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Before the Fall:
Social Organization
during the Classic Period
at Nim li Punit, Toledo District, Belize

A Dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy

in

Anthropology

by

Mario Ricardo Borrero

Committee in charge:

Professor Geoffrey Braswell, Chair
Professor Paul Goldstein
Professor Tom Levy
Professor Elizabeth Newsome

2024

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University of California San Diego

2024

DEDICATION

To Ruby Aceves Borrero, this was not possible without your love and support.

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- 2023 "The Classic Period Maya Figurines of the Southern Belize Region: A Comparison of Nim li Punit, Pusilha and Lubaantun" In *Research Reports in Belizean Archaeology* 18:375-383, (Mario Borrero, Luke Stroth, and Geoffrey E. Braswell).
- 2023 "Classic Period Ceramics of Nim li Punit: Changes in communities of practice at a southern Belize political capital." In *Research Reports in Belizean Archaeology* 18:197-204, (Luke Stroth, Mario Borrero, and Geoffrey E. Braswell).
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- 2019 "Toledo Regional Interaction Project 2019 Annual Report." UCSD Mesoamerican Archaeology Laboratory, Occasional Paper No. 11, (Geoffrey Braswell , Mario R. Borrero, and Luke Stroth).
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ABSTRACT OF THE DISSERTATION

Before the Fall:
Social Organization
during the Classic Period
at Nim li Punit, Toledo District, Belize

by

Mario Ricardo Borrero

Doctor of Philosophy in Anthropology

University of California San Diego, 2024

Professor Geoffrey Braswell, Chair

The *longue durée* perspective afforded by archaeology allows us to explore the full trajectory of early state-level societies, from their initial formation and expansion through to their collapse, and, in some cases, reorganization and reconstitution. My work focuses on an understudied portion of this process—the moments leading up to collapse and abandonment—and explores the effects of state-level collapse at the site of Nim li Punit, an ancient Maya center in the Southern Belize Region (SBR). I attempt to answer the following research question: in what ways do the processes of state-level collapse, abandonment, and transformation affect the social organization and distribution of political and economic power across a major center in the SBR?

My research is targeted at generating data to understand the heterarchical and hierarchical organization of architectural groups at Nim li Punit, and how they expressed power and status directly preceding the moment of desertion. Using 3D modeling techniques, I document the life history of two platforms: Structure 6 from the South Group and Structure 50 from the West Group. My subsurface excavations and artifact analyses expand on the broader archaeological topics of shared regional identity, long-distance and short-range exchange networks, regional control over raw material sources, the distribution of local and foreign goods, the mobilization of labor, and the ideology and symbolism connected with Maya kingship.

The results of my work show that the final decades of site occupation in the Terminal Classic (AD 790-850) was a dynamic period filled with drastic changes across political, economic, and social life. I connect this data from a Mesoamerican frontier center to a broader anthropological discussion of social life during and beyond collapse.

Chapter 1 NIM LI PUNIT THE ARCHAEOLOGY OF SOCIAL ORGANIZATION AND COLLAPSE

1.1 INTRODUCTION: MA SA ACH'OOL

This project stems from dedicated archaeological research and academic study conducted since 2015 at the Maya site of Nim li Punit, Belize. Exploring these intricate and beautiful ruins sparked in me a deep drive to understand the site's processes of development, expansion, and ultimate abandonment. As such, my research focuses on sociopolitical organization as related to Late Classic Maya settlement patterns at this southern Belize site. Specifically, I seek to understand the heterarchical and hierarchical organization of domestic groups, including how they expressed power and status within a single ancient city leading up to the moment of desertion. To achieve this, I leverage the concept of *longue durée*, developed by Fernand Braudel (1958).

This concept allows us to consider the grand sweeps of geographic and climatological history that far exceed the lifespans of individuals (Martin 2020:51). This long temporal perspective afforded by archaeology allows us to explore the full trajectory of early state-level societies, from their initial formation and expansion through their collapse, and, in some cases, eventual reorganization and reconstitution. The ancient Maya of Mesoamerica underwent several collapses, transitions, and reorganizations over the course of their cultural history. My project focuses on a still largely obscure portion of this process: the moments leading up to collapse and abandonment. It does so by exploring the effects of state-level government breakdown at the site of Nim li Punit, an ancient Maya site in the Southern Belize Region (SBR; Figure 1.1). The region was permanently inhabited by the lowland Maya from the Classic period to the Postclassic period, which lasted here from approximately AD 150 to AD 1540. The Classic

period is itself divided into the Proto (now called Terminal Preclassic), Early, Late, and Terminal subperiods. My research focuses on the transition from the Late Classic to the Terminal Classic subperiods (AD 600 to 900). This was a period of concurrent habitation of the SBR's major sites, many of which experienced massive expansion and new construction. After this initial growth, the region's sites entered a decline and saw their populations shrink. The construction of monuments and buildings halted, culminating in the ultimate abandonment of all the major sites in the region. This developmental sequence makes the SBR an excellent laboratory for examining the economic and social actions that either expedite or delay societal collapse.



Figure 1.1 Location of Nim li Punit.

What was the nature of this societal collapse; was it a rapid or slow process? How is it represented within the archaeological record? How did individuals and their practices respond to and influence these dramatic cultural changes? How did the relationships between production, consumption, and social organization at Nim li Punit change in response to these cultural fluctuations? This line of questioning is a response to a “historical-processual” approach, which seeks to understand the specific historical forces and human actions that drive change (Pauketat 2001, 2007). I investigate the archaeological record preserved at Nim li Punit to understand not how but why the cultural processes there led to the death of a well-established community that lasted over 500 years. In sum, my research question is in what ways do the processes of state-level collapse, abandonment, and transformation affect the social organization and distribution of political and economic power across a major center in the SBR?

This project employs methods from political anthropology, household archaeology, and architectural studies to investigate the domestic economy and political organization of two architectural groups at the core of Nim li Punit. By analyzing data from the site, I seek to answer questions concerning individual economic behaviors and broader sociopolitical processes that may have led to societal collapse and abandonment during the Terminal Classic subperiod, and no later than AD 850.

1.2 GOALS FOR THE PROJECT

I attempt to answer my research question using a detailed analysis of artifacts recovered from excavations of building mounds, as well as three-dimensional (3D) modeling of architectural features, all of which enable me to map out temporal shifts in the economic, political, or religious activities taking place across the site. These aggregate data provide a baseline for the typical economic and social activities carried out across architectural groups at

Nim li Punit. This baseline allows for the identification of divergences from these normative patterns, indicating individuals' attempts to respond to broader societal change. By considering internal dynamics, power structures, resource control, and Maya cultural beliefs, I show how the inhabitants of Nim li Punit responded to social and economic changes during the period of collapse. These past decisions were detected in a variety of physical proxies in the buildings at Nim li Punit.

1.3 HYPOTHESES

My research into the architectural core of Nim li Punit reveals several factors that likely played a role in the collapse and desertion of the site. I have identified three potential scenarios preceding the period of societal collapse and abandonment at Nim li Punit:

Hypothesis 1) Elite Competition and Resource Management

Competition for power and prestige between elites at Nim li Punit may have led to unsustainable resource extraction practices and wasteful public works projects intended to solidify elite legitimacy.

Hypothesis 2) Social Inequality and Political Instability

Growing social inequalities between the architectural groups may have led to social unrest and a decline in social cohesion, trending towards the rise of antisystems (Gumilev 1970), ultimately weakening the Nim li Punit political system.

Hypothesis 3) Breakdown of Interregional Trade Networks and Political Alliances

The breakdown of Maya social and economic networks, established through trade and political alliances with core centers, may have contributed to the decline of individual Maya frontier cities, such as Nim li Punit.

These hypotheses regarding elite competition, social inequality, and trade network disruptions are not necessarily the only explanations for Nim Li Punit's collapse, but rather three key factors I will explore using the available archaeological data from my excavations. They also are not mutually exclusive and very likely operated concurrently to contribute to the site's collapse.

1.4 HYPOTHESES TESTING

I draw upon data derived from excavations at two buildings platforms, from the architectural South and West Groups at the site of Nim li Punit. Analysis of the architectural data considers the individual building's form and construction sequence. Analysis is also conducted across several categories of artifact data: lithics, ceramics, figurines, grave goods, human remains, and faunal remains. These data inform our understanding of the function and use of the individual buildings. Plan drawings, 3D models, and geographic information system (GIS) mapping allow for a comparative analysis within and across the architectural groups.

To test these hypotheses the data are analyzed with the intention of achieving three main objectives: 1) record variability in commodity consumption (including food and trade goods) in the periods leading up to abandonment; 2) identify markers of social stratification (including differences in burials, offerings, and luxury goods) between and within the architectural groups;

and 3) identify and record changes in site planning and in the construction of the individual buildings (including those related to labor and resource access).

1.5 IMPLICATIONS OF THIS PROJECT

This research utilizes archaeological evidence gathered from Nim li Punit to illuminate the social structure and processes that shaped the pre-collapse period SBR. These data offer valuable insights for understanding how societies respond to collapse, particularly relevant in today's world, where complex societies face constant threats from environmental pressures, political instability, and even aggression.

The analysis of artifact distribution, structural form, and social organization at Nim li Punit addresses several key research objectives. Subsurface excavations of two buildings provided data relevant to broader archaeological topics, including shared regional identity, long-distance and regional exchange networks, control over raw materials, and the distribution of local and foreign goods.

While understanding the specific causes of the SBR collapse remains outside the scope of this project, testing the aforementioned hypotheses reveals how the region's inhabitants responded to broader societal upheaval. By comparing data across groups, the research investigates whether these responses were uniform or if factors such as social rank and access to resources played a role in the decision-making processes.

Ultimately, while this project's findings are from Mesoamerica, they will be integrated into a broader set of global archaeological examples, creating a more comprehensive picture of how societies have responded to extreme social and ecological stressors. In our current nation-state-centric world, archaeological evidence from past collapses can contribute to a wider

anthropological discussion of social life during and after such events, enriching our understanding of human resilience and societal adaptation (i.e. Eisenstadt et al. 1988; Schwartz & Nicholas, 2010).

1.6 DISSERTATION ORGANIZATION

I begin this dissertation with the research question, background information, and summary of previous research and theories. I follow this with a discussion of the research design and methods that were employed in data collection for this project. Architectural and artifact data are presented and analyzed. I conclude with a discussion of the results of the project and its place in our broader understanding of Maya archaeology.

In Chapter 2, I cover a brief history of Maya archaeology, focused on the general area of southern Belize. This includes the natural history of the area—including its climate, flora, and fauna—coupled with a general history of the archaeological research on the area, focusing on the major archaeological projects that have been conducted in southern Belize since the beginning of the last century. I conclude this chapter by placing my current project into this historical and academic context.

In Chapter 3, I delve into the theoretical background of this thesis. This discussion is divided into four sections, the first three focused on my proposed hypotheses: 1) Elite Competition, 2) Social Inequality and Political Instability, 3) Breakdown of Interregional Trade Networks and Political Alliances, and 4) Societal Collapse. Each of these sections presents a discussion of theory relevant to testing the data from Nim li Punit.

In Chapter 4, I look at the methods and research design deployed in the data collection process of the project. I provide a discussion of the archaeological correlates I target in my

excavations for testing my proposed hypotheses. Most of this chapter is dedicated to 3D modeling of the architecture in the field, an undertaking that I consider to be one of the major contributions of this project.

Chapters 5 and 6, present the architectural excavations and data for the two buildings that were investigated in this project: Structures 6 and 50. These chapters detail all the architectural features that were encountered. A discussion of the life histories of these two buildings is presented, from their initial construction, through their modification and final forms at the moment of abandonment.

In Chapter 7, I turn to an analysis of the individual artifacts that were recovered during the excavation. I consider the recovered toolstone, ecofacts, ceramics, figurines, faunal remains, and human remains, which include the grave goods from Tomb VI encountered in Structure 6. These data are directly related to the chronology, status, and economic exchange networks of each locus. I close with conclusions that apply this information to my project questions.

In Chapter 8, I address the questions set out in this introduction. I investigate my three proposed hypotheses, testing each against the data derived from analyses in Chapters 5 through 7. I suggest directions for future research and place the current project within a broader anthropological context.

Chapter 2 NATURAL SETTING AND THE HISTORY OF MAYA ARCHAEOLOGICAL INVESTIGATIONS OF SOUTHERN BELIZE

2.1 INTRODUCTION: BELIZE

Belize is a small country on the Caribbean coast of Central America, which measures 290 km from north to south, and 100 km from east to west (Figure 2.1). The country's boundaries are within what archaeologists call Mesoamerica, which in turn encompasses the geographic reach of ancient Maya civilization. The modern nation of Belize was, until 1973, a British colony known as British Honduras. On September 21, 1981, the country of Belize was granted its independence. To the east the nation is bordered by the Caribbean Sea, and the mainland shores are protected by lines of coral, mangrove islands, cayes, and a barrier reef. Geologically, the Belize River is a dividing line for the country; to the north of the river, the land is composed of low limestone ridges that trend south-southwest to north-northeast, while the southern half of Belize is dominated by Paleozoic horst, stemming from the Maya Mountains. The western steppe of the Maya Mountains contains fertile agricultural lands (Figure 2.2). The modern borders of Belize are its eastern coastline, the Rio Sarstoon to the south, the Rio Hondo that empties into the Chetumal Bay to the north, and contested survey lines through the forest to the west.

Guatemala has not fully recognized Belize as a sovereign state and territorial conflicts and debates over the western and southern border of the latter have intensified over the last four decades. As recently as 2018, Guatemala filed a related case against Belize at the International Court of Justice. Although the Court ruled in favor of Belize in 2022, Guatemala refused to accept this ruling. The ongoing tension between the two countries is a serious concern for the region as a whole.

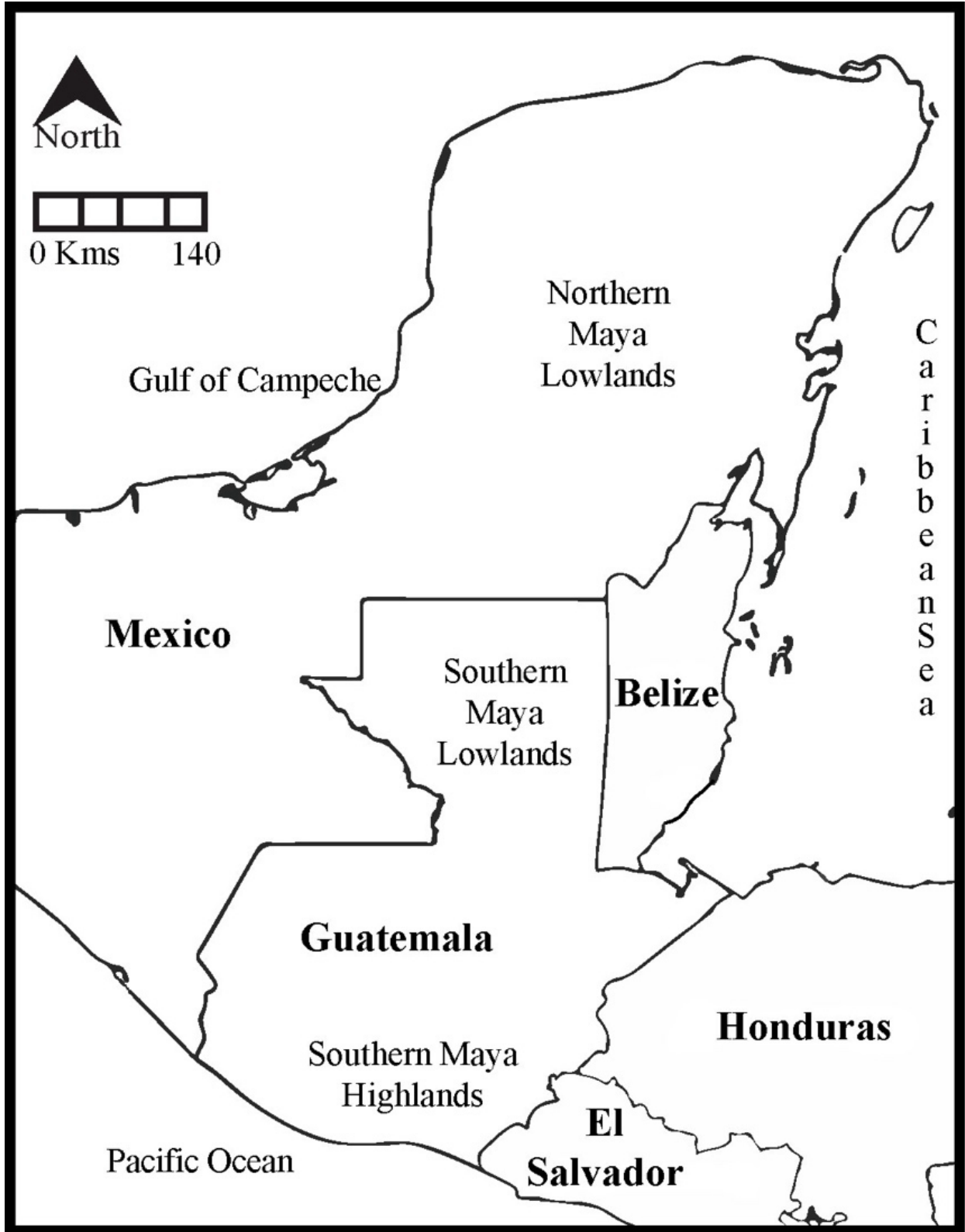


Figure 2.1 Location of the country of Belize. A part of Central America, Belize is bordered by the Caribbean Sea to the east, Mexico to the northwest, and Guatemala to the west and south.

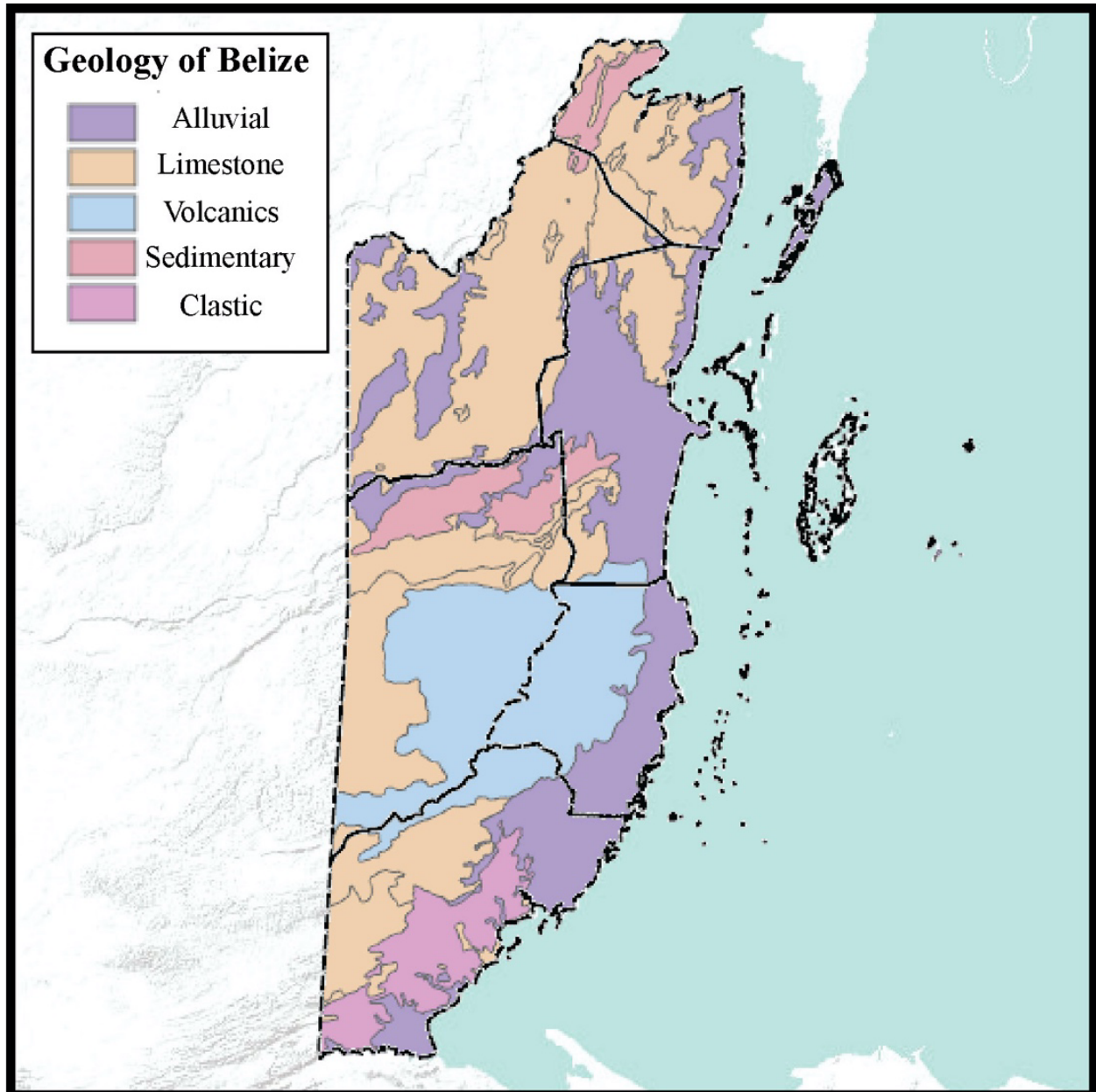


Figure 2.2 Geological map of Belize.

The archaeological history of the country has developed distinctly from the Spanish-speaking countries of Guatemala, Honduras, El Salvador, and Mexico that make up the remainder of the Maya area (i.e. Hammond 1982:349). Site-focused Maya archaeology in Belize has been ongoing since the early work of Thomas Gann at Santa Rita in 1896 (Gann 1894-1895, 1896-1897, 1900). Following World War I archaeology in Belize entered an institutional period,

during which archaeological work in the country came to be dominated by British and North American institutions. In the last 40 years the archaeology of Belize has continued to evolve, with modern projects combining new technologies and novel research questions. In this chapter, I describe the geological and natural resources that were available to the ancient Maya in southern Belize, many of which still make the area attractive today. I then focus my attention on the archaeological history of the Southern Belize Region (SBR). Finally, I conclude by situating my research within these contexts.

2.2 THE SOUTHERN BELIZE REGION

The SBR is part of the Maya lowlands and is home to several ancient polities. These include Pusilha, Uxbenka, Lubaantun, and Nim li Punit. These settlements appear to be capitals of small polities within the SBR, an area that has been shown to contain more than 200 Classic period sites, many documented as locations of resource exploitation and exchange (Braswell 2022; Dunham et al. 1989; Graham 1983, 1987; Hammond 1975; Laporte 1992; Laporte and Mejía 2000; Leventhal 1992; McKillop and Heally 1989). The SBR is located between several much larger regional centers, including Tikal to the west, in the heart of the Petén; Caracol to the north, in the Maya Mountains; and Copan to the southeast, in Honduras (Figure 2.3). When compared to these colossal centers, the sites of SBR are small to medium in size. Their comparatively small size did not prevent them from commanding the resource-rich and fertile areas of the southeast Petén of Guatemala, the Maya mountains, and the rolling hills reaching out to the southern coast of Belize.

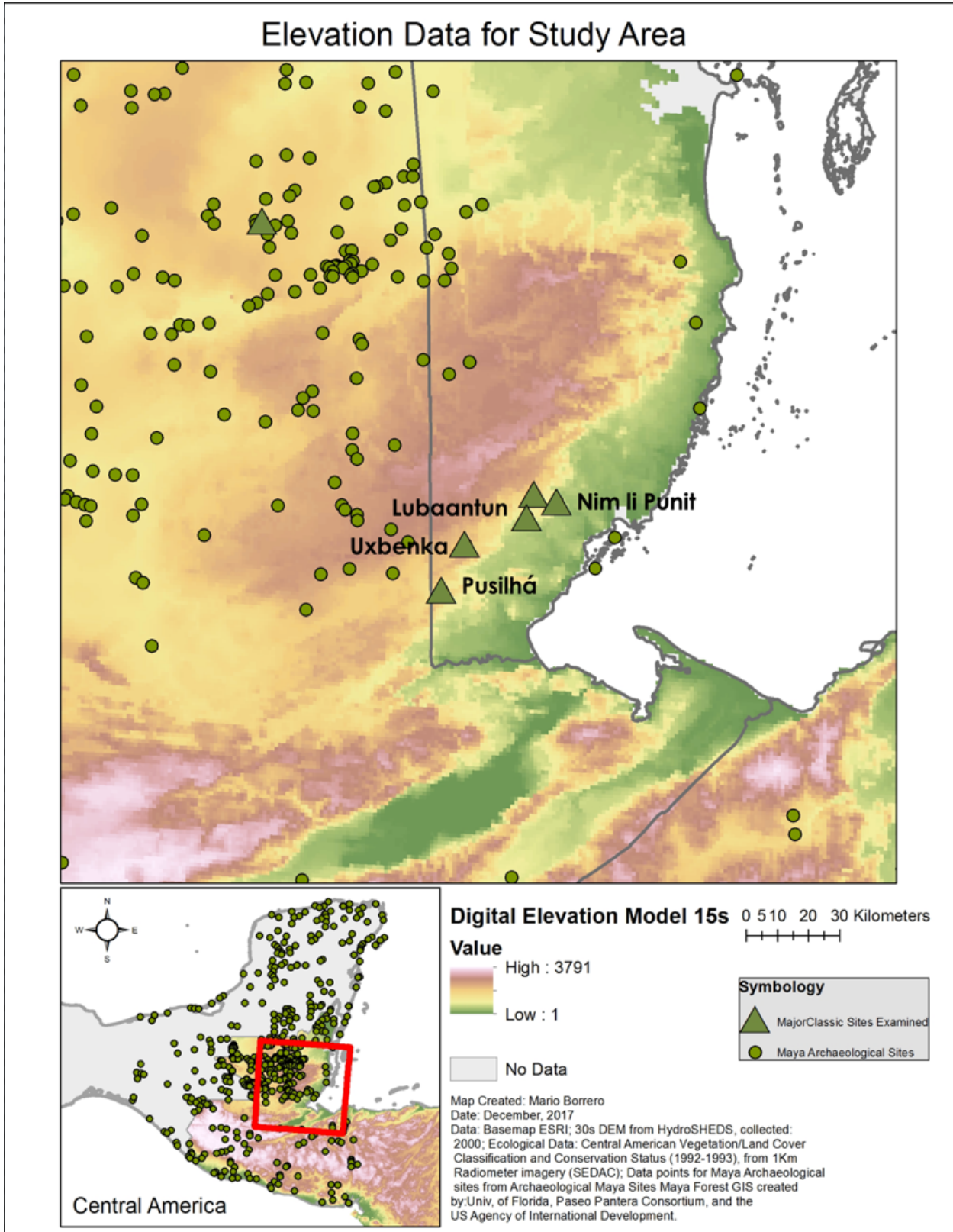


Figure 2.3 Major archaeological sites of the Southern Belize Region.

2.3 NATURAL SETTING OF SOUTHERN BELIZE IN CONTEXT

The first European expedition to southern Belize was led by Spanish Conquistador Diego Garcia de Palacio in AD 1576. Palacio explored the Yucatán Peninsula and mapped its resources. He traveled via boat along the Belize River, which he called the *Rio Dulce*, and visited several Maya villages along the route. In his letters to King Philip II of Spain, Garcia de Palacio described the environment of Belize as "...very fertile and produc[ing] much corn and other fruits. The trees are very tall and thick, and they are covered with all sorts of vines and flowers. The air is very fresh and clean, and the birds sing all the time" (Palacio 1576; translated to English by J. Eric S. Thompson; 1998:253). He also stated that the "climate is very warm and humid. It rains a lot, but the rain is usually short and heavy. The sun shines most of the time, and the nights are cool" (Palacio 1576; translated to English by J. Eric S. Thompson; 1998:251). Early Spanish explorers to the region made special note of the great difficulty required to cross from the northwest over the Maya Mountains into southern Belize (Franciso Lopéz de Gómara 1512-1572, *La historia general de las Indias*, Chapter 30).

The geology of southern Belize is complex and varied. The region is dominated by limestone, but there are also areas of sandstone, shale, and volcanic rock (Druecker 1978:8-9). The oldest geological rocks from southern Belize are Precambrian and come from the Maya Mountains. This mountain chain is a horst block, which means that the mountains have been subject to uplifting relative to the surrounding areas, exposing earlier rock. The foothills south of the Maya Mountains consist of limestone formations and thin soils in the uplands as well as alluvial riverbank soils (Dunham et al. 1989:271). The most fertile agricultural soils are called the Toledo Uplands, which are derived from the Eocene sandstone of the Toledo Beds. The limestone in southern Belize was deposited during the Cretaceous and Tertiary periods; it is often porous and cavernous, containing many underground rivers and caves. There are also some non-

calcareous soils derived from the erosion of siltstones and mudstones from the Toledo Beds (Dunham et al. 1989:270). This area is known for dark red to brown soils.

The foothills are now home to modern indigenous farming communities, as well as the most well-known Maya centers of southern Belize: Nim li Punit, Lubanntun, Uxbenka, Xnaheb, and Pusilha. Rivers and river valley zones, with productive upland or foothill soils, lead down to the coastal plain, which historically allowed for the development of complex sites with access to a variety of resources sourced from different ecological and geographical zones (Leventhal 1992:145). Volcanic rocks are found in the Bladen Volcanic Series in the southwestern part of the region; they were formed during the Cretaceous period and consist of lava flows, pyroclastic rocks, and intrusive rocks. The breakdown and transportation of these volcanic rocks is responsible for the region's fertile soils and excellent agricultural potential.

The SBR contains many desirable natural resources, including flora, fauna, and stone. Mineralogical resources include Toledo bed sandstone, limestone, and bituminous dolomite. Bituminous dolomite can be used either in construction, as a source of lime for plaster, or for fertilizer (Dunham et al. 1989:271). Desired flora includes cacao, mamey, cohune palm, cashew, papaya, cabbage palm, rubber tree, and the sapodilla tree (used as food, construction material, and medicine). Fauna includes birds such as tinamou, guan, and curassow, all of which were highly prized by the ancient Maya for plumage and meat. Mammals such as peccary, tapir, deer, paca, jaguar, river otter, howler monkey, and spider monkey were used as sources of meat and pelts. Thus, sites in the SBR could have served as extraction points for raw materials or production places for finished goods sent to other regions of the Maya lowlands and Mesoamerica (Mckillop 2005b:139; Wanyerka 2009:149). Figure 2.4 highlights the great variety of ecological zones that crisscross this region.

Ecological Regions for Study Area Data

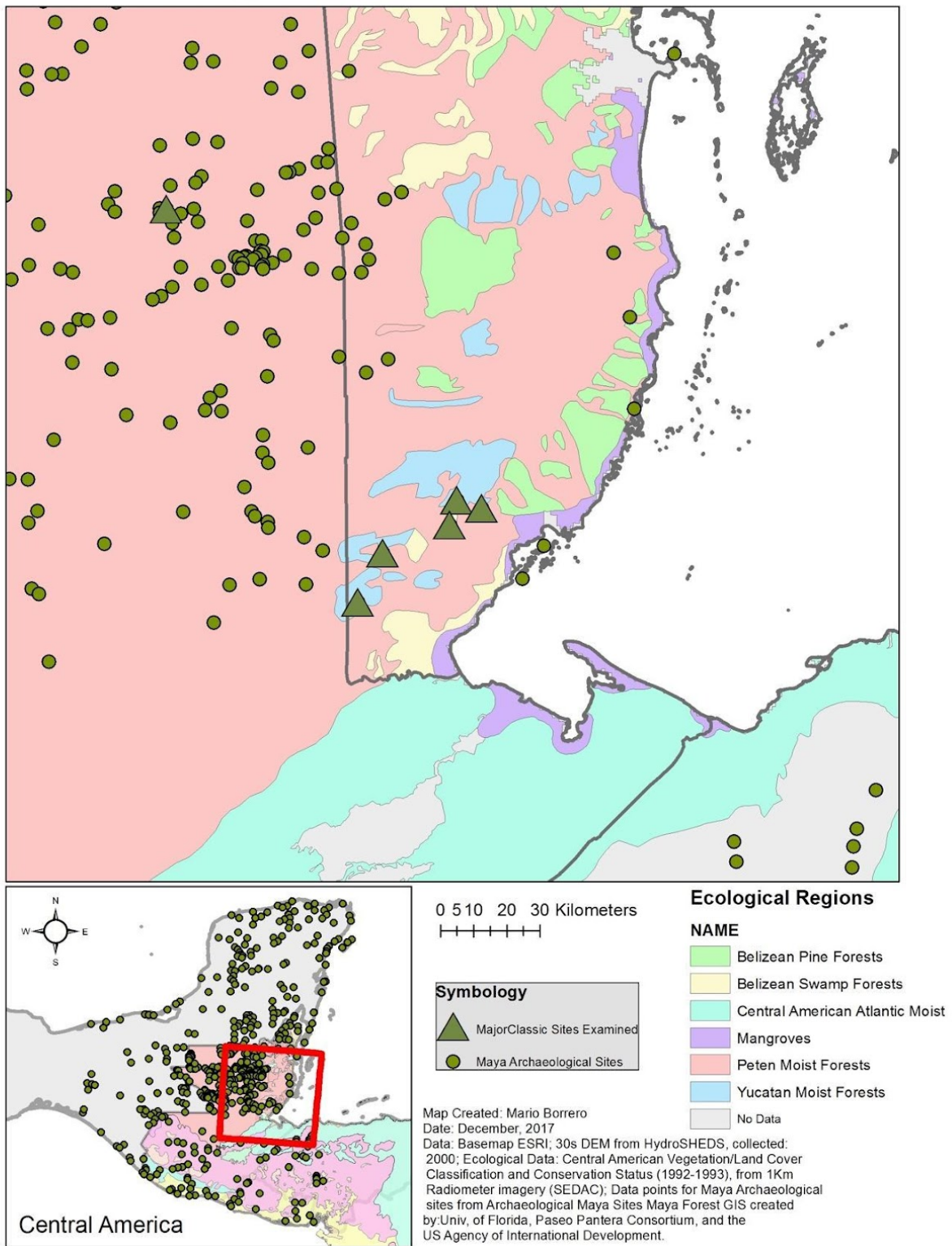


Figure 2.4 The Major archaeological sites of the Southern Belize Region in their ecological setting.

The current population of the SBR is not thought to be directly descended from the original Classic period Maya population. The modern inhabitants are primarily Q'eqchi' and Mopan Mayan speakers, who migrated to Toledo from Alta Verapaz and the Petén in response to forced labor and enslavement during the late nineteenth and early twentieth centuries (Knowlton 2016:10). A more recent wave of Q'eqchi Mayan speakers arrived after fleeing the horrors of the Guatemalan Civil War, which lasted from 1960 to 1996 and resulted in the death or “disappearance” of over 200,000 people. The height of violence in the 1980s saw state-sponsored massacres and scorched-earth policies targeting civilians, particularly indigenous communities (Knowlton 2016:55-59). The SBR boasts a diverse population. In addition to the Q'eqchi' and Mopan communities, a sizeable Garifuna (Black Carib) population resides along the Belizean coast. Meanwhile, East Indians can be found living near the Southern Highway, while the interior areas are home to a mix of Ladino natives, British expatriates, and Belizean Creoles (Wanyerka 2009:165).

2.4 POLITICAL ORGANIZATION

There are four primary ancient sites within the SBR, clustered along a northwest-to-southwest axis of the Maya Mountains' southern foothills. From east to west these primary centers are Nim li Punit, Lubaantun, Uxbenka, and Pusilha (Figure 2.5). All four of these centers have been archaeologically investigated to varying degrees. A potential fifth major site, Xnaheb, has not received extensive archaeological investigation. Given the size of these sites and their location within a circumscribed geographic area, the ancient Maya population of southern Belize is considered small compared to population centers in western and northern Belize. The SBR's earliest populations began moving in as early as 10,500 cal BC (Posth et al. 2018:1186).

Permanent settlement in villages began in the Classic period (AD 150-400) in the southwestern

margin of the Maya Mountains close to Nim li Punit and Uxbenka, and at various sites near Dolores, Petén, (Laporte 1994, 2001; Laporte and Ramos 1998). People have long been constantly moving in and out of the SBR, but it was one of the last parts of the Maya world to see permanent settlement (Braswell 2020:168).

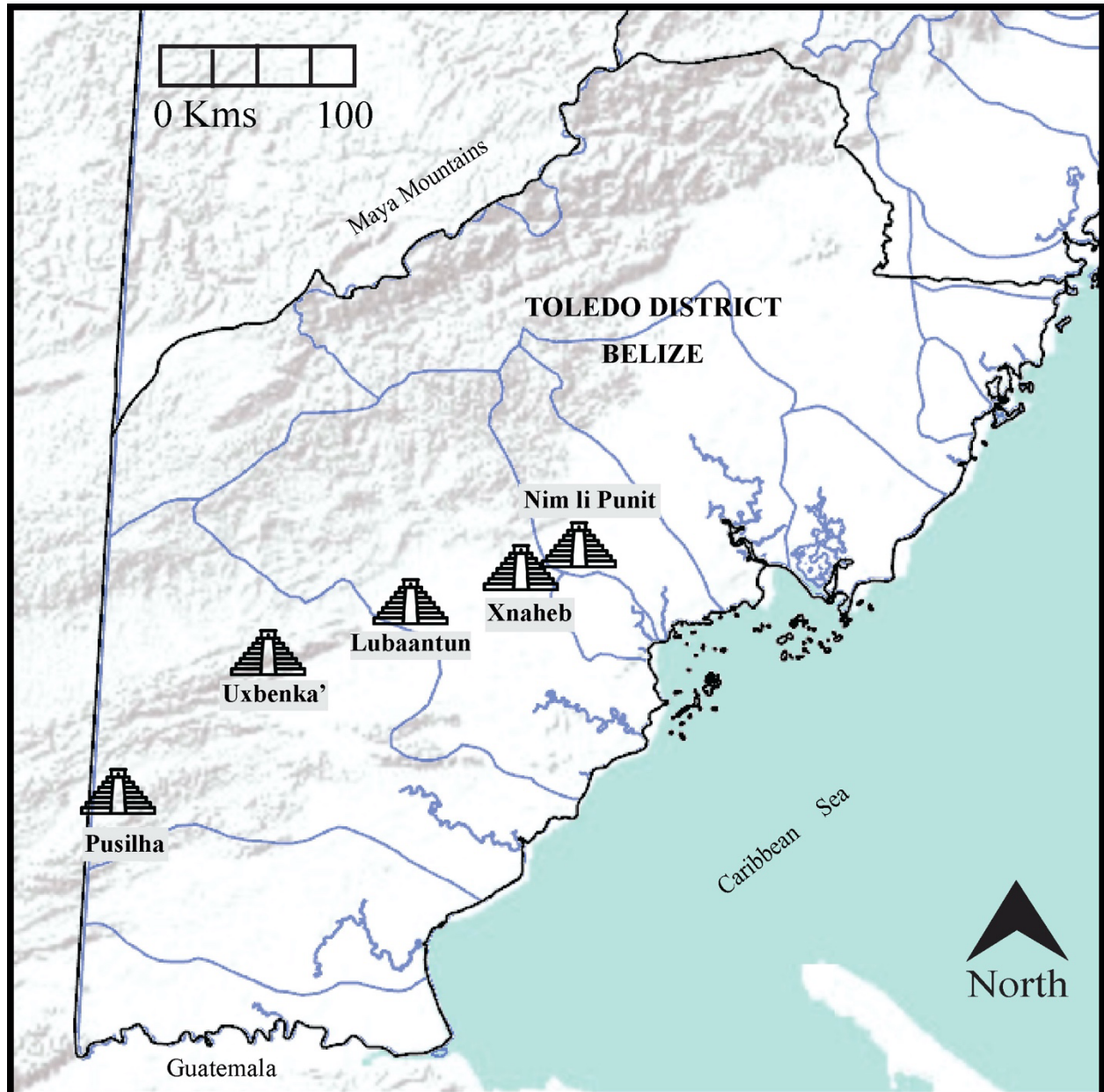


Figure 2.5 Archaeological sites in the Southern Belize Region discussed in text.

The SBR is rich with historical accounts recorded on stone monuments. The earliest dated reference in the region is found in a retrospective passage commemorating the Period Ending 8.2.0.0.0 (11 February, 81), recorded at Pusilha on Stela P (see Braswell et al. 2004b:340). The earliest hieroglyphic dedicatory date for a monument from southern Belize is 9.1.0.0.0 (AD 27 August 455); this interpreted date is based on the partial preservation of an Initial Series and of Lunar Calendar glyphs recorded at Uxbenka on Stela 23 (Wanyerka 2009:168; see Wanyerka 2009:figure 6.21). The region's monuments suggest that, during the Late Classic period (AD 600-790), ties were developed to sites to the southeast, including potential connections with Copan and Quirigua, while older ties to sites to the north in Belize Valley were maintained. The Late Classic was a time of great expansion, reflected in increased population levels, monument construction, and site development. The last dated monument for the SBR is thought to be Stela 1 from the site of Tzimín Ché, located just north of the head of Golden Stream in the Maya Mountains (Wanyerka 2009:26-27). The site features a Calendar Round of a single giant Ajaw glyph, which Wanyerka (2009:195) has interpreted to correspond to the Period Ending date of 10.4.0.0.0 (15 January, 909). The Terminal Classic period (AD 790-950) saw the region fall into decline, and by the Postclassic period (AD 950-1200) all the sites from the interior appear to have been abandoned (Prufer 2002:171).

These sites all share similar geographical and environmental conditions. Researchers in the area have also noted shared cultural patterns in architecture and art. Some of the major similarities include: (1) an absence of vaulted architecture and stone superstructures; (2) the integration of architecture into the natural topography, in the form of modified hills faced with cut stone facades, creating the impression of monumental architecture; (3) ballcourts enclosed by masonry walls; and (4) the utilization of tombs for sequential burials (Braswell 2001, Leventhal

1990:138-139). Hieroglyphic monuments are common in the region and are present at all five major sites. Pusilha and Nim li Punit have inscriptions that appear to have been distinct emblem glyphs. Potential emblem glyphs may also exist at Uxbenka and Lubaantun, but this is less clear; their state of preservation is wildly variable making some difficult to interpret (Wanyerka 2009:465,516). Emblem glyphs were used to identify and distinguish individual polities or city-states. First identified by Heinrich Berlin (1958) these distinctive markers were a major step in uncovering Maya history (Martin 2020: 23). They are typically composed of a main sign, which represents the polity's name and is identified as the title of the rulers of the polity.

The 1960s saw a surge in new archaeological theories, which archaeologists applied to the Maya region in the 1970s and 1980s. Pioneering work by Kent Flannery (1972) used central place theory and settlement distribution to infer political structures, while Norman Hammond (1972, 1974) employed Thiessen polygons to map potential territories around Maya sites. These early models lacked concrete evidence and struggled to explain the role of numerous independent Maya polities. Joyce Marcus (1973) addressed this by incorporating inscriptions and quantitative data. She proposed a three-tier hierarchy within Maya states, with emblem glyphs as a potential indicator of political affiliation (Marcus 1973). Her work culminated in a dynamic model, suggesting the rise and fall of political integration over time (Marcus 1993).

Another approach to archeological research in the Maya region involved large-scale surveys by Richard E.W. Adams (Adams et al. 1981), which analyzed construction volume and settlement size to suggest the presence of regional states (Adams 1986). Then, new evidence in the 1980s challenged the regional state model. Decipherment of inscriptions revealed warfare as a common theme, suggesting frequent conflicts between Maya polities (e.g., Riese 1980).

Emblem glyphs, previously interpreted as signs of hierarchy, were reinterpreted as the titles of autonomous rulers (Mathews and Justeson 1984).

Peter Mathews (1985) proposed a contrasting model with numerous small, autonomous polities ("petty statelets") based on emblem glyph distribution (Mathews 1991). The data Mathews was working with primarily originated from sites claiming emblem glyphs in the Terminal Classic period, after AD 790. This era was marked by the balkanization of the Maya world, preceding the Classic Period Collapse. As a result his model aligned with the "peer polity interaction" concept, wherein independent polities compete and cooperate (Renfrew 1982). In response, alternative models emerged, such as the "regal-ritual city" model for sites like Copan (Sanders & Webster 1988). Decipherment of Maya writing in the late 1980s, including the identification of toponyms (place names) by Stuart and Houston (1994), further supported the idea of independent polities in the Classic Period.

Below, in Section 2.8: Special Topic of this chapter, I will discuss the textual evidence associated with the monuments of Nim li Punit. With that data in mind, I will return to the topic of political organization and outline what texts tell us about Nim li Punit's political landscape in the SBR in relation to other connected regions of Mesoamerica.

2.5 HISTORY OF ARCHAEOLOGICAL INVESTIGATIONS IN SOUTHERN BELIZE

Archaeological investigations did not begin in southern Belize until the twentieth century. It took longer for the sites in this area to receive attention due to their remoteness, and instead more archaeological attention was given to sites in the Petén, Yucatán, and western Honduras (Prufer 2002:170). Lubaantun, the first ancient Maya center to be explored in this region, was first identified in 1875 and explored in 1903. Thomas Gann, a medical doctor and amateur

archaeologist, was the first to visit the site, also known as the Rio Grande Ruins. Gann spent nearly 40 years investigating what was then British Honduras, and he discovered and explored several sites in southern Belize (with expeditions from 1893-1937). He produced reports and a sketch map of the major architectural groups (Gann 1928). Gann would revisit Lubaantun multiple times in 1908 to 1909, in 1917, and in 1924.

Gann's final visit to Lubaantun resulted in a controversial incident that has given the site its notorious reputation. In 1924, Thomas Gann was accompanied by Frederick Albert Mitchell-Hedges, an English adventurer and author, and Lady Richmond Brown, Mitchell-Hedges' financial patron and a skilled writer and photographer in her own right, who documented her travels in several publications. Richmond Brown's young daughter Anna claimed to have also been part of this expedition, but there is no independent evidence in the form of photographs, ship manifests, or cartography supporting this claim. It was Anna who supposedly controversially "discovered" the famous crystal skull amongst the ruins of Lubaantun in the early morning of February 17th, which happened to be her birthday. She claimed that the crystal skull was ancient and had magical powers. Modern investigations into the crystal skull have revealed it to be pre-purchased and planted, likely a fake, and carved in the 1800s in Germany. There is strong evidence today that neither the crystal skull nor Anna Mitchell-Hedges were ever in the country of Belize in 1924. Although there was no Maya crystal skull at Lubaantun, the infamous story and the lore surrounding the piece are still very much a part of the archaeological history of the area.

In between some of Gann's visits, work was conducted by Raymond E. Merwin of the Peabody Museum of American Archaeology and Ethnology at Harvard. In 1915, Merwin conducted a series of excavations and surveys at Lubaantun. He studied the architecture of the

site and was the first to note that the buildings lacked masonry superstructures, suggesting that wooden superstructures may have existed in their stead. He also discovered three sculptural ballcourt markers with hieroglyphs, which were removed and transported to the Peabody Museum in Cambridge (Merwin 1915; Hammond 1975:31-32). This was the first Classic Maya ballcourt to ever be identified; prior to this all ballcourts were attributed to the Postclassic period.

The British Museum Expedition of 1925 was the first formal archaeological investigation of the Toledo District and was conducted over four field seasons (Gruning 1930, 1931). The expedition conducted further surveys at Lubaantun, alongside excavations focused on the central architectural groups. In 1927, the group moved to the newly discovered site of Pusilha, which had numerous inscribed stelae. Pusilha was investigated by Thomas Joyce in the 1920s; he mapped parts of the site core and documented several of the stelae. Sylvanus Morley of the Carnegie Institute of Washington further documented text at the ruins of Pusilha (Morley 1938). J. Eric Thompson excavated at Lubaantun in 1927 and visited the ruins of Pusilha later that same year (Thompson 1928). That project mapped most of the main architectural groups of the site and documented more uncovered stelae. Many of the stelae were taken from the site and sent to London, where they are currently held (Joyce et al. 1928; Thompson 1928).

Approximately 40 years later, Norman Hammond began new archeological projects in southern Belize. In the 1970s, he began work on the cultural group of Lubaantun. He also surveyed parts of Pusilha and conducted some minor excavations. Hammond explored several smaller ceremonial centers in the region, which led him to produce a monograph (Hammond 1975), covering the material culture and environmental context of Lubaantun along with a general overview of the surrounding major and minor settlements. His research lasted five months, mapping a 10 km² area in the tropical rainforest that included hundreds of structures and

platforms and over 20 plazas (Hammond 1975:35). Hammond argues for the concept of a southern Belize “realm” that was centered at Lubaantun, and which allowed the Maya to take advantage of resources drawn from various environmental zones (Hammond 1975:98-104). This was the first work to conceptualize the major Maya sites of southern Belize as part of a coherent political and economic regional system.

Richard Leventhal continued Hammond’s concept of a southern Belize regional tradition with the Southern Belize Archaeological Project (SBAP; Leventhal 1990, 1992), conducted in Toledo from 1979 through 1990. The SBAP conducted investigations at all the major sites in southern Belize—including Pusilha, Uxbenka, Lubaantun, Xnaheb, and Nim li Punit—as well as many secondary centers. Richard Leventhal focused on the settlement survey of site cores and outlying residential settlement zones. The results of this research led Leventhal to agree with Hammond’s theory that the southern Belize sites constituted a distinct regional tradition with a significant degree of internal homogeneity (Leventhal 1990:138-141).

The site of Nim li Punit was discovered in 1976 through an oil-exploration expedition, when a bulldozer cut into a stone substructure north of the main plaza. The discovery was reported to Joseph Palacio, then the Archaeological Commissioner of Belize, who invited Norman Hammond to conduct a cursory reconnaissance of the site. Hammond (1976) and his team—consisting of Sheena Howarth (graphic artist), Fritz Johnson (surveyor), Richard Wilk (archaeologist), along with Jaime Awe, Barbara MacLeod, Don Owen Lewis, Charles Wright, and nearly a dozen local Maya—explored and cleared the site between April 22 and April 24, 1976. The team briefly recorded the site’s inscribed monuments over the course of these two days (Howarth, and Wilk 1992:2). This group produced the first partial map of the site, which included the South Group, the Stela Plaza, and the nearby ballcourt. Hammond’s team conducted

some test pitting across the Stela Plaza, collecting ceramic samples. Grube, MacLeod, and Wanyerka (1999) would conduct further epigraphic and iconographic analyses of the hieroglyphic texts from the site.

Richard Leventhal also visited Nim li Punit during the field seasons of 1983 through 1987, surveying and testing portions of the site as part of his larger SBAP project (see Dunham 1990; Jamison 1993, 2001; Leventhal 1990:129). This led to further mapping of the major architecture of the site and documentation of some of the smaller outlying groups.

During this time, the site of Xnaheb was first documented by Jaime Awe (in 1976) and mapped by SBAP (in 1984), a process that covered the major architectural groups of the central core (Leventhal 1990:134). The site was investigated by Peter Dunham (1990) as part of his doctoral dissertation work. He was the first to argue that Xnaheb may have been a satellite settlement under the control of Nim li Punit, or at least marked the boundary between the polities of Lubaantun and Nim li Punit.

The period of 1975 to 1977 saw the initiation of the Stann Creek Archaeological Project (SCAP), led by Elizabeth Graham. SCAP was the first major archaeological research project to be conducted in the Stann Creek District of Belize. The project aimed to survey the district for archaeological sites, investigate selected sites in more detail, and develop a better understanding of the Maya occupation of the Stann Creek region. Graham and her team surveyed over 1,000 km² of land and identified over 100 archaeological sites (Graham 1978). Outside of Stann Creek District, Graham conducted excavations at a number of sites, including Marco Gonzalez, Tipu, and Lubaantun. The project's work at Lubaantun helped clarify its chronology and relationship to other Classic Maya polities.

A modern-day successor to SCAP was founded in 2003 by Dr. Jaime Awe, then Director of the Belize Institute of Archaeology. The Stann Creek Regional Archaeology Project (SCRAP) was planned as a long-term archaeological research project. The project's research focuses on topics including the Maya political system, economy, and environment. Since 2014, work has been led by Megan Peuramaki-Brown and has focused on the sites of Alabama and Pearce (Peuramaki-Brown 2017). These sites were occupied during the Terminal Classic and work here has focused on the area as a regional center for trade and commerce.

The Maya Mountains Archaeological Project (MMAP) was led by Peter Dunham of the University of Texas at Tyler and conducted over several seasons from 1994 to 1997. The MMAP was a multidisciplinary survey of ancient Maya resource exploitation, exchange, and of resource-related sites in the southern Maya Mountains of Belize. Extremely rugged and remote, the region had previously resisted exploration by archaeologists.

The material that was targeted by the ancient Maya for extraction included “several volcanics/ volcaniclastics for grinding stones; hematite, limonite, and manganese oxide to be used for pigments; stone vessels were carved from travertine or flow stone; and high quality clays were gathered for pottery production; while mirrors were constructed from pyrite” (Wanyerka 2009:192).

The project’s researchers believed that a desire to exploit natural resources led to a rapid expansion in the number and size of sites during the Late Classic Period (Dunham 1996:319). More generally, members of the MMAP were interested in understanding how this area was connected to, and interacted with, other regions of the Maya lowlands (Dunham and Prufer 1998:178). The MMAP project revealed 16 Classic Maya surface sites and more than 100 cave sites across the Toledo and Stann Creek Districts. This led Keith Prufer and colleagues to begin a

systematic exploration of caves across the Southern Maya Mountains Region. Prufer (2002) provides an excellent example of a comprehensive study of caves and cave rituals in the Southern Maya Mountains Region. Further investigations into the cave sites of the Maya Mountains continue today.

The Maya Archaeological Site Development Project (MASDP) was a collaboration between the Belize Department of Archaeology and the Foundation for Maya Cultural and Natural Heritage (PACUNAM). The original design of these projects was to develop and maintain Maya archaeological sites so that they are accessible and enjoyable for tourists and Belizeans. They converted the sites into archaeological parks with restrooms, pathways, and visitor centers. This work included clearing vegetation, repairing structures, and constructing visitor facilities. Archaeological research was conducted at Maya sites alongside maintenance efforts, to learn more about Maya culture and heritage. In southern Belize, consolidation efforts were conducted at Nim li Punit and Lubaantun in 1997 and 1998 by MASDP, with the purpose of exposing the major architecture in these sites' ceremonial centers. These projects yielded important discoveries, most notably a rich elite tomb from a plaza adjacent to the Stela Plaza in the South Group at Nim li Punit.

The 21st century saw new work focused on the sites of Pusilha and Uxbenka. The Pusilha Archaeological Project (PUSAP) was directed by Geoffrey Braswell from 2001 through 2008. The PUSAP has made a number of important contributions to Maya archaeology. First, the project's excavations and mapping have provided new insights into the chronology and architecture of Pusilha. More than 500 structures were mapped within a 2 km² area of the central core (Braswell et al. 2005:74). Second, the project's epigraphic analysis provided new insights into the site's political and social organization (Prager et al. 2014). Third, the project's ceramic

analysis generated information about the site's economy and trade (Bill and Braswell 2005). Fourth, the project's environmental surveys have provided insight into the site's natural resources and how they were used by the ancient Maya. One of the PUSAP's most significant contributions is its work exploring the relationship between Pusilha and other Maya polities. Joyce Marcus posited that Pusilha, like Quirgua, may have been a small regional province that was annexed by the expanding Copan state, only gaining its independence in the late-Late Classic when Copan began to lose power (Marcus 2003:95). The PUSAP went on to investigate these claims, finding that there was an early-Late Classic connection between Pusilha and Copan (Braswell and Gibbs 2006:272). The project's research has shown that Pusilha was not simply a small and isolated city-state, rather, it was part of a complex and interconnected political system that included other Maya polities outside of southern Belize.

Since 2006, the Uxbenka Archaeological Project (UAP), directed by Keith Prufer of the University of New Mexico, has had the goal of understanding how the site was integrated as part of the SBR (Prufer 2005, 2007). One of the UAP's most significant contributions is its work on the human-environmental dynamics involved in the rise and fall of Uxbenka. The project's research has shown that Uxbenka's rise was closely tied to the development of a complex agricultural system that allowed the Maya to support a large population. The project has also shown that Uxbenka's decline was likely due to a combination of factors, including environmental degradation, climate change, and political conflict. This work was expanded in 2013 by Amy Thompson to include the sites of Ix Kukúil and Muklebal Tzul, along with surrounding smaller sites, in an extensive mapping and excavation project involving LiDAR aerial mapping (Thompson and Prufer 2019). Thompson's research focuses on settlement patterns, household organization, and social inequality. She has shown that Maya society was

more complex and unequal than previously thought, noting that Maya households were not simply economic units, but also played an important role in social and political life (Thompson 2019).

An underwater project was conducted at Paynes Creek National Park, under the direction of Heather Mckillop since 1995. Cory Sills of LSU joined the project in 2007 and expanded its economic interests. The underwater explorations targeted the remains of Classic Maya salt works, evaluating spatial activities outside and within the remains of wooden structures. It is the largest and most well-preserved salt works in the Maya world, providing important insights into Maya economy and trade networks. McKillop (2005b) is interested in population numbers, possible connections between the population growth and rise of coastal settlement, and the rise of the inland sites of southern Belize. Her research has focused on identifying the nature of the economic and political relationships between these small sites and their larger inland counterparts. For example, salt was a valuable commodity that was used for food preservation, religious rituals, and medicine. The coastal villages served as a major trade hub for the region, connecting it to a network of trade across Mesoamerica (Sills 2014).

The Toledo Regional Interaction Project (TRIP) was initiated in 2009 under the direction of Geoffrey Braswell. The project has brought archaeological work at Nim li Punit, Lubaantun and Pusilha under a modern research design with the aim of providing a regional perspective on ancient life in southern Belize. Two of the project's key research questions have been: (1) how could there be so many individual sites, all with divine kings, in such a small area? and (2) with numerous hieroglyphic texts, how is it that these sites do not mention each other, even though they share the same region (Braswell et al. 2012:1)? TRIP's initial field season was held at Lubaantun in 2009, followed by a joint field season at Lubaantun and Nim li Punit in 2010

(Braswell et. al 2010). This 2010 field season at Nim li Punit consisted of 17 test pits placed throughout the three plaza groups within the civic-ceremonial center of the site (Figure 2.13; Braswell et al. 2010). The artifacts derived from these test pits allowed the team to produce a chronology for the site and an understanding of the overall site-construction sequence (Fauvelle et al 2011). Nim li Punit was further investigated during 2012, 2013, and a fifth field season in 2015. In addition to fieldwork, there were several years, including 2011 and 2014, dedicated to laboratory work related to Lubaantun and Nim li Punit. The work at Nim li Punit in the 2012 and 2015 seasons focused on the Classic royal palace compound and centered on the identification of the functions of the buildings (Borrero et al. 2016).

Starting in 2018, my own work has continued these research goals and has consisted of further explorations at the site of Nim li Punit. TRIP has provided new information about site chronology, architecture, and material culture. The project's epigraphic analysis has also provided new insights into the political and social organization of the Toledo region as a whole (Braswell 2022:99-135; Prager and Braswell 2016).

Archaeological research in southern Belize has succeeded in connecting the region to the broader Maya world. These projects have also revealed that the region was dominated by a few competing polities. In the following subsections, I examine the data available to us stemming from more than a century of archaeological research. First, I focus on the surrounding regions of southern Belize—its coastal and mountain sites—then turn to a discussion of each of the SBR's major sites (Uxbenka, Nim li Punit, Lubaantun, Pusilha, and Xnaheb) on a case-by-case basis. For each of these examples, I highlight the geographic location, site layout, and architecture, as well as discussing available information on the key features, artifact assemblages, dates of occupation, and political and economic networks. I conclude by exploring the possible internal

regional dynamics of the SBR and what factors might have served to connect it to neighboring areas.

2.6 ARCHAEOLOGICAL DATA FROM THE SURROUNDING REGIONS: THE COAST OF SOUTHERN BELIZE

The coast of southern Belize has some of the earliest settlements in the region, with evidence of occupation from the Terminal Preclassic to the Postclassic period (McKillop 2009). Surveys along the coast identified villages that served as ports-of-trade, such as Wild Cane Cay and Frenchman's Cay (Figure 2.7). These villages are some 25 km away from the inland sites of Lubaantun and Nim li Punit (McKillop and Winemiller 2004). These settlements often took the form of small coastal communities along the shores and islands, which afforded their inhabitants the opportunity to interact with the inland, highland, and lowland Maya villages and cities (McKillop 2009). Canoe transport along the rivers and coast carried important trade commodities, such as salt and marine resources. Alongside these resources traveled trade goods from other parts of the Maya world (McKillop 2005b:139).

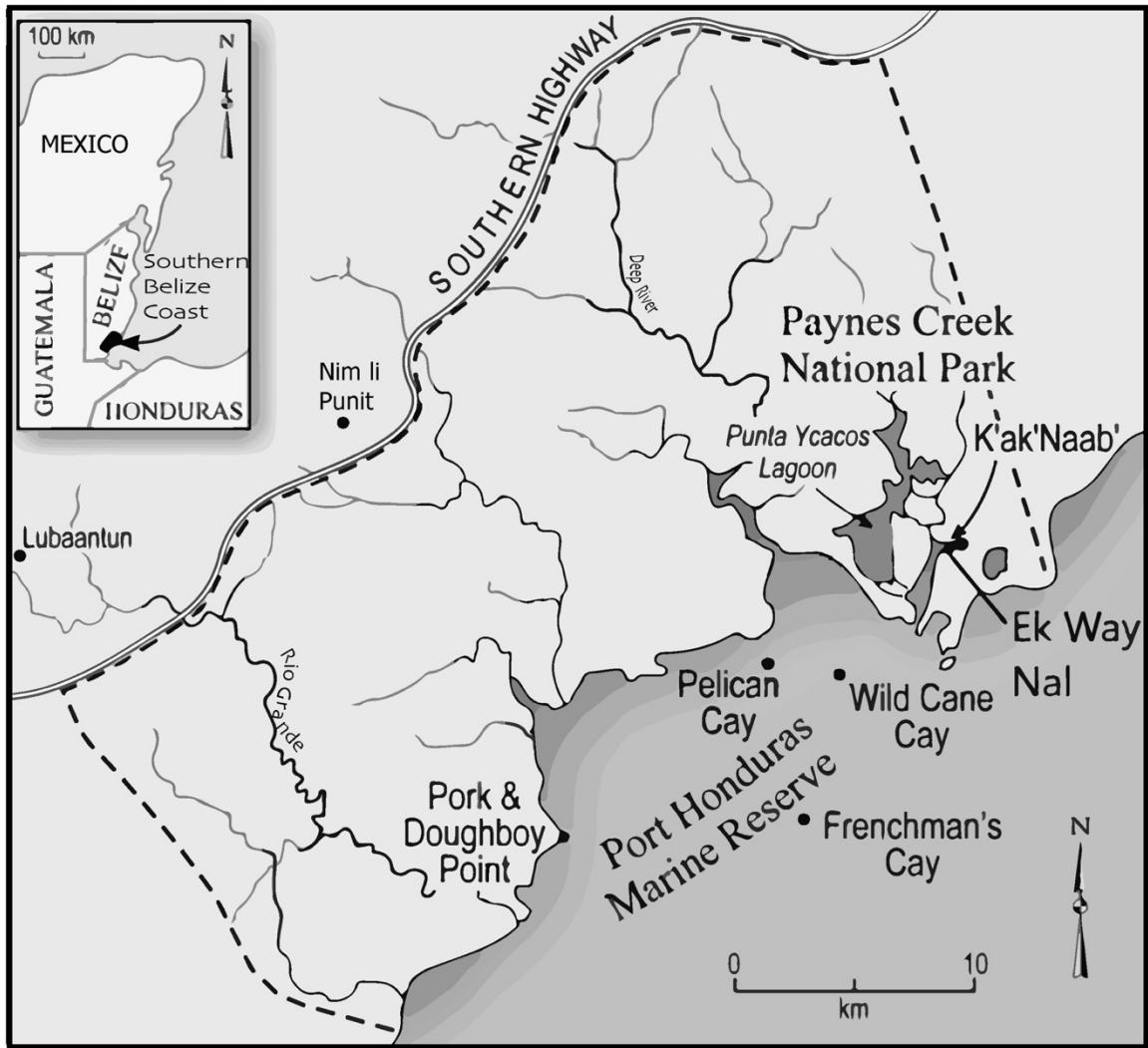


Figure 2.6 Map of south coastal Belize showing location of coastal sites (Modified from McKillop 1995:figure 1).

The growth of coastal sites during the Late Classic appears to be connected to a demand for coastal resources from inland sites that reached their apogee during this time (McKillop 2009). The coastal Maya had adapted to living along the Mesoamerican marine littoral. This acquaintance with the marine environment afforded them the opportunity to access goods, subsistence resources, and gave them the ability to navigate the coastal and riverine environments that may have been less accessible to their inland counterparts. Clark (2012) provides some examples of this specialized knowledge including,

watercraft technology (construction, use, and maintenance), sea and wetland navigation, foreign and creole languages, weather patterns, marine subsistence resources that augmented protein and salt shortages in inland diets, and ecofacts harvested from the watery underworld, such as stingray spines and fish cartilage used for bloodletting instruments, shells of various sizes, shapes, and colors for offerings, instruments, utensils, and small tools (Clark 2012:431).

The interior Maya developed a strong reliance on the maritime branch of Maya culture for access to the offerings of the sea. “The sea itself served as a ‘portal to the underworld,’ stingray spines, spondylus shells, coral, and other objects associated with dangerous sea creatures like sharks and manatee were quite valuable to inland and coastal Maya communities” (McKillop 2005b:87). Inhabitants of the inland sites desired these types of resources for their rituals and specialized foods. The interaction would go in both directions, with the coastal sites accessing trade goods, such as freshwater jute shells and limestone (both for plaster production), chert, pottery, and ceramic figurines from mainland sources through exchange with inland communities (McKillop 2005b:141).

Access to salt and marine resources, used not only for subsistence but also for ritual, would have led to the formation of these coastal-inland relationships. For example, Paynes Creek National Park has been identified as a locus of salt harvesting, containing over 100 production sites (McKillop 2007, 2009). The village of Stingray Lagoon has evidence suggesting that salt production via the *sal cocida* or boiling method was the major production activity of the site. Seasonal flooding of the cayes allowed for evaporation salt production, with at least 45 brine-boiling production sites featuring wooden structures (McKillop 2005:5634). “Large, thick-walled

jars averaging 24 cm in diameter or thick-walled, open bowls were evidently filled with brine and elevated above a fire on sets of clay cylinder supports” (McKillop 1995:221). The high preponderance of these jars at the site illustrates that it was mostly focused on the production of local commodities, while other nearby sites such as Wild Cane Cay were known to have a higher proportion of long-distance imports.

McKillop (2005b:65) argues for the existence an alliance, wherein the inland dynastic Maya brokered sets of trades or agreements with the coastal Maya to provide them with objects of status in return for access to sea trade. Future studies may help elucidate the nature of these relationships. Earle (2011) challenges the typical strict hierarchical model that sees larger inland sites dominating smaller coastal sites. The increasing demand for luxury items in developing states would have created extensive systems of trade, with opportunities for control at bottlenecks in the transportation routes (Earle 2011:241). A bottleneck could emerge around the knowledge and control of watercraft and navigable water routes (McKillop 1996). These bottlenecks may have allowed for a more heterarchical relationship between the coastal and inland sites.

Separately both Prufer (2007) and McKillop (1996) have argued that the connections between the coast and inland sites may have begun in the Terminal Preclassic period. There are reports of Sierra Red pottery in the ceramic collections from the sites of Uxbenka, and the coastal site of Butterfly Wing (Prufer et al. 2007; McKillop 1996:56). Terminal Preclassic Sierra Red pottery has also been recovered at the inland site of Nim li Punit (Borrero et al. 2016:196; Stroth et al. 2024). Researchers have noted that the presence of Chicanel ceramics found throughout almost all the Maya Lowlands indicates that exchange was already occurring during the Terminal Preclassic (Adams 1971; Ball 1977). That these ceramics appear in southern Belize

supports the case that the region was connected to broader interregional trade systems from an early date.

Archaeologists in southern Belize have been exploring submerged archaeological deposits on the coast and cayes, searching for evidence of how the ancient Maya interacted with the marine environment (Sills and McKillop 2010). Excavations have been underway at sites dating from the Classic to Postclassic period (AD 300-1500). This research makes it clear that the rising sea level was the primary factor precipitating the abandonment of sites along the coast. Sites in the area have deposits extending 140 cm below the water table (McKillop 2005). Wild Cane Cay was a village of about 2.4 hectares. Through a program of offshore mapping and shovel testing, McKillop and colleagues (2005) have shown that the island was probably twice its current size during the Classic period. Sea-level rise has affected the sites around the southern Belize coast, with an approximate rise of 1m following the Classic period (c. AD 900). If the water level was once 1m lower, much of the current mangrove swamp of the south coast would have been dry land.

It is clear that the coastal sites of southern Belize were inhabited for a long period and had access to a wide variety of resources. These resources prompted the development of strong trading partnerships, both with the inland major sites of the SBR as well as outwards towards other regions within the greater Maya world. It appears that the threat of rising sea levels, along with the breakdown of trade networks associated with the depopulation of inland sites, led to the eventual abandonment of the coastal sites of southern Belize during the Terminal Classic.

2.7 ARCHAEOLOGICAL DATA FROM THE SURROUNDING REGIONS: THE MAYA MOUNTAINS

The southern half of Belize is dominated by the Maya Mountains, a low mountain range. The main massif is just over 1,100 meters high at its greatest point, and approximately 100 km long and 60 km wide. The area of the Maya Mountains can be considered to extend from south of the Stann Creek District to the southeast portion of the Department of Petén in Guatemala (Figure 2.16; Dunham and Prufer 1998:177). The mountains receive almost 5 meters of rain annually along their central divide. “The landscape is highly dissected. The annual deluge has carved out a rugged karstic terrain cleft by numerous large canyons, sinkholes, and caves” (Prufer 2002:167). In antiquity, the area near river transportation routes allowed for easy resource sharing with other regions (Dunham et al. 1994; Dunham and Prufer 1998:179).

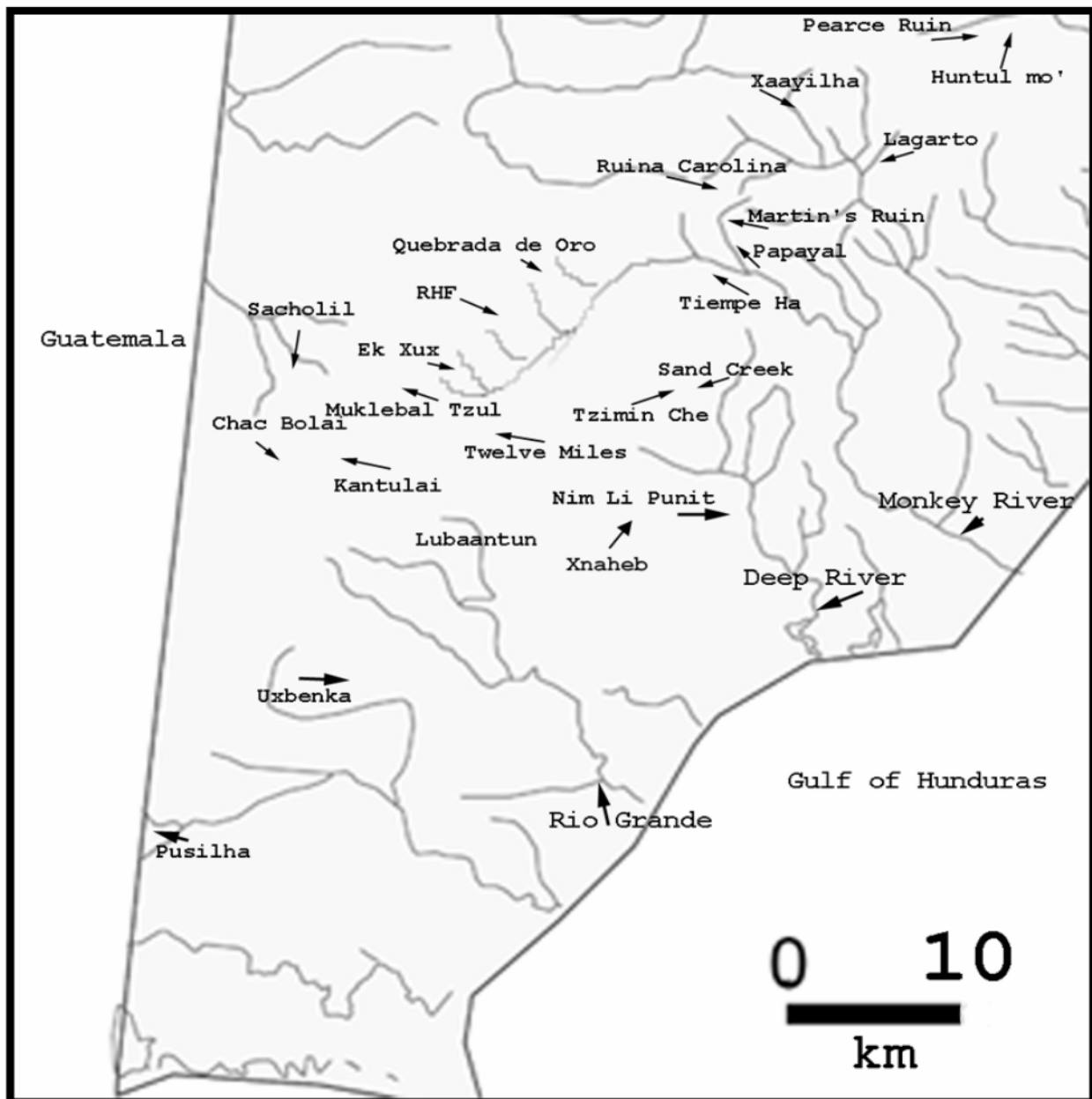


Figure 2.7 Documented sites in the Maya Mountains area (After Prufer 2002:figure 6.1)

Survey work in the late 1990s resulted in the discovery of numerous surface sites dating to the Late and Terminal Classic periods. Evidence of ritual cave use was also uncovered, dating to both the Early Classic and Postclassic periods (Dunham and Prufer 1998:181). The sites in the Maya Mountains are significantly smaller than the principal inland sites in the SBR but mimic

their typical site planning, with designed site cores connected by causeways to other surrounding architectural groups. These sites are thought to have been politically autonomous (Dunham and Prufer 1998: 181). Abramiuk and Muerer (2006) traced grinding stones made from Maya Mountains materials to sites such as Baking Pot and Xunantunich in the western Belize valley, Seibal in the Petén, and Altun Ha in northeastern Belize (2006:347). Notably, they were not able to attribute groundstone samples to artifacts from Lubaantun, even though that site is located very near the southern foothills of the Maya Mountains (Abramiuk and Meurer 2006:347). This suggests that the Maya Mountains sites had stronger ties with sites to the north and west, rather than to those of nearby southern Belize. We now know that Lubaantun was occupied during a very short window of time in the Late and Terminal Classic (AD 750-830), so it is possible that trade was occurring with southern Belize during other time periods. There is no evidence that the sites in the Maya Mountains were under any type of hegemonic control. Instead, they appear to have been independently interacting with broader spheres of economic exchange (Dunham et al. 1994).

Explored sites in the Bladen branch of the Maya Mountains include Quebrada de Oro, the RHF site, Ek Xux, and Muklebal Tzul. Late/Terminal Classic sites such as Muklebal Tzul and Ek Xux have only sparse Postclassic and Early Classic activity (Prufer 2002; Thompson 2020). These and other sites located in the Bladen are typically remote villages and modest in size; the largest structures are around 3.5 m high. They all appear well-planned, with plazas and causeways. Little epigraphic information is known regarding these communities, since none of the stelae have inscriptions, with the exception a few ceramic sherds with glyphs from Muklebal Tzul (Prufer 2002:336). The research in this area has focused on geological sourcing of *manos* (grinding hand stones) and *metates* (grinding slabs), which were produced at these sites from

locally sourced materials. Intercommunity networks could be reconstructed through geological sourcing of raw materials for groundstone. These communities may have been economically empowered as a regional system. Future work can continue to reveal more about this area's exchange network, by connecting artifacts from various sites to different types of lithic materials originating from the Maya Mountains.

2.8 ARCHAEOLOGICAL DATA FROM THE MAJOR SITES OF SOUTHERN BELIZE

Pusilha

Pusilha is the largest ancient Maya city in southern Belize, located roughly 20 km southwest of Uxbenka. It is bordered to the north, west, and south by the foothills of the Maya Mountains (Figure 2.9). It is located between the Poite (or Joventud) and Pusilha rivers, 3 km east of the Guatemalan border, the modern village of San Benito Poite is located in the center of its ruins. Pusilha was the largest center of population in southern Belize, with its core and settlement covering an estimated area of 6 km² (Braswell 2001). The site is situated in a relatively flat valley surrounded by a series of caves that were used in antiquity. Early excavations were conducted on a feature called Pottery Cave, which is a natural opening in a hillside featuring a mound group on its summit (Braswell et al 2004; Joyce 1929; Hammond 1975). During the first field season in 2001, PUSAP cleared and mapped the Stela Plaza and recovered 88 previously unknown carved monument fragments. Excavations were also conducted in the Moho Plaza group, where thirteen structures, including at least one ballcourt, were reported. These features are thought to be from the Late or Terminal Classic, based on the style of architecture (Braswell 2001). Ballcourt 3 is reported to be one of the largest in southern

Belize, with a playing surface of approximately 51 meters by 12.5 meters oriented east-west (Braswell et al. 2005:224).

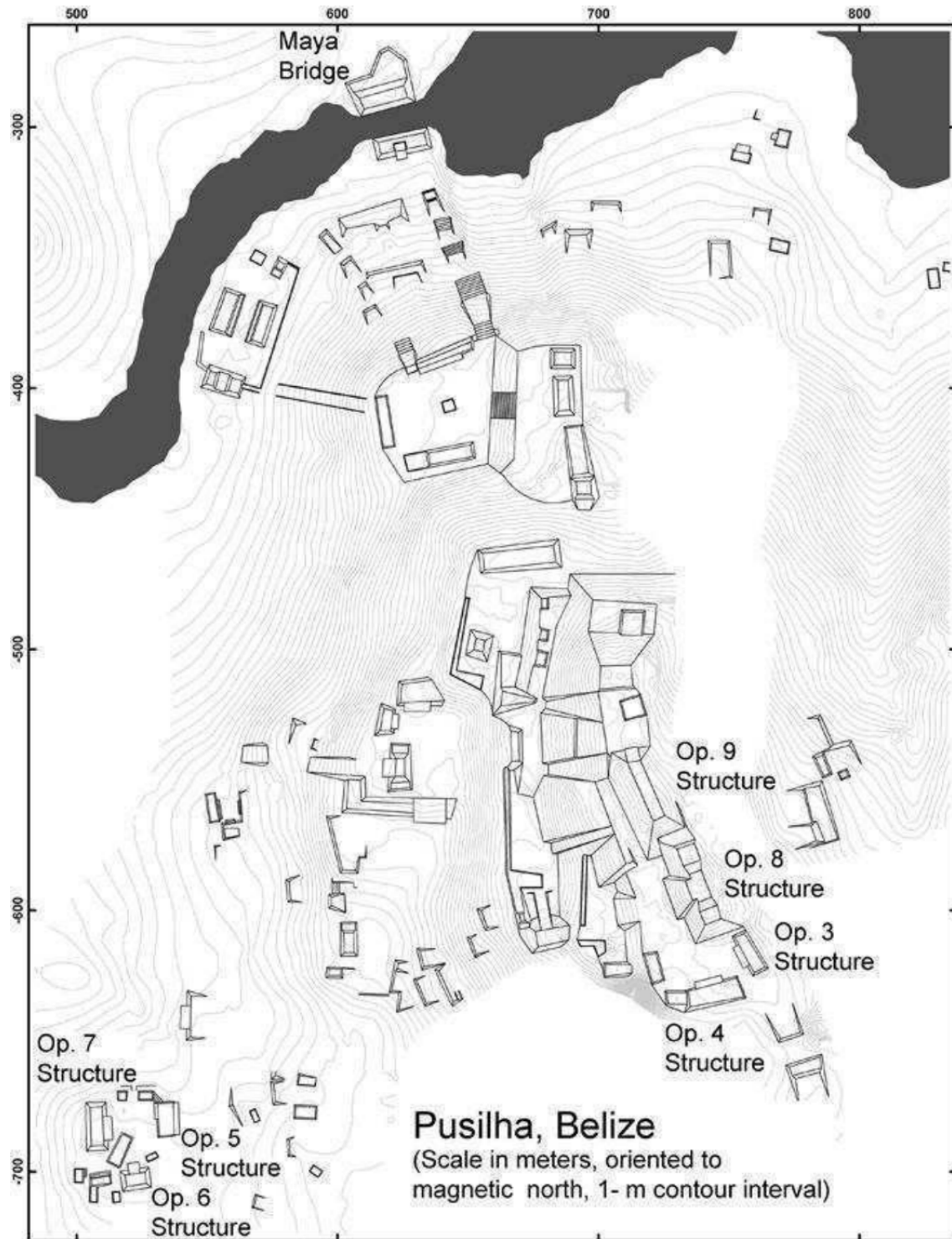


Figure 2.8 The Gateway Hill acropolis a subsection of the overall Maya site of Putilha, operations are excavations carried out by Braswell and team from 2000-2008 seasons (After Prager et al. 2014:Figure10.7).

Pusilha was the third major site to be permanently settled in the SBR; it was founded around AD 570 by K'awil Chan K'inich, also known as Ruler A. "During the ensuing 228 years, or until A.D. 798, the rulers of Pusilha erected at least 21 stelae, four zoomorphic altars, three carved ballcourt markers, the only known hieroglyphic staircase in Belize, and 18 miscellaneous carved monuments" (Braswell and Prufer 2009:47). The last monument constructed at Pusilha was the hieroglyphic stair from the Moho Plaza; based on the style of the calendar round date its suggested construction date is AD 798 (Braswell et al. 2005). This pushes our knowledge of dynastic rule at the site to the end of the 8th century, with the possibility of continued occupation until the Postclassic period.

The ancient settlement of Pusilha follows a central axis, with the major architectural groups built along natural ridgetops, extending from northwest to southeast. Leventhal's maps of the site show the architecture centered around two focal zones: a Stela Plaza/Ballcourt to the north of the Pusilha river and a Gateway Hill Acropolis and Ballcourt to the south of the river. Gateway Hill Acropolis is the largest architectural group at the site, with some of the stone pyramids rising 80 m above the Pusilha river. Yet most of this architecture was constructed via a method that took advantage of the surrounding hillslopes and faced their exterior with cut stones. This created the appearance of more labor-intensive constructions, a common characteristic of the SBR. Local villager accounts and looted tombs suggest that this area was the burial grounds for many of Pusilha's elite. The site planning may embody the concept of directionality, in which the architecture links the different sectors of the city to the cosmic center of the Maya world (Braswell et al. 2005; Volta 2007:42-46). Settlement density estimates are of a population of 6,600 people extending over 6 km² (Volta 2007:39). These numbers make Pusilha the largest and most populous Maya city of the Southern Belize Region, at any point in its history.

Christian Prager, the PUSAP epigrapher, deciphered the hieroglyphic inscriptions from Pusilha (Prager et al. 2014). Through readings of 46 sculpted monuments and fragments from the site, he was able to identify more than 39 individuals. These individuals include the names of at least 11 individuals tied to the Pusilha emblem glyph, seven of which were from a 180-year-long dynastic sequence (Prager et al. 2014). The main emblem glyph of Pusilha reads either *UN* or *UNIW*, meaning “avocado;” thus, the lords of Pusilha were referred to as “Divine Avocado Lords.” The first appearance of the Pusilha emblem glyph occurs in a passage dated to 9.6.17.8.18 (17 June, 571). Found on Stela P, this passage commemorates the inauguration of *K’awil Chan K’inch*. Additional inscriptions describe the dynastic history of the city spanning a period between 670 and 717 years. The earliest dates recorded at the site are 8.2.0.0.0 (AD 81) and 8.6.0.0.0 (AD 159) and, due to the lack of Early Classic occupation at the site, likely refer to legendary events. The latest date found at the site was identified as 9.16.0.0.0 (AD 751), and there are two other monuments that possibly date as late as AD 798 (Braswell et al. 2004).

Ceramic data for the site illustrate an occupation sequence spanning the start of the Late Classic Period through the Postclassic. Pottery analysis was conducted by Cassandra Bill, and the recovered ceramics support the Late and Terminal Classic dates from the inscriptions (Bill and Braswell 2005; Braswell et al. 2008). The analysis indicates that Pusilha was a Tepu-sphere site, with four occupation phases corresponding to the beginning of the Late Classic, the end of the Late Classic, the Terminal Classic, and sometime in the Postclassic period (Braswell et al. 2005:64). Pusilha’s Late Classic assemblage indicates ceramic resemblance with the Rio Pasión and Petexbatún regions, as well as with the southern Petén cities (Bill and Braswell 2005:305-306). This ceramic evidence has led researchers to believe that settlers of Pusilha may have originated from southwestern Petén (Braswell and Prufer 2009:48). Additionally, ceramic

comals, or griddles used to make tortillas, are common at Pusilha. Comals are missing from ceramic assemblages of Uxbenka, Nim li Punit, and Lubaantun (Bill and Braswell 2005:308-309). Braswell suggests that the inhabitants of Pusilha followed different foodways, which may have differentiated their identities from those of their neighbors (Braswell and Prufer 2009:48). Belize Red pottery, known to originate in western Belize, arrived at the site during the Terminal Classic, indicating the possible formation of a new economic interaction (Braswell and Gibbs 2006:273). The type of shift in imports may also indicate the decline of interregional trade with certain trade partners at the end of the Classic period.

Pusilha has one of the highest densities of obsidian in the SBR; most is in the form of prismatic blades and the debitage from their production and use (Braswell et al. 2008:56; Hammond 1975: 340). Obsidian from the El Chayal source in Guatemala dominated contexts dated to the seventh and eighth centuries (Bill and Braswell 2005:311). However, by the ninth century, the ratios of the assemblages shifted as greater proportions originated from other sources. Obsidian from Ixtepeque, Guatemala, along with material from central Mexico—from Pachuca, Hidalgo, and Zaragoza, Puebla—were imported to the site at this time (Bill and Braswell 2005:311). Ucareo, Michoacán-sourced obsidian which is a common diagnostic of the 10th century AD is notably missing at Pusilha (Braswell et al. 2008:58).

Regarding human remains, seventeen burials were encountered during excavations, containing a total of twenty-two individuals. Burial 5/1 contained the remains of a young child, between four and five years old, with modified teeth in the form of jade dental inlays on the right and left upper lateral incisors (Braswell and Pitcavage 2009:25-26). It is extremely rare for dental inlays to be placed in deciduous dentition. Burial 8/4 may contain the remains of a specific ruler of the site: Ruler G. This burial site appears to be the only instance in Belize where

human remains have been connected to a named king (Braswell et al. 2005:79-80). The burials at Pusilha have some shared characteristic traits: (1) the caching of obsidian debitage in the burials of important individuals (Braswell et al. 2008:57); (2) the commonality of multiple individual burials (Schwake 2008); (3) the reuse of burial chambers; and (4) the placement of burials along the central axes of important buildings. These burial practices are not repeated at Lubaantun, but some of the features are seen at Nim li Punit.

Ceramic, obsidian, and epigraphic data suggest that Pusilha had connections with sites in the Belize Valley and in the Petexbatún/Pasión regions (Braswell 2005:68). The investigations conducted at Pusilha from 2001 to 2008 altered some of the existing notions that cast the Southern Belize Region as homogeneous. They revealed important differences in the material culture of Pusilha and Lubaantun, not only in ceramics, but also in obsidian densities/sources, burial, and caching patterns. There was no sign of control by centers outside the region, such as Copan. Instead, evidence suggests that Pusilha maintained its independence throughout its period of occupation.

Uxbenka

The site of is located within the modern village of Santa Cruz, Toledo District, Belize (Figure 2.8). It is a small Classic Maya center, located in the foothills of the Maya Mountains in southern Belize. This site holds some of the earliest settlements in the region, and was initially observed by Leventhal (Leventhal 1990, 1992). Uxbenka (“ancient city” in Mopán Mayan) is in the Rio Blanco Valley. The site was first reported by locals from the nearby village of Santa Cruz in 1984. The UAP collected ceramic and carbon samples which firmly dated the early settlement of the site (Prufer 2007:2). Radiocarbon dating (Thompson and Prufer 2019: 315)

from excavations at Uxbenka have produced dates from the Late Preclassic until the Terminal Classic; contrasted by ceramic data which places permanent site occupation from the Early Classic (AD 250-600) to the Late Classic (AD 600-790) with some site visitation in the Terminal Classic (post AD 790; Jordan 2019).

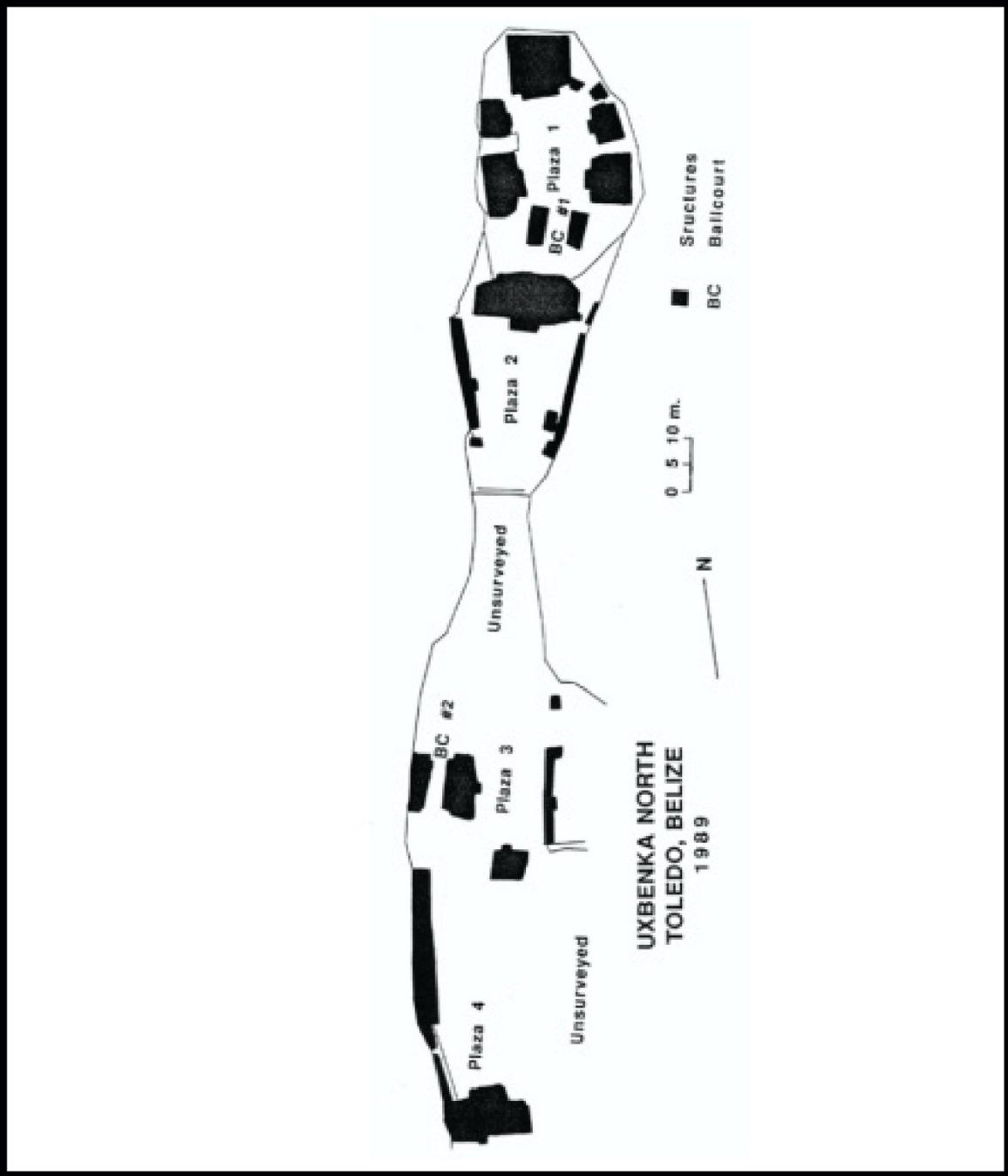


Figure 2.9 Map of Uxbenka’s North Groups (after Leventhal 1990:figure 6.3).

The Uxbenka site is located 10 km from the modern Guatemalan border. Prufer and colleagues (et al. 2008:243) argue that this marginal area was settled to take advantage of agriculturally rich land, near major coastal and inland trade routes. Uxbenka is located near the Rio Blanco Valley, which allows overland access to the southeastern Petén, from the coast through the foothills of the Maya Mountains. This area has Toledo Uplands soils, which are thought to be excellent for cacao production and may have been the economic impetus for migration to the area (Prufer 2007:3). Uxbenka began as a small farming village that, over the course of its first 200 years, grew into a small regional center (Braswell and Prufer 2009:45).

Most of the work conducted at Uxbenka has been focused on settlement surveying and on excavation of domestic areas. Multiple plazuela-style groups have been encountered, ranging in size from one or two buildings to groups of over two dozen buildings. The site's main civic-ceremonial center consists of Group A, a stela plaza, and Groups B-F. Group A is thought to be the site of the initial settlement of Uxbenka (Prufer et al. 2008:426; figure 2.9). It is located on a steep natural hill faced with large rough-cut stones. A central stairway that leads from the south end of the plaza is the only access to this group. Group A likely served as the ceremonial core of Uxbenka's ruling elite, based on its size, number of stelae, and the presence of a partially looted royal tomb (Wanyerka 2009:217-218). Although there was no skeleton within the tomb, there were the remains of several Early Classic ceramic plates, a basal-flange bowl (all shattered), two jade earspools, several jade beads, four jade pendants, and more than 100 shell beads (Leventhal 1984:2).

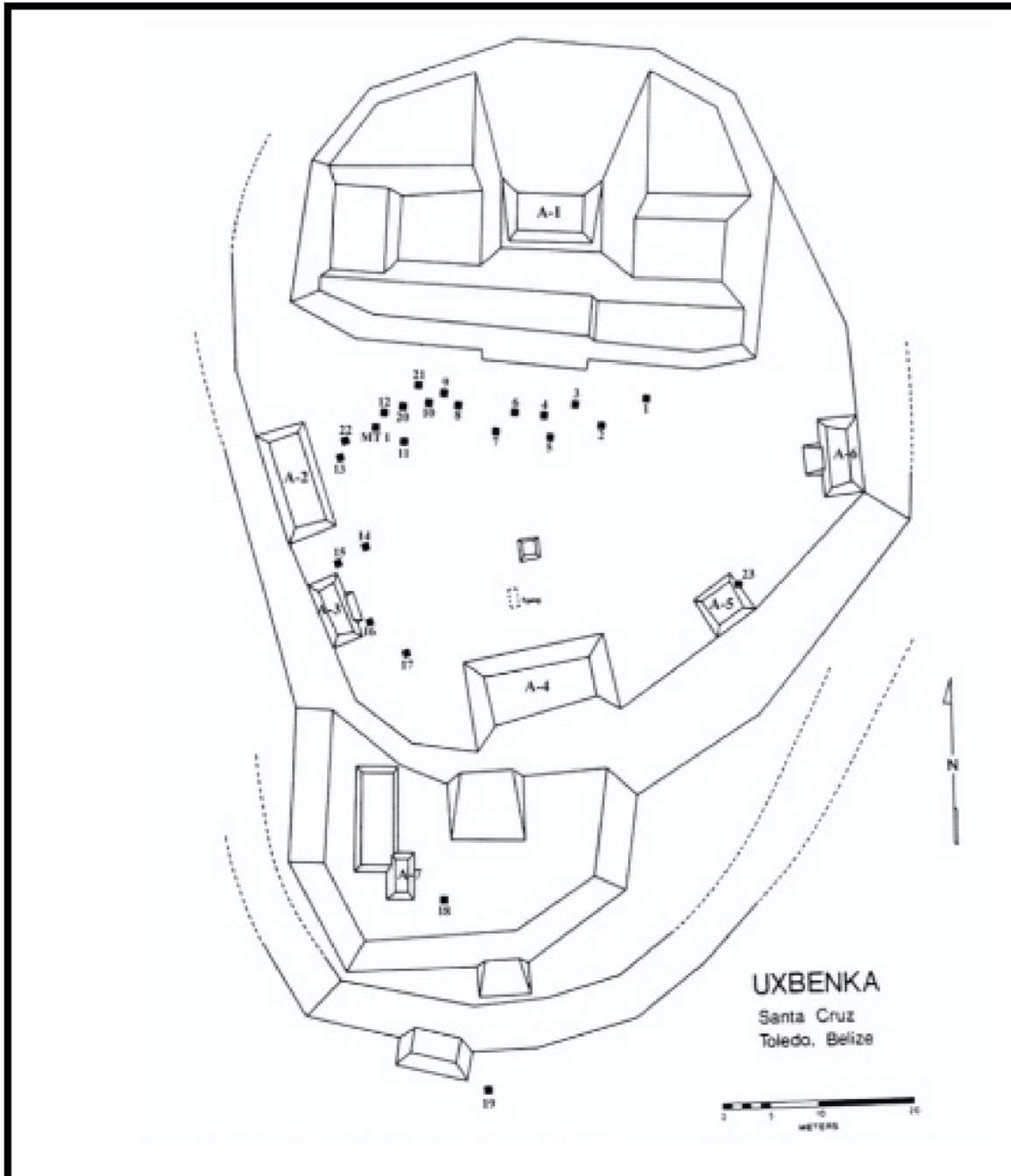


Figure 2.10 Plan map of Stela Plaza Group of Uxbenka (Leventhal 1990:figure 8.4).

Group G, which is located on the highest hill of the site core, is identified as the royal residential palace compound and the seat of dynastic power. The small domestic structures around Uxbenka's architectural core follow the general form of simple, low-lying platforms,

consisting of one or two stone courses, which would support a perishable building. These constructions have central stairways and are connected to large patios (Prufer 2012:255).

LiDAR data have been collected from a 135 km² area around Uxbenka's site core. These data resulted in the rediscovery of a previously unpublished site, Ix Kukuh'il, located 6.7 km northwest of the Uxbenka site core. The site had previously been explored by archaeologists in the 1990s but their findings were never formally recorded. Recent modern LiDAR scanning and mapping has remedied this, providing a wealth of information on the nature of its low-density urban habitation (Thompson 2020). At both Pusilha and Uxbenka, habitation zones are confined to hilltops and ridgelines. This settlement pattern would allow the residents to live on well-drained, elevated ground, avoiding the low-lying areas where water would collect during the rainy season (Prufer 2005:19).

All the monuments discovered at Uxbenka come from the Stela Plaza in Group A. Stelae 11, 18, and 21, have been dated to the Early Classic based on their artistic style (Wanyerka 2009). Leventhal (1992:148) considered Stela 11 to be particularly important, because it features an elaborate portrait of an Early Classic ruler holding an undulating double-headed serpent bar, a familiar motif (Martin and Grube 2000:28). There are also several fragments of monuments that were located around the Stela Plaza, suggesting that the inhabitants of Uxbenka, like those of Nim li Punit, were avid monument-builders and carvers (Wanyerka 2009:220). At least one of Uxbenka's rulers used the title of *k'uhul ajaw*, as seen on Stela 22 (Wanyerka 2009:221). It has been suggested that some of these monuments are among the earliest stelae in Belize. Stela 23 is an example of a monument that has been interpreted in this way: the fragment of this stela has preserved only the *Tzolkin* date of 6 *Ajaw*, from which Wanyerka (2009:754) has inferred a complete date of 9.1.0.0.0 6 *Ajaw* 13 *Yaxk'in* (25 August, AD 455).

Most of the architecture at Uxbenka appears to be Late Classic, with the core of the site centered on three hillsides (Leventhal 1992). There was a significant growth in both population and construction during the Late Classic, followed by a rapid decline and abandonment during the Terminal Classic, conforming to a norm for the region overall (Braswell and Prufer 2009:47). Limited Late Postclassic visits to the site led to area's historic use as a farming community.

