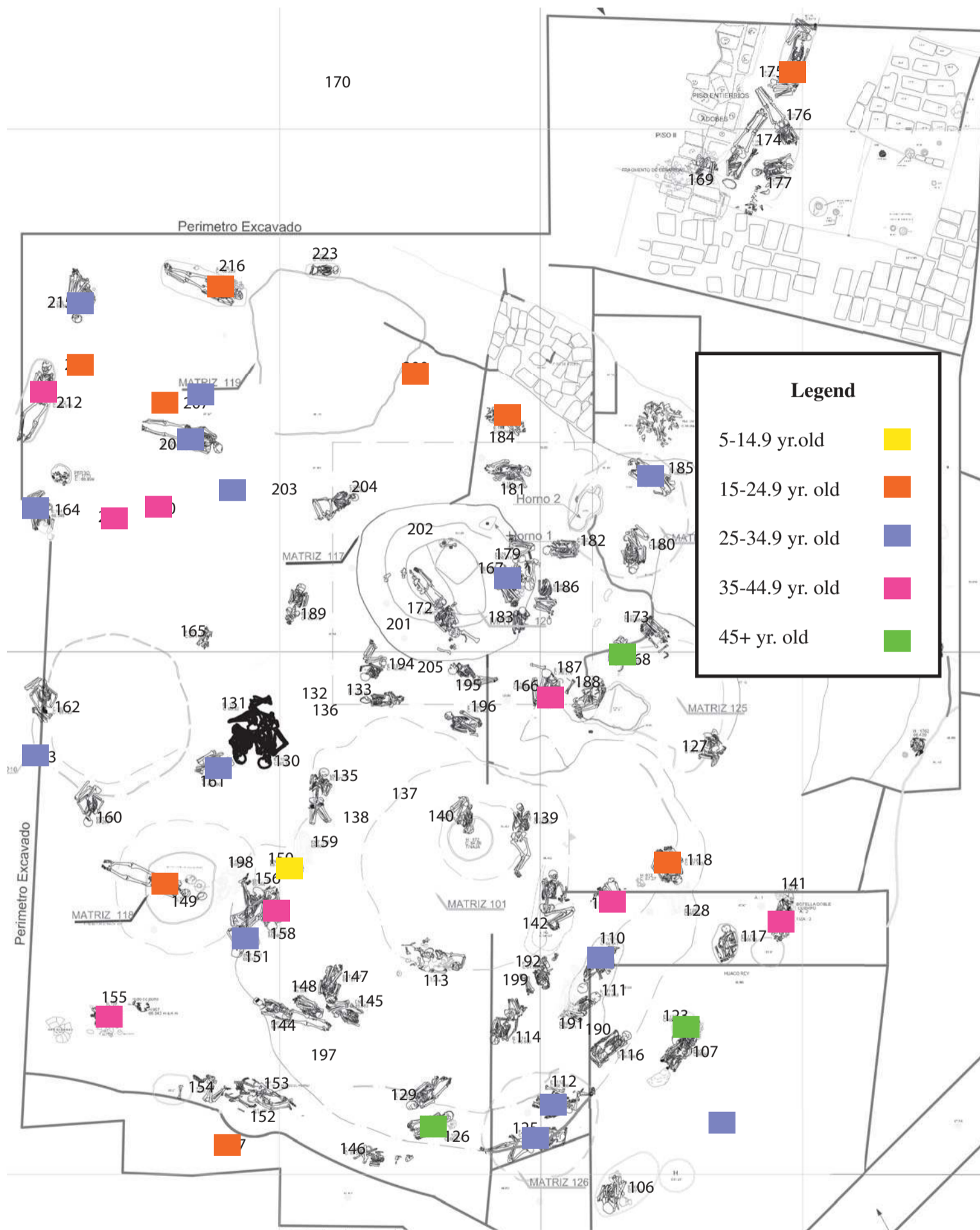


Figure A.33: Map of Burial Group 1b Age Classes (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