Uxbenka was a sprawling settlement that grew outwards from a central site core. Smaller secondary centers such as Ix Kukuh'il reveal what life was like for lower-level elites and commoners living in the areas surrounding the major sites of southern Belize (Thompson 2019). The domestic architecture outside the principal groups implies that the site was dotted with several families competing for social and political connections with the city center. Epigraphic evidence shows that Uxbenka had strong political connections with other regions of the Maya world during the Early Classic, marking it as an important early player in the SBR.

Lubaantun

The site of Lubaantun, originally called the Rio Grande Ruins, is located in the modern Q'eqchi' village of San Pedro Columbia in the Toledo District of southern Belize. It lies 15 km southwest of Nim li Punit and 13 km northeast of Uxbenka. Lubaantun's location between two converging valley systems of the Columbia Branch of the Rio Grande gives it a strategic position for controlling exchange between the southern foothills and the coastal plain (Braswell 2022:156). The southernmost plaza contains a ballcourt where three carved markers were found (Joyce et al. 1927). The markers have been stylistically dated to around 9.17.10.0-9.18.0.0.0 (AD 780-790); (Dunham et al 1989:268; Hammond 1975, Morley 1937-38:Vol. IV:1-11; Wanyerka

2009). The three markers were shipped to the Peabody Museum of Harvard University, where they are housed today.

Norman Hammond (1975) assigned the pottery of Lubaantun, specifically Tepeu II and Tepeu III ceramics, to the Late Classic Tepeu sphere; a conclusion supported by Mark Irish's (2015) analysis. The site, therefore, was occupied from the Late to Terminal Classic periods, with an initial date after AD 700 and occupation lasting as late as AD 890 (Hammond 1975:66). During this relatively short period, Lubaantun grew to become a large regional center with an estimated population of 1,300 residents (Braswell and Prufer 2009). Hammond (1975) theorized that, since Lubaantun was occupied and constructed over a short period of time, it was founded by a single migration of people at the site. Based on ceramic similarities, working independently, both Jillian Jordan and Geoffrey Braswell have argued that this migration to settle Lubaantun was of people leaving Uxbenka in the eighth century (Braswell 2022:150-151, 156).

The Lubaantun site was designed around a main ceremonial center that lies atop a high ridge (Figure 2.12). These ridges were not flattened by the Maya, but instead fill was added to the slopes to make the ground surface flat. The slopes were faced with cut stone, which gives them the appearance of giant constructed platforms (Prufer 2002). At the core of the ceremonial center is the main temple plaza, composed of three pyramidal temples. Braswell (et al. 2010: 2) has argued that these three pyramidal temples (10,12, and 33) form a triangle that is enclosed in a larger triangle formed by the three ballcourts; he sees this architectural arrangement as invocative of the Maya concept of *ox te tun*, or "three stone place." Hammond identified the main plaza as the location of the earliest occupation. The Lubaantun site core was constructed in five successive phases between AD 750-850 and contains a variety of structures, including ceremonial, administrative, and residential platforms (Figure 2.11). Access to the site becomes

increasingly restricted as one moves from north to south, through a series of plazas surrounded by buildings. The spatial arrangement of the main temples and ballcourts were in-line with ancient Maya cosmological principles and would have served to place Lubaantun as a symbolically powerful place at the center of the Maya Cosmos.

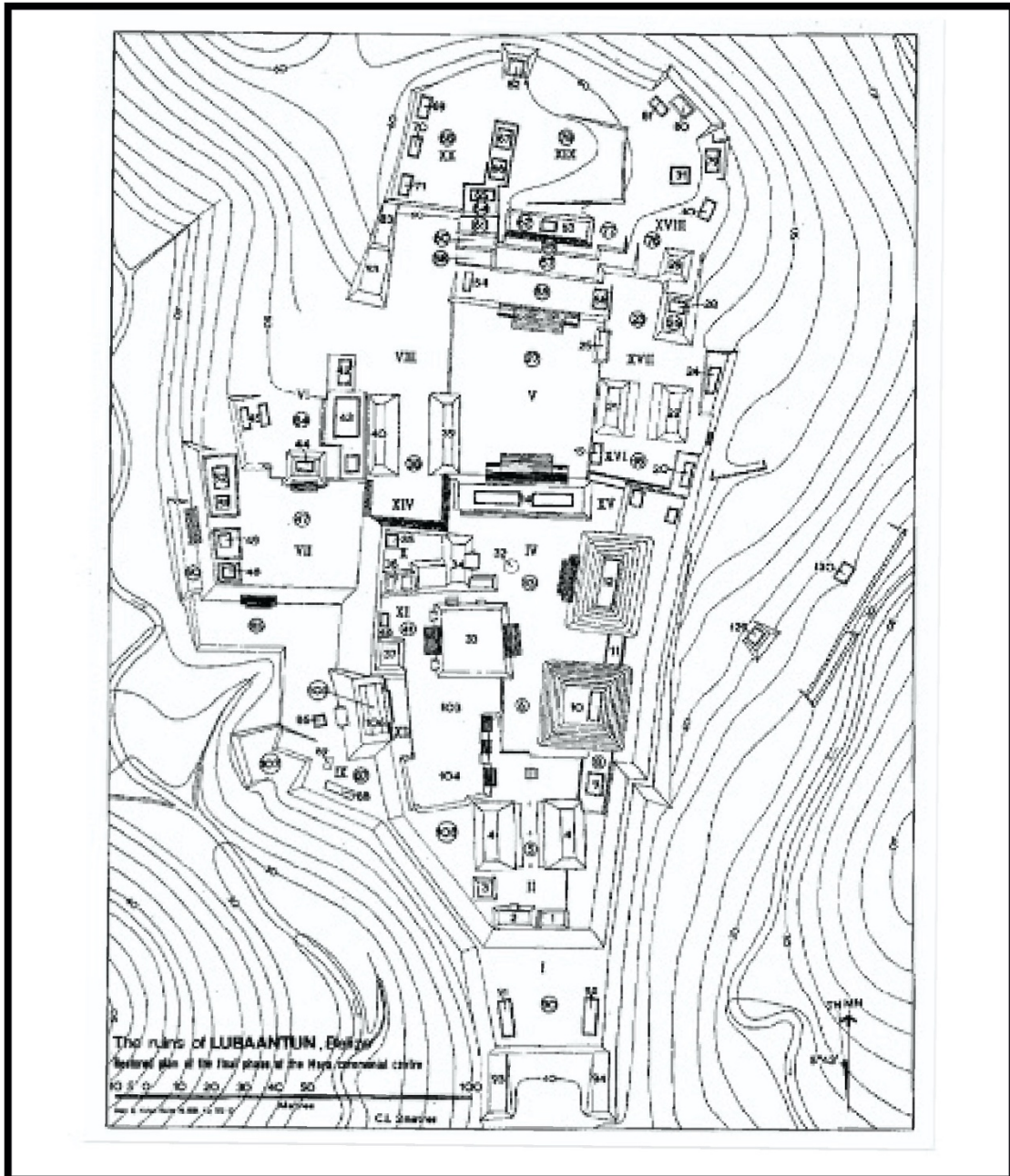


Figure 2.11 Map of the site of Lubaantun (after Hammond and Saul 1975:59, figure 17).

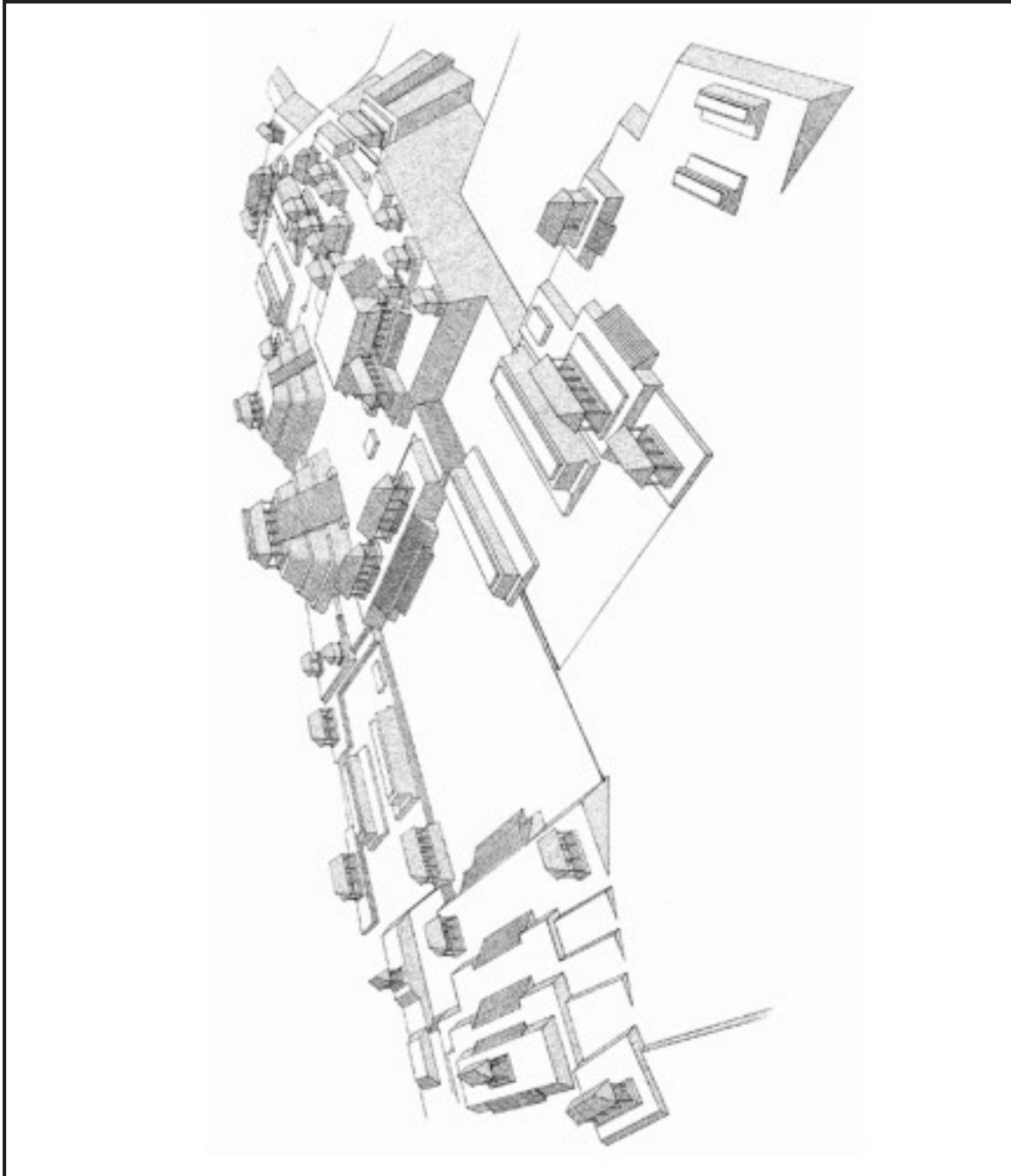


Figure 2.12 Reconstruction of Lubaantun's site core (Drawing by Dave Morgan).

The quantity of obsidian artifacts found at Lubaantun is lower than expected for a site of its size, especially when compared to the amount recovered from Pusilha (Braswell et al. 2008:56; Hammond 1975:340). The ceramics assemblage of Lubaantun has a notably high preponderance of ceramic figurines. The most common ceramic types at the site are Puluacax

Unslipped, Turneffe Unslipped, and Remate Red jars (Hammond 1975:301-306), the last displaying unit-stamped geometric shapes or stylized images of monkey and birds. There are also some Belize Red ceramics from western Belize. Lubaantun, like Pusilha and Uxbenka, has both Tepeu II and Tepeu III ceramics, indicating that these sites overlapped in occupation at least in the last part of the 8th century and the first half of the 9th century (Braswell and Prufer 2009:50; Jordan 2019:94).

With the possible exception of Xnaheb, Lubaantun has the shortest occupation period of any of the sites reviewed in this study. Although it is not large, the architecture in the site-core is impressive and its construction demanded access to significant manpower. This site still holds many secrets regarding the true nature of its sociopolitical organization and relationship to other regional centers.

Xnaheb

Xnaheb is located less than 5 km from Nim Li Punit and less than 15 km from Lubaantun. It is one of the last major sites to be founded in southern Belize. Jamison (2001:87) has hypothesized that Xnaheb developed as an offshoot of Nim Li Punit or Lubaantun. Additionally, ceramics at the site illustrate strong ties between southern Belize and the Belize Valley during the Late Classic period (Dunham et al. 1989:268).

Xnaheb is a hilltop site that used stone facades on the hillsides to exaggerate the size of its architecture. Mapping and survey have revealed that the site was a relatively sizable community, with an upper estimate of one thousand residents (Jamison 2001). Xnaheb has only a few carved stelae, no ballcourt, and covers a larger area than neighboring site Nim li Punit, with a greater number of mounds but a lower total volume of stone architecture.

Jamison (2001) conducted survey and mapping transects between the centers of Nim li Punit and Xnaheb. He found that there was a clear break in settlement between the two sites that most likely defined the borders of their habitation territories. There are several smaller sites located between Lubaantun and Xnaheb, including Silver Creek, Uxbentun and many other unnamed sites. There is currently no evidence of carved monuments at any of these sites, but to date none have been subject to extensive explorations, and they may yet provide evidence of carved monuments with writing.

Xnaheb is a secondary center of southern Belize, but possibly played a part in the overall political and economic dynamics of the region due to its location near major sites (Figure 2.13). The architectural core of Xnaheb consists of a central public plaza surrounded by four residential groups. The southern residential groups are connected by a *sacbe* (causeway), running east to west. The North Group is thought to be the probable residence of the ruling family. The North, South, and Southeast Groups all share a similar construction style: structures are located on hilltops, they feature a defined primary entrance to the cluster, and most have a ramp or stair leading up to the structures (Jamison 2001). The Main Plaza group is bounded to the north and south by these smaller hilltop plaza groups.

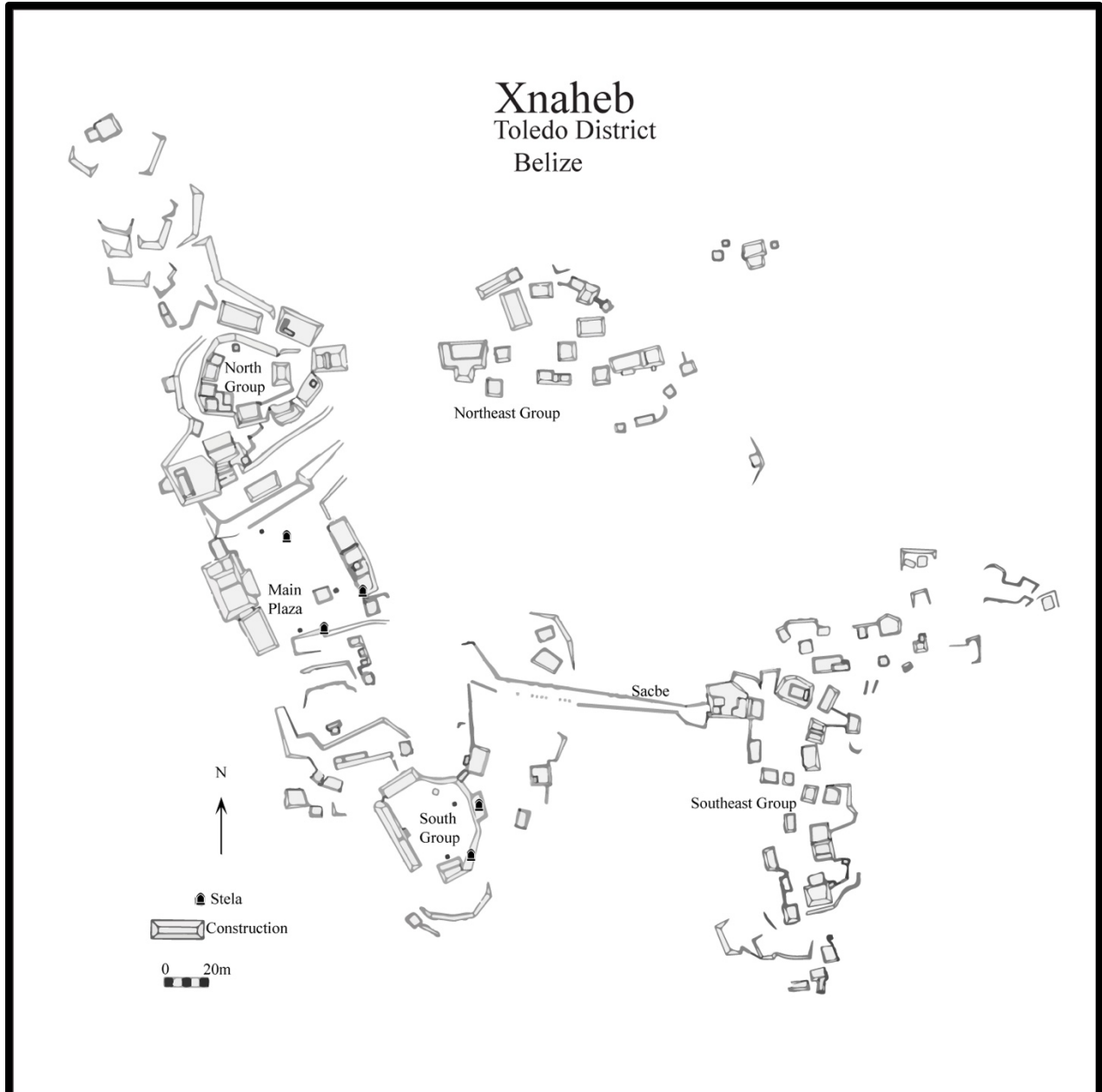


Figure 2.13 Xnaheb site core (redrawn from Jamison 2001:82).

The Main Plaza has a single carved stela in the center, surrounded by several uncarved monuments. The inscribed stela, Stela 3, has a historic date of 9.17.10.0.0 (AD 780; Leventhal 1992:152). Dunham et al. (1989:272-275) have suggested that due to the architectural similarities with Nim li Punit, it is possible that Xnaheb developed as a satellite community of this near neighbor. Further investigation at the site is necessary to garner information on the nature of its

ceramic and stone assemblages, and to generate comparable data sets that can begin to respond to these inquiries.

Nim li Punit

Nim li Punit overlooks the southeastern coastal plains from a ridge of the Maya Mountains' foothills. This site is 15 km northeast of Lubaantun, in modern-day Indian Creek Village. Like the other centers in the SBR, Nim li Punit was founded in an area of fertile calcareous soils, which provided dependable agriculture.

Nim Li Punit, meaning "Large Hat or Headdress" in Q'eqchi' Maya, was named after the discovery of Stela 14. This enormous limestone stela, measuring 9.5 meters by 0.75-0.8 meters, depicts Lord *Mo JGU*, the Terminal Classic lord of Nim li Punit, wearing an elaborate quetzal-feathered headdress and engaged in a scattering ritual (refer to the Special Topic section below for an extended discussion of this individual). The date on the stela, 9.18.10.0.0, corresponds to October 7th, AD 790 (Hammond et al. 1999:10; Grube et al, 1999:35). The monumental corpus of the site has produced 32 stelae, 8 of which are carved with hieroglyphic texts and several dozen are monument fragments. The core of the site is arranged in a triangular formation of the three major architectural groups (Figure 2.13). To the south is the main plaza group containing all the inscribed stelae. On a high hill immediately to the west is the South Group, an architectural group surrounding a plaza that held several royal tombs. The architecture from the two areas of the South Group required significant investment in manpower, with buildings rising above 12 m (Leventhal 1990:132). The Stela Plaza is built on a 5 m-tall platform; to its north is a central ballcourt (Hammond et al. 1999:2). This ballcourt is 58 m by 35 m and surrounded by low retaining walls—a similar size and style to the ballcourts of Pusilha. More than two dozen

stelae, with a median height of 3.62 m, are positioned around the Stela Plaza (Wanyerka 2009:442). The South Group has been described as an E-Group complex, suggesting that the platforms or stelae were used to mark the movements of the sun across the eastern horizon on equinoxes and solstices. I have my doubts about this interpretation, because there remains a lack of clear evidence for the buildings' astronomical alignment.

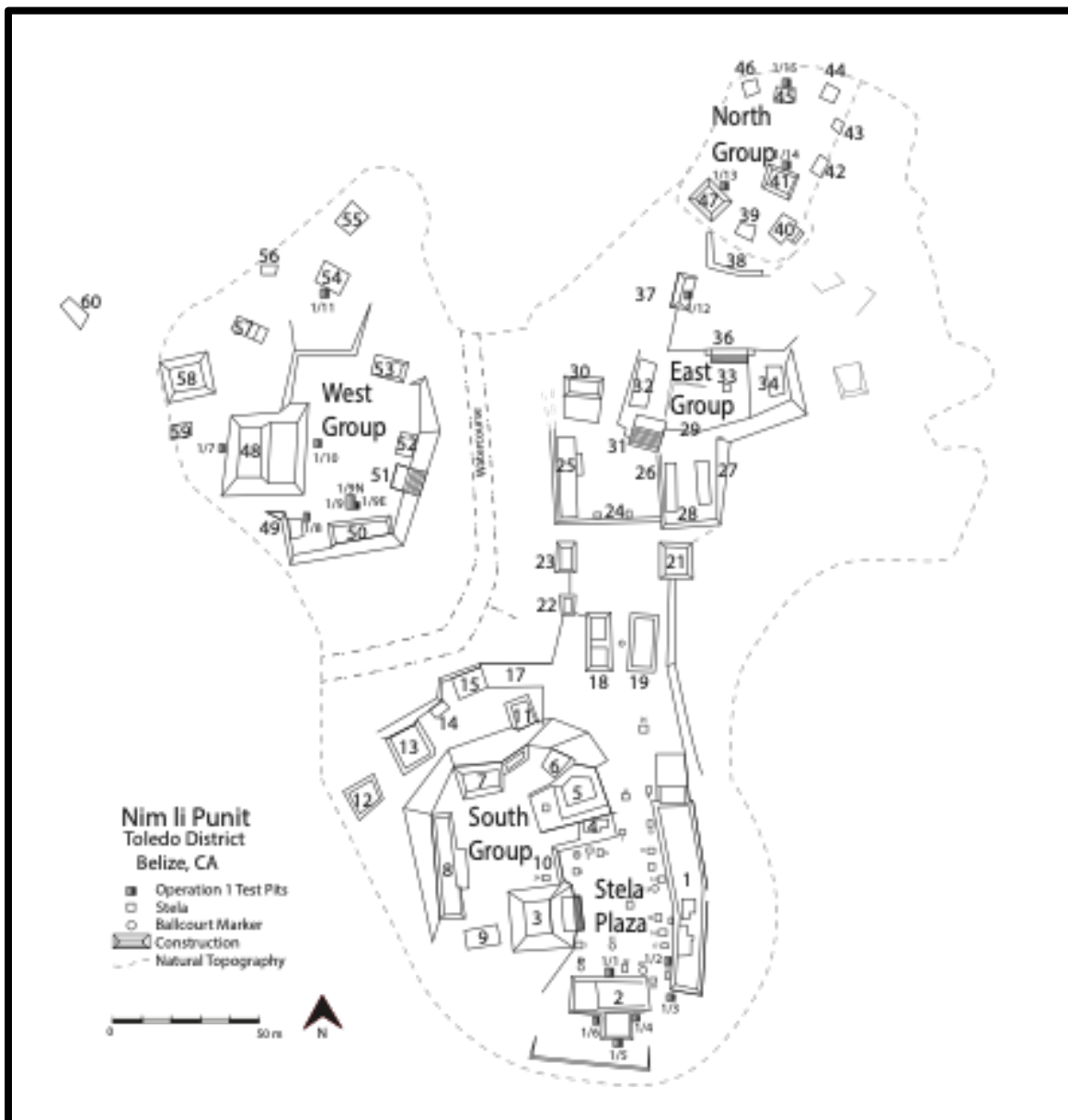


Figure 2.14 Map of Nim li Punit showing the locations of the test pits excavated during the 2010 field season. (compiled by author after Braswell and Daniels 2013).

The East Group is constructed on a gently sloping hillside and consists of four terraces, which contain plazas surrounded by stone buildings. Hammond has proposed that these series of buildings included range structures, house mounds, and shrines that may have served as lineage houses (Hammond et al. 1999:2). The West Group (also called the Akam Plaza) consists of several structures located on top of a single massive platform. Jamison (2001:81) argues that this group did not hold residential structures but, rather, served a public function and contained a large plaza. Jamison indicated in his research that the residential population of Nim li Punit lived in dispersed settlements on hills around the site core. My work provides new information relevant to this interpretation.

A total of six burials have been encountered at the site, all from the west plaza of the South Group. At Nim li Punit, the burial practice was to place bodies into unvaulted crypts. However, the naming convention at the site has been to call these crypts “tombs,” and this convention has persisted. Tomb I, excavated in 1986 by Leventhal and located in front of Structure 5, was a collapsing burial that required emergency attention. It contained at least five individuals and 40 ceramic vessels (Leventhal 1990:132). The consolidation work by MASDP in 1997 uncovered Tombs II and III, located under the stair architecture of Structure 8 (Larios Villata 1998). Tomb II was empty except for two ceramic bowls, several marine shells, and a number of broken stalagmites. Tomb III contained the remains of at least six individuals in a poor state of preservation, made worse by the rains of Hurricane Mitch in October 1998. The human remains were placed in different areas of the tomb, suggesting sequential burials. Tomb IV, technically an elaborate crypt, was an Early Classic burial placed into the floor of Structure 7-sub and containing three Teotihuacan-style vases (Braswell 2020:106-107). Tomb V is technically a cenotaph as no human remains were included. It had formal masonry walls, large

flagstone flooring, and large capstones, and was constructed as part of a Terminal Classic expansion to Structure 7. It contained numerous offerings, including an intact “Wind God Vase,” many decorated plates and bowls, and a T-shaped jade pectoral with hieroglyphic text dubbed the “Wind-Jewel Plaque” (Braswell 2017; Prager and Braswell 2016). Tomb VI, another crypt, is an Early Classic burial that was discovered in Structure 6 during the 2018 excavations undertaken for this dissertation project. It is discussed here and in Chapters 5 and 7.

During the 2009 test-pitting program by TRIP team members at the Nim li Punit site (Figure 2.14), three deeply buried burials were encountered in the West Group. None were placed within a formal crypt-style burial like those in the South Group. Instead, it contained the secondary burial of an adult (BU 1/9N/1 and 1/9N/3, disarticulated) and the primary burial of a child, estimated to be 10 or 11 years old (BU 1/9N/1), and an infant (BU 1/9N/2) amongst the fill cells and within the fill of the main platform of the West Group Plaza (Braswell et al. 2010:172-173). The younger child was estimated to be between three and four years old based on dental development. Their burial was the only one recovered with an associated grave good: a complete upturned flaring-walled bowl. These burials are likely commoner citizens of Nim li Punit and probably date to the late-Late Classic or Terminal Classic periods.

Special Topic: The Carved Monuments and Political Texts of Nim li Punit

The hieroglyphic data from the site of Nim li Punit include preserved texts from eight carved stelae and the jade Wind-Jewel plaque. Additionally, I contend that a looted vase that currently has no provenience, referred to as vessel K1440, can in fact be associated with the history of Nim li Punit, using iconographic and epigraphic arguments. The dedicatory dates on these texts range from 9.4.10.0.0 (AD 24, August 524, Stela 15) to 10.0.0.0.0 (AD 11, March

830, Stela 3): a span of 306 years. If we remove texts with retrospective dates and those with only Calendar Round dates from consideration, the period of monument creation and erection at Nim li Punit is 9.14.10.0.0 (AD 9, October, 721, Stela 15) to 9.19.0.0.0 (AD 24, June 810, Stela 7), which is a span of just 89 years.

Ancient Maya hieroglyphic texts serve as a rich source of information for understanding the political history of Nim li Punit. They discuss the ritual actions of kings, queens, and nobles on specific dates. These texts reveal aspects of the structure of Maya political systems, the roles of different leaders, and the relationship between Nim li Punit and other Maya centers. This chronological context is crucial for understanding the sequence of power shifts and the rise and fall of dynasties. However, interpreting these records requires a critical lens. It is important to acknowledge that Maya rulers likely commissioned these texts to glorify their achievements and legitimize their rule. Nim li Punit scribes may have exaggerated events to present a self-serving narrative. Historians must consider this potential bias when reconstructing political events. Furthermore, deciphering these hieroglyphs is an ongoing process. Interpretations can vary depending on the scholar's expertise and personal assumptions. Different readings can lead to conflicting narratives of the past, highlighting the need for a nuanced approach. Where possible I have made attempts to highlight the role of interpretation in our understanding of Nim li Punit's texts.

In the following section I will provide a brief discussion of the hieroglyphic texts available from Nim li Punit. A more complete discussion of each individual text, including drawings, translation, transliteration, and interpretation are available across several sources: the eight carved stela are covered by Phillip Wanyerka (2009) in Chapter 9, the "Bowl of 88 Glyphs"; vessel K1440 is discussed by Dieter Dutting (1986); and the Wind-Jewel Plaque is

discussed by Christian Prager and Geoffrey Braswell (2016). Additionally, I point the reader to Braswell (2022:116-125), who provides a synthesis on the political history preserved in the textual monuments of Nim li Punit. He focuses on the eight carved stela erected at the site, which he divides into two sets of four along temporal line: one early set and one late (Braswell 2022:116).

I have divided my brief discussion of the texts into four time periods associated with dates provided in the text, in the form of either formal Long Count dates or via a short-hand reliance on Calendar Round dates. The time periods addressed encompass: (1) a retrospective Early Classic date (AD 524) and the early Late-Classic Rulership of *Jaanab Ohl K'inich* (AD 652-672); (2) the late-Late Classic Rulership of *B'ahlam Te* (also known as Lord “Wind Jewel”; Braswell 2022; AD 717-727) and that of his possible successor, Lord “K’uhul Head” (AD 741); (3) the Terminal Classic Rulership of Lord *Mo’ Jaguar of the Underworld* (JGU) (AD 790 to 810); and (4) the Terminal Classic final texts dated prior to site abandonment (AD 830). A complete timeline of Nim li Punit’s historical texts is provided in Figure 2.16.

1) A retrospective Early Classic date (AD 524) and the early-Late Classic Rulership of *Jaanab Ohl K'inich* (AD 652-672)

The earliest dates associated with Nim li Punit come from the jade Wind-Jewel plaque and Stela 15. The rulership of *Jaanab Ohl K'inich* is documented on the Wind-Jewel Plaque, jade pendant measuring 188 mm wide, 104 mm high, and 8 mm thick. The shape of the pectoral is the hieroglyph T503 (Thompson 1962) IK’, meaning “wind, breath”. It was discovered during excavations in Structure 7 of the South Group at Nim li Punit, specifically in the cenotaph labeled Tomb V. The back side of the pectoral has a block of text comprised of 30 glyphs. The text has been interpreted by Prager and Braswell (2016:275) to read,

he was “necklaced” for the scattering on 10 Ajaw 8 Yaxk’in (9.12.0.0.0), Janaab Ohl K’inich Son of the divine Lady Ix Pitz ... K’an Hix Balaw She of five ...; son of K’inich Bahlam, incense scatterer (in his) first twenty years (of life). On 7 Men 13 K’ayab (9.10.19.4.15) He acceded as lord, Janaab Ohl K’inNich Muwaan Bahlam, Nine-Province (person), he of Three Stony...

This text does not reference Nim li Punit at all; indeed, there is a strong possibility that *Jaanab Ohl Kinich* and his parents did not come from Nim li Punit. Braswell (2020:111) suspects that the “wearer of the pendant was a foreigner who was installed as a ruler of Nim li Punit in AD 652 as part of a political strategy to form alliances in the underpopulated region between the Copan state and that of Caracol.” His mother, Lady *Ix Pitz*, has been strongly connected to Cahal Pech, a site to the north of Nim li Punit in central Belize. The text highlights two important moments for *Jaanab Ohl Kinich*: his ascension to the throne of an unknown city around AD 657 and his performance of an important scattering ritual during the 9.12.0.0.0 period ending AD 672. Alternatively, *Jaanab Ohl Kinich* may have been a patron to a lord of Nim li Punit and gifted this powerful talisman to be used in rituals at the site, as seen on Stelae 15 and 2. These stelae document the use of the Wind-Jewel some 50 years after its original carving. In addition, if the links made between the Wind-Jewel and vessel K1440 are correct, then there are two versions of the Nim li Punit Wind-Jewel pictured on the enthronement scene on this bowl, both possessed by the foreign lords performing the ritual some 45 years after its original carving.

Stela 15 was discovered face down approximately 5 m east of Stela 14, along the eastern side of the Stela Plaza near the center of Structure 4 (Figure 2.17). Stela 15 has a retrospective date of 9.4.10.0.0 12 Ajaw 8 Mol (24 August, 524), a full 10 *K’atuns* earlier than the stela’s carving, and was dedicated on 9.14.10.0.0 5 Ajaw 3 Mak (9 October, 721). An Emblem Glyph

for Nim li Punit, spelled phonetically as *Wakaam'* (Wanyerka 2009:516), is associated with this portion of text.

2) The late-Late Classic Rulership of *B'ahlam Te* (also known as Lord “Wind Jewel” AD 717-727) and that of his possible successor Lord “K’uhul Head” (AD 741)

The rulership of *B'ahlam Te'* is depicted across three texts in vessel K1440, Stela 2, and Stela 15, while a fourth text in Stela 1 may refer to the rulership of *B'ahlam Te'* or a potential successor, referred to as Lord “K’uhul Head.” Braswell (2020:116) notes that these three stelae represent an early monument program that covered ritual events connected to *k'atun* ceremonies spanning AD 721-741.

Vessel K1440 is a Late-Classic-style polychrome bowl, nicknamed the “Bowl of Eighty-eight glyphs,” which was looted and has since lost its provenience; it is now housed in the collections of the Museum of Fine Arts in Boston. This vessel was not found at the archaeological site of Nim li Punit. However, I will present epigraphic and iconographic evidence that makes the case that the main character of this vessel is the same as that found on Stela 2 and Stela 15 from Nim li Punit. Dieter Dutting (1986) made the first attempt to decipher this long text. Vessel K1440 sheds light on the enthronement of a ruler named *B'ahlam Te'*. Wanyerka (2009:447-457) was the first to propose a connection between this vessel and the site of Nim Li Punit, Belize; his argument is both epigraphic and iconographic. “The history recorded on this bowl covers a wide span of time from mythic times to historical events dating to the Late Classic Period” (Wanyerka 2009:447). Since Wanyerka’s (2009:447-460) initial linkage of this vessel to the site of Nim li Punit, TRIP made the 2015 discovery of the jade Wind-Jewel plaque (Prager and Braswell 2016). This discovery now bolsters this assertion as the artifact features prominently on Stelae 2, 15, and the ceramic vessel K1440.

Some of the most relevant iconographic and textual evidence from vessel K1440 is the name of the enthroned ruler, located in glyph blocks D1, E1, and F1, which is transcribed as B' AHLAM .?.? TE'; transliterated as *B'ahlam Te'* and translated as “Jaguar Tree” or “Root.” On vessel K1440, the name of this lord is positioned directly above the bowed figure who is being enthroned, thus signifying to the viewer that the name belongs to this figure. Glyph blocks R4-S5 constitute an important section of the text and are transcribed as K'an Yotot Na Kay Naah. Wanyerka (2009:456) translates this section as “Precious House of the First Nim Li Punit Woman,” which he notes is a reference to the royal house of the Nim Li Punit lords. The main glyphic element of kay/ka of R5 is similar to the main sign of the Nim li Punit Emblem Glyphs, as seen on Stela 1 (glyph block C4) and Stela 2 (glyph block E3).

The first portion of the text discusses a mythical event that occurred in the distant past, on the Long Count date of 1.14.3.3.12.9 *Eb'10 Muwaan* (24 January, 2439 BC), which claims to be the birth of the future king *B'ahlam Te'*. The next section of text moves forward in time to the Late Classic 1 *Ajaw 8 Kumk'u* Long Count date of 9.14.5.4.0 (AD 23, Jan 717) to the ascension of *B'ahlam Te'*. The associated scenes depicted on the bowl show *B'ahlam Te'* receiving a ceremonial cleansing or "*rameada*" performed by elderly figures, as interpreted by Julián Reyes (2019:89-93). He wears a feathered cape and bows, grasping his right forearm with his left arm, a sign of submission (Miller 1981). On the other side of the vessel, we see the newly enthroned *B'ahlam Te'* seated on a throne seat and attended by two supernatural beings with bat and mouse heads. The associated text mentions that he received a gift from a *Xupki'* Copan lord and a version of the Nim li Punit toponym is listed in glyph block E2: u.AJAW:KAY:na. Notably, the date associated with this scene is five years prior to the dedication of Stela 15 at Nim li Punit, where we see the protagonist *B'ahlam Te'* again.

Stela 15 depicts a fire-burning ritual, with three individuals scattering drops of blood or incense (Figure 2.17). Zender (2004:136) has identified the figure on the left as a high-ranking Maya priest. The king is shown in the center, wearing a large, coiled turban headdress best known from sites in the Maya southeastern lowlands, especially Copan and Quirigua (Schele and Looper 1996:123). The king performing the scattering ritual is named in glyph block R2 as K'U.AJAW:B'ALAM; *K'uhul Ajaw B'ahlam*. He also wears the jade Wind-Jewel Plaque around his neck during this ceremony. The censor depicted in this ritual scene is nearly identical to an actual example that has been found at the Rosalila temple of Copan (Fasquelle 2004; see Figure 2.17). The third figure on the right is labeled by the text as *Kinich K'uk yita Xukpi ajaw* “resplendent quetzal, companion of a Copan lord.” The dedicatory date for Stela 15 is 9.14.10.0.0 5 *Ajaw* 3 *Mak* (9 October, 721). The bottom portion of text from Stela 15 gives a date of August 722 and introduces a new individual (likely not depicted on the stela) whom it gives the royal title of a *B'aah Ch'ok* “Head Youth.” Houston (2009:157) sees this title as equivalent to that of “prince.” In the context of Stela 15, this portion of text is naming the Head Youth of the Black Copan Lord. By using this phrasing, the scribes of Stela 15 were likely naming the heir apparent of *B'ahlam Te'* (Martin 2020:75; Wanyerka 2009:466).

Stela 2 was found broken into eight pieces and the surface was damaged by a 1981 machete attack by vandals at the site. The initial Long Count portion of the text on this monument is partially eroded and incomplete. The proposed date for the stela's erection is September 12, 738 (Wanyerka 2009). Alternatively, the date could also fall in AD 727, corresponding to the tenth year of *B'ahlam Te'*'s reign. The object depicts a similar scattering ritual to Stela 15, with the participants standing on top of a flower mountain. It most likely records rituals performed in honor of the 10th anniversary of the ascension of *B'ahlam Te'*. The

name of the Lord depicted carrying out the scattering ritual is contained in glyphs D4 and E4: MI' AJAW:TE' B' AHLAM?. The water scroll Emblem Glyph appears on this stela, which has also been linked by Helmke et al. (2018) to the site of Altun Ha in northern Belize. In addition, the *Ek' Xukpi* glyph appears on this stela, and together these glyphs may imply that the depicted event was overseen by representatives of Altun Ha and Quirigua (Wanyerka 2009:415).

Stela 1, also known as the “Mat Stela,” was found upright in front of the southeast corner of Structure 2 at Nim li Punit. It depicts a royal woman seated on a throne beside a king, who is interpreted to be a new ruler at Nim li Punit referred to as “Lord K’uhul Head” (Braswell 2020:146). On Stela 1 the king is named in glyph A4 as ch’a.B’ AHLAM?. Both the noble man and woman are performing a scattering or burning ritual. The scene takes place atop a *witz* monster head (symbolizing a mountain) and is positioned over a mat symbol. The mat symbol is associated with rulership and has been linked to *popol nah*, or a council house, like it is in the famous example from Copan Structure 22a, as identified by Barbara Fash (Fash et al. 1992). We have also found that Structure 8 at Nim li Punit may have served a similar function as a council house (Braswell 2020:118). This stela has a full Long Count date of 9.15.10.0.0 3 *Ajaw* 3 *Mol* June 26, AD 741. The full name and titles of “Lord K’uhul Head” are given, as well as glyphs for “he scattered drops,” referring to the ritual he performed. He is named as the lord of Nim li Punit and the Emblem Glyph depicted on glyph block C4 carries the full *k’uhul ajaw* title and is one of the best-preserved from the site.

There are several iconographic elements that help make the case that these three monuments together with the ceramic vessel depict and discuss the rulership of *B’ahlam Te’*, a lord of Nim li Punit (line drawings of the monuments and vessel can be seen in Wanyerka 2009: Figures 11, 12, 19, and 21; Braswell 2020:119 refers to this individual as “Lord Wind Jewel”).

Beginning with vessel K1440, a submissive *B'ahlam Te'* is shown being enthroned by two overlord patrons; both patrons are foreigners, who wear versions of the jade Wind-Jewel, one is attributed to the city of Copan. We next see *B'ahlam Te'* on Stela 15, where he is performing a scattering ritual. Notably, here he now wears the jade Wind-Jewel, large jade earspools, bracelets, and a royal belt with figurine heads and jade tinklers. His large, coiled turban headdress and the ceramic censor used in the burning ritual are strongly associated with the southeastern portion of the Maya world (Figure 2.17). In the bottom text of Stela 15, *B'ahlam Te'* names a "Head Youth" to be his chosen successor for the throne of Nim li Punit. Next, *B'ahlam Te'* is depicted on Stela 2, celebrating the half *K'atun* anniversary of his ascension. This anniversary celebration is overseen by foreign dignitaries from Altun Ha and Quirigua. Here he is depicted in the full regalia that was worn by the two overlords in the ceremony depicted on vessel K1440, which includes the large monster headdress, large jade earspools, a feathered cape, and the Nim li Punit Wind-Jewel plaque. He once again performs a scattering ritual into a copaneco-style ceramic censor.

The final part of *B'ahlam Te'*'s rulership is recorded on Stela 1, where his successor "Lord K'uhul Head " performs another scattering ritual, this time into a large ceramic bowl, before a seated robed individual. He wears a large monster headdress with long feathers; notably, the jade Wind-Jewel is not shown in this scene. "Lord K'uhul Head " may be the heir apparent, as discussed on the lower portion of Stela 15. The reference to *B'ahlam* on Stela 1 uses the phrase *ch'a B'ahlam*, with *ch'a* meaning young or green and perhaps referring to the young *B'ahlam* successor. Alternatively, Braswell (2020:119) identifies the figure on Stela 1 as "Lord K'uhul Head" and attributes the creation and erection of Stelae 1, 2, and 4 to his reign. These iconographic elements depict *B'ahlam Te'*'s journey from receiving external validation, to

becoming a fully adorned ruler performing rituals that solidified his power, to the passing of divine rulership to his successor without external support or interference. The regional influences and changing regalia presented iconographically suggest a complex political landscape, where alliances and cultural exchange played a significant role in Maya rulership at Nim li Punit.

3) The Terminal Classic Rulership of Lord *Mo' Jaguar* of the Underworld (JGU) (AD 790 to 810)

The rulership of Lord *Mo' JGU* is documented across three texts: Stela 7, Stela 14, and Stela 21. Braswell (2020:120) connects these three stelae, arguing that they constitute part of a late monument program that covered ritual events connected to *k'atun* ceremonies spanning AD 790-810. There is a 50-year hiatus in the monument carving between the rules of *B'ahlam Te'* “Lord K'uhul Head” and Lord *Mo' JGU* (Braswell 2020:122 refers to him as “Lord Mo”).

Stela 14 is the largest carved monument at Nim li Punit (at 9.5 m) and is second in height only to Stela E of Quirigua (at 10.6 m; Sharer 1990). Stela 14 was located at the very center of the Stela Plaza of Nim li Punit. While some researchers have attempted to link Stela 14 and Stela E as evidence of a connection between Nim li Punit and Quirigua, the reality is that beyond their height the two do not have much in common and represent two distinct artistic programs (Braswell 2020:116; Wanyerka 2009:156). The recorded Long Count date is 9.18.0.0.0 10 *Ajaw* 8 *Sak* (7 October, 790). Wanyerka (2009: 446) notes that the recorded *Haab* for this date should be 11 *Ajaw* 18 *Mak* and argues that the Nim li Punit scribe may have been trying to link two period-ending dates (9.18.0.0.0 and 9.18.10.0.0). A similar exercise linking these two exact dates has been identified on Stela 11 of Caracol (Grube et al. 1999:35). Stela 14 shows the king dancing and performing a scattering ritual in full regalia while holding a *K'awiil* scepter of

rulership. The text mentions that the king is *Mo' JGU* and depicts him as a scatterer, it also describes his mother as *Ixik B'ahlam Ajaw*, "Royal Lady from Jaguar Site." The location of the *B'ahlam* site remains unknown; the phrase for a "Jaguar Site" appears in relation to a captive on sculptural fragment 17 at Pusilha (Prager 2002: 321).

Stela 21, the "New Stela," was discovered by MASDP in 1998. It was found lying on top of Structure 3 of the Stela Plaza and features a king standing, facing left, and holding a *K'awiil* scepter. The king wears an elaborate zoomorphic headdress with feathers and a small jester-god headband. He also wears a large, spangled necklace and bar pectoral across his chest, as well as a royal belt assemblage that features three small portrait heads and nearly a dozen celts. His feet are set apart to portray him in a dancing pose, and he is surrounded by two "sinuous form[s] labeled as made of stone that could represent the upper jaw of the underworld monster", linking the scene to imagery of caves and the underworld (Braswell 2022: 122). There are 24 text blocks in four columns carved on the monument. The opening Long Count is 9.19.0.0.0 11 *Ajaw*, 18 *Mak* (7 October, 790). The king shown here is named *Mo' JGU*, the same individual named on Stela 14; he carries the full syllabic version of the Nim li Punit Emblem Glyph, which reads *Ka-wa-ma* or *Kawam* (Wanyerka 2009:499). He is described as performing a scattering ritual the associated term is *Ox Witik K'awiil* or "three roots God K'awiil," which has been associated with a physical place of rites of enthronement at the site of Copan (Stuart and Grube 2000:5; Wanyerka 2003:82); alternatively could be naming the object being scattered (Braswell 2022:122); another interpretation is that this phrase is should be associated with the names and titles of Lord *Mo' JGU* himself (Braswell 2022:122). He has a full parentage text naming his mother Lady Jaguar Lord and his father the JGU Lord.

Stela 7 was found in the southeastern corner of the northern terrace, near the entrance to the main stela plaza. It is the second-tallest carved monument at the site, with a height of 5.53m. The text on this monument is very eroded, making it difficult to decipher anything beyond the Long Count date. The style of the monument is like that of Stela 14. It is divided into three registers, with text at the top, figures in the middle, and text at the bottom. Stela 7 also features a portrait of two standing lords facing each other on top of a *witz* monster pedestal. The figure on the left is wearing an elaborate K'awiil headdress, a front-tied hipcloth, and perhaps some sort of royal belt or backrack. He appears to be presenting an object to the individual on the right, of whom only the faint outlines of a feathered headdress and belt can be discerned. Just as the figure on the right is almost totally eroded, the single column of text between the two figures is now illegible. This image is framed by a body of text above and below, but it is now also mostly illegible, except for the Long Count date of 9.19.0.0.0 9 *Ajaw* 18 *Mol* (24, June 810).

4) The Terminal Classic final text dated prior to site abandonment (AD 830)

The latest monument with text at Nim li Punit is Stela 3. Stela 3 was found broken into three pieces, with the base in situ in the Stela Plaza's northwest corner. The carving only contains a short round date of 7 *Ajaw* written in an unusual, reversed order. Wanyerka's (2003:261) interpretation suggests that this pertains to two possible dates: the Period Ending 9.7.0.0.0 (7 *Ajaw* 3 *K'ank'in* or 5 December, 573) or the Period Ending 10.0.0.0.0 (7 *Ajaw* 18 *Sip* or 11 March, 830). The later date is more likely, making this the latest-dated monument at the site.

Summary of the Political Texts of Nim li Punit

The monuments of Nim li Punit are typical Classic period stelae, erected to commemorate period endings for the eighth and ninth centuries and to document the rituals performed by the site's rulers (Rice 2007:172). The iconography and text across the eight carved monuments, the Wind-Jewel, and vessel K1440 speak to typical Classic period patterns narrating the actions of "...individuals not groups, officeholders not institutions, with all political action and identity subsumed within the person of elite, usually royal, actors" (Martin 2020:60). The monuments of Nim li Punit discuss events covering a span of 286 years. The period of actual carving and erection of monuments at Nim li Punit spans a significantly shorter 69 years (AD 721 Stela 15 to AD 790 Stela 21). The earliest directly dated object comes from the jade Wind-Jewel of 9.10.19.4.15 (AD 652) but this cannot be attributed to Nim li Punit proper, since neither the Nim li Punit center nor any of its protagonists are mentioned in the text. The latest carving at the site is interpreted to be Stela 3, with a date corresponding to 10.0.0.0.0 (AD 830). Overall, there were two short periods when the monuments were carved and dedicated. The first was AD 721-741 and includes stelae 15, 2, and 1 (and potentially includes Stela 4 too, though this is mostly illegible; Braswell 2020:117). The second period was AD 790-810 and includes stelae 7, 14, and 21 (Braswell 2017:12). Many of the site's monuments dated from the Late Classic feature three individuals conducting an incense-burning ritual that was repeated at the site on important dates. Notably the Terminal Classic dated monuments highlight a different propaganda program, focusing only on the ruler who performs dancing and scattering rituals alone.

Nim li Punit's monument texts have not clarified dynastic succession, but they have linked the site to other areas in the Maya world, including Copan, Quirigua, and Altun Ha. From these texts we know of three, possibly four, rulers associated with Nim li Punit. However,

Braswell (2020:125) notes that due to the “differences in emblem glyphs [we] cannot be completely certain that they all were from Nim li Punit.” The list of named individuals is: Lord *Bahlam Te’*, associated with Stela 15, Stela 2, vessel K1440, and possibly Stela 1; “Lord K’uhul Head,” who may be named at the bottom of Stela 15 and may also be the central figure of Stela 1; Lord Mo’ JGU, associated with Stela 14, Stela 21, and possibly also Stela 7, but it is unlikely we will be able to confirm this due to Stela 7’s preservation; finally, the named ruler *Jaanab Ohl K’inich*, who is associated with the Wind-Jewel plaque, who was likely a king of Nim li Punit, but who is not specifically tied to an emblem glyph for that or any other site. The connection between Nim li Punit and Copan/Quirigua hinges on the textual references to the *Ek Xukpi’* lords, as seen on Stelae 2, 4, 15, and the K1440 vessel. This term (*Ek Xukpi’*) is connected to the main sign of the Copan emblem glyph, *Xukpi’*, and portrays a leaf-nosed bat¹. There is no mention of the “Black Copan” lords at the Copan site, leading researchers to the conclusion that the phrase *Ek Xukpi’* may refer to something other than people from Copan (Braswell and Prufer 2009). However, this glyph has been seen at Quirigua (Looper 1999:268). Two other emblem glyphs appear at Nim li Punit. Wanyerka (2003:82) reads a syllabic form of the emblem glyph from Stela 21 as *kawam* or alternatively as *wakam* (Helmke et al. 2018; Martin 2020:396). Another possible emblem glyph visible on Stela 2 has been read as *wakaam’* and Wanyerka

¹ The presence of the *Ek Xukpi* title in carved monuments at NLP decades before its use on carved monuments as Quirigua, has less to do with control of the title (No NLP lord ever claimed this title) but instead highlights the political dynamics that were ongoing throughout the 8th century and over the reign of Buts’ Tiliw lord of Quirigua. This title appears on three Quirigua monuments which retrospectively describe the reign of Buts’ Tiliw. Stela A, glyph D8 (carved and erected on December 29, AD 775), names Buts’ Tiliw as *Ek’ Xukpi ahaw* or “black Copan lord” at the time of his coronation in AD 725, overseen by Copan’s Waxaklajuun Ub’aah K’awiil (Looper 1999:268). Additionally, the title is present on Quirigua Stela D, glyph D19a and Quirigua Zoomorph B, glyph 17b, both linked to Buts’ Tiliw. The two examples of the title from Nim Li Punit are associated with the presence of foreign dignitaries. The first NLP monument is the bottom text for Stela 15 which discusses a *chok winik yajaw Ek’ Xukpi* ‘Young Person, the lord of the Black Copan Lord’ (M1-M2; The establishment of this monument is August 5, AD 722). On Stela 15 this young lord is described as overseeing an important ceremony and the planting of Stela 15 by B’ahlam Te’. Later, on Stela 2 of NLP the inscribed text describes that the monument raising was overseen or took place “*yitaj*” or “with” a person referenced to as *Ek Xuxpi Ajaw*, this monument dates to July AD 738.

believes that the main sign of this glyph references a raptorial bird (Braswell 2022:122; Helmke et al. 2018; Wanyerka 2009:516). A similar beaked glyph appears on Stela 1:C4 and may be another instance of the Nim li Punit emblem glyph. Either way, there are two candidates for the name of the city, and it is currently not clear which was historically in use for Nim li Punit (Prager and Braswell 2016:267).

Political Landscape of Nim li Punit

The texts preserved on the Nim li Punit monuments also provide us with connections to other sites and regions in the broader Classic Maya world. These connections come in a variety of types, from enthronement ceremonies and diplomatic connections (Copan, Quirigua, Altun Ha, and possibly Caracol), to marriage and family ties (*B'ahlam* site, Cahal Pech, and Quirigua), and a textual interpretation of conflict and warfare (a possible alliance with Quirigua and Altun Ha against Pusilha). These political connections are visualized in Figure 2.18. Martin and Grube (2000:21) first conceived of this type of inter-polity relations as a network structure, and an updated version of the theory was most recently presented in Martin (2020:308). This type of visualization highlights the complicated and interconnected world that made up the Classic Era Maya political landscape. Figure 2.18 focuses on just a small subset of these connections, positioning Nim li Punit as the central spoke. During the Late Classic, Nim li Punit's connections with the rest of the Maya world would have been mediated by their political affiliations with larger sites such as Copan/Quirigua to the southeast and Altun Ha to the north. In the remainder of this section, I highlight the textual evidence that are used to reconstruct Nim li Punit's political connections with other sites and regions.

Connections with the site of Copan are found on Glyph Blocks D'1-F'2 from vessel K1440 (*B'ahlam Te'* receives a gift from a Copan lord), and Glyph Blocks U4-U5 from Stela 15 (the high priest overseeing the scattering ritual “Xukpi Ajaw” from Copan).

Connections with Quirigua are found on Glyph Blocks I1-I2 from Stela 2 (the planting of the stela was witnessed by a *Ek' Xux Ajaw* Black Copan Lord). Moreover, the potential heir of *B'ahlam Te'*, seen on bottom of Stela 15, is associated with Quirigua in Glyph Blocks M1-M2 (young lord of Black Copan).

Connections with Altun Ha are found on Glyph Block G2 from Stela 2 (someone from Water Scroll EG connected to Altun Ha seems to be overseeing the ceremony; Helmke et al. 2018).

Both Quirigua and Altun Ha are once again mentioned on the bottom text of Stela 2, witnessing the planting of Stela 2. There is also mention of *utok' pakal* on Glyph L2, which is read as “his flint and shield” and is in other examples usually associated with warfare (Martin 2001), but the context on this stela is not clear: were the two representatives merely accompanied by armed escorts, or was there some sort of battle involving all three sites?

Connections with an unknown *B'ahlam* city are found on Glyph Blocks B9-A10 from Stela 14 (a royal lady from Jaguar site, who was the mother of Lord *Mo' JGU*); this parentage text is repeated in Glyph Block D5 on Stela 21, too (Lord *Mo' JGU* is the cherished son of royal lady from the Jaguar site).

Connections with Cahal Pech are found on Glyph Blocks 10-13 from the Wind-Jewel plaque (the mother of *Janaab Ohl Kinich* was a royal lady from site of Cahal Pech).

A possible connection with Caracol is found on Glyph Block 30 from the Wind-Jewel plaque (*Janaab Ohl Kinich* claims to be enthroned at three stony place, possibly the Caracol toponym; Prager and Braswell 2016:275).

There is a driving mystery contained in the numerous texts from Nim li Punit: they do not appear to mention any of the site's closest neighbors, namely Pusilha, Uxbenka, and Lubaantun. Instead, all the named centers imply connections with either unknown sites (such as the *B'ahlam* site), or faraway polities well outside the SBR (Altun Ha, Quirigua, Copan, Cahal Pech, possibly Caracol). Overall, the pattern across these texts is that Nim li Punit leaned heavily on its association with other, larger and more powerful, sites throughout the Late Classic, in order to express the legitimacy of the Nim li Punit kings.

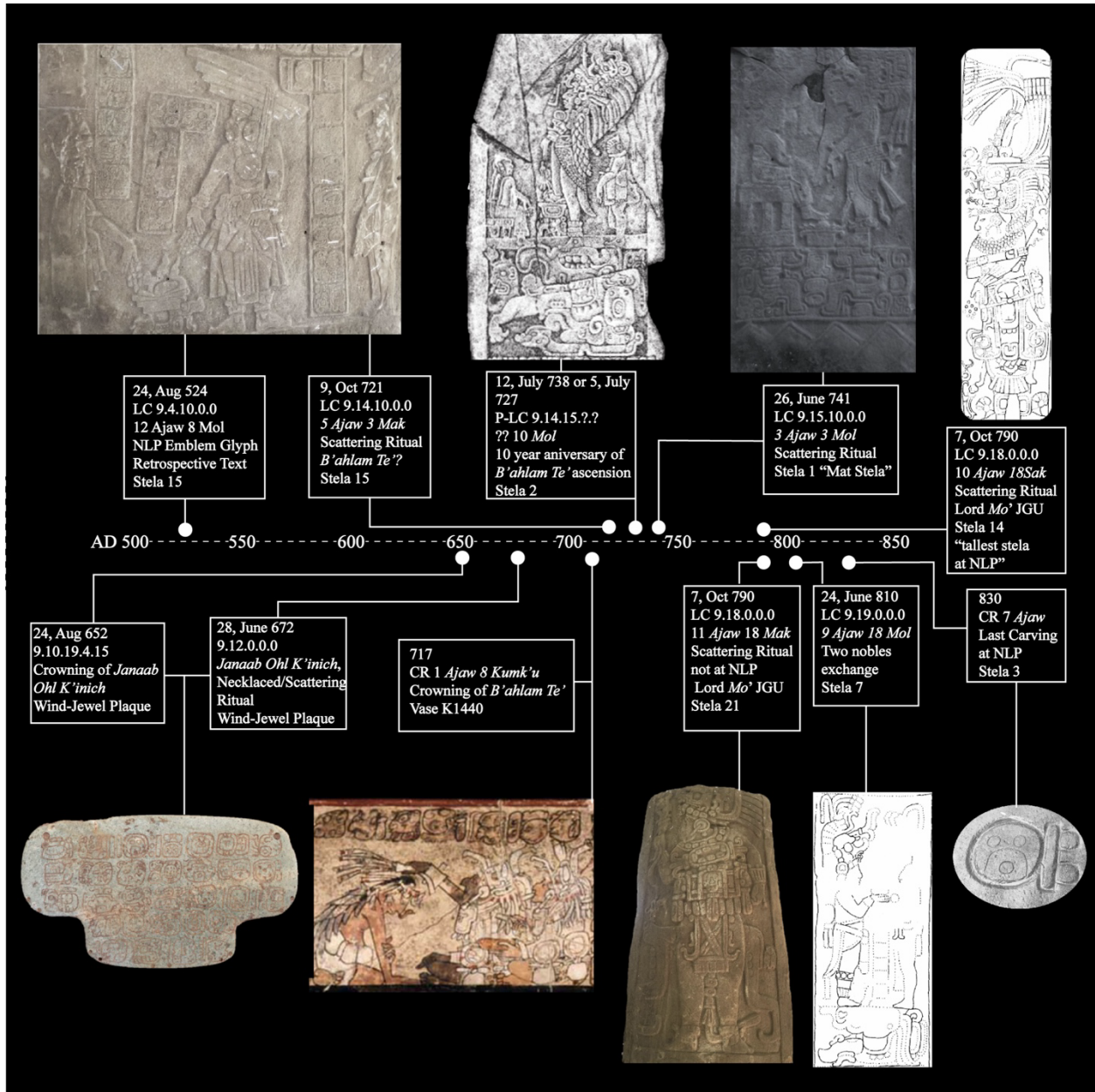


Figure 2.15. Nim li Punit historical timeline. (Credits for inset images used in composite timeline: Stela 15, photo by author; Wind-Jewel Plaque, photo by author; vessel K1440, photo by Justin Kerr accessible at mayavase.com; Stela 2, modified from Hammond et al. 1999:Fig.4 drawing by Sheena Howarth; Stela 1, 3D model by author; Stela 14, modified from drawing by J. Montgomery from Wanyerka 2009; Stela 21, photo by author; Stela 7, modified from drawing by John Montgomery from Wanyerka 2009:Fig.33; Stela 3, photo by author.)

Stela 15 of Nim li Punit

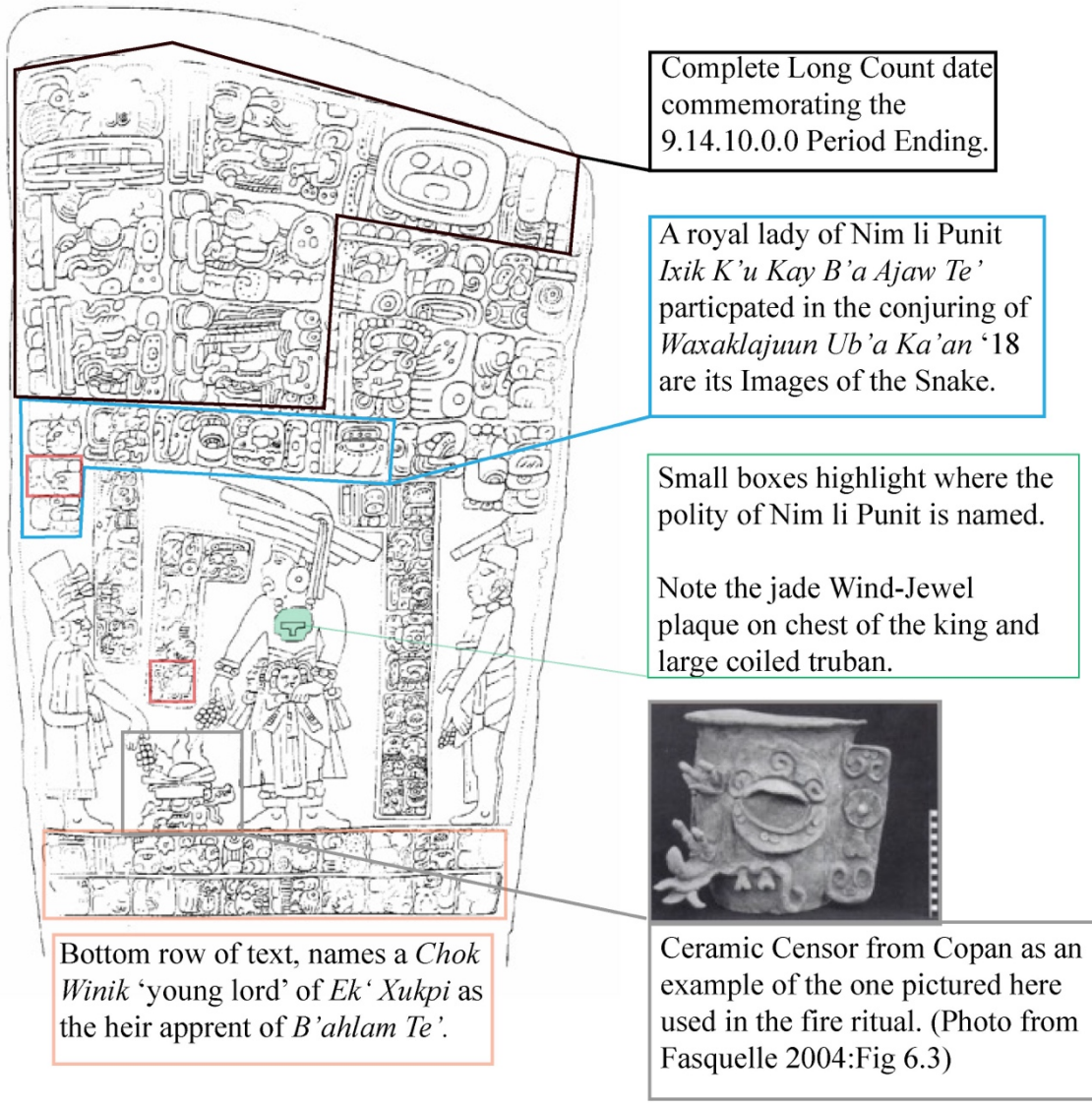


Figure 2.16. Stela 15 of Nim li Punit (line drawing of Stela 15 by John Montgomery from Wanyerka 2003:Figure 29).

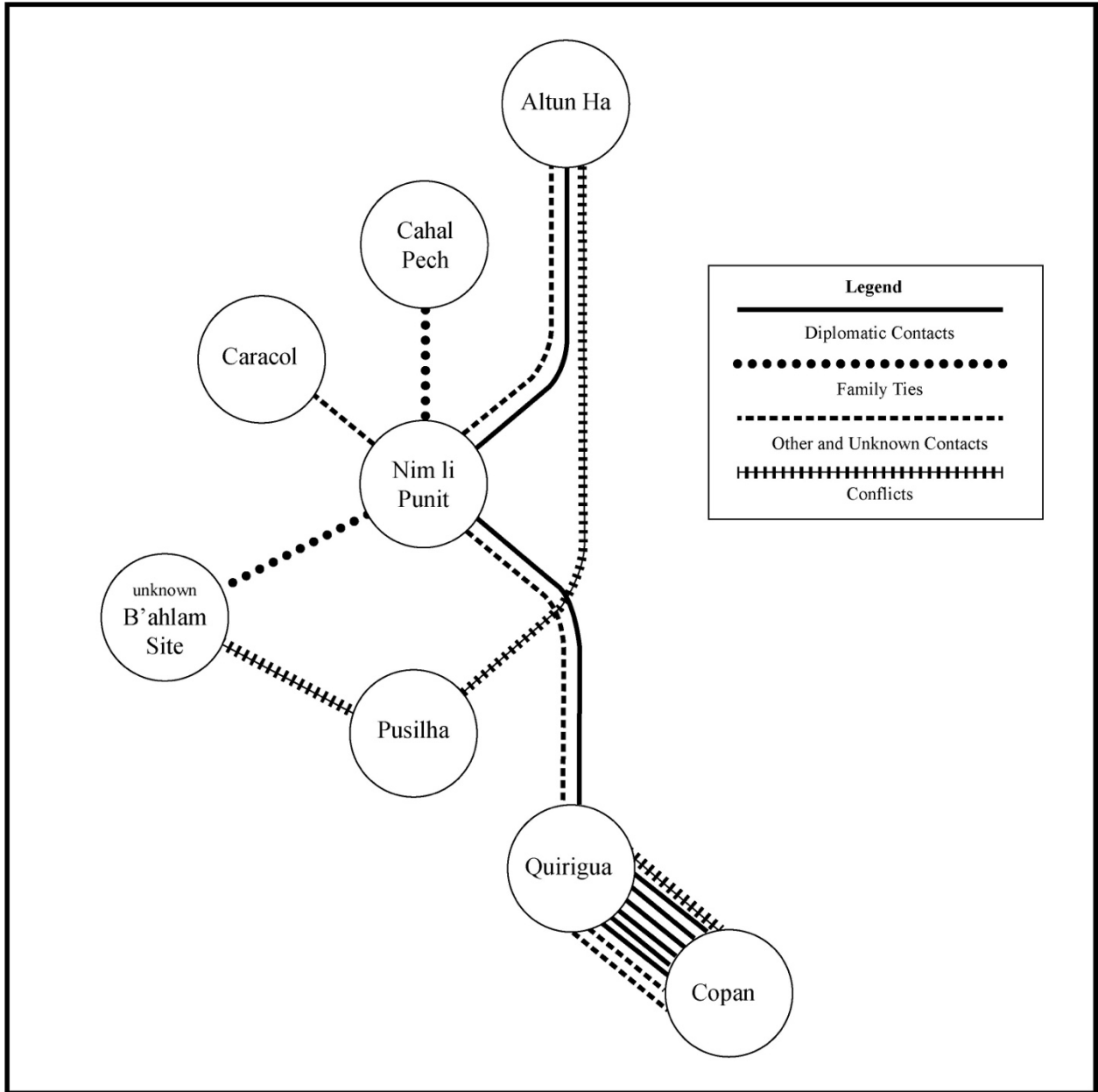


Figure 2.17. Nim li Punit political landscape.

2.9 DISCUSSION: SOUTHERN BELIZE IN SPACE AND TIME

The general chronology of the Southern Belize Region presented here closely follows Braswell (2022).

Early Classic period (AD 250-600)

The SBR developed as a clear cultural area that located amongst other distinct regions of the broader Maya World (Braswell 2001, 2020; Dunham et al. 1989; Hammond 1975; Leventhal 1990, 1992). During this period the region's population was extremely small and the only major sites initially inhabited were Uxbenka and Nim li Punit, followed by much smaller settlements along the southern Belize coast. By AD 300-400 these sites set out on modest construction programs, building site centers focused on plaza groups, pyramids, ballcourts, and ceremonial temples. During the Early Classic, Uxbenka was the largest ancient settlement in southern Belize; it would continue as an important polity until at least AD 780, temporally overlapping with Nim li Punit, Pusilha, and Lubaantun. Construction in the Nim li Punit core took place in the Early Classic and expansion occurred during the Late to Terminal Classic period. Textual evidence from Stela 15 marks Nim li Punit claiming ownership of an Emblem Glyph in a retrospective text dated to AD 524.

Late Classic period (AD 600-790)

The sites of southern Belize saw significant growth and expansion during this period. Through more than 100 years of exploration and mapping, the region has been documented to contain over 200 surface sites and perhaps as many cave sites in the Maya Mountains. The major sites of the SBR controlled small territories of 500 to 1000 km² but were unable to exert much control over other areas for any significant extended period (Braswell and Prufer 2009). Textual

evidence from this time instead shows that Nim li Punit and the SBR more generally were deeply connected to the political machinations of a broader ancient Maya world. The jade Wind-Jewel was carved at this time and connected with the rulership of *Jaanab Ohl K'inich*. While the provenance of this artifact cannot be directly tied to Nim li Punit or the SBR, at some point it made its way to Nim li Punit and would feature prominently in ritual activities in the next phase. Textual evidence from this period features *B'ahlam Te'*, a prominent ruler who called upon his political connections with Copan, Quirigua, and Altun Ha to legitimize his rule. All the region's sites saw population growth and major construction projects during this period. The sites of Lubaantun, Pusilha, and (possibly) Xnaheb are wholly fixed within this era, with an extremely brief occupation period. Lubaantun was founded in the early AD 700's and abandoned by AD 890. Pusilha was founded in AD 570 and abandoned by AD 798.

Terminal Classic/ Early Postclassic period (AD 790-1200)

The 8th and 9th centuries AD marked the end of the Classic Maya world, including the SBR. Nim li Punit saw its final rulership, headed by Lord *Mo' JGU*, who was notably depicted as a solitary divine lord emphasizing his ritualistic dancing. By the Terminal Classic, populations dwindled, the erection of stelae and the construction of monuments halted, and all the major city centers were abandoned. Nim li Punit was likely abandoned by AD 850. Only the coastal sites of SBR had continual occupation into the Postclassic, but rising sea levels also led to the abandonment of traditional Classic period coastal habitation sites. The site of Pusilha is the only major inland site with evidence of Postclassic habitation while the site Uxbneka had some minor visitations in the Postclassic, but like all the major centers of the SBR it was not permanently reinhabited.

Based on this chronological information, it can be stated that the high point of the SBR was the eighth century AD, illustrating that there was notable temporal overlap for all the major and minor sites of the region (Braswell and Prufer 2009:51).

2.10 CONCLUSIONS: RESEARCH CONTEXT

Archaeological investigations in southern Belize allow us to propose a historical narrative for this region's major sites. It is clear that the region was made up of diverse polities operating and interacting to varying degrees along economic, political, and social axes. All four of the major sites of the SBR—Lubaantun, Pusilha, Nim li Punit, and Uxbenka—were occupied with some level of contemporaneity, at least during the eighth century AD, in the second half of the Late Classic period (Braswell 2022). This temporal overlap is necessary for the region to be considered an interactive network.

The SBR is considered small and peripheral compared to the central Maya lowlands. Pusilha was the largest city among the four major sites in the SBR, with an estimated population of 6,000 at its height (Volta 2007). The number of structures at Lubaantun is less than half of that at Pusilha and the settlement area is much smaller, estimated at no more than 3,000 inhabitants (Braswell and Prufer 2009:51). Uxbenka and Nim li Punit are even smaller in their overall footprints. The small territories and populations did not prevent these polities from erecting monumental stone architecture, hieroglyphic stelae, or designing city cores with ceremonial and civic centers.

The hieroglyphic texts from Uxbenka, Pusilha, Lubaantun, and Nim li Punit do not mention each other explicitly. Instead, they focus on dynastic and ritual activities practiced at each site. Conversely, political connections drawn from historical texts all tend to associate the sites of the SBR with other regions within the broader Classic Maya world. There may be four

distinct emblem glyphs attributable to the SBR, which suggests that the dynastic rulers of these sites viewed themselves as controlling independent polities (Braswell 2020:155-156). More than 60 stelae have been found at these four centers, yet these monuments do not refer to the other nearby polities, “we have no record of royal marriage and female hypogamy, we have no record even of one of the major sites attacking and defeating another. Victories and defeats are recorded, but these seem to refer to other unknown and smaller centers, perhaps in Guatemala. (Braswell and Prufer 2009:51).

The SBR is a cultural region that was located alongside other distinct regions of the broader Maya World (Braswell 2001; Braswell 2020:195; Dunham et al. 1989; Hammond 1975:133; Leventhal 1990, 1992). Although geographically circumscribed, delineated by the Maya Mountains to the west and the Caribbean Sea to the east, it was still economically connected to the Maya World through trade via mountain passes and connections to the rivers and sea (Leventhal 1992:145, Mckillop 2005b). I believe it was the existence of fertile land at the foothills of the Maya mountains, alongside its diversity of geological and natural resources, including flora and fauna, that motivated the ancient Maya to move into and occupy these regions of southern Belize. While the terrain can be difficult to traverse, the sites of the region had access to the wooded regions of the Maya mountains, rolling plains of the foothills, and marine coastal beaches, all connected by the ancient highways of several cross-cutting rivers. These great economic motivators likely precipitated the sharp increase in population and construction in the Late Classic for the region as a whole.

The Late Classic period saw a significant growth and expansion for the sites of this region. Under what sort of social and political organization was this achieved, and what was the

nature of the interaction amongst the polities? In the following chapter I begin to explore these questions by delving into the theory that underlies my research.

Chapter 3 THEORETICAL ORIENTATIONS

3.1 INTRODUCTION: THE BIG QUESTIONS

The transition from the Classic to the Postclassic, also known as the Classic Period Collapse, took place throughout Mesoamerica from about AD 750-1050 (Demarest 2013:23). This 300-year span was a period of dramatic sociopolitical change, characterized by the fragmentation and complete collapse of many, if not most, Classic polities. What truly ended in this transition was the Classic period's political ideology, taking with it spectacular art, architecture, monuments, and writing, along with a reduction in the size, or the complete abandonment, of many urban centers (Joyce et. al 2001; Demarest 2013; Martin 2020:1). The widely held belief is that the Maya disappeared with this final major societal collapse, and articles still regularly appear reproducing this popular narrative (e.g. Garcia Barrios 2023, Jarus 2021, Serafin 2022). The truth is that the Maya people were never gone, instead they continued to make cultural transitions throughout the centuries following the Classic Period Collapse. The Maya challenged the arrival of the Spanish in 1521 and adapted to the subsequent colonial period. Their descendants still represent major portions of the populations of middle America. It is estimated that roughly seven million Maya still live in Mexico and Central America (Smithsonian Institution n.d.). The Classic Period Collapse was, ultimately, a period of dramatic transition that saw the ancient Maya transform their societies into those of the Post Classic. This downfall was not the first the Maya survived; instead, it can be viewed as a cyclical moment, part of a "processes of disintegration and regeneration repeated throughout Maya and Mesoamerican History" (Aimers 207:436).

At the core of my work here is an analysis of the Classic Period Collapse in the context of southern Belize. To restate my research question: in what ways do the processes of state-level

collapse, abandonment, and transformation affect the social organization and distribution of political and economic power across a major center in the SBR? My work at Nim li Punit allows me to attempt to understand what social and economic processes were carried out by the area's inhabitants during the Terminal Classic. By analyzing the SBR's broader network connections with other regions of the Maya world, I can comment on the regional effects of the Classic Period Collapse as this major event rippled across the Mesoamerican world. "Archaeological theory is essential for helping us to make sense of the data that we collect" (Trigger 1998:18). In order to analyze the archaeological data presented here and offer an social commentary, I will refer to different lines of theory.

This chapter is divided into four sections, the first three of which are focused on my proposed hypotheses: (1) Elite Competition, (2) Social Inequality and Political Instability, (3) Breakdown of Interregional Trade Networks and Political Alliances, and (4) Societal Collapse. Each section presents a discussion of theory relevant to testing the data from Nim li Punit.

In my discussion of elite competition, I consider how a polity like Nim li Punit governed itself, drawing upon theories of kingship and ideology. To build an understanding of social inequality I rely on the theories of household archaeology, which assist me in analyzing my artifact data. I look to theories of social organization to document political instability, specifically examining statehood and its manifestations in smaller secondary centers. To understand the impact of interregional trade and political alliances, I turn to theories of core and frontier networks. Finally, I conclude with a short review of collapse theory in archaeology, which helps me position my research in a broader archaeological and anthropological conversation.

3.2 ELITE COMPETITION: THE IDEOLOGY OF MAYA KINGSHIP

My first hypothesis is concerned with the manifestation of power in the form of control over resources. The classic Maya had an elite ruling class, which levied resource extraction methods for both consumption and the construction of monuments and public works as ways of legitimatizing their rule. To better understand this dynamic, I turn to a theory centered on the Maya rulership model of divine kingship and theories of the ideology that supported this hegemonic control.

Ideology of Maya Kingship

Ideology is an important concept, crucial to understanding how rulership was carried out during the Maya Classic Period. It played a role in the development or maintenance of power and attached religious and secular aspects to the role of governorship. When attempting to understand hierarchical power structures and the divisions therein, theorists often turn to ideology to explain the control expressed by the ruling class over those governed. Ideology legitimizes dominance through hegemony (i.e. Ashmore 1990). The power of a hegemonic ideology is its “just-so” nature, where the general populace may come to treat the status-quo as natural, forgetting that there are alternatives (Gramsci 1971:101).

It is useful to remind oneself that Marxism, fascism, and American democracy are all ideologies. Thus ideology falls within society and politics, not religion (although, to be sure, the lines between the three may be blurred by political movements such as Islamic Fundamentalism). Ideology may be defined as the body of doctrine, myth, and symbolism of a social movement, institution, class, or group of individuals, often with reference to some political or cultural plan, along with the strategies for putting the doctrine into operation [Flannery and Marcus 1993:263].

The social framework around a set ideology serves to establish and ground its institutions as natural entities, like the physical world or the cosmos. Another strategy is to present an ideology's projects and goals as serving the good of the whole community. A third strategy, commonly seen around the world, is the appeal to timelessness and tradition, linking the present to past events. These common tropes were deployed by the Classic Maya elites as part of a range of ideological strategies. They commissioned community projects, invoked religious beliefs, and engaged in calendrical rituals tied to past historical and mythical events.

While we do not have direct access to the belief systems of the ancient Maya, we can find clues to their ideology amongst the material culture they left behind in the archaeological record. Evidence of ritual behavior, cached materials, burials, sculpture, architecture, painted pottery, personified objects, and other status related craft items. During the Classic period Maya society relied on the ruling elite as intermediaries between society and the supernatural world. This resulted in the notion of the divine king, or *k'uhul ajaw*, a figure in whom religious and political power merged (Sharer 2006:93).

In the Classic period Maya kings positioned themselves at the center of public life, directing both religion and politics. Religious ceremony and ritual can be public or private, but when canonized by the state and its institutions they can serve to legitimize political apparatus and strengthen the presence of the state within the worldview of the populace. In Chapter 2 Section 2.8 I presented examples of state-sponsored depictions on carved stelae of SBR site rulers carrying out religious ceremonies. A high level of theatricality and performance was invoked in these public rituals; Inomata (2006) argues this increased their effectiveness. Rulers were often central to these public rituals, with depictions containing a wide range of symbols linked to the ruler, their ancestors, and associated deities, sacred places, and natural phenomena.

Those with the most power “will be those that monopoliz[e] patrimonial rhetoric and therefore be the sole actors on view” (Martin 2020:63). Rulers headed the state religion, operating as the ex officio high priest and performing major public rituals. Many of the rituals carried out by the ruler were on behalf of the polity, for the good of the people.

The key political authority in Maya society was the *ajaw*, which can be translated as “lord” or, inferring based on its function, as “ruler” (Martin 2020: 69). This position has a long history in Mesoamerica and is widespread; the term appears in every Mayan language and has been traced back to Preclassic Proto-Mayan (Kaufman 2003: 84-85). One of the most diagnostic markers of this position in Maya iconography was a white bark-paper headband, which can be marked with one or more red stripes. At the brow there was typically the addition of greenstone jewels in the form of *huun(al)*, the so-called Jester God, and typically one or three diadems are present (i.e. Schele and Friedel 1990:115). Physical examples of this “crown” have been recovered from Nim li Punit and will be discussed in Chapter 8.

During the 4th century, rulers began to distinguish themselves by assuming the title of *k’uhul ajaw*: “divine lords” (Martin 2020:70-73). The *K’uhul* prefix took time to be adopted and does not appear everywhere across the Maya area. Those that resisted its use did not appear to experience any “discernable implication for their political status” (Houston and Stuart 1996:295), instead, the title draws allusion to the “sacredness” of kings (Martin 2020:72). Again, a fusion of the concepts of the divine and rulership was embodied by the lord at the head of each Maya city. After the proposed arrival of Teotihuacanos in the central Petén in AD 378 (Martin and Grube 2000: 88-91) we see the rise of a new title, *kaloomte’*, reserved for a select few paramount Maya rulers from across all of Mesoamerica. Unlike *ajaw*, which was shared across a wide noble class, the title of *kaloomte* “was restricted to the most powerful Maya kings and royal dynasties”

(Wanyerka 2009:98). Before AD 600 the title is known only at the sites of Tikal, Dzibanche, Calakmul, Coba, and Copan; from this point into the Late Classic, four additional sites used the title: Edzna, Lamani, Palenque, and Tonina. After AD 700, the term was used by an additional 12 cities (Martin 2020: 81). For the SBR the only site to claim such a title was Pusilha². The increase in the use of such titles in the Late Classic may indicate a fragmentation of control over divine kinship across Mesoamerica, as a growing number of sites began erecting stone monuments with hieroglyphic texts.

In addition to these formal terms for rulership, these *ajaws* functioned as the heads of courtly life, with many scenes of such courts preserved in paintings on ceramic vessels (Figure 3.2). Several titles are known for the sub-kingly ranks and offices of nobles, courtiers, and functionaries. Some examples are *sajal*, attendants to the kings; battle captains and holders of captives; *ajk'uhuun*, a priestly office associated with the esoteric worlds of the scribe and artist; *ti'huun* or *Ti'sakhuun*, a ritual specialist associated with prophecy; and *lakam* or “banner” nobility often associated with warfare and tribute (Martin 2020:84-96). These non-ruling elites acted on behalf of their rulers as agents of their authority and part of the king’s apparatus of social and economic control.

Kingship evolved into an institution focused on historic individuals. An emphasis was placed on lineage, and written texts became increasingly concerned with genealogy and dynastic succession. Joyce Marcus (1993) argues that the knowledge of writing was a tool wielded by Mesoamerican elites in competition for prestige, territory, tribute, leadership positions, and

² The title “*ochk'in kalomte*” or the “West Kaloomte” at Pusilha was attached to the polity founding king, Ruler A, in a retrospective text from Pusilha Stela D, a monument carved in the 700’s (Prager 2103:258). While this title is often interpreted as a directional tree title associated with paramount kings (Martin and Grube 2008; Martin 2020; Tokovinine 2013; and Wanyerka 2009), its significance extends beyond this. Evidence suggests a strong connection between this title and the establishment of new kingdoms or the revitalization of existing dynasties (Braswell 2022: 140; and Stuart 2008), indicating a more nuanced role than previously understood.

advantageous marriages. While the writings were based on real people and events, the system was created for political purposes and served as a form of propaganda useful to the rulers and the state.

As with many monarch-led state societies around the world, a cult of personality was developed around Maya rulers. Past leaders also continued to be revered, with the development of funerary cults. The very death and entombment of royals was commemorated into the built environment of the capital sites, through the construction of special architecture and monuments. The Maya elites' practice of venerating their deceased ancestors was an extension of a common Maya ritual, but the scale and expense of their rituals reflected their significant social and economic power over the rest of the population (McAnany 1995). The common societal funerary services were adapted by the Maya elite into intricate public events. The highest-ranking individuals had their social position codified through burial in large, costly temple pyramid complexes, which became their mortuary shrines. In the plazas, descendant elites mobilized large-scale public rituals and feasting as methods for uniting the general populace. Attendees would find themselves in a literal theater of ideology, surrounded by a built environment steeped in physical manifestations (art, architecture, etc.) of the power of the state. This power of political ideology was increasingly manifested through religion and ritual and represented by spectacular ceremonies (Demarest 2013:23). These concepts will be part of my discussion in Chapter 8 of Tomb VI from Structure 6 at Nim li Punit.

By the end of the Classic period, the Maya royal elites in the Southern Lowlands had firmly established their divine status. They would demonstrate this power through symbols and rituals designed to control the cosmos. The Maya groups continued to grow in complexity and size, reaching their peak by the Late Classic, not in only political complexity and social

diversification, but also agricultural intensification, art, writing, mathematics, and the skilled specialists required to innovate, learn, and transmit those skills to others (Martin and Grube 2000; Demarest 2004).

The Classic period saw the development of divisional classes within Maya societies with a noble caste, distinguished by ancestry and blood, who were the peak of the social hierarchy. Principal rulers and elites were derived from these noble classes. The Maya developed and expanded on intricate religious systems based on several deities, which harnessed the labor of the populace for the construction of major monumental buildings erected in their honor, in the form of pyramids and temples. These physical structures were the locus of a religious hierarchy controlled by a centralized ruling order. The religious and political leaders were drawn from the elite segments of society and held control over sacred and ritual knowledge not available to the general populace. This included control over complex writing and calendric systems, with significant advances being made in mathematics and astronomy. Beyond religious control, institutionalized rulers often held political and military power as well (Algaze 2001:34).

By the Late Classic several factors began to impact the structures of Maya society that challenged royals' ability to maintain their power. Demarest (2013) believes that the Classic Period Collapse was more severe than the more limited Early Classic Hiatus (AD 534-593) because the Maya had become too centralized and dependent on a single leader. This investment of political and military power into the hands of a few made it difficult for the Terminal Classic Maya to adapt to their leaders' removal (Demarest 2013).

The Classic Maya collapse was a complex process that involved the breakdown of several different systems, including the political system, the economic system, and the religious system (Tainter 1988; Demarest 2013; Faulseit 2016). While the great tradition that made up the

Maya worldview, ethics, literature, and culture would live on, transformed into the Postclassic, it was the specific complex political and economic systems of the Classic period that were laid aside (Tainter 1988; Yoffee and Cowgill 1988). This transition is particularly embodied in the abandonment of royal cities, which had served as the political, economic, and religious centers of the Maya world. Nim li Punit, a major center for the SBR, was also abandoned at this time. This abandonment suggests the Maya people experienced a loss of faith in their kings and their representative political system.

3.3 SOCIAL INEQUALITY AND POLITICAL INSTABILITY

My second hypothesis is concerned with the inherent imbalance of power in a heterarchical system like the Classic Maya. I am interested in how social inequalities can lead to exacerbated class divisions and be a potential factor in societal breakdown. To investigate this, I turn to political anthropology to better understand the concept of the state and to consider several proposed models for how it functioned within Classic Maya society. I also consider household archaeology and the concept of antisystems as potential measures of the economic and political agency of past actors operating within the system of the state.

Political Anthropology

Political anthropology, with its focus on power structures, social organization, and leadership in past and present societies, provides a crucial foundation for archaeological theorizing about past political systems. Pioneering figures like Claude Lévi-Strauss (1949) and Marshall Sahlins (1963) laid the groundwork for understanding variations in political organization, from egalitarian bands to complex chiefdoms and states. These anthropological frameworks, emphasizing lineage structures, exchange networks, and ritual practices as

expressions of power, have been instrumental in archaeological interpretations of settlement patterns, monumental architecture, and material culture associated with elites (Trigger 1995).

This cross-pollination has seen archaeologists like Elman Service (1971) and Morton Fried (1967) adapt anthropological models to explain the rise of social complexity and the development of states in the archaeological record. More recently, scholars like Lynn Meskell (2002) have advocated for a reflexive approach, acknowledging how archaeological interpretations of political systems can be shaped by contemporary political agendas. This ongoing dialogue between political anthropology and archaeology continues to refine our understanding of past societies and the diverse ways power manifested in different cultural contexts. Political anthropology delves into the social and cultural underpinnings of the state, examining its formation, structures of power, and its impact on everyday life (Abrams, 1988; Ferguson and Whitehead, 1992; Gupta and Ferguson, 1997).

The State

Defining the "State" has been a complex challenge in social science (Carneiro, 1970; Claessen and Skalnik, 1978; Fried, 1967; Redman, 1978; Rousseau, 1994; Weber, 1965; Wittfogel, 1959). While scholars offer differing perspectives, Smith (2003) identifies four core features that often appear in discussions of the state:

1. **Marked Social Stratification:** A society with distinct social classes, where power and wealth are unequally distributed and maintained across generations.
2. **Centralized Institutions:** The presence of governing bodies responsible for administrating and maintaining order within a society.

3. Resource Control and Allocation: The state's ability to control access to and distribution of resources, potentially including land, food, and labor.
4. Legitimate Force: The capacity to use or threaten force to ensure compliance with regulations and maintain order within a society.

Beyond these characteristics, Smith (2003) highlights the concept of sovereignty as a key element of the state. Sovereignty refers to the idea that a single entity holds ultimate authority within a political community. Authority itself is a dynamic process built on the ability to influence others and on their willingness to accept that influence as legitimate.

The ancient Maya civilization of the Classic Era (AD 250-900) was based on intensive agriculture of cereal grasses that supported populations much larger than in previous time periods. These larger populations were concentrated within large Lowland city-states and their surrounding urbanized landscapes. These sprawling cities were constructed and expanded over time in strategic and important locations, predictably along rivers and important trade routes. Their societies were typically governed by royal kings, who often ruled over individual city-states, and at times appear to have attempted to expand beyond their city borders through conquest, though these episodes were short-lived. These rulers were the central figures of multi-level political and administrative systems while also strongly connected with the religious programs, seen as the principal administrator for state-run rituals (Figures 3.1). They were also linked into broad-reaching economic exchange networks, as is evidenced by the presence of prestige goods and commodities with far-flung origins. The typical flow of resources saw goods and services exchanged between the core, dominated by large powerful city-states, and the frontiers, often occupied by smaller secondary and tertiary centers. The nature of this relationship will be explored later in this chapter.

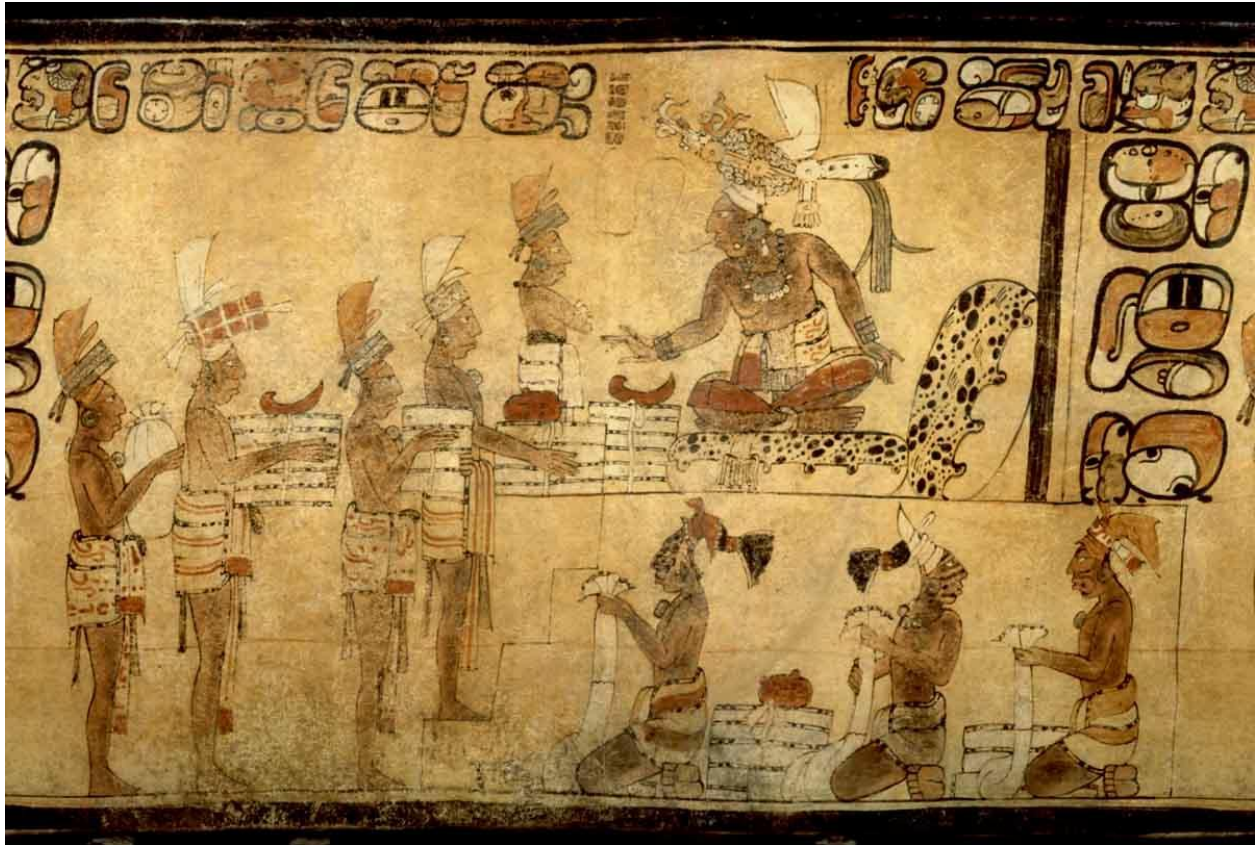


Figure 3.1 Maya Vase K8089, thought to be from Pusilha, Pusilha EG, located in the center left of top row of text. Showing a Maya lord in court receiving tribute.

Next, I will consider several theoretical models propose different visions of how statehood operated as a social system during the Maya Classic Period. My discussion focuses on political organization and the state's ability to control and promote the acquisition, deployment, and distribution of goods, labor, and resources. Blanton (1993:13-18) argues that states vary along three main axes: scale (the number of functional units or the size of the area involved); complexity (the extent of functional differentiation between social units); and integration (the interdependence of the units). It is along these three variables that we can assess the level of interaction between states, and the potential economic and political power exercised by these city-states beyond their urban borders. Integral to this discussion is the concept of political economy and specifically how it relates to the ancient state. An engagement with political

economy explores the methods that were used in the past to develop and accumulate wealth and describes how this wealth was distributed throughout the society (Yoffee 1995). Chase and Chase (1998b) view the political structure of the ancient Maya as tightly connected to polity size and militarization; they join political organization with state-sponsored aggression. Current academic thinking on Classic Maya (250-900 CE) political structures emphasizes a decentralized model characterized by independent city-states and regional variation (McAnany and Feinman 2008b). This contrasts with earlier viewpoints that envisioned the Maya as a unified empire or a collection of city-states dominated by a few powerful centers (Culbert 1977).

City-State Model:

The question of whether all cities inherently represent states, or whether states are larger entities encompassing multiple cities, has been well debated (Cowgill 2004; Joyce Marcus and Sabloff 2008b). One model used to understand the political organization of the ancient Maya is the Greek city-state model. If the Maya lived in independent urban centers that also functioned as states, then perhaps they could be categorized as city-states. Applying this model, used for other Mesoamerican societies like the Aztecs (Smith 2008), might offer insights into the broader political organization of the Maya. Within the archaeological literature on city-states, Charlton and Nichols (1997:1) define them to be:

small, territorially based, politically independent state systems, characterized by a capital city or town, with an economically and socially integrated adjacent hinterland. The whole unit, city plus hinterlands, is relatively self-sufficient economically and perceived as being ethnically distinct from other similar city-state systems.

The city-state model presents ancient Mesoamerica as a forest of Maya capitals. This theory is based on the presence of emblem glyphs (Matthews 1991; Thompson 1954) on the stela and monuments of major and minor sites throughout the lowlands. Analogies are drawn to the ancient Greek city-states, also known as poleis (Marcus 1989). Heinrich Berlin (1958) noted the repeated appearance of a certain category of hieroglyph that appeared to be “emblematic” of particular Maya sites and coined the term emblem glyphs. Berlin noticed that these glyphs were standardized in their form and came at the end of most Maya texts. Emblem glyphs are made up of three diagnostic elements: a prefix, a superfix, and a main sign that varied from site to site (Figure 3.2). The emblem glyph can be read as *k’ujul x ajaw* or ‘the divine x lord’ (here the x represents the name of the individual kingdom) and it appears to be “used as a personal title reserved exclusively for Maya kings” (Wanyerka 2009:72). For studies of the Maya lowlands during the Classic time period (AD 250-900), a great level of importance is placed on the presence of emblem glyphs, which effectively named the political territory of a holy Maya lord.

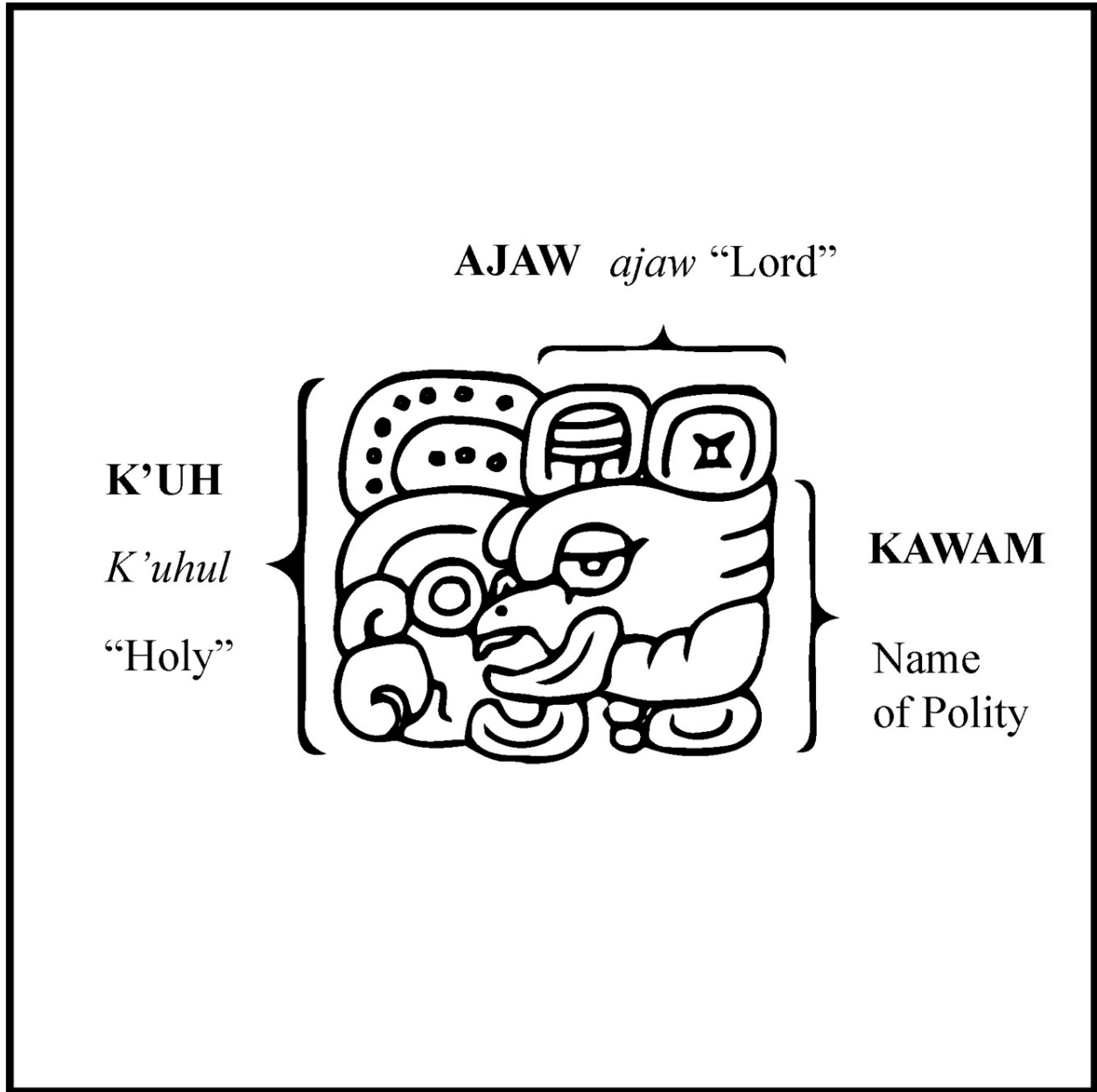


Figure 3.2 The constituent parts of an emblem glyph.
Emblem glyph shown is from Stela 1 at Nim li Punit (drawing by author).

Under the City-State model each site with an emblem glyph is viewed as a separate polity. These polities are estimated to have ranged in size from 1,000 to 3,000 km². Under these criteria there could have been as many as sixty or seventy autonomous city-states operating at the same time (Mathews 1991). We should note that the majority of these emblem glyphs were in

use towards the end of the Late Classic, and likely represent a period of fragmentation across the Maya heartlands, especially after 9.18.0.0.0. This model would provide the greatest level of autonomy, with the various city-states interacting economically as trade partners, and politically, through inter-marriage as well as warfare; but they generally operated independently, under their own governance.

Modern scholarship on the Maya paints a picture of a complex and dynamic political landscape. Numerous independent city-states, each with its own ruler, elite class, and governing body, formed the backbone of Maya political organization (Sharpe, 1990). These city-states interacted through a complex web of competition and cooperation. Furthermore, the level of centralization within these city-states varied across regions. Evidence suggests some areas might have had more centralized power structures, while others might have exhibited looser hierarchies (Fox and Justesen 2006). The Maya political landscape was also fluid and constantly changing. Alliances shifted, power balances fluctuated, and some city-states rose and fell in prominence over time (Martin and Grube 2000). This fluidity stands in stark contrast to the more rigid, centralized political models previously proposed.

Antisystems

Lev Gumilev's concept of antisystems (original 1970, translation 2010) provides an additional framework for analyzing the dissolution of ancient Maya political structures. Gumilev posits that antisystems emerge as a response to perceived injustices or imbalances within the dominant macrosystem. These antisystems often represent marginalized or oppressed groups seeking to assert their identity and autonomy. Antisystems emerge when a society's core values and social cohesion deteriorate, creating internal tensions and vulnerabilities. These

vulnerabilities can be exploited by external groups, internal competitors, or environmental pressures, accelerating societal decline.

Applying this concept to the Maya collapse, we can hypothesize that internal factors like elite competition for power and resources (Webster 2002) may have exacerbated social inequalities (McAnany and Feinman 2008). This growing social stratification could have eroded the legitimacy of ruling elites and fractured societal cohesion. Furthermore, environmental pressures such as drought or resource depletion (Hodell et al. 2009) could have further strained the system, creating an antisystemic situation. Weakened by internal divisions and environmental challenges, Maya polities may have become more susceptible to external threats or internal rebellions, ultimately contributing to the disintegration of their state-level political organization, resulting in the dissolution of hegemonic control.

Instances of antisystems could lead the “custodians of overarching political power [to find] themselves embroiled in struggles to *retain* their authority instead of giving their undivided attention to the constructive *application* of their authority” (Kaufman 1988:223). Within any society there exists the possibility that “antisystems” may develop from the dissident tendencies of secondary elites (Eisenstadt 1988:241). These antisystems can become activated and transformed into agents and processes of change as a response to inequalitarian social interaction within the broader macro-societal order (Eisenstadt 1988). At Nim li Punit, this dynamic can be documented through shifts in the relative power positions of the two social classes at the site and the disintegration of traditional political organization during the Terminal Classic. However, it's crucial to remember that the Maya collapse was likely a complex phenomenon with multiple contributing factors (Yoffee and Sherratt 2006). Examining the Maya collapse through the lens

of antisystems encourages a nuanced understanding of the internal dynamics and of individual political actors' agency.

Households

The Maya region has a long history of investigations into the household as a social and political unit, though the archaeological world still debates the points of connection between individual residences, the community, and even the site-wide level. Researchers have illustrated the importance of the archaeological data derived from household contexts for representing past behaviors connected to the social, political, and economic realities faced by past agents. Above I have tried to outline how the political structure of the state may have operated in Classic Maya society. I will now turn to theories of the household as a foundational unit of Maya society, to see how the state and divine kingship operated politically and economically on a daily basis for the inhabitants of city-states such as Nim li Punit.

My work leans on the great successes of settlement and household archaeology within the field of Maya studies to understand the artifact data stemming from my excavations. This topic will be particularly relevant to later discussions of Structure 50 and the West Group overall (Chapters 6 and 7). Population estimates for Maya sites have been made possible through the application of settlement archaeology (Culbert and Rice 1990), which have revealed that the ancient Maya had large, expansive cities surrounded by regions of low-density urbanism (Chase et al. 2012). It is this concept of low-density urbanism that really sets the Maya as an early state civilization apart from other examples around the globe. Robin (2003:307) describes the goals of household archaeology as “(1) understanding ordinary people; (2) understanding social diversity among households; and (3) understanding households in articulation with the broader social

universe.” Household archaeology has provided a greater understanding of the socio-economic organization among the ancient Maya. Household form and function are essential to our understanding of the meanings, practices, and people of the past (Robin 2003:334). Household archaeology is an important addition to the practice of archaeological investigations and has undergone much development as a field of study over the past 45 years. During the early years of archaeological study, the field was focused on describing and defining broad cultural areas and categorizing the cultural material into temporal phases. Later, focus shifted to the development of testable hypotheses to explain cultural change. This led to an emphasis on the political and social organization of societies, which resulted in a “top-down” approach to the past. In the Mesoamerican area, research centered on excavating temples and palaces as places of regional-level interactions. Household archaeology arose in juxtaposition to this approach, offering new methodological and theoretical perspectives generating a “bottom-up” approach to the study of the past (Wilk and Rathje 1982).

One of the chief promises of household archaeology is the ability to study a cross-section of ancient society and to analyze multiple dimensions of social action, such as economic and ritual activities, across groups of different ranks and social categories. The information gleaned from these past actions can be used to compile comparative models that will assist me in testing my hypotheses. The data can tell us about social stratification, economic and political power struggles, identity, ritual, and local or regional relationships. Numerous lines of theory suggest that household economy and ritual were key components of society and that their analysis may provide tremendous insight into the structure of social relationships, especially regarding inequality and the basis of political power. Essentially, household archaeology allows us to examine almost every aspect of public and private life on one of the smallest scales: the

household. Thus, the household can be defined as the basic building block of a civilization, providing structure for subsistence, agriculture, and economic production, while serving as the fundamental social unit (Ashmore and Wilk 1988; Yanagisako 1979).

I use the term “household” to refer to the people who cooperate in the daily economic and ritual activities of a bonded social unit. The terms “structure” or “dwelling unit” will serve to signify the physical house itself. The house should be thought of as indicating the building that is often used for sleeping, shelter, socializing, and all other day-to-day activities. Household archaeology is employed at sites to help connect the high-arching theory of social and political power relations to the daily reality of the people of the past. In other words, domestic data have the potential to highlight both the development of social complexity and its effect on people’s lives.

Households as Units of Subsistence and Consumption

The material I excavated from fill contexts of Structure 6 and 50 represent the purposeful disposal of consumed goods from domestic contexts at Nim li Punit overall. Households operate within a broad network of economic exchange; as such, their primary responsibility is the acquisition of goods necessary for subsistence. Households appear to operate under two distinct economic models: the moral economy and the political economy (Cheal 1989). Moral economy posits that individuals’ actions are motivated by the desire to maintain the long-term security of the household. On the other hand, political economy views the internal mechanics of the household as a constant power struggle, as individual actions are motivated by self-interest (Cheal 1989). These models do not have to be mutually exclusive, since the individuals of a household can be motivated by self-interests, while at the same time achieving consensus as a

household unit on economic strategies, budgeting, and the development of social connections. For example, Wilk (1989) examines the households of the Q'eqchi' Maya of Belize, finding that they pooled their cash resources into a common household fund. This fund was reinvested into new economic opportunities, enabling the household to be more successful than if they these actions were attempted on an individual basis. Because money is pooled, "all household members have a say in the management of the central fund, but this greater participation is balanced by less autonomy" (Wilk 1989:43). Wilk (1997) views households as "adaptive systems," which can employ a variety of production strategies, with an emphasis on avoiding risk rather than trying to maximize yields or profits. Farmers are an example of this technique; in bad years these households would draw upon a variety of options to mitigate failure, while in years of plenty the surplus production could be exchanged for accruable social and material wealth. Each household "has a different mix of resources and labor...each adopts a different strategy in balancing risk and yield" (Wilk 1997:104). Based on these models, households can be described as dynamic social units that operate cooperatively, with a focus on the protection, survivability, and continuity of the domestic group.

Archaeological remains left from consumption activities debris reflect past subsistence strategies. Consumption is not solely the process of acquiring goods to fill immediate fundamental needs but can also be viewed as an inherently social process (Douglas 2002). According to Douglas and Isherwood (1996:viii), "consumption has to be recognized as an integral part of the same social system that accounts for the drive to work, itself part of the social need to relate to other people, and to have mediating materials for relating to them." Consumption should be viewed with the specific culture in mind. If goods are taken to have social meaning, then the acquiring of those goods by consumers can be interpreted as statements

for others who share similar social understandings. Goods can serve as a form of communication of very particular information (Wobst 1977). The same artifact across different social contexts can hold different meanings and functions. For example, the same object encountered in either an elite or commoner household may have communicated very different information about and for the consumer. It is often assumed that if a luxury item is discovered in commoner contexts, the item must have been gifted or functioned as a form of elite emulation, yet we should consider how different groups within the same society may have been able to redefine and re-utilize the same object (Warner 2001). Again, this concept of consumption fuels my analysis of disposed material from fill contexts of the platforms of Structures 6 and 50 (Chapter 7).

The household can be viewed as receiving the cultural codes that are represented in the structure of the home and the form by which actions are taken within its borders. The household is merely the particular context that is made visible within the archaeological record in which the individual and society interact, thus generating a microcosm of the many dimensions of that interaction. Deetz (1982:724) warns that not all of a culture's codes can be expected to be preserved within the context of a residential space, but that it is safe to conclude that only a select few household behaviors would be at odds with that of greater society.

Households bridge a unique place in ancient societies, preserving both the past decisions and actions of collective individuals (the household unit) as well as representing the outside pressures of the broader economic and political networks (the society). As such, the study of households can serve as proving grounds for theories relating to social change's effects on individuals, as well as those individuals' responses. Political economy was developed to apply the theories and methods of historical materialism to the anthropological study of culture (Friedman 1975). It is a useful tool for understanding the economic and trade-based interrelations

of a society, while emphasizing the temporal aspect of societal change. Neo-Evolutionary models describe households as building blocks or as units at the foundation of polities. It is the ability of households to produce surpluses that allows for specialization, the emergence of leadership, and the extra labor to build states (e.g., Earle 1997; Feinman 1991; Orans 1966; Stanish 1994; Yoffee 2005). In the context of complex societies such as the ancient Maya, it was the labor of the masses that enabled the achievement of large-scale monumental works. Households provide us with the material data that can be correlated to past decisions made in light of changing political and social situations.

3.4 TRADE NETWORKS AND POLITICAL ALLIANCES

My third hypothesis is concerned with political and economic balance between SBR as a culture region and its political and economic interactions with other major regions of the Maya world. To understand these interactions, I draw upon core-periphery theory. I am particularly interested in how the successes or failures of other interconnected Maya polities within a broad Classic Maya network could have had cascading effects, ultimately impacting Nim Li Punit's trajectory and potentially contributing to the broader collapse of the SBR.

Core and Frontier

I now turn to a discussion on how the collected economic and political power of the Classic Maya may have expressed itself into interregional territories. The core-periphery model, initially developed in the 1940's to explain economic disparities between modern nations, was later adopted by scholars such as Immanuel Wallerstein (1974) and William T. Sanders (1980) to understand the hierarchical relationships between different archaeological societies. The model's intention is to understand the development of complex societies and the relationships that

developed within different regions under a single cultural sphere (Sanders and Price 1990:15). The axis to be explored here is the expansion of Maya culture into new regions of the physical landscape; in areas referred to as the frontier. The problem to be examined is the nature of these expansions: did they constitute migration, colonization, or acculturation of previously existing groups? How “Maya” in nature were these settlements? And what were the contours of their relationship to their respective heartlands, both politically and economically?

The core-periphery model is particularly useful for understanding the development of trade and exchange networks. The core of a trade network is typically characterized by a higher concentration of wealth and power, and it is often home to the most technologically advanced societies. The periphery of a trade network, on the other hand, is typically characterized by lower levels of wealth and power, and it may be less technologically advanced. However, the periphery can still play an important role in the trade network, providing the core with raw materials and other goods (Feinman and Marcus 1998:20).

In academic discussions, core and periphery are often presented as a dichotomy that emphasizes dominance of core areas over peripheral polities (Earle 1991). Core-periphery theory posits a hierarchical relationship between powerful core centers and less developed peripheral regions, where resources flow from the periphery to sustain the core (Chase-Dunn and Hall 1991:10). These accounts take on a core-centric perspective, while an alternative view focusing on the settlements on the fringes of society can provide additional political and economic information about how these intra-site relationships coalesced. Data from the site of Nim li Punit in the SBR can provide this type of alternative viewpoint.

But why study the relationship between the core and frontiers at all? We need to understand the history of underdeveloped societies to appreciate how social development

actually occurs. Looking at the frontier– the marginal areas within a civilization–allows us to understand how these societies developed co-mutually (Frank 1966:28). It is possible that the control of power was asymmetrical in the past, that regional polities developed as instruments of conquest and dominion for the extraction of resources and labor. The theory at the alternative end of this scale would be that of mutual development, wherein there were mutually beneficial exchanges of ideas, people, and resources between the core and regional sites; in this model relationships did not need to be wholly backed by force. This investigation aims to understand the nature of the cultural development in these centers; is it an independent evolution or cultural co-development? To understand this context, I refer the reader to the brief history of settlement for the major Maya sites of the SBR provided in Chapter 2 Section 2.9.

The Early Classic period witnessed the rise of powerful Maya city-states like Tikal, Calakmul, and Caracol (Martin and Grube 2000:52). These core centers displayed the characteristics of complex social organization, monumental architecture, and intensive agriculture. Conversely, peripheral regions often had lower population densities and less elaborate social structures. Nim li Punit was founded during this period. Evidence suggests that during this time interactions between these core and periphery areas were focused on economic relationships (Webster 2002:182). This aligns with core-periphery theory, where peripheries often serve as resource-providers for the core.

The Late Classic period witnessed the emergence of a more complex picture. Some peripheral regions, like the Puuc region in the Yucatan or the SBR in Belize, experienced significant growth and development, suggesting a degree of autonomy and participation in broader networks (Gronenborn 2009:138). Additionally, core centers like Tikal engaged in extensive trade networks, suggesting a more interconnected relationship with peripheral regions

than a simple one-way flow of resources. This highlights the limitations of a rigid core-periphery model, demonstrating that peripheral regions could possess agency and participate in networks beyond simply supplying resources to the core.

The Terminal Classic marks a period of decline for many Maya city-states in the southern lowlands, often attributed to disruptions in trade networks and political alliances previously fostered by core centers. In some cases, the centers located in the periphery endured the longest, but ultimately the breakdown of the intricate network developed during the Classic period was too much to overcome, eventually leading to the abandonment of these sites, too.

Core-periphery theory provides a valuable lens for understanding the development of political and economic networks. However, it's important to recognize its limitations. The Maya world suggests a more nuanced picture than a static core-periphery binary. Peripheral regions could be dynamic, experiencing periods of dependence and independence within the broader network (Smith 2009:12). Additionally, core-periphery theory often emphasizes a center-outward flow of power and resources. Recent scholarship underlines the importance of studying interaction and exchange within networks and of acknowledging the agency of peripheral regions (Demarest 2014:185).

The collapse of Classic Maya society underscores the vulnerability of core-periphery systems, where disruptions in one region can have cascading effects throughout the network. This interconnectedness, where the fortunes of core and periphery are intertwined, leads us to the next area of study: collapse theory. This theory delves deeper into the specific factors that might have triggered widespread societal decline across the Maya world.

3.5 ISSUES OF COLLAPSE

When we look across the large temporal scale afforded by the archaeological record, patterns of settlement followed by eventual abandonment and other indicators of “collapse” appear commonplace throughout human history (Golitzko et al 2012). Archaeologists have the benefit of the *longue durée*, allowing us to analyze not only complete cycles, but multiple complete, interrelated cycles. These cycles of change are seen across the world, in a variety of environmental settings (Butzer 2012, Erickson 1999, Schwartz 2006, Yoffee 2010). The causes of this cyclical pattern—of societies emerging, fluctuating, growing, and eventually disappearing—remain an area worthy of study. In archaeological literature, many treat the term “collapse” as describing a system that has completely failed to adapt to new circumstances; the reality of this process is likely closer to the ending of one system in favor of another (Tainter 1988; McAnany and Feinman 2008).

Joseph Tainter (1988) argues that the collapse of societies occurs when the benefits of increasing complexity no longer outweigh the costs. This idea was influenced by Leslie White's (1943) theory that cultural advancement is driven by technological developments and the capture of energy. He argues “a society has collapsed when it displays a rapid, significant loss of an established level of sociopolitical complexity” (Tainter 1988, 4). In other words, as societies become more complex, they require more resources and energy to maintain. Demarest (2013:25) sees this as a paradox inherently constructed into the fabric of Maya society, such that the very features of that society that led to its developmental success, unbridled in their continuing expansion, can become the very stressors that lead to societal disintegration; when this happens, societies may begin to collapse. There are several manifestations of this dynamic, including a decline in social stratification, a decrease in specialization, a decentralization of power, increased individual autonomy, fewer state-sponsored projects, reduced communication and trade, less

knowledge-sharing, and reduced social organization. It is important to note that these are just some of the signs of societal collapse. Collapse can occur in many ways, and there is no single formula for predicting or preventing it. Glenn Schwartz (2006:6) provides several typical features of society undergoing collapse: (1) states dividing into smaller political entities, (2) urban center abandonment, (3) failure of economic systems, and (4) the desertion of established ideologies. Each of these features can be demonstrated by historical examples from across Mesoamerica during the Terminal Classic (e.g., Demarest 2004, Diamond 2005, Webster 2002).

Scholars have proposed several factors that might have triggered the Maya collapse: war, peasant revolts, invasions, climate change, exhaustion of soils, diseases, earthquakes, disruption of trade networks, and ideological breakdowns are each thought to have contributed to the centuries-long Terminal Classic Maya collapse across the Southern Lowlands (Chase and Chae 2006; Diamond 2005; Demarest 2004, 2013; Kennet et al. 2012; Lucero 2006; Sharer 2006; Tainter 1988; Webster 2002). The disintegration of economic and political systems directly affected the very concept of divine rulership.

An increase in warfare and militarized attacks is an oft-noted feature of this period. Some scholars characterize Classic-period warfare as petty skirmishes among decentralized states, with the purpose of taking captives (Demarest 2004; Webster 2002). Others argue that this warfare had an economic goal: to establish new lines of tribute obligations, which in turn would increase the wealth, power, and prestige of the victor (Graham et al. 2013; Martin and Grube 2008:21). Oftentimes organized acts of violence occurred at the behest of royal elites looking to expand their boundaries and grow their own personal fortunes. These military campaigns put an additional level of stress on the political and economic framework of Maya society. Eventually, there was a general pushback against the elites. This featured prominently in the Maya collapse,

as it became a period of the delegitimization of dynastic authority. From the perspective of ideology, this was not a complete abandonment of Maya worldview and cosmology but a shift away from the previous emphasis on divine kingship (Demarest 2013). After a century of research there is still great scholarly debate about the various causes that led to the emergence of a new world order towards the close of the Classic period (Demarest 2004; Joyce 2000b; Rice 2004). As power struggles amongst elite families ensued, increased warfare between polities, greater demands for political and economic agency from lower social classes (rural peasants), along with a rise in non-royal elites (newly formed military and mercantile classes), led to power struggles with longstanding royals-by-blood.

Early civilizations were prone to repeating instances of societal collapse (Schwartz and Nichols 2010; Tainter 1988; Yoffee 2005; Yoffee and Cowgill 1991). Given this, it is important to note that, when social scientists refer to the collapse of civilizations, they seldom mean complete political disintegration. Perhaps a more accurate concept is state failure, or the “dissolution of large-scale political systems” and their control over several local and regional groupings of people and institutions (Kaufman 1988:219). There are two implicit concepts for understanding when a state has collapsed, is failing, or is going to fail. One revolves around the “state-ness” of the society in question, or the institutional dimension of state collapse (Yoffee and Cowgill 2002). The other is concerned with the normative and practical implications, or the functional dimension of state failure (Milliken and Krause 2002:753). Collapse is not completely relegated to political disintegration; instead, Milliken and Krause (2002) contend that we need a two-fold concept of state collapse and failure—encapsulating the institutional and the functional—to accurately examine the phenomenon of state collapse. State institutions can persist even while the state fails to fulfill what we understand as its key attributes. This may lead archaeologists to

inaccurately assign the actual moment of state failure to the dramatic moment of state collapse and abandonment when the actual processes of failure may have been set in motion long before. This is the case for the Classic period Maya, whose overall collapse was a gradual process over the course of 300 years that was experienced with great variety by different polities across a large geographic area. In the archaeological record, collapse is usually associated with sharp drop-offs in population levels and, at times, the complete disappearance of inhabitants from affected areas. However, the cluster of changes referred to as social collapse could have occurred over a long period of time, and the disintegration of governmental organizations was a prominent feature of this process (Kaufman 1988:220).

In ancient states the greatest proportion of governmental services, including the regulation of behavior, likely fell on local units, with less involvement coming from regional or central authorities. This local focus might have been even more pronounced in frontier zones like the SBR during the Classic period. Settlements like Nim Li Punit may have possessed a high degree of autonomy in managing their local affairs. The ratio of this division—local versus regional or centralized control—was most likely far more lopsided in antiquity compared to the services performed locally by modern states. Still, while it may not have been perceptible, the operations of superstructures did influence individuals' lifestyles at the periphery. The importance of leadership and the direction afforded by the institutional structures of a state-level system are made more salient when this element is removed or stops functioning. Review of several political systems reveals that decline in the central political and administrative systems is almost always accompanied with a decline in the standard of living for most people operating within that system (Kaufman 1988:221).

3.6 CONCLUSIONS: THE QUESTIONS FORMED

This chapter has established a theoretical foundation for investigating the position of Nim li Punit within the overarching narrative of Maya collapse. By drawing upon the insights of political anthropology, particularly the concept of decentralized Maya states and competing city-states, we can illuminate the internal political landscape that shaped Nim li Punit's development. Additionally, examining the theory of divine kingship allows us to explore how rulers may have wielded religious ideology to legitimize their authority and potentially mobilize resources for the site's growth. Trade networks, as envisioned by core-periphery theory, offer another crucial piece of the puzzle. Understanding Nim li Punit's position at the periphery, and its potential interactions with the core centers of the Maya lowlands, can significantly inform our analysis of imported material at the site. Through the examination of settlement data, material culture, and potential trade routes, we can investigate how Nim li Punit participated in this broader economic web and how disruptions in these connections might have contributed to its decline.

Furthermore, this chapter has laid the groundwork for exploring collapse theories within the context of Nim li Punit. By employing theoretical frameworks centered around elite competition, social inequality, and trade networks, I can investigate how internal power structures, ideological influences, and external trade dynamics shaped the site's trajectory. These combined approaches will guide the analysis of archaeological data, allowing me to address the following central questions driving this research:

In what ways did internal power dynamics and leadership structures influence Nim Li Punit's prosperity and potential decline?

How did the ideology of divine kingship potentially impact resource mobilization, social cohesion and, ultimately, the site's resilience in the face of broader societal stresses?

Did Nim li Punit's peripheral location within the trade network make it more susceptible or resilient to disruptions in these crucial economic connections, and how did these disruptions contribute to the collapse?

By employing these combined frameworks and focusing on these central questions, we can embark on an examination of Nim li Punit's role within the broader narrative of the Maya collapse. This investigation holds the potential to not only illuminate the unique story of this specific Maya city-state but also contribute to our overall understanding of the complex factors that lead to a civilization's downfall. In the following chapter, I present my methods for data acquisition.

Chapter 4 METHODS: PHOTOGRAMMETRY AND ARCHITECTURAL DOCUMENTATION

4.1 RESEARCH DESIGN

My methods were designed with two purposes in mind: (1) to acquire data that fit the research goals and allowed me to test the hypothesis I have outlined in Chapter 1; and (2) to ensure that the excavations conducted fit within the body of work of the broader Toledo Regional Interaction Project (TRIP), run by Geoffrey Braswell in southern Belize since 2009. Lab field seasons had already previously been conducted at the site of Nim li Punit over the last 14 years, as had surveying, mapping, test-pitting, and household excavations of elite residences. Our field seasons typically run for 10 weeks, from late April through June. This timing coincides with the beginning of the rainy season in southern Belize, which makes further excavation increasingly difficult. Our workforce is composed of members of the UCSD Mesoamerican lab in addition to local people from the village of Indian Creek. The field seasons for this research consisted of two excavation sessions in 2018 and 2019, and two lab seasons in 2021 and 2022.

My decisions about the excavation locations are based on data derived from test pit excavations conducted by the UCSD team at Nim li Punit in 2009 (Braswell et al. 2010). These test excavations targeted mounds and plazas in the site's architectural groups. The results of these initial investigations revealed a relationship between the three residential groups in terms of chronology and organization. While the project initially proposed excavations in all three architectural groups, due to the pandemic I adapted the project to analyze data from two of these three architectural groups. The West Group was an expansion to the site constructed in the Terminal Classic so excavations here would provide excellent data for a comparison with the South Group constructions, which were established in the Early Classic. The excavations

targeted Structure 6, from the northeast corner of the South Group, and Structure 50, located at the southern end of the West Group.

Archaeological Correlates for Testing Hypotheses about Nim Li Punit's Collapse

My excavations at Structure 6 and 50 produced data in two main categories of material remains that were left behind by Nim li Punit's inhabitants: architecture and artifacts. Analyzing these data provide me with archaeological correlates to help me understand past social, political, economic, and cultural practices, which is necessary to test my hypotheses. This study focuses on the main topics of elite competition, resource management, social inequality, and trade networks. I have included my three hypotheses again here, and I also consider how the data I collected relate to each possible scenario.

Hypothesis 1) Elite Competition and Resource Management

Competition for power and prestige between elites at Nim li Punit may have led to unsustainable resource extraction practices and wasteful public works projects intended to solidify elite legitimacy.

Architectural Analysis: I considered differences of scale and complexity in the distribution of buildings across the two architectural groups and across time periods. Excessive construction projects, measured in economic resources (labor, building stone, expansion projects) could indicate elite competition for prestige. Large-scale construction projects, especially towards the end of occupation, can indicate the type of demands on labor and resources required by elites at the site. Additionally, economic expenditure was measured by comparing the construction volume across the two structures through analysis of each platform's

3D model. A concentration of elite residences near public works projects might suggest attempts to consolidate power, this can be seen in the construction of new buildings, especially if they are located in new areas of the site.

Artifact Analysis: I studied the types and quantities of raw materials used for elite-associated artifacts (e.g., obsidian, jade, shell). Luxury goods and personal items associated with elite burials or ritual deposits provide a pattern of elite consumption for display. A shift towards more exotic or expensive materials over time could reflect competition for status. Significant disparities in wealth indicators (e.g., concentrations of high-quality ceramics, imported goods) could suggest growing social inequality. My analysis of the distribution of everyday items (e.g., tools, cooking ware) through both time and space illuminate patterns of resource access and consumption among different social groups. I examined inscriptions and iconography associated with elite structures for symbolic representations of power and legitimacy.

Hypothesis 2) Social Inequality and Political Instability

Growing social inequalities between the architectural groups may have led to social unrest and a decline in social cohesion, trending towards the rise of antisystems (Gumilev 1970) and ultimately weakening the Nim li Punit political system.

Architectural Analysis: I analyzed the spatial layout of different architectural groups within Nim li Punit. Looking for evidence of segregation or clustering based on social status, such as elite residences in distinct areas. I assessed variations in building size and architectural complexity between different groups, which may reflect social hierarchies and wealth disparities.

Artifact Analysis: I studied the types and quantities of raw materials used for elite-associated artifacts (e.g., obsidian, jade, shell). Examined the distribution of luxury goods (e.g., exotic ceramics, jewelry) across different architectural groups. Disparities in access to luxury items may highlight social inequalities. Significant disparities in wealth indicators (e.g., high-quality ceramics, imported goods) could suggest growing social inequality. Analysis of imported goods: the types, quantities, and sources of imported materials (e.g., ceramics, obsidian, chert) over time. Study functional artifacts (e.g., tools, cooking ware) to understand differences in material culture and economic activity among social groups. Study hieroglyphic texts associated with architectural features to identify references to social status and political authority.

Hypothesis 3) Breakdown of Interregional Trade Networks and Political Alliances

The breakdown of Maya social and economic networks, established through trade and political alliances with core centers, may have contributed to the decline of individual Maya frontier cities such as Nim li Punit.

Architectural Analysis: I considered settlement patterns across the site, which correlate in time to changes in population density and distribution. The presence, location, and complexity of fortifications or defensive walls could help identify moments of growing social unrest or external threats. I compare Nim li Punit's settlement layout and artifact assemblages with those of neighboring sites to assess changes in interregional interactions.

Artifact Analysis: I identified and analyzed imported goods (e.g., exotic ceramics, obsidian) found at Nim li Punit to assess the extent of long-distance trade networks. I studied ceramic styles and other artifacts to trace regional interaction spheres and changes in trade routes over time. Identify specific types of ceramics associated with long-distance trade (e.g.,

polychrome wares) to track changes in trade relationships. Map the distribution of exotic artifacts (e.g., jade, marine shells) within Nim li Punit to understand patterns of wealth and connectivity. A decline in imported goods, particularly those associated with core centers, could suggest disruptions in trade networks. A shift in the type or location of imported goods by overall regions could note a related shift in trade partners as a response to the breakdown of established trade connections.

By analyzing these archaeological correlates for each hypothesis, we can build a stronger understanding of the factors contributing to Nim li Punit's decline. It is important to note that no single line of evidence will definitively prove a hypothesis. However, by examining a combination of these archaeological correlates, we can develop a more nuanced picture of the social, political, and economic dynamics at play during Nim li Punit's terminal period.

4.2 EXCAVATION METHODS

Field time was spent exposing and mapping architectural features. Excavations targeted the mounds, which were the architectural remains of Structures 6 and 50, two platforms from the site. Excavation into fill was conducted with the intention of collecting information about these structures' form and function and to develop relevant data that spoke to the overall organization of the residential groups. Data were collected in a manner that allowed them to be directly comparable to similar excavation strategies previously conducted at 3 structures excavated in the South Group since 2012 (Structures 7, 7a, and 8). This contributed to our ongoing goal of generating a robust archaeological record for the site of Nim li Punit as a whole.

Excavations of the chosen structures were prepared by setting up a grid of 2 m (North-South) by 2 m (East-West) units running across the center line of each platform and along the

front and sides of the mound. All excavations were tied to this grid and opened units served the purpose of investigating the overall length, width, and remaining height of each building. The rows of units running north-south were assigned a suboperation number beginning from 1; and east-west units were assigned letters, starting from A. This allowed for the identification of units by an alphanumeric designation corresponding to its location in the grid. Examples can be seen in Chapters 5 and 6 which detail the architectural data and life history of each building (Figure 5.2 and 6.2).

Excavations were carried out by unit, and within each unit control was maintained through the use of lots. Ideally, lots corresponded to obvious stratigraphic levels, but often lots were assigned to changes between areas or to special contexts within the same level. The initial excavation of each unit began with the removal of organic surface material, revealing the surface of the ruins. Subsequent lots included the removal of overburden and the excavation of A-horizon soils. When revealed, stone architecture was left in situ during excavation until the current lot was completed.

Over the 2018 field season, I supervised excavations in the northeast corner of the South Group. In keeping with the modified version of the Tikal excavation system at Nim li Punit, excavations of Structure 6 were classified as Operation 6. Succeeding numerically, Operation 5 was conducted the same year with the excavation of Structure 7a in the South Group. Excavations were aligned to the same grids used in previous field seasons. We placed a grid over this structure's mounded remains, tying it to the larger grid for all the structures of the South Group, which was set up in 2012. Daniels and Braswell (2012) installed GPS-ed concrete markers throughout the site to ease the re-creation of this grid as new excavations were initiated. A vertical datum was set in an avocado tree to the west of Structure 6, measured at 176 cm above

the concrete bench marker for 36S. All vertical measurements given within Chapter 5 are measured from this datum.

During the 2019 field season, I supervised large horizontal excavations in the central southern portion of the West Group. The work conducted here was designated as Operation 7, succeeding numerically from our 2018 excavations (Operations 5 and 6). A 6 m by 20 m grid was established over the remains of the mound, divided into 2 m by 2 m units. Lot 1 for each unit of Structure 50 consisted of clearing soils overburden down to the level of fallen or slumped features. Lot 2 was the fully exposed architectural remains of the structure. Preparation for excavations consisted of felling several trees that had grown on and around the excavation area, which particularly impacted the northwest portion. A few cohune trees had grown on the mound's summit, which also required removal; their roots did affect the preservation of stone architecture in some areas. We initiated a new grid for this and future West Group excavations, with units assigned numbers as they progressed from south to north and letters west to east. We placed this grid of units across the mounded remains of this structure. The grid of units was itself anchored to larger, site-wide mapping conducted in 2012 by Daniels and Braswell. A vertical datum was set 200 cm above the plaza floor into a large tree to the south of Structure 50's mound. All vertical measurements given within Chapter 6 are measured from this datum.

4.3 DOCUMENTATION PROCEDURES

All removed soils and fill were sifted using quarter-inch mesh. Macro-artifacts were collected in the field, sorted, and then stored at our field laboratory in southern Belize. Cultural materials were collected, separated by type, counted, and placed in bags with tags designating the corresponding suboperation, unit, and lot of recovery. Lab methods included the

documentation of cultural materials, their analysis, and storage at the local TRIP laboratory prior to their eventual deposit and curation at the Institute of Archaeology in Belize.

Data collected in the field about the excavation of each unit were documented on excavations forms (an example of this form is provided in Figure 4.1).

**TOLEDO REGIONAL INTERACTION PROJECT
EXCAVATION FORM**

NIM LI PUNIT

Op./Sub Op. ____/____ Lot ____ Structure ____ Date ____/____/____ Excavator ____
Coordinates of the NE Corner ____/____/____
Unit Size ____ Unit Description _____

Level ____ of ____ Starting Depth (NE) ____ (NW) ____ (SE) ____ (SW) ____ (Center) ____
Final Depth (NE) ____ (NW) ____ (SE) ____ (SW) ____ (Center) ____

Description of Lot _____

Type of Context _____ Sealed? By What? _____
Soil Horizon or Type of Sediment _____ Color (Munsell) _____
Description of Matrix _____

Relevant Features _____
Ceramic Count ____ Obsidian Count ____ Chert Count ____ Human Bones (#packages) ____
Jute Count ____/____ | ____/____ (Spiky whole/ Spiky frag | Smooth whole/Smooth frag)
Description/Count of other materials _____
Figures _____ Photos _____

Descriptions, Commentaries & Interpretations _____

Figure 4.1 Lot forms used in the field by the broader TRIP archaeological project and for this project's excavations.

4.4 FIELD NOTES

Each individual excavator involved in the project was charged with maintaining a field notebook, in which we documented our daily tasks and goals surrounding the work that was conducted at the site. Personally, I maintained logs of special artifact finds within my notebook, as well as photographic logs of all in-field photography of features and individual artifacts. I also maintained a log of photogrammetry projects, documenting the metadata around the collection of photographs necessary for these projects. Each of these notebooks was collected at the end of each field season, digitally scanned, and stored together at the UCSD Mesoamerican Laboratory. In addition, all project data are stored on a dedicated server hosted at the UCSD Digital Library.

4.5 PHOTOGRAMMETRY METHODS

Most of this section is dedicated to a discussion of the implementation of photogrammetry during archaeological excavation and architectural documentation in the field. The adoption of photogrammetry as a field technique is an evident progression in the practice of archaeology, which, for much of its history, has prioritized the documentation and analysis of standing remains and other architectural elements. Traditionally, documentation was accomplished through hand drawings and, later, photography, both providing a 2D image of the current state of spaces and structures. Each method provides an accurate means for recording the overall size, scale, and composition of the space, among other elements; however, they lack the ability to convey the experienced qualities of these spaces, or to manipulate the data once one is no longer in the vicinity of the space. On the other hand, image-based 3D models can provide all the features and logistics of their 2D counterparts, with the added benefits of manipulation, a higher level of documentation, and the ability for the data to continue to be a resource to future studies. The numerous benefits of photorealistic 3D models and interactive mapping have been

known in the field of archaeology for decades (early examples: Petrie 1902; Crawford 1953; Macgregor 1951). Early efforts often were quite expensive and time-consuming to produce, requiring detailed technical knowledge that was often not readily available (Chandler 1999; Förstner 2016). Recent advancements made in photogrammetric methods and software in the last decade have increased the accessibility, popularity, and spread of the technique.

In the following section I detail the strategies and methods we used in documenting our projects. Due to the nature of conducting archaeology in southern Belize, the implementation of the method is needed for efficiency, accuracy, and cost-effectiveness, using readily available photogrammetric technologies. Speed and accuracy were requisites of any technique we chose to employ, as our time in the field was limited and the often-destructive nature of archaeology required that we ensure a confident collection the first time.

The advancement in structure from motion technology, mainly the widespread accessibility of SfM software, enhancements in performance and increased processing speeds, creates a process that rivals more traditional methods of 3D documentation, primarily laser scanning, as well as traditional 2D forms of documentation, such as hand drawing (Rocchio 2020:13).

The workflow we implemented arose through trial and error over the course of two 10-week field seasons in 2018 and 2019. The advantage of this technique became readily apparent throughout our 2018 field season, as our team gained exponential efficiency in the capturing of provenience data in terms of labor and time. In addition to producing a useful product, the scaled illustration and 3D models served as a useful tool in the interpretation and reconsolidation of fallen architecture, allowing us to revisit the unit prior to completing further excavation that may have removed artifacts or features present in previous lots or levels (Figure 4.2).

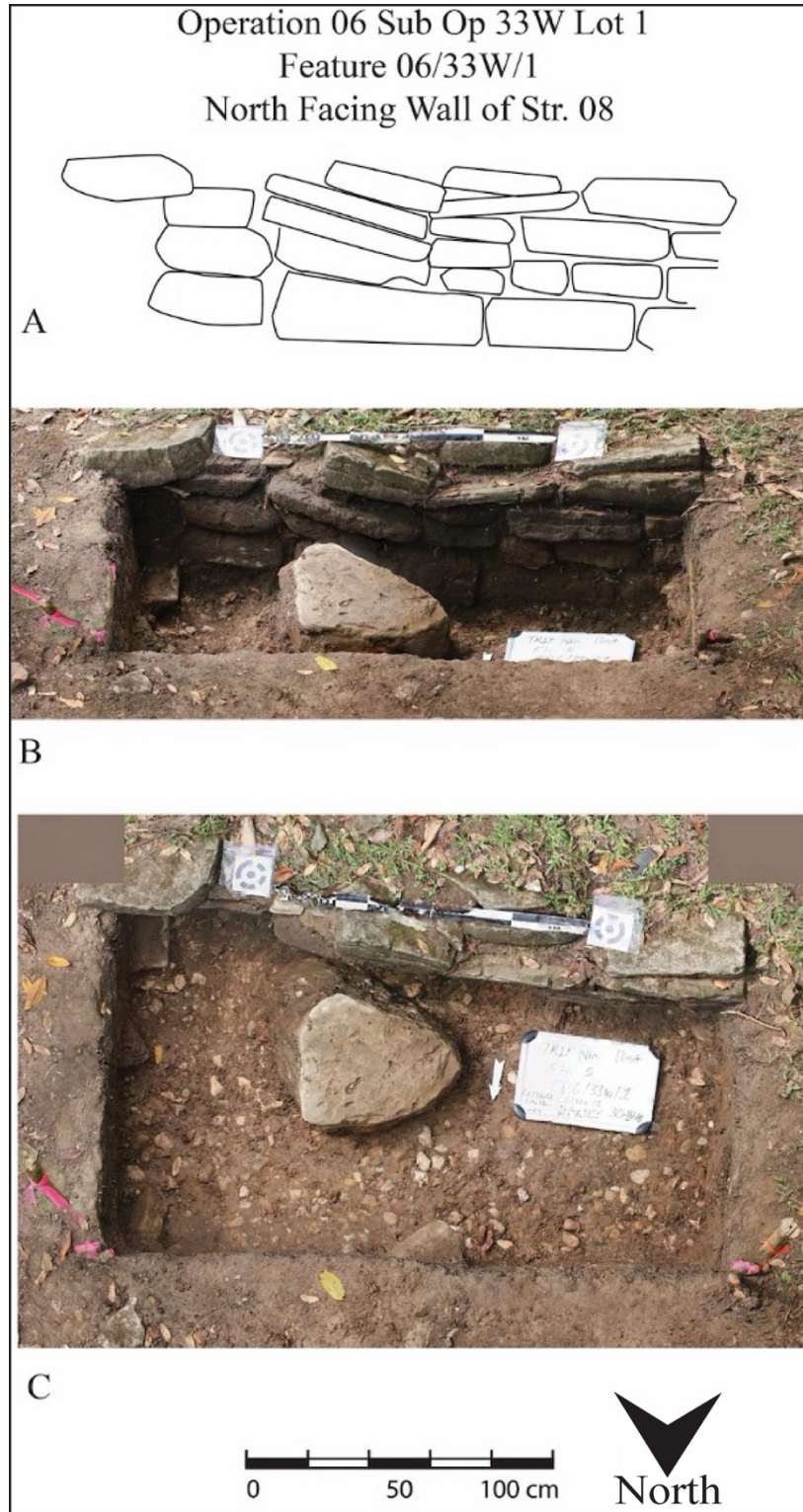


Figure 4.2 Documentation of a unit architecture through SfM. Example of orthomosaic used to produce an illustration for publication: (a) line drawing produced of F. 6/33W/1, a north-facing wall of the Structure 5 platform; (b) rotated view of exposing fallen architecture and intact patio floor; (c) overhead orthomosaic of Op. 6/33W/1, in which can be seen: the white board with metadata, corners of the unit tied into UTM grid, scale bar, north arrow, and coded targets.

There are a variety of software programs currently available that can rapidly produce 3D models; our project has exclusively employed Agisoft Metashape (previously known as Photoscan). This product has a long track record in the industry and became available as an all-in-one software in 2006. The archaeological excavation of architecture involves the documentation of the pre-excavated building, the liberation of earth and stone overburden, the documentation of all in situ masonry (including wall fall, fill stones, and standing architecture), the drawing of consolidated architecture, and the documentation of the final state of post-excavated buildings. These processes of documenting archaeological excavations can be accelerated and enhanced through in-field Structure from Motion photogrammetry.

4.6 TERMINOLOGY

Key Point: an “interesting” point identified by the program; it can be as small as a single pixel in a photograph overlapping as a shared point across several photos, which in turn are used to generate the sparse point cloud. Several programs allow the user to designate key points manually, which can assist the program in “learning” various aspects of the scene being modeled.

Key Point Limit: the upper threshold for how many points the software will draw from the photography samples during the alignment process. In Photoscan the recommended number is set to 40,000, but the analyst operating the software can alter this number to suit the needs of the project. Following good practice, this should be documented within the metadata for the model.

Metadata: data about the images used to create a 3D model via photogrammetry. It can include information such as the camera's position and orientation, the focal length of the lens, and the exposure settings. Metadata can also include information about the subject of the images, such as

its size, shape, and location. It can also include decision points made by the user during the 3D-modeling process.

Polycount: the total number of polygons created during the 3D-model production. Higher levels of polygons can lead to more accurate and detailed model textures but also increase processing time and storage demands.

Photogrammetry: the process of creating 3D models from photographs. It works by taking multiple photographs of an object from different angles and then using software to stitch the images together. The software uses the overlapping information in the images to calculate the depth and shape of the object. In archaeology this technique is typically applied to artifacts and archaeological sites.

Root Mean Square (RMS): an error assessment of 3D models testing for accuracy, typically conducted through a standard geocorrection. The formula for RMS takes the difference between an observed inputted value and the estimated value, squares it, finds the mean square value, and then finds the root of that value.

Scene: the subject to be captured via photographs for 3D rendering. This can be as small as an individual artifact, and as large as whole buildings or even entire archaeological sites.

Structure From Motion (SfM): the computer process that utilizes a series 2D photographs taken from a variety of viewpoints around a subject, extracting locational data from the pixels to estimate and recreate the 3D structure of a space or object.

4.7 WORKFLOW FOR APPLICATION OF STRUCTURE FROM MOTION (SfM)

Conducting photogrammetry in an archaeological setting requires pre-planning; experienced excavators can use this process to identify potential problems that are likely to be encountered in the field. This knowledge can be adapted for photogrammetry projects too, saving

the whole project time in the field and in post-processing in the lab. There is no real substitute for practice and experimentation in this area, and the workflow I present here stems from rigorous testing by the members of the UCSD Mesoamerican Laboratory (Borrero and Stroth 2020). Many of the problems that arise when implementing SfM workflow can be greatly lessened with a proper understanding of the fundamentals behind image-based modeling. Making the effort to gain this knowledge can assist in developing strategies tailored to specific project parameters. The default best practice for SfM should be that more images are usually always better, since having extra photographs allows for a degree of forgiveness in the case of blurry or out of focus photographs. Fernandez (2019) recommends writing a data management plan prior to starting any project, to ensure consistency in methods between projects and so that the method of long-term data storage can be determined before the data are generated.

Using photogrammetry for an archaeological project requires a flexible workflow that can be adapted to accommodate each individual capturing session's unique variables. I led TRIP team members in developing this particular workflow for the capturing of architecture over the course of two 10-week field seasons. The result is a standardized workflow that will now be implemented in all future field seasons at Nim li Punit.

The general operational steps for our photogrammetric projects are:

- Photograph acquisition at the scene
- Digital processing of the photographs
- 3D model generation
- Texturing and visualization

Our field-photogrammetry toolbox included:

- Canon EOS 80D DSLR camera with an 18-55mm EFS lens
- Two 64 GB digital SD cards
- X-rite Passport Colorchecker
- White balance card
- Multiple 12 mm coded targets, printed on white stock and laminated (these are black and white targets; functioning like a QR code, they are visible and detectable to the computer program if they are included in the photographs, increasing the accuracy and measurability of the model)
- Telescopic monopod, with remote shutter for the camera (to produce overhead shots without the need of a drone or similar aerial device)
- White board and dry erase markers to record metadata (to be included in the first image of every capturing session)
- Meter-scale bar
- North arrow

A high-end DSLR camera is not necessary for photogrammetry, as perfectly reasonable 3D models can be composed from images taken by a standard smartphone camera lens. However, if one of the goals of the project is the creation of curation-quality photography and models of the scene, then it is necessary to have a digital camera that will allow the photographer to adjust several physical variables. The three aspects that affect the exposure of the photograph are aperture, ISO, and shutter speed; good photographs should be properly exposed, evenly illuminated, focused, contain good contrast and texture, and have minimal or no image compression. Camera settings should be maintained across the photography-capturing sessions.

We used manual focus and an f/8 stop across the photo-taking sessions. The ISO and exposure were set according to lighting conditions and fixed for the duration of the project. To prevent image compression and on-board camera editing, our photographs were taken in RAW format. This file format also reduces the amount of on-board processing and filtering applied to the photos by the camera's proprietary systems. We stored our images as both .jpeg and .cr2 files (the proprietary RAW format for Canon brand cameras). By processing RAW images through camera file conversion software like Adobe Lightroom, Adobe Bridge, and Camera RAW, a variety of issues, including the over- or under-exposure of images, can be corrected. This manipulation of and control over the photographs produces better results than would be created by relying on the processed .jpegs—according to factory defaults—that come directly from the camera alone.

Our field laboratory photogrammetric setup consisted of:

- Processing was accomplished with two laptop computers:
 - A 2015, 13-inch MacBook Pro with a 3.1 Ghz Intel processor and 16 GB of ram
 - A 2017, 17-inch Dell Inspiron 15 7000 Gaming with a 2.5 Ghz Intel processor and 8GB of ram.
- Both the standard version and professional versions of Agisoft Metashape were used.
- Data storage and transfer were accomplished using two external hard drives.

4.8 DATA ACQUISITION

The first step of data acquisition is to define the study space and record the metadata. Every capturing session in the field included a scale bar, a north arrow, and the metadata written on a whiteboard. Metadata included the name of the unit(s), any relevant features, the distance at which markers were placed, and the date of the project, “project” referring to a suite of digital

photographs corresponding to a specific feature being processed, corresponding in turn to a single 3D model (Table 4.1). Larger projects often included coded targets placed at standard distances to provide in-program scale. An example of the type of metadata we recorded for our projects is presented in Table 4.1, where I provide the titles of the data columns, examples of the type of data, description of the data type, and a commentary section and I go into more detail on what capturing that data point entails. A downloadable excel worksheet of metadata collection form is also available for free download on a web hosted client which can be accessed through the published work: Borrero and Stroth, 2020: Supplemental Table 1.

Each unit was photographed along three axes, taken relative to the photographer: central, angled right, and angled left: above head, eye-level, and below waist angles for each (Figure 4.3). A typical 2 x 2 m unit has between 19 and 30 photographs. Particularly intricate lots with a high volume of artifacts or features required additional photography, including close-up shots. Planar overhead shots, with all four corners of the unit in frame, were taken using a monopod as a boom and a remote shutter. Several photos were taken overlapping with other units, so as to provide tie-in points across the excavation area between the subject unit and the rest of our illustration. All photos were taken using manual focus and without digital zoom, maintaining a consistent physical focal length of the camera. 60% overlap between each photograph was found to be ideal for standard architecture projects. Highly detailed subjects may require up to 80% overlap. When several adjacent units were exposed at the same time and were photographed together. We found this minimized distortion that occurred when “stitching” the individual units into overall plan views.

Table 4.1 Example form that includes a description of the metadata we would keep track in an Excel spreadsheet for each photogrammetry project.

Photogrammetry Meta Data Capture Form			
Column Headers	Sample Data Point	Data Structure Description	Comments
Photogrammetry Project	Op.5_46S_U_V_W/1	Unique identifier for the subject being photographed	ID's used for individual artifacts, excavation units, features, buildings, whole sites, etc.
Metadata	top of str. 7a	General subject description	What is the subject being imaged?
Date Captured	29-May-18	Date picture was taken	
# of Images	106	Number of pictures taken of the subject	Count of digital images from camera
# aligned	96	Number of images selected by the software as usable	How many of the total images aligned after software processing
Scaled	coded	Documents the method used for measuring the subject in the real world	Ex. standardized scale bars, tape measures, coded targets, known object for scale, etc. (these should appear in the photography)
Tie points	181,516	Number of resulting tie points after processing the subject images	This is connected to the quality of the images taken of the subject plus the parameters set by the user for model generation.
Quality	medium	Captures the software setting chosen by the user	Most 3D modeling software allow you to select for the quality of the model (i.e. low, medium, high). This affects accuracy, level of detail, and file size.
Model RMS Error	0.1067	Used to document the variability of the model generated	Computed within most 3D modeling programs gives you a number for comparison on the quality of the model. A low RMS implies that the projected position of the tie points is close to their real world location in space.

Table 4.1. Example form that includes a description of the metadata we would keep track in an Excel spreadsheet for each photogrammetry project, Continued.

Horizontal Error (meters)	0.01	Recorded the difference between the scaled measurement and the digital actual space	The user retakes the measurement in digital space that was recorded during scene scaling. The lower the difference, the higher the confidence in the accuracy of the dimensions of the model match the real world scene
Size of Scene (2x2 unit/m)	5x8	Record the dimensions of the subject	This could be the area for a scene, such as a unit, building, or site. Can also record general dimensions of an artifact.
Scene Type	lot closing	Captures the reason for 3D modeling of the scene	Why a 3D model was made of this particular scene.
Photo Post Processing	yes	Documents if any post processing of photographs occurred	We recommend that photographs are taken in RAW format to eliminate any onboard processing of photos. Here the user can write if edits were made to the photographs (i.e. light balance, color correction, distortion filter, etc.) prior to 3D modeling.
Capture Time	0:20	Time taken to capture the images	This refers to time spent photographing the scene or object.
File Size (GB)	7.12	Storage requirement of the photographs and models	This is important for considerations of long-term data storage maintenance.

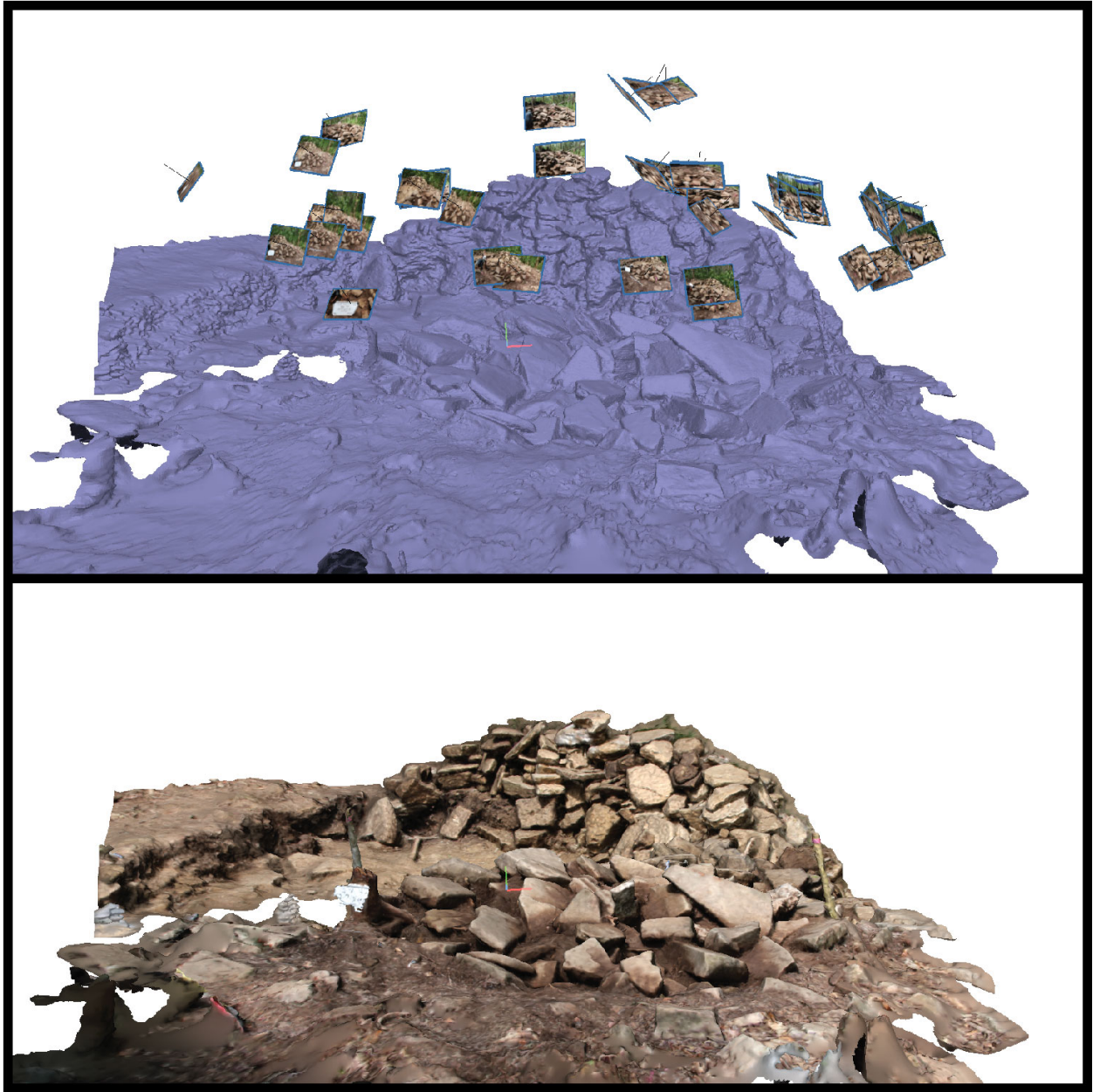


Figure 4.3 3D model of unit Op.7/16S lot 1. Above shows the relative position of the camera when taking the photographs of the scene and below the completed 3D model of the unit.

4.9 DATA PROCESSING

The photographs were processed nightly at the field laboratory. Redundant, out-of-focus, or unnecessary pictures were removed prior to running the program; these are examples of decisions that will affect the final outcome of the model and, even if improving the quality, still represent a form of bias introduced by the user in the creation of the model. As we improved our technique, it became less necessary to delete photos. The corrected photographs were imported into Agisoft Metascan. We aligned photos with Generic Preselection turned off. Generic Preselection first finds pairs of overlapping photographs by attempting to align them at lower resolution settings. Turning off Generic Preselection takes longer but provides a higher resolution alignment (Agisoft 2019). If a model's reprojection error was greater than .15 RMS, it was re-run with problematic pictures removed, such as those that were out of focus, in shadow, or unaligned. Reprojection error is a geometric error corresponding to the image distance between a measured point and where the point was projected to fall. This ratio is used to quantify how closely an estimated 3D point recreates a point's true projection. Error in the aligning process can stem from poor camera geometry, a lack of ground control or scaling, or lens distortion stemming from issues of alignment within the camera body. It should be noted that the recommended value for reprojection error limit depends on the specific instruments used for data capture; the model, lens, and zoom of the camera all affect the quality of the alignment of the photographs. We found that reprojection error decreased over time and that a lower RMS error was correlated with a longer documenting session (See Borrero and Stroth 2020:5 for an extended discussion). Aligning the photographs creates a sparse point cloud.

4.10 3D MODEL GENERATION

3D-model generation is typically the most interactive segment of the modeling process. The user must make decisions regarding the specific elements that affect the final product, and the resulting 3D model arises from a series of choices that inherently introduce bias. The 3D model is an interpretation of the real-world subject, with certain aspects of the model selected over others (Richards-Rissetto and von Schwerin 2017). Typical points of decision-making come at the Alignment, Dense Point Cloud, and Mesh portions of processing (Figure 4.4). In the case of architectural and excavations scenes from Nim li Punit, we found a medium setting to be an adequate compromise between processing time, file size, and accuracy. Most modeling programs generate a wireframe by connecting the points of a point cloud through triangulation; this is often referred to as a mesh and represents the modeled structure as a series of connected vertices and edges. 3D-wireframe models do provide the true shape of the building but appear akin to a line drawing. To arrive at a more realistic impression of the structure it is necessary to drape texture over the wireframe. Texture is typically applied from selected images generated in the capturing phase. These can be chosen automatically by the program—which usually selects the images with best resolution—or manually by the user, by selecting a desired image that best represents the corresponding side of the structure. The post-processing, archiving, accessibility, and migration of digital models are always bottlenecks in any digital archaeological research, especially in terms of time and resource consumption (Badillo et al. 2020; Forte et al. 2012:3; Olson et al. 2013). As such, our workflow included daily post-processing, which prevented a backlog of projects from accumulating.

Finally, the generated model was exported using an OBJ file format. This format is relatively common and can be used across several post-processing platforms. In addition to the model, we exported an orthomosaic depicting the overhead view of the unit(s) as a .tiff file.

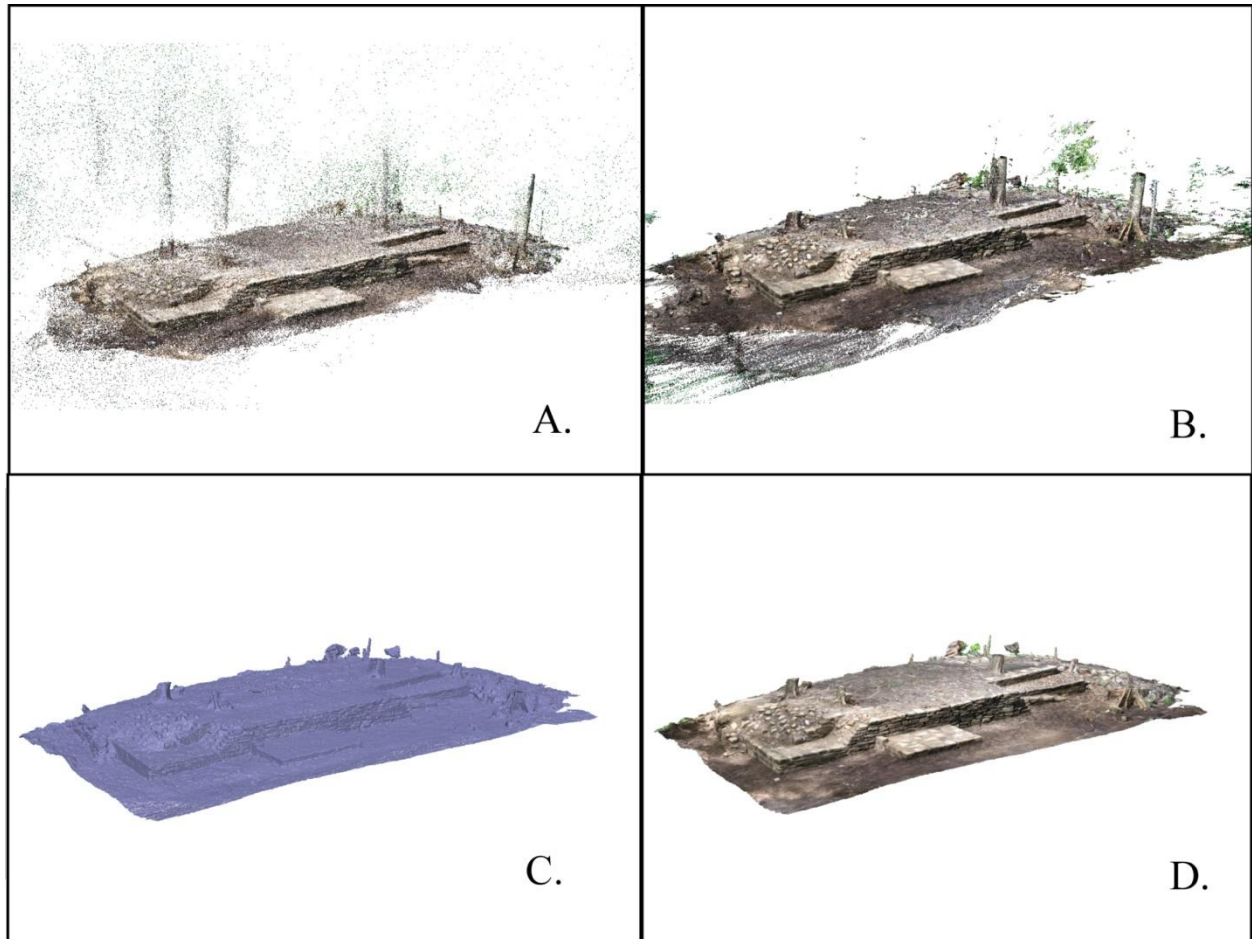


Figure 4.4 Structure 50 from the West Group of Nim li Punit Belize: (A) sparse point cloud after photo alignment; (B) dense point cloud; (C) wire-frame mesh; and (D) completed 3D model with texture.

4.11 CONCLUSION AND INTELLECTUAL MERIT

Image-based models provide a means for restoration in the case of unforeseen future destruction or loss of archaeological sites, increasing our ability to curate and protect the archaeological record. Image-based 3D models provide a means by which we can document, analyze, and display the more experimental and ephemeral qualities of built environments not easily captured in 2D renderings. The work at Nim li Punit has broad archaeological implications

for the refinement of photogrammetric methodology, with portions of this chapter expanded into an article in *Advances in Archaeological Practice* (Borrero and Stroth 2020). The application of 3D modeling has continued to prove itself a worthy tool for curating and recording archaeological sites. Alternatively, its use as a tool for analysis is just coming under refinement, and this is an area that will only continue to grow with further studies. Within this project, the 3D models of architectural features from the residential groups across Nim li Punit are applied to comparative analysis of form, function, hierarchical rank, and social organization.

I now turn to the architectural data in Chapters 5 and 6 for Structures 6 and 50. Here I will show the deployment of the 3D recording of architectural remains from the site of Nim li Punit in conjunction with traditional recorded architectural data.

4.12 CHAPTER ACKNOWLEDGEMENTS

Parts of Chapter 4 are a reprint of the material as it appears in the following article, for which I was the primary investigator and co-author: Borrero, Mario, and Luke R. Stroth. 2020. "A proposal for the standardized reporting of error and paradata regarding Structure from Motion (SfM) 3D models used in recording and consolidating archaeological architecture." *Advances in Archaeological Practice* 8 (4):376-388.

5.1 INTRODUCTION

This chapter describes excavations around and into the interior of the remains of a platform in the South Group at Nim li Punit. The purpose of these excavations was to understand how the elites of Nim li Punit used architecture to manipulate the site's physical landscape and social organization over time. The archaeological evidence gathered from these constructions and their associated artifacts serve as a comparative dataset, providing insight into the use of social and private spaces throughout the Classic period. My hypotheses are concerned with the hierarchy at the site, how political power was distributed across the site, if architectural groups were operating as distinct socio-economic groups, and to what extent individuals were able to access and mobilize social power in response to broad social changes. To test my hypotheses, I carried out excavations over two field seasons at two of Nim li Punit's architectural groups. During the Summer of 2018, I oversaw the full-scale horizontal excavations of the designated Structure 6 of the South Group (Figure 5.1). During the Summer of 2019, I supervised the full-scale horizontal excavation of Structure 50 from the West group (discussed in Chapter 6). The goal of these excavations was to reveal the form and construction history of these two structures, which were hypothesized to have a domestic function. In the narrative portion of this chapter, I provide a general description of the excavation sequence of Structure 6. A more technical and detailed lot-by-lot description for each excavated unit is provided in Appendix I. Appendix II lists the lot determination for each excavated unit, this includes the context of the material and a chronological assessment based on associated ceramics.

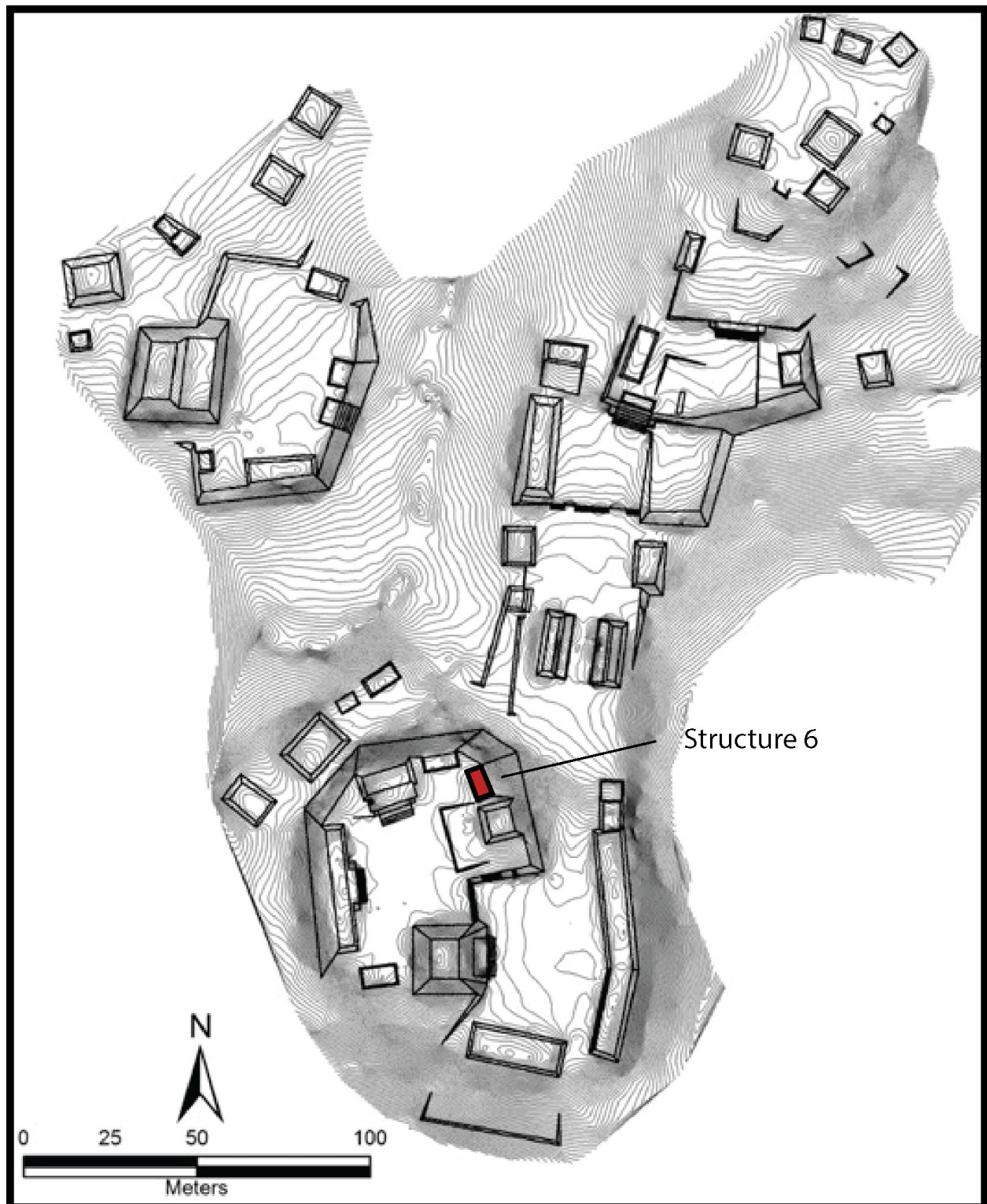


Figure 5.1 The site of Nim li Punit and the location of Structure 6
(Adapted from a map courtesy of Geoffrey Braswell).

5.2 EXCAVATION OF STRUCTURE 6

The remains of this building are located in the South Group of Nim li Punit, a plaza that housed the site's royal power as well as the suite of buildings dedicated to governance. Structure 6 is a wide semi-rectangular, long-range, west-facing building located in the northeast corner of this group. Although this structure has appeared on several mapping projects across the history of archeology at the site, it has not previously been investigated. Our investigations reveal that the earliest construction phases of this structure date to the Early Classic. Structure 6 is approximately 18 meters wide from north to south, and 12 meters long from the west-facing stair block back to the edge of the plaza terrace. The eastern edge of Structure 6 is not well-defined, having likely collapsed down the steep hill at the eastern edge of the South Group. Structure 6 is located four meters to the east of Structure 7a, which was also excavated during this field season.

Excavations within each 2-by-2-meter unit were organized by lot, changing according to the stratigraphic or architectural phase (Figure 5.2). Architectural and cultural features were assigned feature numbers. The entire architectural mound of Structure 6 was excavated in Lot 1s, equivalent to the removal of overburden to reveal the remaining architecture. Within these Lot 1s, we encountered several architectural features, a west-facing stair block (F.6/34W/1; Figure 2.11), the south-facing wall (F.6/34X/1; Figure 2.10), the north-facing wall (F.6/42a/1, Figure 2.17), and a double-faced L-shaped wall between Structures 6 and 7a (F.6/42Y/2, Figure 2.17). Table 5.1 gives a list of all encountered features associated with Structure 6. Noticeably, no western-facing wall was encountered during excavations of Structure 6, which is discussed further in the conclusions. The stair block and the northern and southern walls were completely excavated and consolidated (Figure 5.3).

Table 5.1 List of features associated with Structure 6.

Feature	Description	Location (Op/SubOp/Lot)
F. 6/32X/1	East-facing wall defining space between the southern wall of Structure 6 (F. 6/32Y/1) and north wall of Structure 5 platform (F. 6/33W/1)	6/32X/3, 6/32XYZ/3, 6/34Y/1
F. 6/32Y/1	South-facing wall of "crypt," defining space between Structure 6 and north-wall of Structure 5 platform (F. 6/33W/1)	6/32Y/1, 6/32XYZ/3, 6/32Y/2, 6/32Z/1, 6/32Z/2, 6/34Y/1
F. 6/33W/1	North-facing wall of Structure 5 platform	6/32X/1, 6/32XYZ/3, 6/33W/1
F. 6/33W/2	Patio floor in south, composed of white ballast stones	6/33W/1, 6/32Y/1, 6/34W/1, 6/34X/2, 6/34X/3
F. 6/34X/1	South-facing wall of Structure 6-sub	6/32Y/2, 6/32Z/2, 6/34X/2, 6/34X/3
F. 6/36W/1	Structure 6 stair block	6/36W/1, 6/36-38W/2, 6/36X/1, 6/38W/1, 6/38X/1, 6/38X/2
F. 6/36Y/1	Burning episode	6/36Y/2
F. 6/36Y/2	Vessel offerings	6/36Y/2, 6/36Z/2, 6/38Z/2
F. 6/36Z/1	Tomb 6	6/36Z/2
F. 6/38Z/1	Collection of teeth and cranial fragments outside of Tomb VI	6/38Z/1, 6/38Z/2
F. 6/38Z/2	"Tomb" - series of capstones likely discarded by looting of Tomb 6 - became F. 6/38Z/5	6/38Z/1
F. 6/38Z/2	Smashed tripod vase	6/38Z/2
F. 6/38Z/3	Cranial fragments with jade inside Tomb VI - added to F. 6/36Z/1	6/38Z/2
F. 6/38Z/4	Plate above Tomb VI	6/38Z/2
F. 6/38Z/5	Collection of human remains	6/38Z/3
F. 6/42a/1	North-facing wall of Structure 6	6/40a/1, 6/42a/1, 6/42YZa/3, 6/42Z/2
F. 6/42X/1	Skull atop patio floor	6/42X/1
F. 6/42Y/1	Patio floor to the north	5/42T/1, 5/42TUV/2, 5/42TUV/3, 5/42U/1, 5/42V/1, 5/42W/1, 5/44S/3, 5/44S/4, 5/44STUVW/3, 5/44T/2, 5/44U/2, 5/44W/1, 5/44W/2, 5/44W/3, 5/44X/1, 5/44X/2, 5/46S/3, 5/46S/4, 5/46U/2, 5/46X/2, 6/40W/1, 6/42X/1, 6/42Y1, 6/42Y/2, 6/42Z/2, 6/44Y/1/6/42Z/4, 6/42a/1, 6/46Y/1
F. 6/42Y/2	Double-sided L-shaped wall	6/42Y/2, 6/42-44Y/3, 6/42Z/2, 6/42Z/4, 6/44Y/1, 6/44Z/1

Table 5.2 List of features associated with Structure 6, continued.

F. 6/44Y/1	South-facing wall shown to be part of F. 6/42Y/2 (double-sided L-shaped wall)	6/44Y/1, 6/44Z/1
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Figure 5.2 Drawing of liberated mound for Structure 6.

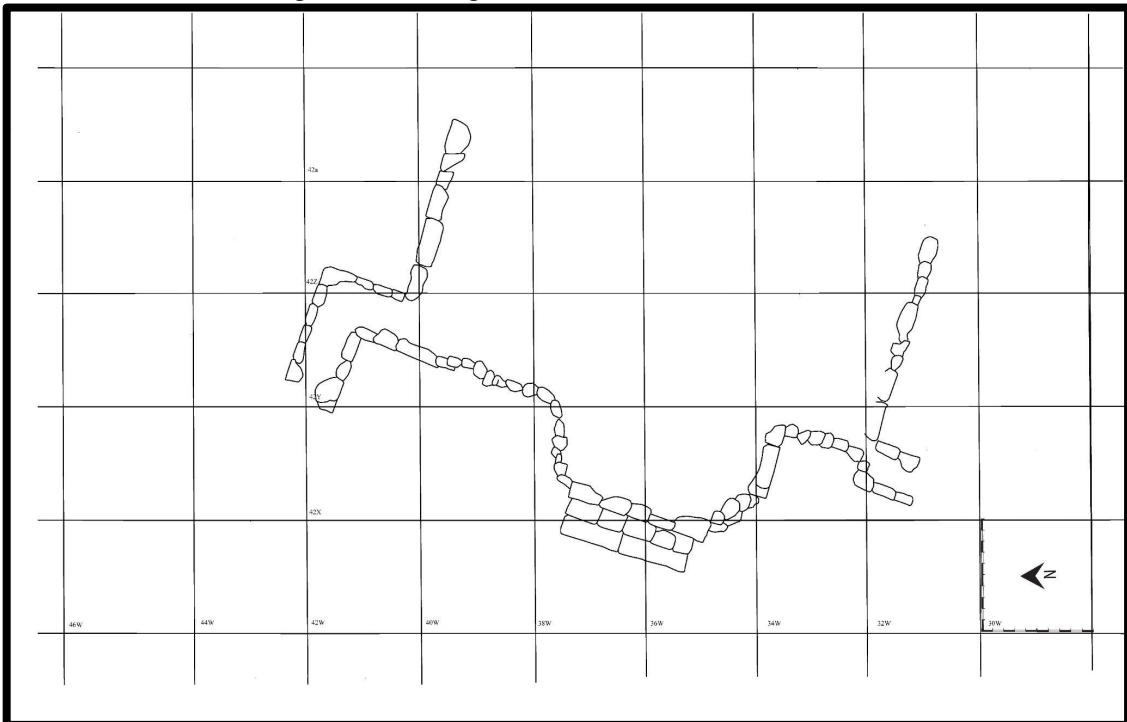


Figure 5.3 Plan view of Structures 6 post-excitation and consolidation.

5.3 EXCAVATIONS IN THE PLAZA SURROUNDING STRUCTURE 6

Lot 1 excavations around the exterior of Structure 6 were carried out to understand the overall extent and shape of the building. Excavations to the north of the structure were conducted with the purpose of locating the northern wall of the building. This led to the discovery of a double-sided L-shaped wall (F.6/44Y/1), jutting out to the north and west from the corner of the building (Figure 5.4). We determined that this was a late architectural addition to the building made towards the end of the site's occupation, likely in the Terminal Classic. This construction did not serve an architectural purpose for Structure 6 as it was not a bracing or supporting wall; instead, it was an addition associated with architectural alterations made to the South Group towards the end of occupation. It seems that it served to restrict access to the South Group, likely both in terms of physical movement and in a visual capacity, blocking the view of people standing near the ballcourt in the central plaza below and looking up towards the South Group.

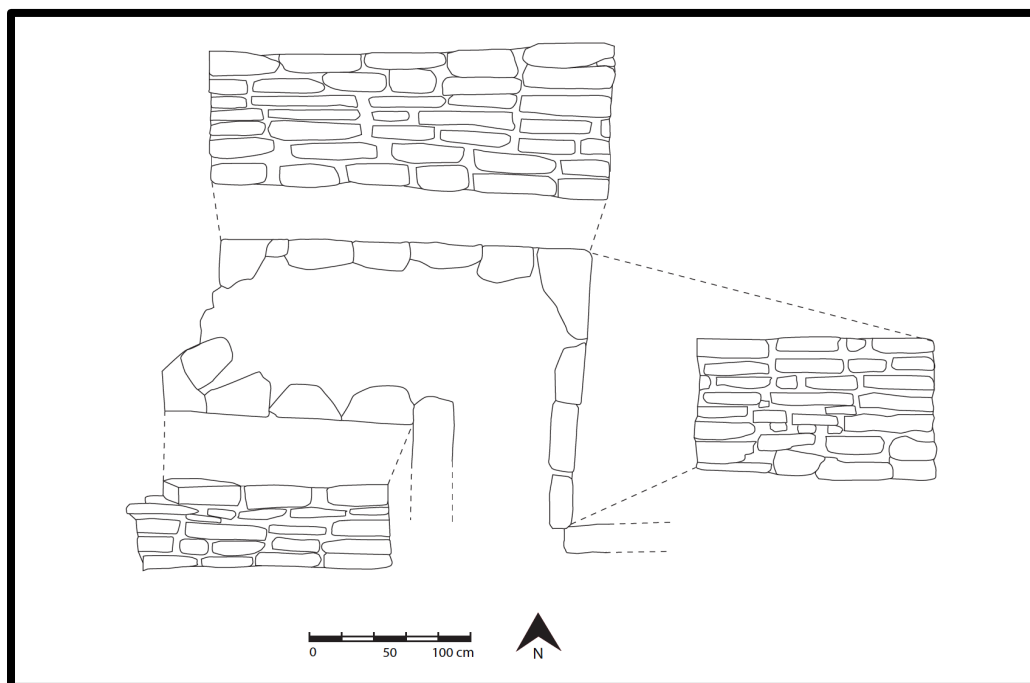


Figure 5.4 Feature F.6/42Y/2 double-sided L-shaped wall north of Structure 6.

Lot 1 excavations on the west-facing side of Structure 6 consisted of removal of an overburden of fallen stones and organic soils. This revealed a complete stair block at the front of the building, which would have been used to mount the summit of Structure 6 from plaza's floor-level (Figure 5.5). First located in unit 36W, we gave this feature the designation F.6/36W/1. The excavations revealed the stair block's lowest southwest corner tread as well as a series of stacked stones that were interpreted as the second and third steps of this feature. A second important goal of these excavations was to reveal the patio floor to the west of Structure 6. Unfortunately, this feature was not found. We expected to find traces of plaster on top of white ballast stones and above boulders of patio fill, as encountered in previous excavations in the South Group. Instead, a layer of A-horizon soils at the base of the stair block contained a downward-grading, clayey soil. No trace of a patio floor or sub-floor was found surrounding this feature, although we did encounter traces of plaster. My interpretation is that the plaza surface surrounding Structure 6 was dug up and disturbed in antiquity, perhaps as part of a reconstruction project that was not completed before site abandonment. We concluded work in this area by consolidating the stair block at the front of the building.

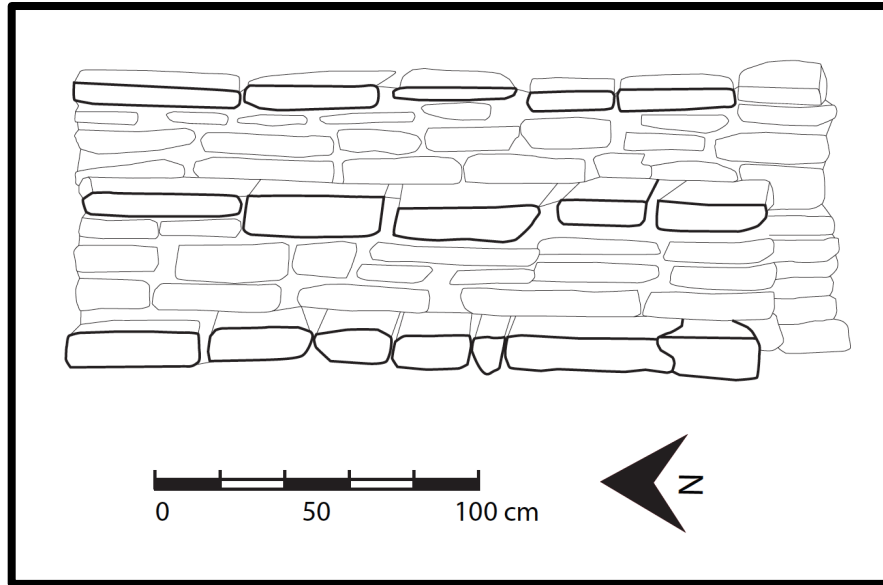


Figure 5.5 F.6/36W/1 Western-facing stair block of Structure 6.

We opened several units to the south of the building searching for the southern wall of Structure 6. We encountered two south-facing walls, Structure 6's original southern wall (F.6/32X/1, Figure 5.6) and a south-facing wall extension (F.6/32Y/1, Figure 5.7). Construction fill was located between these two walls, indicating that they were the products of separate construction events. We discovered that F.6/32X/1 (the original southern wall of Structure 6) continues eastward through unit 32Y and into 34Z. The remains of a cohune tree in unit 32Y greatly disturbed the preservation of the walls in this area, and most are missing. We were able to uncover some of the wall's base stones in situ. The addition of the second south-facing wall could have served two purposes: to extend Structure 6's overall floor plan to the south; or, as is perhaps more likely, to shore-up an originally damaged south wall that may have been in the process of collapsing. This second hypothesis would be in line with evidence seen at other buildings across the site. Up to this point, the majority of excavations into and around Structure 6 point to it being an Early Classic construction. If this southern wall (32Y/1) was added later as a

repair, it would have likely occurred in the Terminal Classic, when we see such repairs occurring at other buildings across the site.

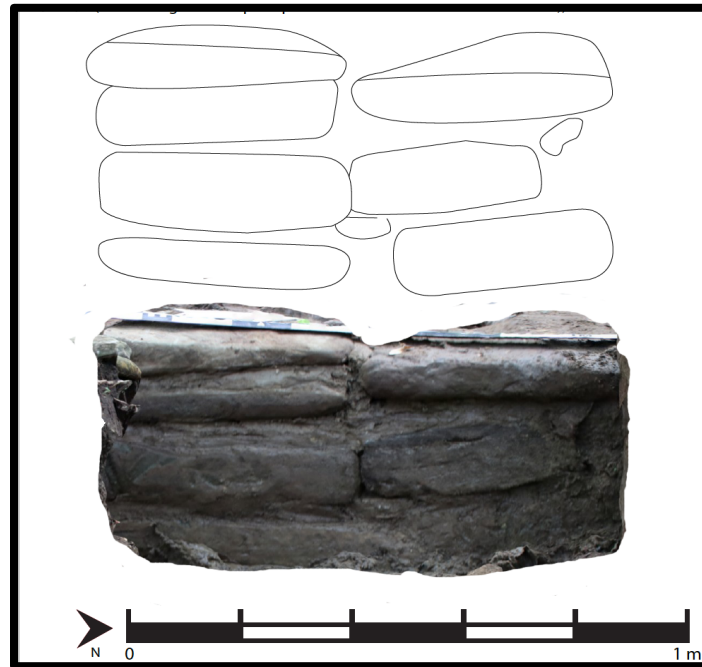


Figure 5.6 East-facing wall (F.6/32X/1) of open space between Structure 5's platform.

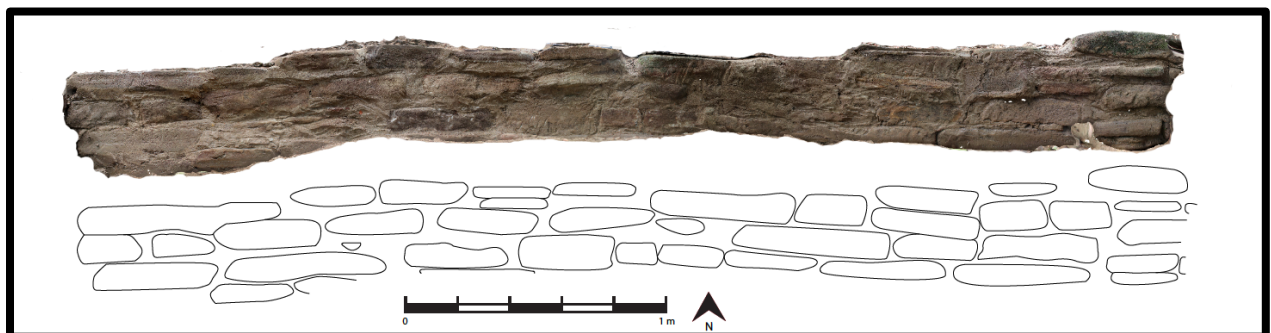


Figure 5.7 South-facing wall (F.6/32Y/1) of Structure 6 post-consolidation.

I draw my interpretations from my understanding of the preservation of plaza flooring throughout the South Group. During our excavations we used the presence of the plaza floor as a marker for construction phases. Its presence assisted us in rapidly determining when a building in the South Group was likely constructed. If a building or an addition was completely situated

on top of the plaza flooring, it was constructed at some point in the Late Classic or later. If, instead, the plaza flooring adjoined the basal stones of a building, this implies that the building and plaza floor were constructed at the same time during the Early Classic. The South Group plaza flooring consisted of a foundation layer of finely packed sediment with small white ballast stones, atop which a layer of plaster would have been maintained in antiquity. The remnants of this plaza flooring have been documented several times in excavations in the South Group (Braswell et al. 2012, 2015). Due to taphonomic processes at our site, the plaster covering is usually only preserved at the very base of the buildings' walls. This typically occurs when a large stone has fallen, covering and protecting the areas from time and the elements. In most areas of the South Group where the plaza flooring is encountered, only the layer of small white ballast stones remains.

Several interpretations of Structure 6 can be made with this in mind. Working in the southern end of the building we encountered the remains of this plaza flooring, with portions of the plaster covering preserved at the base of the wall. The plaza flooring and plaster covering ran beneath the base stones of the southern extension wall (F.6/32Y/1). This flooring spans the space between the two walls, which was packed with construction fill in antiquity. When the plaster was applied, it laid up onto the base stones of Structure 6's original walling but did not go under its original southern wall (F.6/32Y/1). What this indicates is that Structure 6, in its original form, was constructed at the same time as the leveling and laying of the plaster flooring for the South Group plaza. This serves as strong architectural evidence for an Early Classic designation for this building. At some later point in the Classic period, the southern portion of Structure 6 experienced damage or a partial collapse. This was repaired through the creation of a new south-facing wall, which extended the overall floorplan of the building farther south. In the context of

the west-facing front of the building and stair block, there are two interpretations for the absence of plaza flooring and west-facing walls for Structure 6. Either it signals another reconstruction episode that was underway at the time of site abandonment and never completed, or it is possible that the building was purposefully deconstructed to harvest stones for other building projects, perhaps including the low-lying wall additions (such as the double-sided L Shaped wall, F.6/42Y/2) that were changing the very layout of the South Group.

5.4 EXCAVATIONS ON TOP AND WITHIN STRUCTURE 6

Excavations carried out on top and within Structure 6 began along the assumed centerline of the building, just behind the stair block. Excavations on the summit were conducted as a Lot 1 to remove all the overburden and reveal in place the fallen architectural stones. These were documented using photogrammetry to create both models and drawings of the structure in its present state. Lot 2s on top began with the removal of these stones and immediately begin excavation into the structure's construction fill. The purpose of these excavations was to understand this building's life history and to locate any potential sub-structure.

In unit 36Y, located to the east and south of the stair block at a depth of 100 cm, we encountered a burning episode (F.6/36Y/1; Figure 5.8). The burning noticeably affected the clay throughout the unit. Portions of the preserved charcoal were large enough to retain the original shape of the vegetal matter that was burned. At this depth towards the eastern end of the unit we encountered the remains of a stamped surface strongly associated with the burning. A small ceramic vessel was placed on top of this surface, at a depth of 123 cm (F.6/36Y/2; Figure 5.8) and was also associated with the burning event. Further investigations revealed that this ceramic vessel was part of a grave offering associated with Tomb VI (F.6/36Z/1, see Chapter 7). This hardened living surface likely demarcates a halt in Structure 6's construction in order to

consecrate the area and incorporate the crypt of Tomb VI into the construction. A full description of Tomb VI's excavation is discussed in the following section. Excavations within unit 36Y were halted at an arbitrary level as we reached a depth well below the South Group plaza floor, indicating that we were now digging into construction fill from the original foundation and leveling of the entire South Group. This serves as further architectural proof that Structure 6 was constructed concurrently with the raising and flooring of the South Group plaza.

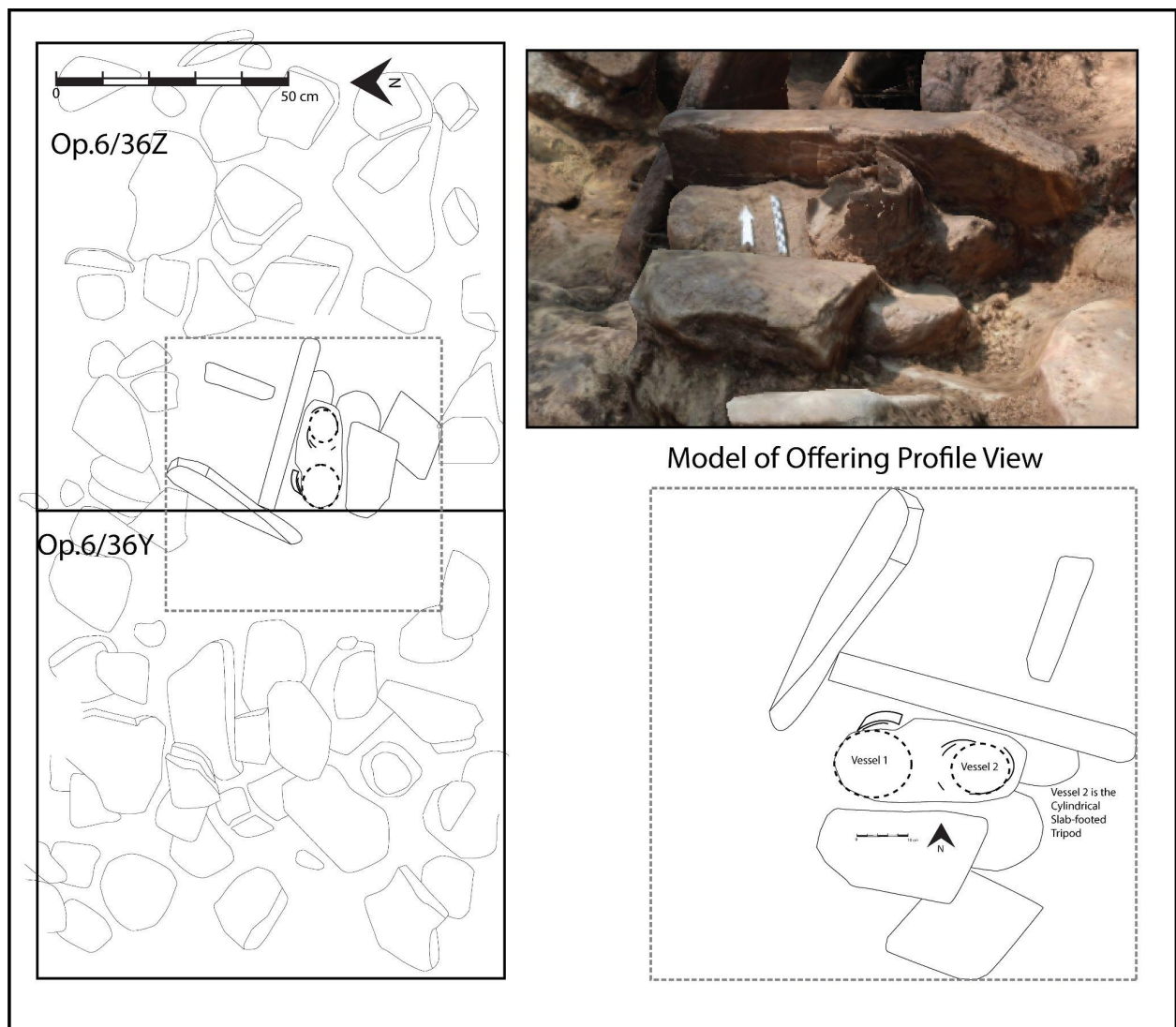


Figure 5.8 Ritual cache (F.6/36Y/2) within the Structure 6 centerline.

We targeted one specific unit, 36Z, which was located south of Tomb VI along the centerline of Structure 6, to place a deep sounding with the intention of excavating down to bedrock (Figure 5.9). This unit was excavated in three lots; our goal was to understand Structure 6's construction history, to locate any earlier construction phases if present, and to understand how the building fit into the overall construction sequence for the whole South Group. The initial Lot 1 focused on the removal of organic overburden as well as revealing the fallen stone architecture from the surface of Structure 6; this would have been the remains of the final living surface prior to site abandonment. Due to the high level of erosion, weathering, and natural organic processes, this surface was deemed to be an unreliable source of data for the Late or Terminal Classic component of the building. Pottery analysis currently underway may provide ceramic chronological evidence that the building was in use towards the end of occupation at the site, but for now it is safe to assume that the building was present and used in some capacity throughout the entire history of Nim li Punit.

Lot 2 excavations removed fallen architecture and began excavation into the construction fill of Structure 6's platform foundation. This fill consisted of large stones and hard yellowish clay. The artifacts encountered within Structure 6's construction fill are domestic in nature; they are all associated with the building's Early Classic construction phase. Continued excavations in Unit 36Z with Lot 3s were the deepest investigations within the interior of Structure 6 (Figure 5.9). The purpose of this lot was to arrive at either bedrock or the patio floor. The removal of interior construction fill and stones revealed several shifting colorations of stratigraphy within the structure. Soils of 10YR 4/4 dark yellowish brown, gave way to 10YR 5/4 yellowish brown clay with fill stones, which gave way to 5 YR 5/6 yellowish red clay with no fill stones, which gave way to 2.5 Y 6/3 light yellowish brown clay with no fill stones (schematic drawing in

Figure 5.9). This final layer was determined to be the bottom of the unit, as time did not permit further excavation; neither patio floor nor bedrock was encountered. We excavated some 50 cm below the depth of the bottom step or tread of the Structure 6 stair block (F.6/34W/1) and determined that there was no patio floor beneath Structure 6 or any earlier substructure. This implies that construction of Structure 6 is contemporaneous with the construction of the overall plaza for the South Group, thus making it one of the oldest buildings located in this group.