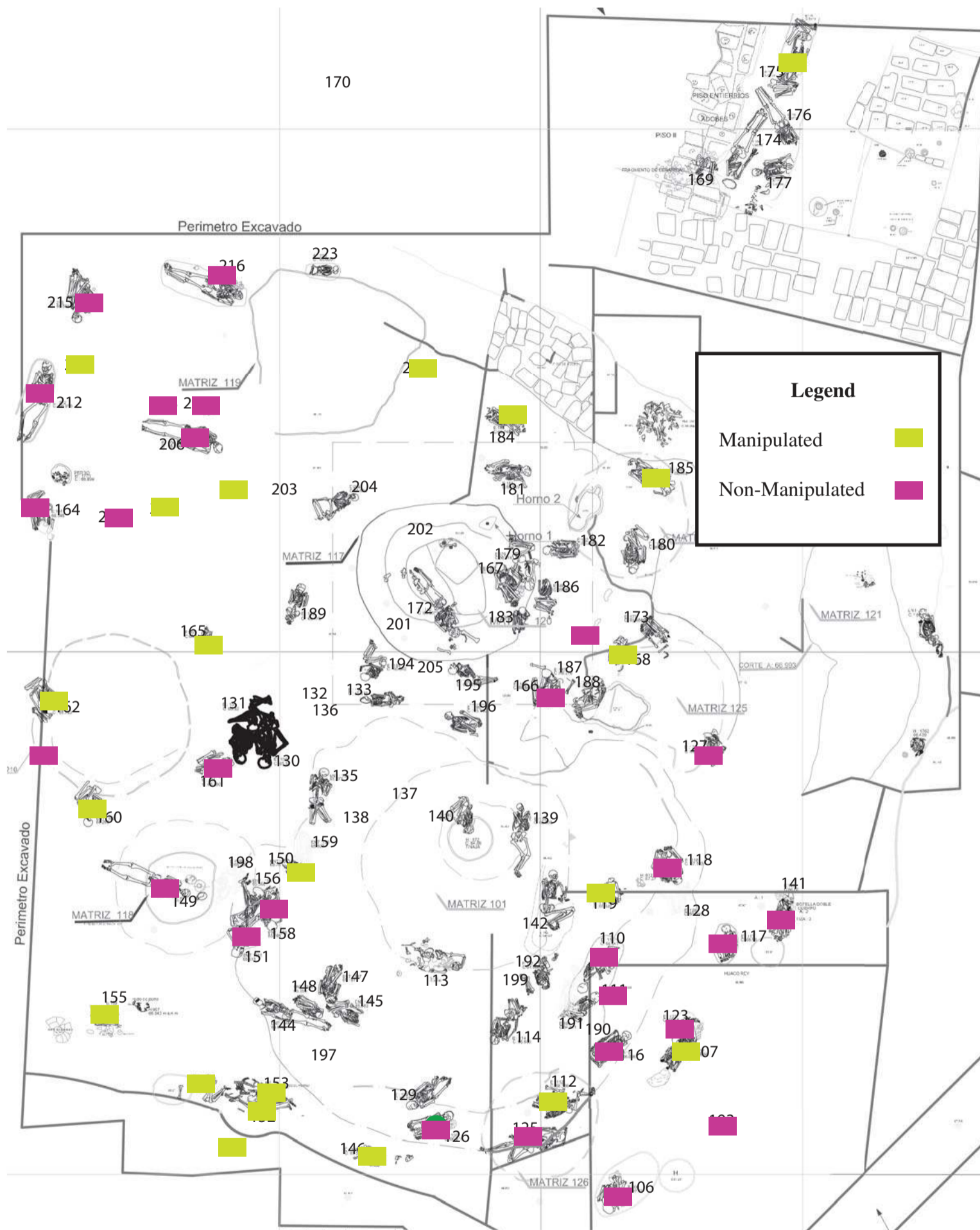


Figure A.34: Map of Burial Group 1b Manipulated vs. Non-manipulated (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