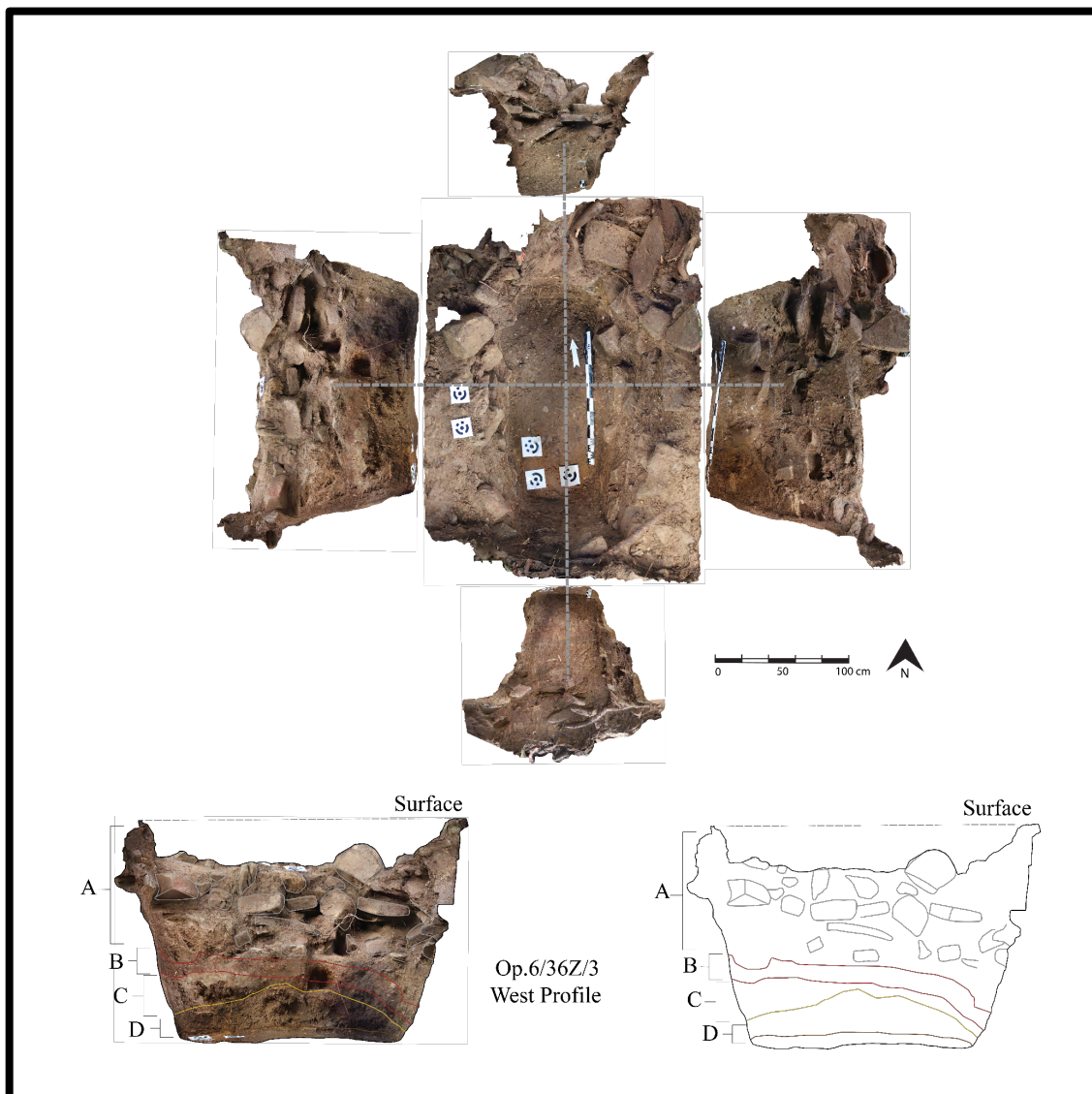


Figure 5.9 Deep sounding (Op.6/36Z/3) in Structure 6. In the west profile schematic, Layer A is yellowish brown clay with fill (10YR 5/4), B yellowish red clay no fill (5YR 5/6), C yellowish brown clay with fill (10YR 5/4), and D dark yellowish brown clay with charcoal and shells (10 YR 4/4).

In the eastern portion, to the rear of Structure 6, we excavated a test unit in 40a. This unit was dug to follow the course of a possible east-facing wall. We dug through dark O- and A-horizon soils with persistent vegetation, which transitioned to thick clay as we went deeper. We exposed the fallen architecture immediately below the surface, but the eastern wall was not revealed. It is possible it collapsed eastward down the side of the hill. The east side of the mound was neither a priority for analysis nor reconsolidation, and so the lot was closed. In many of Nim li Punit's patio groups, it is less common for the side exposed to the hill's downward slope to be preserved, as years of degradation and gravity have led to the collapse of these outward-facing walls.

The architectural evidence and artifacts from Structure 6's interior revealed a simple construction history. It is contemporaneous with the construction of the South Group, making Structure 6 one of the oldest constructions at the site overall. The architectural block that makes up Structure 6 would have been the masonry foundation for a perishable building. There was a well-preserved masonry stair block to the front of this platform, which would have provided access to the summit from the South Group plaza. At the time of Structure 6's construction, the South Group plaza would have consisted of only a select few buildings, all in their smaller, Early Classic iteration. The rectangular substructure of the royal throne room, Structure 7-sub, was constructed to the northeast of Structure 6. Located to the west across the patio group, Structure 8-sub1 would have been the smallest and earliest constructed version of the *Popol nah* (Mat House). While a function cannot be assigned to Structure 6 at this time, its incorporation into Nim li Punit's early planning, alongside these other early buildings, hints at an important political role. The ceramic analysis of material coming out of all three of these buildings corroborates the determination that they were constructed in the early portion of the Early

Classic (Personal Communication Luke Stroth, March 2024). Construction of Structure 6 was carried out in a single phase, but evidence of a stamped surface and burning throughout the building highlights a moment of ritual consecration during its construction. I believe this pause was to incorporate a crypt burial (Tomb VI) into the construction. In the following subsection I detail the excavation of this burial.

5.5 CONSTRUCTION OF TOMB VI

Tomb VI (feature number F.6/36Z/1) was a crypt-style burial consisting of flat stone slabs (Figure 5.10). This crypt was opened and reentered in antiquity. The interred individual was positioned with portions of his remains set to the side, and any associated grave goods were removed with no obvious evidence of re-offerings, suggesting that looting may have occurred during the reentry. The crypt-style tomb was located within the construction fill of Structure 6, roughly along the building's centerline, oriented south to north. It was mostly located in units 38Z and 36Z and on just the eastern side of Unit 36Y. Figures 5.11, 5.12, and 5.13 show the location of the crypt and associated grave goods, as well as the placement and removal of construction fill and covering stones associated with the burial. Four tombs had previously been encountered across the South Group plaza. These burials share a pattern where large flat stones were placed over the burials as capstones. We believe that these capstones serve to demarcate the presence of a burial within the architecture as well as to provide structural support within the foundation, helping to prevent potential collapses. Similar large flat stones slabs were also encountered at Structure 6, but during the looting episode they had been removed from above the burial and cast aside near the structure's summit.

The crypt itself was composed of a series of flat stone slabs placed vertically in roughly a north-south orientation to create a space for the interment of the burial. This crypt had previously

been reentered, when grave goods and portions of human remains were removed. The large flat capstones and partial cranial human remains were encountered in unit 38Z, within Lot 1 excavations (Figure 5.14). These human remains consisted of most of a cranium from a single individual, presumably the individual interred in Tomb VI, as well as two phalanges, four molars, and two incisors. The crypt itself was made of stones lining the bottom of the space, with vertical slabs of stone making up the walls. From within the crypt, we collected human remains including long bone fragments, three more pieces of crania, and five additional molars. All the recovered teeth show various states of wear, with some particularly extreme examples. The individual was placed into the crypt lying on its back with its head to the south and feet to the north. A full description of the human remains and associated grave goods from this burial are found in Chapter 7.

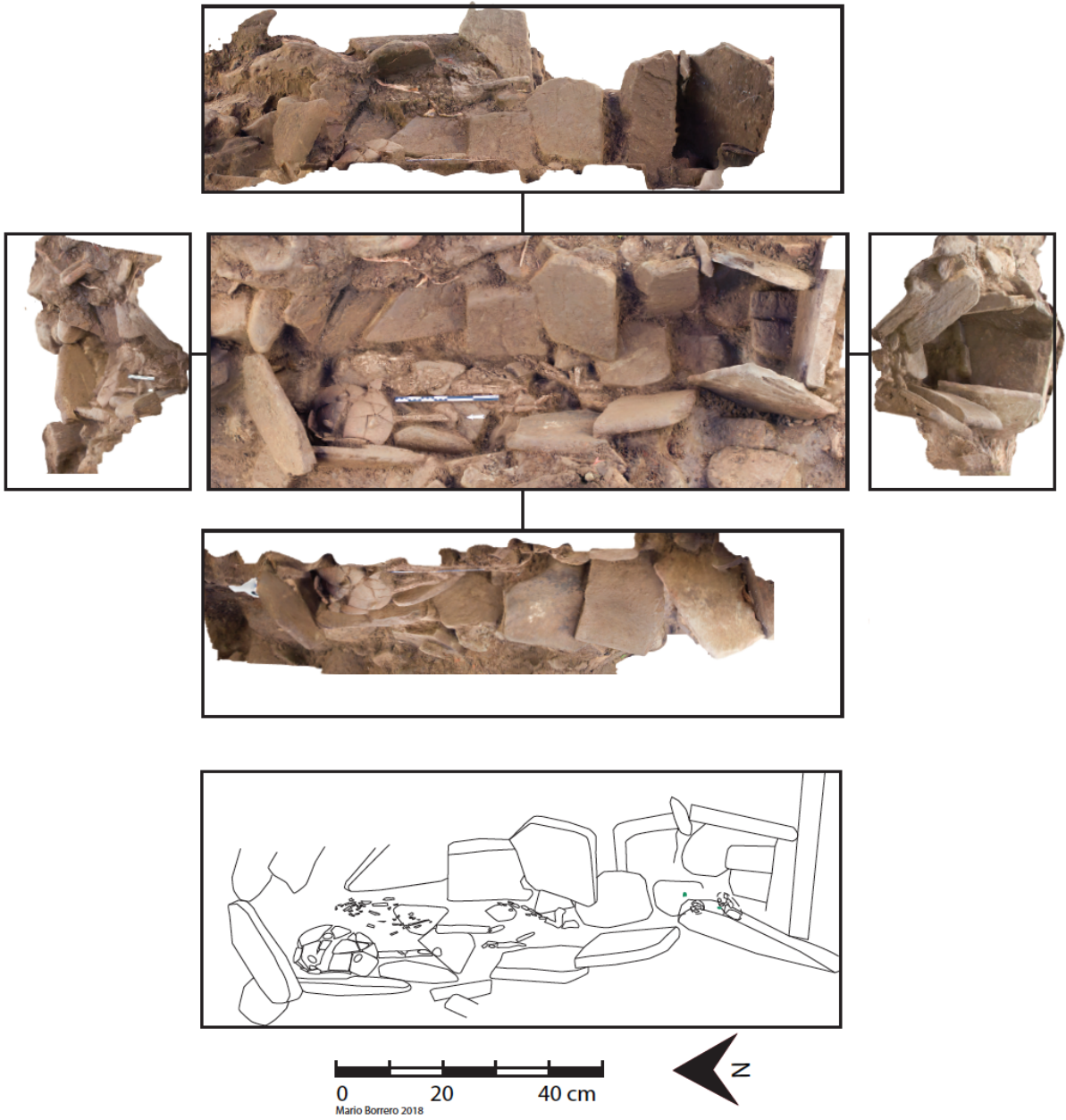


Figure 5.10 Tomb VI, an elaborate crypt—exploded profile views.

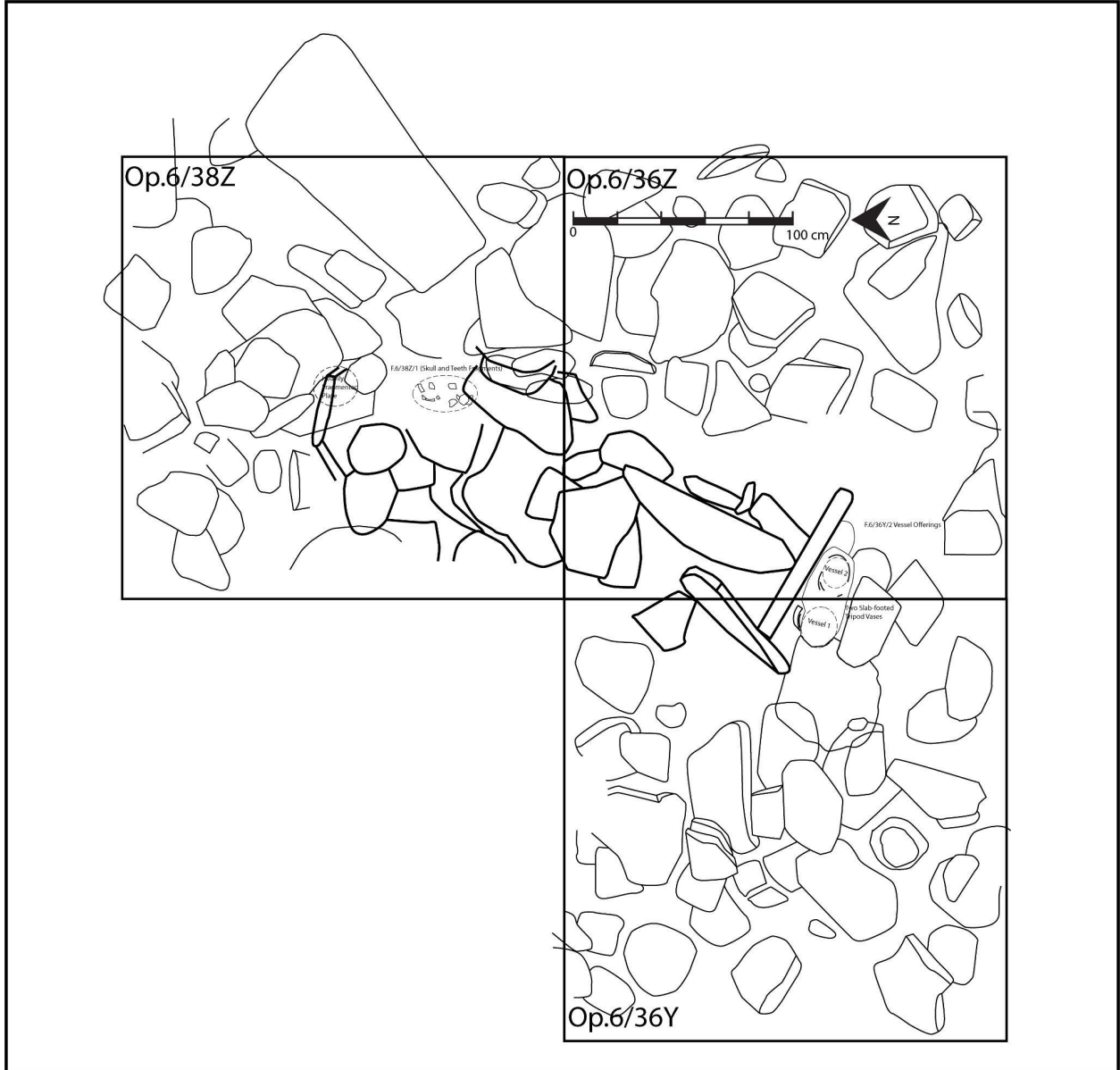


Figure 5.11 Caching within and surrounding the burial of Tomb VI, in construction fill of Structure 6.

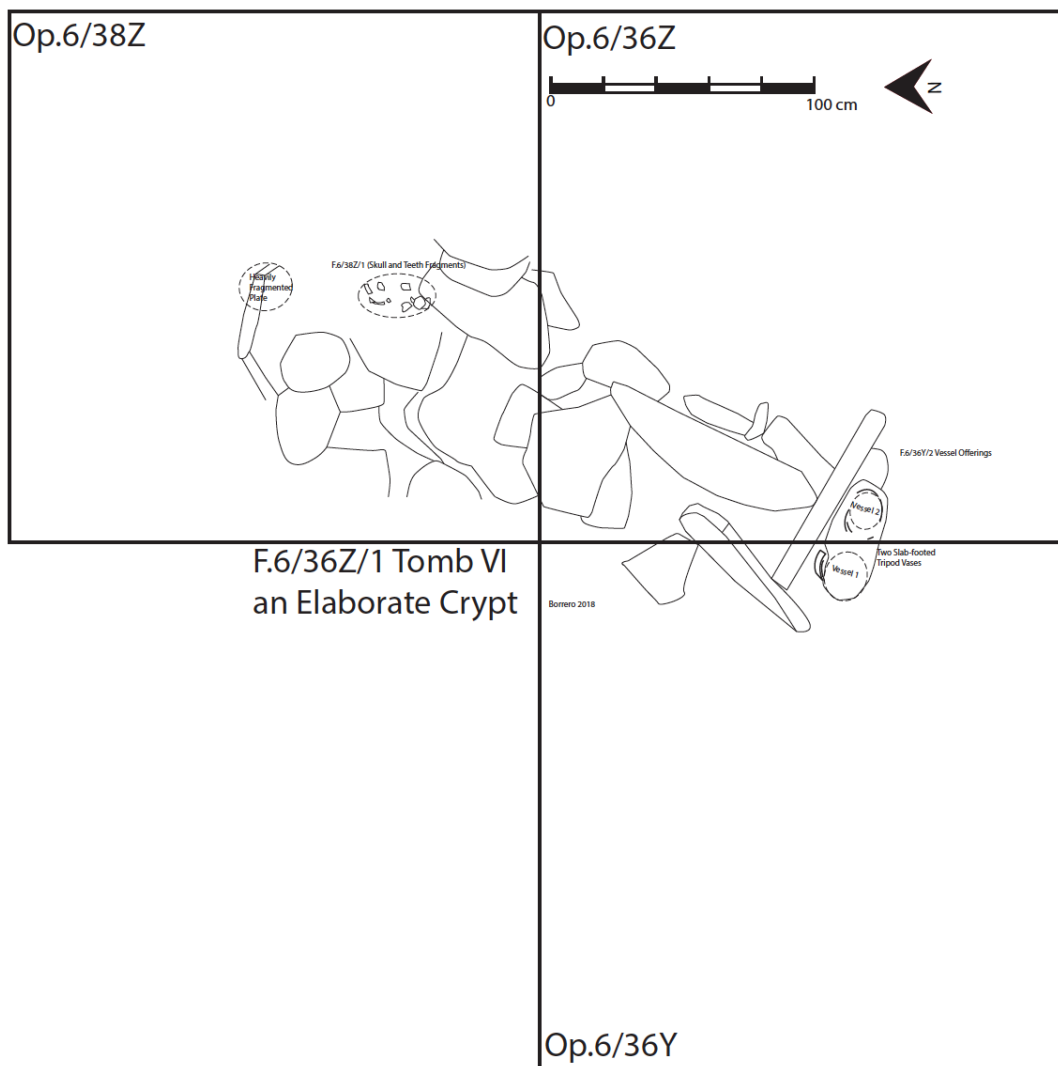


Figure 5.12 Caching within Tomb VI and crypt, with covering stones present.

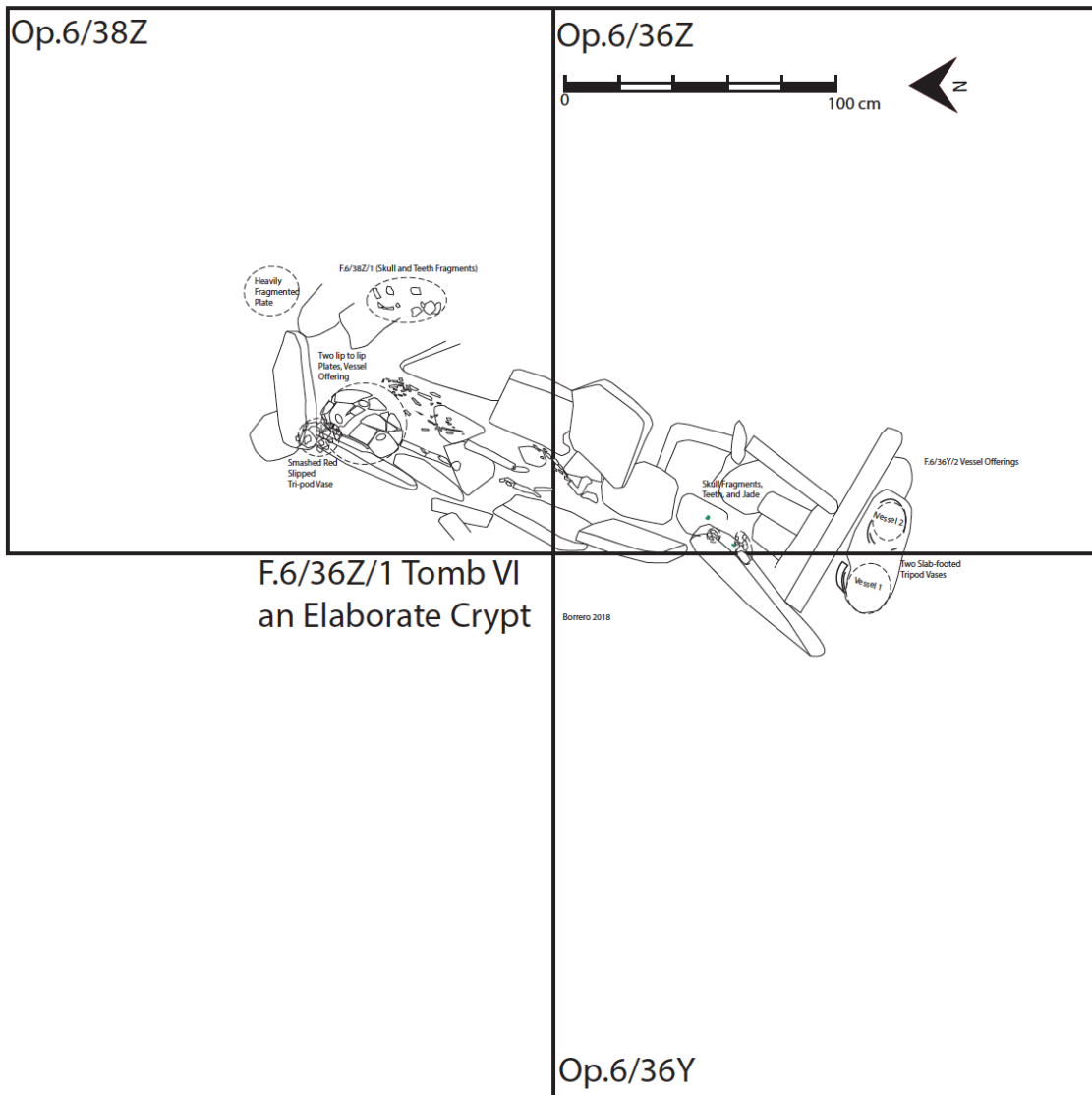


Figure 5.13 Caching within Tomb VI and crypt, with covering stones removed.

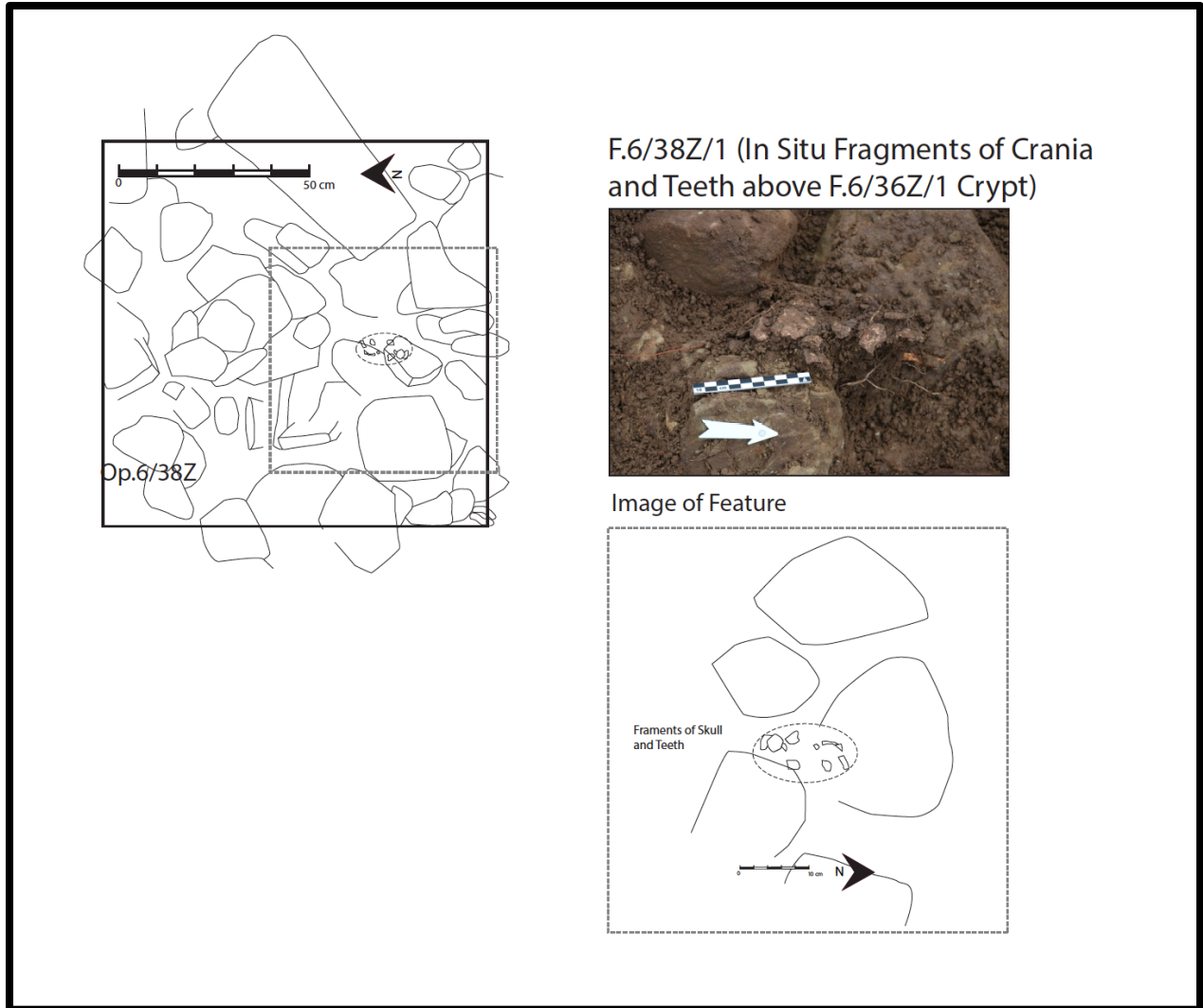


Figure 5.14 Crania and teeth above crypt.

5.4 SUMMARY OF FINDINGS AT STRUCTURE 6

Excavations into the interior of Structure 6 reveal that there was no earlier construction for this platform, which was built in one phase, with additional outward expansions made in the Late Classic. There was a brief intermittent period during which construction was halted, as was substantiated throughout the structure in the presence of a layer of tamped earth, marking a walked-upon surface, and in evidence of burning, including scorching, ash, and charcoal, found throughout several units at this level. The burning is thought to be associated with rituals that were likely performed to consecrate the building's construction. This pause also allowed the

builders the opportunity to place an interment within the construction fill of Structure 6, labeled Tomb VI at Nim li Punit. I do not believe that this was the initial intention for Structure 6 but, rather, that this individual's passing occurred during construction and the building plan was modified accordingly. The burial itself was that of a high-status adult elite, as suggested by the inclusion of a wide variety of fine prestige goods. This burial, which was reentered and likely looted in antiquity, leaves one wondering about the full quantity and quality of grave goods originally interred with this individual. The fact that the grave was reentered, likely in the Terminal Classic (some 400-450 years later), also points to the social memory and awareness of this individual's resting place, including the cultural material that had been placed within. In Chapter 8, I will further discuss the implications of this burial and its associations with other burials at Nim li Punit, as well as its possible implications for governance at the site. The looting event that occurred in antiquity removed prestige grave goods with little regard for the physical remains of the deceased, pointing to a dramatic social shift at the site between the Early and Terminal Classic periods.

The main function of this long-range structure remains unknown (Figure 5.15). I initially anticipated that Structure 6 may have contained some domestic contexts pertaining to life in the South Group, but the lack of flooring or superstructure meant that the information necessary to identify the exact purpose and function of this structure was not preserved. Leading up to the abandonment of Nim li Punit during the Terminal Classic, Structure 6 was altered, with the construction of several new architectural additions that modified the overall shape of the structure. Currently it is unclear how this affected the function of the building, but these additions did play a major role in altering both physical and visual access from the rest of the site to the South Group (Figure 5.16). Furthermore, Structure 6 appears to have been partially

disassembled in the Terminal Classic Period. The implications of these architectural additions and modifications will be discussed in Chapter 8.



Figure 5.15 3D Model of liberated mound of Structure 6.



Figure 5.16 3D model of post-excavated and consolidated state for Structure 6.

6.1 INTRODUCTION

This chapter continues the discussion of architectural evidence from Nim li Punit. Here I describe the excavations around and into the interior of a building's remains in the West Group at Nim li Punit. The target was Structure 50, an east-west oriented, long-range structure (Figure 6.1). This building was selected for investigation based on test pit data from previous TRIP excavations. These preliminary excavations, conducted in the plaza floor in front (i.e. north) of the building, revealed several burials that suggested that Structure 50 was an elite residence (Braswell et al 2010:170). The goal of these investigations was to determine this building's form and construction history, as well as assigning it a function. The shift of investigations to the West Group was an important step for answering my questions concerning the habitation areas' spatial organization, as well as the overall distribution of power at the site core. In the narrative portion of this chapter, I will provide a general description of Structure 50's excavation sequence. A more technical, detailed lot-by-lot description for each excavated unit is provided in Appendix I. Appendix II lists the lot determination for each excavated unit, including the context of the material and a chronological assessment based on associated ceramics.

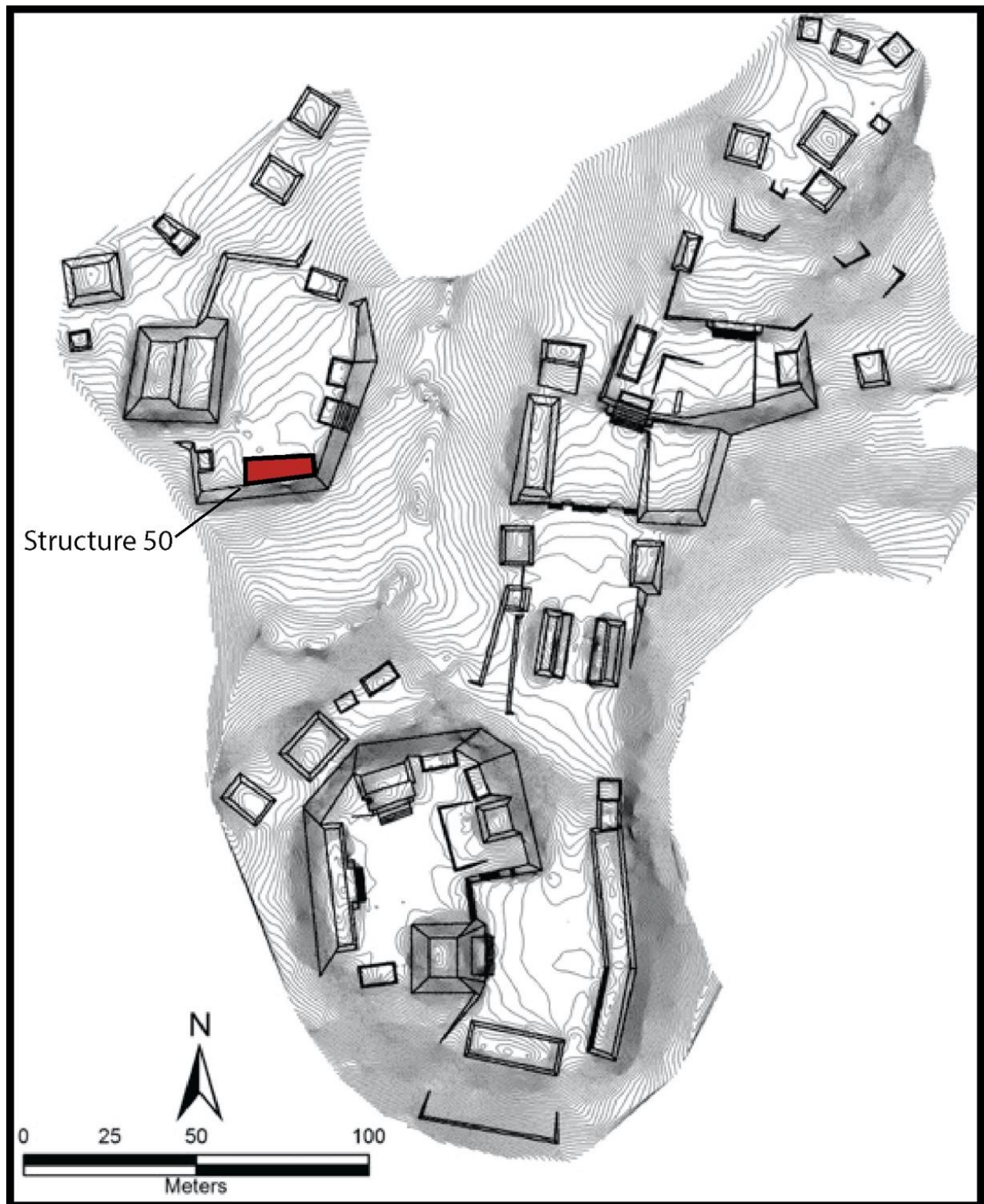


Figure 6.1 Map of site of Nim li Punit highlighting Structure 50.

6.2 EXCAVATION OF STRUCTURE 50

Structure 50 was built in a single construction phase concurrent with the raising of the West Group plaza's platform. There was no evidence of a floor at the current ground level beneath Structure 50; instead, excavations into the interior revealed continuous fill within and beneath this building. Artifacts removed from this structure indicate that it was constructed and inhabited wholly in the Terminal Classic. No earlier pottery has been recovered from Structure 50 or from the West Group more generally. Deep test pit excavations from 2010 revealed Belize Red pottery at the very foundation of the entire West Group, a marker of the southern Belize Terminal Classic (Braswell et al. 2010; Luke Stroth 2020). The construction and use of the West Group's structures appear to have been restricted to the late 8th century and first half of the 9th century.

Excavations within each 2 by 2 m unit were organized by lot, changing according to stratigraphic or architectural phases (Table 6.1). Architectural and cultural features were assigned feature numbers. Most of Structure 50's architectural mound was excavated in Lot 1s (Figure 6.2), equivalent to the removal of overburden with the purpose of revealing remaining architecture (Figure 6.3). Several features and architectural elements were encountered during excavation; these are listed in Table 6.1 and discussed in detail in the text below.

Table 6.1 List of features associated with Structure 6.

Feature	Description	Location (Op/SubOp/Lot)
F. 7/14N/1	Stone bench	7/14N/2,7/14O/1
F. 7/14N/2	Fill cells internal	7/14N/5
F. 7/14R/1	South-facing wall of Structure 50	7/14R/1, 7/14R/2
F.7/16S/1	East-facing bracing wall	7/16S/1, 7/16S/2, 7/16R-S/3
F.7/16S/2	Ritual cache collection of shell, faunal, and musical instruments	7/14S/2, 7/16S/1
F.7/16P/1	Stamped-earth living Surface	7/14N/3
F. 7/16O/1	Fill cells internal	7/14O/2, 7/14O/5, 7/16O/3, 7/16O/4
F. 7/18L/1	Original north-facing wall of Structure 50	7/16O/1, 7/16O/2, 7/18K/1, 7/18L/1, 7/18N-O/3,7/18O/1, 7/18R/2, 7/18P/P-Q/1, 7/18P/P-Q/2, 7/18P/P-Q/4, 7/20L/1, 7/20M/1, 7/18LMN/4
F. 7/18L/2	First bracing wall north of Structure 50	7/18L/1

Table 6.1 List of features associated with Structure 6, continued.

Feature	Description	Location (Op/SubOp/Lot)
F.7/18S/1	Eastern-facing wall of Structure 50	7/14R/1, 7/14R/2, 7/16S/1,7/16S/2, 7/16R-S/3, 7/18S/1, 7/18S/2, 7/20T/2
F.7/20M/1	Second bracing wall north of Structure 50	7/20M/1
F.7/20Q/1	Expanded north wall of Structure 50	7/14R/1, 7/20L/2, 7/18M/1,7/18S/2, 7/18N/1,7/18O/1, 7/20N/1, 7/20N/2,7/18N-O/3, 7/18PQ/1, 7/20L/2, 7/18P-Q/2, 7/20O/2 7/20P/1, 7/20P/2, 7/20Q/1,7/20Q/2, 7/20R/1, 7/20R/2, 7/20S/1, 20P-Q-R-S/3
F. 7/20Q/2	Stair block of Structure 50	7/20N/1,7/20N/2, 7/20P/1,7/20P/2, 7/20Q/1, 7/20Q/2,7/20R/1, 7/20S/1,20P-Q-R-S/3
F. 7/20Q/3	Patio floor of South Group, composed of white ballast stones	7/14N/2,7/18S/2, 7/20N/2, 7/20P/2, 7/20Q/1, 7/20R/1, 7/20R/2, 7/20S/2, 7/20T/2, 20P-Q-R-S/3
F.7/18S/1	Eastern-facing wall of Structure 50	7/14R/1, 7/14R/2, 7/16S/1,7/16S/2, 7/16R-S/3, 7/18S/1, 7/18S/2, 7/20T/2

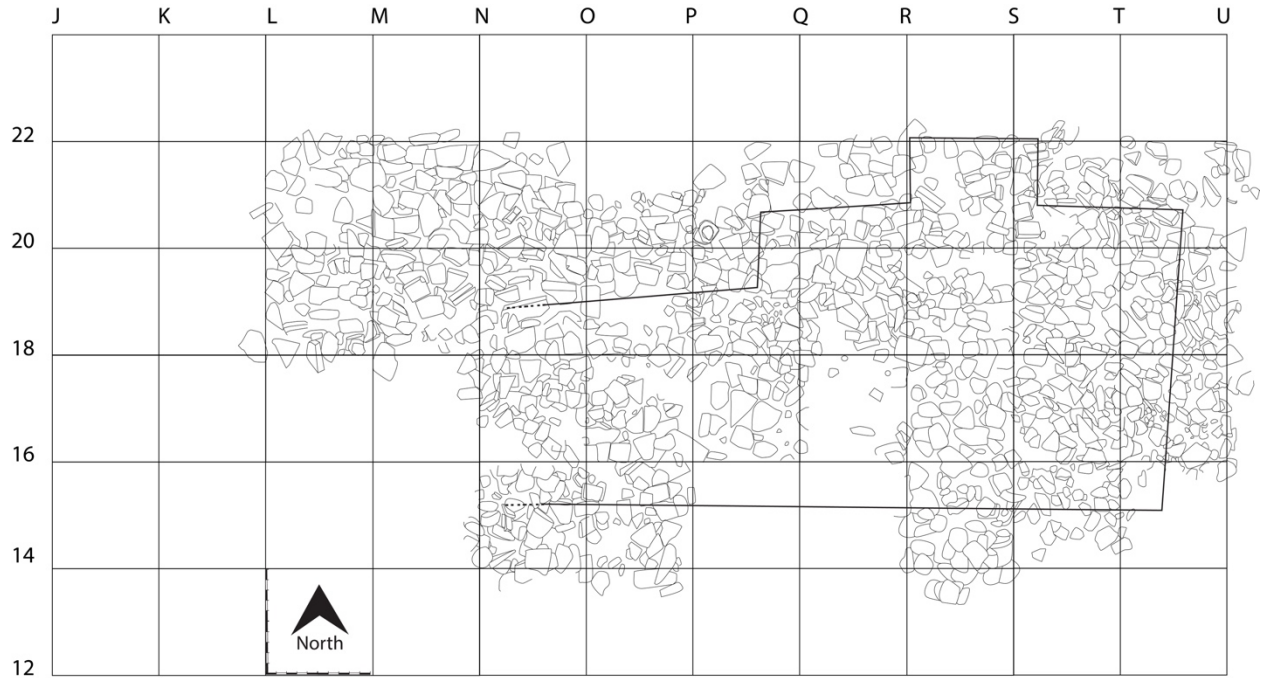


Figure 6.2 Drawing of liberated mound for Structure 50.

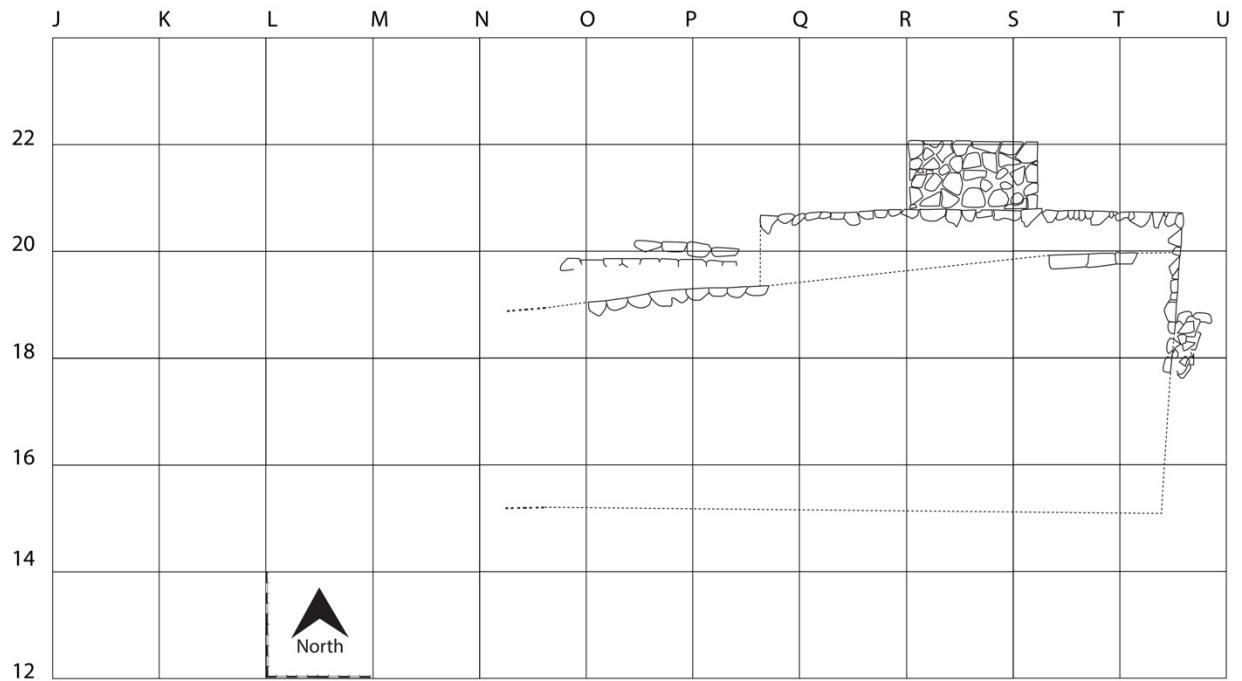


Figure 6.3 Plan view of Structure 50 post-excitation and consolidation.

6.3 EXCAVATIONS IN THE PLAZA SURROUNDING STRUCTURE 50

Excavation began along the north face of the mound, working along the east-to-west 20 row of our excavation grid (see Figures 6.2 and 6.3); units were opened on what was thought to be the visible north-facing wall. These units were excavated to understand the overall shape and extent of the building. Plaza floor (F.7/20Q/3) was encountered in this area and was defined by a marked change in sediment color (10YR 7/2 light gray). The depth of the plaza floor (F.7/20Q/3) for the West Group was reached in all the surrounding exterior units of Structure 50. The preservation of the floor was poor, consisting of a mix of decayed plaster and cobble fill. The remains of Structure 50's original north-facing wall was located and labeled F.7/18L/1; it was inset from the stair block of Structure 50, built in a "wedding cake" fashion common in southern Belize (Braswell and Prufer 2009; Braswell 2020). Later, Structure 50 was expanded to the north, with the addition of another north-facing wall (F.7/18L/2; Figure 6.4). I interpret this construction episode as an expansion of Structure 50, rather than as a bracing wall. This is due to the architectural fill between F.7/18L/2 and F.7/18L/1, which is lacking from the abutment walls, as described below, and because of the quality of construction, which included cut-faced stones that had been cemented in place with mortar. Two courses of stones were also added to the top of F.7/18L/2, raising the height of the platform.

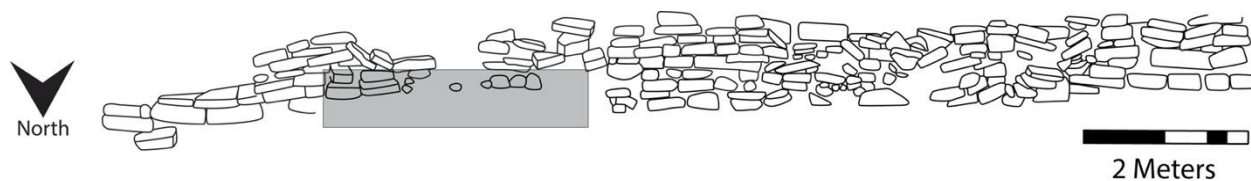


Figure 6.4 Expanded north wall of Structure 50 F.7/18L/1. Gray box represents the approximate location of Structure 50's stair block; the north wall expansion wraps over it.

After the north-facing wall was located, excavations proceeded to the east and west in search of the building's corners and sides. The west side of the building contained many trees, making it very difficult to follow the architecture in this area. Interpretation became complicated as the wall began to disappear. It was clear that the western side of the northern wall and its connection to the west wall were relatively poorly preserved. As such, we were not able to determine the overall western extent of Structure 50's platform and have noted this in schematic drawings of the architecture as a series of dotted lines (Figures 6.2 and 6.3).

The east side of the building was much better preserved. Here we encountered the northeast corner of the building and continued excavations along the east-facing wall (F.7/18S/1) down to plaza level along the R, S, and T lines. The East Wall (F.7/18S/1) was excavated in two lots along this row of units, portions of the wall were taken down and reconsolidated to help preserve the building's form (Figure 6.5). The first lot revealed a mix of construction fill and fallen architecture; the mixture was a result of the north and east walls' collapse during antiquity. We found a series of intact courses of base stones from Structure 50's eastern wall, which ran the length of the wall. Following these stones southward, we found that the southeast corner of the building was missing; it had collapsed off the side of the West Group platform. The back south-facing wall of Structure 50's platform was still present (F.7/14R/1). We did not excavate this feature and it is not illustrated, because its placement along the very south edge of the mound would have made excavation not only difficult but dangerous.

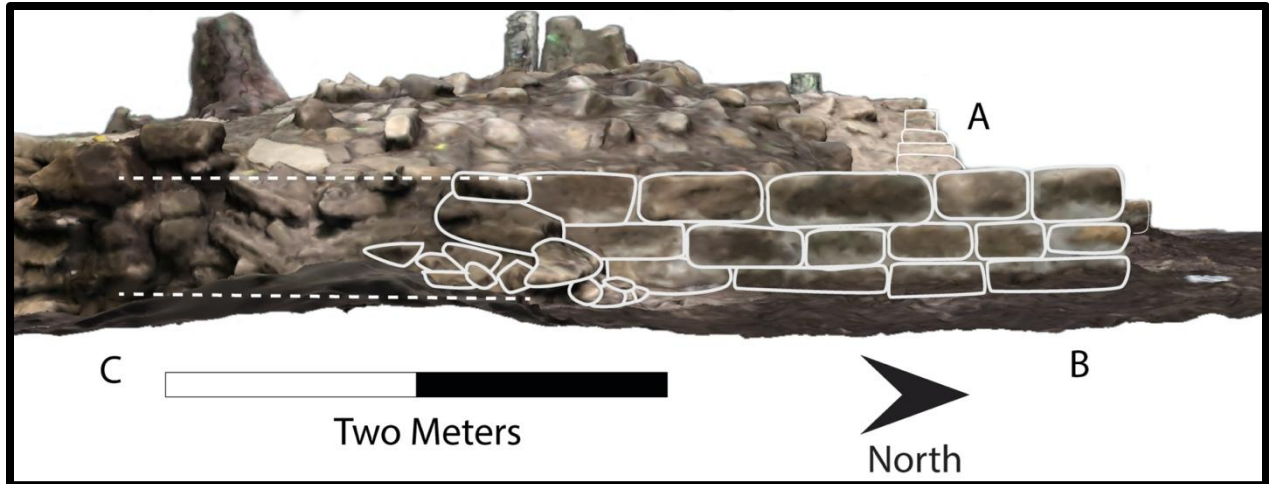


Figure 6.5 East-facing wall of Structure 50 and associated features: (A) expanded north wall (F.7/20Q/1) of Structure 50, (B) the east wall (F.7/18S/1) of Structure 50, and (C) dotted lines show the area where the wall collapsed and would have continued to the south.

Excavations around the north and east walls of structure 50 revealed that they had been damaged in antiquity. Repairs were made during the early 9th century in the form of additional supporting walls for bracing and a slight expansion of the building northward. The first example of major damage was likely the partial collapse of the original north face of Structure 50. At this time the residents decided to construct an additional north-facing wall (F.7/20Q/1), placed only 50 cm in front (i.e. north) of the original, partially collapsed north wall and slumped fill of Structure 50 (Figure 6.6). This only slightly expanded the overall floorplan of Structure 50 but provided greater stability to the platform's northern face. Construction fill was encountered throughout the length of the area between these two walls; this constituted a complete expansion of the Structure 50 platform floorplan to the north. The section of the northern expansion wall (F.7/20Q/1) was very well-preserved where it crossed over the stair block (F.7/20Q/2, discussed further below). The wall consisted of six courses of faced stones, reaching a height of 1.3 m. Both the north wall expansion and the stair block were disturbed by a tree growing to the south, and several stones had been displaced by its root system.

The new northern wall fix did not last long, as the building again started to suffer partial collapses and fill spillage, this time along the northern and eastern walls. Rather than carry out a complete reconstruction and expansion of the building, hastily made bracing walls were pressed against the crumbling architecture. Along the expanded north wall of Structure 50, the first northern bracing wall (F.7/20M/1) was built to be 12.8 m long and up to eight courses high. A second and shorter bracing wall (F.7/18L/2), 3 m long and four courses high, was placed a few meters west of the structure's centerline, in front of the first bracing wall. It appears that the supporting wall designed to hold up Structure 50's expanded north wall also required support. This secondary supporting wall was excavated in Op.7/18M/4, and we observed that the first and second bracing walls were resting directly on top of the plaza floor. Additionally, the first bracing wall was also constructed over Structure 50's stair block (F.7/20Q/2), indicating that they were both later additions to Structure 50.

Along the east side of the platform, a buttress wall (F.7/16S/1) was also added to shore up a similar problem of crumbling architecture from the original east wall. The quality of the stone used in these repairs became poorer over time, from faced stones in the original north-facing wall and northern expansion wall, to uneven stones stacked without mortar against the side of the building in all three supporting features. In Figure 6.6, the different walls are labeled and annotated so the reader may see how they intersect.

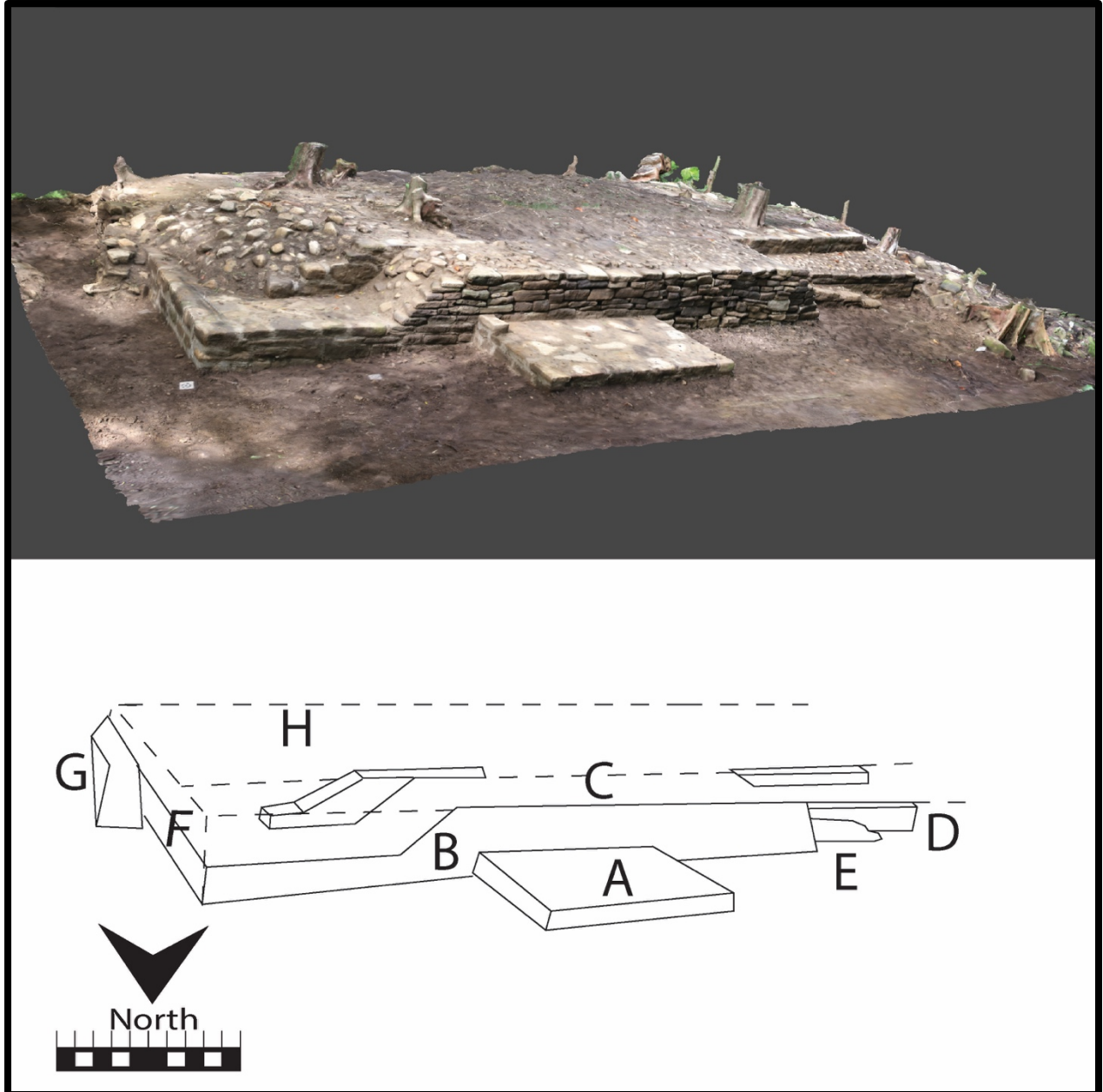


Figure 6.6 Supporting walls of Structure 50. (A) Stair block F.7/20Q/2, (B) northern expansion wall (F.720Q/1), (C) original north wall (F.718L/1), (D) first northern bracing wall (F.7/18L/2), (E) second northern bracing wall (F.7/20M/1), (F) eastern wall (F.7/18S/1), (G) eastern bracing wall (F.7/16S/1), and (H) south-facing wall (F.7/14R/1).

Structure 50's stair block has a single preserved tread, shaped like a rectangular platform (F.7/20Q/2; Figure 6.7). First discovered in Op.7/20Q, just 2 m east of the centerline. The eastward extent of this feature was roughly four meters east of centerline. Excavations around

the stair block were interesting, producing many artifacts, including some we believe may have collected at the base of the north walls and that potentially came from the platform itself as the architecture began to slump. Several diagnostic artifacts suggest domestic refuse, likely from the inhabitants of Structure 50. Some key examples are a large *metate* fragment and *mano*, which were recovered beneath several fallen stones, possibly in situ, and a second *metate* fragment with legs. Additional cultural material seems to have pooled in the area around the front of the building as the architecture collapsed. From a single lot (Lot 2), located just to the west side of the stair block, we recovered 300 ceramic sherds, 13 pieces of obsidian, 10 pieces of chert, jute, six large fragments of groundstone, one possible ceramic glyph, a groundstone toolset, a clay whistle, a crude fat figurine, a serpentine bead, and 12 faunal remains. This quantity and diversity of artifact classes was not typical for excavated units from other areas of Structure 50.

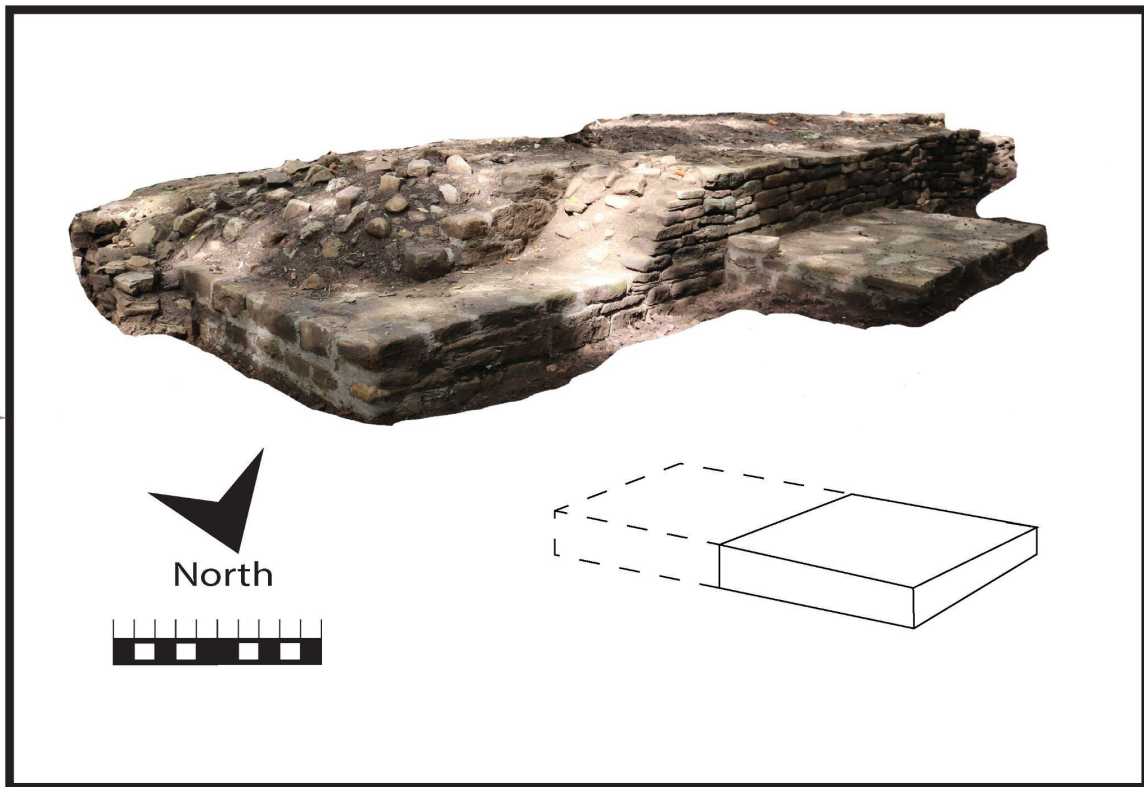


Figure 6.7 Stair block of Structure 50. The dotted line portion is the area that passes beneath the expanded northern wall of Structure 50 to meet the original northern wall.

During our 2019 excavations we did re-encounter the 2010 test pit units that were placed north of Structure 50 into the West Group plaza. Units affected included Op.7/20P and 20O, this included the stair block of Structure 50, about a third of which had been removed during these excavations (Figure 6.8). Lot 1s in this area were closed once we realized we were excavating in potential backdirt from those previous excavations. We did continue in these units with a Lot 2 as we wanted to fully expose all of the fallen architecture from Structure 50.

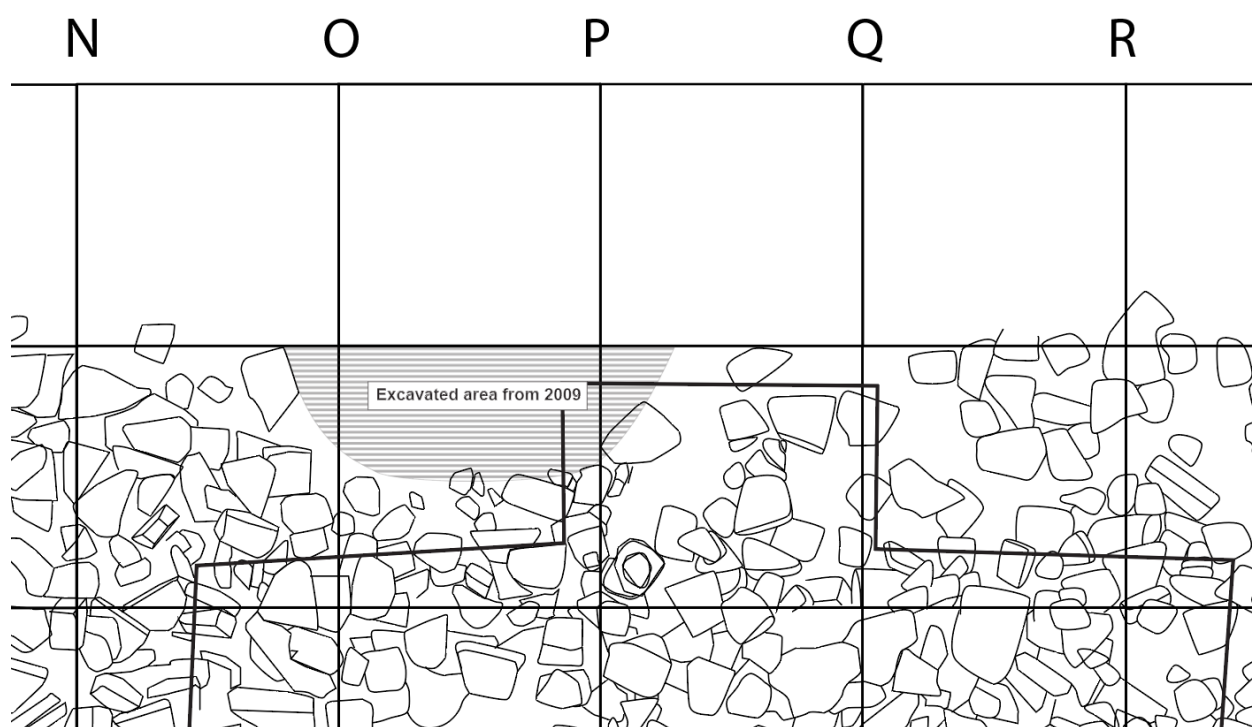


Figure 6.8 2010 Test pitting excavated area, which impacted some of Structure 50's architecture. North is to the top.

6.4 SPECIAL CACHE

During excavations in the east side of the building we discovered an offering (F.7/16S/1), consisting of an incomplete Remate Micaceous ceramic bowl (Figure 6.9). During excavation we encountered a tightly collected assemblage of artifacts, which we believe had been deposited into this vessel as a pre-abandonment offering to the building or site. The vessel was filled with four

animal bones (one is a small portion of palate and another, broken into two pieces, is identified as a long bone from a deer with the epiphysis still preserved); a small, round hematite disk polished to be shiny on both sides (25 mm in diameter and 1.5 mm thick); obsidian blades; one ceramic whistle (this was a small, functioning bird whistle, see Chapter 7 on figurines); a partial bone flute (made of a long bone, potentially humerus based on size); and an abundance of jute (Figure 6.9). In addition, Luke Stroth (in Braswell et al. 2019) conducted a palaeobotanical study of the soils from this context and noted that there was an increased signature of pine charcoal and burnt maize, both indicators of a potential ritual activity. The quantity of artifact material coming from this unit was unusually high, including many ceramic sherds.

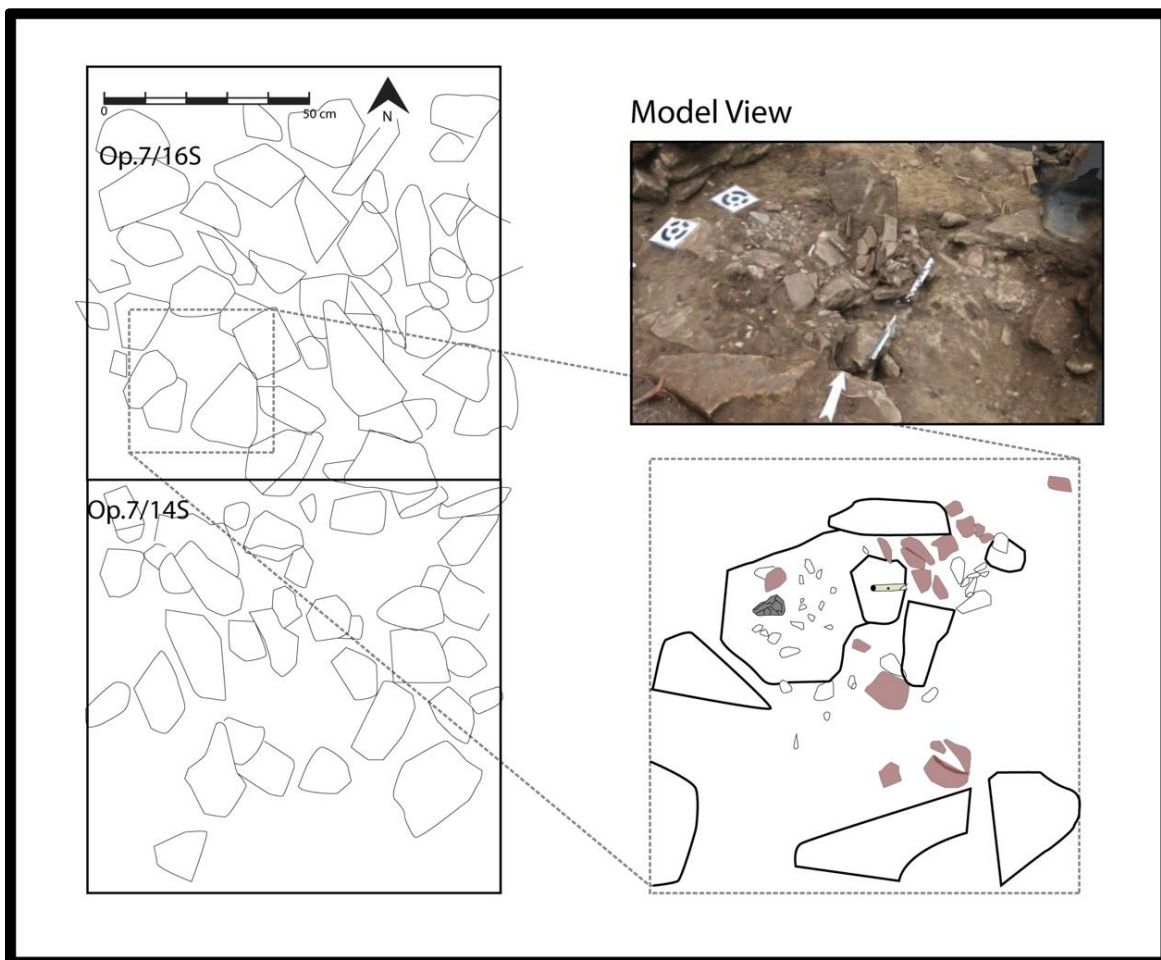


Figure 6.9 F.7/16S/1 Vessel cache beneath wall fall of eastern wall Structure 50.

6.5 EXCAVATIONS ON TOP AND WITHIN STRUCTURE 50

Excavations carried out on top of and within Structure 50 began along the assumed centerline for the building, roughly four meters to the south of the stair block and north-facing wall. A bench (F.7/14N/1) was found on top of the platform, at the base of which we encountered a packed-earth surface (F.7/16P/1; Figure 6.10). The stone bench is small, extending only 1.2 m east to west and only 0.8 m high. It was resting on top of a packed surface made of small stones, likely the remains of a temporary living surface. This surface was tracked throughout the surrounding units. Soil samples were collected from this context, as were charcoal remains from underneath the stone bench.

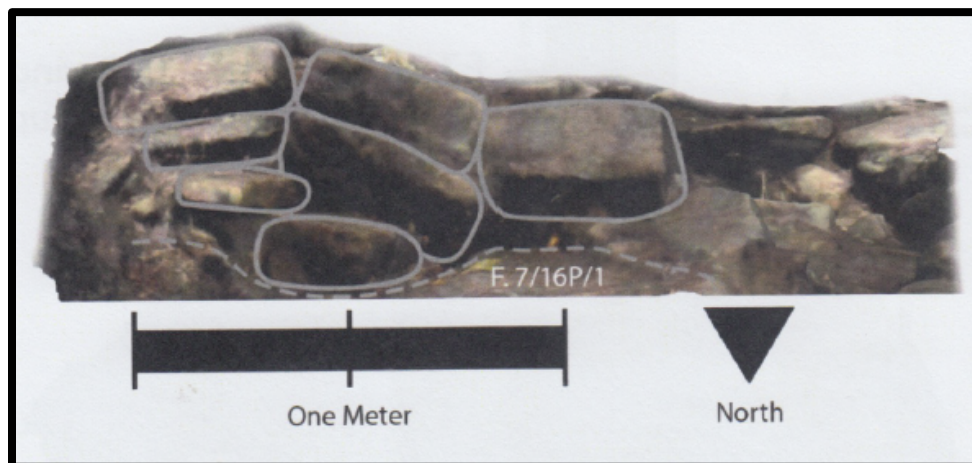


Figure 6.10 Stone bench (F.7/14N/1) and compacted sediment layer (F.7/16P/1) on top of Structure 50.

After clearing the top of the mound and removing the overburden, we estimated the building's centerline and opened several units with the intention of deep excavations into the core of the structure. We placed our deep sounding units in 14N and 14O, aiming to locate any earlier substructure for Structure 50 (Figure 6.11). Beneath the compacted earth surface, we immediately began excavating into construction fill for the Structure 50 platform. This consisted of large fill stones resting on another layer of compacted earth, at a depth of 65 cm. We changed

lots during our excavations when we encountered a new surface of brown earth (10YR 5/4 yellowish brown). While a significant amount of earth was removed in these units by going down to such a depth, the construction fill was largely devoid of artifacts, and only a small number were recovered. Ceramic sherds, chert, and faunal remains totaled 23 pieces all together. 1.2 m into our excavations we encountered an internal layer of compacted earth that the construction fill of Structure 50 was resting atop. The compacted earth layer was thin, at only 20 cm deep, and was itself resting atop flat paving stones that were known to be part of the plaza floor outside the building (F.7/14N/2), first discovered as part of the 2009 UCSD test pits (Braswell et al. 2010:186). Upon revealing this floor, we closed Lot 4. Further excavations beyond the flat paving stones revealed large construction fill used to build up the platform for the entire west group (Figure 6.14). This construction fill was similarly mostly sterile C-Horizon decomposed yellow rock (10YR 5/4 yellowish brown). Within this layer, we encountered large construction pens used for controlling the placement of construction fill stones as the platform of the West Group was built (F.7/14N/2). Another construction pen was encountered in 14O/3, shaped by several short intersecting walls (Figure 6.12). The footing of these construction pens was located at a depth of 320 cm from our datum. The excavation of this lot was extensive, going more than 200 cm deep. No further floors were encountered, and excavation became difficult as the hole began to narrow towards the bottom. This difficulty, coupled with that fact that the field season was coming to an end, meant that we closed this lot without finding sterile earth or another floor. During the 2010 field season, test pit excavations in front of Structure 50 and around hit bedrock at depths not much greater than our excavations, so we are comfortable in assuming that no major constructions exist beneath this building (Braswell et al. 2010). Again, throughout this massive movement of earth we only recovered 10 ceramic sherds and three

fragments of faunal remains. This ratio of low artifact counts to a high volume of earth indicates that these constructions occurred over a short period of time.

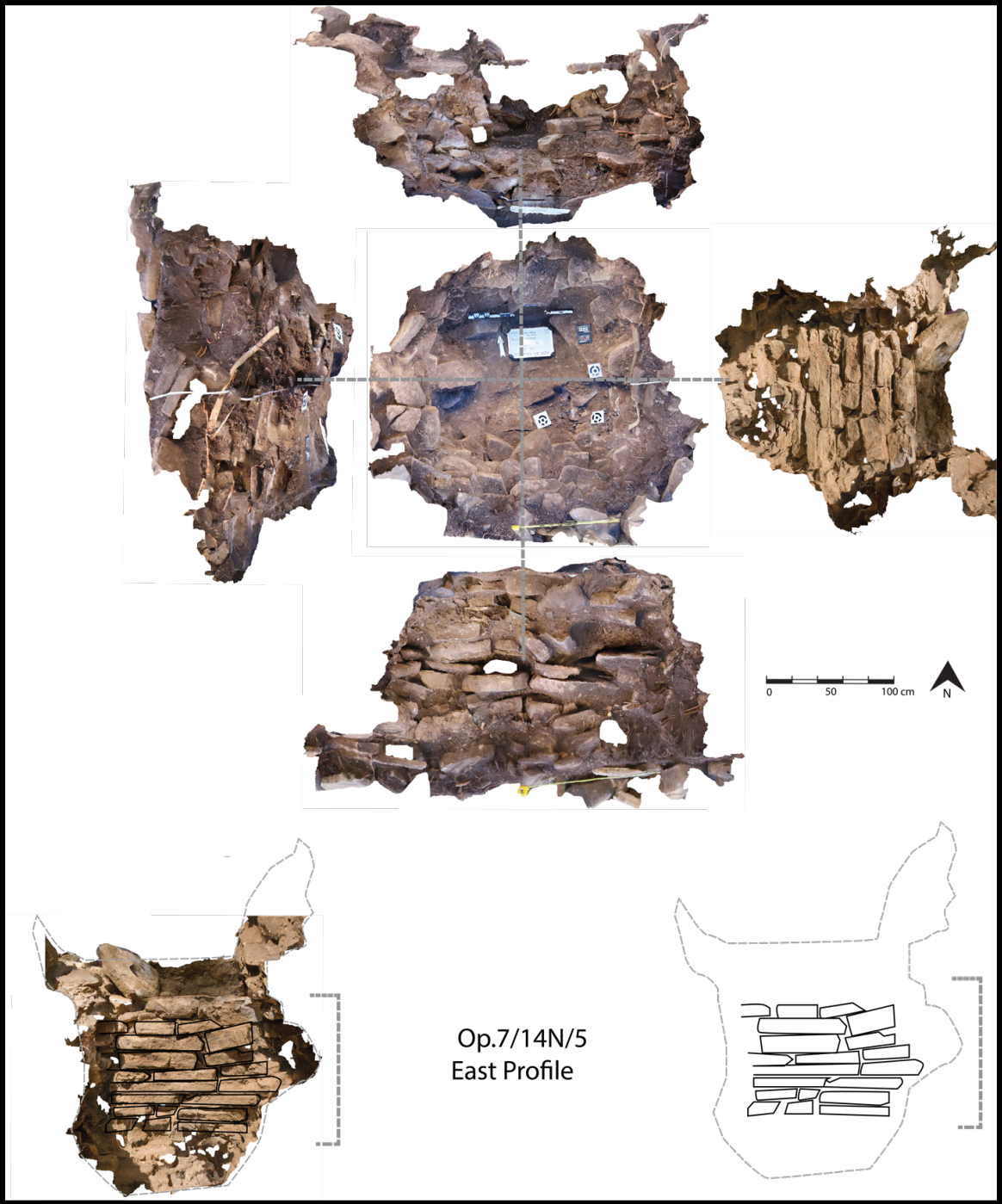


Figure 6.11 Deep sounding placed into Structure 50 Op.7/14N, excavated in 5 lots.

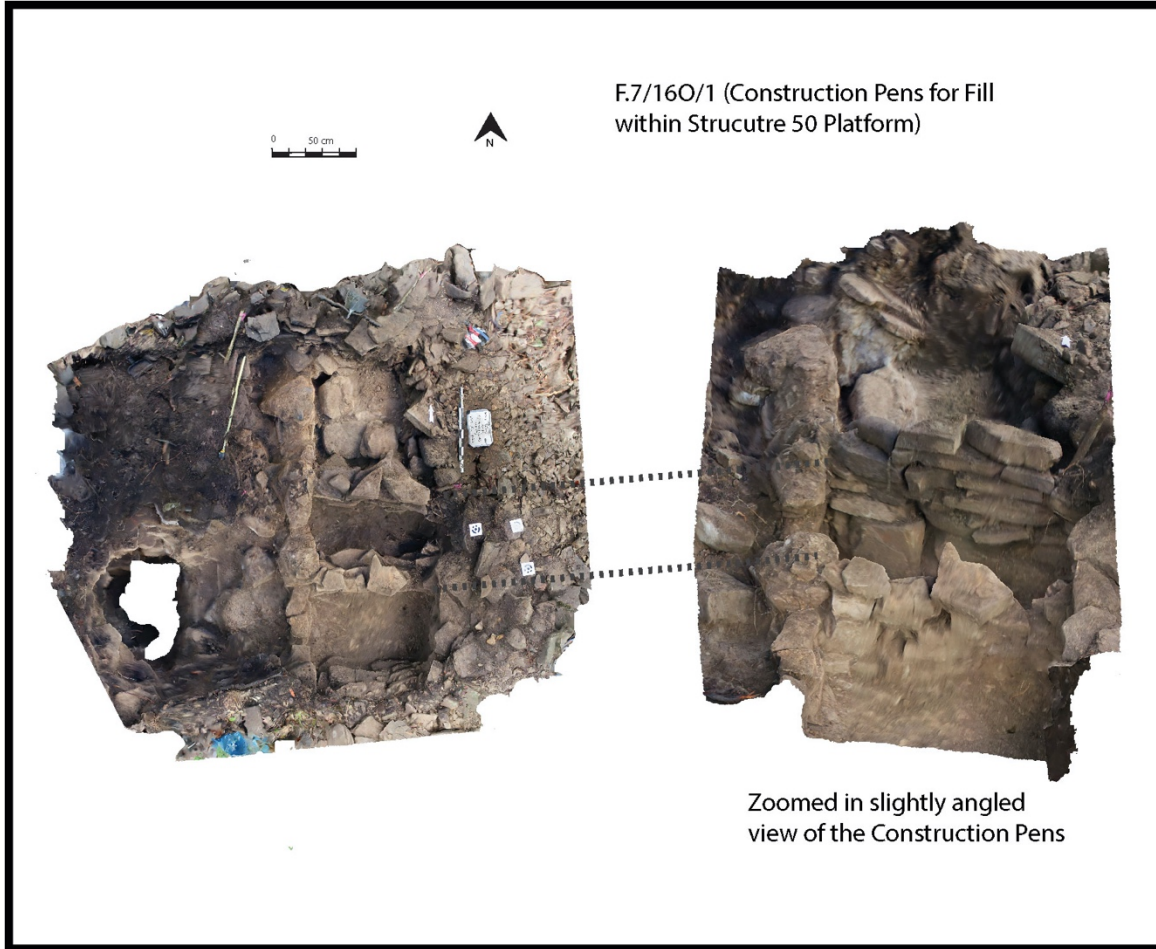


Figure 6.12 Fill cells within Structure 50.

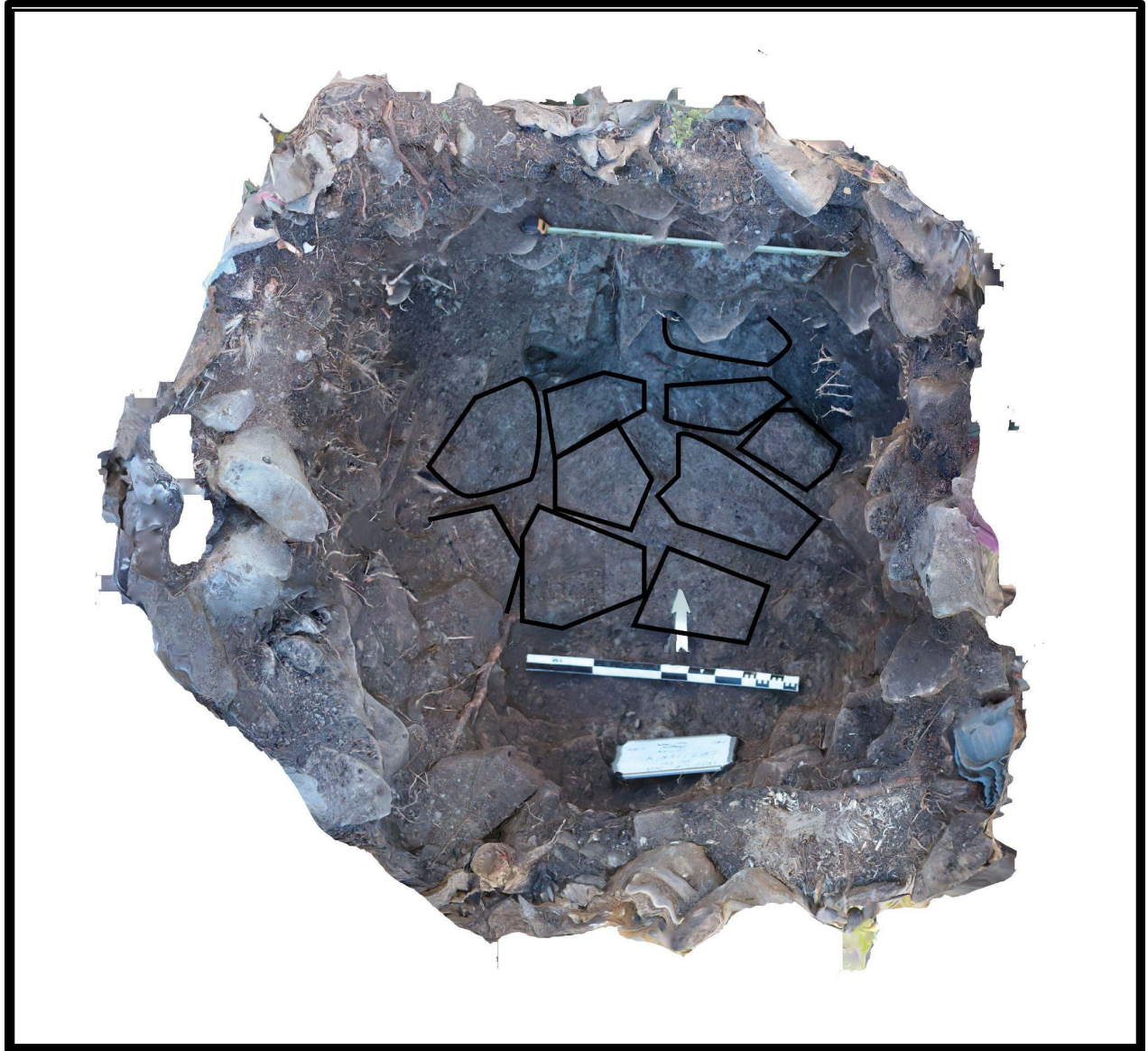


Figure 6.13 Large flat paving stones of West Group's plaza floor (F.720Q/3), underneath Structure 50.

We put several additional units on top of Structure 50, with the general purpose of exposing architectural features and understanding the overall construction of the platform. Op.7/7/16O was located west of the building's centerline, and the opening of this unit became part of the deep sounding excavation from 14O, and contained features F.7/16O/1, F.7/14N/3, and F.7/16O/2. Clearing away the organic overburden revealed that only a few of the stones of the platform surface were still in place. We encountered a line of stones that was the butt of the

north-facing wall of structure 50. During initial excavations into the overburden in this unit, we recovered an impressive Terminal Classic figurine that depicted a ball player, likely with his arm holding a ball and large girdle-style belt around his waist. Unfortunately, the head and back of the whistle were missing, but on his chest there is a drooping “T”-shaped pendant that was immediately reminiscent of the excavations for the jade pendant recovered from Structure 7 in the South Group in 2015. The figurine is further evidence of the importance of the wind cult in the Terminal Classic at Nim li Punit. Figurines from Nim li Punit are further discussed in Chapter 7 while Chapter 8 includes a discussion of rituals. The patterns of excavation within the structure continued, uncovering large fill stones, C-Horizon sediment, and very few artifacts of any class.

Excavations in Op.7/16P mirrored the findings of 14O and 16O, the deep soundings. This unit was taken down in three lots that ended 50 cm below plaza-floor level of the West Group. We excavated nearly 90 cm of stacked construction fill containing large fill stones that were not sealed. Again, we recovered only a small number of artifacts from these lots. In 2009, test-pitting carried out by TRIP members in front of Structure 50 reached similar levels as our deep excavations and continued to bedrock. What these excavations show is that the West Group area saw initial occupation in the Terminal Classic, with the associated cultural material and burials (Braswell et al. 2010:170-171). This lived surface was then buried beneath the construction of the West Group Plaza platform and the erection of Structure 50’s platform. These construction projects occurred in a single phase and over a short time span during the Terminal Classic, towards the end of occupation of the site.

6.5 SUMMARY OF FINDINGS FOR STRUCTURE 50

Our specific goal for the excavation of this structure was to determine the form and function of a long platform structure located in the south end of the West Group plaza. The dearth of artifacts from within the platform points to a very quick construction episode for both Structure 50 and the West Group platform. The material culture recovered from around the exterior and on top of Structure 50 show evidence of craft production, cooking, leisure, and other aspects of daily life. Details of the individual artifact classes recovered from the building and the activities they represent are discussed in Chapter 7. The presence of domestic artifacts makes Structure 50 very different to other structures that have been previously excavated at Nim li Punit. These domestic artifacts include numerous stone points of both obsidian and chert; several ground stone tools, including a complete axe/adze and fragments of *manos* and *metates*; and numerous figurines depicting males, females, and animals. Figurines, especially mold-made ones, are an artifact class that was only rarely encountered in the excavations of the South Group, suggesting they are mostly Late Classic or Terminal Classic.

What follows is an overview of the construction history for this portion of the site. The entire West Group's large platform was raised to about 1.5 meters in height around AD 800. This occurred relatively quickly, and the large platform was capped by a plaza floor made mostly of large flat paving stones. We know that Structure 50 was part of the same construction episode because there is no finished plaza floor passing completely beneath it. Construction fill of sediment and large stones was placed in and around construction pens within the West Group platform and in the core of Structure 50's platform. These retaining walls created stability and strength within the core of these buildings, as well as helping to manage the placement of fill stones during the construction process. After construction the platform for Structure 50 stood some 70 cm above the plaza floor and was completed with a wide stair block stoop at the north

end of the building, near the center, and facing the West Group plaza. Additionally, a building made of perishable material was erected on its summit.

At some point Structure 50 experienced major structural damage, with the north and east walls partially collapsing. A completely new north wall was added to the building, expanding the overall floor plan slightly further to the north. A series of bracing walls was hastily thrown up to support the north and east walls of the platform. Similarly, major structural damage was encountered in other buildings in both the South and West Group at Nim li Punit. What is of note is the difference in response to repairs at the site throughout time. For example, when similar damage occurred to Structure 7-sub—the Royal Throne Room of the South Group—it prompted a complete reconstruction and expansion of that building's floor plan, using polished construction techniques. Apparently, the inhabitants of the West Group were not able to muster the same caliber of resources or manpower to repair or expand all the damaged structures during the Terminal Classic. In the case of Structure 50, an elite residence, crude bracing walls were pushed up against the platform's exterior to prevent further slumping. Such a temporary fix was not employed in the South Group at the same site, denoting an imbalance in resource availability or access.

Structure 50 was constructed as part of a monumental expansion of Nim li Punit at the tail end of the Classic Period, with a very short occupation period into the Terminal Classic (Figure 6.14 and Figure 6.15).

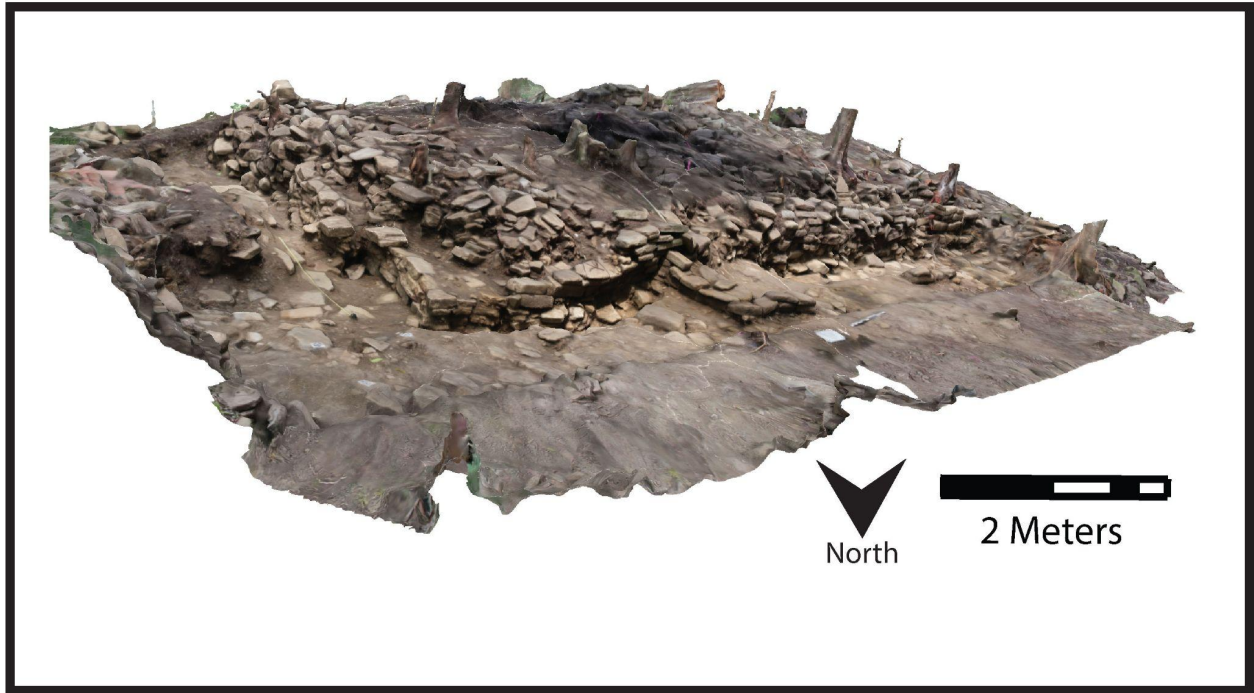


Figure 6.14 3D model of liberated mound for Structure 50.

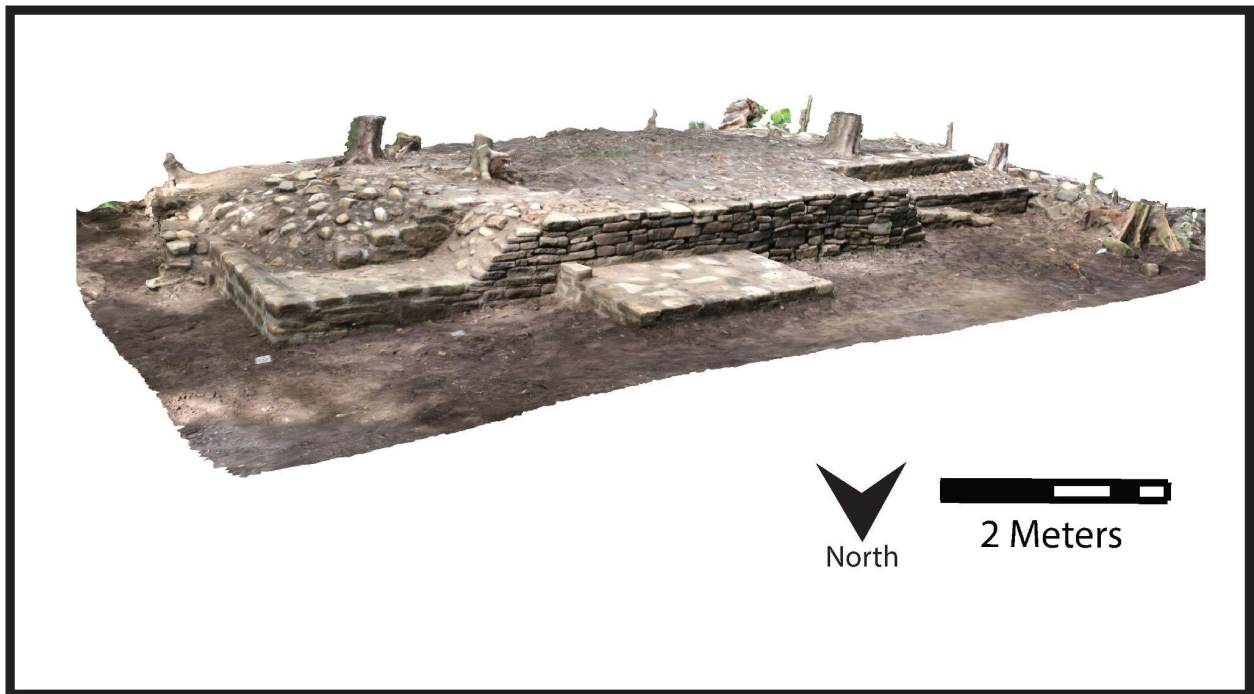


Figure 6.15 3D model of consolidated mound for Structure 50.

Chapter 7 ARTIFACT ANALYSIS

7.1 INTRODUCTION

Having discussed the constructed environment and inhabited spaces in the South and West Groups of Nim li Punit, I now turn to an overview of the activities that were carried out there. This section will discuss the individual artifacts recovered from the excavations of Structures 6 and 50. They represent the day-to-day activities of the Classic Maya inhabitants of these architectural groups. Most of their activities were subsistence focused, centered on food production and the maintenance and creation of clothing, shelter, and basic tools. Several key objects from the chipped stone and groundstone sections are remnants of implements associated with household activities. Stone tools were employed in the daily tasks of grinding, chopping, scraping, slicing, and hammering. Ceramics also provide data for the types of activities occurring at the site, as well for the exchange networks maintained by the inhabitants of Nim li Punit. An in-depth discussion is presented for the artifact sub-class of figurines, which give a unique window into the religious, spiritual, and mundane aspects of everyday life during the Classic era, at both an individual and group scale. The section on faunal remains highlights the physical traces left behind from routine activities of consumption and serves as a gauge of quality of life over the course of the Classic period. The information derived from the human remains represents some of the individuals that lived at the site and who were ultimately interred in and around these structures. One of these burials has associated grave goods relevant to questions of political influence, trade connections, and the spiritual narrative of the site's elites.

The analysis of these various artifact classes provides the data that I use to make arguments about what occurred at Nim li Punit throughout the Classic period and leading up to the collapse and abandonment of the site.

7.2 STONE TOOLS

Lithic studies have been an important component of archeological research. This artifact class represents a wide variety of tools that were essential to everyday lifeways in Maya society (Andrefsky 2005). Analyzing these tools and their production provides datapoints that contribute to our understanding of pre-Columbian social, political, and economic systems in the SBR during the Classic Period. Certain lithic resources were widely available and could be locally procured (e.g., limestone and certain cherts), while other material types (e.g., granite, slate, jade, basalt, obsidian, pumice, pyrite, and others) were confined to specific geographic areas and local communities would have needed to use exchange networks to gain access to them. Marcus (1983) stresses that our understanding of the relationship between the production and consumption spheres hinges on differences between interregional and long-distance trade.

In this chapter, I discuss the analysis of lithic artifacts recovered from Structures 50 and 6 of Nim li Punit, spanning toolstone use throughout the Classic period. My research focused on identifying: (1) the lithic material type of each artifact and where this resource may have been procured, (2) the use and formal tool classification, (3) the morphometric weight and completeness, and (4) what activities were carried out using these tools by the people of Nim li Punit. To accomplish these goals, I first classified the lithic assemblage recovered from the two buildings into categories based on lithic industry: chipped stone (chert and obsidian), groundstone (sedimentary and volcanic), and polished (slate, jade, and other greenstones). Relative dating of these artifacts is based on associated ceramics. Most of the lithic assemblage comes from construction fill within the two buildings, rather than activity areas. The fill context represents an instance of artifact disposal in an environment that was sealed by the construction of the building. This provides valuable information about the types of lithic activities occurring at each architectural group, which can be divided according to temporal period.

7.3 CHIPPED STONE

The chipped stone industry category is composed of artifacts made of obsidian and chert. The obsidian material is being analyzed by project P.I. Geoffrey Braswell and those findings will be published separately. X-ray fluorescence sourcing of the obsidian was conducted by colleagues Luke Stroth and James Daniels. Most of the obsidian material stems from the production and use of prismatic blades. We have very little evidence of on-site production; there are few prismatic cores and those that were recovered are small and mostly exhausted. This implies that the Nim li Punit was towards the end of the trade network for obtaining obsidian. Most of the obsidian has been sourced to El Chayal and Ixtepeque, both sources in Guatemala. A very small amount of the famously green Pachuca obsidian from Central Mexico has been recovered from Terminal Classic contexts associated with Structure 50. This falls in line with the overall evidence that Nim li Punit shifted its interaction networks during the Terminal Classic.

Chert Artifacts

I performed the chert analysis focused on technological typology, assigning artifacts to a particular reduction sequence or industry. Chert is a sedimentary rock that is well-cemented by quartz (silicon dioxide) and is typically fine-grained. It is often referred to as “crypto-crystalline” rock (Odell 2003). In the past it was chosen as a material for making stone tools because it enabled the consistent control of breakage by the knapper. Chert is uniformly isotropic and produces firm, thin edges, which is ideal for sharp-edged tools (Odell 2003:19). The inhabitants of Nim li Punit obtained small raw nodules of chert from the banks of nearby rivers. Larger pieces of chert, especially those of higher quality material that were made into bifaces, were imported to the site, likely from other Maya sites in northern Belize. We recovered a total of 1,285 chert artifacts from Structures 50 and 6, representing three industries: expedient casual

flakes, percussion blades, and bifacial/unifacial retouch. The full analysis of each chert artifact is included in Appendix III.

Formal Chert Tools

There is a marked difference in the quantity of formal stone tools recovered from each of the two structures analyzed here; only six were recovered from Structure 6 while thirty-three were found at Structure 50 (Table 7.1). This distinction serves as one of the best indicators of the temporal and functional differences between the two architectural groups. Artifacts recovered from Structure 50 exhibit many of the categories one would expect from a typical residence in the Terminal Classic. Structure 50 boasted an impressive 14 bifaces, many more than those recovered from previous field seasons at other locales at Nim li Punit. Six of the bifaces (42% or nearly half) came from the surface of Structure 50 in Lot 1 excavations; these can be associated not only with the Terminal Classic abandonment of the site but also with the perishable superstructure that once stood atop Structure 50's platform. Many of these chert bifaces are handheld knives that would have been used in domestic activities. In comparison, the formal chert tools of Structure 6 were one small arrowhead (notched for hafting, made from a flake); one biface; the distal fragment of a larger bifacial point; two macro-blade tools; and a hammerstone. Only the small chert arrowhead and a chert hammerstone were recovered from the surface of Structure 6, with the rest of the tools coming from within fill contexts.

Next, I compare our recovered chert artifacts to those that were part of a use-wear analysis study conducted by Stemp, Helmke, and Awe (2010). The authors of this study worked with material recovered from the site of Pook's Hill located in the Central Belize River Valley. This study included an experimental archaeology component, using replicas of stone artifacts on

various material types to understand the type of edge damage their use produced. Their results show that similar large chert bifaces from the Late Classic were multi-purpose tools used with different motions on a variety of materials (Stemp, Helmke, and Awe 2010:227-228). Their use in a range of domestic activities highlights the importance of these tools in residential contexts during the Late Classic.

The large biface can be considered a type of all-purpose tool (akin to a Swiss Army knife) that would have been vital to the household's tool inventory. Our excavations recovered the entire use lifecycle of these tools; from pre-made blanks, to fully completed hafted knives, to smaller knives that had undergone several episodes of resharpening and edge rejuvenation, and finally to the discard of broken bifaces, often with transverse fractures that likely occurred during attempted edge retouch. Table 7.1 lists the identified formal tool types and their counts for each building; a temporal designation (Temp) is provided for each grouping of tool based on their associated context.

We found several large biface tools together in a single context in Structure 50, which strengthens the argument that these tools were valuable and prized by their household. Seven bifaces were recovered from lots found in unit 14R, located along the east-facing side of Structure 50. Near the building's southeast corner we encountered wall fall from the eastern wall of the building (Feature F.7/18S/1, Chapter 6). I believe that there had been a vessel placed on top of this wall that had contained several objects of worth, including these biface points. These bifaces were in economic circulation up to the point of site abandonment. A chert hammerstone was recovered from another nearby unit (16O), which also points to production and maintenance occurring at the site. Examples of the very fine biface tools recovered from Structure 50 can be seen in Figures 7.1-7.4.

Table 7.1 Formal chert tools recovered from Structures 6 and 50.

Formal Chert Tools	Str.6		Str.50	
	Number	Temp	Number	Temp
Biface Point	2	Mixed/EC	8	TC
Biface	1	EC	11	TC
Biface Blanks	2	EC/TC	2	TC
Macro-Blade	0		2	TC
Blade/Biface	0		3	TC
Blade/Point	0		3	TC
Drill	1	EC	1	TC
Hammerstone	0		2	TC
Hammerstone/Chisel	0		1	TC
Total	6		33	

In comparison, Structure 6 yielded only one bifacial tool and a small, hafted flake projectile point (singular example, Op.6/34Y/1, Stone Tool 001; Figure 7.5). Made of a chert flake, its small size and the fact that it was recovered from the mound's surface point to its potential use as the point for bow and arrow technology during the Terminal Classic or after the site's abandonment.

While we have strong evidence for the use and maintenance of large chert bifacial tools on site, there is no evidence of their production at Nim li Punit. Moreover, there are no local chert deposits of any significant size near the site; instead, the local chert manifests in small nodule forms, only suitable for expedient percussion-flake production, which will be covered more thoroughly in the next section of this chapter. The most likely scenario is that the large chert bifaces were imported through trade to Nim li Punit. The fact that several of these stone tools were recovered from the elite residence of Structure 50 during the Terminal Classic

indicates that these lines of exchange were still operational up to the abandonment of the site.

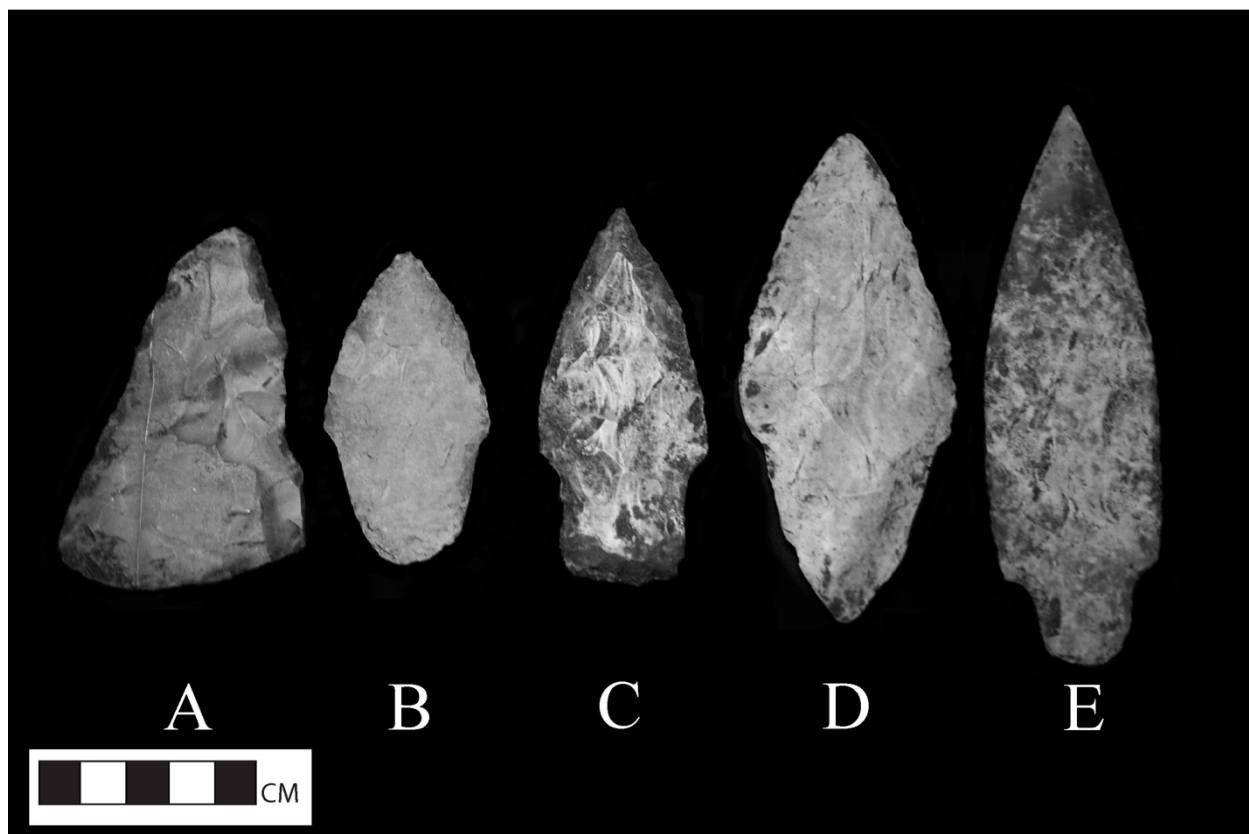


Figure 7.1 Various stages of Chert Bifacial points that were likely used as knives; note the shoulder notching along the distal end for hafting the blade. (A) Broken large biface that has been adapted into another tool (F.7/16S/1); (B) & (C) heavily retouched and resharpened bifaces resulting in a shortened length (B, Fig 7.3, Op.7/14R/1; C Op.7/16S/2); (D) moderate retouch along edges (Op.7/20R/2); and (E) a nearly unused bifacial knife (Fig 7.2; Op.7/18T/2).

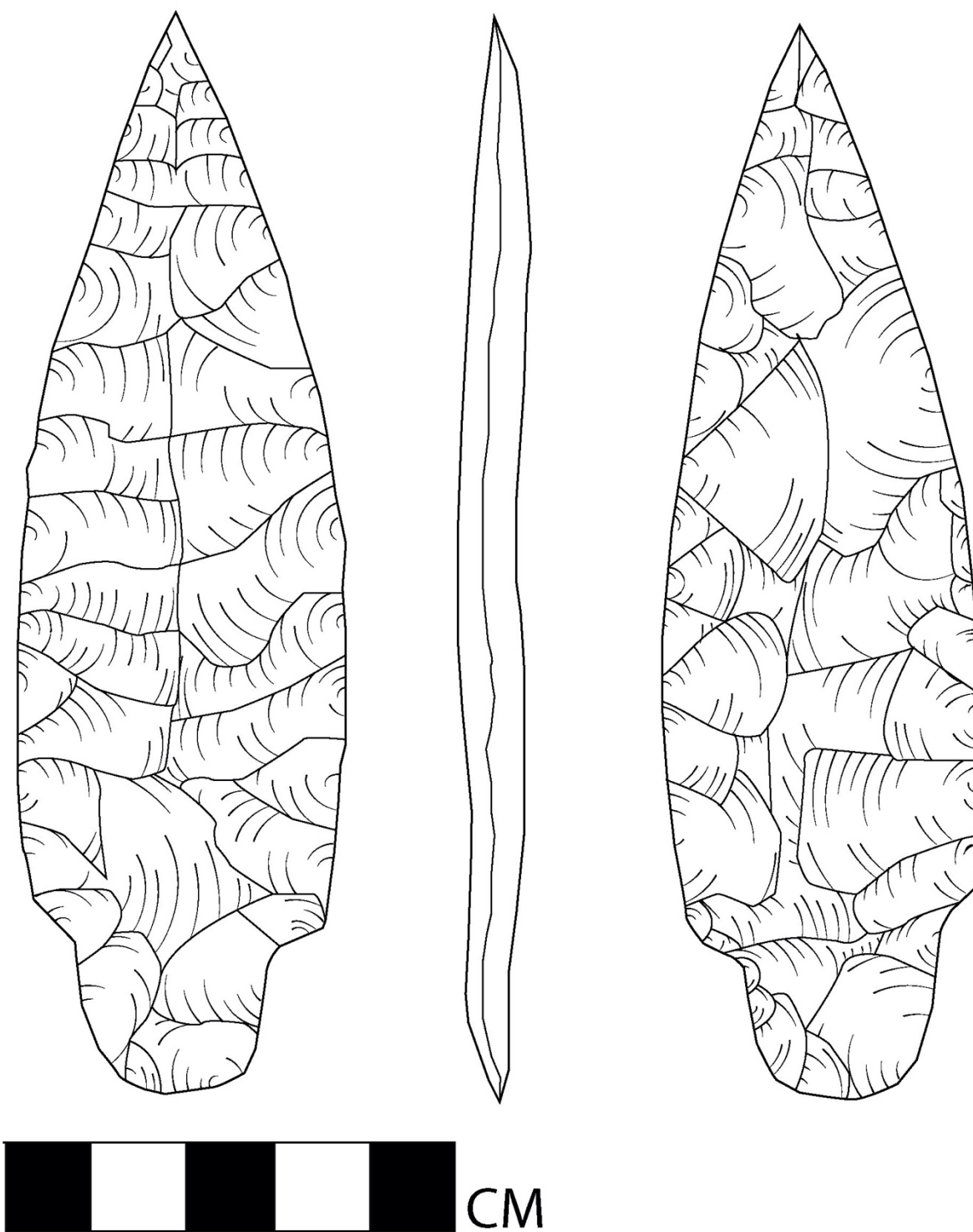


Figure 7.2 Stone Tool 004 fine hafted bifacial knife on honey brown chert from Op.7/18T/2.

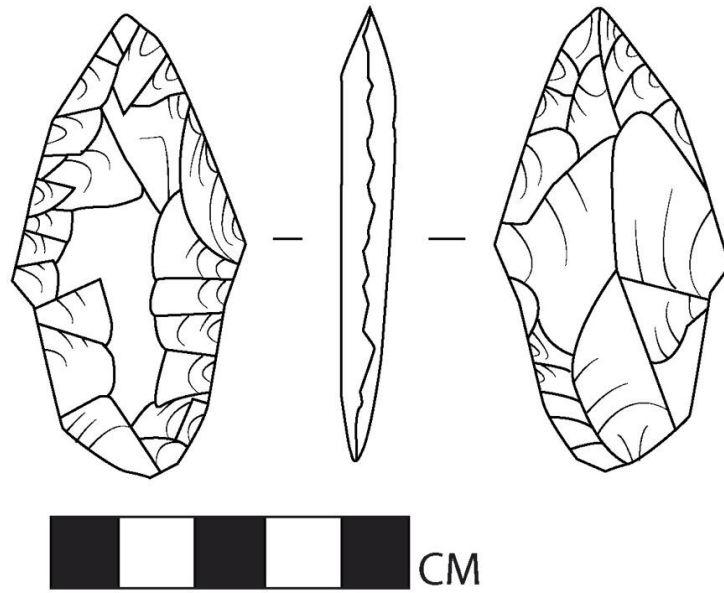


Figure 7.3 Stone Tool 006 bifacial knife with edge retouch on tan-gray chert from Op.7/14R/1.

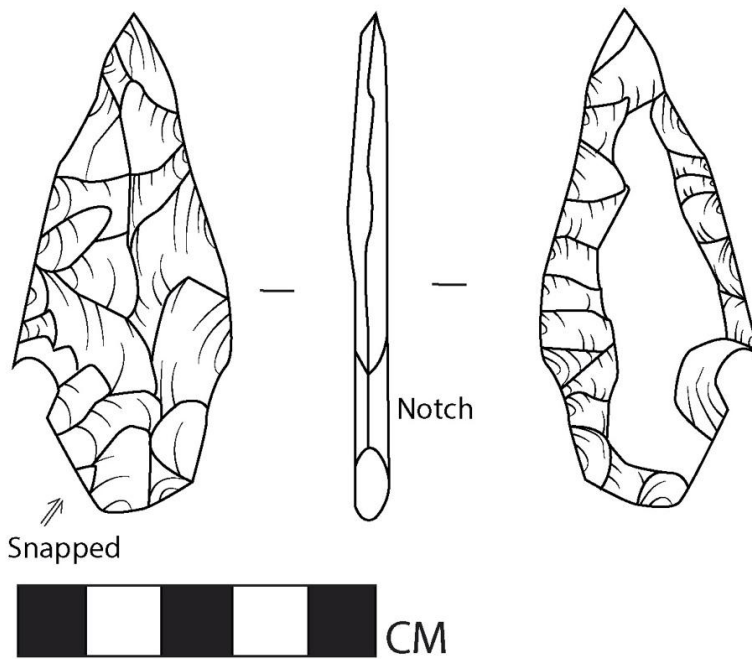


Figure 7.4 Stone Tool 015 bifacial knife, likely hafted, made from a large macro-blade of waxy white chert bone color from Op.7/16S/2.



Figure 7.5 Stone Tool 001 small chert point recovered from the surface of Structure 6, with side notching for hafting. Length is 1.8 centimeters Op.6/34Y/1.

Other Chert Artifacts

The majority of the chert artifacts recovered from the site represent an expedient flake industry and, in some contexts, the associated debitage of this industry. The *chaîne opératoire* for this industry was rather simple: it amounted to cracking small chert nodules and removing flakes until a usable cutting edge was acquired. The quality of the knapping, the choice of where to remove flakes, and the nature of the products all belie a casual industry that required only a rudimentary knowledge of how silica-based rocks fracture. The quantity, the variety, and the casual use of chert as toolstone by the inhabitants of Nim li Punit all point to this material being locally available in relative abundance. The presence of shatter in several contexts illustrate that this practice of manufacturing flake tools was occurring on site.

I selected for further analysis key units that reveal the final use activities at Nim li Punit during the Terminal Classic prior to abandonment. This consisted of contexts near the base of the excavated structures' walls, where plaza flooring had been encountered. Our working assumption was that these contexts would be generally representative of the trash that gathered in the corners of buildings during average use by inhabitants and that they would highlight the site's final episodes of use. These contexts were pulled from the eastern side of Structure 50, the northern side of Structure 6, and some plaza floor contexts located between Structures 6 and 7a in the northeast corner of the South Group's plaza. While general expedient percussion flaking is present throughout these contexts in both the West and South Groups, other artifact classes reveal some differences in activities. In the West Group there are formal bifacial tools made on imported cherts. No formal bifacial tools were encountered in the excavations of Structure 6, instead we see fragments of macro-blades of imported chert that have been broken and the resulting small pieces converted into tools, which were generally used in a unifacial abrasive fashion (i.e. "scraping"). The presence of shatter and general flaking debitage around Structure 6 implies that the activity of knapping occurred here, but the end product was utilized in another context. I observed a larger amount of the imported honey brown chert in this context, a distinctive source known to originate in northern Belize. This particular chert is singled out since it is easy to visually source (Moholy-Nagy 1990). Most of the casual flake industry is produced out of local chert nodules. Figures 7.7-7.10 show examples of these expedient cores.

In the following paragraphs I provide a description of Tables 7.2-7.6. Each table is comprised of a heat map of the excavation units across Structures 6 and 50. The distribution displayed is of the collected artifacts that correspond to lithic chert industries undertaken at Nim li Punit throughout the Classic Period; units that produced shatter debris and flake tools are also

noted. Each of these groupings of contexts is assigned a temporal period (Early, Terminal, or Mixed Classic). The chert artifacts are dated according to their association with ceramic sherds; this determination was made by project ceramicist Luke Stroth (Stroth et al. 2023). The chart component of each table gives a breakdown of these artifacts across three industry types: (1) casual flake production resulting in: flakes, flake tools, chunks (angular pieces of debitage >.5cm), and shatter (pieces of debitage <.5cm); (2) chert blade production resulting in non-prismatic macro-blades; (3) biface production and maintenance resulting in: chert bifaces, biface thinning flakes, and biface rejuvenation flakes.

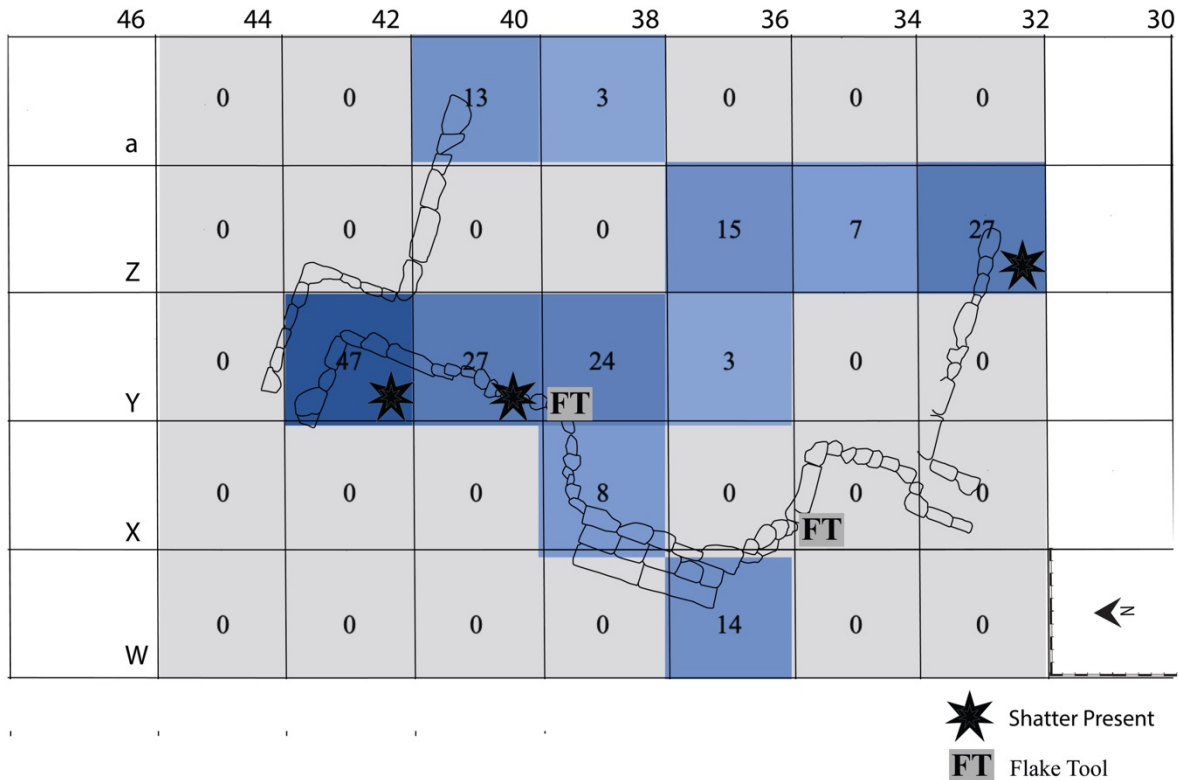
These tables show that the primary lithic chert industry at Nim li Punit utilized a casual flake technology. The process of removing casual flakes from small flake cores occurred across the site; the presence of flake cores and shatter indicate that these activities were occurring at or near these locales. A note on shatter, for full transparency: our recovery procedures did not prioritize the collection of micro-artifacts from each excavation unit, as such the presence or absence of shatter from each unit was merely noted. There is a possibility that by the time of analysis some of the material classified as shatter was lab-created during transport and storage. There is a difference in the presence of shatter documented in 41% of units from Structure 6 and in 13% of units from Structure 50. The distribution of shatter across excavation units is noted on the heat maps included in Tables 7.2-7.8. Additionally, some flakes used as tools and flake cores were also recovered. See Figures 7.12-14 for examples of the type of chert artifacts that were produced. The location of recovery for flake tools are documented on the heat maps of Tables 7.2-7.8.

Table 7.2 covers thirteen excavation contexts derived from surface contexts on top of Structure 6. These contexts span the entire Classic period, though the majority date to the Early

Classic (9 of 13 units or 69%). Surface units that were designated as Early Classic were Op.6 34x/1, 34Z/1, 36X/1, 36Z/1, 38a/1, 38X/1, 38Y/1, 40a/1, and 40Y/1. Strictly Terminal Classic units from the surface of Structure 6 were Op.6 32Z/1, 36W/1, 42Y/1 (3 of 13 units or 23%). Regarding the distribution, it is evident that a large amount of the chert material associated with the Terminal Classic had collected in the corners of the structure, near the southern wall in unit 32Z and in the corner of the double-sided L-shaped wall in unit 42Y. When considering the gross mass of all the chert lithic material collected from these 13 surface contexts, nearly half (45%) of the material is coming from these three “corner” units near the base of the Terminal Classic expansions to the building. A relatively high number of flake cores were recovered from these contexts, which suggests that this area was used for flintknapping activities in the Terminal Classic. The presence of shatter, the larger category of chunk, and a few flake tools lends further evidence to the theory that knapping activities were occurring here in the Terminal Classic. The categories of shatter and chunks are both byproducts of expedient knapping of chert material; they represent the debris created in the process of making useable flake tools. One of the strongest diagnostic elements of Early Classic industries is the presence of honey brown chert. Units 34X/1 and 40Y/1 have honey brown chert artifacts that were imported as large macro-blades and later further processed. The analysis of these artifacts shows attempts to rejuvenate worn edges by removing edge rejuvenation flakes and, when that failed, the inhabitants of Nim li Punit resorted to simply battering the pieces to create usable sharpened edges or usable cutting flakes. 40Y/1 has an example of a honey brown chert micro-core with 7 facets of removal across its faces. Figure 7.9 shows the distal end of a micro-blade with a bulb of percussion, but the platform has been crushed; this piece was removed from the distal end of a blade core to rejuvenate the working face. This blade carries two previous facets of blades—one was the

product of a failed removal, leaving a step fracture, while the ventral face carries a portion of the prepared working platform of the original core, which shows a high concentration of edge crushing used to prepare the platform of subsequent removals.

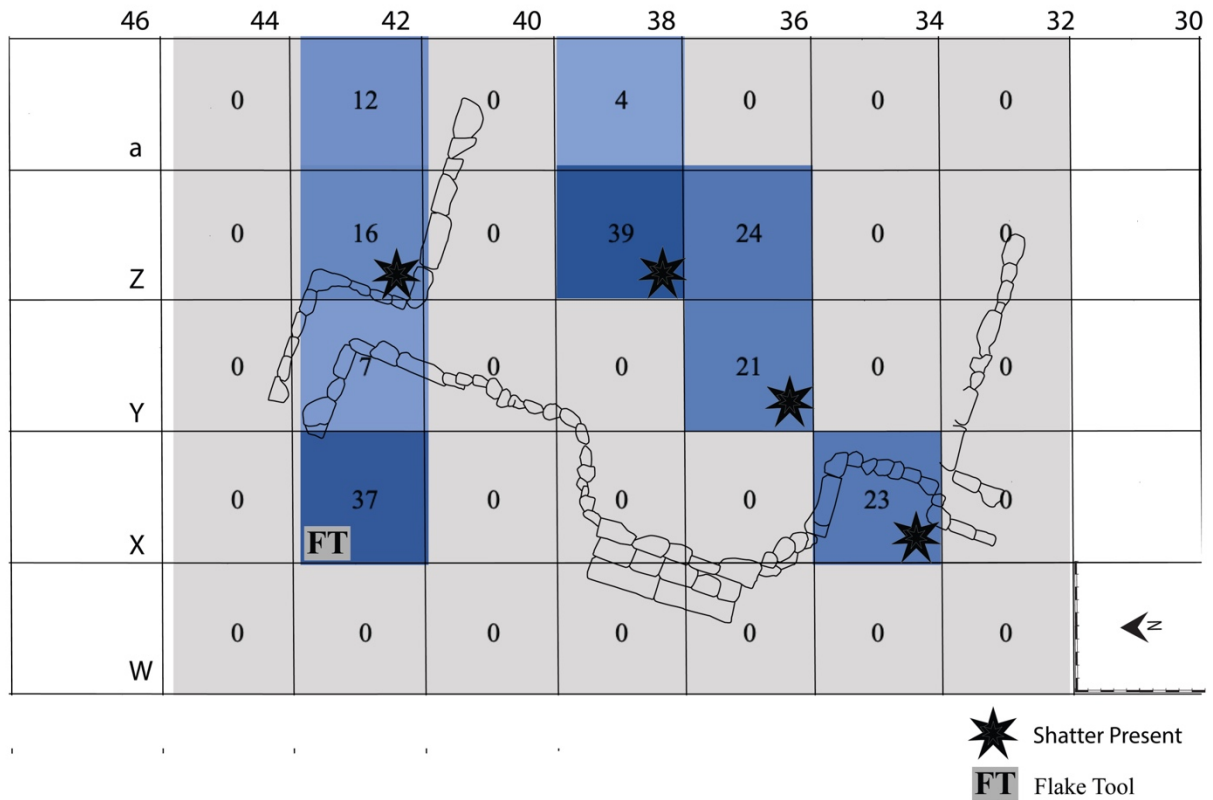
Table 7.2 Distribution of chert artifacts from surface contexts (13) atop Structure 06, Early to Terminal Classic.



Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		124	
		Flake Tools	2	scraper, flake knife, 34X/1, 38Y/1
		Flake Cores	10	40Y/1, 36W/1, 36Z/1, 32Z/1, 40a/1, 34Z/1
	Chunks		72	
Biface	Biface		0	
Blade	Non-prismatic Blades		1	36X/1

Table 7.3 covers eleven contexts from within the construction fill of Structure 6; the associated pottery dates it to the Early Classic at Nim li Punit. The units are Op.6 34X/2, 36Y/2, 36Z/2, 36Z/3, 38a/2, 38Z/1, 38Z/3 (F.6/38Z/5), 42a/1, 42X/1, 42Z/1. The inclusion of chert artifacts into the fill points to the deliberate disposal of this material. The collection from within the structure provides a controlled sampling of the lithic industries at Nim li Punit overall during the Early Classic. The focus is on the production of flake tools, and there is a relatively large number of flake cores and the corresponding shatter and chunks, indicating production was occurring at the site. There is an interesting ratio of 3:25 flake cores to flake tools, indicating that the end use of these tools was likely occurring near the Structure 6 construction site. The debitage that was discarded into the construction fill of Structure 6 is more indicative of production rather than use. Identified flake tools are only seen in 9% of the contexts from the fill within Structure 6. When viewing Table 7.3, we can identify a clustering of chert material around units 38Z, 36Z, and 36Y, which are all in the vicinity of the elite burial Tomb VI. There is potentially an association that can be drawn between the disposal of chert artifacts and the inclusion of this crypt within the construction fill of Structure 6. The pattern seen in the Early Classic surface contexts is continued in the fill material: a preponderance of imported honey brown chert of now exhausted macro-blades, which were reused as part of expedient flake technology.

Table 7.3 Distribution of chert artifacts from surface contexts (11) on top and around Structure 06, Early Classic.

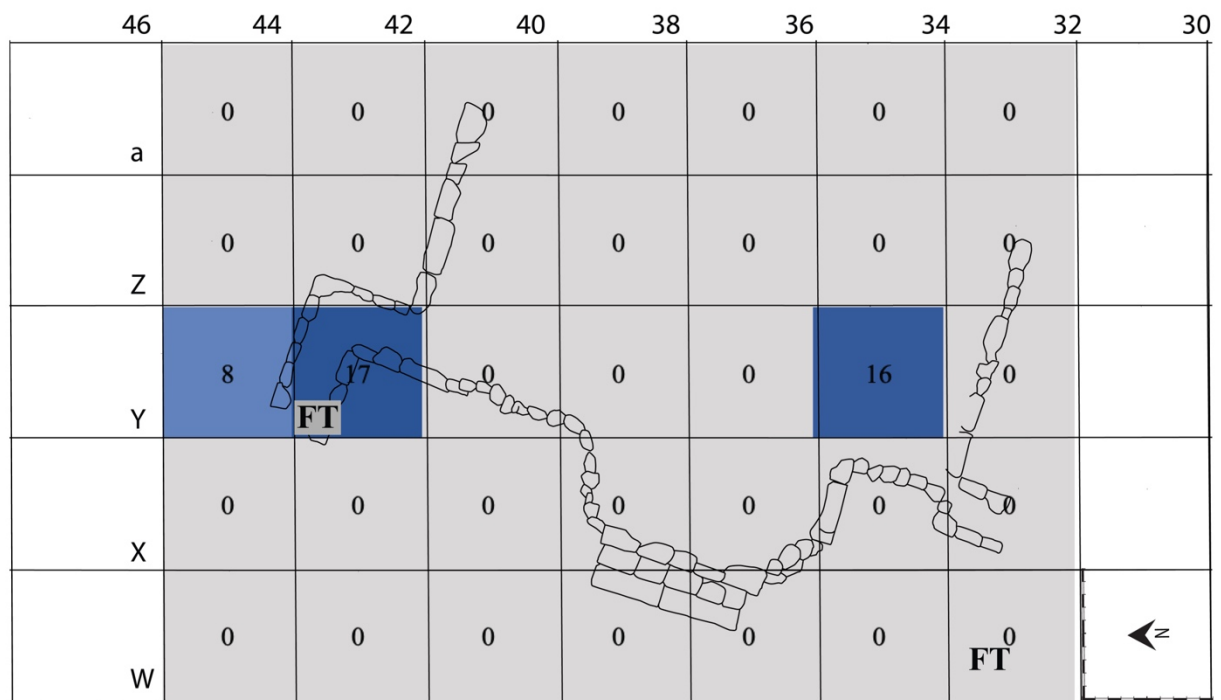


Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		97	
		Flake Tools	1	flake knife, 42X/1
		Flake Cores	16	34X/2, 36Y/2, 36Z/2, 42a/1, 42X/1, 42YZa/3, 42Z/1
	Chunks		63	
Biface	Biface		0	
Blade	Non-prismatic Blades		3	36Y/2, 38Z/1, 42YZa/3

Table 7.4 shows three fill contexts from within Structure 6 that are dated to the Terminal Classic. The associated units are Op.6 34Y/, 42-44Y/3, and 42Y/2. The chert artifacts from these contexts are associated with the architectural expansions to the building that occurred in the

Terminal Classic; namely, the addition of a double-sided L-shaped wall to the north and the expansion and construction of an additional southern wall. The chert material recovered in these contexts is similar to that found in the Terminal Classic units from the mound's surface. Both included a dominance of expedient flake technology, with relatively few tools present, though one example from 42-44Y/3 was a unifacial scraper. There was also a discarded attempt at a bifacial tool that failed during production in 42Y/2.

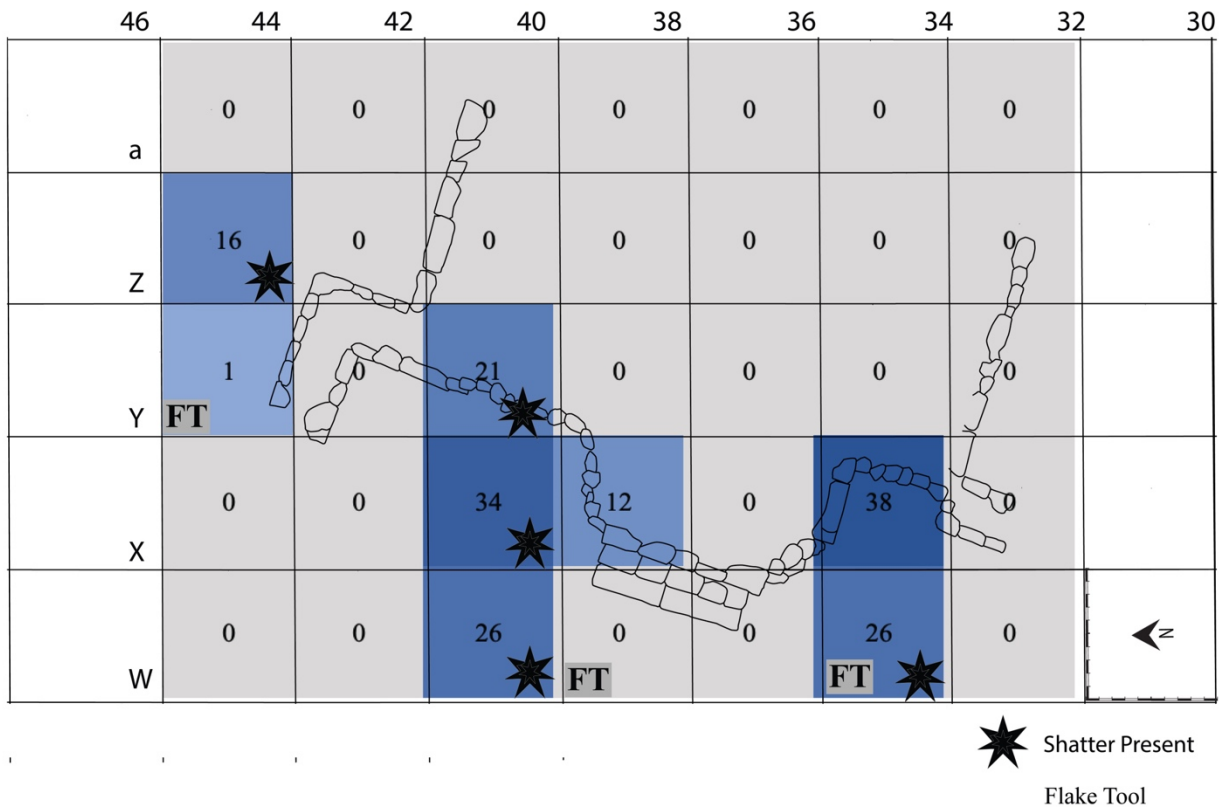
Table 7.4 Distribution of chert artifacts from fill contexts (3) within Structure 06, Terminal Classic.



Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		20	
		Flake Tools	1	scraper, 42-44Y/3
		Flake Cores	1	34Y/1
	Chunks		16	
Biface	Biface		1	42Y/2
Blade	Non-prismatic Blades		0	

Table 7.5 represents another ten contexts from around Structure 6. The Early Classic contexts are three from units Op.6—33W/1, 40W/1, and 40Y/2—all three of which are located near the central stairway, around the front-west face of the platform. The solidly Late Classic units Op.6 34W/1, 38W/1, 44Y/1, 44Z/1, 46Y/1, and 40X/1 are located to the north and south of the building, near the Terminal Classic expansions. Here we get a clearer picture of the overall chert lithic industry at Nim li Punit; evidence for on-site production includes a variety of flakes, including tools, and ten cores. Recovered chunks and shatter point to the production and use of expedient flake technology. One of the Early Classic units, 40Y/2, exhibits the hallmarks of this period, including large macro-blades on imported honey brown chert. These blades are crude percussion blades, most are broken into segments and have edges that show signs of use-wear. In the Terminal Classic unit of 38W/1, a flake was used as a scraper—it has use-wear in one facet that is concave in shape. This concave tool has a working area is 16 mm and would have been useful for the removal of bark from a piece of wood. This unit also produced a few flake cores, but they are small and crude. Ancient knappers likely tested these pieces to see if they could get any useable flakes. A wide variety of chert material is noted for the Terminal Classic artifacts.

Table 7.5 Distribution of chert artifacts from plaza contexts (10) around Structure 50, Early to Terminal Classic.

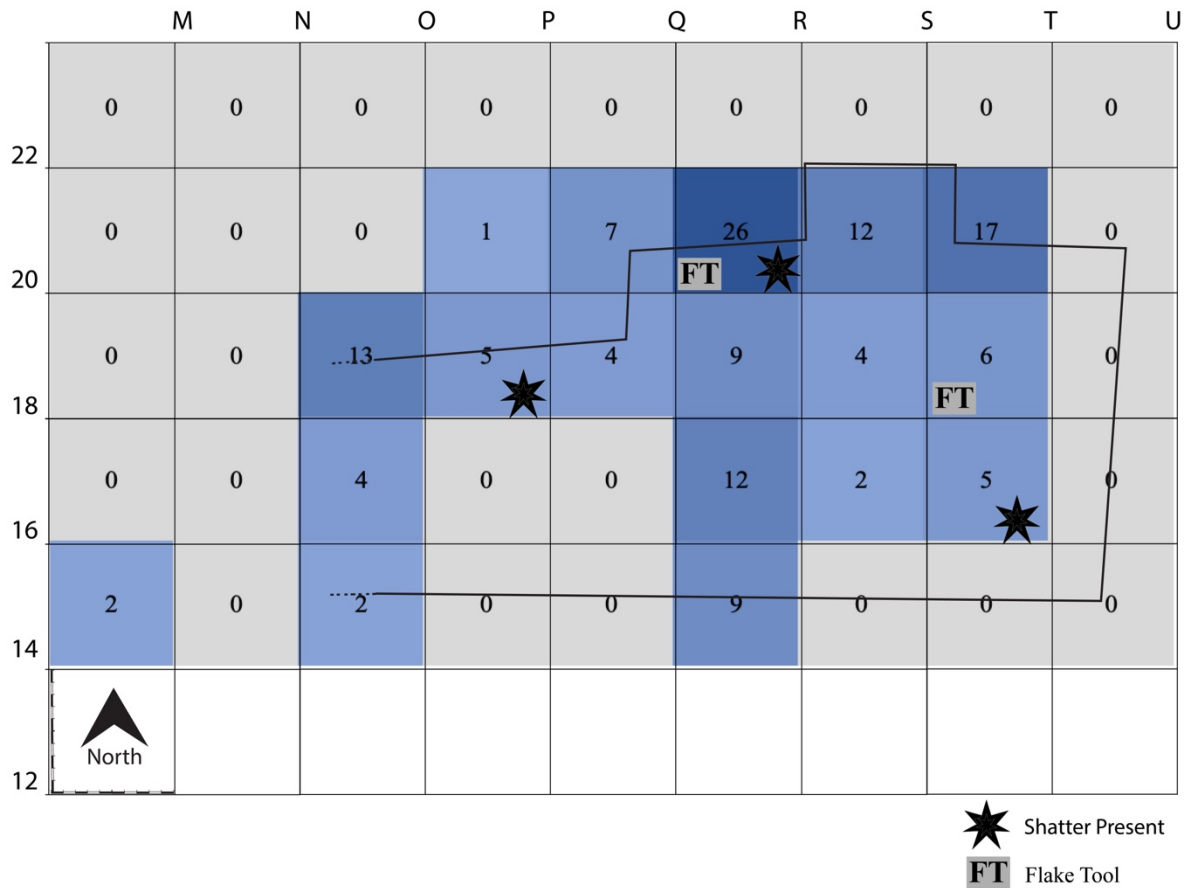


Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		80	
		Flake Tools	3	2 flake knives, 1 flake stripper, 38W/1, 33W/1, 46Y/1
		Flake Cores	18	40X/1, 38W/1, 44Z/1, 34W/1, 40W/1, 40Y/2, 33W/1
		Chunks	62	
Biface	Biface		0	
Blade	Non-prismatic Blades		9	40X/1, 34W/1, 40Y/2

Table 7.6 turns our attention to Structure 50 and focuses on eighteen surface contexts that have been dated to the Terminal Classic. In fact, all constructions in the West Group and the entire building of Structure 50 are Terminal Classic, representing the final stages of occupation before site-wide abandonment. Structure 50 may be one of the best candidates for the location where these stone tools were used, as 44 formal tools were identified from this structure and 19

of them, or 43%, come from the surface of this platform (see section 7.2 for a discussion of formal stone tools).

Table 7.6 Distribution of chert artifacts from surface contexts (18) atop Structure 50, Terminal Classic.

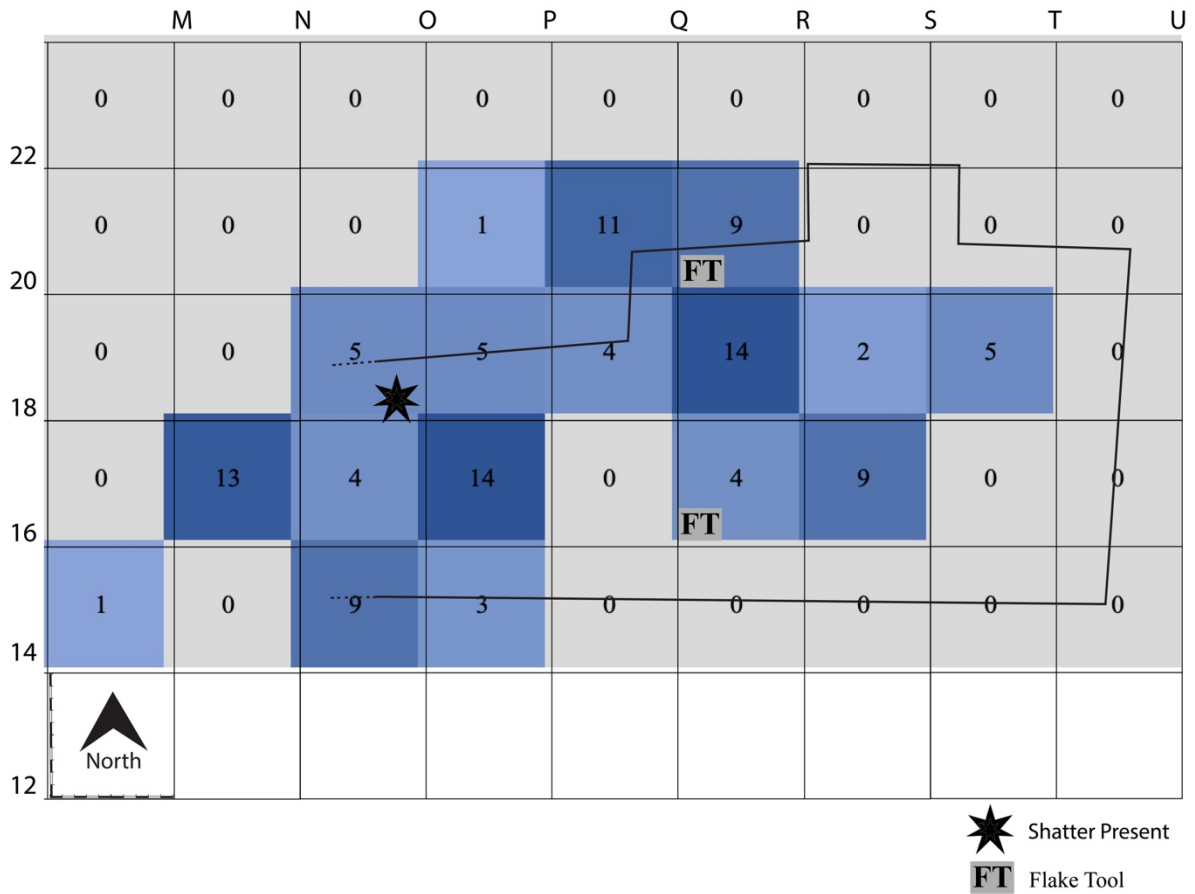


Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		77	
		Flake Tools	2	Scrapers, 18T/1; 20R/1
		Flake Cores	14	14R/1, 16R/1, 18O/1, 20Q/1, 20R/1, 20S/1, 20T/1
		Chunks	52	
Biface	Biface		3	14R/1, 16R/1, 16S/1
Blade	Non-prismatic Blades		0	

Table 7.6 is comparable to Table 7.2, which presents the surface finds of Structure 6 and shows, in fact, that there were no formal tools recovered from the Terminal Classic surface material of Structure 6. This could indicate that, while the South Group may have been used for occasional lithic manufacture, the produced tools, whether bifacial or flake-based, were used in other areas of the site. On the other hand, Structure 50 has indications of stone tool use associated with domestic activities.

Table 7.7 covers twenty-five contexts from within Structure 50's construction fill; the associated pottery dates it to the Terminal Classic at Nim li Punit. The associated units are Op.7 14N/3, 14O/2, 14O/3, 14O/4, 14O/5, 14P/2, 14R/2, 16N/2, 16N/2, 16O/2, 16O/4, 16P/2, 16P/3, 16R-S/3, 16R/3, 16S/2, 16S/2 (F.7/16S/1), 18N-O/3, 18P-Q/2, 18R/2, 18S/2, 18T/2, 20Q-R/3, 20Q/2, and 20R/2. A similar narrative holds here: during the Terminal Classic we see the continued use of expedient casual flake production, but on an increased scale. Cores are again present, which indicates production, but there is a higher ratio of cores to flakes—1:3—compared to the Early Classic fill of Structure 6, which had a ratio of 1:8 cores to flakes.

Table 7.7 Distribution of chert artifacts from fill contexts (25) within Structure 50, Terminal Classic.

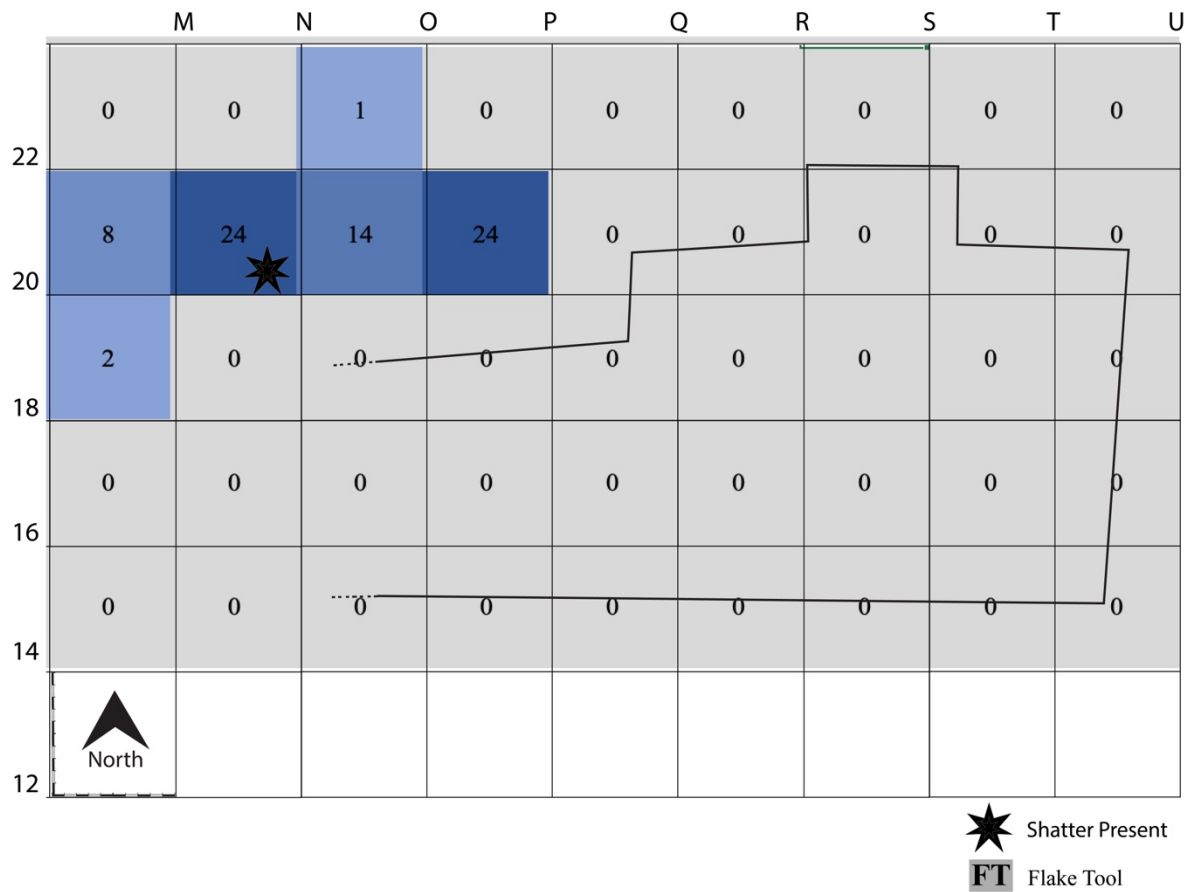


Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		75	
		Flake Tools	2	14/R/2, 20R/2
		Flake Cores	12	14O/4, 14R/2, 16R/3, 16S/2, 18P-Q/2, 18R/2, 20Q/2. 20R/2
	Chunks	48		
Biface	Biface		5	14R/2, 16N/2, 16R/3
Blade	Non-prismatic Blades		2	16R/3, 16S/2

Table 7.8 represents ten plaza units excavated around Structure 50. The Terminal Classic contexts are units Op.7 18M/1, 20M/1, 20M/2, 20N/1, 20N/2, 20O/1, 20O/2, 20P/1, 20P/2, and

22L-O/1. These units are all located to the northwest of the structure platform and were heavily impacted by tree growth and roots in this area. The material that was recovered is mostly assigned to the expedient flake industry made from locally available chert. Although one macro-blade was recovered from 20N/1 that is likely an import to the site.

Table 7.8 Distribution of chert artifacts from plaza contexts (10) around Structure 50, Terminal Classic.



Industry	Type	Subtype	Number	Comments
Casual Flake	Flake		30	
		Flake Tools	0	
		Flake Cores	8	20M/1, 20N/1, 20P/1, 20P/2
	Chunks		30	
Biface	Biface		1	20P/2
Blade	Non-prismatic Blades		1	20N/1

I will now discuss the three chert industries at Nim li Punit seen across the Classic period, comparing Structure 6 and Structure 50 as representative of both ends of occupation at the site. To do so, I will focus on only the Early Classic contexts from Structure 6 and the Terminal Classic contexts from Structure 50. Both cases stand as proxies for the type of production and consumption activities that occurred at the site during these two periods.

First, I examine the casual flake industry (Figure 7.6). This particular use of local chert resources was consistently employed at the site throughout the Classic period. In these graphs I standardized the raw counts of flakes and flake cores recovered by the number of units excavated in each context. I have focused on the groupings of excavated units to control for the context of the collected material; focusing on the units associated with the surface of the architectural mound, the units from within the construction fill of the platforms, and the units from the plaza floor surrounding the building. In the case of Structure 6, I selected for only those units that could be firmly dated to the Early Classic to create comparative data between this period and the Terminal Classic, as represented by Structure 50. Casual flake production was relatively consistent between the two phases of occupation. Note, however, the sharp increase in material from the plaza contexts surrounding Structure 6. I believe this can be explained by considering the site formation processes—the overall layout of Structure 6 provided corners along the base of the building, where lithic material would naturally collect and pool. That said, analysis of the material showed that the flakes and flake cores from Early Classic contexts generally tended to be larger in size, which, coupled with the higher presence of honey brown chert, may point to increased imports during the Early Classic.

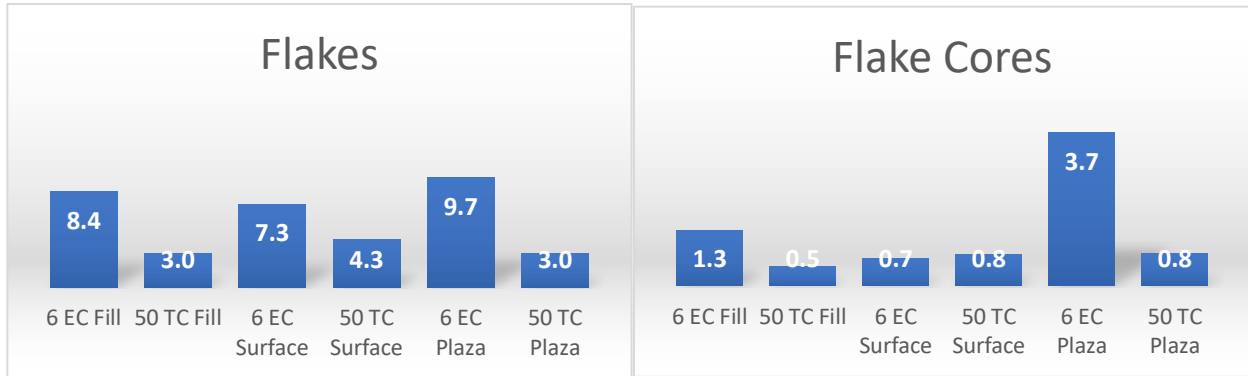


Figure 7.6 Relative quantity of chert casual flakes and flake cores normalized by excavation units, recovered from distinct zones of Structures 6 and 50.

The second industry seen at Nim li Punit was the use of chert macro-blades. Analysis revealed that the large percussion blades were not produced at the site, but instead represent a form of import into the southern Belize region. There is an evident life cycle for these artifacts. Once their initial cutting edge had become damaged or worn, local Nim li Punit knappers made attempts at edge rejuvenation. When that proved unsuccessful, many of these macro-blades were reprocessed as flake cores as part of the first industry of casual flake production. Figure 7.7 paints a stark narrative of the shift in trading networks between the Early and Terminal Classic. The importation of large percussion blades all but halted by the time of the Terminal Classic.

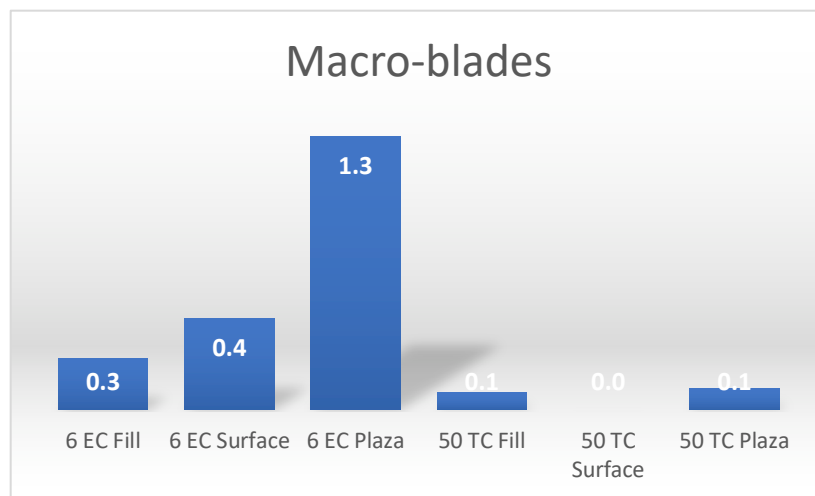


Figure 7.7 Relative quantity of chert percussion blades standardized by excavation units, recovered from distinct zones of Structures 6 and 50.

The third industry at Nim li Punit was the use and maintenance of chert bifaces. Figure 7.8 highlights the great difference between the architectural groups in this particular artifact class. I propose two theories for this distinction. One relates to the location and use of each architectural group; as I argued in Section 7.2 on formal tools, I believe that large chert bifaces were a mainstay of a Classic Maya domestic toolkit, and the West Group, where Structure 50 is located, is most associated with domestic activity. A second potential theory focuses on the temporal difference at play. In the Early Classic the cutting tool requirements for Nim li Punit's inhabitants were fulfilled by the import of large chert percussion blades. During the Late and Terminal Classic, as trade networks and trade partners shifted, this tool requirement was met with the import of large chert biface knives.

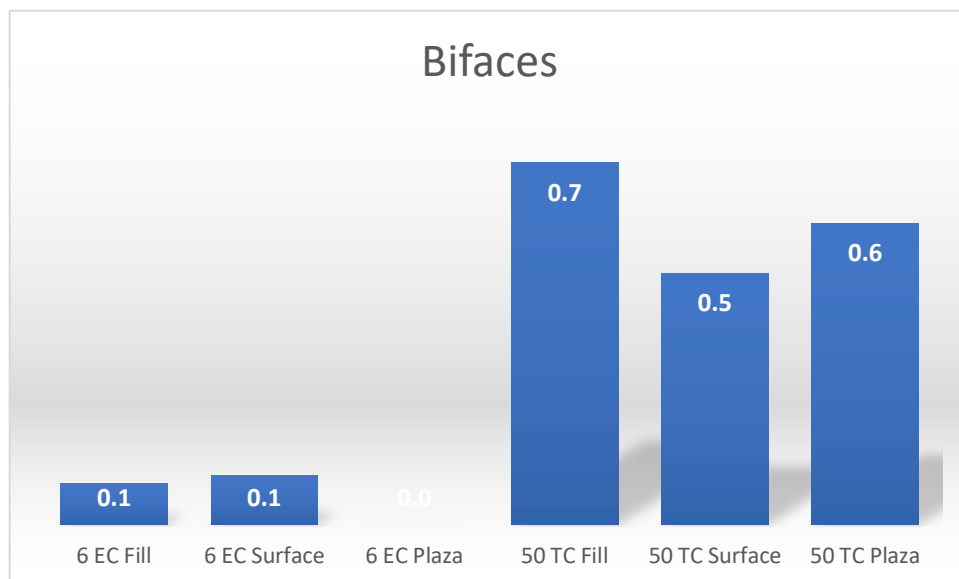


Figure 7.8 Relative quantity of chert bifaces standardized by excavation units, recovered from distinct zones of Structures 6 and 50.

Examples of the full chert lithic toolset are presented in Figures 7.9-7.11. Expedient tools were produced on an ad hoc basis, mostly in the form of scrapers, cutting flakes, and some drills. This is evidenced by the dominance of expedient flake production in the archeological record

throughout the occupational history of the site. The formal tools described here are most important for understanding Nim li Punit's economic relationships to other regions. The Early Classic saw the import of large percussion blades, while the Terminal Classic—and specifically the residents of Structure 50—boasted a high quantity of finely made chert bifaces. These pieces were all imported, implying that trade routes, at least to northern Belize, were still viable up to the point of abandonment.

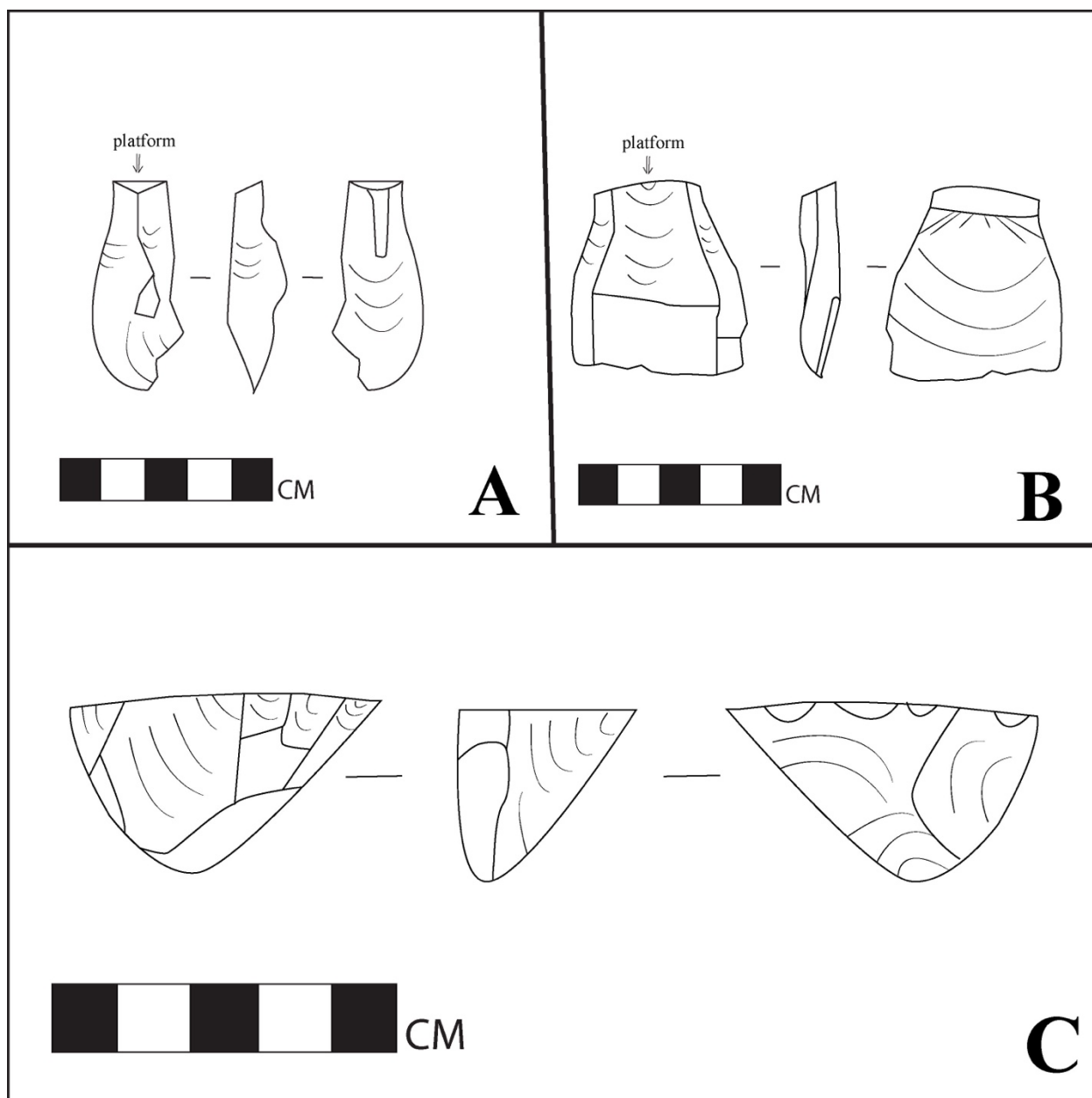


Figure 7.9 Example of chert lithics from Structure 6: (A) percussion macro-blade on yellow chert with cortex present on the platform, Op.6/32Y/2; (B) percussion macro-blade on light brown chert with thick white cortex present at distal end, Op.6/32Z/1; and (C) casual percussion flake core on yellow tan chert some cortex present, numerous battering scars present on dorsal side of core, Op.6/32Y/2.

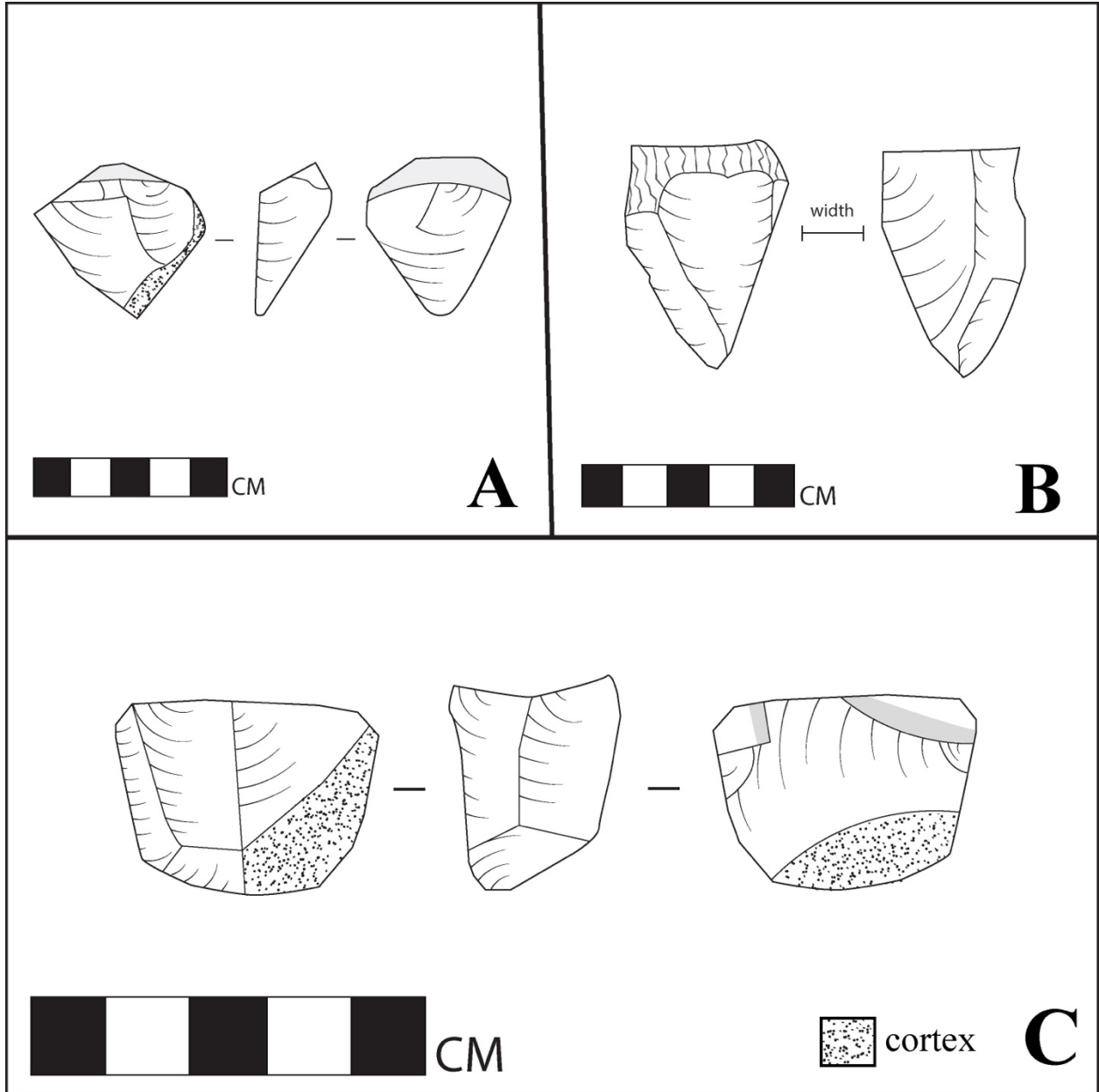


Figure 7.10 Chert casual flake cores from Structure 50: (A) casual percussion flake core on tan chert, Op.7/20R/1; (B) casual percussion flake core on light-brown petrified wood chert, some cortex present, Op.7/20R/1; and (C) percussion flake core on purplish chert, Op.7/16R/1..

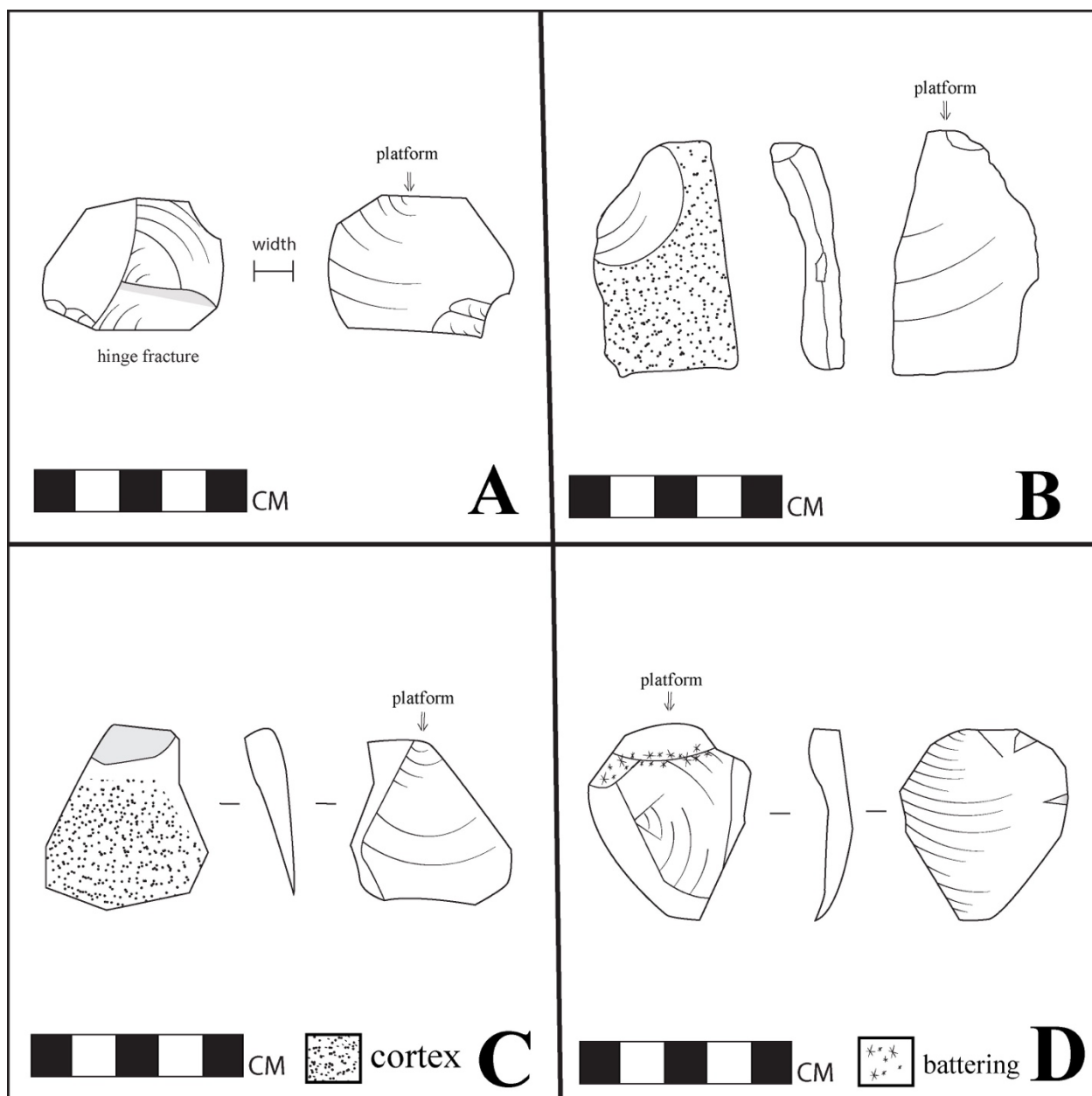


Figure 7.11 Chert percussion flake artifacts from Structure 50: (A) percussion flake on white chert, Op.7/16R/1; (B) percussion flake on crude yellowish chert, Op.7/16R/1; (C) casual percussion flake on pink-grey chert, with cortex present, Op.7/20R/1; and (D) casual percussion flake on light-grey chert, with cortex present, Op.7/20R/1.

7.4 GROUNDSTONE

Groundstone refers to manufacture techniques employed for the shaping of particular lithic tools, usually, but not exclusively, made from limestone, sandstone, and several varieties of volcanics (e.g., basalt). This grouping of artifacts is important for the identification of domestic activities, as many of these tools were directly connected to food production, artistry, and the production and maintenance of composite tools. A total of sixty-eight groundstone artifacts from Nim li Punit were analyzed (Table 7.9). There is a disparity between these two buildings in terms of the amount of material recovered: Structure 50 in the West Group provided sixty-three groundstone objects, while Structure 6 in the South Group provided only five pieces. This difference is one of the major markers of the very different functions of these two platforms and their associated buildings. This artifact class helps classify Structure 50 of the West Group as a domestic space where household activities regularly took place. The full analysis of each groundstone artifact is included in Appendix IV.

Table 7.9 Groundstone artifacts categories.

Style	Str.50	% of Total	Str.6	% of Total
Uncertain	22	35%	2	40%
Flat-Bottomed Metate	7	11%	0	0%
Two-Legged Metate	3	5%	0	0%
Three-Legged Metate	8	12%	1	20%
<i>Mano</i>	15	23%	1	20%
Mortar (Molcajete)	0	0%	0	0%
Pestle	1	2%	0	0%
Grinder/ Sander	1	2%	0	0%
Chisel	3	5%	1	20%
Hammerstone	1	2%	0	0%
Hoe	2	3%	0	0%
Total	63		5	

Table 7.9 is a breakdown of the groundstone artifacts, classified according to style. There were several *metate* forms differentiated by the presence and number of legs, as well as several handheld elements including the *mano*, pestle, grinders, chisels, hoes, and hammerstone. The “uncertain” category mostly includes pieces that are small fragments of groundstone artifacts; the technique used in their production is noted, which leads to their classifications in this artifact group. However, they cannot be assigned to a specific artifact style due to their fragmentary state. A majority (>60%) of the groundstone material was classified for both buildings. In particular, Structure 50 produced a wide range of groundstone tools dated to the Terminal Classic. Almost half (51%) of the groundstone tools collected from Structure 50, such as *manos* and *metates*, are associated with food production.

Table 7.10 Completeness of recovered groundstone artifacts.

Percent Complete	Str.50	% of Total	Str.6	% of Total
25% or less	42	66%	4	80%
26-50%	10	16%	0	0%
51-75%	3	5%	0	0%
76-100%	8	13%	1	20%
Total	63		5	

While numerous individual objects were recovered from Structure 50, the majority were found in a fragmented state, with only three artifacts being nearly or fully complete (Table 7.10). Many of the pieces were recovered from within construction fill and were likely discarded due to these breaks and failures in the original artifacts, potentially during use or maintenance. The groundstone artifacts that were found on top of the platform and around the structure atop plaza floor suggest that these typically heavier tools were left behind at the moment of the site’s abandonment.

Table 7.11 Groundstone material types.

Material Type	Str. 50	% of Total	Str. 6	% of Total
Carb Sandstone	6	9%	0	0%
Chert	1	2%	0	0%
Mudstone	9	14%	0	0%
Pumice	1	2%	0	0%
Sandstone	23	36%	1	20%
Volcanic	18	29%	2	40%
Volcanic/Volcaniclastic	5	8%	0	0%
Slate	0	0%	1	20%
Serpentine	0	0%	1	20%
Total	63		5	

Geologist Brian Holland, friend of the project, assisted with my assessment of our groundstone collection from Nim li Punit during the 2021 laboratory season. Across this artifact class there are two major categories of material type. We noticed two obvious distinctions: one group was Tertiary/ Quaternary Volcanic, likely coming from the highlands of Guatemala, and the other was local variations of sandstone (Table 7.11). Within the sandstone category there are two sub-variations: sandstones formed during the carboniferous period (part of the Santa Rosa Group), which is older than the Toledo Series, the youngest sandstones dating to the Eocene epoch (Tertiary) and the more common sandstone found in this area. The Carboniferous sandstone may be imported from the Bladen region of southern Belize; they carry grains of feldspar and quartz that are often quite angular in a muddy matrix, which implies that the grains were not transported very far. The Toledo sandstones are deep-water formations that were first described by Leslie Ower (1928:502-505). The Toledo sandstones are a series of sandstone beds that are interbedded with shale and limestone. Ower (1928:502) noted that the sandstones are typically brown or gray in color and are well-cemented. He also observed that the sandstones

contain a variety of fossils, including brachiopods, crinoids, and trilobites. The Toledo sandstones date to the Devonian Period of geologic time. They were deposited in a shallow marine environment about 410 million years ago. The sandstones are thought to have formed from the erosion of nearby mountains. Within the Toledo sandstone there are white feldspar and quartz grains present. The sandstone itself ranges from immature to very well-sorted (Figure 7.12, Table 7.12). This sandstone was an important resource of the ancient Maya; in addition to making tools used in the households, it was also a common building material for their architecture and used to create art when carved by skilled sculptors into stelae, altars, and statues. There is also a small subset of mudstones present, which have finely sorted grains.



Figure 7.12 Groundstone 3.004 recovered from Op.3/46N/3 made of Toledo sandstone, this close-up highlights the matrix.

Table 7.12 Grain categorization for recovered sandstone groundstone artifacts.

Grain	Str. 50	% of Total	Str. 6	% of Total
Fine	15	39%	0	0%
Medium	16	42%	0	0%
Coarse	7	18%	1	100%
Total	38		1	

Table 7.11, which categorizes the material type, and Table 7.12, which grades the grain-size of the sandstone material, provides important information about where the raw material was sourced, and thus where the artifacts themselves were obtained. The objects made of sandstone were locally procured and likely locally produced (Figure 7.13) within the regions of Southern Belize, whereas artifacts made of volcanic material (Figure 7.14) were produced in the Highlands of Guatemala and had to be traded into the region. As transporting heavy raw volcanic material over long distances is unlikely, it is reasonable to assume that these *manos* and metates were transported in a finished state ready for trade. Their presence at the site points to important trade networks between southern Belize and highland Guatemala that continued into the Terminal Classic period. A difference can be drawn in the overall quantity of artifacts recovered according to material type. For Structure 50, 38 (or 61%) of the total recovered artifacts were attributed to sandstones, while 24, or 39% of the total recovered from the vicinity of this building, fall under the volcanic classification. For Structure 6 one (or 33%) of the recovered artifacts was attributed to sandstone, while two (or 67%) fall under the volcanic classification. While there is a slightly greater number of sandstone artifacts recovered, I believe that this represents the volcanic-based groundstone wares that had a higher domestic value, because their quality for use and the increased difficulty in attaining them point to an increased desirability.



Figure 7.13 Sandstone flatbottomed *metate* with associated *mano*, recovered in this position from the top of Structure 50 (Op.7/20R/2).



Figure 7.14 Two legged *metate* of volcanic material from the top of Structure 50 (Op.7/20R/2).

Table 7.13 Manufacture techniques evident on groundstone artifacts.

Manufacture	Str.50	% of Total	Str.6	% of Total
Unclear	2	3%	0	0%
Ground	6	10%	1	20%
Pecked	0	0%	0	0%
Ground and Pecked	47	80%	4	80%
Chipped	0	0%	0	0%
Chipped and Ground	1	2%	0	0%
Natural	3	5%	0	0%
Total	59		5	

Table 7.14 *Metates* categorized by type (flat-bottomed versus those with supports), by building and material type.

Identified Metates	Str.50	% of Total	Str.6	% of Total
Flat-Bottomed Metate	7	44%	0	0%
Metate with at least two leg supports	9	56%	1	100%
Total	16		1	

Identified Metates	Material Str. 50		St.6
Flat-Bottomed Metate	1 Volcanic	6 Sandstone	
Metate with at least two leg supports	7 Volcanic	2 Volcanic/ Volcaniclastic	1 Volcanic

At Nim li Punit, *metates* come in two forms: (1) flat bottomed *metates*, all of which are made of locally available sandstone; and (2) *metates* made of volcanic material with supports (Table 7.14). The lack of legs for the local sandstone variants could be due to a cultural difference but it is more likely a limitation of the material type; typically, the flat-bottomed metates (86%) are made of a more porous and larger grain-size sandstone that is not hard enough to support three-dimensional extruding parts, especially when combined with the pressure and movement of using the tool. 60% of the recovered sandstone artifacts were categorized as medium-to-coarse grained (Table 7.12). In contrast, there is only one flat-bottomed *metate* made

of volcanic material. All the other volcanic *metates* come with supports of some kind, in either a two- or three-legged variety. This single outlier is incomplete, so it is possible that it may also have originally had legs. All together this is a very important artifact class for the identification of household activities, and it is obvious that Structure 50 should have this designation, while Structure 6 falls into a different category. There were no discarded groundstone pieces found in the construction fill of Structure 6, which is another difference when compared to Structure 50. It may also suggest that South Group as a whole was focused on activities that are not associated with typical domestic food production.

Two incomplete fragments of bark beaters made of stone were recovered from Structure 50, in Operations 20M/1 and 16P/2. These tools would have been used to produce the codex-style bark paper used by elite scribes at Nim li Punit.

One more notable artifact is a hoe that was discovered in Structure 50 (Figure 7.15). This groundstone head would have been part of a composite tool; the grooves ground into the base of the head were created to hold in place the lashings that attached it to a wooden shaft. The artifact itself reveals its own production, which is quite ingenious. The raw material was roughly shaped through chipping, then a transverse fracture was made across the lateral plane, splitting the core piece into two segments. This served two purposes: (1) to provide a flat plane and working edge for the tool's dorsal face, and (2) the creation of two blanks to convert the single raw piece into two tools. Finally, grinding was performed to create the grooves at the aft of the tool and to smooth the ventral side of the bit. The finished head would then be completed by the addition of a wooden haft and lashings that are no longer preserved. The repeatability of this production system reveals that tools like these were likely a traded commodity. This would have been an

important agricultural tool and supports the theory that Structure 50 was an elite household that participated in field cultivation.



Figure 7.15 Stone tool 50.62 from Structure 50; a hafted hoe Op.7/20R/2.

7.5 OTHER STONE ARTIFACTS

Limestone

One complete limestone bar and a fragment of another were recovered from Structure 6 (Figure 7.16). Several other examples of these bars had been recovered from Tomb V of Structure 7 during the 2015 Field season (Borrero et al. 2016). Since the context of Tomb VI of Structure 6 was a looting event during antiquity, it is possible that the limestone bars found in Structure 7 may have come from this burial. The bars could have originated in Tomb VI and then been removed and redeposited in the new context of Tomb V during the Terminal Classic, before site abandonment. Regarding the purpose of these stone bars: they could have been representative offerings or part of a musical instrument. The ones recovered so far have been relatively uniform in width and thickness but have varying lengths, they are also solid and resonate slightly when struck.



Figure 7.16 Example of a stone bar recovered from Structure 6 F.6/38Z/5.

Ecofacts

The most common ecofact recovered at Nim li Punit are long lenticular rectangles made of natural accretion. We believe these ecofacts are calcium deposits that come from caves in the area. Along one side they exhibit a bubbly texture, while the other usually has a semi-cylindrical canal running its length. Many were recovered broken in half and it is possible that this was purposeful. The broken ends were snapped off to form a straight break. Nine such artifacts were encountered in Structure 6, with another eight coming from Structure 50. We would have written off these objects as merely odd natural stones that simply broke in this fashion, yet one example from Structure 6 revealed human alteration. This particular piece has been altered into a tool with one edge ground to a chisel shape and was used on some sort of red pigment or dye, which stained the tip of the stone (Figure 7.17). I am not aware of other examples of this type of tool made from cave stones. The full analysis of each ecofact is included in Appendix V.



Figure 7.17 Lenticular cave stone that has been altered into a chisel for use with red pigment Op.6/38Z/1.

Another kind of natural stone included in the construction fill of buildings at Nim li Punit is tuff, several of which were encountered within the fill of buildings. These are natural conglomerates that form in a waterborne context. In the context of geologic timescales they can be quite young, and they are usually associated with rivers. It appears that, on occasion, the ancient Maya brought tuffs up from the rivers and included them within the fill of their constructions.

7.6 CERAMICS

Analysis of ceramic artifacts unearthed from Maya archaeological sites offers valuable insights into past economic and social structures. These artifacts reflect patterns in consumption and exchange and can potentially link everyday social practices with ritual activities. These

artifacts, often recovered in a fragmentary state, represent past habits of use and discarding. Ceramics were crucial for daily food preparation and consumption, as well as for special events such as feasts, rituals, and burials. The mass and count of the recovered ceramic artifacts are reported in Appendix VI. In this chapter, I present a basic analysis of the ceramic material that was recovered from Structures 6 and 50. The initial sorting of the ceramic material reported was conducted by our project ceramicist Luke Stroth (Stroth et al. 2023). A more thorough and complete analysis of all the recovered ceramics from Nim li Punit will be forthcoming (Stroth 2024).

7.7 CERAMIC DATA FROM STRUCTURES 6 AND 50

In total, 5,538 sherds were recovered from Structure 6 and a comparable 5,177 sherds from Structure 50. A division between decorated diagnostics and undecorated sherds is reported in Tables 7.15 and 7.16. Most of the pottery was recovered in a fragmentary state and comes from construction fill contexts; as such, the analysis of the ceramic material will tell me more generally about activities occurring at the West and South architectural Groups throughout the Classic period. There are a few mostly complete pieces recovered from a crypt-style burial, Tomb VI, which are discussed below and as part of section addressing the associated funerary goods.

The domestic complex of Nim li Punit is made up of common vessel forms which include bowls, plates, vases, and jars. Most of the undecorated sherds (7,511 pieces, 70.10%) were roughly classified as plainware; these would have comprised the majority of the vessels that the inhabitants interacted with on a regular basis, and were primarily used for cooking, preparing, and storing food. During initial bulk-sorting of the collection, only 379 pieces from both buildings combined exhibited potentially diagnostic decorations (3.54%). Evidence of burning

on both plainware and some decorative pieces was noted for both structures, suggesting exposure to fire and thus their likely use as cooking vessels. We know that jars were used by the ancient Maya for storage, and we found one clear example of such an artifact left behind on top of Structure 50: an incomplete Remate micaceous ceramic jar (Feature 7/16S/1; a further discussion of this find is included in Chapter 6, Section 6.3.2 Special Cache).

Table 7.15 Total sherds by lot recovered from Structure 6 of Nim li Punit.

Structure 6	Decorated	Undecorated	Total Sherds by Lot	# of Units
Lot 1	132	2697	2829	25
Lot 2	109	1543	1652	11
Lot 3	47	806	853	6
Lot 4	1	61	62	2
Lot 5	0	0	0	0
Features	10	132	142	2
Total Sherds for Building	299	5239	5538	46

Table 7.11 Total sherds by lot recovered from Structure 50 of Nim li Punit

Structure 50	Decorated	Undecorated	Total Sherds by Lot	# of Units
Lot 1	8	318	2825	30
Lot 2	59	1527	1586	9
Lot 3	14	574	588	4
Lot 4	4	90	94	4
Lot 5	0	33	33	3
Features	3	48	51	2
Total Sherds for Building	88	2590	5177	52

Note that Lot 1 for Structure 50 only a subset of overall sherds were sorted.

In our excavation procedures, all initial Lots include the removal of overburden and vegetation to expose existing architecture and represent half of all units excavated for both structures (54.35% for Structure 6 and 57.69% for Structure 50). Overall, a total of 46 units were excavated for Structure 6 and a total of 52 units were excavated for Structure 50. The average number of sherds recovered per context is slightly higher for Structure 6, for which each lot produced 120.4 sherds, compared to the lots from Structure 50 which provided 99.5 sherds on

average. While the overall number of diagnostics is low in both structures, Structure 50—primarily associated with Terminal Classic Tepeu 2-3 Spheres—exhibits a significant decline relative to Structure 6. The percentage of diagnostics in Structure 50 drops to 1.55%, compared to 5.40% in Structure 6, which is dominated by Early Classic Tzakol Spheres. This suggests a sharp decrease in the quantity of non-plainware vessels in the Terminal Classic period at Nim li Punit, compared to the greater variety observed earlier in the Classic period. This is suggestive of a decline in trade networks and in the variety of imports available to the inhabitants of Nim li Punit during the Terminal Classic.

The ceramics artifacts of Nim li Punit can be divided into five distinct phases which span occupation at the site from the Terminal Preclassic to the Terminal Classic. Table 7.17 lays out this ceramic chronology associating the NLP phases, with known horizons for the central Peten sites of Tikal and Uaxactun, they are also associated with the temporal periods and a range of years.

The earliest ceramic phase is the Akal Phase, which corresponds to the initial founding of the site during the Terminal Preclassic. Akal material has been recovered from bedrock contexts at Nim li Punit and exhibits mammiform supports, a resist-technique Olocuitla sherd, as well as Floral Park orange-slipped polychromes (see Borrero et al. 2016; Stroth et al. 2023; Stroth 2024).

The second ceramic complex is the Ba phase, which dates to the Early Classic and is related to the initial building constructions of Nim li Punit's architectural core. The diagnostic sherds from this phase include polychromes such as Dos Arroyos, Aguacate, and Gavilan Black-on-orange sherds, as well as other Early Classic Ceramic Groups, including the Sierra and Sapote Groups.

There third ceramic phase, which falls into the second half of the Early Classic, is called the Chok phase. The construction of Structure 6 took place during this period, and the corresponding recovered ceramics from this building fall into this grouping. The key pottery types for this phase are large polychrome plates with flanges on the bottom, along with the recovered Teotihuacan vessels, which come from the burial context discussed in Section 7.7.

The fourth ceramic phase is the Makin phase and is related to the Late Classic. The artifacts from these contexts are Tepeu I and Tepeu II sphere ceramics. This phase corresponds to several construction projects in the South Group at Nim li Punit. During this period polychrome plates were replaced by coarser, plain plates with occasional flanges, and chunky Puluacax-style bowls and jars also began to appear.

The final major chronological component for the ceramics at Nim li Punit is the Terminal Classic Shol complex. Certain Belize Group members, including Red-slipped Polychromes and the McRae Impressed type, as well as red-slipped and unslipped stamped Remate and Turneffe Group jars, are the most notable diagnostics of this era. The ceramics from this phase are related to Tepeu III sphere and are generally less varied compared to Late Classic material. The few imports that are recovered from this period exhibit connections to the Belize River Valley. While some Terminal Classic material is recovered from Structure 6 and from the South Group as a whole, it is Structure 50 that carries the bulk of this material, given that the entire West Group was constructed at this time.

Table 7.17. Ceramic chronology of Nim li Punit.

PERIODS			UAXACTUN	TIKAL	NIM LI PUNIT		
Colonial		1800-					
		1700-					
Postclassic	LATE	1600-					
		1500-					
	EARLY	1400-					
		1300-					
		1200-					
		1100-		CABAN			
		1000-					
Classic		900-		EZNAB			
	TERMINAL	800-	TEPEU		SHOL		
	LATE	700-		IMIX		MAKIN	
		600-		IK			
	EARLY	500-		TZAKOL	MANIK	CHOK	
		400-					3
300-			2				a
		200-		1	BA		
Preclassic	PROTOCLASSIC	100-		CIMI	AKAL		
	and/or	0-		CAUAC			
	TERMINAL	100-	CHICANEL	CHUEN			
	LATE	200-					
		300-					
	MIDDLE	400-		MAMOM	TZEC		
500-					TARDIO		
600-				EB			
700-							
		800-					
		900-		TEMPRANO			

(modified from Stroth et al. 2024, and Foias 1996: 1011)

With the exception of the burial context (Tomb VI), little ceramic material was recovered in a complete or partially complete state from the construction fill or in the vicinity of these structures. A single large rim sherd was collected with a variety of artifacts as part of a feature (Op.7/16S/2, F.7/16S/1); it was found along the eastern wall of Structure 50 on the plaza floor, beneath and amongst wall fall (Figure 7.18). This turnip unslipped jar fragment (cf. Fauvelle 2012) dates to the Terminal Classic and is evidence of some of the last habitation activities at the site. When it was complete this vessel would have been a very large, unslipped dark reddish brown (5 YR 3/3) fabric jar. The core of this vessel is red (5 YR 4/6). The mouth of the vessel would have had a circumference of 25 cm. Jars of this type would have served the purpose of storage at a residence like Structure 50.

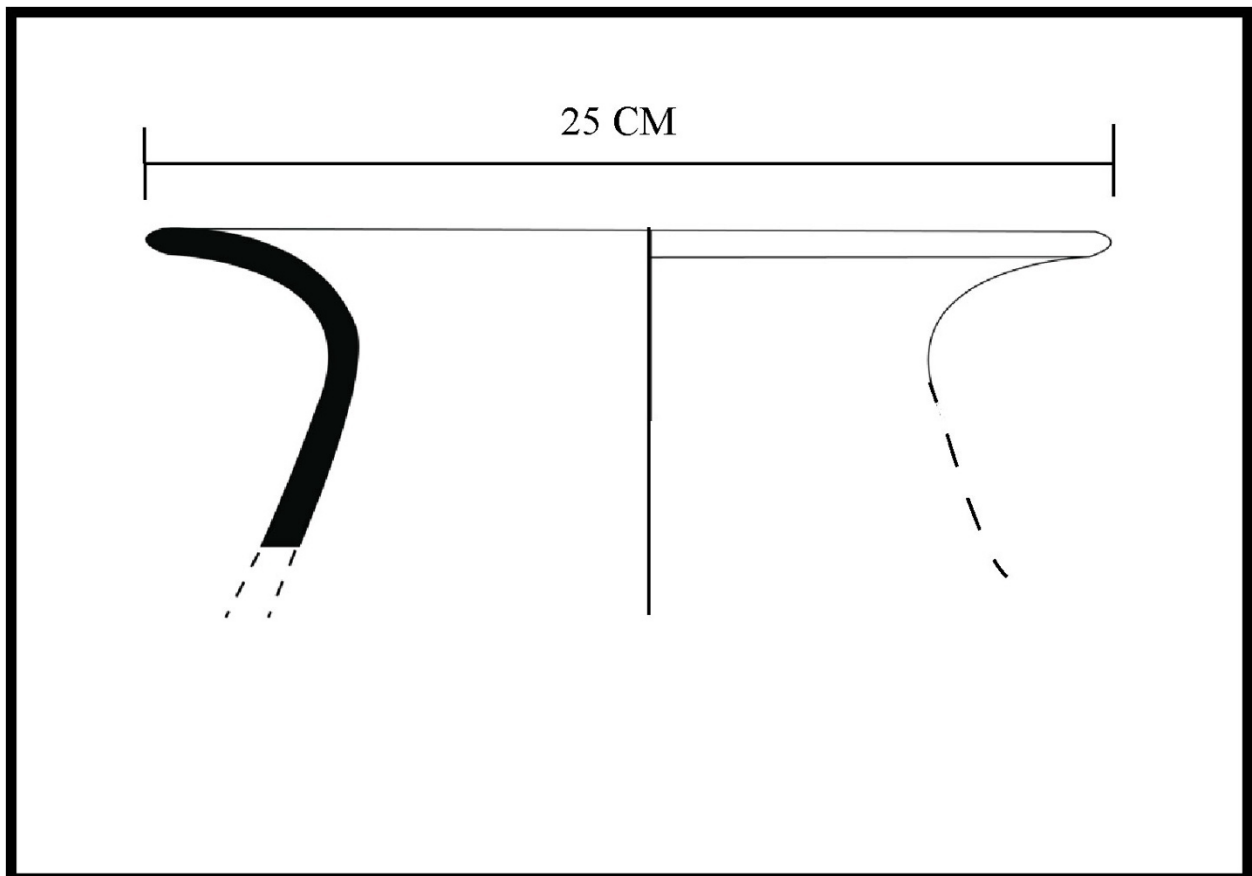


Figure 7.18 Large Terminal Classic unslipped jar recovered as a part of Feature 7/16S/1.

7.8 CERAMIC GRAVE GOODS FROM TOMB VI

Several prestige-good ceramics were among the offerings of Tomb VI. The construction of the crypt is reported in Chapter 5 Section 3.4, while the human remains and non-ceramic grave goods are reported in Section 7.7 of this chapter. In this section, I describe pottery that was included as burial offerings accompanying the single individual placed into this crypt. The burial had been disturbed in antiquity, and material was recovered both inside and outside the crypt.

Outside the crypt there was a dark ceramic plate, 13 cm in diameter, and with a single grooved decoration line 9 mm below the rim. This plate was collected as a separate feature (F.6/38Z/5), but likely it was part of the grave goods of the Tomb VI burial.

The three recovered teotihuacanoid slab-footed tripod vases were found south and west of the Tomb VI crypt, were labeled vessels 1-3. Tomb VI Vessels 4 and 5 are two vessels that had been placed lip-to-lip in the north section of the Tomb, one of which (Tomb VI Vessel 5) is a member of the Dos Arroyos Polychrome group. Vessel 4 was a large plain slab-footed bowl, 27.3 cm in diameter, with three rounded supports (Figure 7.19). The finish was a burnished interior and exterior. The exterior color of the vessel is red, but ranges due to preservation from 5 YR 5/6 yellowish red to 2.5 YR 4/6 red. In places the vessel has eroded to a pale brown (10YR 6/3) color. There is fire-clouding in areas of the exterior of the vessel that leave a dark gray (10 YR 4/1) color. Roughly 65% of this vessel was recovered during excavation.

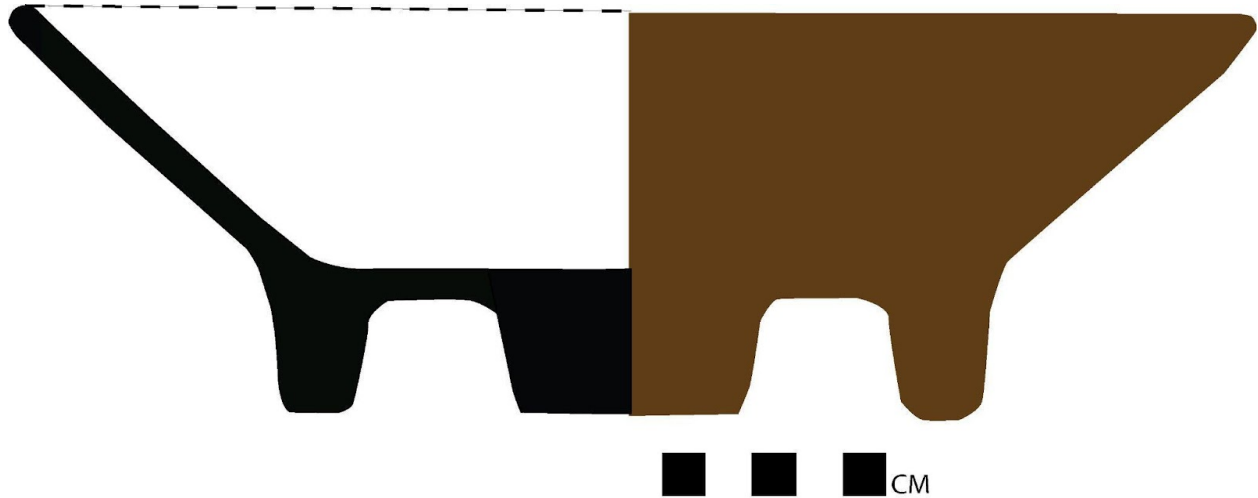


Figure 7.19 Vessel 4 of the lip-to-lip cache within Tomb VI.

Vessel 5 is the bottom vessel of the lip-to-lip cache assigned to the Dos Arroyos Group (Luke Stroth 2024). This is a large bowl (30.6 cm in diameter) with a 10 cm annular modeled ring base (Figure 7.20). The paste is red (2.5 YR 5/8) and the vessel is covered with a red slip (2.5 YR 4/8). The interior is completely slipped, and the exterior slipped from rim to flange. Below the flange the vessel is unslipped and is a brownish yellow (10 YR 6/6) color. The exterior has a modeled flange located 3 cm below the rim, which extends at a right angle 8mm from the wall of the vessel. The core of the vessel is a very dark gray (10 YR 3/1) color. The exterior is decorated with three black (10 YR 2.5/1) paint stripes, all located between the rim and the flange. The interior is decorated with a 2 mm-wide groove on the opposite side of the exterior flange, approximately 3 cm below the rim. Additionally, it is decorated with a solid black strip below the rim and a repeated design motif, also in a stripe pattern, below the groove. Roughly 85% of this vessel was recovered, due to it being covered within the tomb by Vessel 5; preservation levels of decoration and design were atypically high for ceramics recovered from Nim li Punit.

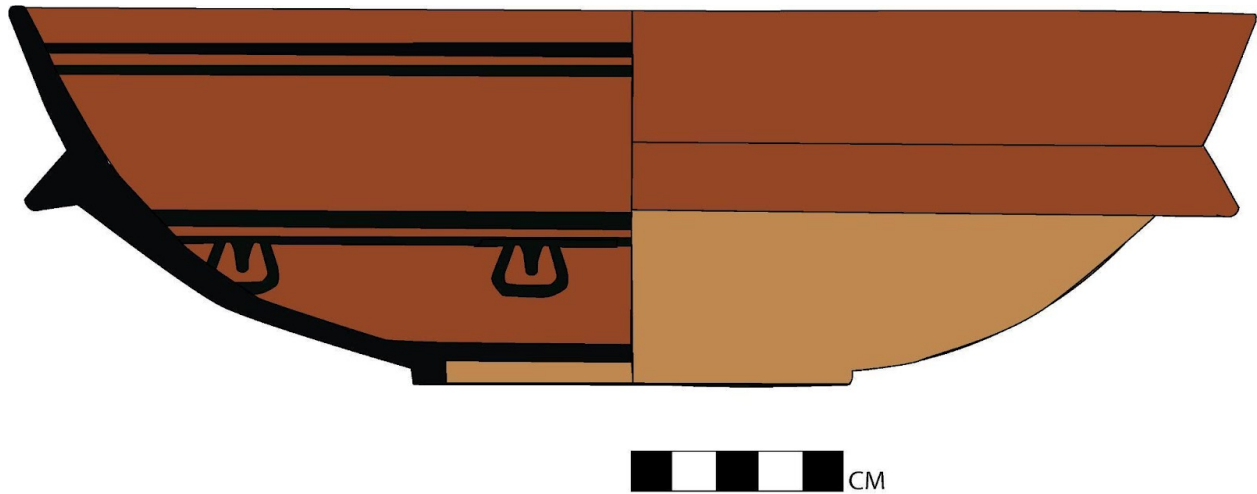


Figure 7.20 Vessel 5 of the lip-to-lip cache within Tomb VI.

We recovered three teotihuacanoid slab-footed tripod vases from just outside the crypt, to the south and west of where the head of the Tomb VI individual was lain (see Figure 5.10). These three vases were part of Feature F.6/36Y/2 and are labeled Vessels 1, 2, and 3. The vessels were recovered from this primary context in a shattered state, with Vessels 1 and 2 being the most re-constructible. Vessels 1 and 2 are made of a very fine, hard ceramic paste with a smooth and burnished finish; there is no evidence that either had been painted or slipped.

Vessel 1 is a reddish brown (5YR 4/4) vase with a small amount of fire clouding around the exterior. The effects of preservation have led to some discoloration of the vessel in different sections (Figure 7.21). This vessel is noted as a slab-footed tripod, due to the three scars present on the base, but the ceramic supports for this vessel were not recovered during excavation. Perhaps one of the feet had broken off during the life-use of this vessel and, rather than repair the vessel, the other two feet were removed, and the vase was used as a flat-bottomed vase until it was included in the cache offering to the individual interred in Tomb VI. All six supports from the other two vessels were recovered from this context. This cache was excavated and screened

carefully; it is unlikely we would have missed even a fragmentary portion of one of the supports from Vessel 1. In addition, this vessel had the most complete reconstruction, with 100% of the rim and 80-90% of the base and walls present.