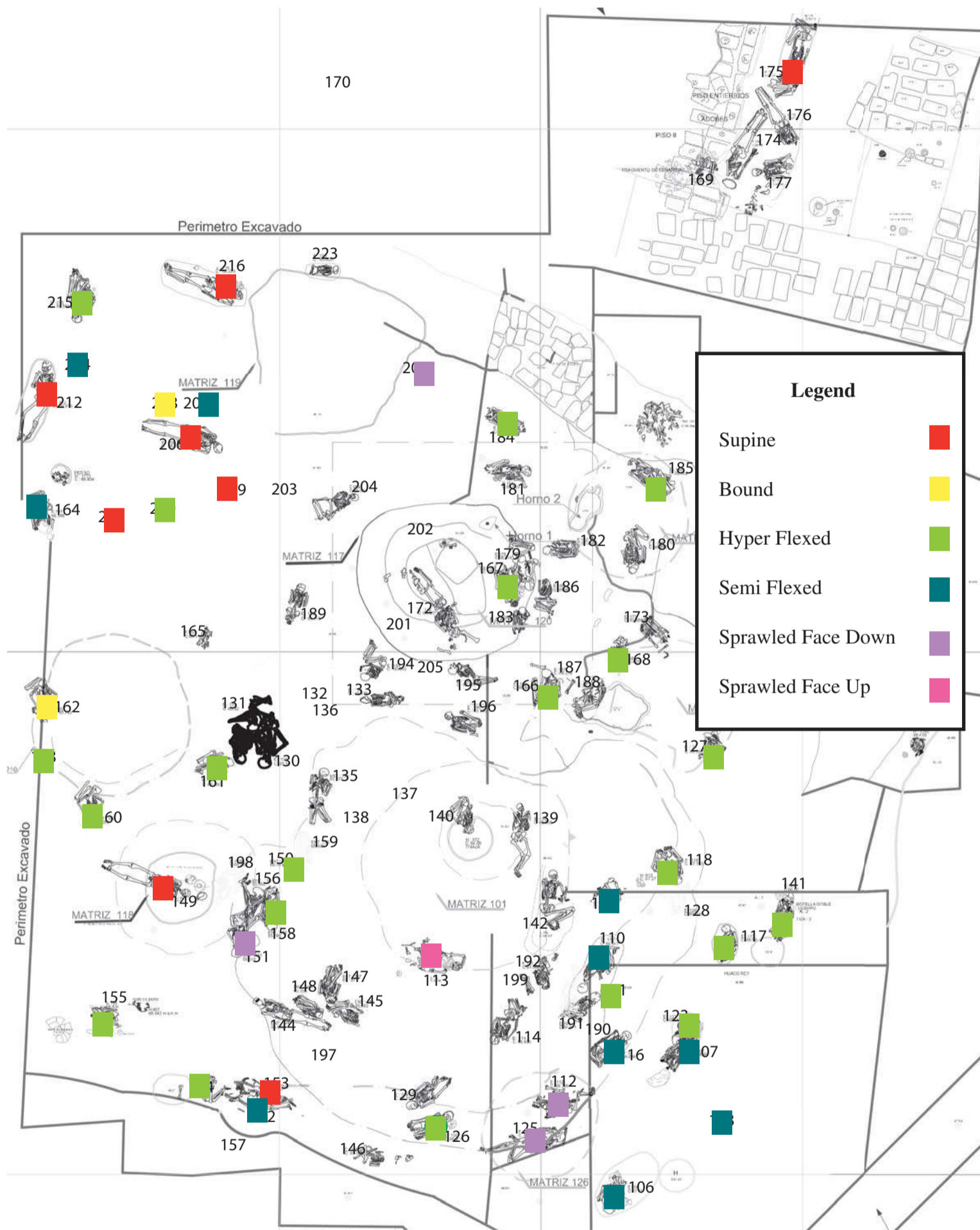


Figure A.35: Map of Burial Group 1b Burial Positions (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

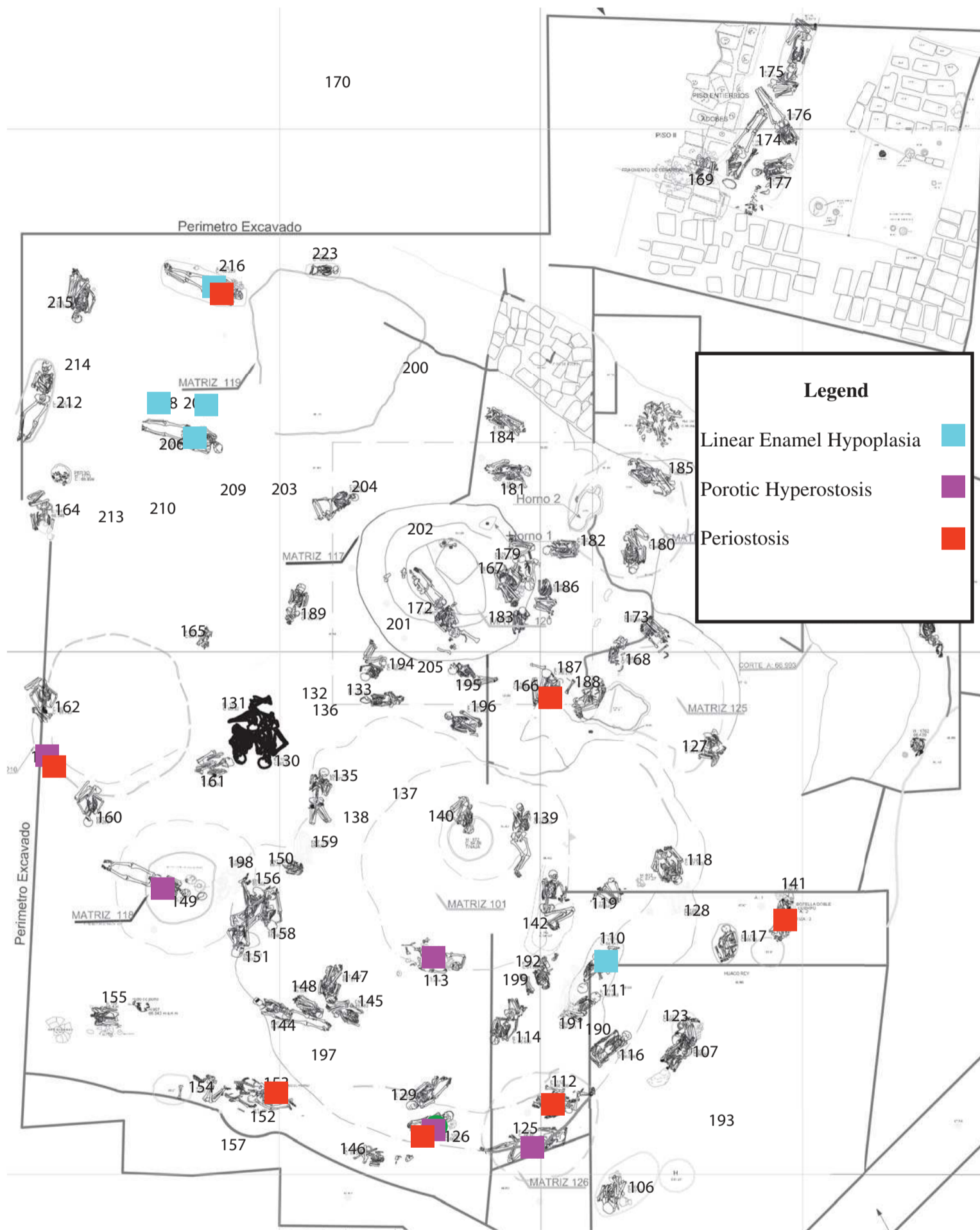


Figure A.36: Map of Burial Group 1b Indicators of Biological Stress (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