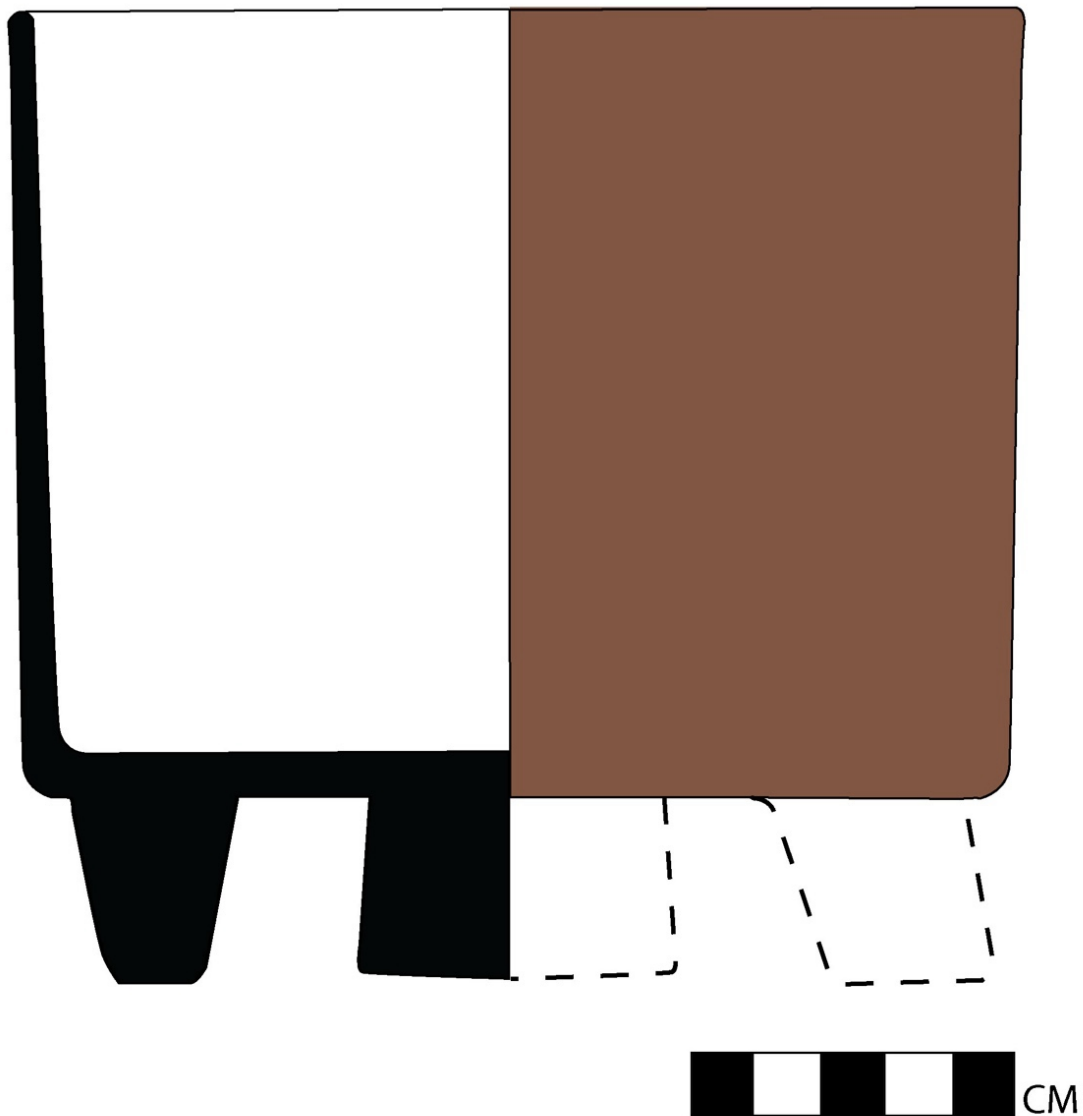


Figure 7.21 Teotihuacanoid slab-footed tripod Vessel #1 from Tomb VI (F.6/36Y/2). The three feet from this vessel were not recovered, but the scars from their attachment to the vessel body were present for all three. The measurement given for the top of the feet is accurate, but the overall height and shape of the feet is an interpretation.

Vessel 2 is a very dark gray (10YR 3/1) vase, with intentional fire-clouding around the entire exterior to give it this darker color. The interior is a very dark grayish brown (10 YR 3/2) and does not have evidence of the fire-clouding treatment (Figure 7.22). Vessel 2 has a different paste color of yellowish brown (10 YR 5/4). The vessel's base is complete, with all three supports present; each has two vertical slits that face towards the exterior of the vessel. A large portion of the walls and rim were also present (> 50%) but the vessel is incomplete, with some sherds not recovered.

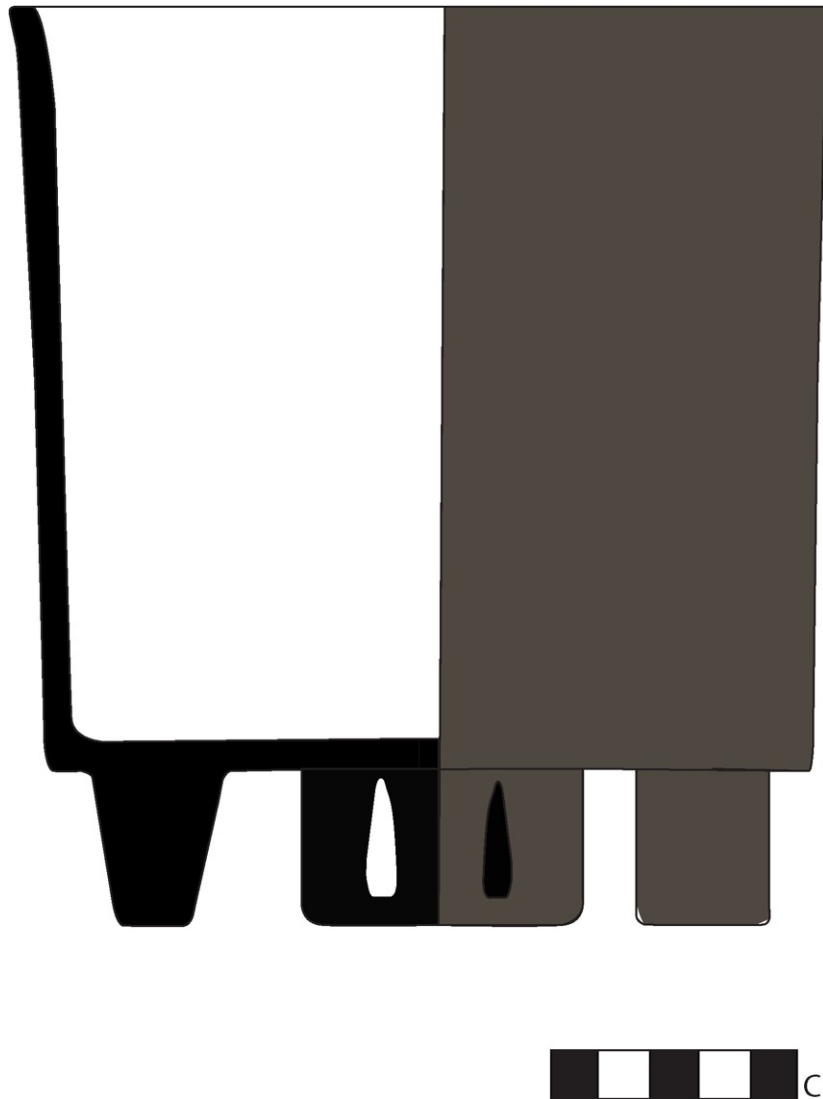


Figure 7.22 Teotihuacanoid slab-footed tripod Vessel #2 from Tomb VI F.6/36Y/2.

Vessel 3 is a vase with a red-slipped (10R 4/8) interior and exterior, and has all three supports present, which, including the base, are a different color—pale yellow (2.5Y 7/4; Figure 7.23). This vessel was extremely fragmentary and only the base, supports, and a small portion of the rim could be reassembled. The diameter of the vessel was measured using a rim sherd and the height is unknown. The supports have a rectangular window carved out, which faces towards the interior of the vessel. The overall construction of this vase is remarkably fine and marks it apart from Vessels 1 and 2. The walls are much thinner (3.93 mm versus 5.5 mm for Vessel 1 and 8.7 mm for Vessel 2) with a pink paste (5YR 7/4) and, again, the interior and exterior of the body of the vase were completely slipped, a treatment not seen with the other two vessels. These construction elements considered collectively imply a different area of production for Vessel 3, with a high likelihood that it was an import to the site, while Vessels 1 and 2 may be local reproductions of the form.

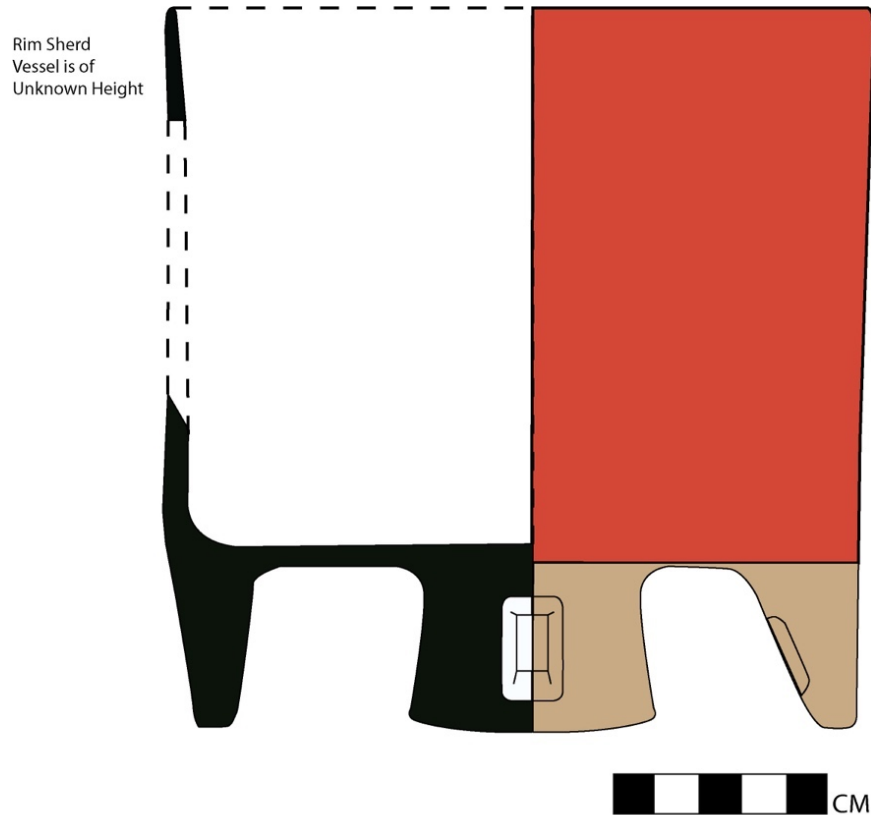


Figure 7.23 Teotihuacanoid slab-footed tripod Vessel #3 from Tomb VI F.6/36Y/2. This vessel was recovered in a fragmentary state, the crooked line along the right-side body wall shows the existing portions of the body sherds that were recovered and could be refit. The vessel is of an unknown height.

7.9 FIGURINES

I now turn to the subcategory of fired ceramic figurines. These three-dimensional objects made of hardened clay have been recovered in significant quantities from the site of Nim li Punit. As an artifact class, they represent a wide variety of motifs, themes, and living beings, along with their associated objects and paraphernalia. As an iconographic source, they reveal aspects of everyday life, culture, and beliefs through the depiction of males, females, children, animals, and the supernatural.

First, a note on the data presented here. A total of 37 figurines were recovered from Structure 6 (3 figurines) and Structure 50 (34 figurines). While conducting this analysis I decided

to review all the pieces that have been recovered from excavations at Nim li Punit dating back to 2009, for a total collection of 96 figurines (Table 7.18). This data is reported here and some of it was discussed previously (Borrero et al. 2023), but here I focus specifically on the material from Structures 6 and 50. Table 7.18 gives a breakdown of the figurines recovered from each operation at Nim li Punit. The full analysis of each ceramic figurine is included in Appendix VII.

Table 7.18 Number of figurines that contributed to analysis by operation.

Op. 1 (Stela Plaza)	% of Total	Op. 1 (West Group)	% of Total	Op. 1 (North Group)	% of Total
9	9%	25	26%	8	8%
Op. 3 (Str. 7)	% of Total	Op. 4 (Str. 8)	% of Total	Op. 5 (Str. 7a)	% of Total
16	17%	0	0%	1	1%
Op. 6 (Str. 6)	% of Total	Op. 7 (Str.50)	% of Total		Total Count
3	3%	34	35%		96

The figurines are produced from locally procured clays that range from a yellowish to reddish orange color, resembling paste used in creating monochrome red pottery. Most of these figurines were found in secondary deposits, generally in refuse that was incorporated into the construction fill for the buildings at the sites, but there are a few that were recovered as plaza finds that might date to just before the site’s abandonment. Most of the figurines were recovered in a partial state (55.8%), although a select few complete (9.47%) or nearly complete (34.73%) models were encountered (Table 7.19).

Sixty-one percent of the recovered figurines from Nim li Punit were produced from molds; this is indicative of the popularity of a widespread production technique that took off in the Late to Terminal Classic for the Maya Lowlands (Table 7.20). There were 31 modeled figurines for Nim li Punit (32%); the difference is not statistically significant.

Table 7.19 Condition of figurines.

	# NLP	% NLP Total
Whole	9	9.5%
Head	27	28.4%
Body	24	25.3%
Fragment	26	27.4%
Body with Head Fragment	1	1%
Head with part of bust	8	8.4%
Incomplete Scene	0	0.0%
TOTAL	95	

Table 7.20 Manufacture technique of figurines.

	# NLP	% NLP Total
Mold	58	61%
Modeled	31	32.6%
Mold/modeled	2	2.1%
Carved	3	3.2%
Indeterminate	1	1%
TOTAL	95	

The surfaces of the figurines are typically poorly preserved. I assume many of these figurines were originally decorated, but only one figurine retains traces of paint, while six traces of applique were found, meaning that 7.3% of all collected figurines have decoration still present (Table 7.21).

Table 7.21 Surface treatment preserved on figurines.

	# NLP	% NLP Total
Paint	1	1%
Slip	0	0%
Applique	6	6.3%
None	88	92.6%
TOTAL	95	

The oldest figurines recovered from Nim li Punit date to the Early Classic, with some examples coming from secure contexts within deep excavations dating back to around AD 250 (Figure 7.24). These Early Classic figurines often portray anthropomorphic individuals and are exclusively shaped and carved pieces. Though all the pieces we collected are broken, similar examples from other sites typically depict male and female figures standing in a variety of poses. Note that, for the collection of figurines from Nim li Punit, only 9.5% were complete; they were most often recovered in a broken or fragmentary state and as part of refuse (Table 7.20). The individuals depicted may be wearing various items of clothing and jewelry, some of the examples shown here are either wearing hats or turbans or have decorations in their hair, and there is also the suggestion of ear-plug jewelry.



Figure 7.24 Early Classic Figurines from Nim li Punit. Items 43 (Op.3/44I/2), 35 (Op.3/46-48N/5), 40 (Op.3/38R/1), and 07 (Op.7/18Q/3) recovered from Structures 6 at Nim li Punit (not to scale).

The most unique example of figurine work from the Early Classic of Nim li Punit is a seated *Ahau* (“lord” or “ruler”) figure, which was recovered from Tomb VI of Structure 6 (Figure 7.25). The construction and placement of the tomb is discussed in Chapter 5 and the non-ceramic contents of the burial are discussed in Section 7.7 of this chapter. This Early Classic tomb was disturbed and looted in antiquity, so it is unclear if there were once other companion

pieces or if it was part of a larger composite artifact. The figurine is modeled with a hole through the torso, which could have been used to suspend it. The eyes, necklace, and turban-style hat were attached using an applique technique. Seated figurines of Maya lords are a common type of Maya art from the Early Classic period (AD 250-600); other notable examples that share a similar style originate from sites including Palenque, Copan, Tikal, and Calakmul (Moholy-Nagy 2003: 83-110). While only small number of Early Classic figurines were collected from Nim li Punit, their production techniques and themes are starkly different from those characteristic of the Late to Terminal Classic. Differences in the distribution, quantity, manufacture, iconography, and function of figurines produced in the Early Classic compared to those from the Terminal Classic imply a real shift in the cultural importance of figurines in this region.



Figure 7.25 Seated ahau figurine from Tomb VI, Structure 6.

Previously, figurines had been popular during the Preclassic, commonly found in household burials, caches, and refuse from some of the earliest settlements across Mesoamerica (Halperin 2014:6). With a significant drop-off in their production and use during the Early Classic, a pattern mirrored at Nim li Punit. During the Late Classic we see a sudden shift in the demand and general popularity of figurines, as they seem to make their way back into homes and become part of private rituals. Figurines in this period are typically hollow, mold-made wind instruments that depict a range of characters, with a high-level of detail applied to the dress and

accessories. The Late Classic shift to mold-made figurines points to a larger market desiring access to these instruments, suggesting either an expansion in their domestic uses or more people attending public rituals (Marcus 2019:7). Sixty-three point two percent of figurines recovered from Nim li Punit were mold-made, while only 32.6% of the figurines were produced exclusively through modeling (Table 7.20).

The front portion of these mold-made pieces was made by pressing clay into a mold (Figure 7.26). The backs of the figurines were added later, after the clay had been allowed to become leather-hard. An example of one such mold was recovered from Nim li Punit, but three further examples have been recovered from other Toledo Regional Interaction Project (TRIP) excavations in southern Belize (see Borrero et al. 2023). All examples indicate that the practice of mold-made figurines was quickly adopted in the Late Classic and was widespread throughout the SBR. This shows that many of the major Maya sites of southern Belize had onsite production of ceramic figurines during the Late Classic. The advantage of using molds to produce figurines is that this method reduces the talent level required for creating the objects (as pressing clay into a mold can be done by individuals of almost any age) and increases the sheer quantity of figurines that can be produced (Marcus 2019:9).

I have addressed the production and distribution of figurines and will now discuss their use. 27.4% of the figurines from Nim li Punit have been conclusively identified as musical instruments (Table 7.22); however, I believe that a majority of the remaining fragments were likely parts of instruments, too.



Figure 7.26 Partial mold for the arm portion of an anthropomorphic figurine recovered from Nim li Punit Structure 50 Op.1/9/6.

These instruments are often called whistles, but they are more accurately known as ocarinas and can play only a limited number of notes. The figurine's instrument portion is usually located on its back. The base and body of the figurine form a single chamber resonator with a mouthpiece that extends towards the back, along with two stops of roughly equal size that produced three different notes (Figure 7.27). A total of thirteen figurines (13.7%) from Nim li Punit fall into this

category. The base, or feet, of the figurine along with the jutting mouthpiece formed a tripod that allowed them to stand up. Although rattles and clappers have been recovered from other Maya sites, these were not identified in our collection from southern Belize, which may serve to distinguish this area regionally (Table 7.22).

Table 7.22 Determined function of figurines.

	# NLP	% NLP Total
Whistle	11	11.6%
Multiple Resonator Whistle	13	13.7%
Probable Whistles	2	2.1%
Flutes	0	0.0%
Bells	0	0.0%
Clappers	0	0.0%
Figurines	61	64.2%
Hollow-heads	1	1.0%
Molds	1	1.0%
Pendants	1	1.0%
Vessels	2	2.1%
Indeterminate	3	3.2%
TOTAL	95	



Figure 7.27 Musical instrument portion of a warrior Figurine 14 in the multi-note resonator (ocarina) style.
F.7/20S/2.

In addition to ocarinas, the Maya of southern Belize did make true whistles, most commonly in the form of small birds. These whistles are often interpreted as toys or as bird calls for hunts (Figure 7.28). The one shown below came from the excavations of Structure 50.



Figure 7.28 Still-functioning bird whistle recovered from Structure 50 at Nim li Punit. Figurine 13 F.7/16S/1.

Our fascination with figurines is in part due to their small, portable size and their artistic representation of a past worldview. The motifs that they depict reveal how these ancient artists interpreted their real and spiritual worlds. Figurines with only one central figure were the most popular and represent 75% of all figurines from Nim li Punit, while scenes with two or more characters were rare, with only 3 examples (3.2%; Table 7.23).

Table 7.23 Number of characters present.

	# NLP	% NLP Total
0	21	22.1%
1	71	74.7%
2	3	3.2%
3	0	0.0%
TOTAL	95	

The subject matter of each piece (what the figurines depict) was coded by category and documented for each piece (Table 7.24). 24% of figurines that could be gendered were presenting male, while 15% were female figurines. This distinction was based on identifiably gendered clothing, hairstyles, and accessories (Figure 7.29). Another 21% of the figurines could be identified as humans but with eroded features that did not allow for a gender classification. 62% of the figurines recovered depict humans, illustrating a preference at Nim li Punit during the Late/ Terminal Classic. Many of these individuals are shown with characteristics that mark them as members of elite Maya society.

Table 7.24 Present motifs on figurines.

	# NLP	% NLP Total
Male	23	24%
Female	14	15%
Anthropomorphic	1	1%
Supernatural	3	3%
Grotesques	3	3%
Indeterminate	23	24%
Animal	7	7%
Human	20	21%
Human and Animal	1	1%
TOTAL	95	



Figure 7.29 Examples of figurines depicting elite males (not to scale), in order from top left to bottom right: Figurines 06 (Op.7/18Q-P/3), 04 (Op.7/18L/1), 56 (Op.1/9N/1), 48 (Op.1/9N/1), 02 (Op.7/16O/1), 47 (Op.1/9N/1), 05 (Op.7/22L-O/1), and 44 (Op.3/38Q/2).

Sporting events were likely very memorable moments for life in SBR these athletes were captured in ceramic figurines that represented both boxers and ballplayers. Ballplayers can be identified by the bodily gear they wear, commonly these are thick yolks around the waist, arm bands and knee pads (usually on the right knee) they may hold round balls in their hands or arms and be in striking poses of game action. Only two ballplayer figurines have been recovered from Nim li Punit so far (Figure 7.30). A common motif seen at Nim li Punit is that of the boxer, who may also wear yolks or thick padded helmets with eye-slits or holes. Unlike ballplayers, they hold a hand-sized ball in at least one hand or can be shown with mitts and be in poses of combat (Figure 7.31).



Figure 7.30 Figurines depicting ballplayers from Structure 50 of Nim li Punit; Figurines: left 01(Op.7/16O/1) and right 52 (Op.1/15/2).



Figure 7.31 Examples of boxers from Structure 50 of Nim li Punit; Figurines: top 61 (Op.1/9E/4), left 02 (Op.7/16O/1), and right 09 (Op.7/20S/1).

One figurine should be singled out as quite special. Figurine #1 from Nim li Punit, is seen on the left of Figure 7.30. This piece has a wind jewel suspended from the necklace on his chest. Immediately reminiscent of the jade Wind Jewel recovered from Tomb V at Structure 7 in the

South Group, and it is also seen on several stelae from the site where it is worn by elite rulers while they were performing agricultural rituals (See Prager and Braswell 2016; Chapter 2: Special Topic). In addition to the necklace, the figurine is highly detailed with several notable accessories; there is a disk resting over the stomach on top of the *yugo* (the ballgame belt) and padding, as worn by the players to protect their midsection from bruising when striking the ball. In the crook of the figure's right arm there are remnants of an applique, which was likely representative of a ball or skull. Leather guards can be seen stemming from the belt to cover the thighs, and while the feet are incomplete the top of decorated sandals are still visible.

With only two examples of ballplayers found, this category represents only 4.3% of recovered male figurines. This statistic sits in stark contrast to other sites—such as Copan or Aguateca—where the number of ballplayers from the same period is much higher (Halperin 2014:63). A total of five boxers were recovered from Nim li Punit, making up 21.7% of all male figurines. Perhaps the people of Nim li Punit had a preference for boxing over the ballgame, and this would serve as an indicator for the Late Classic to Terminal Classic when these figurines were at the height of their popularity. In addition to sporting figures, warriors are also represented and make up 13.0% of the male figurines. These kinds of miniature depictions of athletes may imply that the associated public events themselves were a driving factor of figurine production. Nim li Punit does feature a ball court, along with a large public plaza at the center of the architectural core; it is very possible that these sporting events occurred on site. Spectators may have gone home with a souvenir figurine, much like those sold at modern-day sporting events.

In contrast to the male figurines, the female figures are depicted either standing or seated, with characteristic hairstyles and outfits (Figure 7.32). There is also a level of action depicted,

with some women shown carrying children or vessels, working with weaving looms, or tending animals. A great level of detail is applied to the skirts and dresses, with woven designs and fringed skirts recreated on these miniature bodies (Figure 7.33). This appears to be an important aspect of social distinction, as extra effort was invested in recreating the patterns of textiles as well as body ornamentation.



Figure 7.32 Examples of female figurine heads, note details of hair and jewelry, all recovered from Structure 50 of Nim li Punit; Figurines: top left 16 (Op.7/20R/1), top right 24 (Op.7/18S/2), bottom left 15 (Op.7/14R/2), and bottom right 11 (Op.7/18Q/3).



Figure 7.33 Examples of female figurine bodies, note details of accessories, companions, and clothing, all recovered from Structure 50 of Nim li Punit; Figurines: top 81(Op.1/9/6), bottom left 89 (Op.7/20N/2), and bottom right 88 (Op.7/20L/2).

Most of the human figurines depict adults (34%). Only a handful (4) of figurines depicting elderly individuals were encountered for Nim li Punit, representing 4% of all figures found. Figurines depicting children were always accompanied by a female adult. The top figurine in Figure 7.33 shows one example; this rather large ocarina is mostly complete, though missing the heads of the woman and child, both of whom are wearing skirts. The belt of the

woman is a sash tied in a knot along the left side. The woman is turned 1/3 to her left side, revealing a young child sitting on her hip and hanging off her back—the child is wearing bracelets, necklaces, and anklets.

Across the 15 pieces recovered that depict women, there variety in the ornamentation visible for the hair, face, or limbs. Most notably for the adult women, decorations of their skirts and dresses (found on 27% of female figurines) highlight the varied ways in which the ancient Maya decorated their bodies and distinguished between different social classes. Regarding adornment of the head: only 25% of figurines had no accessories, while 23% had headbands, 8% had hats, and 28% had headdresses. The depicted individuals had accessories decorating their bodies and extremities, including armbands (on 6%), bracelets (5%), leg bands (2%), necklaces (8%), pendants (13%), facial jewelry (2%), nose clips (7%), nose tubes (5%), ear spools (26%), and earrings (1%). I would like to call out the high propensity of adult elite Maya that had ear spools, which constitute an excellent marker for their social status.

In addition to humans, animals are also depicted; a total of fifteen such pieces were recovered, making up 16% of the overall collection (Table 7.25). The most popularly depicted animal at Nim li Punit were birds (11 in number). There are two examples of felines. There is also an example of a monkey and an Early Classic toad from Structure 6 (Figure 7.34).

Table 7.25 Figurines identified as animals.

Animal	# NLP	% NLP Total
Not Animal	69	73%
Monkey	1	1%
Owl	7	7%
Bird	4	4%
Canine	0	0%
Feline	2	2%
Deer	0	0%
Rodent	0	0%
Bat	0	0%
Coatis	0	0%
Frog	1	1%
Snake	0	0%
Indeterminate	11	11%
	95	
Total Percent Animal	15	16%

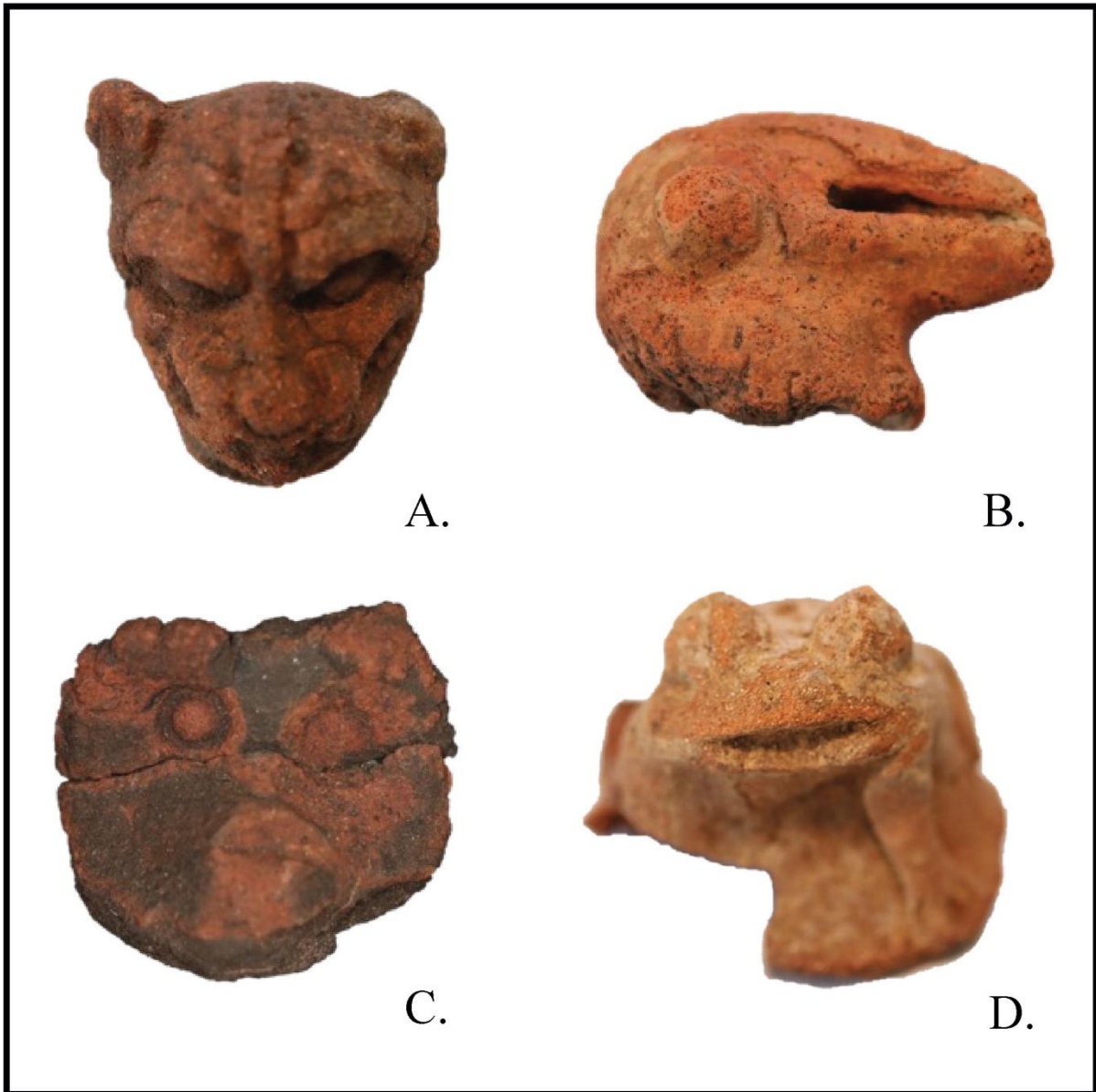


Figure 7.34 Examples of animal figurines from Nim li Punit: (A) jaguar head from Structure 50 Op.7/18Q/3; (B) bird head from Structure 50 Op.7/18M/3; (C) face of a howler monkey from Structure 50 Op.7/16R/3; and (D) Early Classic toad from Structure 6 Op.6/38Y/4 (not to scale).

Most of the recovered figurines date to the Late Classic and were mostly produced from molds. Investigating production and procurement would be the next step in understanding the distribution of these motifs. The focus on elite garb and almost exclusive representation of adults—the few children present are small and always with an attendant mother—reveal the

potential use of figurines as teaching devices that highlight the social structure of their world that would serve young children as a vehicle for understanding appropriate social norms.

This section covered the analysis of figurines and other pottery recovered from the Structures 50 and 6 at Nim li Punit. These data provide a clearer picture of how the inhabitants used this cultural material for a variety of purposes, from the mundane to the specialized and ritual. Across the ceramic artifact class there is a noted shift in consumption during the Classic period. This may indicate fluctuating economic networks, changing fads and fashions, as well new levels of integration at the household level. Further topics to be considered include the nature of these economic networks and how they operated between households and the broader site. It is the decorated fine wares, and to an extent some of the figurines, that are the clearest indicators of outside influence and interaction. One aspect that remained stable over time was the preponderance of plain wares, indicating the ongoing need to fulfill everyday food requirements of the local populace. This material was likely locally produced and procured. I now turn to a discussion of the faunal remains recovered from Nim li Punit as an indicator of what may have been eaten out of these ceramic plates and bowls.

7.10 FAUNAL REMAINS FROM NIM LI PUNIT

The faunal remains recovered from Nim li Punit reveal that the Maya of this site exploited a wide variety of resources throughout the Classic period. Freshwater shellfish, marine shells, and both marine and terrestrial vertebrates were recovered from a variety of contexts in and around Structures 6 and 50. The full faunal assemblage consists of 470 fragments recovered from the two field seasons (Table 7.26). A complete analysis of faunal material is included in Appendix VIII.

Table 7.26 Total number of recovered faunal remains from Structure 6 and 50.

	# of Pieces	% of Total Pieces	Mass (grams)	% of Total Mass	Vertebrate	% of Total Pieces	Invertebrate	% of Total Pieces
Str 6	145	30.8%	745.22	17.3%	83	57.2%	62	42.8%
Str 50	325	69.1%	3,549.00	82.6%	70	21.5%	255	78.5%
Total	470		4,294.22		153	32.5%	317	67.4%

Our initial desire was to bring the faunal analysis of this site in line with previous studies conducted within our lab and at the sites of Pusilha and Lubaantun; all three sites are part of the broader TRIP. We designed our methods to analyze mass, count, speciation, the minimum number of individuals represented, and notes on modification and processing.

We used many printed and digital comparative sources during our analysis. These included the Digital Morphology database, a National Science Foundation digital library at the University of Texas at Austin (Digimorph 2021). We modified our Table 7.27 of likely taxa from the Blue Creek FAO report on Caribbean shellfish species (Lovatelli and Sarkis 2010).

We subdivided the material into vertebrates and invertebrates. For each we recorded the number of individual specimens present (NISP), as well as the mass of each piece, and then subdivided and grouped according to the most granular taxa level possible (Table 7.27). We encountered a wide range of preservation levels for faunal remains; many were too fragmentary or eroded to be diagnostic, and thus were excluded from the analysis. We recorded any modifications found, including cut marks, burning, or modification of a piece for use as a tool, instrument, or jewelry. Under the invertebrate category, we separated the freshwater snails, locally called jute (*pachychilus*), and these are analyzed separately towards the end of this section. By doing so we can distinguish between marine resources that required travel or trade

with the coast from the freshwater jute, which were also used as a foodstuff but were locally available from the nearby rivers.

Invertebrates (not including freshwater snails, i.e. jute) make up the majority (63.8%) of the overall faunal remains analyzed from Nim li Punit (Table 7.26). This dominance in the material comes primarily from Structure 50, which is heavily weighted towards invertebrates, making up 78% of the collected material from this platform by count. In comparison, for Structure 6 only 31% of the collected material by count was contributed by invertebrates. Structure 6 had a total of 145 individual artifacts, of which 69% were vertebrates and 31% invertebrates. Structure 50 had a total of 325 individual artifacts, of which 22% were vertebrates and 78% are invertebrates (Figure 7.35). While count can be useful, when we consider the overall mass of these artifacts we see a very striking difference, wherein 29% of Structure 6's recovered faunal mass was contributed by vertebrates and 71% invertebrates, and for Structure 50's recovered faunal mass only 4% was contributed by vertebrates and 94% invertebrates. This is a clear pattern that repeats across all faunal comparisons between the two buildings in terms of both mass and the Minimum Number of Individuals (MNI).

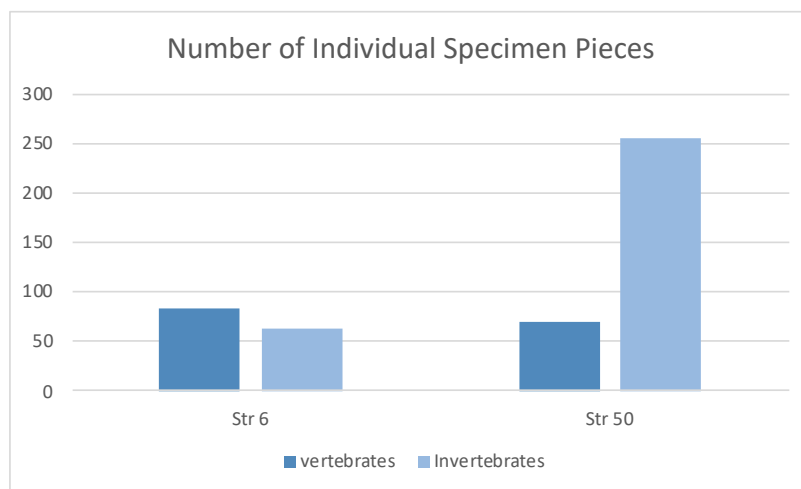


Figure 7.35 Total collected number of faunal pieces categorized by vertebrates and invertebrates for both structures.

In the following analysis I focus on the various dietary resources available to the people of Nim li Punit. Marine resources included conch, consisting of the collected data for a generic conch group (likely includes milk conch and possibly West Indian Chank) and easily identified Queen Conch (the most available species). The bivalves category is a grouping of the collected data for Venus clams, clams, mussels, and scallops. The complete data entries at the species level are included as a table in the Appendix VIII. Deer were selected amongst the large mammals to be signaled out as a usual signifier of feasting and high-protein diets. In the figures below, the category of deer includes data on two different species: brocket and white-tailed.

The category of small mammals represents the collected remains of animals such as rabbits, pocket gophers, and rodents. Most of the small mammals category is not assumed to represent food stuffs used by the inhabitants, but instead small animals that likely burrowed their way into the ruins post-occupation and died underground or were included in the soils that were used for construction fill. This thinking is extended to most reptiles recovered, which were also documented but are an unlikely calorie source.

Medium mammals identified at the site of Nim li Punit included agouti, peccary and some canines. From the excavation units of Structure 6 a single agouti bone was identified from Op.6/42YZa/3, as well a single bone from a canine from Op.6/32X/1, but no peccary bones were recovered. From the excavation units of Structure 50, a single agouti bone was identified from Op.7/18P-Q/2; the bones of two incomplete peccary individuals were recovered from Op.7/18R/1 and Op.7/20R/2, but no canines.

The category of large mammals known for the site of Nim li Punit includes deer, tapir, and large felines. From the excavation units of Structure 6 we recovered one deer bone

representing one individual (identified as a white-tailed deer) from Op.632-34Y/2; no tapir or felines were found. From the excavation units of Structure 50, we recovered four deer bones representing at least two individuals (one identified as a white-tail deer) from Op.7/20N/2, Op.7/20P/1, and Op.7/16-18S/3; one ankle bone of a tapir was recovered from Structure 50, Op.714R/2 and no felines were found.

Figure 7.36 and 7.37 displays the data for these major groupings in the form of a series of pie charts, providing a breakdown by percentage for the makeup of the individual specimen pieces. Once again, note the dominance of marine invertebrates during the Terminal Classic for Structure 50.

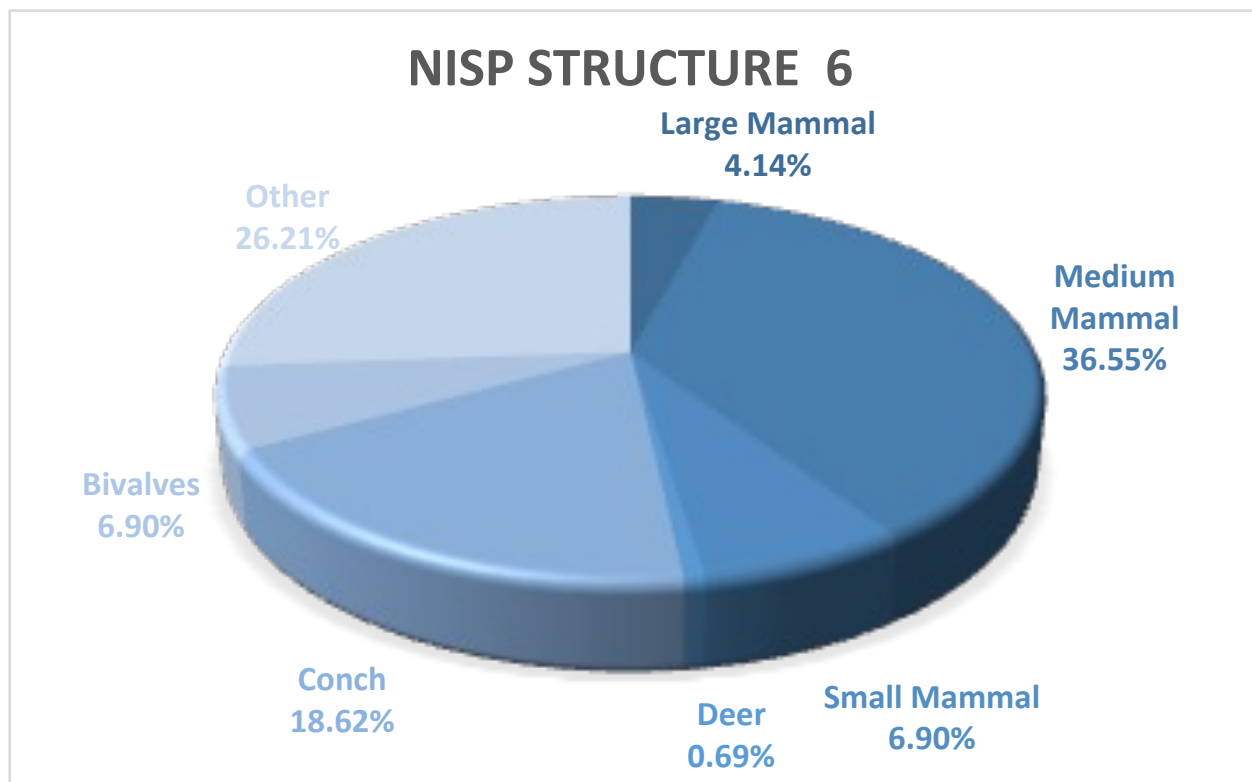


Figure 7.36 Breakdown by percentage for number of individual specimen pieces by select categories for Structure 6 (bivalves: Venus clams, clams, mussels, and scallops).

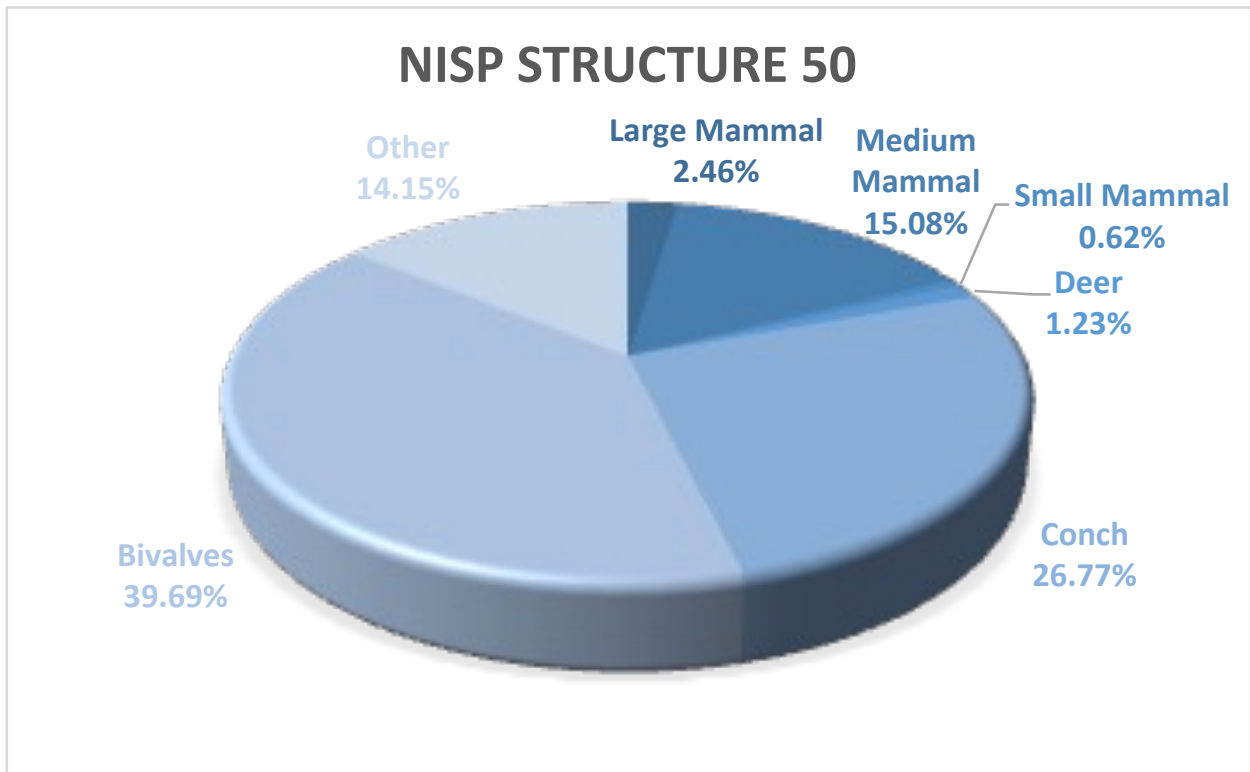


Figure 7.37 Breakdown by percentage for number individual specimen pieces by select categories for Structure 50 (bivalves: Venus clams, clams, mussels, and scallops).

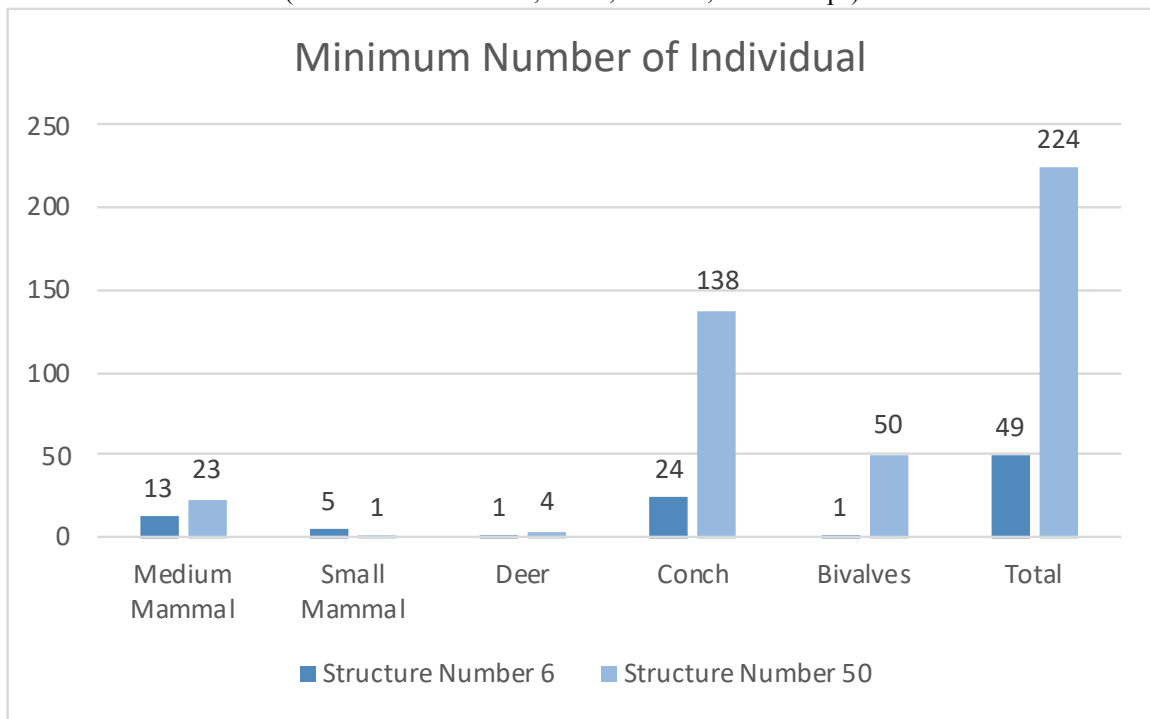


Figure 7.38 Minimum number of individuals identified for a select groupings of categories across both buildings (bivalves: Venus clams, clams, mussels, and scallops).

Of note for the metric of mass is the large portion assumed by the conch shells; this marine resource had a real cost in terms of harvest to transport from the sea to Nim li Punit (Figure 7.39). The seashore is roughly 14 km (8.5 miles) southeast of the site: not a trivial distance to travel carrying these shells and their meat, using a combination of canoe transportation and walking to the coast. Queen conchs achieve full size at around 3-5 years of age and grow up to 30 cm long and weigh 2.3 kgs. When we consider MNI for this category, at least 24 individual shells were brought to the South Group (Structure 06) and at least 138 individual shells were brought to the West Group (Structure 50).

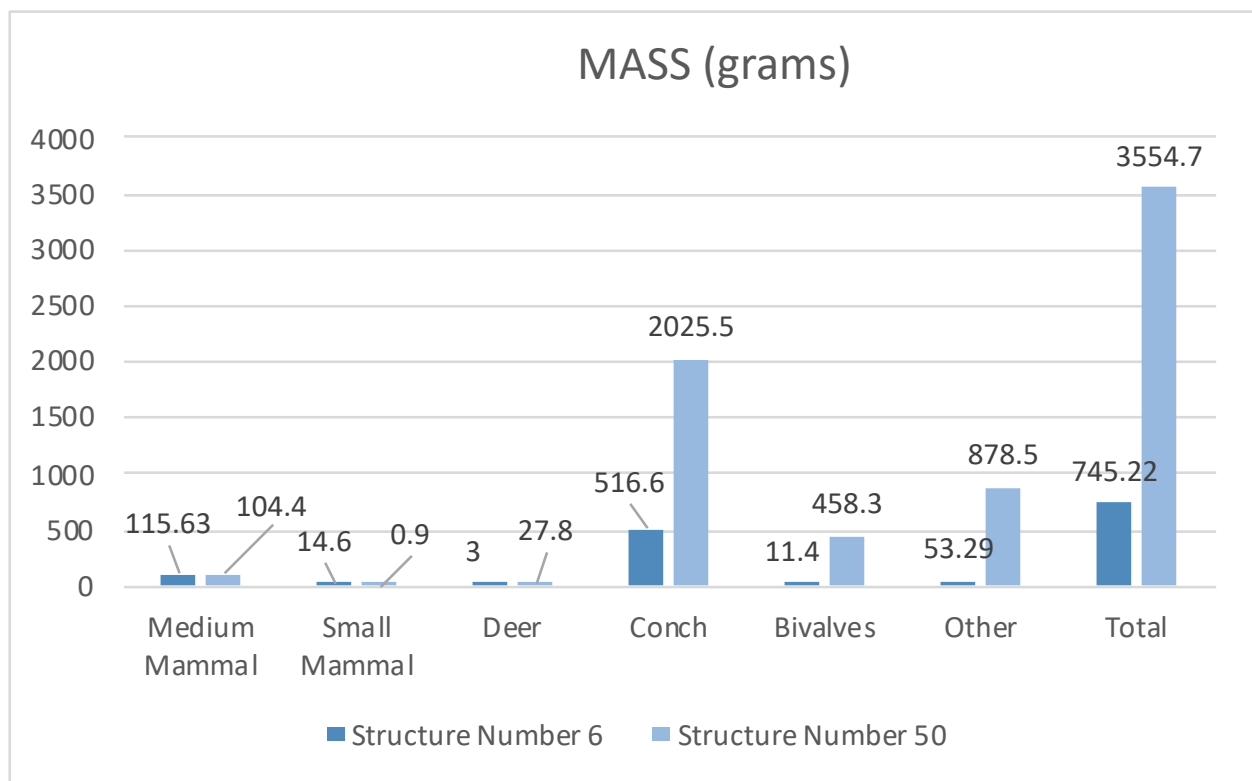


Figure 7.39 Mass in grams for a select grouping of categories across both buildings (bivalves: Venus clams, clams, mussels, and scallops).

The data show that a wide variety of faunal resources were available to the people of southern Belize during the Classic period, and that the exploitation rates vary over time. For

example, there is a clear shift in the incorporation of shellfish into the diet of the inhabitants of Nim li Punit. This shift is mirrored by the equally drastic change in the exploitation of freshwater snails, common name jute, identified at two different species levels: *P. glaphyrus* (with a spiky shell) and *P. indiorum* (with a smooth shell). These snails were collected from the local rivers and waterways near the site.

For the following analysis of jute, I selected for faunal remains according to context for both platforms, including fill units (for Structure 6: 14 Early Classic units and 3 Terminal Classic units; for Structure 50: 26 Terminal Classic units) and units categorized as “outside,” which included the surface of mounds and plaza floor contexts (for Structure 6: 11 Early Classic units and 9 Terminal Classic units; for Structure 50: 32 Terminal Classic units). In addition to controlling for the temporality and location of the material, I also sub-selected only for whole pieces of the smooth and spiky shells of jute, which provides a minimum number of individuals consumed at the site (Figure 7.40). Next, I consider the distribution of jute bearing units between “outside” contexts versus “inside” fill contexts of the two platforms. For Structure 6, 60% of the jute-bearing units were outside the platform (accounting for 0% of the whole jute pieces), while 40% come from within the fill of the platform (accounting for 100% of the whole jute pieces collected). For Structure 50, 55% of the jute bearing units were outside the platform (accounting for 6% of the whole jute pieces), while 45% come from within the fill of the platform (accounting for 94% of the whole jute pieces collected). This suggests that, after the jute snails were consumed, their shells were intentionally discarded as part of refuse that was included in the construction fill of these two buildings. Very little of the jute material was encountered on the surface of the mounds or on the plaza floor, again pointing to a pattern of discard. Since most of the jute remains are from construction fill contexts of the two buildings, we can associate this

material with specific temporal periods (the Early and Terminal Classic, respectively) for each building, helping us to understand shifting patterns of consumption throughout the Classic period. Figure 7.40 focuses on the interior construction fill for both buildings and highlights the stark difference in consumption evidenced by the Early Classic refuse from Structure 6, and the Terminal Classic refuse from Structure 50. This drastic increase in the use of shellfish during the Terminal Classic may have been caused by an effort to feed increasing numbers of inhabitants, or a method to shore up deficiencies in their agriculture. Regardless, this basic data serves as a clear indicator of another drastic change to the lifeways followed at Nim li Punit just before the collapse of the site. The count by species of all collected jute is reported in Appendix IX.

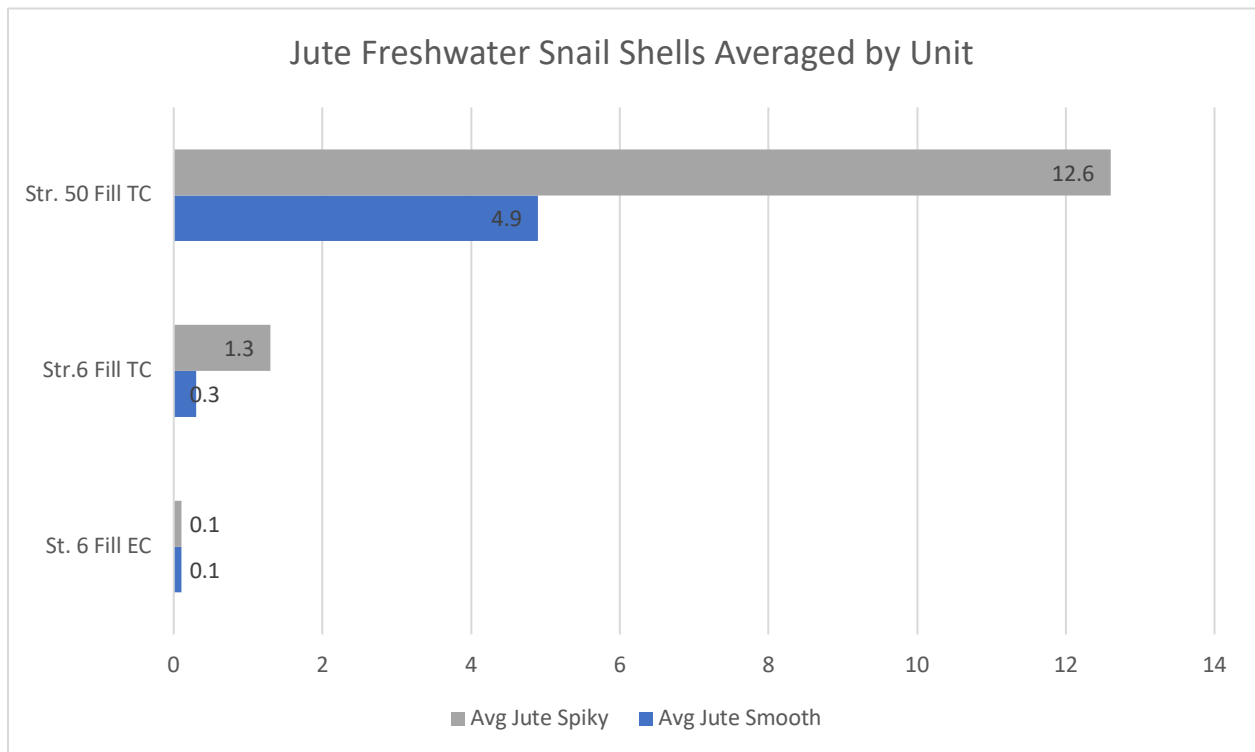


Figure 7.40 Comparison of average recovered whole jute shells per Fill context excavation unit within Structures 6 and 50 platforms.

The faunal material excavated from Structure 6 and 50 are only a subset of the full breadth of resources exploited at the site. A more complete picture of the dietary practices carried out at Nim li Punit will require the incorporation of the faunal analysis of the other excavations that have been conducted at Nim li Punit. The data in this section is also not representative of consumption at a household level. This material was not recovered from isolated middens, as it was disposed of in the construction fill during the building phase of Structure 6 and 50. At best, the faunal remains of this study are singular snapshots of time during the Early Classic and Terminal Classic respectively, which speak generally about food practices at Nim li Punit.

Table 7.27 Taxa used in the identification of specimens (Modified from Stanchly 2016: Table 10.2).

Scientific Name	Common Name
Vertebrate	
Aves	Birds
Amphibia	Frogs and Toads
Reptilia	Reptile
Mammalia	Small Mammal
Mammalia	Medium Mammal
Mammalia	Large Mammal
Testudinata	Turtle
Selachimporha	Shark
Tayassuidae	Peccary
<i>Felis Sp.</i>	Feline
<i>Canis Sp.</i>	Canine
<i>C. guanhumii</i>	Blue Land Crab
<i>C. paca</i>	Paca
<i>D. punctata</i>	Agouti
<i>D. novemcinctus</i>	Armadillo
<i>D. mawii</i>	Central American River Turtle
<i>D. virginiana</i>	Virginia Opossum
<i>Actinopterygii</i>	Fish
<i>I. iguana</i>	Iguana
<i>Tapirus bairdii</i>	Tapir
<i>Mazama sp.</i>	Brocket Deer
<i>Meleagris sp.</i>	Turkey
<i>O. virginianus</i>	White-Tailed Deer
<i>O. hispidus</i>	Pocket Gopher
<i>Rodentia</i>	Rodents

Scientific Name	Common Name
Invertebrates	
<i>Anthozoa</i>	Corals
<i>Scaphhopoda</i>	Tusk Shell
<i>Gastropoda</i>	Univalves or Snails
<i>Pachychilus glaphyrus</i>	Jute Snail
<i>Pachychilus indiorum</i>	Jute Snail
<i>Strombus gigas</i>	Queen Conch
<i>Strombidae</i>	Conch
<i>Oliva sp.</i>	Olive Shell
Arcidae	Clam
<i>Spondylus sp.</i>	Oyster
<i>Nephronaias sp.</i>	Freshwater Pearly Mussel
<i>Macrocallista maculata</i>	Venus Clam
Pectinidae	Scallop
<i>Nodipecten nodosus</i>	Paw Scallop

7.11 HUMAN REMAINS RECOVERED FROM NIM LI PUNIT

I now turn to a description of the recovered human remains encountered during excavation, all of which came from the South Group, in or around Structure 6. Each subsection focuses on the grouped material of a single event of deposition. My analysis of the human remains accounts for each identifiable anatomical part present. Associated grave goods found were also included and discussed in this section.

A Brief Discussion of Dental Modification among the Classic Maya

Some of the human remains discussed below show evidence of modification practices on the preserved teeth of the individuals. Classic era dental modifications included filling, drilling, and inlaying (e.g. Tiesler et al. 2017:273); examples of each have been recovered from Nim li Punit. This type of body modification was equally practiced by both men and women during the Classic period and began early in life—around 10-20 years old—but continued throughout the individual's life in a process of continued modification, likely associated with major life milestones (Tiesler et al. 2017:278). Dental modification was practiced in some form by representatives of all socio-economic statuses in Classic Maya society. Certain types of modification appear to have been reserved for, or only afforded by, the elite segments of Maya society; when these patterns are present, they are a useful marker of status (Geller 2009:287-289). Javier Romero (1970) first devised a classificatory system for dental modification patterns, which he grouped by the letters A-G. For the Classic Period the B-type (filing at an angle of the crowns) has been associated with commoners, while C-type (filing of crowns symmetrically), E-type (filling labial surfaces are beveled, along with drilling and the inlaying of pyrite or jade), and G (filling of the occlusal edge at angles, in either symmetrical or asymmetrical form, along with drilling and the inlaying of pyrite or jade) are more often associated with the remains of

elite burials (Geller 2009:289). This type of body modification was highly visible to others and served as a clear marker of identity and unity within a social group (Geller 2009).

Potential Offering of Partial Human Skull

While working in the southern portion surrounding Structure 6, we encountered human remains in the form of a skull placed on a selection of ceramic sherds (in unit 42X lot 1, Figure 7.41). The sherds of this vessel have been identified as those of an incised unslipped Remate plate dating to the Late or Terminal Classic (AD 600-900). The associated human remains included the teeth of an adult human with two missing Rear Molars: RM upper 2 and RM lower 3. All four incisors (both upper and lower) have a circular groove drilled into them in the style of Romero E, which would imply these remains belonged to someone of elite status (per discussion above). The RI lower 1 still has a hard round disk in place, made of an unknown substance that was not scratched by the dental pick and may be the remnants of a decorative stone inlay on the tooth. The other incisors show the remnant of a brown substance in the holes, which may be the remains of adhesive that was applied to the teeth. All 8 incisors (upper RI1, RI2, upper LI1, LI2 and lower RI1, RI2, lower LI1, LI2) have all been filed flat, with lower RI2 and LI2 having an additional notch filed out of the buccal side.

All the molars exhibit varying degrees of wear, which is common for the ancient Maya who utilized groundstone implements for processing their food (see Section 7.4 this chapter); this type of consumption leaves a noticeable shine on the teeth as though they have been polished. This individual likely had a diet high in corn. There are no dental diseases evident in the teeth or in the portions of the maxilla and mandible that are preserved. The discovery of these human remains on the plaza floor makes it likely that they are connected to abandonment activities. No obvious evidence of animal movement or gnawing was found on the remains, and their

proximity to pottery make it likely that they were left or dropped in a moment of human movement. The dental modifications suggest that these remains originally came from an elite burial.



Figure 7.41 A Mandible and Maxillae, including Palatine Process, of an adult; these remains were encountered atop a selection of pottery sherds resting on South Group plaza floor (F.6/42X/1). The right image is a close-up view of the upper and lower incisors, note the drilled sockets in the labial crowns of the upper and lower Incisors I, while the lower Incisors II have been filed to a step shape. The molars show evidence of moderate wear.

Structure 50 Human Remains

A previously listed packet of human remains from sub-operation 7/14R/2 has been reidentified as faunal, likely a large deer tibia (Braswell et al. 2019:11). Only two human remains were recovered from within the excavations of Structure 50; both are heavily ground down molars, one from Op.7/20L/2 and the other Op.7/14P/1 (Figure 7.41).

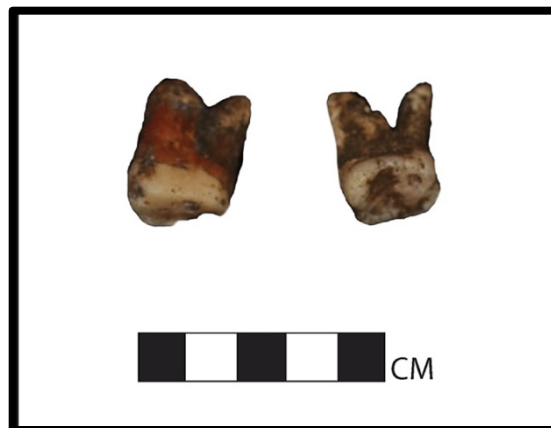


Figure 7.42 Two heavily ground human molars from Structure 50.

7.12 DESCRIPTION OF INDIVIDUAL FROM TOMB VI

As discussed in Chapter 5 Section 3.4, we encountered an Early Classic stone crypt placed within the construction fill of the platform for Structure 6. Here I describe the physical elements for the interred individual, as well as the associated grave goods that were placed with them. From an anatomical perspective, all the major elements of the skeleton of a single individual are represented, but the looting event and poor preservation levels of the soils have left the skeleton in a fragmentary state (Figure 7.43). Working from feet to head, I will describe the bones that were preserved and collected. These descriptions only include the portions of bone that could be anatomically named; there was more “bone” material that was either too fragmentary to be identified or that disintegrated upon touch, which could not be included.

The feet and lower legs were some of the best-preserved portions of these remains, because a cache of two lip-to-lip bowls were placed over them and protected these bones from extensive decay. The distal phalanges of both feet are present but are compressed into solid masses of earth and bone; if attempts were made to separate them, the bone would simply turn to dust. The left talus and three metatarsals of the right foot are preserved, along with a portion of both calcanei. Fragmented bone shards of both the left and right tibia and fibula are present, as well as the left patella. Only the shaft bones of both femurs were collected, and the connecting joints were not preserved. The hip was in a particularly poor condition with only three small fragments identified. The upper portion of the body appears to have been considerably affected by the reentering event. Only vertebrae of the spinal column were observed, and it was heavily eroded, small fragments of likely rib bones were collected but could not be placed. Portions of the right clavicle were recovered. Portions of the humerus, radius and ulna of both arms were also recovered from within the crypt. In addition, further fragments of arm long bone were recovered beneath the crypt in Lot 3. Within the crypt, only four fragments of metacarpal from

the right hand were recovered. Three phalanges of the hand were additionally recovered outside the crypt, in Lot 1 excavation near the surface by the displaced capstones. Overall, most of the hand and finger bones for both hands were removed and were not present in association with the crypt burial. Cranial fragments were recovered in all three contexts, with roughly one third recovered within the crypt, another third beneath the crypt, and the final third recovered from the Lot 1 excavation associated with the displaced capstones. Eleven teeth were recovered, with only the crowns from the upper and lower molars and premolars preserved. Five of the teeth were recovered in the Lot 1 context outside the crypt, with the remainder coming from within the crypt. The teeth were those of an adult and show considerable wear; two of the molars had ground so much that the root would have been impacted. A survey of bone material collected from three distinct contexts points to this burial being that of a single adult. Preservation is poor and no comment can be made regarding health or disease. Similarly, the individual's sex is impossible to determine without DNA testing.



Figure 7.43 The human remains of the adult individual that was interred in the Tomb VI. Portions of his body were located in three contexts associated with the looting event of the crypt in antiquity: (A) the remains within the crypt and associated goods of lithics, green-painted shell beads, and small fragments of jade; (B) the remains that had fallen outside the stone crypt; and (C) the remains that had been placed at surface-level on top of the discarded crypt capstones. Not all bone fragments are pictured, only diagnostic portions that could be classified.

7.13 NON-CERAMIC GRAVE GOODS FROM TOMB VI

A variety of grave good artifacts were placed with this individual. These include three lithic blades: one is the proximal portion of a macro-blade made of a tan-brown chert, the second is a complete percussion blade of a waxy gray chert, and the third is a very crude bladelet of a white orthoquartzite material. The interred individual was likely wearing either a necklace or chest piece made of small (the average size is 0.8-3.0 mm long), carved shell disc beads, many of which were painted green. These beads come in a few varieties, including circular discs as well as elongated, slightly curved versions that may have represented water droplets or fangs (Figure 7.44). These artifacts have been collected in several contexts, with 70 coming from within the crypt, another 45 from unit 38a to the east, a Lot 2 associated with a few other fragments of bone. In addition, small amounts of these beads were encountered around the excavations of this mound. These were distributed in a seemingly random fashion, which seems to imply that they were scooped out during the reentering event, and some were moved elsewhere.



Figure 7.44 Small shell beads from Tomb VI. The beads are made from worked shell and many show evidence that they were once painted green. Examples of the different varieties are shown, but over 100 shell beads were recovered from across the mound.

The individual was interred with a few pieces of jade, two misshapen but complete beads and another two broken beads, as well as some smaller unidentified jade fragments—these were recovered where the head was interred, while preservation makes it difficult to be conclusive, it is possible that some of this jade may have been placed within the mouth of the individual (Figure 7.45). One particularly important jade artifact is a small fragment of diadem. I have illustrated the fragment in Figure 7.45 alongside an example recovered from Tomb V in 2015; both would have been a representation known to relate to Maya kingship and sovereignty, which were often worn in groups of one or three across the forehead (Braswell et al. 2020).

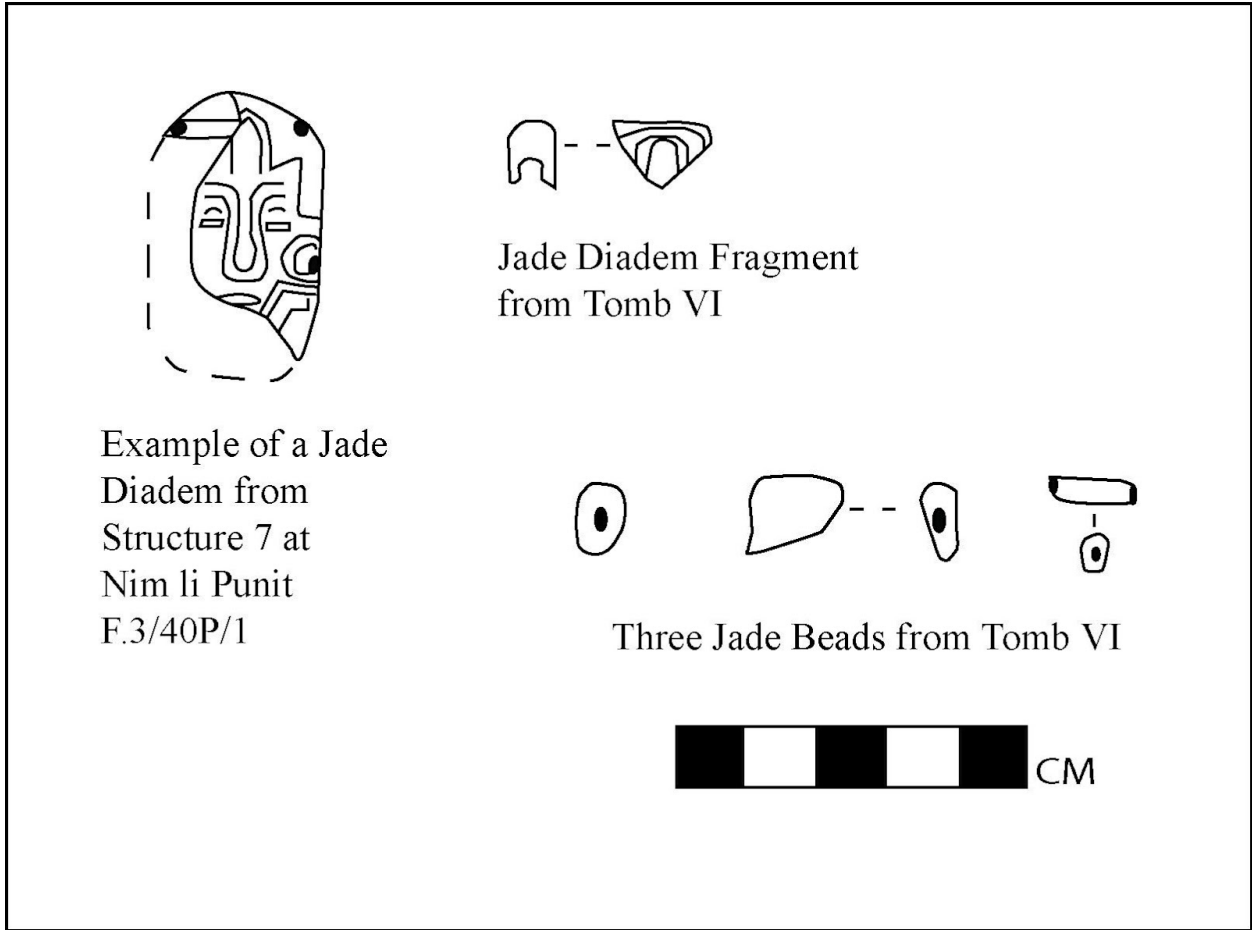


Figure 7.45 Jade artifacts recovered from Tomb VI. Also pictured is an example of a more complete jade diadem recovered from excavations at Structure 7 in 2015 (Braswell 2020).

7.14 SUMMARY OF ARTIFACT ANALYSIS FOR STRUCTURES 6 AND 50

The analysis of various artifact classes recovered from Nim li Punit provides useful data for answering the questions posed in Chapter 1. I am interested in cultural processes occurring at the site as it approached abandonment. The material recovered from the platform of Structure 50 clearly indicates that the West Group was used by elite families for their daily activities. While I am unable to determine a function for the platform of Structure 6—beyond the inclusion of the funerary crypt—the material recovered from within Early Classic fill contexts and from Terminal Classic architectural additions, surface, and plaza contexts provide general examples of the types of activities occurring at the South Group throughout the Classic period. The general narrative presented by the lithic chipped stone, groundstone, and ceramic pottery is that the strategies employed for accessing and using local material remained relatively unchanged throughout the Classic period. Yet the imports across these same categories suggest that the quality and variety of material available to the inhabitants of Nim li Punit changed throughout the occupation of the site.

The data collected from Structure 6 further contributes to the ever-growing archaeological database for structures within the South Group. The excavation of Structure 6 marks the fourth building explored within this plaza group that reveals no clear evidence of domestic activities such as food preparation areas or craft-production workshops. This lack of domestic features compels us to re-evaluate our understanding of how these structures functioned within the broader settlement.

If, as previously hypothesized, these South Group structures served as residences for royal families or other elite leaders, the absence of domestic features suggests that daily activities such as cooking, pottery making, or tool production occurred elsewhere. This spatial separation

between elite residences and areas of domestic activity could point towards a more complex social organization than originally envisioned.

In contrast, Structure 50 in the West Group demonstrated clear signs of domestic activity. In this chapter I documented evidence of domestic tool maintenance and storage, food processing, elite craft (i.e. codex paper) production, and agricultural tools, as well as a significant collection of domestic figurines from the surface of the Structure 50 platform. This disparity between the evidence of domestic activities found at the South and West Group highlights the potential for functional and social variations within the settlement.

The chert artifacts provide evidence of three major aspects of use and discard patterns. Firstly, large fine bifaces were heavily used during the Terminal Classic leading up to abandonment. These objects were imported to the site and were likely produced elsewhere. Their use in the West Group, focused in surface contexts on top of and surrounding the Structure 50 platform, adds to the argument that domestic activities were taking place here during the Terminal Classic. These bifaces were used as multi-purpose cutting elements that were stored, resharpened, and re-hafted on site and have been recovered from both fill and surface contexts at Structure 50. What was not documented was any proof that the bifaces were produced at Nim li Punit; only maintenance and rejuvenation flakes were recovered, which makes it likely that during the Terminal Classic these items were being acquired in a pre-formed state through trade networks. Secondly, if these networks had broken down during the Terminal Classic, we would expect to see a sharp increase in expedient flake technology employed at the site as an alternative source of cutting tools. Instead, the rate of the disposal of lithic materials into the buildings' construction fill shows that expedient technology was deployed at a relatively steady pace site-wide throughout the Classic Period. Expedient flake technology was the primary mode of

interaction with locally procured chert, and the small flakes that were removed were used as tools in a variety of domestic activities. Thirdly, we know that large percussion blades were imported to the site during the Early Classic. Thirteen of these macro-blades were recovered from Early Classic fill and surface contexts at Structure 6. By comparison, only one such example was recovered from Structure 50. Like the Terminal Classic biface, Early Classic macro-blades were imported in a ready state (with no evidence of on-site production). Used for their sharp cutting edge, they were rejuvenated as the edge wore down; when that failed, they were often broken into smaller sections as part of a final causal flaking use. The narrative of the chert material is one of stasis for the locally sourced casual flake industry and one of change for the imported material, from macro-blades in the Early Classic to bifacial knives in the Terminal Classic.

An examination of the groundstone assemblage revealed the importance of *manos* and *metates* to food production systems for Nim li Punit's households. Notably, the desire for high-quality tools led the inhabitants to actively engage in trade networks reaching into the volcanic highlands of Guatemala or Honduras. The primary objective of this trade was to acquire grinding tools made of volcanic rock—a material highly prized for its superior hardness compared to the readily available yet less durable local sandstone. Volcanic rock offered a distinct advantage beyond its durability. Its inherent workability allowed for the creation of legged *metates*. This innovative design feature offered an ergonomic benefit: by elevating the grinding surface it reduced strain on the user's back and improved overall efficiency during food-processing tasks.

The presence of sandstone-grinding implements alongside volcanic rock tools suggests a nuanced approach to resource utilization by Nim li Punit's inhabitants. It is likely that the readily available sandstone served as a practical and cost-effective option for specific grinding tasks.

Future research endeavors could further explore this topic by employing chemical analyses on the working surfaces of these implements. Such analyses could potentially reveal whether the tools were used to process the same materials or if a level of specialization existed, with different implements used to process different foodstuffs.

Analysis of the ceramic assemblage from Nim Li Punit reveal past consumption patterns and economic exchange networks. Most recovered materials comprised standard, undecorated sherds, likely originating from common utilitarian vessels produced locally and used for daily tasks such as cooking, food preparation, and storage. Chronologically, the ceramics can be classified into five distinct complexes that span the Terminal Preclassic to the Terminal Classic. The diagnostic material from these complexes corresponds with well-known ceramic types documented across the Maya world during the Classic period. This correlation serves as a significant link, suggesting Nim li Punit's involvement in broader exchange and consumption networks with other regions.

Beyond utilitarian ceramics, the recovery and analysis of figurines provided a unique window into the private lives of Nim li Punit's inhabitants. Notably, the observed shift towards predominantly mold-made figurines during the Terminal Classic with a musical component suggests a potential diversification in their use. These figurines may have served not only as toys but also as musical instruments, teaching tools, and even ritual paraphernalia.

The faunal assemblage from Nim Li Punit reveals a diverse range of exploited terrestrial and marine resources throughout the Classic. Notably, the presence of big game mammals, primarily two species of deer and some tapir, suggests occasional feasting events or, at the very least, celebratory meals shared by extended families.

A distinct shift is observed in the incorporation of shellfish into the inhabitants' diets. This change may have been driven by the need to feed a growing population or to supplement potential deficiencies in agricultural production. Regardless of the cause, this significant change in dietary patterns points towards another drastic change in the way of life at Nim li Punit leading up to the site's collapse.

The limited number of human remains recovered during excavations suggests that Nim li Punit's architectural core was primarily occupied by elite Maya families. This conclusion is supported by the burial practices, grave goods, and body modifications observed. However, the poor preservation of bone material in southern Belize hinders a more comprehensive analysis of these individuals' life histories. The exceptional Early Classic royal crypt burial (Tomb VI) and its associated funerary goods will be a focal point of Chapter 8's discussion. The analysis presented here details the daily rituals and social activities of Nim li Punit's inhabitants during the Classic period. In the next chapter, I build upon the findings from this and the preceding two chapters, to draw conclusions and connect them to my proposed theories and hypotheses.

7.15 CHAPTER ACKNOWLEDGEMENTS

Portions of Section 7.6 on ceramic analysis are a reprint of a larger published study; Stroth, Luke R., Mario Borrero, and Geoffrey E. Braswell. 2023. Classic Period Ceramics of Nim li Punit: Changes in Communities of Practice at a Southern Belize Political Capital. *Research Reports in Belizean Archaeology* 18:197-204. I was a co-author of this paper.

Portions of Section 7.9 on ceramic figurines are a reprint of a larger published study; Borrero, Mario, Luke R. Stroth, and Geoffrey E. Braswell. The Classic Period Maya Figurines of the Southern Belize Region: A Comparison of Nim li Punit, Pusilha and Lubaantun. *Research*

Reports in Belizean Archaeology 18:375-383. I was the primary investigator and co-author of this paper.

Chapter 8 DISCUSSION AND CONCLUSIONS

8.1 INTRODUCTION

I have outlined a plan of study for understanding the heterarchical and hierarchical expression of power and status within a single ancient center leading up to the moment of desertion. I combined the methods of political anthropology, household archaeology, and architectural studies to understand how Maya society changed overtime at Nim li Punit. Comparative studies of architecture offer a window into the social, political, and economic organization of past societies. Buildings not only reflect the technological capabilities of a culture but also embody their belief systems, social hierarchies, and relationships to the natural world (e.g. Trigger 2006; Renfrew 2018). Attributes of form and function helped me to understand the spatial distribution of power and social organization across the site's architectural core. The material culture studied here stand as proxies for past economic and social decisions made by the inhabitants of Nim li Punit—decisions that altered the very nature of their built environment. In the following section, I give a brief review of the major takeaways from the data analysis presented in Chapters 5, 6, and 7. I then apply these results to test my research hypotheses. Finally, I end with a conclusion focused on my research question and the broader implications of this study.

8.2 SUMMARY OF ANALYSIS

I identified several archaeological correlates across the architecture and artifact data that assist me in testing my hypotheses, and I highlight the major findings here. Excavations reveal that construction at the site began in AD 250 or earlier and continued into the 9th century AD. Building projects during the last several decades of site occupation were mostly limited to modifications of existing structures.

Structure 6 was constructed during the Early Classic as part of the initial design for the west plaza of the South Group. Other important early structures in the group include Structure 7-sub (the throne room) and Structure 8 (the council house). Structure 6's labor expenditure aligns with the established standards for Early Classic constructions at this site. This investment suggests the political agency of Structure 6's designer, who possessed the authority to mobilize resources for its construction.

During the construction of Structure 6's foundation, a crypt-style burial was placed into the fill. Although reentered since, the remaining grave goods associated with this burial mark it as one of a high-ranking individual from the site. Structure 6, serving as the final resting place for this individual, remained in the social memory of the site and was a source of significance for the building.

When looking at the burial data from Nim li Punit, I can make some claims about the nature of power at the site and how Nim li Punit's elites wielded political relationships over time. The discovery of Tomb VI provided new insights in a few important ways. First, I believe that there are strong correlations between Tomb VI from Structure 6 (described in Chapters 5 and 7) and Tomb IV from Structure 7-sub, discovered in 2012 (mentioned in Chapter 2; detailed description available in Braswell 2020:104-111). These similarities allude to the political relationships elevated by the royal family of Nim li Punit to legitimize their governance. Both tombs were crypt-style burials, placed into their respective buildings on a roughly north to south orientation along the centerline of the building and containing funerary offerings of prestige goods from the Early Classic. The catalog of these burial offerings, especially the ceramic vessels, help to date these interments. I also argue that Tomb IV of Structure 7-sub and Tomb VI of Structure 6 mimic each other and were part of the same Early Classic funerary practice at Nim

li Punit. There are two main lines of evidence for this: (1) both were placed into the fill of the substructure platform for each building, a simple stone-lined crypt was constructed in a north-south orientation; and (2) the offering of three teotihuacanoid vessels for each burial, in both cases two polished brown vases and one orange vase, was included. Whether imported or locally made copies, these vessels represent participation in the important economic and political networks of the Early Classic elite of Nim li Punit.

There is much that can be gleaned from these data. As mentioned in Chapter 3, Maya kingship and right to rule were deeply connected to ideology, manifesting in public rituals and events. This symbology was expressed at Nim li Punit in the kinds of Early Classic goods that were included in the burials of the two individuals from Tombs IV and VI. In addition, the location of the burials in the South Group's exclusive west plaza marks them as members of the royal family. Their burials were likely public events, witnessed by elites and local leaders; the consecration burning noted in Structure 6 (Chapter 5) would have been a part of the various rituals and ceremonies surrounding these interments. In turn, the inclusion of the teotihuacanoid vessels was a political statement for both individuals. They signal that the leaders of Nim li Punit were part of social and economic networks with other polities that participated in a Teotihuacan sphere of influence. I am not implying that Nim li Punit had direct connections with the site of Teotihuacan in central Mexico, but, instead, that by the Early Classic Teotihuacan-style paraphernalia was associated with governance, military might, and elite status, as it was in many Maya sites (Braswell 2004; Stuart 2000). Beyond the vessels, we also have iconographic connections with the southeastern portion of the Maya world. On Stela 21, The Nim li Punit ruler *B'ahlam Te'* is shown wearing a distinct style of headdress while performing a scattering ritual into a copaneco-style censer; both the ritual and censer serve as points of connection between

Nim li Punit and the site of Copan during the Early Classic (see discussion in Chapter 2.8: Special Topic; Martin and Grube 2000; Schele and Matthews 1998; Von Schwerin 2011). When we add epigraphic evidence from Nim li Punit's textual monuments, we see several references to the *Ek Xukpi* glyph, which has been connected to Quirigua (Chapter 2.8: Special Topic). Braswell's (2024) analysis of obsidian from the site has shown a sharp increase in Ixtepeque-sourced obsidian during the Early Classic; this is a volcanic source of obsidian located in Guatemala, which was likely controlled by Copan and Quirigua throughout the Classic. Its increased presence may be an economic marker of trade and political association between Nim li Punit and the southeastern sites of the Mesoamerican world.

The Early Classic figurine recovered from Tomb VI is another visual representation of the elite status of the individual buried within (see Chapter 7). Zender (2004) identifies these "turban"-style headdress, which he refers to as "miters", as clear markers of a priesthood in charge of religious ritual. If this interpretation is correct, the inclusion of the figurine perhaps marks the occupant of Tomb VI as a religious leader. Examples of such leaders' presence at the site are seen on Stela 15 from the Late Classic, in the figure on the stage right of the scene, and possibly in the figure on stage left of the scene on Stela 2 (the head of this figure is quite eroded).

The inclusion of two distinct vessel sets within the burials further underscores a unique elite funerary practice at Nim li Punit during the Early Classic period. For Tomb VI, the members of Nim li Punit's upper elite witnessed the removal—with ceremonial flair—of these three vessels from private circulation, to be offered to the dead as symbols of power. The same occurred for the burial of Tomb IV, where the ideological significance of including three vessels was of enough importance that a third vessel copy (the rough, locally produced black vessel of Tomb IV) was quickly made to complete the set.

Notably, the subsequent revisiting of both tombs suggests their enduring significance within the site's social memory (LeCount 2009; Stockett 2002). At some point in the Late Classic or, more likely, the Terminal Classic (i.e., 400 to 500 years later), both burials were reentered, and objects were removed. This implies that the location and importance of the individuals buried in both crypts was not forgotten in the social memory of Nim li Punit's inhabitants. The reentry of tombs was a common practice at Nim li Punit, often with the aim of removing items for a new dedication. One notable pattern of these re-entries was the removal of digits and teeth, to be placed in small ceramic vessels as dedicatory offerings. Examples of this practice from Nim li Punit are known as dedication offerings to Structure 7 (see Borrero et al. 2016:199). In the case of both Tomb IV and VI, items were also removed (i.e., jade, shell, and possibly lithics), but the Teotihuacan-style vessels were left behind and the individual occupants of the tomb were not treated with the respect due to a revered ancestor. The treatment of the dead in both tombs may be a clear indicator of an intensive change in the political landscape of Nim li Punit and a break with the old system of rulership. Perhaps the type of political and social power represented by these individuals no longer held value by the end of the Classic period.

During the Terminal Classic, we see the most notable shift in form for Structure 6. The front wall of the building was completely removed down to the basal stones, and the patio surrounding the building was torn up to facilitate this removal. An odd, double-sided L-shaped wall was constructed on the northwest corner of the building, which not only changed the floorplan of the building, but also served to restrict the overall visibility of the South Group from the rest of the site (Chapter 5). This shows that a real shift in power occurred during the Terminal Classic, and that the leaders of Nim li Punit were no longer able, or chose not, to maintain a building that had existed since the inception of the city, some 300-400 years before. Not only

was the building left in shambles, but it is very likely that the very stones of this structure were pilfered for site-altering projects, such as the construction of the double-sided L-shaped wall or the major overhaul of Structure 7 into its final form (Braswell 2017). Notably, this is likely the moment when Tomb VI was reentered in what appears to be a looting-style event. This determination is made based on the blatant disregard for the ancestral remains of the high-ranking individual within and the fact that monochrome pottery was ignored. In order to remove the high-value objects, parts of the remains were unceremoniously left outside the tomb. This activity serves as a support for the theory that the status of this individual, and likely their descendants, had greatly diminished by the time of the Terminal Classic. If this interpretation is valid, the dismantling of Structure 6 could also be attributed to its symbolic significance. The structure itself might have embodied the Early Classic authority and power associated with the occupant of Tomb VI. By deconstructing it, the Terminal Classic inhabitants of Nim li Punit may have intended to symbolically dismantle that very authority.

Turning my attention to the West Group, we are presented with a different case regarding the manifestation of power and social organization at Nim li Punit. Structure 50 and the entire West Group were constructed as part of a monumental expansion of Nim li Punit at the very end of the Classic Period, with only a very short period of occupation (Chapter 6). This explosion in construction at the site lines up with the rulership of Lord *Mo' JGU*, from AD 790, who we see depicted on Stelae 14 and 21 (Chapter 2.8: Special Topic). Notably, he presents himself on these stelae as a holy lord performing the scattering rituals of his predecessors, but with three key breaks from the tradition outlined by the Late Classic kings of Nim li Punit: (1) he holds a *K'awil* scepter of royalty, (2) he is performing a dancing ritual in addition to the scattering ritual, and (3) he is the lone figure depicted on the monuments. To me, these are all strong

indicators that the idea of divine rulership at Nim li Punit had become more deeply centered on the king alone. To legitimize his rule and exert his authority, Lord *Mo' JGU* resorted to more ambitious displays of power. My research in the West Group was able to test Jamison's (2001) hypothesis that this area was reserved for public ceremony, as opposed to being an area of habitation. Structure 50 has shown itself to be part of an elite household and it is reasonable to think that most of the other buildings in this group served a similar purpose. I propose a revised hypothesis for this area, one centered on expanded occupation at the site.

Prior to the Terminal Classic period, the West Group plaza area appears to have been sparsely populated, likely by commoners. This is evidenced by the lack of substantial residential structures found during the 2009 TRIP test-pitting project (Braswell et al. 2010). The burials unearthed during this investigation were most likely the remains of these inhabitants. When the ambitious and large-scale West Group Plaza construction commenced in the Terminal Classic, it seems these earlier burials were incorporated into the plaza's footprint (at least one of the bodies encountered was a disarticulated secondary burial; Braswell et al. 2010:172). The rapid and extensive nature of this construction project suggests a significant shift in this area's use, transforming it from a space of commoner habitation to a grand plaza for elite habitation. Structure 50, a relatively large domestic residence, was part of this Terminal Classic construction project.

The general floorplan of Structure 50 remained relatively unchanged throughout the end of occupation at Nim li Punit, but it did suffer some damage and attempted repair. In the early Terminal Classic, perhaps when Structures 6, 7, and 8 were damaged, the northern front wall and eastern sidewall of Structure 50 collapsed (Chapter 6). This type of damage is seen across the excavated platforms of Nim li Punit, and likely relates to an event that affected the site, such as

an earthquake (Braswell 2020:114). The owners of the building were not able to make the necessary repairs, and Structure 50 was not remodeled and rebuilt. Instead, a series of three shoddy walls, meant to hem-in the construction fill spilling from the core of the platform, were added to prevent further collapse. The elite of the West Group were unable to mobilize the labor force and materials necessary to properly repair this building. Notably, though this private structure was not carefully rebuilt, at least two elite buildings in the South Group (Structures 7 and 8) were remodeled and expanded during this time. For me, this is a marker of a loss of personal power for the West Group elite towards the end of the site's habitation.

Structure 50 was the residence of elites who had access to quality goods (Chapter 7; i.e., high-quality chert bifaces, volcanic groundstone from Guatemala, decorated polychromes from central Belize, and a fine serpentine hoe) but not the ability to manifest that power into tangible labor to properly repair their platform when it was damaged. The material culture recovered from Structure 50 (Chapter 7) around the exterior and on top of the platform, show evidence for craft production (papermaking); cooking (consumption of terrestrial and marine resources, *manos*, *metates*, and cooking and storage vessels); leisure (musical instruments and figurines); and other aspects of daily life (tool-maintenance, food-processing, and casual flake production). Of note, the numerous mold-made figurines provide an insight into the worldview of Nim li Punit's inhabitants during the Terminal Classic. Maya ceramic figurines were more than just toys or decorations; they were an important part of Maya culture and religion, used in both public and private rituals and ceremonies. Indeed the ballplayer figurine, shown prominently wearing the Nim li Punit Wind-Jewel on his chest, is a good indicator that this important ritual heirloom was still in use at the site some 178 years after its carving (see Chapter 2.8:Special Topic for discussion of Wind-Jewel plaque and Chapter 7.9 for discussion of the ballplayer figurine).

The construction of the West Group Plaza, likely led by the Terminal Classic elite of Nim li Punit, shows that the inhabitants were able to pool together collective manpower to rapidly construct a new residential area. This shifted elite occupation at the site away from likely the North Group to the West Group. Future excavations into the North Group terraces at Nim li Punit can help complete our understanding of the site's habitation and settlement patterns. It is possible that these emergent elite, likely led by the direction of Lord *Mo'* JGU, tried to usurp power and reinforce a new ideology and sociopolitical order, at minimum creating a clear and sharp break with the political system of the Early Classic leaders of Nim li Punit. These changes, if they occurred, were short lived. The Terminal Classic proved itself to be a final gasp of power by the Nim li Punit elite, but one they could not sustain. By AD 850 they symbolically buried the Nim li Punit Wind-Jewel plaque in the cenotaph Tomb V and vacated the city for the final time (See Braswell 2020:109-111).

8.3 HYPOTHESES TESTED

In Chapter 1, I posed three hypotheses to be tested by the analysis of data from the excavations of Structures 6 and 50 at Nim li Punit, as follows:

Hypothesis 1) Elite Competition and Resource Management

Competition for power and prestige between elites at Nim li Punit may have led to unsustainable resource extraction practices and wasteful public works projects intended to solidify elite legitimacy.

Hypothesis 2) Social Inequality and Political Instability

Growing social inequalities between the architectural groups may have led to social unrest and a decline in social cohesion, trending towards the rise of antisystems (Gumilev 1970), ultimately weakening the Nim li Punit political system.

Hypothesis 3) Breakdown of Interregional Trade Networks and Political Alliances

The breakdown of Maya social and economic networks, established through trade and political alliances with core centers, may have contributed to the decline of individual Maya frontier cities, such as Nim li Punit.

I now test each hypothesis against the findings of this project.

Hypothesis 1) Elite Competition and Resource Management

Competition for power and prestige between elites at Nim li Punit may have led to unsustainable resource extraction practices and wasteful public works projects intended to solidify elite legitimacy.

My project's data provide several lines of evidence to support this hypothesis throughout the occupation of the site, beginning early in its development and foundation. The construction of Structure 6 was part of a set program for the South Group, which was a component of a larger site-wide program to solidify political and hegemonic control of the site. Direct connections were drawn between the South Group and the Stela Plaza, which would be a focal point for ritual activities and political aggrandizement of the divine Nim li Punit lords.

This pattern of competition for power and prestige continued unbridled into the Terminal Classic, as evidenced by the construction of Structure 50 and the entire West Group plaza. Structure 50 was a focal point of domestic activities and represents a large expenditure of resources at the end of the site's occupation. The creation of a new occupation area served to symbolically break from the traditional line of political and social power defined during the Early Classic rulership at the site. Terminal Classic construction projects, both in the South and West Groups, may have been efforts by the Nim li Punit elites to solidify political power and

distinguish themselves from earlier dynastic rule. If the West Group was a concentration of elite residences in a new part of the site, this may indicate efforts to consolidate power towards the end of occupation.

Elite objects such as jade and imported fine ceramics were not readily available to the inhabitants of Nim li Punit and were found in low quantities during our excavations, mostly recovered from burial contexts. In contrast, when we consider iconographic elements, we find that the Late Classic and Terminal Classic kings of Nim li Punit chose to portray themselves as richly adorned in jade pendants, bracelets, belts, and large luxurious feathers (i.e. Stelae 1, 2, 7, 14, 15, and 21). This portrayal seems to contrast with a reality in which fine exotic goods were in short supply and came to the site only occasionally. The competition for prestige amongst the Nim li Punit elite may have led to the repurposing of exotic goods in the Terminal Classic, as indicated by the looting-style events at the Early Classic Tombs IV and VI.

The massive construction projects, coupled with extended droughts during the Terminal Classic and the blatant disregard for Early Classic traditions, led to a process of societal unravelment that ultimately resulted in abandonment.

Hypothesis 2) Social Inequality and Political Instability

Growing social inequalities between the architectural groups may have led to social unrest and a decline in social cohesion, trending towards the rise of antisystems (Gumilev 1970), ultimately weakening the Nim li Punit political system.

The data from my project fails to definitively reject or support this hypothesis. It does provide us with some lines of inquiry for future research on the topic. I draw upon the construction of the West Group, and the concentration of elite residences in a portion of the site

that saw little occupation throughout the Classic, as evidence of shifting patterns in political and social control at the site. This may indicate that new elite families were gaining ground in the control of Nim li Punit during the Terminal Classic, but currently this cannot be determined with any level of certainty. Further excavations into the West Group may change this, but when considering the data from the test-pitting program and my excavations of Structure 50, it appears the West Group area only saw significant labor investment during the Terminal Classic. This could stand as evidence that some fraction of Nim li Punit's residents were decidedly setting themselves apart from the rest of the population. We require more extensive data from the North Group terraces to truly understand the nature of site-wide occupation and settlement.

The limitations of data derived from only two structures at Nim li Punit make it difficult to fully test my second hypothesis, but they do point in a particular direction. For most of the site's occupation, political power was centralized firmly in the South Group. Though there were expansions made to this group's architecture, the overall layout and planning remained stable through the Early and Late Classic. It is difficult to make claims about the presence of antisystems at Nim li Punit, but if they did arise they would have done so during the Terminal Classic. The data from the site paint a picture of great change in the last 50 years before site abandonment. The addition of an entirely new residential group points to a segment of society that desired a break with the traditional social structure. Shifts in diet and economy reveal a society struggling to adapt to a changing ecological and political environment. Alterations to several buildings, especially in the form of low-lying walls, imply that changes were made to social access across the site. Finally, the looting of Tomb VI and the dismantling of Structure 6 serve as one of the final markers that the system of power that had been in place at Nim li Punit throughout the Classic period had been overthrown and rejected. This singular display of revolt

may be the clearest evidence we have that the position of privilege that had been enjoyed by the elite nobles of Nim li Punit had ended, culminating in the abandonment of the site sometime after AD 830.

Hypothesis 3) Breakdown of Interregional Trade Networks and Political Alliances

The breakdown of Maya social and economic networks, established through trade and political alliances with core centers, may have contributed to the decline of individual Maya frontier cities, such as Nim li Punit.

The data provide moderate evidence to support this hypothesis for Nim li Punit. SBR archaeological data offer an intriguing perspective on its potential role within the Maya world, particularly when examined through the lens of core-periphery theory.

During the Early Classic period, the SBR exhibited some characteristics of a frontier zone. The sparse population density, with Uxbenka and Nim Li Punit as the only major settlements, suggests the region may have been on the periphery of the Maya world's core at this time. I have argued in Chapter 2 that it was likely the rich agricultural land and a wide variety of natural resources that motivated the colonization of the SBR during the Early Classic. The presence of six Teotihuacan-inspired vessels in Tombs IV and VI highlight an early association with a network of ideas regarding markers of prestige and divine rule. Obsidian from the Ixtepeque source in Guatemala and imported chert macro-blades from northern Belize indicate that Nim li Punit was already participating in larger interregional trade networks outside the SBR. To do so, the site leaned heavily on far-flung political connections and alliances; these relationships manifested in the ability to derive elite goods in the form of trade and gifting exchange (i.e., imported polychrome wares, jade and serpentine, shell beads, obsidian, and

imported high-quality chert). These elite goods were then presented publicly, in rituals performed by leaders to demonstrate their right to rule. These leaders then mobilized this power in the form of labor control, building the architectural core of Nim li Puni; namely, in the construction of the pyramidal structure, ball court, public plaza, and the elite residential groups, as well as in the carving and erection of numerous stelae. The presence of a council house for the entirety of site occupation implies that political control was shared between the various rulers and a guiding council of local leaders, likely derived from the heads of the elite families of Nim li Punit. This style of political control through cooperative rulership is likely typical of state-level Late Classic cities.

There are hints of a potential shift for the SBR during the Late Classic Period. Significant population growth, the expansion of settlements, and major construction projects were undertaken during this period at the sites of Lubaantun and Pusilha, suggesting increasing social complexity within the region. Each Maya polity individually presented itself as a royal seat for an *ajaw*, a Maya “lord,” who controlled their own political and economic decision making. The reality may have been much more fluid, with several smaller centers such as Nim li Punit serving as vassal states for larger, more powerful regional centers. Epigraphic evidence from the jade Wind-Jewel plaque highlights potential connections between Nim li Punit and foreign kings, such as *Jaanab Ohl K'inich*, and with distant sites, such as Cahal Pech and Caracol. Epigraphic evidence from Pusilha suggests a potential rivalry with Nim li Punit and its allies. Notably, a captured individual depicted at Pusilha is identified as being from the unknown “b'ahlam site,” which is also the origin of at least one Nim li Punit queen. Furthermore, the close ties between Altun Ha and Nim li Punit—as evidenced in the monuments of *B'ahlam Te'* (Stela 2)—combined with the documented military conflicts between Pusilha and Altun Ha (Stela D and P;

Prager 2014), suggest a possible extension of this rivalry to include Nim li Punit and Pusilha. Additionally, the textual and iconographic evidence also show strong ties to the southeastern portion of the Maya world, especially with the major sites of Copan and Quirigua. The use of the *Ek Xukpi* title, along with styles of dress such as the turbaned headdresses and direct textual references to overlordship by representatives of Copan and Quirigua, all provide evidence of a strongly connected political world for Nim li Punit's lords during the Late Classic. In terms of diagnostic imported ceramics Nim li Punit was operating within traditional Tepeu I and Tepeu II ceramic spheres, importing polychrome plates and vases from the Peten and central Belize to the north (Stroth 2024). Additionally, the potential role of the SBR as a source of resources for established Maya centers aligns with the core-periphery concept, wherein peripheries are seen as providers of raw materials or finished goods.

The Terminal Classic saw an overall contraction of the Nim li Punit network and a loss of political alliances. Structure 6 has architectural evidence of a double-sided L-shaped wall (Feature F.6/42Y/2) from the Terminal Classic, which not only changed the shape of Structure 6's floorplan but was also part of a larger program to reshape the South Group overall (Chapter 5). There is a possibility that this served as part of a defensive structure at the site, which would be a good indicator of political turmoil and increased attacks towards the end of occupation, but ideally there would be additional evidence of this, such as clearer signs of militarism. Instead, it is more likely that this was a part of an overall project to alter access, both physically and visually, to sacred and important areas of the site. Perhaps rituals became more secluded towards the end of occupation. Another theory is related to environmental challenges faced by the site's inhabitants towards the end of occupation. If they were suffering from a series of long-lasting droughts in the Terminal Classic, perhaps the strange architectural additions—including low-

lying walls spanning between buildings (i.e., Chapter 5 F.6/32X/1)—were an effort at water-control and catchment systems to provide portable water to Nim li Punit’s inhabitants. The abandonment of major centers in the SBR alongside the broader Maya collapse suggests a complex transformation rather than a simple decline. While core-periphery dynamics might have played a role, the specific causes of the collapse involved multiple factors, including environmental changes, political instability, and social unrest.

Core-periphery theory provides a helpful framework for analyzing the SBR's development, but it's important to recognize its limitations. The SBR may not have been a static frontier, and its relationship with core areas might have been more dynamic and multifaceted. Further research is needed to understand the extent of the interaction and resource exchange between the SBR and established Maya centers throughout these periods. Additionally, while this analysis focuses on the SBR's potential relationship with core areas, internal political and social dynamics within the SBR also likely played a significant role in its development and eventual transformation.

8.4 RESTATEMENT OF RESEARCH GOALS

At the onset of this project, I had questions about the speed of the collapse of Nim li Punit. To restate my research question: In what ways do the processes of state-level collapse, abandonment, and transformation, affect the social organization and distribution of political and economic power across a state-level city center in the SBR?

The Terminal Classic period constitutes a very short time span, “roughly three times less than either the preceding Classic, or the succeeding Postclassic period” (Morris et al. 2007:3). The data from our excavations at Nim li Punit so far suggest that the collapse was a quick affair

in the SBR. Within a single lifetime, the site was depopulated and abandoned, not to be occupied again.

Despite the short time frame, the evidence I presented shows that it was a dynamic period filled with drastic changes and transformations within the political, economic, and social realms. There are many factors that contribute to the collapse and desertion of a site. From the faunal evidence, we noted an increase in the use of marine resources as a part of the diet of Nim li Punit's inhabitants during the Terminal Classic. This indicates a very active network of exchange with the coast during the Terminal Classic. Coastal studies have shown that these sites were under threat from rising sea levels, so how long these networks remained functional is another question. Studies from the area have shown that, like much of Mesoamerica at this time, southern Belize suffered from protracted droughts (Kennett et al. 2012). While the exact impact of these droughts on Nim li Punit's agriculture remains unclear, the inhabitants demonstrably attempted to mitigate it by supplementing their diet with other harvestable resources. (e.g., marine and freshwater resources, big game, local flora).

For roughly 500 years, the power wielded by the rulers of Nim li Punit was one founded on outward connections. This expression of power and the right to rule by the leaders of Nim li Punit changed over time. In the Early Classic, social status was derived through economic networks with major sites from other regions, which was mainly expressed through the display of exotic goods (e.g., decorated ceramic wares, eccentric lithics, jade). In the Late Classic, epigraphic evidence shows that rulers of Nim li Punit closely connected their rulership with the rulers of other major sites. The high lords of these cities participated in and bore witness to important rituals and the ascension of Nim li Punit's rulers. During the Terminal Classic, as the great Maya sites of the Peten core and surrounding regions began to fall, these ties also began to

sever (see Demarest 2004; Martin and Grube 2000; Sharer and Taxtler 2006). The inhabitants of Nim li Punit were forced to turn their view increasingly inwards, to southern Belize and to central Belize to the north. These new connections were not sufficient to maintain the existing hierarchy and alterations were made at the site to adapt to a changing world; the change could not be ignored or overcome.

How does Nim li Punit compare to the greater SBR and the other regions of the Maya world? Interactions between the Maya frontier of southern Belize and the major centers of the heartland during the Classic Period may have stimulated political and economic development in the area. These periods of alliance or control led to an expansion and development of the region, with an increase in construction.

During the Terminal Classic, the inland SBR was abandoned and depopulated. The responses from each site to the period's numerous issues were not homogenous. Change occurred differently in various places and at various times. One overall pattern was a shift in trade networks away from southern Peten during the Late Classic. Then, during the Terminal Classic, pottery from western Belize begins to dominate the assemblage (Belize Red ; Braswell et al. 2005); this shows that southern Belize was forced to adapt to new exchange networks. Regional models of eighth-century political power between sites became increasingly decentralized, as we see the participation of subordinate lords featuring more prominently in political affairs (i.e. Fash and Stuart 1991; Schele 1991; Stuart 1993). This pattern is also followed at Nim li Punit, where the leaders connected their rulership to the patronage of higher rulers from other sites (i.e., Stela 21). Also notable was the rise of new secondary centers, such as the southern Belize sites of Pusilha, Lubaantun, and possibly Xnaheb, during this time. The rise of new city-states during the eighth and ninth centuries may have put increased strain on

established tributary and exchange networks (Morris et al 2007:9). This power sharing affected powerful centers such as Caracol of Belize and Naranjo of Guatemala (Martin and Grube 2000). Both sites initiated programs of militarization and political restructuring during the Terminal Classic, in an attempt to combat the balkanization of power. Artifact assemblages from these sites show similarities in Terminal Classic strategies deployed regionally to tackle issues of consumer acquisition (Chase and Chase 2004).

Southern Belize was host to an architectural tradition that differed from those of other regions within the Maya area. Recent investigations from southern Belize sites have yielded examples that show this tradition changed during the Terminal Classic. This includes alterations to site layouts, the deliberate dismantling of structures, looting of burials, shoddy repairs to once-elite buildings, the construction of new habitation areas, and the repurposing of buildings that once had religious significance. To me these changes are all indicative of the resiliency and willingness of the inhabitants of Nim li Punit to make the necessary changes to extend the use of their settlement in the face of broader social, political, and environmental pressures.

8.5 CONCLUSIONS: SA INCH'OOL

Decades of scholarly research into the Classic Period Collapse of the Ancient Maya pinpoint a confluence of environmental, political, and warfare-related factors as primary contributors to this societal breakdown. Climatic stresses, particularly prolonged droughts, significantly undermined agricultural productivity, leading to food shortages and heightened competition for resources (Douglas et al. 2015). The cultural reaction to a period of severe drought, which peaked around AD 750-850 and wreaked havoc in the southern Maya lowlands, may have worsened the situation (e.g. Evans et al. 2018; Kennett and Hodell 2017; Lucero et al. 2017). Concurrently, political fragmentation, exacerbated by intensifying elite rivalry and

warfare, further destabilized the region. As city-states vied for dominance, the increased militarization and frequent conflicts drained resources, compounding the stress on already fragile socio-economic systems (Aimers 2007). The Terminal Classic shows clear evidence of increased warfare and fortification, which significantly contributed to the sociopolitical landscape and eventual decline of the Maya (Rincon 2007:335). Archaeological findings indicate that many Maya sites, previously open and accessible, began to incorporate defensive structures such as walls and ramparts during this time (Rincon 2007). For instance, at the site of Aguateca, excavations revealed a fortified palace compound and evidence of a rapid, violent abandonment, suggesting intense warfare (Bazy and Innomata 2017). Similarly, the construction of walls around cities such as Dos Pilas underscores the heightened need for defense, reflecting a region under siege (Demarest et al. 1997). These fortifications, coupled with the presence of weapons and war-related imagery in art and inscriptions, underscore the pervasive impact of conflict and militarization on the Maya during the Terminal Classic period (Early 2023). This combination of environmental adversity and human conflict created a feedback loop that the Maya infrastructure could not withstand, culminating in their dramatic societal decline during the eighth to ninth centuries.

There are several material correlates from the archaeological record that are universal indicators of this transition. These include the conclusion of building programs for elite spaces, a halt in the erection of monuments associated with dynastic texts and the iconography of rulership, as well as migrations and the movement of large numbers of people coupled with the depopulation of Classic city centers (Chase and Chase 2004; Demarest 2013, Webster 2002). All these processes were occurring at Nim li Punit at the onset of the Terminal Classic and were completed by AD 830-850 at the latest.

The *longue durée* perspective afforded by archaeology allows us to explore the full trajectory of early state-level societies, from their initial formation and expansion through to their collapse, and in some cases, reorganization and reconstitution. My work focused on an understudied portion of this process, the moments leading up to collapse and abandonment, and explored the effects of state-level collapse at the site of Nim li Punit, an ancient Maya center in the SBR.

My excavation of two platforms at Nim li Punit expands on broader archaeological topics of shared regional identity, long-distance exchange networks, regional control over raw material sources, and the distribution of local and foreign goods. I have shown that throughout the Classic period there was a dynamic interplay between local and regional forces. I presented several theories relating to how the site of Nim li Punit was governed and highlighted shifts in political power made in the moments leading up to abandonment.

I believe that this data from a Mesoamerican frontier center has made a modest contribution to broader anthropological discussion of social life during and after collapse (Eisenstadt et al. 1988, Schwartz and Nicholas 2010). Just as environmental stresses and political instability contributed to the Maya decline, similar factors have been observed in the collapses of empires and civilizations worldwide. My research at Nim li Punit not only illuminates the specific dynamics at play in the Maya collapse but also offers valuable insights for understanding these universal patterns of societal disintegration.

The data from Nim li Punit, a lesser-studied frontier center, provides valuable details of how these broader societal processes unfolded within a specific Maya context. This nuanced understanding enriches our knowledge of the Maya collapse and contributes to a more comprehensive picture of this pivotal period in Mesoamerican history. While the Classic Period

Collapse marked the end of ancient Maya habitation in the SBR, the resilience and adaptability of the ancient Maya overall fostered new cultural expressions and political formations in other regions of the Mesoamerican world, laying the groundwork for the enduring legacy of the Maya civilization that survives to this day.

Appendix I DESCRIPTIONS OF LOTS

STRUCUTRE 6

EXCAVATION UNIT 6/46Y

This 2 x 2-meter unit is located 1 meter north of the double-sided L-shaped wall (F. 6/42Y/2) and 2 meters east of the east-facing wall of Structure 7a (F. 5/44W/2). It was dug in one lot, Op. 6/46Y/1. The purpose of this excavation unit was to clear overburden from the patio surrounding Structure 6 to create a drain for the north plaza area. This unit was approximately 8 cm deep.

Lot 1: The soils were dense O- and A-horizons with persistent vegetation. We exposed the patio floor (F. 6/42Y/1) but no other relevant features. We recovered 56 ceramic artifacts, 2 chert artifacts, and 2 fragments of 2 smooth jute shells.

EXCAVATION UNIT 6/36W

This 2 x 2-meter unit is located in the southwestern corner of the structure 6 stair block and included excavations into portion of the patio surrounding the stair block (F. 6/36W/1). This unit was dug in two lots, Op. 6/36W/1, and Op. 6/36-38W/2. The purpose of this excavation unit was to expose the stairblock of Structure 6 and a search for the patio floor surrounding this building. This unit was excavated in one complete lot and a partial extended lot that expanded out to 38W. This unit was approximately 28 cm deep.

Lot 1: This lot was excavated in order to remove overburden O and A horizon soils with the goal of exposing and defining the stair block feature (F. 6/36W/1) of Structure 6. The excavations revealed the lowest southwest corner tread of the stair block as well as a series of stacked stones that were interpreted as second and third steps of this feature. A second important goal was to reveal the patio floor to the west of Structure 6. Unfortunately this was not found.

We expected to find traces of plaster on top of white ballast stones, themselves above boulders of patio fill. Instead an A horizon soils at the base of F.6/36W/1 stair contained downward grading clayey soil. No trace of a patio floor or sub-floor was found, although we did encounter traces of plaster. We ceased excavation of this lot about 20 cm below the level of the bottom tread/riser as boulder patio fill began to be exposed. The problem of this excavation unit as to where is the patio floor or subfloor, will be discussed in our conclusion below. We recovered 284 ceramic artifacts, 12 obsidian artifacts, 16 chert artifacts, 1 Conch shell, and 2 faunal remains.

Lot 2: This is a wall cleaning lot for the collecting of artifacts encountered during the process of consolidation of the western stair block (F.6/36W/1). This was composed of construction fill that was not sealed. Of note a large ceramic sherds of an incense burner were encountered it was not complete. We recovered 172 ceramic artifacts, 4 obsidian artifacts, 13 chert artifacts, and 1 faunal remain.

EXCAVATION UNIT 6/38W

This 2 x 2-meter unit is located off-mound west of the stair block collapse. The purpose of this unit was to remove overburden and reveal patio floor or surface surrounding the stair block (F.6/36W/1). This unit was excavated in one lot at a depth of roughly 24 cm.

Lot 1: This lot removed overburden and revealed a mostly sterile A horizon with very few artifacts throughout. This exposed the northern end of the western stair block of structure 6. This lot was taken down to a level in line with 36W to the south. No patio surface or any other living surface was preserved in this unit. We recovered 129 ceramic artifacts, 3 obsidian artifacts, and 15 chert artifacts.

EXCAVATION UNIT 6/36X

This is a 2 x 2-meter unit located on top of Structure 6, directly above the western stair block (F.6/36W/1). This unit was excavated to clear surface and expose platform walls and fallen stones. This unit was excavated in one lot, Op.6/36X/1. This unit was excavated in one lot at a depth of roughly 61cm.

Lot 1: This lot was opened to remove overburden from the top of Structure 6 and reveal the remaining architecture, specifically the easternmost portion of the stair block (F.6/36W/1). It revealed clay, some small ballast stones and larger stones, a few of which are located in the eastern half of the unit, they are part of the western wall of Structure 6. This western wall ran roughly 25 degrees East of magnetic North. We encountered two ash deposits within the layer of clay (possibly marking construction fill) in the Northeastern half of the unit, were also several roots and root holes encountered, so the ash could have been burnt vegetation but this was not clear. The excavation of this unit was terminated at the level of these deposits. Our interpretation for this unit is that we were potentially excavating through the surface of the mound into construction fill located behind the Stairblock. The fill represented by thick clay was potentially disturbed. We recovered 123 ceramic artifacts, 7 obsidian artifacts, and 4 chert artifacts.

EXCAVATION UNIT 6/38X

This is a 2 x 2-meter unit located on top of Structure 6, directly above the western stair block (F.6/36W/1). This unit was excavated to expose the north end of the stair block (F.6/34W/1) and the west wall of the platform. We had three excavation goals for this unit (1) expose F.6/36W/1 western stairblock, (2) locate and expose the western wall of the platform, (3) locate the plaza floor) surrounding structure 6. Of these goals we were able to accomplish the

first two. This unit was excavated in two lots, Op.6/38X/1, and Op.6/38X/2. This unit was excavated in one lot at a depth of roughly 70 cm.

Lot 1: Excavating through overburden this lot revealed the northern extension of the stairblock feature (F.6/34W/1) the northwest corner of this unit was mostly comprised of overburden and possibly some construction fill. The eastern edge of the unit was made up of collapsed stones likely from the top of structure 6. Several small ballast stones were encountered but no single floor. Some rocks appear to be floating and might have fallen on thick clay fill rather than ballasts. From here we opened units to the east (6/38W/1) and south (Op.6/36Y/1) to expose more architecture and identify the living surface/ plaza floor. We recovered 159 ceramic artifacts, 5 obsidian artifacts, 8 chert artifacts and 1 conch shell.

Lot 2: This lot was used to remove all of the fall from the eastern half of the unit and expose the plaza floor surrounding structure 6. This lot was comprised of wall fall and some disturbed slump fill as well as solid fill. Mostly thick yellowish clay throughout. The purpose was to expose the west wall of structure 6, but this was not accomplished as it appears that the west wall was removed in antiquity. We recovered 85 ceramic artifacts, 1 obsidian artifact, and 4 chert artifacts.

EXCAVATION UNIT 6/34Y

This is a 2 x 2-meter unit located on top of Structure 6 mound, 1 meter east of the southeast corner of Str. 6 stair block (F.6/34W/1) and 2 meters south of the Str. 6 centerline. This unit was excavated jointly with Op.6/32Y/2 and the material recovered from this unit was joined to it. This unit was excavated in one lot, Op.6/34Y/1. This unit was excavated in one lot at a depth of roughly 90 cm.

Lot 1: This lot and that of Op.6/32Y/2 were excavated together they comprised of wall fill located between the two southern walls F.6/32X/1 the southern wall of Str.6 and F.6/32Y/1 and the south facing wall extension of Str. 6. We discovered that F.6/32X/1 continues eastward through the unit into 34Z. there was the remains of a cohune tree in this unit, this is an area were the majority of the wall is missing. We were able to uncover some base stones of the wall *in situ*. There is patio flooring throughout this unit with plaster preserved at the base of the wall covering the base stones but not going under it. The sediments of this unit were overburden and wall fall and fill. The top portion of the unit contained loose soils further down was rock fill and at the bottom it had the organized appearance of being purposely filled with large fill stones. We recovered 155 ceramic sherds, 4 obsidian artifacts, 16 chert artifacts, 1 chert point, and 1 faunal remain (shell).

EXCAVATION UNIT 6/36Y

This is a 2 x 2-meter unit located on top of Structure 6 mound, 2 meter east of the southeast corner of Str. 6 stair block (F.6/34W/1). This unit was excavated in two lots, Op.6/34Y/1 and Op.6/34Y/2. This unit was excavated in one lot at a depth of roughly 79 cm.

Lot 1: This lot was opened in order to remove overburden and expose the interior architecture of Structure 6. The unit was comprised of loose soils that gave way to a hard yellow clay compacted amongst fill stones. We halted excavation of this lot around a level where we encountered a burning feature throughout the majority of the unit (F.6/36Y/1). This layer contained large amounts of charcoal and ash and is associated with a temporary floor or living surface in the eastern half of the unit. We recovered 148 ceramic sherds, 6 obsidian artifacts, and 13 chert artifacts.

Lot 2: This lot removed more of the interior construction fill of Structure 6 with the purpose of arriving down to patio floor. At a 100 cm of depth was the encountered burning episode located throughout the unit (F.6/36Y/1) the burning noticeably affected the clay within the unit as well. The charcoal had chunks that were large enough to retain the shape of vegetable matter. Towards the eastern end of the unit at this depth we encountered the possible remains of a living surface (floor?) associated strongly with the burning. A small ceramic vessel was placed on top of this surface at a depth of 123 cm (F.6/36Y/2), it would later on become obvious that this ceramic offering was part of Tomb VI (F.6/36Z/1) and would be added to its catalog. This unit was halted at an arbitrary level, no patio floor was encountered. We recovered 294 ceramic artifacts, 9 obsidian artifacts, 25 chert artifacts, 1 package of human bones, a package of charcoal for dating, 3 faunal remains, and 15 geofacts.

EXCAVATION UNIT 6/38Y

This is a 2 x 2-meter unit located in the southwest corner of unit is 1 meter south of the northern side of stair block from structure 6 (F.6/34W/1); and 2 meters north of Structure 5 center line. The purpose was to remove overburden and reveal architectural wall fall. This unit was excavated in one lot, Op.6/38Y/1.

Lot 1: This lot exposed the fallen architecture from the north side of structure 6. We excavated through O and A horizon. We recovered 177 ceramic artifacts, 3 obsidian artifacts, 26 chert artifacts, and 2 faunal remains.

Lot 3: This lot was opened for the collection of artifacts encountered during the process of consolidation of the west face of structure 6. The context was construction fill. We recovered 58 ceramic artifacts, 2 chert artifacts, 1 ceramic figure (frog shaped), 1 ecofact, and 2 faunal remains.

EXCAVATION UNIT 6/34Z

This is a 2 x 2-meter unit located on top of Structure 6 mound, 2-4 meters north of the south facing wall (F.6/32Y/1) and straddling F.6/34X/1 the south facing wall of Str. 6. This unit was excavated to reveal the eastward continuation of both southern walls of Str.6. This unit was excavated in one lot, Op.6/34Z/1. This unit was excavated in one lot at a depth of roughly 20 cm.

Lot 1: This lot was excavated to remove the overburden and wall fall from on top and side of Str.6 to reveal the eastern continuation of both southern wall features. The sediments were composed of Overburden that were not sealed, the context was soft sediments very Dark Grayish Brown (10YR 3/2) amongst fill stones. The excavation revealed fill stones and potential stones from the top of the platform of str.6 but no discernable pattern was identified. We recovered 62 ceramic sherds, 4 obsidian artifacts, and 7 chert artifacts.

EXCAVATION UNIT 6/36Z

This is a 2 x 2-meter unit located on top of Structure 6 mound, 4-6 meters east of stair block (F.6/34W/1) of Structure 6 on top of the mound. This unit was excavated south of Tomb VI to gain a better understanding of the interior construction of Str.6 the desire was to excavate down to bedrock. We wanted to know if the construction of Structure 6 was prior or post the construction of the plaza floor. This unit was excavated in three lots, Op.6/36Z/1, Op.6/36Z/2, and op.6/36Z/3. This unit was excavated in three lots at a depth of roughly 162 cm.

Lot 1: This lot was excavated to remove the overburden and wall fall from on top and interior of Str.6. The sediments were composed of overburden that were not sealed, the context was soft sediments that gave way to brown much harder construction fill and clay. The excavations revealed a great amount of fill stones that from the highest point had a significant amount of mortar preserved in the northeast corner of the unit. A portion of a stone *metate* was

recovered from amongst the construction fill in the unit. We recovered 188 ceramic sherds, 13 obsidian artifacts, and 18 chert artifacts, 1 geofact, and 1 piece of groundstone.

Lot 2: This lot removed the stone fill and clays exposed in the previous lot with the purpose of excavating down to patio floor level. This lot continued with the hard yellowish construction fill clays. The opening of this unit was initiated in order to pursue the northern extent of what at the time was a vessel offering (F.6/36Y/2) this feature extended northward and eastward into unit 38Z and was connected to the overall burial of Tomb VI. During excavation we identified a potential secondary crypt in the north east portion of the unit, this portion was left unexcavated at the time, to be fully opened in conjunction with the excavation of 38Z lot 1. This would be revealed to be part of Tomb VI that was disturbed in antiquity. This Lot was halted at the same level as Lot 2 of 36Y. in order to fully explore the features located within the construction fill of Structure 6. The fill yielded many artifacts that appear to be trash from a residence and some of the artifacts have evidence of burning. We recovered 472 ceramic artifacts, 13 obsidian artifacts, 1 spiky whole jute, and 1 possible game piece.

Lot 3: After the excavation of Tomb VI, this unit was continued with the purpose of arriving at either bedrock or patio floor. The removal of interior construction fill and stones revealed several shifting colorations of stratigraphy within the structure. Soils of 10YR 4/4 Dark Yellowish Brown, gave way to 10YR 5/4 yellowish brown Clay with fill stones, gave way to 5 YR 5/6 yellowish Red Clay with no fill stones, which gave way to 2.5 Y 6/3 light yellowish brown clay with no fill stones. This was determined as the bottom of the unit, as time did not permit further excavation, neither patio floor or bed rock was encountered. We believe we were able to excavate some 50 cm below the depth of the bottom step/tread of Structure 6 Stairblock (F.6/34W/1) and prove that there was no patio floor beneath Structure 6. This would imply that

Structure 6 predates the construction of the overall plaza construction for the South Group thus making it one of the oldest buildings located in this group. We recovered 131 ceramic artifacts, 6 obsidian artifacts, 5 chert artifacts, 1 smooth whole jute, 3 smooth jute fragments, and 16 faunal remains.

EXCAVATION UNIT 6/40a

This 2 x 2-meter unit was placed half a meter south of the north-facing wall of Structure 6 (F. 6/42a/1). This unit was excavated to follow the course of a possible east-facing wall. It was dug in one lot, Op. 6/40a/1. This unit was excavated in one lot at a depth of roughly 28 cm.

Lot 1: We dug through dark O- and A-horizon with persistent vegetation, which transitioned to thick clay as we went deeper. We exposed the fallen architecture immediately below the surface, but the eastern wall was not revealed. It is possible it collapsed eastward down the side of the hill. The east side of the mound was neither a priority for analysis nor reconsolidation, and so the lot was closed. We recovered 92 ceramic artifacts, 3 obsidian artifacts, 19 chert artifacts, including a blade and biface fragment, and 1 faunal remain.

EXCAVATION UNIT 6/38Z

This is a 2 x 2-meter unit located 4 to 6 meters east of the northeast corner of stair block of structure 6. This unit included the Tomb VI encountered this field season. It was excavated in three lots, Op.6/38Z/1, Op.6/38Z/2, and Op.6/38Z/3. These units were opened in order to investigate a crypt burial located within the construction fill of the interior of structure 6. The units opened in this section were excavated with three motives. One to remove overburden and reveal the remaining architecture from the top of the mound. Second to excavate and expose the remains of the burial. And third to excavate beyond the crypt feature to investigate the interior of structure 6. This unit was excavated in three lots at a depth of roughly 52 cm.

Lot 1: This lot served the purpose of removing the overburden to reveal the remaining architecture from on top of Structure 6 and removal of fill to reveal the northward continuation of F.6/38Z/2 which at the time we thought to be a possible 2nd crypt but was instead parts of the disturbed Crypt. The soils in this unit were comprised of a thin O horizon followed by A and B Horizon, soft soils gave way to harder clay as excavation proceeded. This lot was is equivalent to lots 1 and 2 for units 36Y and 36Z. During excavation we recovered F.6/38Z/1 which is a collection of skull and teeth fragments located in the south west corner of the unit above in vertical space of the crypt Tomb VI. We recovered 432 ceramic artifacts, 21 obsidian artifacts, 28 chert artifacts, 1 tooth fragment, 1 spiky whole jute, and 4 geofacts.

Lot 2: This lot includes the excavation of an elaborate crypt (F.6/36Z/1, Tomb VI) with stones spanning vertical slabs as the walls. This burial was laid out north to south orientation directly along true North. The soils were soft brown B horizon construction fill. The head was lain in the south with feet to the North, two vessels were placed over the feet in a lip to lip fashion (Vessel 1 is a blackware plate with small tripod feet and underneath Vessel 2 was a red dos Arroyos polychrome with painted design and a basal flange). The body was recovered and bagged according to the body parts that could be identified (Bones were in a very fragmentary state). The head was comprised mainly of cranial fragments and the enamel of teeth (2 small jade beads and a jade fragment were recovered in association with the head; F.6/36Y/2). An offering of two vessels in Teotihuacan style were placed at the head of the burial outside the crypt. At the northern end outside of the crypt was another smashed tripod vessel (F.6/38Z/2) and above the burial a blackware plate was encountered (F.6/38Z/4). In addition, we recovered 75 ceramic artifacts, 1 obsidian artifact, 9 packages of human bones, 3 plates, 2 vessel vases, and 5 pieces of jade.

Lot 3: This is a sub-unit lot which opened the possible second tomb located in the East portion of the unit (F.6/38Z/1). This context was sealed by a large cap stones, which are now known to have come from the crypt Tomb VI just to the west, it was comprised of fill stones and fill soft brown sediment that gave way to yellow clay. There was a large collection of green painted shell beads, a single ceramic seated figurine shaped like a Maya lord, a collection of human bones placed a top of a rock. It appears this may have indicated the looting of Tomb VI (F.6/36Z/1) in antiquity. On the surface we could see clear capstones that indicated a feature, we now believe these to be the cast off covering from the crypt Tomb VI. The bone of the individual were placed on a rock to the East of the Crypt. The shell beads were cast to the northeast and the small ceramic *Ahau* appears to have been part of a larger vessel most likely taken in antiquity. We also recovered 271 ceramic artifacts, 12 obsidian artifacts, 17 Chert artifacts, 2 human bone packages, 65 green painted shell beads, 1 ceramic figurine, and 3 faunal remains.

EXCAVATION UNIT 6/38a

This 2 x 2-meter unit was located 5 meters northeast of the stair block of Structure 6 (F.6/34W/1). The purpose of this excavation unit was the removal of overburden from the unit to reveal the eastern extent of the potential crypt feature (F.6/38Z/5) and to reveal the remaining architecture from the top of the mound of Structure 6. It was excavated in two lots, Op.6/38a/1 and Op.6/38a/2. This unit was excavated in two lots at a depth of roughly 52 cm.

Lot 1: The context was not sealed overburden consisting of very thin O horizon followed by a dark brown A horizon of loose soils without clay. We recovered 106 ceramic artifacts, 4 obsidian artifacts, 5 chert artifacts, and 12 faunal remains.

Lot 2: This removed the exposed fallen architecture from within structure to uncover the potential feature. The A horizon soils were still a soft dark brown with few fill stones. The

feature F.6/38Z/5 did not continue into this unit. We recovered 48 ceramic artifacts, 5 chert artifacts, 1 package of human bones, 1 obsidian blade core, and 45 green painted shell beads.

EXCAVATION UNIT 6/32X

This 2 x 2-meter unit is located along the southern extent of structure 6, north of Structure 5's northern wall (F.6/33w/1). It was excavated in 3 lots, Op. 6/32X/1, Op. 6/32X/2, and Op. 6/32XYZ/3. These units were placed on the South side of the Structure 6 mound in an area between Structure 6 and 5 that was spanned by a series of walls and features. The excavations in this area revealed the south-facing wall (F.6/32Y/1). Excavations revealed that the patio floor (F. 6/42Y/1) which did not run under the southern wall of Structure 6. The extent of the patio floor in relation to the northern wall of Structure 5 (F.6/33Y/1) was not determined at this time. The space between these two features create an 'alleyway' like feature located between Structures 6 and 5. There is the potential that the northern wall of Structure 5 (F.6/33Y/1) represents an expansion and raising up of the Structure 5 platform above the original plaza patio floor. Archaeological materials excavated from this area may represent a mixing of artifacts which have fallen down and slumped off of the respective mounds of Structure 6 and 5. This unit was excavated in three lots at a depth of roughly 48 cm.

Lot 1: This lot revealed top of F.6/33W/1 North-facing wall; excavations were carried out down to the patio floor which consisted of cobble ballasts (assigned as F.6/33w/2 at the time of excavation). There were small sections of plaster preserved at the base of the wall intersecting with the patio flooring. The sediment of this lot was unsealed overburden which was a yellowish all clay soils under a thin O horizon organic layer. We recovered 303 ceramic sherds, 12 obsidian artifacts, 28 chert artifacts, 1 packet of faunal remains.

Lot 2: This lot was generated for the assigning of artifacts recovered during wall cleaning behind F.6/32X/1 (southern wall of Structure 6) in preparation of consolidation. Only 65 ceramic sherds were recovered.

Lot 3: This is joint lot shared across three units running along the southern extent of structure 6. It consisted of artifacts gathered during the clearing of wall fill in preparation of consolidation of the southern wall (F.6/32Y/1). The sediment behind the wall consisted of thick clay and soils from not sealed contexts, of brown coloration (7.5 YR 4/3). We recovered 48 ceramic sherds, and 5 obsidian artifacts.

EXCAVATION UNIT 6/32Y

This 2 x 2-meter unit is located along the southern extent of Structure 6, 0-2 meters north of the north facing wall of structure 5 platform (F.6/33Y/1). It is along the southern end of Structure 6 center line from east to west. This unit was excavated in order to remove overburden and reveal the eastward continuation of the north wall of structure 5 (F.6/33Y/1); its purpose was also determine the extent of the southern wall of structure 6. It was excavated in two 2 lots, Op. 6/32Y/1, Op. 6/32Y/2. This unit was excavated in two lots at a depth of roughly 60 cm.

Lot 1: This lot removed the overburden and wall fall and revealed an alley between Str. 6 and Str. 5 lined in an east to west fashion. The relevant features within this unit were that of the North wall of Str. 5 (F.6/33Y/1) which runs along the southern edge of this unit; the South facing wall of Str. 6 (F.6/32Y/1) which makes up the northern extent of this unit; and the patio flooring (F.6/33W/2) down to which excavations in this lot were carried out. The sediments in this unit were a Dark Brown (7.5 YR 3/3) basic brown soils with some ceramics mixed throughout noted as different then the soils encountered as fill within structure 6. We recovered 344 ceramic

sherds, 11 obsidian artifacts, 23 chert artifacts, 1 spiky fragment jute, 7 faunal remains and 1 fish vertebrae.

Lot 2: This lot was initiated to remove wall fall stones and further overburden that was exposed during lot 1. This lot was excavated in conjunction with that of 34Y/1. This excavation revealed standing architecture from the southern wall of structure 6 (F.6/32Y/1) which continues eastward and was first encountered in Op.32Y. The sediment that was excavated from this lot was similar to that of lot 1, a dark brown soft soil. We Recovered 448 ceramic sherds, 13 obsidian artifacts, 22 chert artifacts, 3 smooth jute fragments, and 6 faunal remains. Charcoal samples were also recovered from the base of the southern wall of Structure 6 (F.6/32Y/1) from under a rock on top of preserved plaster of the patio floor (F.6/33W/2) on 9/V/18.

EXCAVATION UNIT 6/32Z

This is a 2 x 2-meter unit located at the southern Structure 6 near the eastern of the mound. The unit is 2-4 meters east of the North wall of Str. 5 (F.6/33Y/1; Figure 2.9). This unit was initiated to expose existing architecture of both Structure 6 and 5 it was excavated in 2 lots, Op. 6/32Z/1, Op. 6/32Z/2. This unit was excavated in two lots at a depth of roughly 81 cm.

Lot 1: This lot was for the removal of overburden to reveal rock fall at the southern end of Str. 6. The overburden sediment excavated in this lot was a soft Very Dark Grayish (10YR 3/2) soils located between the fill stones. The majority of this unit was fill stones and overburden located behind F.6/32Y/1 the south facing wall of Str. 6 which transected the unit down the middle from east to west. The southern end of this unit was excavated around the front of this wall down to patio floor. We recovered 460 ceramic sherds, 15 obsidian artifacts, 29 chert artifacts, 1 package of human bones, 1 limestone bar, 1 jade fragment and 5 faunal remains.

Lot 2: This lot removed wall fall and fill placed between the remainder of the southern walls of Structure 6. This lot was opened to follow the eastward continuation of the South facing walls of Structure 6. F.6/32Y/1 south facing wall of Structure 6 (now known to have been an extension of Structure 6 southward and F.6/34Y/1 south facing wall-sub of structure 6. The purpose of this lot was to reveal the eastern extent of F.6/34Y/1 and define the edge of Str. 6. The sediments from this lot were mix of overburden and fill. The South facing wall-sub of Str. 6 F.6/34Y/1 appears to end about half way eastward into the unit, at this point the unit was not excavated further. We recovered 229 obsidian artifacts, 3 chert artifacts, 12 chert artifacts, 3 smooth jute whole, and 6 faunal remains.

EXCAVATION UNIT 6/42ZYa

This 2 x 6-meter (east-west) unit is located along the north wall of Structure 6 (F. 6/42a/1), which is about half a meter north of the south edge of this unit. This was a cleaning unit for F. 6/42a/1, and was excavated in one lot, Op. 6/42ZYa/3. These units were placed on the north side of the Structure 6 mound, revealing the north-facing wall (F. 6/42a/1). Excavations revealed that the patio floor (F. 6/42Y/1) ran under the wall.

Lot 3: This was a cleaning lot for F. 6/42ZYa/3 prior to consolidation. We recovered 453 ceramic shreds, 14 obsidian artifacts, 22 chert artifacts, 1 whole spiky jute shell, 4 whole smooth jute shells, 6 fragments of smooth jute shell, 14 faunal remains including *Strombus* and other marine shells, and 1 geofact. Ceramic artifacts included a possible candle holder. We took one charcoal sample from the base of the wall, possibly below the patio floor.

EXCAVATION UNIT 6/42Z

This 2 x 2-meter unit is located along the north-facing wall of Structure 6 (F. 6/42a/1), with the north wall approximately half a meter north of the south edge of the unit. The goal of

this unit was to expose any existing architecture. It was excavated in three lots, Op. 6/42Z/1, Op. 6/42Z/2, and Op. 6/42Z/4. This unit was excavated in two lots at a depth of roughly 25 cm.

Lot 1: We removed the overburden to expose architecture, digging through a thin O-horizon and into a dark A-horizon with persistent vegetation. We revealed fallen and slumped rock, but the wall was not yet obvious (and was only exposed in Op. 6/42a/1). We recovered 78 ceramic artifacts, 5 obsidian artifacts, and 9 chert artifacts.

Lot 2: We followed the now-revealed north-facing wall (F. 6/42a/1; Figure 2.18) to expose the architecture. We dug through black A-horizon mixed with some thick yellow clay fill and decayed plaster. We exposed the face of the north wall and east face of F. 6/42Y/2 (double-sided L-shaped wall) as well as the patio floor (F. 6/42Y/1). The patio floor was shown to run under F. 6/42Y/2 and F. 6/42a/1, but the two walls do not interdigitate – F. 6/42Y/2 abuts to the north wall. The northwest corner of Structure 6 was not identified. We recovered 422 ceramic artifacts, 11 obsidian artifacts, 27 chert artifacts, 1 package of human remains, 2 fragments of spiky jute shell, 1 fragment of smooth jute shell, 6 faunal remains, and 1 groundstone artifact. We took one charcoal sample from the patio floor below F. 6/42a/1.

EXCAVATION UNIT 6/42a

This 2 x 2-meter unit is located on the northeast corner of Structure 6. It is the unit in which we exposed the north-facing wall (F. 6/42a/1), which was shown to have been built on top of the patio floor. It was dug in one lot, Op. 6/42a/1. This unit was excavated in one lot at a depth of roughly 48 cm.

Lot 1: We removed the overburden and exposed the northern wall of Structure 6 (F. 6/42a/1), digging through dark O- and A-horizon with persistent vegetation. We exposed the northeast corner of Structure 6, but there was no obvious beginning to an eastern wall. F. 6/42a/1

was shown to run west into 6/42Z and then encounter F. 6/42Y/2 (double-sided L-shaped wall). We dug until we exposed the patio floor in the north (F. 6/42Y/1). We recovered 230 ceramic artifacts, 7 obsidian artifacts, 13 chert artifacts, and 1 package of human remains.

EXCAVATION UNIT 6/42Y

This 2 x 2-meter unit was placed two meters north and one meter east of the west-facing stair block of Structure 6 (F. 6/36W/1). F. 6/42Y/2 runs north from the southern edge of this unit, makes a right-angle in the centroid of the unit, and continues to the east towards Structure 7a. This unit was dug in 2 lots, Op. 6/42Y/1 and Op. 6/42Y/2. These units were placed to the east of Structure 6, focusing on the double-sided L-shaped wall (F. 6/42Y/2) which seemed to have connected at one point or intended to connect to the eastern extension of the south-facing wall of Str. 7a (Op. 5/44W/1). The patio floor runs below both of these wall extensions, and both extensions abut to the walls of their respective structures. This suggests this was a later construction, possibly built out of stones scavenged from the west wall of Structure 6. This unit was excavated in two lots at a depth of roughly 61 cm.

Lot 1: This lot was dug to remove overburden from the fallen architecture within the unit, which we believed at the time to still be part of Structure 6's west or north wall. The soils were a mix of clay fill and O- horizon, with persistent vegetation. We identified patio floor in the north (F. 6/42Y/1), which we believe to be the same as F. 6/33W/1 (patio floor in south) but contiguity between the two features has not yet been demonstrated. We recovered 130 ceramic artifacts, 8 obsidian artifacts, 14 chert artifacts, and 1 package of human remains.

Lot 2: We identified a line of stones and began removing fallen architecture to expose the possible wall feature. The soils were a black A-horizon with less clay fill, as we focused mostly to the south (and exterior) of the wall feature. We determined that this feature, F. 6/42Y/2, was a

free-standing wall with a possible face to the north and south. It extends north past the north-facing wall (F. 5/42a/1). The patio floor ran beneath the feature, providing evidence for a later construction. We recovered 135 ceramic artifacts, 2 obsidian artifacts, 9 chert artifacts, and 5 faunal remains.

EXCAVATION UNIT 6/42-44Y

This 4 x 2-meter (north-south) unit was a cleaning unit for the F. 6/42Y/2 (double-sided L-shaped wall) for the purposes of consolidation. It was dug in one lot, Op. 6/42-44Y/3.

Lot 3: This was a cleaning lot for F. 6/42Y/2. We recovered 436 ceramic artifacts, 23 chert artifacts, 1 whole smooth jute shell, 1 fragment of smooth jute shell, and 11 faunal remains, including *Strombus*.

EXCAVATION UNIT 6/44Y

This 2 x 2-meter unit is located on top of the double-sided L-shaped wall (F. 6/42Y/2) as it runs east-west, 2 meters north of the north-facing wall of Structure 6 (F. 6/42a/1). It was dug in one lot, Op. 6/44Y/1. This unit was excavated in one lot at a depth of roughly 21 cm.

Lot 1: This first lot was dug to remove overburden and expose the extent of the double-sided wall. We dug through dark O-horizon and yellow-brown A-horizon closer to the patio floor (F. 6/42Y/1), with persistent vegetation. We exposed the double-sided wall as it ran to the west, faced to the north and the south. We gave this a new feature number (F. 6/44Y/1, double-sided east-west wall; Figure 2.18), but it was shown to be a continuation of F. 6/42Y/2 after it made a 90 degree turn to the west. F. 6/42Y/2 appeared to continue to the west and connect to Structure 7a, but there was about a meter gap between the two walls – it wasn't clear if it was an intentional gap or if the two structures had indeed been connected in antiquity. We recovered 345

ceramic artifacts, 9 obsidian artifacts, 48 chert artifacts, and 1 faunal remain we believe to have been an ankle bone from a deer.

EXCAVATION UNIT 6/44Z

This 2 x 2-meter unit is located 1 meter north of the north-facing wall of Structure 6 (F. 6/42a/1), with the western edge of the unit parallel to the east face of F. 6/42Y/2. It was dug in one lot, Op. 6/44Z/1.

Lot 1: We removed the overburden to reveal the northern extent of F. 6/42Y/2. The soils were fairly thick brown O- and A-horizons. We revealed many fallen stones from the surrounding architecture in the north of the unit. We demonstrated that the F. 6/42Y/2 and F. 6/44Y/1 were one wall which made a right angle, and was apparently built as a single construction, retaining the name F. 6/42Y/2. We recovered 219 ceramic artifacts, 8 obsidian artifacts, and 18 chert artifacts.

EXCAVATION UNIT 6/34X

This is a 2 x 2-meter meters south of Str. 6 stair block, unit 1-3 north of F.6/33W/1. It was excavated in three lots, Op.6/34X/1, Op.6/34X/2, and Op.6/34X/3. These units were placed along the west side of the Structure 6 mound. These units located the plaza facing stair block of structure 6. Surprisingly we were unable to identify a western wall of Structure 6 with many units rapidly entering construction fill of structure 6. We believe that the wall was disassembled in antiquity. Even the patio floor (F. 6/42Y/1) was dug up so as to remove the basal stones of the wall for Terminal Classic construction events. This unit was excavated in three lots at a depth of roughly 73 cm.

Lot 1: This lot was opened to remove overburden and expose the continuation of patio flooring (F.6/33W/2) south of Structure 6. The sediment of this lot was classified as overburden,

they were brown in coloration (7.5YR4/4) these mixed soils had some artifacts dispersed throughout the context, there was some minimal structural fill in the northeast corner.

Remarkably, patio floor (F6/33W/2) does not extend into this unit. This lot was comprised of wall fall that has slumped westward in three rows. It is thought that these stones may pertain to a south west wall of str.6 but it was not clear at the time of excavation. The wall fall was comprised of good faced stones that may have come from the top of Str. 6. We recovered 124 ceramic sherds, 5 obsidian artifacts, 30 chert artifacts, and 5 faunal remains.

Lot 2: This lot was opened to remove the wall fall stones and slump exposed in lot 1 to encounter the possible southwest wall of Str.6. The sediment of this lot was similar to that of lot 1, some fill at the bottom of the unit but mostly overburden along with wall fall and slump. The excavation of this lot exposed the south facing wall of str. 6 (F.6/33W/2) it meets with the patio floor (F.6/33W/1). Some of the fallen stones preserved a plaster layer above the cobble stones. A ceramic sherd as well as some of the cobbles stones were *in situ* found on top of the plaster flooring. This is interpreted as coming from the ancient removal of some of the patio flooring to the south of structure 6. The plaster that was encountered was noted to lip up onto the base stones of the wall. There appears to be another course of stones of this southern wall that goes beneath the level of the patio flooring. The wall move eastward into Op.6/32Z/2. We recovered 269 ceramic sherds, 6 obsidian artifacts, 25 chert artifacts, and 2 faunal remains.

Lot 3: This lot is a continuation of Lot 2 exposing more of the patio floor and working in particular on the eastern edge of the unit to remove troublesome stones with the intention of revealing a west facing wall, with the purpose of finding the corner with F.6/34X/1 the south facing wall of Str. 6. No obvious west facing wall located during the excavations, it is interpreted that this wall must have been taken down in antiquity. The sediment from this lot was dark earth

mixed with decayed plaster; very little biological material. We recovered 84 ceramic sherds, 6 obsidian artifacts, and 1 faunal remain.

EXCAVATION UNIT 6/40Y

This 2 x 2-meter unit is located on the west side of the Structure 6 mound, 3 meters north and 1 meter east of the stair block (F. 6/36W/1). It was not found to have any features, despite our belief that it contained the west-facing wall of Structure 6 and the patio floor in the north (F. 6/42Y/1). It was excavated in two lots, Op. 6/40Y/1 and Op. 6/40Y/2. This unit was excavated in two lots at a depth of roughly 71 cm.

Lot 1: This lot was opened on what was at the time believed to be the northwest corner of Structure 6 to expose the west-facing wall. We dug through brown O- and A-horizon soils but did not expose any architecture beyond fill. We recovered 297 ceramic artifacts, 15 obsidian artifacts, 28 chert artifacts, 1 greenstone, and 1 faunal remain.

Lot 2: We dug through the fallen architecture. The soils consisted of thick fill clays (A-horizon) with limited vegetation, mixed throughout with charcoal and ballast stones. We pursued the west-facing wall, working south from where F. 6/42Y/2 (double-sided L-shaped wall) abuts with F. 6/42a/1 (north-facing wall). Despite the presence of the clay, which we presumed to be architectural fill, suggesting we were inside the building, there was not wall. We did remove some fallen/slumped stones but no faced stones. A small trench beneath F. 6/42Y/2 and along the edge of the unit revealed neither patio floor nor a basal course of stones. There were many ballast stones mixed within the fill, but no single surface we could call a floor. Our interpretation of the conspicuous absence of a western wall on Structure 6 was that the wall was disassembled in antiquity, with the floor cut into and removed (possibly creating the pile of cobblestones (F. 5/42W/1) in Op. 5/42W/1 to access the basal course of wall stones. Charcoal deposits were

found at the base of the unit near patio level, which Anselmo, one of the site managers, mentioned looked like a cook fire. We took a charcoal sample of the ash in the base of the unit. We recovered 245 ceramic artifacts, 10 obsidian artifacts, 17 chert artifacts, 6 faunal remains (including *Strombus*), and the charcoal sample mentioned above.

STRUCTURE 50

EXCAVATION UNIT 7/14N

This 2 x 2-meter unit is placed on the center of the Structure 50 mound, the southernmost of the units placed along the centerline. It was excavated in five lots, Op. 7/14N/1, Op. 7/14N/2, Op. 7/14N/3, Op. 7/14N/4, and Op. 7/15N/5. Continued excavation revealed several features, beginning with a stone bench (F. 7/14N/1) in Lot 2, a packed earth surface at the base and below the bench (F. 7/14N/2). A deep sounding in an adjacent unit exposed the wall of one of the fill cells used in the construction of Structure 50 (F. 7/14N/3). This unit was excavated in five lots at a depth of roughly 323 cm.

Lot 1: This lot was excavated to remove overburden to reveal any existing architecture. The matrix was overburden was comprised of O- and A-horizon soils (5 YR 2/5 Black) loose among the stones, with a considerable presence of vegetation. The overburden cleared, remaining architecture revealed, the excavator identified a possible feature beneath the stones. The lot was closed. We recovered 22 ceramic sherds, two pieces of obsidian, two pieces of chert, two whole spiky jute shells, and two faunal artifacts.

Lot 2: This lot consisted of clearing the fallen architecture in order to begin documenting the stratigraphic history of the Structure 50 mound. The excavators revealed a stone bench (F. 7/14N/1), three courses high, located in the southern end of the unit. This bench was sitting atop

a soil layer with small stones (F. 7/16P/1), distinct from the construction fill we had removed. We took a charcoal sample from the base of the bench. In total we recovered 76 ceramic artifacts, two pieces of chert, one whole spiky jute shell, two pieces of faunal artifacts, one of which was a crab claw. We also took a 1 L soil sample and a 10 L soil sample for flotation. We also took a 10 L soil sample from under and around the bench (F. 7/14N/1) for flotation.

Lot 3: The purpose of this lot was the removal of the bench feature (F.7/14N/1 stone bench) and construction fill, going deeper into the interior of the building to explore its occupational history. This lot was sealed by a potential living surface (F.7/16P/1), the compacted soil at the foot of the bench like feature. The context for the lot was general construction fill from within the building (7.5YR 3/2 Dark Brown). At this stage the construction fill consisted of large fill stones which were resting atop a layer of brown earth which prompted another lot change. This persisted for roughly 65 centimeters before which we encountered a surface of brown earth (10YR 5/4 Yellowish Brown). Despite this quantity of soil removed, this lot was relatively devoid of artifacts; we recovered only 11 ceramic sherds, two pieces of chert, four whole smooth jute shells, and five faunal artifacts.

Lot 4: The purpose of excavating this lot was to investigate the layer of earth beneath the construction fill, from which we took a 15 L soil sample for flotation. The earth was a thin (approximately 20 cm) layer between the fill stones and what appeared to be another surface. Once removed, we encountered flat paving stones (F. 7/14N/2) at the same depth as the known plaza floor outside the building. Upon revealing the floor, we closed the lot. We recovered five ceramic sherds, and two faunal artifacts. We took a 15 L soil sample from F. 7/14N/2 for flotation, and a further 15 L soil between the plaza floor and the fill stones.

Lot 5: This was an extensive lot that moved through the flat plaza paving stones into the construction fill of the west group platform itself. This lot was sealed by the Plaza Floor F.7/14N/2 and consisted of plaza construction fill (10YR 5/4 Yellowish Brown) almost sterile C-horizon decomposed yellow rock amongst large fill stones and very few artifacts. What initially was thought to be a substructure appeared to be large construction pens, used for controlling the placement of fill stones as the platform of the West Group was constructed (F.7/14N/2) the footing of these construction pens was located at a depth of 320 cm from our datum. This was an extensive excavation with this single lot going for more than 200 cm, no further floors were encountered and excavation became difficult as the hole began to narrow towards the bottom, this difficult of excavation coupled with the time of the field season coming to an end, led to the closure of this lot without hitting another feature or sterile earth. We recovered 10 ceramic sherds, and 3 pieces of faunal.

EXCAVATION UNIT 7/14O

This 2 x 2-meter unit is located on top of the Structure 50 mound, along the centerline of the building and towards the southern end. It was excavated in five lots, Ops. 7/14O/1 through 7/14O/5. This unit was dug simultaneously to Suboperation 7/14N. It contained the eastern part of the bench (F. 7/14N/1) and in the deep sounding revealed the paving stone surface level with the exterior plaza (F. 7/14N/2). This unit was excavated in five lots at a depth of roughly 206 cm.

Lot 1: The purpose of this lot was to remove overburden to expose fallen architecture and the platform surface. The matrix (10YR 2/2 Very Dark Brown) was composed of humic O- and A-horizon with roots present. The clearing of organic material revealed the remnants of the platform surface which consisted of disturbed stones and the eastern half of the stone bench (F. 7/14N/1). Lot 2 was initiated to more fully reveal this feature and the remnants of the platform

surface. We recovered 13 ceramic sherds, eight pieces of chert, one spiky jute shell fragment, and two faunal remains.

Lot 2: The purpose of this lot was to remove remnants of the fallen architecture and expose the remains of the surface of the platform. The matrix (7.5YR 3/2 Dark Brown) was mostly construction fill, A-horizon soils and asymmetrical fill stones. We revealed the top of large fill stones from the interior of the platform, at which point the lot was closed. We recovered 29 ceramic sherds, two pieces of obsidian, five pieces of chert, two whole smooth jute shells, and three pieces of faunal.

Lot 3: The purpose of this lot was the removal of large fill stones and construction fill down to the plaza level. This lot was excavated in conjunction with Op. 7/16O/3. The context for the lot was general construction fill from within the building (2.5Y 4/4 Olive Brown). We encountered a construction pen (F. 7/16O/1) that took the form of several short intersecting walls. These were likely placed by the platform builders during construction to hold and control the distribution of fill stones and earth. The artifact counts are combined with those of Ops. 7/16O/3 and 7/16P/3. We recovered 23 ceramic sherds, one piece of obsidian, two pieces of chert, one whole spiky jute shell, three whole smooth jute shells, two smooth shell fragments, and 11 faunal remains. These counts come from combining Lot 7/16O/3 and Lot 7/14O/3.

Lot 4: This lot was excavated in conjunction with Op. 7/14O/4. The description for both of these lots is as follows. The purpose of this lot was to dig past the construction cells and architectural fill until we reached the level of the exterior plaza. The matrix consisted of decomposed C-horizon soils (2.5Y 4/2 Dark Grayish Brown). After removing the fill cell (F. 7/16O/1) and architectural fill we identified a west-facing wall (F. 7/14N/3) which at the time we speculated was a part of a substructure. It is now clear that this was yet another construction-fill

pen, perhaps part of the construction of the entire West-group platform which would have been capped by plaza floor. Excavation was halted at a level just above this western wall as we encountered a layer of white accretion throughout the unit. This white substance adhered to the bottom of the stones. Our interpretation is that this was possibly a chemical precipitate which may have indicated a temporary pause in construction and a walked-on surface. Very few artifacts were encountered despite the removal of a large amount of material. We halted excavation of this deep sounding at this point, due to lack of time and rapid understanding that we would not have sufficient time to excavate through the entirety of the West-Group Platform. We recovered 15 ceramic sherds, one piece of obsidian, one piece of chert, two whole spiky jute shells, two whole smooth jute shells, five smooth jute shell fragments, and three faunal artifacts. These artifact counts combine Ops. 7/14O/4 and 7/16O/4.

Lot 5: This lot removed construction fill and the construction pens down to a depth of 235 cm below F. 7/16O/1. In this lot we fully revealed F. 7/14N/3, and determined it was a fill cell, not the wall of a substructure. The matrix was largely construction fill, a yellowish C-horizon soil (10YR 5/4 Yellowish Brown) composed of decomposing rock and large asymmetrical fill stones. We recovered 10 ceramic sherds, some of which were polychrome, and three faunal artifacts. We took a 20 L soil sample from the top of the F. 7/14N/3 substructure wall, and a further 10 L soil sample from the architectural fill within the construction pens.

EXCAVATION UNIT 7/14P

This 2 x 2-meter unit was placed two meters east of the centerline on the southern half of the top of the Structure 50 mound. The purpose of this excavation unit was to remove overburden and reveal any existing architecture. It was dug in a single Lot, Op. 7/14P/1. This unit was excavated in one lot at a depth of roughly 41 cm.

Lot 1: This lot was excavated to reveal the surface of the mound. We removed overburden, consisting of a thick humic O- horizon layer (10 YR Very Dark Greyish Brown) with abundant vegetation. This lot was not completed due to time. We recovered 52 ceramic sherds, three pieces of chert, and one bone fragment believed to be human.

EXCAVATION UNIT 7/14R

This 2 x 2-meter unit is located on the southeast corner on top of the Structure 50 mound. It was excavated in two lots, Op. 7/14R/1 and Op. 7/14R/2. This lot contains F. 7/20Q/1 (main bracing wall) and F. 7/18S/1 (eastern wall). This unit was excavated in two lots at a depth of roughly 16 cm.

Lot 1: The purpose of this lot was to remove overburden and reveal the potential remains of the southeastern corner of the building. The thick O- and A-horizon (10 YR 2/2 Very Dark Brown) was abundant with vegetation. We exposed stones from the top of the mound, and identified the top courses of F. 7/20Q/1 (main bracing wall) and F. 7/18S/1 (east-facing wall). We recovered 134 ceramic sherds, seven pieces of obsidian, eight pieces of chert, a piece of worked pumice, and one piece of animal bone.

Lot 2: This lot was excavated to remove the collapsed architecture in order to show the remnants of the southeast corner of the building. The material in this area was construction fill that is thought to be coming from the platform (7.5YR 3/1 Very Dark Gray). We encountered a large *metate* fragment south of the Structure 50 mound. Only the very bottom course of southeast corner of the building remained. We did encounter the back wall of the platform for the West group platform (F.7/14R/1). This feature was not excavated and so not illustrated. We recovered 347 ceramic sherds, 10 pieces of obsidian, 23 pieces of chert, three whole spiky jute shells, two spiky shell fragments, 59 whole smooth jute shells, 60 smooth shell fragments, a figurine, a

packet of human remains, three pieces of ground stone, one chert stone tool fragment, and 18 pieces of faunal.

EXCAVATION UNIT 7/14S

This 2 x 1-meter unit is located on the top of the Str. 50 mound, at the extreme eastern corner of both Str. 50 and the plaza platform, containing wall fall from F. 7/16S/1 (eastern wall of Str. 50). It was excavated in two lots, 7/14S/1 and 7/14S/2. This unit was excavated in two lots at a depth of roughly 81 cm.

Lot 1: This lot was excavated to remove overburden and reveal wall fall from the east-facing wall (F. 7/18S/1) along the eastern edge of the Structure 50 mound. We pursued the southeastern corner of the building, which we believed was beneath the fallen architecture. The sediment (7.5YR 2.5/2 Very Dark Brown) contained vegetation. We recovered 32 ceramic sherds and one piece of chert. We removed a one-liter soil sample and a 15 L soil sample for flotation.

Lot 2: This lot was excavated to remove the collapsed architecture in order to show how far south intact courses of the eastern wall ran (F. 7/18S/1). We did not find an intact southeastern corner, and believe it may have fallen off the side of the West Group platform. We opened Suboperation 7/14R to see how much of the eastern wall remained. The packed matrix was full of architectural fill (5YR 2.5/2 Dark Reddish Brown). We recovered 54 ceramic sherds, 13 pieces of chert, 10 whole spiky jute shells, six spiky shell fragments, 15 whole smooth jute shells, and 64 smooth shell fragments. We also recovered 12 faunal artifacts and one groundstone tool we interpret to be a bark beater. We took a 15 L soil sample for flotation from the base of F. 7/18S/1.

EXCAVATION UNIT 7/16N

This 2 x 2-meter unit is on the western side of the centerline of the Structure 50 mound. The purpose of this excavation unit was to expose existing architecture and an attempt to locate plaza flooring. It was excavated in two lots, Op. 7/16N/1 and Op. 7/16N/2. This unit was excavated in two lots at a depth of roughly 47 cm.

Lot 1: The purpose of this lot was to remove overburden and expose architecture. The matrix consisted of O- and A-horizons with an abundance of stones and vegetation (10YR 4/3 Brown). The lot was closed when the top of the mound architecture was revealed. We recovered 75 ceramic sherds, three pieces of chert, and 18 pieces of obsidian.

Lot 2: The purpose of this lot was to remove the construction fill and expose plaza floor. We dug through humic A-horizon (10YR 3/2 Very Dark Greyish Brown). We encountered only more construction fill and the lot was closed due to time constraints. We recovered 48 ceramic sherds, two pieces of obsidian, three pieces of chert, two faunal artifacts, and two smooth jute shells and one smooth shell fragment.

EXCAVATION UNIT 7/16O

This 2 x 2-meter unit is located on top of the Structure 50 mound, west of the centerline of the building. It was excavated in four lots, Ops. 7/16O/1 through 7/16O/4. The excavation of this unit mirrored that of 14O, and the two adjacent units would be excavated as the deep sounding. The purpose was to gain a full understanding of the construction history of Structure 50. It contains features F. 7/16O/1, F. 7/14N/3, and F. 7/16O/2. This unit was excavated in four lots at a depth of roughly 118 cm.

Lot 1: The purpose of this lot was to remove overburden, exposing fallen architecture and the remains of the surface of the platform. The matrix (7.5YR 3/2 Dark Brown) was a covering

of dark humic O- and A-horizon soils. The clearing of organic material only revealed the remnants of a few stones from the platform surface. We observed a line of stones along the north edge of the unit that we assumed were the back sides of the north-facing wall (F. 7/18L/1). We recovered 69 ceramic sherds, five pieces of obsidian, two pieces of chert, one whole smooth jute shell, one piece of ground stone, and one faunal artifact. A very impressive figurine was recovered from this unit that depicted a ball player, likely with his arm holding a ball and a large girdle style belt around his waist, unfortunately the head and back of the whistle were missing, on his chest there is a drooping “T” shaped pendant, this was immediately reminiscent to the excavations of the jade pendant that was recovered from Structure 7 in the South Group in 2015. This figurine serves as another piece of evidence as to the importance of the wind-cult and ball game at Nim li Punit especially at the Late Classic time period.

Lot 2: The purpose of this lot was to continue into the interior of the platform removing construction fill. The matrix was classified as construction fill, mostly A-horizon with abundant irregular fill stones (7.5YR 3/2 Dark Brown). As we removed the fill, we revealed an L-shaped construction that in later lots would be identified as a construction pen for the West Group platform (F. 7/16O/1). Upon encountering this feature, we closed the lot. We recovered 28 ceramic sherds, one piece of obsidian, two pieces of chert, one whole spiky jute shell, one spiky shell fragment, two whole smooth jute shells, three smooth shell fragments, and ten faunal remains.

Lot 3: The purpose of this lot was the removal of large fill stones and construction fill to fully expose the fill cell feature, for which purpose this lot was excavated in conjunction with Ops. 7/14O/3 and 7/16P/3. The matrix consisted of architectural fill, predominantly C-horizon soils (2.5 7 4/4 Brown) with asymmetrical fill stones. We encountered a series of construction

pens (F.7/16O/1) that took the form of several short intersecting walls. These were placed by the platform builders during construction to hold and control the distribution of fill stones and earth. We encountered four parallel north/south walls and two parallel east/west walls across the two units (Ops. 7/14O/3 and 7/16O/3), one of which was visible in the profile of the east face 14O. The cell in 14O was 120 centimeters from basal to top course, and the cell in 16O was 87 centimeters tall. These units were almost devoid of artifacts, and so their counts are combined (Figure 2.7). We recovered 23 ceramic sherds, one piece of obsidian, two pieces of chert, one whole spiky jute shell, three whole smooth jute shells, two smooth shell fragments, and 11 faunal remains. These counts come from combining Lot 7/16O/3 and Lot 7/14O/3. We recovered a 15 L soil sample for flotation from between the fill cells.

Lot 4: This lot was excavated in conjunction with Op. 7/14O/4. The description for both of these lots is as follows. The purpose of this lot was to dig past the construction cells and architectural fill until we reached the level of the exterior plaza. The matrix consisted of decomposed C-horizon soils (2.5Y 4/2 Dark Grayish Brown). After removing the fill cell (F. 7/16O/1) and architectural fill we identified a west-facing wall (F. 7/14N/3) which at the time we speculated was a part of a substructure. It is now clear that this was yet another construction-fill pen, perhaps part of the construction of the entire West-group platform which would have been capped by plaza floor. Excavation was halted at a level just above this western wall as we encountered a layer of white accretion throughout the unit. This white substance adhered to the bottom of the stones. Our interpretation is that this was possibly a chemical precipitate which may have indicated a temporary pause in construction and a walked-on surface. Very few artifacts were encountered despite the removal of a large amount of material. We halted excavation of this deep sounding at this point, due to lack of time and rapid understanding that

we would not have sufficient time to excavate through the entirety of the West-Group Platform. We recovered 15 ceramic sherds, one piece of obsidian, one piece of chert, two whole spiky jute shells, two whole smooth jute shells, five smooth jute shell fragments, and three faunal artifacts. These artifact counts combine Ops. 7/14O/4 and 7/16O/4.

EXCAVATION UNIT 7/16P

This 2 x 2-meter unit is located on top of the Structure 50 mound, roughly along the centerline of the building. The purpose of this unit was to excavate into the interior of Structure 50 and gain a better understanding of the construction history of the platform. It was excavated in three lots, Ops. 7/16P/1 through 7/16P/3. This unit was excavated in three lots at a depth of roughly 135 cm.

Lot 1: The purpose of this lot was to remove overburden to expose fallen architecture and the remains of the surface of the Structure 50 mound. We dug through loosely packed, silty O- and A-horizon (7.5YR 3/2 Dark Brown). Clearing the organic material revealed the top of the Structure 50 mound, characterized by large stones mixed with architectural fill (7.5YR 3/2 Dark Brown). At the time we interpreted this to be a floor, but this was later disproven. We recovered we found some idiosyncratic ceramic artifacts, including stamps, a small ball, and a foot. In addition, we found 30 ceramic sherds, six pieces of obsidian, and eight pieces of chert. We took a 5 L soil sample for flotation.

Lot 2: The purpose of this lot was the removal of the rock surface and to move into the interior of the platform to gain a better understanding of construction history. The matrix was classified as A-horizon construction fill (7.5YR 3/2 Dark Brown) silty to fine sand. This lot was the first of removed past the small stone flooring into construction fill that was light of artifacts and consisted of medium sized fill stones, we halted this lot when we encountered a layer of

much larger fill stones. We recovered 41 ceramic sherds, 4 pieces of obsidian, 15 pieces of chert, 1 whole spiky jute shell, 5 whole smooth jute shells, 1 smooth fragment jute shell, 1 stone tool, 1 ground stone, and 9 pieces of faunal. We also took a 5 L soil sample for flotation.

Lot 3: This lot was excavated in conjunction with Ops. 7/14O/3 and 7/16O/3. It was excavated to remove the large fill stones encountered in Lot 2 and to gain a better understanding of the building's stratigraphy and construction history. This context was buried A-horizon, construction fill with large fill stones (2.5Y 4/4 Olive Brown) it was not sealed. We excavated almost 90 centimeters of stacked construction fill. There were minimal artifacts, the sediment sterile amongst the large fill stones. This lot was closed once we had gone 23 centimeters below the surface of the exterior plaza floor without finding any change in stratigraphy. It appears that building construction for Structure 50 occurred at the same time as the construction of the West Group Plaza. We recovered 23 ceramic sherds, one piece of obsidian, two pieces of chert, one whole spiky jute shell, three whole smooth jute shells, two smooth shell fragments, and 11 faunal remains. These counts come from combining Lot 7/16O/3 and Lot 7/14O/3. We took two soil samples for flotation, one (15 L) from the architectural fill from the deep sounding and another (15 L) from the plaza fill below Structure 50.

EXCAVATION UNIT 7/16R

This 2 x 2-meter unit is located four-meters south of the main bracing wall (F. 7/20Q/1), along the east-facing wall (F. 7/18S/1). The purpose of this unit was to remove overburden and expose fallen architecture and the remains of the corner and surface of the platform. It was excavated in two lots, Ops. 7/16R/1 and 7/16R/3. This unit was excavated in two lots at a depth of roughly 115 cm.

Lot 1: The matrix was overburden (2YR 2/1 Black) loose sediment amongst fallen stone. This unit revealed the existing stone architecture from the top of structure 50. There is a partial feature in the North end of the unit that was investigated further in Suboperation 7/18R and revealed to be a wall in line with F. 7/18L/1. We recovered 106 ceramic sherds, four pieces of obsidian, 16 pieces of chert, and one figurine fragment.

Lot 3: We extended our excavations one meter to the east (which is why this is labeled Lot 3 and not Lot 2) to encompass F. 7/18S/1 (east-facing wall of Str. 50). The purpose of this lot was the removal of construction fill to extent of the eastern wall, simultaneous with wall cleaning for consolidation. We recovered 492 ceramic sherds, nine pieces of obsidian, 22 pieces of chert, 12 whole spiky jutes shells, eight spiky jute shell fragments, 35 whole smooth jute shells, 36 smooth jute shell fragments, one figurine, 40 faunal remains, and five ground stone artifacts.

EXCAVATION UNIT 7/16S

This 2 x 2-meter unit is located on top of Structure 50 mound, 2 meters south of the northeast corner of the building. The purpose of this unit was to remove overburden to expose fallen architecture and the remains of the east-facing wall, corner, and surface of the platform. It was excavated in two lots, Ops. 7/16S/1 and 7/16S/2. This lot contained a possible offering (F. 7/16S/1), and the east-facing wall of Structure 50 (F. 7/18S/1). This unit was excavated in two lots at a depth of roughly 86 cm.

Lot 1: The matrix consisted of dark (7.5YR 3/2 Dark Brown), loose sediment amongst fallen stone. We encountered wall fall along the eastern axis of the Structure 50 mound, upon which the lot was closed. We recovered 70 ceramic sherds, five pieces of obsidian, five pieces of chert, one chert flake core, and one chert stone tool.

Lot 2: The purpose of this lot was to remove wall fall, with the intention of revealing the east-facing wall of the structure (if present). In this we were successful, encountering basal courses of F. 7/18S/1 (east-facing wall). Raymond Sam and Juan Choc, the excavators working in the unit, encountered what has been named a storage cache (F. 7/16P/1). In the south end of the unit, at plaza level and the base of the wall, they unearthed the majority of a broken pot. This vessel appears to have contained an assortment of items, including obsidian blade, human bones, and a bone flute; this was collected as the pot cache (F. 7/16S/1), although this descriptor was altered to potential offering. Mr. Sam also found a ceramic whistle while screening dirt from this lot. We cannot conclusively say that it came from the vessel, but it is likely. In addition to this unique find, we also recovered 513 ceramic sherds, 33 pieces of chert, one package of human remains, six whole spiky jute shells, eight spiky shell fragments, eight whole smooth jute shells, 15 smooth shell fragments, two stone tools (one chert, one obsidian), 52 pieces of faunal, one figurine (corn cob, from the wall), and a bone flute. We took several soil samples for flotation in order to compare samples from different architectural/cultural contexts. We were able to recover 6 L of soil from F. 7/16S/1, and a 10 L control sample from the architectural fill in which F. 7/16S/1 was embedded. From the base of F. 7/18S/1, in the northwestern corner of Suboperation 7/16S, we took a 20 L sample. Finally, an additional 20 L sample was wet screened (i.e., only the heavy fraction was collected) from the mixed architectural fill that could not securely be assigned a cultural context.

EXCAVATION UNIT 7/16T

This 2 x 2-meter unit was placed on the eastern side of the Structure 50 mound, a little over a meter east of the east-facing wall of Structure 50 (F. 7/18S/1). This unit was dug to continue excavations alongside the eastern side of the mound, removing overburden and to

potentially identify an east-facing wall. This unit was excavated in a single lot at a depth of roughly 29 cm.

Lot 1: We dug through dark (5 YR 2.5/1, Black), sandy loose O- and A-horizon with an abundance of vegetation. Fallen architecture had slumped to the east. Upon revealing that the fallen architecture was resting on plaza fill, we terminated the lot. Mixed within the fallen architecture were small cobbles and plaster conglomerate, which we interpreted to be construction fill. We recovered 111 ceramic sherds, four obsidian artifacts, six pieces of chert, three pieces of groundstone, one of which was slate, one conch shell fragment, one piece of animal bone, and an ecofact.

EXCAVATION UNIT 7/18K

This 2 x 2-meter unit was placed on the western side of the Structure 50 mound, where at the time we anticipated identifying the northwest corner of the building. This unit was opened to remove overburden and remove a particularly troublesome tree stump, and to help reveal the shape of the building. This unit was dug in a single lot to a depth of roughly 23 cm. It contains F. 7/18L/1 (north-facing wall).

Lot 1: We dug through dark (7.5 YR 3/2 Dark Brown) thin, loose O- and A-horizon with abundant vegetation. Although we removed large portions of the stump, we decided that the roots were too thick and embedded in the architecture to be removed without damaging the building. We exposed parts of the north-facing wall (F. 7/18L/1), which at the time we believed to be a substructure but it was not. We closed Op. 7/18K/1 and chased F. 7/18L/1 to the east. We recovered five ceramic sherds, two pieces of obsidian, and one piece of chert.

EXCAVATION UNIT 7/18L

This 2 x 2-meter unit is located six to eight meters west of the centerline of the Structure 50 mound, the northern half of the unit containing F. 7/18L/1 (north-facing wall) and the “middle” north-facing wall (F. 7/18L/2), but this latter feature was not fully revealed until excavating Suboperation 7/20L. This unit was excavated to remove overburden and reveal the fallen architecture on top of the Structure 50 mound. Specifically, we were searching for the northwest corner of the main bracing wall (F. 7/20Q/1), thinking at the time that it was the original north-facing wall. This unit was excavated in a single lot at a depth of roughly 14 cm.

Lot 1: The matrix (5YR 3/1 Very Dark Grey) consisted of humic O- and A-horizons, with strong vegetation presence. We exposed the original north-facing wall (F. 7/18L/1). The wall had fallen southward to rest on top of the structure. We also encountered similar construction fill (large uncut blocks) to that observed in Suboperations 7/16P, 7/16O, and 7/18N. We recovered 48 ceramic sherds, four pieces of obsidian, eight pieces of chert, two faunal remains including a marine snail, a groundstone tool that was either a chisel, hoe, or adze, a clay figurine, and in the southwest corner of the unit, a reworked blade.

EXCAVATION UNIT 7/18LMNO

This 8 x 2-meter unit is located along the course of the north-facing wall (F. 7/18L/1). This unit was opened for wall-cleaning of the north-facing wall of Structure 50 (F. 7/18L/1). It was excavated in two Lots, Op. 7/18LMNO/3 and Op. 7/18LMNO/4 since it was only a superficial cleaning unit no excavation depth was recorded.

Lot 3: We dug through loose O- and A-horizons tucked between and beneath fallen stone (10 YR 3/2 Very Dark Greyish Brown). We recovered 298 ceramic sherds, five pieces of obsidian, 10 pieces of chert, nine whole jute shells (spiky), 24 whole jute shells (smooth), 16 jute

shell fragments (smooth), three pieces of groundstone, and 19 faunal remains. We took a 1 L soil sample and a 10 L soil sample for flotation.

Lot 4: This lot was opened to continue the process of cleaning F. 7/18L/1 prior to consolidation, emphasizing the western extreme of the wall. The sediment was essentially identical to the previous lot, O- and A-horizons tucked between and beneath fallen stone (10 YR 3/2 Very Dark Greyish Brown), although as compared to Op. 7/18LMNO/3 the sediment was more densely packed. The wall was taken down and reconsolidated following the closure of the lot. We recovered 12 ceramic sherds, one piece of chert, one groundstone fragment, and one faunal remain. We took a 10 L soil sample from between F. 7/18L/1 and F. 7/18L/2, from the southwest corner of Suboperation 7/18N.

EXCAVATION UNIT 7/18M

This 2 x 2-meter unit is located six meters west of the Str. 50 centerline, just south of a northern bracing wall (F. 7/20L/1). This unit was excavated to remove overburden and reveal fallen architecture. We were also seeking the continuation of F. 7/20Q/1 (main bracing wall). This unit was excavated in two Lots, Op. 7/18M/1 and Op. 7/18M/4 to a depth of roughly 34 cm. It contained the main bracing wall (F. 7/20Q/1) and the smaller bracing wall (F. 7/20L/1). This

Lot 1: We dug past O- and A-horizon, the matrix mostly dark (5YR 3/1 Very Dark Grey) and humic, with abundant vegetation. The northwest corner of the unit contained a very large ironwood tree, which was removed with great effort. We encountered preserved walling directly beneath it (F. 7/20L/1, a bracing wall three-four courses high, facing north; at the time we mistook it for F. 7/20Q/1 and referred to it as such on our project forms). We closed this lot to continue excavations to the west, following the wall. We recovered 59 ceramic sherds, one piece

of obsidian, 10 pieces of chert, one groundstone artifact, one piece of slate, and two pieces of marine shell.

Lot 4: This lot only opened the northern half of the unit, a 1 x 2-square meter area. This was a wall-cleaning unit (behind F. 7/20L/1) prior to consolidating that feature. The matrix was packed A-horizon (10YR 4/3 Brown), with roots present throughout. We excavated to the base of F. 7/20L/1, and discovered that it was resting on top of the plaza floor, indicating it was a later construction. In this unit we can best represent the construction history of the northern face of Structure 50; F. 7/18L/1 was followed by F. 7/18L/2, followed by F. 7/20Q/1, followed by F. 7/20L/1. We recovered only five ceramic sherds and one marine shell fragment. We also took a 15 L soil sample for flotation.

EXCAVATION UNIT 7/18N

This 2 x 2-meter unit was placed on top of Structure 50, about a meter west of the central line of the stairblock (F. 7/20Q/2). This unit was dug to remove overburden with the intention of exposing the north-facing wall. It was dug in a single Lot, Op. 7/18N/1 to a depth of roughly 15 cm.

Lot 1: Only the area from the northern edge to 50 centimeters south was excavated, revealing fallen stones, presumably from the north wall. These stones had fallen southward on top of the mound and coming to rest on the construction fill that had been previously identified in Ops. 7/16P/1 and 7/16O/1. Once confirming this, the lot was closed. The sediment was thick but loose O- and A-horizon with abundant vegetation (7.5 YR 3/2, Very Dark Grey). We recovered 21 ceramic sherds, and two faunal artifacts.

EXCAVATION UNIT 7/18NO

This 1 x 4-meter unit was placed along the (east-west) centerline of Str. 50, on top of the north-facing walls of Structure 50; the main bracing wall (F. 7/20Q/1) and the earlier wall (F. 7/18L/1), which is about half a meter south of the bracing wall. It was dug in a single lot, Op. 7/18NO/3.

Lot 3: Only the northern half of this lot was excavated. This lot was dug to remove the construction fill (10 YR 4/3 Brown) between F. 7/20Q/1 and F. 7/18L/1, so that we could understand the construction history of these features. We revealed the top of F. 7/18L/1, confirming for us how it related positionally (i.e., southward) of F. 7/20Q/1. This was important because prior to this lot being excavated, we could not draw a clear line of sight of either north-facing wall for the entire length of the building; excavating this lot revealed why; there were in fact two walls. We recovered 51 ceramic sherds, 3 pieces of chert, 2 whole (smooth) jute shells, two pieces of groundstone, one of which appears to be a chisel-type instrument, 4 faunal remains, and a ceramic figurine.

EXCAVATION UNIT 7/18O

This 2 x 2-meter unit was placed on top of Structure 50. The eastern edge of this suboperation (and the western edge of Suboperation 7/18P) form the east-west centerline of Structure 50. The northern edge of the unit is parallel to F. 7/18L/1 (north-facing wall of Structure 50). This unit was dug to remove overburden from the top of the mound and reveal any architecture located behind the north wall (F. 7/18L/1). It was dug in two lots, Ops. 7/18O/1 and 7/18O/5 to a depth of roughly 21 cm.

Lot 1: The sediment consisted of dark (5R 2.5/1 Black) O- and A-horizons with abundant vegetation. We encountered both the north-facing wall (F. 7/18L/1) and the main bracing wall

(F. 7/20Q/1). Upon removing overburden, this lot was closed. We recovered 120 ceramic sherds, three pieces of obsidian, 15 pieces of chert, one jute shell (whole spiky), and three faunal artifacts.

Lot 5: The purpose of this lot was wall cleaning for F. 7/20Q/1. The matrix consisted of earthy brown (10 YR 4/3 brown) architectural fill packed around the collapsed stones. Roots were present. When the stones had been removed and the area around cleaned, the lot was closed in anticipation of reconsolidating F. 7/20Q/1. We recovered seven ceramic sherds and one jute shell (whole spiky).

EXCAVATION UNIT 7/18PQ

This 2 x 4-meter unit was placed east of the centerline, containing both the main bracing wall (F. 7/20Q/1) and north-facing wall in the west (F. 7/18L/1). This unit was excavated to remove overburden and reveal architecture on top of the mound. It was excavated in two lots, Op. 7/18PQ/1 and Op. 7/18PQ/2 to a depth of roughly 12 cm.

Lot 1: The overburden was mostly humic O- and A-horizon with abundant vegetation (10YR 3/2 Very Dark Brown). A slate bar, similar to those found during the 2015 field season, was found in half of the unit that corresponded to Suboperation 7/18Q. We revealed both walls (F. 7/20Q/1 and F. 7/18L/1), separated by construction fill. This was an important moment for clarifying how the walls related to each other, showing that F. 7/20Q/1 was constructed to help brace F. 7/18L/1. We recovered 52 ceramic sherds, four pieces of obsidian, three whole spiky jute shells, one spiky shell fragment, two whole smooth jute shells, five smooth shell fragments, and 16 faunal remains.

Lot 2: This lot was excavated to remove construction fill and expose what we interpreted to be a stairblock to a substructure (labeled F. 7/18R/1), which was determined to be merely

construction fill. The loose architectural fill consisted of dark (2YR 2/1 Black) A-horizon with persistent vegetation. We excavated between the two walls (F. 7/18L/1, F. 7/20Q/1) prior to consolidation. We recovered 315 ceramic sherds, four pieces of obsidian, 24 pieces of chert, 75 whole spiky jute shells, 25 spiky shell fragments, 127 smooth jute shells, and 100 smooth shell fragments, 67 faunal artifacts, 15 of which were conch shell fragments, and five pieces of groundstone.

EXCAVATION UNIT 7/18QR

This 2 x 4-meter unit was placed on top of the eastern section of the north-facing bracing wall of Structure 50 (F. 7/20Q/1). This unit was excavated as the wall-cleaning unit for F. 7/18L/1 (the north-facing wall of Structure 50) in the east. It was excavated in a single lot, Op. 7/18QR/4 as it focused on superficial cleaning no depth data was recorded.

Lot 4: The matrix consisted of tightly packed O- and A-horizon (10 YR 4/3 Brown) mixed architectural fill. Once the wall was deconstructed and stabilized, the lot was closed so we could begin reconsolidation. We recovered 92 ceramic sherds, two pieces of chert, two spiky jute shells, two spiky jute shell fragments, nine whole smooth jute shells, five smooth jute shell fragments, and six faunal artifacts. We also took a 20 L soil sample for flotation.

EXCAVATION UNIT 7/18R

This centerpoint of this 2 x 2-meter is roughly the location of the northeast corner of the building. The purpose of this unit was to excavate behind the northeast corner of the building into the interior of Structure 50. This unit was excavated in two lots, Ops. 7/18R/1 and 7/18R/2 to a depth of roughly 46 cm.

Lot 1: In Suboperation 7/16R, we thought we observed a partial feature that we wanted to explore further. We removed overburden to expose the remainder of the surface of the building

and the construction fill of the platform. The matrix consisted of loose O- and A-horizon (10YR 2/2 Very Dark Brown) amongst construction fill stone. We revealed fallen architecture and construction fill from inside and on top of the mound, upon which the lot was closed. This unit was clearly affected by the falling of the eastern and northern walls of structure 50 in the past. Of note was a fragment of a footed metate. We also recovered 95 ceramic sherds, three pieces of obsidian, 12 pieces of chert, two whole spiky jute shells, and one smooth shell fragment.

Lot 2: This lot was excavated to remove construction fill and further expose a potential feature uncovered in Lot 1. The matrix consisted of dark (2YR 2/1 Black) sediment amongst construction fill. The removal of this fill revealed a north faced wall that appears to be in line with and parallel to F.7/18L/1, which confirmed that it was the original north-facing wall of Structure 50. We recovered 377 ceramic sherds, four pieces of obsidian, 19 pieces of chert, 22 whole spiky jute shells, 15 spikey jute shell fragments, 36 whole smooth jute shells, 70 smooth jute shell fragments, 26 faunal remains (including conch and oyster shell), and one ground stone artifact.

EXCAVATION UNIT 7/18S

This 2 x 2-meter unit was placed to the northeast of the top of the Structure 50 mound, where we thought there may be a northeast corner. The purpose of this unit was to remove overburden and expose fallen architecture. We focused particularly on the northern and eastern edges of the unit, where we hoped to expose the tops of the northern and eastern walls. It was excavated in two lots, Ops. 7/18S/1 and 7/18S/2 to a depth of roughly 79 cm. It contains the east-facing wall of Structure 50 (F. 7/18S/1).

Lot 1: The matrix consisted of dark, loose O- and A-horizon (2.5 YR 2.5/1 Reddish Black) with abundant vegetation. Although we revealed fallen architecture, there were neither

indications of a northern nor an eastern wall. When the architecture was completely exposed, we closed the lot so we could try and confirm the presence or absence of these walls in Lot 2. We recovered 144 ceramic sherds, five pieces of chert, and seven faunal artifacts, one of which was a marine shell.

Lot 2: The purpose of this lot was to remove the wall fall and construction fill, so as to continue searching for the northeast corner of Structure 50. The matrix consisted of dense sandy A-horizon architectural fill (7.5 YR 3/2 Dark Brown). We uncovered the plaza floor (F. 7/20Q/3), atop of which was a three-course high east-facing wall (F. 7/18S/1). The stones were faced, although rough. This lot was excavated concurrently with Op. 7/20QRS/3, and we were able to find the northeast corner where F. 7/18S/1 and the main bracing wall (F. 7/20Q/1) intersected. Having exposed the plaza floor and found the east-facing wall, we terminated the lot. We recovered 252 ceramic sherds, seven pieces of obsidian, eight pieces of chert, five whole spiky jute shells, two spiky jute shell fragments, 10 whole smooth jute shells, 14 smooth jute shell fragments, three pieces of groundstone, eight faunal remains, including marine shell, and a figurine in the southwest corner of the unit.

EXCAVATION UNIT 7/18T

This 2 x 2-meter unit was placed on the east side of the Structure 50 mound, approximately a meter and a half south of the northeastern corner of the building. The purpose of this unit was to remove overburden and fallen architecture, to reveal any architecture below - at the time we were pursuing an east-facing wall, although Suboperation 7/18T is in reality about a meter too far east. It was excavated in two lots, Ops. 7/18T/1 and 7/18T/2 to a depth of roughly 79cm.

Lot 1: The matrix consisted of thin, loose, O- and A-horizon sediment with abundant vegetation (5YR 2.5/2 Dark Reddish Brown). We exposed plaza fill in the far east of the unit. This is significant because it is above plaza level further east of the mound, indicating possible terracing of the West Group in antiquity. The western edge of the unit contained a possible line of an east-facing wall, and so units to the south and west were opened to pursue that wall. Once overburden was removed, we closed the lot. We recovered 137 ceramic sherds, six pieces of obsidian, six pieces of chert, and three faunal remains. We recovered a 1 L soil sample and a 5 L soil sample of the plaza fill for flotation.

Lot 2: The purpose of this lot was to remove the wall fall and reveal the plaza floor, so we could see how it interacted with the northeast corner of the wall, although this corner in fact was located in Suboperation 7/18S. The packed architectural fill (7.5 YR 3/2 Dark Brown) contained less vegetation than the previous lot. When we reached the plaza floor across the entire unit, we closed the lot and moved west. We recovered 135 ceramic sherds, seven pieces of obsidian, five pieces of chert, two whole spiky jute shells, three whole smooth jute shells, three smooth jute shell fragments, two faunal remains, and some interesting lithic artifacts: one chert biface (Stone Tool 004; 102cm Z; 103cm E; 0cm N), a chisel, and a percussor.

EXCAVATION UNIT 7/19OPQ

This 4 x 1-meter unit was placed on top of the Structure 50 mound, located behind the stairblock (F. 7/20Q/2) and the main bracing wall (F. 7/20Q/1). It was excavated in a single lot, Op. 7/19P/1.

Lot 1: This lot was dug in a single layer, for the purposes of exposing and cleaning for F. 7/20Q/1 (main bracing wall) from 20O in the west to 20P in the east. We only excavated the top 10 cm of sediment. The matrix was thin, dark (10YR 2/1 Black) humic O- and A-horizons.

Because the wall was exposed, and Suboperation 7/19P is contained within Suboperation 7/20P, which was later excavated to a complete Lot 2, this lot was closed. We recovered 39 ceramic sherds, five whole spiky jute shells, one spiky jute shell fragment, four whole smooth jute shells, two smooth jute shell fragments, and two faunal remains.

EXCAVATION UNIT 7/20L

This 2 x 2-meter unit is located 6 meters west of the centerline of Structure 50 along the Northern wall, and roughly 2 meters from the West corner of the platform. The purpose of this unit was to remove overburden around a large tree stump to reveal any remaining architecture for Structure 50 in this area. It was excavated in two lots to a depth of roughly 57 cm. It contains the small bracing wall (F. 7/20L/1) and the “middle” north-facing wall (F. 7/18L/2).

Lot 1: The matrix was overburden O- and A-horizon poorly sorted sand, well sorted silt, with roots present. This dark brown (5YR 2/5 Black) humic sediment, very close to the forest floor, was mixed amongst wall fall stones. Likely this is sediment that had accumulated post-abandonment. We revealed fallen architecture in this lot, but it was not obvious that it actually came from Structure 50. We believe that we encountered plaza floor in this area and halted excavations at that point. We decided to expand excavations to the south to try to pick up the main bracing wall (F. 7/20Q/1). We recovered 95 ceramic sherds, nine pieces of obsidian, 29 pieces of chert, a chert biface fragment, and one ecofact.

Lot 2: This lot was opened to remove the fallen architecture exposed in Lot 1 and reveal the extent of the north-facing wall of Structure 50 (although this would later prove to be the main bracing wall; F. 7/20Q/1). The context was slumped and fallen architecture, the matrix composed of dark (7.5YR 3/2 Dar Brown), thick A-horizon sediment compacted by fallen architecture with an abundance of roots, but no surface vegetation. We removed the fallen architecture and

exposed the “middle” north-facing wall (F. 7/18L/2), and a small bracing wall 50 cm to the north (F. 7/20L/1). The southern wall, for which we found basal courses of stone set into the plaza floor, was in line with F.7/20Q/1. It runs to the east, where it is well established in 20M, and then ends in unit 20N. F. 7/20L/1 was a short (~2.5 m) wall only three to four courses high. It appears that F. 7/18L/1 (original north-facing wall) was covered by new construction (F. 7/20Q/1 and F. 7/18L/2). At a later point, F. 7/20L/1 was constructed. The chronology of the western end of the Structure 50 yet remains unclear and will require further excavation. We recovered 59 ceramic sherds, two pieces of obsidian, four pieces of chert, one human tooth, and one whole spiky Jute shell.

EXCAVATION UNIT 7/20M

This 2 x 2-meter unit is located 4 meters west of the centerline of Structure 50 along the Northern wall of the platform. The purpose of this unit was to remove overburden to expose fallen architecture from the front of Structure 50. It was excavated in two lots, Ops. 7/20M/1 and 7/20M/2 to a depth of roughly 66 cm. It contains the main bracing wall (F. 7/20Q/1).

Lot 1: The matrix was comprised of O- and A-horizon soils, dark brown (10YR 3/2 Very Dark Grayish Brown) and humic. There were few wall fall stones; two large trees were present with extensive root system. The northern half of the unit is dominated by a large tree stump . From amongst its roots, we encountered a carved stone artifact, likely a bark beater for making paper, and a broken obsidian biface. We recovered 121 ceramic sherds, five pieces of obsidian, nine pieces of chert, an obsidian biface fragment, and one ecofact. We took a 5 L soil sample for flotation.

Lot 2: This lot was opened to remove the fallen architecture exposed in Lot 1 and reveal the extent of the northernmost wall (F. 7/20Q/1). The context was slumped and fallen

architecture; the matrix was composed of thick, dark (5YR 2.5/2 Dark Reddish Brown) A-horizon soils that had been compacted by the overlying stones. Roots were persistent throughout. We removed the fallen architecture and exposed some intact standing architecture, the continuation of the main bracing wall (F. 7/20Q/1). It was two courses high. At the time it was not clear how this wall segment fit in with the construction history of the building, and this is reflected in our project notes; we noted it was in aligned with the “basal stones running west that are set into the plaza floor.” Further excavation clarified matters. Ten centimeters south of F. 7/20Q/1 were two courses of fallen facing stones. It is not clear if they had fallen backward from F. 7/20Q/1, but this is the most likely explanation. We recovered 15 ceramic sherds, two pieces of chert, and one smooth jute shell.

EXCAVATION UNIT 7/20N

This 2 x 2-meter unit is roughly two meters west of the Structure 50 centerline, the southern edge of the unit running along the main bracing wall of the building (F. 7/20Q/1). It is also the westernmost unit that contains F. 7/20Q/2 (stairblock). It also contains the plaza floor (F. 7/20Q/3). The purpose of this unit was the removal of overburden and modern vegetation to reveal the architecture around the stairblock of Structure 50. It was excavated in two lots, Ops. 7/20N/1 and 7/20N/2 at roughly a depth of 32 cm.

Lot 1: Although there was little fill in the northeast corner, the matrix consisted of sandy O-horizon (10 YR 3/2 Very Dark Greyish Brown), with roots present. This is mostly humus that had accumulated since abandonment rather than construction fill. Within the lot we revealed the remaining intact courses of the main bracing wall (F. 7/20Q/1) and the bottom tread of the stairblock (F. 7/20Q/2). During excavation we encountered several large plaster conglomerates. Perhaps they had melted down from the building surface and resolidified between the fill stones

within this layer. A complete bifacial point (Chert Stone Tool 001, 95 cm N, 75 cm E, 111 cm Z) was recovered from the southwestern corner of the unit, a complete ceramic spindle whorl, two more chert biface fragments, and a *metate* fragment. The lot was closed when all architecture was exposed. Excavators recovered 140 ceramic sherds, 10 pieces of obsidian, 22 pieces of chert, one smooth jute shell fragment, and one groundstone artifact.

Lot 2: This lot was excavated to remove fallen architecture and expose the treads of the stairblock to Structure 50 (F. 7/20Q/2) and the main bracing wall (F. 7/20Q/1), which at the time we believed was the north-facing wall. The matrix was thick, dark (10 YR 3/2 Very Dark Greyish Brown) A-horizon sediment compacted by fallen architecture, with an abundance of roots but no surface vegetation, mixed with architectural fill; in other words, very similar to that of Op. 7/20M/2. We dug behind what we took to be the western extension of the stairblock. We dug a trench at the base of the north wall. The facing stones ended approximately 40 cm above the plaza floor (F. 7/20Q/3), below which was only rough fill. Excavating this lot helped us understand that the main bracing wall (F. 7/20Q/1) was built wrapping around the stairblock (F. 7/20Q/2) and braced against the north-facing wall (F. 7/18L/1). Having exposed the architecture, we closed the lot. We recovered 49 ceramic sherds, 16 pieces of obsidian, five pieces of chert, and three faunal remains (including a tooth and marine shell fragment). We took a 5L soil sample for flotation.

EXCAVATION UNIT 7/20O

This 2 x 2-meter unit was placed in front of Structure 50, the southern edge placed parallel to F. 7/20Q/1 (main bracing wall of Str. 50). It also contains F. 7/20Q/2 (stairblock) and F. 7/20Q/3 (plaza floor). The purpose of this unit was to remove any fallen architecture that

remained and fully expose the main bracing wall (F. 7/20Q/1)It was excavated in two lots, Ops. 7/20O/1 and 7/20O/2 to a depth of roughly 32 cm.

Lot 1: The purpose of this lot was to remove overburden to expose fallen architecture. The matrix (O and A-horizon, 7.5YR 3/2 Dark Brown) was poorly sorted sand, well sorted soil, with roots present, dark brown humus, mixed with wall fall. In this way it is similar to Op. 7/20Q/1, but we encountered construction fill in the northern end of the unit - yellow (2.5Y 3/3 dark olive brown) clay with fill stones, most likely coming from an earlier construction layer. We revealed wall fall from F. 7/20Q/1 (main bracing wall) and what we believed at the time to be the tread of the stairblock, although we were not able to confirm that until we opened Lot 2. This was also the lot in which we identified the location of the 1/9 test pits from 2010 (Braswell et al. 2010). Rather than excavating fallen architectures, we were working through backfill from 2010. The lot was closed in anticipation of removing fallen architecture in Lot 2. We recovered 149 ceramic sherds, seven pieces of obsidian, 17 pieces of chert, one whole smooth jute shell, and four smooth jute shell fragments.

Lot 2: This included digging into stairblock (F. 7/20Q/2) architecture to show how it related to the wall. The matrix (2.5 Y 3/3 Dark Olive Brown) was thickly packed silty soil mixed with architectural fill and persistent roots. The wall architecture was more intact than in units to the west; we exposed eight courses. The second tread of the stairblock (F. 7/20Q/2) was also revealed. In this unit we discovered that the main bracing wall (F. 7/20Q/1) lay on top of the plaza fill (F. 7/20Q/3). When all intact architecture was revealed, the lot was closed. We recovered 29 ceramic sherds, four pieces of chert, three whole spiky jute shells, and two whole smooth jute shells.

EXCAVATION UNIT 7/20P

This 3 x 2-meter unit is located in front of the Structure 50 mound, the western edge aligned with the centerline of the building and the southern edge resting on the main bracing wall (F. 7/20Q/1). It also contains the stairblock (F. 7/20Q/2) and the plaza floor (F. 7/20Q/3). This unit was excavated to clear overburden and expose fallen architecture in front of Structure 50 as well as fully expose the main bracing wall (F.7/20Q/1).It was excavated in two lots, Ops. 7/20P/1 and 7/20P/2 to a depth of roughly 65 cm.

Lot 1: The matrix consisted of mostly loose O- and A-horizon soils (10YR 3/2 Very Dark Grayish Brown) with an abundance of vegetation. We revealed the main bracing wall (F. 7/20Q/1), and the first tread of the stairblock (F. 7/20Q/2). Flat, but not faced, stones recovered from the south of the unit were interpreted to be remnants of plaza fill. We note that the northwest corner of the unit contains thick yellowish clay (2.5Y 6/6 Olive Yellow). Further, there was little architecture. This was the first point where we identified overlap between our excavations and the 2009 test pits, which exposed three meters of architecture. Upon removing the overburden, the lot was closed. We recovered 126 ceramic sherds, one piece of obsidian, 23 pieces of chert, one of which appeared to have been worked into a tool, and one groundstone *mano* fragment.