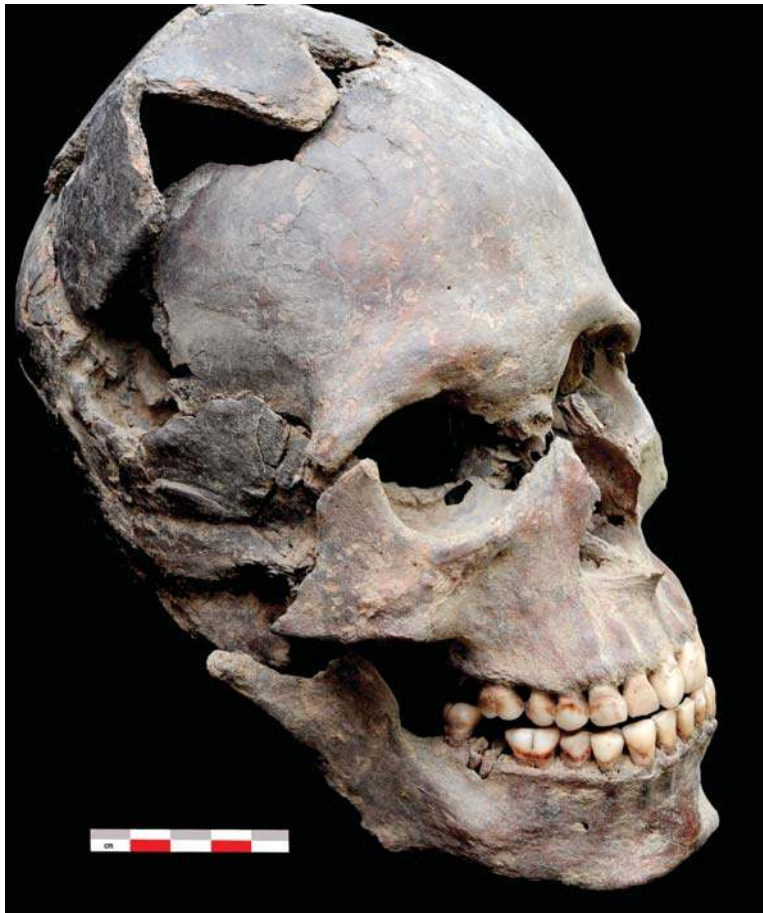


Figure A.37 (a, b): U-Shape Fracture on Burial 212 from a Possible Cranial Impalement. (Photos courtesy of Haagen Klaus)



Figure A.38: Middle Late Sicán Stirrup Spout Vessel (Photo courtesy José Pinilla)



Figure A.39: Orange Globular Vessel (Photo courtesy of José Pinilla)



Figure A.40: Moche Face Jar (Photo courtesy of José Pinilla)



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Figure A.41: Burial 125 (Photo courtesy of José Pinilla)



Figure A.42: Skull Mound in Burial Group 1b (Photo courtesy of Haagen Klaus)



Figure A.43: Pile of Long Bones in Burial Group 1b (Photo courtesy of Haagen Klaus)

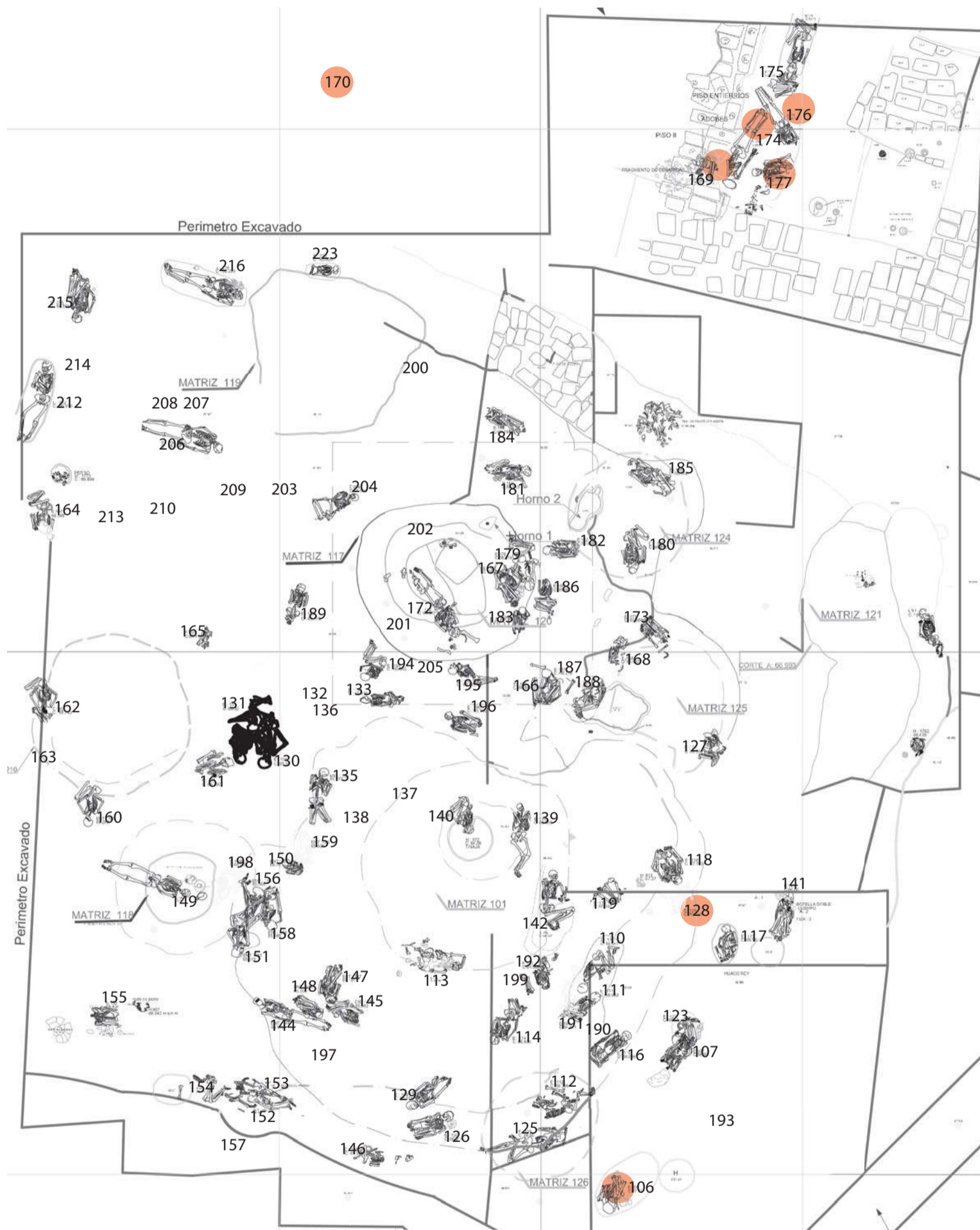


Figure A.44: Map of Burial Group 2 (Burial images courtesy of Sicán National Museum, with modifications by Jenna Hurtubise)

Vita

Jenna Renee Hurtubise was born in Calgary, Alberta, Canada to Mary and Mitch Hurtubise on June 8, 1988. Her interests include mortuary practices, bioarchaeology, social identity, and gender. Jenna received a Bachelor of Arts in Archaeology from University of Calgary. She has participated in multiple seasons of field excavations, including one season in Jordan, and five seasons in Peru. Additionally, Jenna has worked alongside the Lambayeque Biohistory Project in Peru since 2010. After her Masters, she will be attending University of Alabama for her Ph.D in Anthropology continuing her focus on mortuary practices and the different ways social identity was performed.