Lot 2: This lot was excavated to finish cleaning the front of Structure 50 and expose fully the main bracing wall (F. 7/20Q/1), which we interpreted at the time to be the north-facing wall. This lot was distinguished from Lot 1, which was excavating into staircase architecture. The matrix was thick, silty A-horizon sediment mixed with architectural fill (10YR 4/3 Brown). It was in this lot that Suboperation was expanded a meter to the east. We revealed that the stairblock rested on the plaza fill (F. 7/20Q/3), and that the main bracing wall (F. 7/20Q/1)

wrapped around the stairblock. At the time we suspected that the stairblock (F. 7/20Q/2) had once been a freestanding platform, although we later discovered the true north-facing wall (F. 7/18L/1). We recovered 120 ceramic sherds, seven pieces of chert, including a biface fragment, and one conch fragment. We took a 1 L soil sample and 10 L soil sample for flotation.

EXCAVATION UNIT 7/20PQRS

This 1 x 8-meter strip was located in plaza fill along North bracing wall (F.7/20Q/1) of Structure 50 to the corner of the stair block (F.7/20Q/2). This long strip was excavated to reveal the basal course of the main bracing wall (F.7/20Q/1), excavating into plaza fill to do so. This was in anticipation of reconsolidation. It was excavated in a single lot, Op. 7/20PQRS/3 at a sub plaza level of only 15 cm. It also contains F. 7/20Q/3 (plaza floor).

Lot 3: The context was plaza construction fill that had been sealed by the plaza floor (F.7/20Q/3). The dark (10YR 4/3) sediment was composed of A-horizon soils. The notable find was a large *metate* fragment amongst a small amount of ancient refuse near the base of the wall, near the center of the 20R unit. We recovered 36 Ceramic sherds, two pieces of obsidian, one piece of chert, 10 whole spiky jute shells, one spiky jute shell fragment, 20 whole smooth jute shells, and nine faunal remains. We took a 15 L soil sample of the plaza floor at the base of the north-facing wall for flotation.

EXCAVATION UNIT 7/20Q

This 2 x 2-meter unit is located roughly 2 meters east of the centerline of Structure 50 along the main bracing wall (F. 7/20Q/1). It also contains the stairblock (F. 7/20Q/2) and plaza floor (F. 7/20Q/3). The purpose of this unit was to remove overburden to expose fallen architecture from the front of Structure 50 and reveal the North wall of the building. It was excavated in two lots, Ops. 7/20Q/1 and 7/20Q/2 to a depth of roughly 40 cm.

Lot 1: The matrix was overburden O- horizon (10YR 3/2 Very Dark Grayish Brown) few wall fall stones and two large trees were present with extensive root system. Dark brown humus, very close to the forest floor, amongst wall fall stones. This unit revealed the remaining architecture from the front of Structure 50. The main bracing (F. 7/20Q/1) was very well preserved in this unit, preserved some six courses high. We encountered the bottom tread of the stair block in front of the building (F.7/20Q/2). This unit also yielded some interesting artifacts, including a complete chert stone tool (either a spear point of knife), a ceramic spindle whorl, two more chert stone knife fragments, a fragment of a metate, 140 ceramic sherds, 10 pieces of obsidian, 22 pieces of chert, and one smooth jute shell fragment. We took a 5 L soil sample for flotation.

Lot 2: This lot was opened to remove the fallen architecture exposed in Lot 1 and reveal the extent of the North wall of Structure 50 and fully expose the stair block in front of Str. 50. The context was slumped and fallen architecture and A-horizon soils (10YR 3/2 Very Dark grayish Brown). We exposed the foot of the north bracing wall of Structure 50 (F.7/20Q/1) as well as the stair block (F.7/20Q/2) down to plaza fill floor (F. 7/20Q/3). We recovered 129 ceramic sherds, two pieces of obsidian, seven pieces of chert, one whole spiky jute shell, two whole smooth Jute shells, and one small ceramic container, which among other things may have been a candle pot. We took a 10 L soil sample from the base of F. 7/20Q/1, under the fallen architecture, from the corner made by the wall (F. 7/20Q/1) and the stairblock (F. 7/20Q/2). A further 4 L was taken from the same location, directly on top of the plaza floor (F. 7/20Q/3).

EXCAVATION UNIT 7/20R

This 2 x 2-meter unit is located 4 meters east of the centerline of Structure 50 along the Northern wall of the platform. This unit was opened to remove wall fall and excavate down to

plaza floor level. It was excavated in two lots, Ops. 7/20R/1 and 7/20R/2 to a depth of roughly 49 cm. It contains F. 7/20Q/1 (main bracing wall), F. 7/20Q/2 (stairblock), and F. 7/20Q/3 (plaza floor).

Lot 1: The purpose of this lot was to remove overburden to expose fallen architecture from the front of Structure 50. The matrix was comprised of loose, dark (7.5YR 3/2 Dark Brown) O- and A-horizon soils with vegetation present. The excavation of this lot revealed plaza fill in the north end of the unit. The stair block of Str. 50 (F.7/20Q/2) is present in this unit although somewhat disordered, a tree just south of this unit has pushed back both the north wall and stair block north and out. Several interesting artifacts recovered in this unit suggest domestic refuse: a large *metate* fragment and *mano*, and beneath several fallen stones and possible *in situ*, another *metate* fragment with legs. In this lot and in Suboperation 7/20S we observed several talcy white, calcareous stones that contrasted against the Toledo Bed sandstone that is more commonly used throughout the construction of Nim li Punit. We recovered 218 ceramic sherds, 18 pieces of obsidian, 34 pieces of chert, three smooth jute shell fragments, two groundstone fragments, three ecofacts, a quartz ball, a stone bead, and a figurine fragment (human head).

Lot 2: The matrix consisted of A-horizon soils (10YR 3/4 Dark Yellowish Brown). We exposed the footing of the main bracing wall (F.7/20Q/1) and the plaza floor (F. 7/20Q/3). The wall is low in this section and seated atop fill. This lot was rich with cultural material. They were likely pooled here as the architecture collapsed. We recovered 300 ceramic sherds, 13 pieces of obsidian, 10 pieces of chert, our whole spiky jute shells, two whole smooth Jute shells, six large fragments of groundstone, one possible ceramic glyph, a figurine, a ground stone toolset, a clay whistle, one crude fat figurine, one serpentine bead, and 12 faunal remains.

EXCAVATION UNIT 7/20S

This 2 x 2-meter unit was located on the eastern side of the Structure 50 mound. The northeast corner of the building is located in the center of the northern edge of the unit. It was dug in two lots, Ops. 7/20S/1 and 7/20S/2 to a depth of roughly 56 cm. This lot was dug to remove overburden and identify any intact architecture from the north end of Structure 50. It contains F. 7/20Q/1 (main bracing wall) and F. 7/20Q/3 (plaza floor).

Lot 1: The matrix consisted of loose O- and A-horizon (7.5YR 3/2 Brown) with an abundance of vegetation. We identified the main bracing wall (F. 7/20Q/1), which was severely distorted from a stump in the southwest corner of the unit (visible in Figure 1.2). We recorded that the stairblock extended this far east and was also distorted by the roots of the tree, but further excavation revealed that this was incorrect; the stairblock did not reach this far. Also present in this lot were white, talcy, and friable limestone blocks, similar to those seen in Suboperation 7/20R, mixed in with the architectural fall. Irregular flat blocks from the plaza fill were identified in the north of the unit. When the overburden was removed, we closed the lot. We recovered 194 ceramic sherds, six pieces of obsidian, nineteen pieces of chert, including a biface fragment, and a ceramic figurine (196 cm N, 148 cm E, 206 cm Z).

Lot 2: The purpose of this lot was to remove wall fall and expose the plaza floor, so as to reveal the eastern extension of the main bracing wall (F. 7/20Q/1). We were successful in exposing the plaza floor (F. 7/20Q/3) and encountered a sediment change, from decayed, sterile, sandy A-horizons (10YR 3/2 Very Dark Greyish Brown) to a lighter (10YR 7/2 Light Grey) sediment, upon which the lot was closed. We did not find the basal courses of an east-facing wall. We recovered 295 ceramic sherds, five pieces of obsidian, twelve pieces of chert, two

whole spiky jute shells, five spiky jute shell fragments, three whole smooth jute shells, a ceramic figurine, 13 faunal remains, and five pieces of groundstone.

EXCAVATION UNIT 7/20T

This 2 x 2-meter unit was placed so that the southern edge was parallel to the main bracing wall (F. 7/20Q/1), the southwestern corner half a meter east of the northeast corner of Structure 50. This unit was excavated to remove the wall fall in order to identify the northeast corner of Structure 50, which was later located in Op. 7/20S/2. This unit was dug in two lots, Ops. 7/20T/1 and 7/20T/2 to a depth of roughly 41 cm. It contains F. 7/20Q/3.

Lot 1: This lot was excavated to remove overburden in search of a northeast corner of the structure, following a line of architecture from Op. 7/20S/1. The matrix was dark (5 YR 2.5/1 Black), sandy loose O- and A-horizon with an abundance of vegetation. We identified fallen architecture on top of plaza fill in the north and east. We found talcy, white stones similar to those present in Op. 7/20S/1. With the overburden removed, the lot was closed. We recovered 186 ceramic sherds, five pieces of obsidian, and 27 pieces of chert.

Lot 2: The matrix was loosely packed A-horizon architectural fill (10YR 3/2 Very Dark Greyish Brown). Below the architectural fill was found patio floor (F. 7/20Q/3). The with the intact architecture exposed, we closed the lot. We recovered 128 ceramic sherds, five pieces of obsidian, one of which was a bifacial point, nine pieces of chert, three whole spiky jute shells, three whole smooth jute shells, and one smooth jute shell fragment.

EXCAVATION UNIT 7/22LO

This 2 x 8-meter unit was placed four meters in front of the building, over the plaza in front of the western side of the Structure 50 mound. This lot was excavated to remove overburden and level the plaza floor west of Structure 50 in to help promote drainage of the West

Group as a whole. It was excavated in a single lot, Op. 7/22LO/1 horizontal excavation in this area was not uniform and ranged from 7 to 15 cm of depth.

Lot 1: We removed thick O- and A-horizon (10YR 3/2 Very Dark Greyish Brown) with abundant organic matter. We did not screen the dirt that we removed from this unit because 1) it was primarily soil that had accumulated after the abandonment of the site, and 2) it was disturbed context from the 2009 excavations. This lot was excavated contemporarily to Op. 7/22P-T/1. When the drain was completed, we closed both lots. We recovered one piece of obsidian and one piece of chert, and a ceramic feline figurine, possibly a representation of the Jaguar Sun God of the Night.

EXCAVATION UNIT 7/22P-T

This 2 x 10-meter unit was placed four meters in front of the building, over the plaza in front of the eastern side of the Structure 50 mound. This unit was dug contemporary to Op. 7/22L-O/1 to promote drainage out of the West Group. It was excavated in one lot, Op. 7/22P-T/1 horizontal excavation in this area was not uniform and ranged from 5 to 10 cm of depth..

Lot 1: The matrix consisted of dark (10YR 2/2 Very Dark Brown) O- horizon with an abundance of modern charcoal from modern firing events. We did not screen the dirt that we removed from this unit because 1) it was primarily soil that had accumulated after the abandonment of the site, and 2) it was disturbed context from the 2009 excavations. When the drain was completed, we closed both lots. We recovered 18 ceramic sherds and two pieces of chert.

EXCAVATION UNIT 7/X

This suboperation was created to refer to the surface collections from the West Group plaza over the course of the five-week field season. These artifacts were all found out of context, on the plaza floor. We recovered four ceramic sherds and two pieces of groundstone.

Appendix II LOT DETERMINATIONS

Lot Determinations

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
1	7	14N	Ontop of 50 S side	Fill	Terminal Classic	22	2	2	0	0	No		
1	7	14O	Ontop of 50 S side	Fill	Terminal Classic	13	0	8	0	0	No		
1	7	14P	Ontop of 50 S side	Fill	Terminal Classic	52	0	3	0	0	No		
1	7	14R	Ontop of 50 SE corner	Fill	Terminal Classic	134	7	8	0	0	No	worked punice	
1	7	14S	Ontop of 50 SE corner	Fill	Terminal Classic	32	0	1	0	0	No		
1	7	16N	Ontop of 50	Fill	Terminal Classic	75	18	3	0	0	No		
1	7	16O	Ontop of 50	Fill	Terminal Classic	69	5	2	0	1	No	Wind jewel figurine	
1	7	16P	Ontop of 50	Fill	Terminal Classic	30	6	8	0	0	No		
1	7	16R	E wall of 50	Fill	Terminal Classic	106	4	16	0	0	No		
1	7	16S	E wall of 50 NE corner	Fill	Terminal Classic	70	5	5	0	0	No	Chert core and tool	
1	7	16T	E wall of 50	Fill	Terminal Classic	111	4	6	0	3	No		
1	7	18K	W wall of 50 NW corner	Fill	Terminal Classic	5	2	1	0	0	No		
1	7	18L	N Wall of 50	Fall/Fill	Terminal Classic	48	4	8	0	0	No	Clay figurine, Hoe or chisel, Faunal incl. marin snail	
1	7	18M	N Wall of 50 (both N bracing walls)	Fall/Fill	Terminal Classic	33	1	3	0	2	No	Slate piece included in groundstone, conch shell included in faunal	
1	7	18N	Stairblock of 50	Fall/Fill	Terminal Classic	21	0	0	0	0	No		
1	7	18O	Ontop 50 Behind N Wall	Fill	Terminal Classic	120	3	15	0	0	No		
1	7	18R	Ontop 50 Behind NE Corner	Fill	Terminal Classic	95	3	12	0	1	No		
1	7	18S	E wall of 50	Fall/Fill	Terminal Classic	144	0	5	0	0	No	Faunal includes marine shell	
1	7	18T	E wall of 50	Fall/Fill	Terminal Classic	137	6	6	0	0	No		
1	7	20L	N Wall of 50 W side	Mixed	Terminal Classic	95	9	29	0	0	No	Chert includes biface fragment, Grey, opaque obsidian. One ecofact	Heavily impacted by Roots of tree

Lot Determinations, Continued

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
1	7	20M	N Wall of 50 W side	Mixed	Terminal Classic	121	5	9	0	0	No	Chert and obsidian include biface fragments. 1 ecofact.	Heavily impacted by Roots of tree
1	7	20N	N Wall and Stairblock of 50	Fall/Fill	Terminal Classic	188	2	24	0	1	No		
1	7	20O	N Wall and Bracing Wall of 50	Fall/Fill	Terminal Classic	149	7	17	0	0	No		
1	7	20P	N Wall and Stairblock of 50	Fall/Fill	Terminal Classic	126	1	23	0	1	No	One chert appears to be drill or other tool	
1	7	20Q	N Wall and Stairblock of 50	Fall/Fill	Terminal Classic	140	10	22	0	1	No	Spindle whorl, Stone Tool 001	
1	7	20R	N Wall and Stairblock of 50	Fall/Fill	Terminal Classic	218	18	34	0	3	No	Obsidian includes opaque grey. 3 ecofacts quartz ball, stone bead	
1	7	20S	NE Corner of 50	Fall	Terminal Classic	194	6	19	0	0	No	Boxer figurine, chert includes biface fragment	
1	7	20T	Plaza and E Wall Fall	Mixed	Terminal Classic	186	5	27	0	0	No		
1	6	32X	Southern Corner of 6/ North of 5	Mixed	Late/Terminal Classic	303	12	28	0	0	No	No	
1	6	32Y	Southern Corner of 6/ North of 5	Mixed	Late/Terminal Classic	344	11	23	0	0	No	No	
1	6	32Z	Southern Corner of 6/ North of 5	Mixed	Late/Terminal Classic	460	15	29	1	0	No	1 Limestone bar	
1	6	33W	Half unit N of N Wall 6	Fall	Early Classic	155	10	26	0	0	No	Slate Fragment	Not written up in report
1	6	34W	Patio N of N-Wall 6	Mixed	Late/Terminal Classic	363	14	42	4	0	No	No	
1	6	34X	W Side of Str. 6 S of SB	Fall	Early Classic	124	5	30	0	0	No	No	Not written up in report
1	6	34Y	Southern Walls of 6	Fill	Early Classic/Late Classic	155	4	16	0	0	No	No	
1	6	34Z	Ontop of 6	Fall	Early Classic	62	4	7	0	0	No	No	

Lot Determinations, Continued

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
1	6	36W	Stairblock	Mixed	Late/Terminal Classic	284	12	16	0	0	No	No	
1	6	36X	Ontop Stairblock	Fill	Early Classic	123	7	4	0	0	No	No	
1	6	36Y	Ontop of 6	Fall	Early Classic	148	6	13	0	0	No	No	Goal was to arrive at patio floor,
1	6	36Z	Ontop of 6	Fill	Early Classic	188	13	18	0	1	No	1 geofact	associated with Tomb VI
1	6	38a	Ontop of 6	Fall	Early Classic	106	4	5	0	0	No	No	
1	6	38W	Patio near Stairblock	Mixed	Late/Terminal Classic	125	3	15	0	0	No	No	
1	6	38X	Ontop Stairblock	Fill	Early Classic	159	5	8	0	0	No	Conch	
1	6	38Y	Ontop of 6	Fill	Early Classic	177	3	26	0	0	No	No	
1	6	38Z	Ontop of 6	Fill/Tomb	Early Classic	432	21	28	1	0	No	4 geofacts	
1	6	40a	Ontop of 6	Fall	Early Classic	92	3	19	0	0	No	1 chert blade, 1 biface fragment	
1	6	40X	W Side of Str. 6 N of SB	Fall	Early Classic/Late Classic	341	12	34	0	0	No	No	Not written up in report
1	6	40Y	W Side of Str. 6 N of SB	Fall	Early Classic	297	15	28	0	0	No	No	
1	6	42a	North Wall of 6	Fill	Early Classic	230	7	13	5	0	No	No	
1	6	42Y	Cleaning of L-Shaped Wall	Fall	Late/Terminal Classic	130	8	14	2	0	No	No	
1	6	42Z	North Wall of 6	Fall	Early Classic	78	5	9	0	0	No	No	
1	6	44Y	Ontop of L-shaped Wall	Fill	Late/Terminal Classic	345	9	48	0	0	No	No	
1	6	44Z	Patio N of N-Wall 6	Fall	Late/Terminal Classic	219	8	18	0	0	No	No	
1	6	46Y	N of L-shaped Wall	Patio only	Late/Terminal Classic	56	0	2	0	0	No	No	
2	7	14N			Terminal Classic	26	0	2	0	0	Yes	Faunal includes crab claw	
2	7	14O				29	2	5	0	0	No		
2	7	14R				347	10	23	1	3	No	stone tools also recovered	
2	7	14S			Terminal Classic	54	0	13	0	0	No	Bark beater frag	
2	7	16N				48	2	3	0	0	No		
2	7	16O				28	1	2	0	0	No		
2	7	16P			Terminal Classic	41	4	15	0	1	No	Stone Tool	

Lot Determinations, Continued

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
2	7	16S			Terminal Classic	513	0	33	1	0	No	2 stone tools. Bone flute	
2	7	18S			Terminal Classic	252	7	8	0	3	No	Figurine in sw corner of unit. Faunal includes marine shell	
2	7	18T			Terminal Classic	135	7	5	0	1	No	1 chert biface, 1 chisel, 1 stone tool percussion	
2	7	20L			Terminal Classic	59	2	4	1	0	No		
2	7	20M			Terminal Classic	15	0	2	0	0	No		
2	7	20N			Terminal Classic	86	1	8	0	0	No	Faunal includes marine shell	
2	7	20O			Terminal Classic	29	0	4	0	0	No		
2	7	20P			Terminal Classic	120	0	7	0	1	No	1 chert biface fragment	
2	7	20Q			Terminal Classic	129	2	7	0	0	No	1 small candle pot	
2	7	20R			Terminal Classic	424	13	10	0	6	No	1 possible ceramic glyph. Ground stone tool, clay whistle, crude clay figurine, Figurine 011, 1 serpentine bead	
2	7	20S			Terminal Classic	295	5	12	0	5	No	1 Figurine	
2	7	20T			Terminal Classic	128	5	9	0	0	No	Obsidian includes biface fragment	
2	6	32X			Early Classic	65	0	0	0	0	No		
2	6	32Y			Early Classic	448	13	22	0	0	No		
2	6	32Z			Early Classic	229	3	42	0	0	No		
2	6	34X			Early Classic	269	6	25	0	0	No		
2	6	36-38W			Early Classic	172	4	13	0	0	No		
2	6	36a			Early Classic	0	0	0	0	0	No		
2	6	36Y			Early Classic	294	9	25	1	0	Yes	15 Geofacts	
2	6	36Z			Early Classic	472	13	0	0	0	No	1 possible game piece	

Lot Determinations, Continued

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
2	6	38a			Early Classic	48	0	5	1	0	No	Obsidian blade core	
2	6	38X			Early Classic	85	1	4	0	0	No	No	
2	6	38Z			Early Classic	75	1	0	9	0	No	3 plates, 2 vases	
2	6	40X			Early Classic	264	11	9	4	0	No	No	
2	6	40Y			Early Classic	245	10	17	0	0	Yes	No	
2	6	42TUV			Early Classic	73	3	0	1	0	No	No	
2	6	42Y			Early Classic	135	2	9	0	0	No	No	
2	6	42Z			Early Classic	422	11	27	2	1	Yes	No	
2	6	44T			Early Classic	218	8	36	1	0	No	Faunal incl. coral, conch, deer	
2	6	44U			Early Classic	182	5	19	0	0	Yes	Faunal is mostly <i>Strombus</i>	
2	6	44V			Early Classic	151	6	11	62	0	Yes	Faunal is conch	
2	6	44W			Early Classic	12	2	7	0	0	No	No	
2	6	44X			Early Classic	135	1	4	0	0	No	1 ceramic candle holder, 1 piece of hematite mirror	
2	6	46S			Early Classic	26	0	1	0	0	No	No	
2	6	46U			Early Classic	976	13	29	1	0	No	Abundance of marine shell, strombus. 1 geofact	
2	6	46X			Early Classic	443	14	15	0	0	Yes	2 geofacts, faunal includes geofacts	
2	6	48U			Early Classic	293	1	12	0	0	Yes	1 geofact, faunal includes strombus	
3	7	14O				23	1	2	0	0	No		
3	7	16O				23	1	2	0	0	No		
3	7	16P			Terminal Classic	23	1	2	0	0	No		
3	7	20QRS			Terminal Classic								
3	7	18LMNO			Terminal Classic								
3	6	32XYZ			Early Classic	48	5	0	0	0	No	No	
3	6	34X			Early Classic	84	6	0	0	0	No	No	

Lot Determinations, Continued

Lot #	Operation	Unit	Location on Building	Arch. Context	Anticipated Temporality	Ceramic	Obsidian	Chert	Human Remains	Groundstone	Charcoal?	Other Artifact	Notes
3	6	36Z			Early Classic	151	6	5	0	0	No	No	
3	6	38-40Y			Early Classic	58	0	2	0	0	No	1 frog figurine, 1 ecofact	
3	6	38Z			Early Classic	271	12	17	2	0	No	Ceramic figure	
3	6	42-44Y			Early Classic	436	0	23	0	0	No	Faunal includes strombus	
3	6	42STUVW			Early Classic	692	8	16	0	1	No	Hematite fragment, ceramic head	
3	6	42TUV			Early Classic	52	0	1	0	0	No	No	
3	6	44W			Early Classic	2	0	0	0	0	No	Ceramic includes candle holder, faunal includes strombus	
4	7	14O				15	1	1	0	0	No		
4	7	16O				15	1	1	0	0	No		
4	7	18M			Terminal Classic	5	0	0	0	0	No	Faunal includes marine shell	
4	6	44-48W			Early Classic	248	1	16	0	0	No	Formal chert tool	
5	7	14O				10	0	0	0	0	No		
5	6	44STUVW			Early Classic	692	8	16	0	1	No	Hematite fragment, ceramic head	

Appendix III CHERT ANALYSIS

Structure 6 Chert Artifacts

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
38Z3 (F.6/38Z5)	EC	Fill	271	16	109	13	2	0	Present	0	0	0	3 small biface thinning flakes are present, two are made of the honey brown chert import
44Y/1	L/TC	Fill	345	56	271	17	20	2	Present	1	0	1	two or three flakes are honey brown chert import
40Y/1	EC	Mixed	297	27	185	10	14	3	Present	0	0	0	there is a large chunk of honey brown that potentially could have been a fragment from a macro blade, it is also possible it was used as a tool as it has some damage to one edge, one of the cores is a honey brown micro flake core with 7 facets, the other cores are a red chert that has cortex on thin ends and 6 facets, and a pink chert with 3 facets, two of the flakes are also HB, and there is quartzite present.
42Y/1	L/TC	Mixed	130	13	53	12	1	0	Not	0	0	0	one large flake is honey brown import with 15% cortex on the dorsal face, possible edge wear use but these could be fresh edge damage from storage
38a/2	EC	Fill	48	4	23	3	1	0	Not	0	0	0	45.3 x 1.13 mm seems to have come from a nodule,
42-44Y/3	Mixed	Fill	436	16	119	10	5	0	Not	1	0	0	the flake tool was used as a scraper, in a unifacial direction showing use-wear
34X/1	EC	Fill	123	30	131	17	8	0	Present	1	0	3	4 pieces of honey brown present, 2 are chunks, one was used as a tool in scraper fashion, 1 is a medial section of amacro blade, that show the edge was heavily used with strong usewear, the other portions show a lot of battering in attempt either to rejuvenate the original edge and then to remove usable flakes, the other two blades are percussion, one is proximal with the platform present ma has some light pecking or grinding, the other is a distal segment that has two facet scars on the dorsal face and third on the lateral side, amongst the scars there are several quite small flakes present
40a/1	EC	Fill	92	13	146	6	9	1	Not	0	0	0	core is made of a very crude red semi-chert material with 7 facets

Structure 6 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
32Z/2	L/TC	Mixed	229	7	75.7	1	6	0	Not	0	0	2	the blades are proximal segments, holding the platform on has two previous scars and the other has three.
36W/1	L/TC	Mixed	284	14	144	8	4	2	Not	0	0	0	the cores are very crude and small, 7, 6 facets respectively, two small biface thinning flakes
38Z/1	EC	Tomb	432	23	134	10	12	0	Present	0	0	1	some quartzite present, blade is a percussion blade with 3 facets on the ventral face, proximal end with platform
34X/2	EC	Fill	0	23	227	9	10	4	Present	0	0	0	flake tool used as a scraper, has unifacial edgewear
42Z/1	EC	Fill	78	9	12	6	2	1	Present	0	0	0	
42YZa/3	EC	Fill	453	21	131	12	4	1	Not	0	0	1	the core is a bipolar core, really nice mix of material, nice calcadonies, some nice flakes here as well, one imported macroblade honey brown chert, this medial segment of the blade was then used as a tool "as a scraper" in a unifacial direction use wear is present
40X/1	Mixed	Mixed	341	34	206	18	10	3	Present	0	0	3	wide variety of material present, 3 very crude percussion blades (1 complete, 2 distal fragments), percussion flake cores range in flake scars, 3, 5, 7
38W/1	L/TC	Mixed	106	12	184	6	3	2	Not	1	0	0	46,50,15 mm for the flake tool that was used as stripper, it has use wear in one facet that is concave shape for something akin to remove bark from a piece of wood that area is 16 mm. flake cores are crude tests to see if they could get flakes it is unlikely they acquired any usable pieces, 6 and 7 facets respectively
36Z/2	EC	Fill	472	21	248	7	10	5	Not	0	0	0	7,4,4,3 facets on the flake cores, flake made of quartzite
32Z/1	L/TC	Mixed	460	27	254	16	9	2	Present	0	0	0	
42a/1	EC	Fill	230	12	135	8	2	2	Not	0	0	0	these cores show damage of being further broken
40W/1	EC	Fill	0	26	457	7	13	6	Present	0	0	0	small notching flake, lots of casual flaking cores, one small core may have been a bipolar core.
36Z/1	EC	Fill	188	15	109	7	7	1	Not	0	0	0	10 facets on the core

Structure 6 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
44Z/1	L/TC	Fill	219	16	88	7	7	1	Present	0	0	0	quartzite small bipolar flake core made from a small nodule, two flakes are of the honey brown import.
38X/1	EC	Fill	159	8	28	6	2	0	Not	0	0	0	a few biface thinning flakes are present, one is made of honey brown material, in addition two micro blades one proximal and one distal of HB are present as well, the distal segment has cortex of 25%. The core is small and only has two facets
34W/1	L/TC	Patio	363	38	264	20	16	1	Present	0	0	2	flake tool has an edge of 26 mm, only 14 mm shows usewear in a cutting fashion, made of a nice light brown chert appraising calcedony
38Y/1	EC	Fill	177	24	90	14	9	0	Not	1	0	0	The flake tool here is a used chunk for cutting has use wear along one edge, and is shaped triangular, cutting edge is 39 mm it is a piece of very nice light tan chert very homogenous, possibly a variety on the honey brown import, there is two flake fragments of honey brown, one is 35mm long and carries about 25% cortex on the dorsal face, flakes are generally larger in this lot, one core is very small 30mm in length with a few flakes randomly take off, the other is larger with 6 facets, only two good flakes were taken off a lot of battering is present before they gave up, material looks to be quite hard.
42X/1	EC	Fill	272	30	308	17	9	2	Not	1	0	0	Crested Blade early on in production, fractured biface preform, not very good at making them
42Z/2	EC	Mixed	422	23	153	9	13	0	Present	0	1	1	

Structure 6 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
32Y/2	L/TC	Mixed	448	22	156	7	6	3	Not	0	1	5	this is a great context has lots of different aspects with a variety activities taking place, two biface thinning flakes, 4 irregular blades (1 complete, 2 proximal with platforms, 1 distal segment showing three previous scars), 1 macro blade proximal segment, showing use wear along edge for in a cutting fashion, 3 crudely small flake cores, the biface fragment is pretty crude and bulky looks like a failure
34Z/1	EC	Mixed	62	7	75	3	3	1	Not	0	0	0	The core is very small fragment of a bipolar core showing, flake scars in both directions, holding 7 facets only 21 mm long
32X/1	L/TC	Mixed	303	25	174	18	8	1	Present	0	0	0	several very small flakes present biface thinning flakes, 6 small flakes from the reduction of a piece of honey brown import, this may have been an knapping episode. Not clear what was reduced, core has 5 facets
32Y/1	L/TC	Mixed	344	26	148	10	15	0	Present	1	0	0	the tool is made on a flake the is backed by cortex, it measures 48,45,17 mm, the used edge is 42 mm long, it is heavily impacted, possibly for retouch but more likely this piece was used as a chopper against a material of significant hardness, there are some biface thinning flakes, and quite a bit of very small shatter present
33W/1	EC	Mixed	155	26	380	14	7	4	Not	1	0	0	one of the flakes has use wear along one edge
36Y/2	EC	Fill	294	21	181	9	11	1	Present	0	0	1	the blade is proximal end of percussion blade with platform present, 3 facet scars, the core has 10 facets
34Y/1	Mixed	Fill	155	16	86	6	7	1	Not	0	0	0	Core has only two flakes taken off to test it, there is a flake of honey brown import, but looks like it was beat to hell pretty badly, one biface thinning flake

Structure 6 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
40Y/2	EC	Fill	245	21	145	8	6	1	Present	0	0	4	Small biface thinning flakes present, blades are the crude percussion blades 1 is complete, 2 are proximal segments with platforms, 1 macro blade distal segment on an imported honey brown chert, core is small and round with four facets
42Y/2	L/TC	Fill	135	9	46	4	4	0	Not	0	1	0	broken attempt at a biface shows that they imported a macro blade for making a biface Honey brown chert
36-38W/2	Mixed	Mixed	172	13	88.7	8	3	0	Not	1	0	1	flake tool is made on crude poorly formed red chert, with abs edge damage on one side, used in a heavy scarping action that left large scars, the blade is from a percussion micro blade core, that was crudely made, it has three previous blade facets on its dorsal face, the platform is very well defined, among the chunks is a good sized piece of 35mm across of honey brown import, with spots of white discoloration
42Y/1	L/TC	Mixed	130	34	199	22	12	0	Present	0	0	0	
38a/1	EC	Mixed	106	3	16	2	1	0	Not	0	0	0	
36Z/3	EC	Fill	131	3	32	3	0	0	Not	0	0	0	
36X/1	EC	Fill	123	3	14	1	1	0	Not	0	0	1	this is the distal end of a micro blade with bulb of percussion, but platform has been crushed, that was removed from the distal end of a blade core to rejuvenate the working face, this blade carries two previous facets of blades, one was a failed removal leaving a step fracture, this carries a portion of the prepared working platform of the original core, that shows lots of edge crushing to have prepared the platform of subsequent removals.
40X/2	Mixed	Mixed	264	9	67.5	4	2	1	Present	1	0	0	flake tool was used as a unifacial "scraper", not retouched, core is crude and has 4 facets, one biface thinning flake

Structure 6 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
46Y/1	L/TC	Patio	56	1	20	0	0	0	Not	1	0	0	This flake tool was used as a cutting instrument along its edge, prominent usewear through out, 55, 34, 14 mm it is cortically backed, of a very nice homogenous white chert.

Structure 50 Chert Artifacts

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Casual Percussion Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
14N/3	TC	Fill	11	1	9.7	0	1	0	Not	0	0	0	used in a "scraping" action unidirectional distal end of a large flake
18T/1	TC	Fill	137	6	64	4	1	1	Not	1	0	0	
20Q/2	TC	Fill	129	11	151	9	1	1	Not	0	0	0	
16P/2	TC	Fill	41	12	144	10	2	0	Not	0	0	0	
16N/2	TC	Fill	48	10	109	3	6	0	Not	0	1	0	it is a failed poor attempt at a biface
18L/2	TC	Fill	48	8	241	3	3	2	Not	0	0	0	
18QR/4	TC	Mixed	92	4	162	0	3	1	Not	0	0	0	tested chunk of chert
18K/1	TC	Fill	5	1	84	0	1	0	Not	0	0	0	
20T/1	TC	Mixed	186	17	163	9	6	2	Not	0	0	0	tested chunk of chert
14O/1	TC	Fill	13	2	210	0	2	0	Not	0	0	0	
20M/1	TC	Mixed	121	7	89	5	1	1	Not	0	0	0	
18T/2	TC	Fill	135	5	46	3	2	0	Not	0	0	0	
20R/1	TC	Fill	218	26	307	12	11	1	Present	1	0	0	1 of the flakes is a very small biface thinning flake, the tool is a shattered section flake section that has edge damage used in a single direction ("Scraping")
20T/2	TC	Mixed	128	5	72	3	2	0	Not	0	0	0	
16P/1	TC	Fill	30	9	70	6	3	0	Not	0	0	0	two of the bifaces have 5 scars of flakes that had been removed
18O/1	TC	Fill	120	13	251	5	5	3	Not	0	0	0	
20S/1	TC	mixed	194	12	368	7	2	3	Not	0	0	0	
16O/4	TC	Fill	15	1	11	1	0	0	Not	0	0	0	
20P/1	TC	Fill	126	17	239	9	4	4	Not	0	0	0	medial Segment of a macro blade, possibly imported Chert
20N/1	TC	Fill	188	17	209	5	6	2	Not	0	0	1	
18N-O/3	TC	Fill	51	3	34	0	3	0	Present	0	0	0	
20M/2	TC	Mixed	115	1	16	1	0	0	Not	0	0	0	
20P/2	TC	Fill	120	7	209	4	1	1	Not	0	1	0	The biface is a small fragment along one of the lateral sides, likely fractured during retouch the edge shows use-wear damage.
18P-Q/2	TC	Fill	315	14	301	8	3	3	Not	0	0	0	
18P-Q/1	TC	Fill	52	9	32	4	5	0	Present	0	0	0	
20O/2	TC	Fill	29	3	15	0	3	0	Not	0	0	0	
14N/1	TC	Fill	22	2	19	1	1	0	Not	0	0	0	
14O/3	TC	Fill	25	2	24	2	0	0	Not	0	0	0	
14O/2	TC	Fill	29	2	26	1	1	0	Not	0	0	0	
20N/2	TC	Fill	26	7	60	1	6	0	Present	0	0	0	Two bags
18S/2	TC	Fill	252	2	24	1	1	0	Not	0	0	0	
20R/2	TC	Fill	424	9	159	3	4	2	Not	1	0	0	This is an excellent example of a flake tool that has a lot of use wear along multiple edges, one of the casual percussion flake cores may have also been used as a tool on one edge
20S/2	TC	Mixed	295	8	120	3	4	1	Present	0	0	1	blade is early first series; not a formal blade off a core, purpose was to remove a set up crested ridge
16T/1	TC	Mixed	111	5	74	2	3	0	Present	0	0	0	
16P/3	TC	Fill	23	2	6.3	2	0	0	Not	0	0	0	
20O/1	TC	Fill	149	11	74	4	7	0	Not	0	0	0	

Structure 50 Chert Artifacts, Continued

Unit	Temp	Location	Ceramic Count	Gross Count	Gross Mass (g)	Flakes	Chunks	Casual Percussion Flake Core	Shatter	Flake Tool	Biface	Blades	Notes
I40/4	TC	Fill	15	3	57	0	2	1	Not	0	0	0	
I8M/1	TC	Fill	33	2	18	0	2	0	Not	0	0	0	
22L-O/1	TC	Mixed	95	1	13	1	0	0	Not	0	0	0	Plaza floor west
I8R/2	TC	Fill	377	14	120	10	4	1	Not	0	0	0	
I4P/2	TC	Fill	347	3	48	0	3	0	Not	0	0	0	
I6N/2	TC	Fill	48	2	43	1	1	0	Not	0	0	0	
20Q/1	TC	Fill	140	7	133	1	4	2	Not	0	0	0	the one flake is a very fine and likely made on an imported chert, honey
20L/1	TC	Mixed	95	20	450	8	9	3	Not	0	0	0	
20L/2	TC	Mixed	59	3	28	1	2	0	Not	0	0	0	
20Q-R/3	TC	Fill	36	1	10	1	0	0	Not	0	0	0	
I6O/1	TC	Fill	28	4	48	2	2	0	Present	0	0	0	
I8S/1	TC	Fill	144	4	25	4	0	0	Not	0	0	0	
I9P/1	TC	Fill	39	1	11	1	0	0	Not	0	0	0	
I4O/5	TC	Fill	0	1	3	1	0	0	Not	0	0	0	
I6O/2	TC	Fill	28	1	8	0	1	0	Not	0	0	0	
I4S/2	TC	Mixed	54	15	286	6	4	5	Present	0	0	0	Imported honey brown is present
I6S/2	TC	Fill	513	2	103	1	0	0	Not	0	0	0	Flake core has 6 facets
I6R/1	TC	Mixed	106	12	190	4	6	1	Not	0	1	0	Biface has usewear
I8R/1	TC	Fill	95	8	107	7	1	0	Not	0	0	0	
I6R/3	TC	Fill	106	17	193	8	4	1	Not	0	3	1	Blade is a percussion blade fragmentation medial
I6R-S/3	TC	Fill	417	4	23	3	1	0	Not	0	0	0	
I4R/1	TC	Mixed	134	9	173	7	0	2	Not	0	1	0	tool is a knife
I4R/2	TC	Fill	347		255	5	7	2	Not	1	1	0	one biface, and one tool that is a chunk used as a unifacial scraper with retouch
I6S/1	TC	Mixed	70	2	24	1	0	0	Not	0	1	0	stone tool #11
I6S/2	TC	Mixed	513	21	196	7	6	2	Not	0	2	3	1, micro blade core, 2 bifaces one is a chert point stone tool #5
I6S/2 (F:7/14)	TC	Fill		4	80	2	1	0	Not	0	0	1	stone tool is #12 was a macro blade that was broken and converted into a tool

Appendix IV GROUNDSTONE ANALYSIS

Groundstone Legend

Material Type	Grain	Style	Manufacture
0-Unknown	0-Not Applicable	0- Uncertain	0-Unclear
1- Volcanic	1-Fine	1- Flat-Bottomed Metate	1-Ground
2-Volcanicsiltc	2-Medium	2- Two-Legged Metate	2-Pecked
3-Granite	3-Coarse	3- Three-Legged Metate	3- Ground and Pecked
4-Mudstone		4- X-Legged Metate	4- Chipped
5-Siltstone		5- Mano	5- Chipped and Ground
6-Limestone		6- Mortar (Mocojete)	6- Natual
7-Versicular Basalt		7- Pestle	
8- Redeposited Metamorphic		8-Grinder/ Sander	
9- Metamorphic		9- Chisel	
10- Sandstone		10-Hammerstone	
11- Chert		11- Hoe	
12- Slate			
13- Jade			
14- Serpentine			

Structure 6 Groundstone

Operation	Sub-Operation	Ka #	Group	Length (cm)	Width	Thickness	Mass (g)	Material Type	Grain	Color	Complete (%)	Style	Manufacture	Notes
Op.6	40X/1	6.001		6.7	14.5	6.2	950	Sandstone	3	Light Gray	1	5	3	This is a small two-handed mano, one side is heavily worn while the other is chipped and shows the interior stone which has large inclusions, well made cylindrical shape with two deep grooves around the circumference
Op.6	40W/1	6.002	1 of 2	5.8	4.7	5.3	184	Volcanic	1	White	>.05	4	3	Fragment of a leg from a metate
Op.6	42Z/2	6.003		9	8.5	3.2	300	Volcanic	1	Light Gray	>.05	0	3	Body fragment from a metate
Op.6	33W/1	6.004		2.7	3	1.2	15	Slate	1	Dark Gray	>.05	0	1	Very small fragment of slate that has been polished
Op.6	40W/1	6.005	2 of 2	4.5	2.8	4	100	Serpentine	1	Green Blue	0.15	9	3	This is the distal end of a serpentine chisel or celt; the bit is still present, manufacture is obvious pecking is visible on the top while the bit was polished and ground Moved to Formal tools
Op.6	36Y/2			19	16	4.5	1400	Underwater Tuff						natural accretion taken from likely rivers and thrown into the fill of the buildings. I still have the suspicion that they may be created within the buildings

Structure 50 Groundstone

Operation	Sub-Operation	Ka #	Group	Length (cm)	Width	Thickness	Mass (g)	Material Type	Grain	Color	Complete (%)	Style	Manufacturer	Notes
Op.1	9E/3	50.001		21	17.5	5.7	1950	Volcanic	1	Gray with Red Inclusions	0.25	4	3	the grinding surface is very well used, Volcanic legged style from Guatemala, the reddish parts are iron inclusions, the remnant of the leg likely had a diameter of 7 cm
Op.1	9/2	50.002	1 of 4	10.5	5	1.7	171	Volcanic	1	Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is well used
Op.1	9/2	50.003	2 of 4	5.8	4.5	3.2	100	Volcanic	2	Pink	>.05	0	3	very small body fragment of a grinding metate, grinding surface is well used
Op.1	9/2	50.004	3 of 4	6.1	10.5	1.9	138	Volcanic/Vo calclastic	1	Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is well used
Op.1	9/2	50.005	4 of 4	6	7.7	2.8	182	Volcanic	1	Gray	>.05	0	3	very small body fragment along the edge which is curved of a grinding metate, grinding surface is well used
Op.1	9/4	50.006		8.2	4.4	4.1	173	Sandstone	3	Light Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is very coarse, sides may have been straight
Op.1	9N/6	50.007		7.5	7	7.5	950	Volcanic/Vo calclastic	1	Tan Gray	>.05	4	3	Leg of a metate, diameter is roughly 7 cm
Op.1	9/6	50.008		11	8.5	10.5	1150	Volcanic	1	Gray with Red Inclusions	>.05	4	3	portion of grinding surface, side wall and leg of a metate
Op.1	9/3	50.009		13	8.1	2.4	321	Volcanic	1	Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is well used
Op.1	9/1	50.01		13.6	7.4	2.2	290	Volcanic	1	Tan Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is well used
Op.7	20Q-R/3	50.011		22	14	6	3800	Volcanic	3	Tan Gray	0.25	1	3	Macro Image taken, well shaped flat bottomed metate fragment, no leg attachment are visible, made of a very fine quartzite material
Op.7	22L-Q/1 (Plaza Floor)	50.012		26	25	12	10650	Sandstone	1	Gray	0.5	1	3	an excellent example of a metate
Op.7	20Q/1	50.013		9.3	7.8	4.2	397	Carb Sandstone	3	Blueish Gray	>.05	0	3	very small body fragment of a grinding metate, grinding surface is very coarse, sides may have been straight, edge is rough
Op.7	20S/2	50.014	1 of 5	12.5	8.9	3.4	900	Volcanic/Vo calclastic	1	Tan Gray	>.05	0	3	likely a flat bottomed metate fragment
Op.7	20R/2	50.015	1 of 3	19	27.5	3	3600	Sandstone	2	Light Brown	0.5	1	3	a flat bottomed metate fragment about half is present, made of a very coarse grain like material, found in situ with the associated mano of same material

Structure 50 Groundstone, Continued

Operation	Sub-Operation	Ka #	Group	Length (cm)	Width	Thickness	Mass (g)	Material Type	Gram	Color	Complete (%)	Style	Manufacturer	Notes
Op.7	20R/2	50.016	2 of 3	10.5	27	6	2300	Sandstone	2	Light Brown	1	5	3	a two handed mano, it fits exactly into the above metate, one side does appear to be the bottom grinding side and is slightly discolored red. Both objects were photographed together.
Op.7	14R/2	50.017	1 of 3	20	22	5	3150	Sandstone	2	Tan	0.25	1	3	rectangular in shape, the grinding section has some damage, remnants of the pecking that shaped the metate remain visible in the grinding channel, coarse grains of sand, the width is almost complete.
Op.7	14R/2	50.018	2 of 3	9.5	7	5.5	650	Sandstone	3	Gray with Red Inclusions	>.05	0	1	very small body fragment of a grinding metate, grinding surface is well used, red iron inclusions make part of the stone appear pink.
Op.7	14R/2	50.019	3 of 3	7.2	5.7	4.7	210	Volcanic	1	Dull Red	Fragment	0		It is not clear if this is a fragment of metate or just a bit of pumice used as a grinder, it is angular in shape and has one used surface, large vesicular holes.
Op.7	20R/2	50.02	1 of 2	9.2	12.2	3.6	220	Volcanic/Vo caldastic	1	Gray	>.05	0		very small body fragment of a grinding metate, grinding surface is moderately used, unclear if it was flat bottomed.
Op.7	20R/2	50.021	2 of 2	18	19	4	800	Volcanic	1	Gray	0.25	4	3	nicey shaped rectangular metate, the remnant of a leg attachment visible on the bottom.
Op.7	20S/2	50.022	2 of 5	5.2	6.2	3.7	167	Volcanic	1	Gray	>.05	5	3	small mano fragment, working face is very smooth.
Op.7	20S/2	50.023	3 of 5	6.1	4.5	5.6	216	Carb Sandstone	3	Gray	>.05	0		very small curved edge body fragment of a grinding metate, grinding surface is well used.
Op.7	20S/2	50.024	4 of 5	6.6	3.9	4	140	Volcanic	1	Gray	>.05	0		very small curved edge body fragment of a grinding metate, grinding surface is well used.
Op.7	20S/2	50.025	5 of 5	9	10.3	15.5	1350	Volcanic	1	Gray	0.15	4	3	leg and a small portion of the grinding surface of a metate.
Op.7	18R/1	50.026		20.5	9.5	4	1550	Volcanic/Vo caldastic	1	Gray	0.25	2	3	this metate was small the length is the actual legh and likely had only two small nub feet about 2 cm tall they are circular, it looks to have been finely made, small corner is chipped and the left half is missing.
Op.7	14R/1	50.027		7.8	4.8	3.9	41	Pumice	1	Dark Brown	1	8	6	this is a small pumice stone of volcanic tuff, that was used as a hand grinder.
Op.7	18LMN/4	50.028		17	12	5.5	1550	Volcanic	1	Gray	0.25	4	3	a metate fragment with the scar of a leg on the bottom, unsure how many legs, it originally had, top left corner

Structure 50 Groundstone, Continued

Operation	Sub-Operation	Ka #	Group	Length (cm)	Width	Thickness	Mass (g)	Material Type	Grain	Color	Complete (%)	Style	Manufacture	Notes
Op.7	16P/2	50.029		11	10	2.5	1500	Sandstone	2	Tan Gray	0.5	5	3	likely a mano fragment, possibly not heavily used, it may have snapped both vertically and horizontally in half, large coarse sand grains
Op.7	20R/1	50.03	1 of 2	9.9	3.5	3.8	230	Sandstone	2	Yellow	1	0	0	Hammerstone or pestle, it is cylindrical hotdog shape, of coarse sand stone that comes off to the touch very easily
Op.7	20R/1	50.031	2 of 2	2.7	2.7	2.7	28	Chert	2	White	1	10	6	hammerstone for small bifacial work
Op.7	18S/2	50.032	1 of 3	2.7	4.6	2.7	395	Sandstone	1	Tan	0.5	5	3	a little bit less than half of a two handed mano, likely locally made
Op.7	18S/2	50.033	2 of 3	4	4	2	380	Sandstone	1	Pink	0.25	5	3	a medial segment of a two handed mano
Op.7	18S/2	50.034	3 of 3	5	2.6	5.2	41	Mudstone	1	Gray	>.05	5	3	just the distal end cap section of a mano
Op.7	16S/2	50.035	1 of 2	3.3	2.8	3.3	38	Carb Sandstone	2	Pink	>.05	0	1	small piece of groundstone not clear if this is from a mano or metate
Op.7	20N/1	50.036		5.4	4.3	3.9	141	Volcanic	1	Gray	0.15	5	3	just the distal end cap section of a mano
Op.7	18T/2	50.037		6.1	8.1	1.9	167	Mudstone	1	Blueish Gray	0.5	5	6	half of a basalt mano extremely well ground down
Op.7	16T/1	50.038		5.6	9.3	4.3	279	Sandstone	1	Brown	0.95	5	3	a one handed mano of sandstone with coarse grains
Op.7	18M/1	50.039		8.5	1.4	4.5	950	Sandstone	1	Brown	0.5	5	3	A two handed mano, broken in half was very neatly shaped
Op.7	16O/1	50.04		8	6.5	5	500	Sandstone	2	Light Gray	0.2	5	3	a mano fragment likely two-handed but it is not clear, the grains are like sand and very coarse.
Op.7	20P/1	50.041		7.3	6.6	5.3	450	Volcanic	1	Light Gray	1	5	3	This is a single handed mano that appears to have been made from the broken fragment of a larger two-handed mano that had broken, they did some repair and grinding down to this end.
Op.7	16S/2 (F.6/16S/1)	50.042		7.6	11.2	5	750	Carb Sandstone	3	Gray with Red Inclusions	0.1	0	3	A flat bottomed metate fragment, the edge curves up
Op.7	16R-S/3	50.043	1 of 5	8.3	7.1	2.9	234	Sandstone	1	Tan Gray	>.05	0	3	likely a flat bottomed metate fragment, just the very corner, grains have a medium coarseness
Op.7	16R-S/3	50.044	2 of 5	7.5	7.8	7.9	750	Sandstone	2	Gray	>.05	0	3	likely a flat bottomed metate fragment, just the very corner, grains have a medium coarseness
Op.7	16R-S/3	50.045	3 of 5	10.7	4	4.5	450	Mudstone	1	Dark Gray	0.75	7	0	This is a cylindrical pestle that was used in a up and down motion, damage to the end likely led to its discard
Op.7	16R-S/3	50.046	4 of 5	5	8.5	4.7	500	Mudstone	2	Blueish Gray	0.5	5	3	this is about half of a two handed mano
Op.7	16R-S/3	50.047	5 of 5	7.4	8.2	8	850	Sandstone	1	Tan	>.05	0	3	A flat bottomed metate fragment, the edge curves up, not very coarse at all

Structure 50 Goundstone, Continued

Operation	Sub-Operation	Ka #	Group	Length (cm)	Width	Thickness	Mass (g)	Material Type	Gram	Color	Complete (%)	Style	Manufacture	Notes
Op.7	20R/2	50.048	3 of 3	26	20	7.5	2250	Volcanic	1	Tan	0.75	2	3	This is an almost complete metate, it shows the full range of the object that was a rectangular shape finely made, it would have had two legs
Op.7	West Group Plaza Floor	50.049	1 of 2	15	18	6	1900	Carb Sandstone	3	Gray	Fragment	0	3	grinding surface fragment of Metate, very large inclusions in the matrix of this stone
Op.7	West Group Plaza Floor	50.05	2 of 2	16.5	7	3.5	500	Sandstone	2	Tan	0.9	9	3	This is a chisell maybe for cutting trees or chipping limestone blocks, tapers to one end
Op.7	LMNO/3	50.051	1 of 3	5.5	7	4.5	278	Mudstone	2	Gray	>.05	0	3	This is a portion of the body of a metate
Op.7	LMNO/3	50.052	2 of 3	7	4.8	2	159	Volcanic	1	Gray Brown	>.05	4	3	this is the round foot of a metate
Op.7	LMNO/3	50.053	3 of 3	8	20	10	1300	Sandstone	2	Tan	>.05	1	3	This is a portion of the body of a metate
Op.7	18R/2	50.054		5	4	4.1	113	Carb Sandstone	3	Dark Brown with pink	>.05	0	1	possibly a portion of a mano but it is unclear.
Op.7	18Q-P/2	50.055	1 of 5	17	9	5.5	1100	Sandstone	2	Light Gray	>.05	1	5	This is a portion of the body of a metate
Op.7	18Q-P/2	50.056	2 of 5	6	9	4	700	Sandstone	2	Gray	0.5	5	1	This possibly half of a two-handed mano, very uniform and rectangular in shape
Op.7	18Q-P/2	50.057	3 of 5	6.5	15	4.5	900	Sandstone	2	Tan	0.5	5	1	This possibly half of a two-handed mano, irregular in shape with a slight bow shape
Op.7	18Q-P/2	50.058	4 of 5	4	6	6.5	232	Sandstone	2	Tan	>.05	4	3	square foot of a metate
Op.7	18Q-P/2	50.059	5 of 5	8	5.5	3	161	Mudstone	1	Blueish Gray	0.2	9	1	Appears to be a hand sized chisel for working stone
Op.7	18O/3	50.06	1 of 2	7	8	3	269	Sandstone	1	Gray	>.05	1	3	Portion of the body of a metate
Op.7	18O/3	50.061	2 of 2	7.8	5.7	3.2	250	Mudstone	1	Blueish Gray	0.5	9	3	Single handed chisel for working stone
Op.7	20R/2	50.062	1 of 2	13	6	2.6		Mudstone	1	Dark Gray	1	11	3	A nearly complete hoe that was hafted made out of a very hard mudstone, slightly chipped looks like they might produced these and then cut them in half to get two hoes, has shoulders for hafting
Op.7	18L/1	50.063		11	3.3	2.7		Mudstone	1	Light Gray	0.75	11	3	A smaller version of a hoe still has an area for tying ropes to haft the implement; the bit was severely damaged may have led to its discard

Appendix V GEOARTIFACTS DATA

Structure 6 Geoartifacts

Unit	Length (mm)	Width	Thickness	Mass (g)	Snapped	Back Groove	Altered	Color	Notes
40X/1	24.7	20.9	7.9	5.4	2	0		yellow	
38Z/3	43.5	19.3	9.2	9	2	1		yellow	F.638Z/5 Found inside the crypt
38Z/1	38.6	22.5	11.3	13.5	2	1		yellow	
38Z/1	30.6	19.9	5.9	4.7	2	0		yellow	
38Z/1	25.5	16.4	10.1	6.3	2	1		yellow	
38Z/1	31.8	12.1	7	2.7	1	0		yellow	
36-38W/2	30	16	12.5	8.3	2	0		yellow	
36-38W/2	17.2	21.5	7.4	4.3	2	1		yellow	
38Z/2	26.8	17	6	3.5	2	1		yellow	
38Z/2	17.9	16.6	7	2.8	2	0		yellow	
38Z/2	17.9	15.3	5.6	2	2	0		yellow	
38Z/1	24.8	18	5.8	2.9	2	0		yellow	discolored red on one end
36Y/2	30	18.6	5.5	4.1	2	1		yellow	
36Y/2	29	21	8.2	5.2	2	1		yellow	
36Y/2	42.3	14.7	4.3	3.8	2	1		yellow	
35Y/1	38	18.5	7.8	7.5	2	0		Light Brown	discolored red on one end, one of the breaks is not clean but jagged
35Y/1	30.6	15.9	7.5	4	2	1		yellow	semi worn on one side
32Y/2	30.7	19.7	6.2	4	2	1		Light Brown	
32Y/2	17	20	9.2	4.4	2	0		Light Brown	
38Z/1	50.6	11.4	5.8	4.6	2	1		Light Brown	
38W/1	31.4	18.7	8	5.6	1	0		Light Brown	this is a distal end
36Z/2	30.7	14.9	4.5	2.5	1	0		red	this is a distal end, back exhibits pitting exposure to fire, interior looks a lot like chert
36Z/1	49	14.5	7.8	8.4	2	1		red	
36Z/1	37	15.6	11.3	6	1	0	chisel	Light Brown	this is a distal end, that looks to have been altered into a chisel
36Z/3	40.8	15.2	7.7	5.9	2	1		Light Brown	
40W/1	27	17	7.6	4	2	1		Light Brown	the dorsal face is heavily eroded, could be preservation issue, there is possible red pigment in the channel on the ventral face
34W/1	33	18	9.6	9	1	0		yellow	
34W/1	25	21	4.6	3.5	2	0		red	exposed to fire, pitting on ventral face
42Z/2	26	14	8.4	4.5	2	0		red	

Structure 50 Geoartifacts

Unit	Length (mm)	Width	Thickness	Mass (g)	Snapped	Back Groove	Altered	Color	Notes
20M/1	40	15.9	6.7	6	1	1		yellow	
16P/1	49.5	20.4	10	17.4	2	0		yellow	
20L/1	51	20	7.3	13.2	2	0		pink	
16R/3	61.9	21.5	7.1	14.5	2	0		light brown	
18LMNO/3	45.1	15.3	6.2	6	1	0		red	
20R/1	40	18.8	8.1	8.4	2	0		yellow	
20R/1	25.3	16	7.6	4.8	2	0		yellow	
18LMNO/3	49.9	24	10.8	22.9	2	0		pink	
18QR/4	50.8	14.6	8.4	9	1	0	chisel	yellow	this is the only example that has been turned into a tool, a small chisel shape this end is discolored red, perhaps it was used to work with paint or pigment

Appendix VI CERAMIC MASS AND COUNT

Ceramic Mass and Count for Structure 6

Op.6 Unit	Lot	Ceramic Count	Ceramic Mass (g)
44Y	1	345	2950
36-38W	2	172	2550
38Z	3	271	2050
38Y	1	177	1115
36Y	2	294	3200
34X	?	84	1250
36Z	3	131	1000
32Z	2	229	1850
38X	1	109	1800
34Z	1	62	550
36Y	1	148	1300
42YZa	3	433	5250
42X	1	272	2700
38a	1	106	800
42a	1	230	2250
42Z	1	78	550
40X	2	264	1600
40X	1	341	2800
32Y	1	344	1300
36Z	2	472	4350
34W	1	563	3550
42Y	2	135	700
38Z	1	432	3250
42-44Y	3	436	4300
42Y	1	180	1200
38X	2	85	450
42Z	2	28	200
40Y	2	246	1950
36W	1	284	2400
34X	2	209	3050
34Y	1	155	1000
32X	3	65	700
42Z	2	394	3050
40y	1	297	2500
40W	1	404	3200
32Y	2	448	4600
32Z	1	460	3600
40a	1	92	750
33W	1	155	1550
38a	2	48	300
38-40Y	3	38	450
46Y	1	56	550

Ceramic Mass and Count for Structure 6, Continued

Op.6 Unit	Lot	Ceramic Count	Ceramic Mass (g)
36X	1	123	800
34X	1	124	1300
32XYZ	3	48	500
44Z	1	219	1600
42Z	4	143	1000
36Z	1	188	1400
32Y	1	344	1450
32X	1	303	2050
38W	1	129	1800

Ceramic Mass and Count for Structure 50

Op.7 Unit	Lot	Ceramic Count	Ceramic Mass (g)
20T	2	128	1700
18NO	3	21	800
16T	1	111	2700
18T	1	137	1850
18PQ	2	315	4500
16O	2	28	450
14O	5	51	260
20S	1	194	2300
18S	2	252	4750
20N	1	188	1450
18QR	4	92	1050
14N	1	22	290
18O	1	120	1800
18R	1	95	1400
14R	2	134	1800
20L	1	95	900
16P	1	30	450
16S	1	70	700
16P	2	41	500
18L	1	48	550
14N	4	5	80
19P	1	39	650
16S	2	512	7250
20N	2	37	500
20R	1	218	350
16N	2		700
16P	3	23	450
16R	1	106	1200
16-18S	3		550
18N	1	21	400
20P	1	126	1700
14N	2	26	280
18PQ	2	52	650
20QR	3	36	700
18M	1		500
18R	2	577	4950
20R	2	424	5550
18T	2		2300
20L	2	59	950
14S	1	32	550
20M	2	15	150
20N	2	49	700

Ceramic Mass and Count for Structure 50, Continued

Op.7 Unit	Lot	Ceramic Count	Ceramic Mass (g)
20O	1	149	900
14O	2	29	300
16RS	3	90	800
14P	1	22	300
20Q	2		1800
18S	1	144	1400
20M	1	121	1450
16N	1	75	1050
20Q	2		4650
16O	1	65	1050
14S	2	54	2050
16O	4	15	150
18n	1	33	350
20P	2	120	1300
20T	1	186	2300
20S	2	295	5050
16R	3	917	6600
20Q	1	190	1400
20O	2	29	400
14R	2		4300
14N	5	18	130
18K	1	5	175
14O	4	27	330
14-16O	3	6	75
14N	3	11	125
18M	4	6	85
14O	1	13	130
22PT	1	18	350
18LMN	4	12	275

Appendix VII FIGURINE ANALYSIS

Figurine Analysis Legend Key

Headdresses	Clothing	Ornaments/ Accessories
0 None	0 None	0 None
1 Headbands	1 Tunic	1 Armbands
2 Hats	2 Loin cloth	2 Bracelets
3 Wide-brimmed Hat	3 Huipil	3 Necklace
4 HairBows	4 Skirt	4 Pendent
5 Headdress	5 Sandals	5 Hacha Belt Ballplayer
6 Turban	6 Breech Cloth	6 Belt
7 Helmet	7 Chaps	7 Mask
8 Mask	8 Coats	8 Leg bracelets
9 Masked Headdress	9 Quilted Armor	9 Facial Jewerly
	10 Breast/Chest Expose	10 Legbands
	11 Decorated/ Fancy Loin Cloth	11 Rings
	12 Chest Strap	12 Nose Clip
	13 Cape	13 Nose Tube
	14 Decorated skirt	14 Ear spools
		15 Earrings
		16 Forehead ornament
		17 Goggles
		18 scarf

Nim II Punt Figurine Analysis

Operation	Fig #	Coloquial Name	Body	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)	Photo # (D80)	Photos for Drawings 2021	Manufacture	Surface Treatments	Function	Number of Characters	Motifs	Animal	Male Position	Female Position	Age
Master Drop Down			Whole								Paint			Human	Not	Not		Child
Op. 7/160/1	1	Wind Jewel	Body	59.1	46.36	22.1	51.9	385-88	731-36	Mold		Probable Whistles	1	Male	Not	Standing Male	Not	Adult
Op. 7/160/1	2	Boxer	Body with Head Fragment	48	42.6	26.3	29.3	389-93	737-42	Mold		Multiple resonator Whistle	1	Male	Not	Boxer Stand	Not	Adult
Op. 7/18R/2	3	Profile Fig	Head	31.4	31.1	13.4	15.2	394-97	775-79	Mold		Figurines	1	Male	Not			Adult
Op. 7/18L/1	4	Elite Bust	Head with part of bust	44.8	41.9	16.1	25.4	398-404	780-83	molid		Figurines	1	Indeterminate	Not	Not		Adult
Op. 7/22L-O/1 Plaza Cleaning	5	God Imitator Head	Head	47.7	52.8	25.5	46.2	405-08	793-805	Mold/modeled	Applique	Figurines	1	Indeterminate	Not			Indeterminate
Op. 7/18Q-P/3 Wall Cleaning	6	Male Elite Bust	Head with part of bust	61.2	55.1	31	88	409-13	772-74	Mold		Figurines	1	Male	Not			Adult
Op. 7/18Q/3	7	Jugar Head	Head	34.3	34.4	32.6	37.3	410-19	715-720	Modeled		Figurines	1	Supernatural	Feline			Not Applicable
Op. 7/20S/2	8	God Head	Head	53.9	41.1	19.3	25.1	420-24	784-92	Mold		Figurines	1	Supernatural	Not			Old
Op. 7/20S/1	9	Boxer	Whole	86.6	51.1	21.7	49.3	425-28	749-754	Modeled		Whistle	1	Male	Not	Boxer Stand		Indeterminate
Op. 7/16R/3	10	Long Neck AKA Temnon Head	Head	22.75	16.2	30.3	11	429-32		Modeled		Figurines	1	Human	Not			Indeterminate
Op. 7/18Q/3	11	Female Head	Head	41.4	42.5	23.9	30.4	433-37	769-71	Mold		Figurines	1	Female	Not		Indeterminate	Adult
Op. 7/16S/2	12	Headress	Fragment	29.4	36	8.2	7.6	438-40		Mold		Indeterminate	0	Indeterminate	Not			
F. 7/16S/1	13	Bird Whistle	Body	22.8	18.8	28	6.8	441-43		Modeled		Whistle	0	Animal	Bird			
F. 7/20S/2	14	Warrior	Body	44.7	47.2	28.6	32.2	444-48	755-59	Mold		Multiple resonator Whistle	1	Male	Not	Warrior Stand		Indeterminate
Op. 7/14R/2	15	Female Head	Head	45.5	44	18.7	33.5	449-52	763-65	Mold		Figurines	1	Female	Not		Indeterminate	Adult
Op. 7/20R/1	16	Female Head	Head	40.9	45.5	21.8	38.6	453-57	760-62	Mold		Figurines	1	Female	Not		Indeterminate	Adult
Op. 7/18M/3	17	Bird Figure	Head	39	29.5	54.4	45.6	458-62	726-730	Modeled	Applique	Figurines	1	Animal	Bird			Indeterminate
Op. 7/16R/3	18	Torso	Body	59	57.2	21	72	463-66		Mold		Figurines	1	Human	Not			Indeterminate
Op. 7/16R/3	19	Howler Monkey	Head	36	32.1	21.6	21	467-70	721-725	Modeled		Figurines	1	Animal	Monkey			
Op. 7/16S/2	20	Corn Cob	Whole	13	44.3	13	9.1	471-73		Modeled		Figurines	0	Indeterminate				
Op. 7/20R/2	21	Disc	Whole	30	30	6.8	5.1	474-79		Modeled		Figurines	0	Indeterminate				
Op. 7/16R-S/2	22	Female Skirt	Body	30.5	39.4	23.1	19.6	480-86		Mold		Multiple resonator Whistle	1	Female	Not	Not	Standing Female	Indeterminate

Nim II Punit Figurine Analysis, Continued

Operation	Headresses	Clothing	Ornaments/ Accessories	Facial Expression	Items in Hand	Notes
Master Drop Down		9 Quilted Armor	0 None	None		
Op.7/160/1	1 None	2, 5, 7, 10	1, 4, 5, 14	None	Right arm on hip holding Huaca Belt, Left arm extended holding staff or spear, crook of right arm possibly once held an applique ball or skull	This piece has the wind jewel suspended from the necklace on his chest, there is a disk resting over the stomach on top of the huaca, as well as a crook in the right arm which may have once held an applique ball or skull, the feet are also missing from the piece but the top of sandals are visible.
Op.7/160/1	7 Helmet	7, 10, 11	3	None	Right arm has a glove over it, Left hand is an empty fist	a majority of the back or cana is present, the necklace appears to be long strands running down the chest, the belly button is present, the loin cloth shows textile patterns
Op.7/18R/2	1 Headbands		14	Mouth/ Eyes Open		This piece is a profile of a Maya face, defined nose, with an earring hanging from the ear lobe nicely carved
Op.7/18L/1	1 Headbands	10	1, 4, 6, 13, 14	Frowning		This piece has the shoulders and part of a waist belt preserved, unclear on gender, due to the presence of a slightly raised breast on left side, what is seen as a Left arm may be a coat with textile patterns, hair is present long strands with some bangs to the side of a wide forehead, necklace has a square cross pendant Quincox
Op.7/22L-O/1 Plaza Cleaning	3 Wide-brimmed Hat		9, 14	Eyes Closed		This piece is wearing fine facial jewelry the gives the impression of a person dressed as Tlaloc
Op.7/18Q-P/3 Wall Cleaning	1 Headbands	10	4, 12, 14	Frowning		This elite figure shows the specific hairstyle of small bangs at the side of a large shaved forehead. There is a fracture with the loss of the very top of head may have been a hairband going across, the pendant appears to be a small bag with 3 tinklers hanging down
Op.7/18Q/3	7 None		9	Eyes Open		This is the head of a Large Cat prob. Jaguar, he is snarling and bearing his fangs which are presented as quite long and curved, this is not perfectly anatomical, and appears to have supernatural elements, with facial ornamentation that are deeply incised into the face, there is the chance this was a mask worn by a dancer, the body is not preserved
Op.7/20S/2	5 Headdress			Mouth/ Eyes Closed		This appears to be the head of the Old Corn God, the headdress forms a cross with the cob and husk of a corn cob the top portion is broken off but I would expect it to have had the tassels of corn, the face has the deep grooves of an old individual
Op.7/20S/1	7 Helmet	2	4	None	Right Arm has a glove over it, Left hand is bent holding pendant on chest	This figure is more crudely made with little detail, there appears to be some feathers or hair coming down from the crown of the helmet
Op.7/16R/3	10 None			Mouth/ Eyes Open		This is a strange head with a long neck it is possible this head was once part of a larger vessel
Op.7/18Q/3	1 Headbands		12, 14	Mouth/ Eyes Closed		This is the head of an elite woman, she has a headband with her hair spiraling from around it, with cut bangs that form a small square on her forehead, with longer strands running down the side of her head.
Op.7/16S/2	12 None			None		This fragment appears to be the portion of a headdress from the top, it show different elements including strands running to the right
F.7/16S/1	13 None			None		This is a small Clay whistle that was formed as a bird, the head is now broken but I found a similar version from Ahuateca.
F.7/20S/2		1, 9	1, 3		Right Hand is on hip may be grabbing string from belt area, Left hand is holding a staff or spear	The head is missing on this piece the tunic appears very much like armor with frills at the bottom, the legs are badly eroded, the whistle on back is mostly complete with three wholes for resonators, Head of an Elite woman this may illustrate a dead or sleeping person. Long straight hair goes over headband and along side of face.
Op.7/14R/2	1 Headbands		12, 14	Mouth/ Eyes Closed		Head of an Elite woman wearing a large brimmed hat with long straight hair down the side of her head
Op.7/20R/1	3 Wide-brimmed Hat		12, 14	Eyes Open		Head of an Elite woman wearing a large brimmed hat with long straight hair down the side of her head
Op.7/18M/3						This is a crude bird head, with eyes as applique
Op.7/16R/3		10	4, 14		Arms are crossed across the chest	This figure has a pendant on the chest and long earrings that hang down to the shoulders. It is not clear if this male or female, the arms appear to be pressing up the chest
Op.7/16R/3				Snarling		This is the face of a monkey, likely snarling showing a row of teeth with eyes open
Op.7/16S/2						This is small rolled clay bar is round including edges with small holes made with a toothpick size perforator, it appears to be the excavator to be reminiscent of a stylized corn cob.
Op.7/20R/2						This small disc appears to be carved, possibly with an indecipherable glyph, it is also possible this disc was the bottom of a foot of a vessel, or an applique for a larger figurine
Op.7/16R-S/2		4				This is the bottom portion of a female figurine the small feet which are just stubs are visible beneath an intricate skirt with punctuated vertical dots and angled incised lines and a slash with hashmarks at the end. While broken the tree resonator wholes on the back are visible.

Nim II Punt Figurine Analysis, Continued

Operation	Fig. #	Coloquia Name	Body	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)	Photo # (DBD)	Photos for Drawings 2021	Manufacture	Surface Treatments	Function	Number of Characters	Motifs	Animal	Male Position	Female Position	Age	
Op.7/16R/1	23	Corn Cob	Fragment	15.4	13	22	4.4	487-88		Modeled		Figurines	0	Indeterminate					
Op.7/18S/2	24	Female Head	Head	44	47	24.2	36.2	489-92	766-68	Mold		Figurines	1	Female	Not	Not	Indeterminate	Adult	
Op.7/20S/2	25	Torso	Body	34	56	23.5	35.9	493-95		Mold		Whistle	1	Male	Not	Boxer Stand		Adult	
Op.7/20T/1	26	Boxer	Body	41	53	22.6	40.4	496-500	743-48	Mold		Probable Whistles	1	Male	Not	Boxer Stand		Adult	
Op.7/18L/1	27	Female Head	Head with part of bust	45	37.5	19.4	23.8	501-04		Mold		Figurines	1	Female	Not	Not	Standing Female	Adult	
Op.7/18MN/4	28	Torso	Body	38	28.3	35	14.4	505-07		Modeled	Applique	Figurines	1	Indeterminate	Not			Indeterminate	
Op.7/18S/1	29	Hollow Head	Whole	35.2	26	22.8	8.2	508-12		Modeled		Hollow-heads	0	Indeterminate	Not				
Op.6/38Z/3	30	Seated Ahau	Whole	78.3	33	44.6	40	916-29	709-714	Modeled	Applique	Pendants	1	Male	Not	Seated Male	Not	Old	
Op.6/38Z/1	31	Bird Figure/canceled mamiform support																	
Op.6/38Y/3	32	Frog Figurine	Whole	40.2	49.3	51	52.7	513-17	0696-0702	Modeled		Figurines	1	Animal	Frog				
Op.5/44W/3 wall cleaning	33	Head	Head	34.9	28.7	37	35.6	518-25	0703-708	Modeled		Figurines	1	Grotesques	Not				
Op.3/40Q/1	34	Torso	Body	65.7	31	17.1	40.6	526-27		Modeled		Figurines	1	Human	Not			Indeterminate	
Op.3/46-48N/5	35	Head	Head	34.46	21.6	20.1	12.2	528-30		Modeled		Figurines	1	Grotesques	Not			Indeterminate	
Op.3/44S/1	36	Pregnant Torso	Body	42.4	39.8	16.7	27.9	531-32		Mold		Whistle	1	Female	Not		Standing Female	Indeterminate	
Op.3/42K/1	37	Torso	Body	47.2	30.6	19.4	32.2	533		Modeled		Figurines	1	human	Not			Indeterminate	
Op.3/42Q/2	38	Torso	Body	36.2	65	26.5	62	534-41		Mold		Whistle	1	Male	Not	Ball Player Stand	Not	Adult	
Op.3/42Q/2	39	Leg Fragment	Body	36	24.5	14.8	13.5	542-43		Mold		Figurines	1	Human	Not			Indeterminate	
Op.3/38R/1	40	Head	Head	22	17.5	16.1	5.5	544-45		Mold		Figurines	1	Grotesques	Not			Indeterminate	
Op.3/46P/1	41	Jaguar Head	Head	39.4	36.83	24.03	34.4	546-49	824-27	Modeled		Figurines	1	Animal	Feline				
Op.3/46P/1	42	Face Fragment	Head	56.42	38.5	19	22.4	550-52		modeled		Vessels	1	human				Indeterminate	

Nim II Punit Figurine Analysis, Continued

Operation	Headresses	Clothing	Ornaments/ Accessories	Facial Expression	Items in Hand	Notes
Op.7/16R/1						This is small rolled clay bar. It is only a fragment that is broken. It is punctuated all around including edges with small holes made with a toothpick size perforator. It appears to be the excavator to be reminiscent of a stylized corn cob.
Op.7/18S/2	1 Headbands		13, 14	Mouth/Eyes Closed		This is the head of an elite woman, she has a headband with her hair spiraling from around it, her bangs are parted down the middle and extend out to either side of her head forehead, with longer strands running down the side of her head. Round earspools and a nose tube.
Op.7/20S/2		2	4, 6		Right arm has a glove over it, not able to determine what left arm is doing.	This is just the torso the head had legs.
Op.7/20T/1	7 Helmet	10	1, 4		Left and right arm fragments extend downwards	Identified as a boxer due to portion of helmet and visor still visible, his armbands are wide and comprised of numerous small parts, his pendant is suspended from a large collar similar to a victorian ruff collar
Op.7/18L/1	0 None	10	12, 14	Eyes Open		This is a fragmentary bust of a woman it has the typical parted hair down the center with to either sides with hair straight going down to the shoulders, there may be something coming out of their mouth, looks like a cigar or tooth.
Op.7/18MN/4					Left arm is grabbing the belly of the individual	This is just the torso fragment of a larger figurine that appears to have been modeled in the round, the arm of the individual is resting on the belly
Op.7/18S/1	29 None					This is a mask for another figurine, they are referred to as hollow-heads in the literature.
Op.6/38Z/3	6 Turban	2, 10	3, 15	Snarling		Early Classic. This is a figurine in 3D of a seated Maya Lord he appears to be shown as dead with closed eyes and lips, he appears to be elderly with wrinkle lines drawn from his lips, his head wear is that of a pointed turban wrapped around the crown of his head, he has earrings suspended from the lobe of his ears, he is seated with his knees to his chest with his arms around his legs with his hands holding each other. His hat and necklace are applied later as applique. The entire figure appears to have been attached at the back to a larger vessel, it came from just outside of Tomb V that was looted in antiquity. He was changed to a pendant since we saw holes going through his side and his bottom where string would have passed through. Necklace goes all the way around his body, with long stringed pendant down the back
Op.6/38Z/1						this is a mamotorm support
Op.6/38Y/3				Mouth Open		This is anatomically correct Toad fashioned in the round it appears to once have been applied to another larger ceramic vessel.
Op.5/44W/3 wall ceiling	2 Hats			Mouth/Eyes Open		This is a large nosed fictive individual with a round french style hat, a large splayed nose, and lips that extend away from the face.
Op.3/40Q/1		10				Likely Terminal Classic from the surface. This is a torso fragment, that is not very detailed, the arms are raised and extended out to the sides, the legs appear to have been splayed and extended downwards
Op.3/46-48N/5	5 Headress			Mouth/Eyes Open		Just a head, crudely shaped there are lines around the mouth and possibly a single tooth visible, appear like a strange individual could be wearing a mask
Op.3/44S/1		10				This torso appears to pertain to that of a pregnant woman with an expanding belly and a protruding belly button
Op.3/42K/1		10				Likely Terminal Classic from the surface. This is a torso fragment, that is not very detailed, the arms are raised and extended out to the sides, the legs appear to have been splayed and extended downwards
Op.3/42Q/2		2, 10	4, 5		Both arms are on his hip resting on his ballplayer belt	This is the middle section of what was a large Orca of a ballplayer in a typical pose, he was mold made of heavy clay
Op.3/42Q/2		2				Just small section of figurine that is a portion of leg and loin cloth
Op.3/38R/1	0 None		0 None	Mouth/Eyes Open		Small crudely fashioned head
Op.3/46P/1	0 None	0	0 None	Snarling		This jaguar head is more anatomically correct than that of Figure 007 although they do share the oversized fangs from an angry face, with bulging eyes, and markings across the forehead
Op.3/46P/1				Eyes Open		This is just a small portion of a face, the left eye and nose is present there is a large possible wrinkle along side of nose which may make this an elder, it is made of a very crude clay with large visible inclusions, it possibly could have been from a large vessel or a very large flat figurine, the walls are thin,

Nim II Punit Figurine Analysis, Continued

Operation	Fig. #	Coloquial Name	Body	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)	Photo # (DBD)	Photos for Drawings 2021	Manufacture	Surface Treatments	Function	Number of Characters	Motifs	Animal	Male Postion	Female Postion	Age
Op.3/44/2	43	Face Vessel	Whole	37.38	41.48	45.15	43.8	553-56	819-823	Modeled	Applique	Vessels	2	Anthromorphic	not			Indeterminate
Op.3/38Q/2	44	Bird Head	Head	29	19.2	23	11.3	557-558		Modeled		Indeterminate	1	Animal	Bird			Not Applicable
Op.3/42/1	45	Head with Turban	Head	41.1	26	23.4	19.1	559-62		Modeled		Figurines	1	Human	Not			Old
Op.1/9N/1	46	Fat Warrior	Whole	61.9	60	30	58	563-66	0831-36	Mold	Paint	Multiple resonator Whistle	1	Male	not	Warrior Stand	Not	Adult
Op.1/9N/1	47	Tableaux	Fragment	39.9	53.3	16.7	26.9	567-72	837-39	Mold		Figurines	1	Male	Not	Seated Male	Not	Adult
Op.1/9N/1	48	Elite Head	Head	44.5	38.7	18.7	21.6	573-75	840-44	Mold		Figurines	1	Male	Not	Indeterminate	Not	Adult
Op.1/9N/1	49	Headress	Fragment	24.4	34.3	14.9	11.3	576-77		Mold		Figurines	0	Indeterminate				
Op.1/9N/1	50	Woman whistle (foot)	Body	28.9	30	16.4	14.3	578-79		Mold		Multiple resonator Whistle	1	Female	Not	Standing Female	Indeterminate	
Op.1/9N/1	51	Headress	Fragment	18.6	33.75	7.75	4.4	580-81		Mold		Figurines	0	Indeterminate				
Op.1/15/2	52	Figurine Fragment	Fragment	19.9	22.26	10.7	4.8	582		Mold		Figurines	0	Indeterminate	Not			Adult
Op.1/15/2	53	Elite Head	Head	36.6	36.5	23.6	23.8	583-87	894-97	Mold		Figurines	1	Indeterminate	Not			Adult
Op.1/9E/1	54	Fat Head	Head with part of bust	36.6	39.9	16.6	18.7	588-91	845-848	Mold		Figurines	1	Male	Not	Indeterminate		Adult
Op.1/9E/1	55	Crude Head	Head	32.9	20.7	15.2	10.4	592-95		Modeled		Figurines	1	Human	Not		Indeterminate	
Op.1/9N/1	56	Elite Head	Head	31.4	28	21.6	15.4	596-600	853-54	Mold		Figurines	1	Human	Not		Youthful	
Op.1/12/5	57	Elite Head	Head	50	44.7	25	41.8	601-05	898-902	Mold		Figurines	1	Human	Not		Youthful	
Op.1/6/3	58	Female Body	Body	49.1	47.6	17	31	606-10	880-82	Mold		Multiple resonator Whistle	1	Female	Not	Standing Female	Adult	
Op.1/7/2	59	Elite Head	Head	31.7	31.9	17	12.1	611-13		Mold		Figurines	1	Human	Not		Adult	
Op.1/8/2	60	Whistle	Fragment	46.4	49.1	31.9	38.4	614-16		Mold		Multiple resonator Whistle	0	Indeterminate	Indeterminate			
Op.1/9E/4	61	Boxer	Head with part of bust	46	59.5	21.6	47.4	617-20	849-52	Mold		Figurines	1	Male	Not	Boxer Stand	Not	Adult
Op.1/9N/7	62	Boxer	Head	28.5	21.7	19.6	12.4	621	862-63	Mold		Figurines	1	Male	Not	Indeterminate		Adult
Op.1/9N/7	63	Elite Bust	Head with part of bust	55.8	62.7	22.2	47	062-25	857-61	Mold		Figurines	1	Male	Not	Indeterminate		Adult
Op.1/9N/7	64	Elite Bust	Body	45.1	47.1	17.8	38	626-27	855-56	Mold		Figurines	1	Male	Not	Standing Male	Not	Adult
Op.1/9N/7	65	Arm Fragment	Fragment	9.2	7.6	24.7	17.5	not		Modeled		Figurines	1	Indeterminate	Indeterminate			
Op.1/9E/2	66	Phallus/Mushroom	Fragment	15.2	15.8	50	14.1	628-29		Modeled		Figurines	0	Indeterminate	Indeterminate			

Nim II Punit Figurine Analysis, Continued

Operation	Headaddresses	Clothing	Ornaments/ Accessories	Facial Expression	Items in Hand	Notes
Op.3/44/2	0 None	0	0 None	Eyes Open		This is a small vessel with two openings, on either side there is a modeled face the eyes and nose were applied later on in the process with the mouth being a small slit.
Op.3/38Q/2	0 None		0 None	Eyes Open		This small bird head has a portion of the neck, it appears that it could belong to an effigy vessel, but also could be a stand alone figurine.
Op.3/42/1	6 Turban			Mouth/ Eyes Open		This is the head of a modeled individual that is wearing a bound turban on their head with a small diadem at the are of the knot, it has a very pronounced nose, like that of others seen before, there are wrinkles around that mouth that appear to illustrate age.
Op.1/9N/1	1 Headbands	2, 9	3, 6, 14	Mouth/ Eyes Closed	Right arm is holding a spear and shield, Left arm is resting above belt on belly	This is a complete figure of a warrior he is fat pot bellied with a shield that is raised in design quite intricate he has a small bag hanging from his left hip and tassels of hair falling from the left and right from his hairband, his armor is the cotton quilted armor. The ocarina on the back is broken but it is obvious that the chamber was there. His eyes appear closed and his mouth but he is standing so do not think he is dead. He has blue paint on his headband.
Op.1/9N/1		2, 10	3, 14	Mouth Open	Right arm is on his hip and the left arm is tending to a fire	This is profile piece that shows a seated individual who is kneeling on his haunches, the top of his head above the nose is missing and the his legs beneath the knees are gone as well his outstretched hand is tending to a fire that reaches at least the height of his face.
Op.1/9N/1	5 Headress		13, 14	Mouth/ Eyes Open		This fragment is the head of an individual with a very high headress that has a row of feathers framing the entire head, the hair style is bangs cut short to reveal a high forehead with longer strands along the side of the head behind the ears/poops. The headress is in three unique layers.
Op.1/9N/1	5 Headress					This is a fragment of a headress from another figurine, some hair can be seen and various aspects of an intricate headband.
Op.1/9N/1		4				This is just a fragment of the right foot and part of the skirt from a woman Ocarina.
Op.1/9N/1	5 Headress					This is a fragment of a headress from another figurine, some hair can be seen and various aspects of an intricate headband.
Op.1/15/2	5 Headress		13, 14	Eyes Open		Unknown fragment of Figurine
Op.1/9E/1	2 Hats	10	0	Mouth/ Eyes Closed	Left arm is raised above head, Right arm is not present	Head of elite person with headress with various layers fragmented
Op.1/9E/1	0 None	0	0 None	Mouth/ Eyes Open		Fragment of a strange little head with hair, very simply made wit a long neck that was attached to a larger piece at one time.
Op.1/9N/1	1 Headbands		14	Eyes Open		Head of an elite person, the hairstyle is cut into an M shape across the forehead bangs, a headband holds back further hair across the top, large round ear spoils. Possibly female.
Op.1/12/5	1 Headbands		14	Eyes Open		This female body lacks the head but reveals that it was an ocarina, she is in a slightly active pose and the breasts are well defined under a simple shirt or tunic, her skirt is also modest with only a slight hint of an angled pattern down the left side. Her braid of hair is quite long and illustrates the twists.
Op.1/6/3		1, 4	0 None		Right arm is grabbing a long braid of hair that passes by the right breast down to her skirt, Left arm is extended and grabbing a bit of her skirt.	This is the head of an elite person with hair swept back, they appear to be female but it is not sure.
Op.1/7/2	1 Headbands		12, 14	Eyes Open		This piece is so badly eroded that we can no longer see what kind of figurine this was. The Ocarina element of this piece is complete which gives a good example of what it would have been like.
Op.1/8/2						This is the upper portion of a typical boxer Figurine
Op.1/9E/4	7 Helmet	9	0 None	Eyes Open	Arms down to his side cut off at the elbow	This is the head of a typical boxer
Op.1/9N/7	7 Helmet		0 None	Eyes Open		This is a fine Elite Maya lord figurine his necklace has a large rectangular appendent, his waist shows the signs of a belt or loin cloth, his headress rises up two rows in plumes of feathers the crest has a diadem in the center this may have once looked like a small individual, there is no hair visible appearing from under the headress.
Op.1/9N/7	5 Headress	10	1, 4, 6, 14	Mouth/ Eyes Open	Arms turn downward towards the size but are cutoff at the elbow	This elite figure is interesting in that it shows an individual wearing a coat or cape, he holds beads in a specific way with the hand up turned and his necklace pendant is similar to another seen in that it appears like a small pouch with 3 tinklers coming down.
Op.1/9N/7		8	4, 6		Left arm is bent resting on his sash or belt, it holds some beads that are falling down	This fragment is just an arm similar to the modeled in the round of seated lords.
Op.1/9N/7						This appears to be a phallus or a mushroom it was once part of a larger piece.

Nim II Punt Figurine Analysis, Continued

Operation	Fig. #	Coloquial Name	Body	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)	Photo # (DBD)	Photos for Drawings 2021	Manufacture	Surface Treatments	Function	Number of Characters	Motifs	Animal	Male Postion	Female Postion	Age
Op.1/9E/2	67	Leg Fragment	Body	37.8	53	41.1	48.9	630-32	0873-76	Mold		Multiple resonator Whistle	1	Male	Not	Standing Male		Adult
Op.1/7/1	68	Elite Head	Head	46.7	29	23	24.7	633-36	888-890	Mold		Figurines	1	Male	Not	Indeterminate	Not	Old
Op.1/7/1	69	Female Body	Body	43.8	43.8	14.6	23.5	637-40	883-887	Mold		Multiple resonator Whistle	1	Female	Not	Standing Female		Adult
Op.1/7/1	70	Elite Bust	Head with part of bust	53	36.4	15.6	18.6	641-42	891-893	Mold		Whistle	1	Male	Not	Standing Male		Adult
Op.1/7/1	71	Figurine Fragment	Fragment	27.4	43.2	19	20.7	643-44		Mold		Figurines	0	Indeterminate	Indeterminate			
Op.1/7/1	72	Conch Figurine	Fragment	40.4	25.6	15.6	14.8	645-47		Mold		Figurines	0	Indeterminate	Indeterminate			
Op.1/14/2	73	Headress	Fragment	28	35.5	8.3	7.5	648-50		Mold		Figurines	0	Indeterminate	Indeterminate			
Op.1/14/2	74	Headress	Fragment	58.7	63.5	19.6	53	651-53	894-906	Mold		Figurines	1	Human	Not			Indeterminate
Op.1/13/1	75	Arm Fragment	Fragment	33	24.6	14.9	9.4	654-55		Mold		Figurines	0	Human	Not			Indeterminate
Op.1/13/2	76	Female Body	Body	34.6	41.21	22	22.6	656-60	864-67	Mold		Whistle	2	Human and Animal	Bird		Standing Female	Adult
Op.1/9E/4	77	Female Foot	Fragment	30.5	26.7	16.7	14.5	661-63		Mold		Whistle	1	Female	Not	Not	Standing Indeterminate Female	Indeterminate
Op.1/11/1	78	Child	Fragment	22.2	23.7	9.7	4.5	664-67		Modeled		Figurines	1	Human	Not			Child
Op.1/11/1	79	Figurine Fragment	Fragment	29.6	23.6	13.6	8	668-71		Mold		Figurines	0	Indeterminate	Indeterminate			
Op.1/9/6	80	Figurine Mold	Fragment	88.1	43.5	18.8	59.2	672-76	1028-32			Molds	1	Human	Indeterminate	Indeterminate		Indeterminate
Op.1/9/6	81	Woman and Child	Body	72.5	67.2	43.1	127.7	677-82	0864-872	Mold		Multiple resonator Whistle	2	Female	Not	Not	Female with Child on Back	Adult
Op.1/4/4	82	Woman whistle (Body)	Body	57.7	45.7	15.8	40.1	683-84	877-79	Mold/modeled	Applique	Multiple resonator Whistle	1	Female	Not	Not	Standing Female	Adult
Op.1/4/4	83	Arm with Ball	Fragment	46.8	52.8	17.4	34.5	685-89		Mold		Figurines	1	Human	Not	Indeterminate	Indeterminate	Indeterminate
Op.1/4/4	84	Warrior Torso	Body	25	49.7	19	21	690-93		Mold		Whistle	1	Male	Not	Warrior Stand	Not	Adult
Op.1/4/4	85	Headress	Fragment	34.6	37.9	14.6	17	694-95		Mold		Figurines	0	Male	Not	Indeterminate	Not	Indeterminate
Op.1/4/4	86	Foot Fragment	Fragment	18.8	17	18.6	5	Not		Mold		Whistle Indeterminate	1	Indeterminate	Indeterminate			
Op.1/4/4	87	Figurine Fragment	Fragment	27.1	24.5	13.5	8	Not		Modeled		Indeterminate	0	Indeterminate	Indeterminate			

Nim II Punit Figurine Analysis, Continued

Operation	Headresses	Clothing	Ornaments/ Accessories	Facial Expression	Items in Hand	Notes
Op.1/9E/2		2				This is the bottom half of an Ocarina figurine the legs are bare and not well defined but the loin cloth was quite extravagant with very fancy ribbons and sashes the figure appear to have been quite staunch short in stature
Op.1/7/1	5 Headress		14	Eyes Open		This is a slightly eroded Head fragment of an elite wearing a very tall Headress with the hint of feathers coming off the side no hair is visible, age determined by size of cheeks and what appears to be wrinkle lines
Op.1/7/1		4	6		Right arm is bent at the hip level and is holdign something that looks like a miraca	the breasts are defined and are within an ankle length dress that appears to have been wrapped around the body and tied with a sash/belt around the waist the knot is in the front, some punctated marks were used to define textile difrence for the skirt portion, the feet are not well defined and the head and left arm are missing
Op.1/7/1	5 Headress	10	4, 14	None	Right arm is missing, left arm is bent at the elbow and raised upwards holding some item aloft	this figure is eroded but the whistle portion is visible where it would have been, the features are mostly missing but the presence of the headress with long flowing feathers as well as a pendent with at least two tinklers can be made out
Op.1/7/1						This is the fragment of a figurine no features are discernable, the overall shape is like a large T
Op.1/7/1						This is a fragment of a larger figurine it is at one of the extremity and was likely something holding a large conch shell that is well modeled
Op.1/14/2	5 Headress					This is a fragment of likely a headress I have seen this same motif before it consists of three spikes around the crown that rise above a rounded pillow like hat that has tassels coming out the top to the right, it is possible this could have been a warriors helmet as well
Op.1/14/2	5 Headress					This is only the upper portion of a figurine head we can see a portion fo the forehead with cut bangs to the sides of a wide forehead, the headress has a large band across the fron with a diadem in the center, there are atleast three levels to this headress upper portion is broken as well. this would have been a rather large figurine
Op.1/13/1			2		Left arm is bent at elbow upwards possibly holding something that can only be partially made out	This is only a single arm from a larger figurine the bracelet is made of composite small pieces etched in the clay
Op.1/13/2		4, 10	3		Right arm is bent at the hip level holding a small bird	Her breast are semi exposed above her skirt, the small bird is well modeled and her necklace has a small danglers in the center, the skirt has hash marks that delineate textile decoration
Op.1/9E/4		4				This is just the right foot of a figurine whistle, the skirt was nicely decorated with hasmarks, and interlocking & marks
Op.1/11/1		10	0 None		Left arm and right arm extended out from body in a position of holding on to something probably a larger adult figurine	This is a small baby body that would have been an applique to another figurine
Op.1/9/6			6		Right arm is extended down to side may have been holding something	This is a fraction of a figurine it is not clear what is being shown
Op.1/9/6		4, 10	2, 10		Right arm is covering the right breast and resting atop of the Mother's belt the Left arm is extended and holding a large jar The Child's right arm is hanging on to the Woman's back	this is the right side of a mold for the production of figurines with the impression of hasmarks for the design across the belt and what was likely a skirt
Op.1/4/4		4, 10	3		Riht arm is holding a jar that was attached later with applique	This rather large Ocarina is mostly complete missing the heads of the woman and child, both are wearing skirts, the belt of the woman is a sash tied in a knot along the left hand side, the woman is 1/3 turned to her left side to reveal a young child sitting on her hip hanging off of her back, the child is wearing bracelets, necklaces and anklets only one arm and leg were modeled for the child
Op.1/4/4		10	2, 10		Right arm is bent at the hip level and is holdign something that looks like a ball or a large fruit	the body of a whistle for female figurine the skirt has a sash hanging down th evertical lines design, the middrit is covered by a large piece of cloth that covers the lower half of the breasts
Op.1/4/4		10	6		Right arm is bent at the elbow holding a cub-like element over the chest, the left arm went downwards but is broken at the shoulder	Just the torso portion of a figurine that his holding an unknown item could be a ball or fruit, has bumps all over the round object
Op.1/4/4	5 Headress					This is the torso of a warrior figurine whistle, the whistle portion is visible but broken on the back
Op.1/4/4						This is the headress portion of a figurine likely a male, the headress is composed of three levels, 1 headband, 2 a u shaped element holding 3 the feathers that radiate our from the crown of the ehad at the center of the feathers there is a diadem that looks a little like a figure
Op.1/4/4						This is a small foot of a whistle and the edge of a skirt
Op.1/4/4						This is the fragment of a figurine no features are discernable

Nim II Punt Figurine Analysis, Continued

Operation	Fig. #	Coloquia Name	Body	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)	Photo # (DBD)	Photos for Drawings 2021	Manufacture	Surface Treatments	Function	Number of Characters	Motifs	Animal	Male Position	Female Position	Age
Op.7/20L/2	88	Female Body	Body	42.2	72	24	56.5	1359-61		Mold		Multiple resonator Whistle	1	Female	Not	Not	Standing Female	Adult
Op.7/20N/2	89	Female Body	Body	52	70	41.5	85.6	1362-63		Mold		Multiple resonator Whistle	1	Female	Not	Not	Standing Female	Adult
Op.7/18T/2	90	Figurine Fragment (Altar)	Fragment	37	65	19	36.8	1364-66		Modeled		Whistle	0	Indeterminate	Indeterminate			Indeterminate
Op.7/14R/1	91	Crude Head	Head with part of bust	43	26.4	16.7	15	1367-68		Modeled		Figurines	1	Human	Not			Indeterminate
Op.7/20R/2	92	Crude Figurine	Whole	65	35.2	17.7	31.5	1369-72		Modeled		Figurines	1	Human	Not			Indeterminate
Op.3/48M/3	93	Miniature Vessel Figurine	Complete	52.88	35.14	34.8	36.2	9831,35-38		Carved	Applique	Vessels	1	Anthromorphic	Not			Indeterminate
Op.3/46O/2	94	Face Fragment	Fragment	39.9	42.9	12.6	15.9	9840-43		Carved		Indeterminate	1	Anthromorphic	Not			Indeterminate
Op.7/14S/2	95	Female Foot	Fragment	28	18	14	7	0829-830		Mold		Whistle	1	Female	Not		Indeterminate	Indeterminate
Op.1/9N/5	96	Bird Beak	Fragment	35	30	59	27.7			Carved		Figurines	1	Animal	Bird			

Nim II Punit Figurine Analysis, Continued

Operation	Headresses	Clothing	Ornaments/ Accessories	Facial Expression	Items in Hand	Notes
Op.7/20L/2		4				This is the bottom half of an ocarina figurine the feet are not well defined, the skirt ends at the ankle it is nicely designed with textile markings of a series of Fat T's running vertically along the left side the center of the skirt exhibits Hashmarks with punctated dots on either side there is the hint of bag on the right side of the piece the Whistle on the back is broken
Op.7/20N/2		4	6			This is the bottom half of an ocarina figurine the feet are not well defined, the skirt ends at the ankle it is nicely designed with textile markings of a series of Fat T's running vertically along the Right side; off-center of the skirt exhibits Hashmarks with punctated dots on the right side and vertical arrows on the left, the Whistle on the back is broken
Op.7/18T/2						This is the bottom part of a whistle it shows the downturned U shape of an altar the rest of the piece is missing
Op.7/14R/1		10		Mouth/Eyes Open		This is a portion of a crude figurine modded in clay where the face is rapidly made by two slits for eyes a pronounced nose and a slit for a mouth
Op.7/20R/2		10		Mouth/Eyes Open		This is a whole crude figurine modded in clay where the face is rapidly made by two slits for eyes a pronounced nose and a slit for a mouth
Op.3/48M/3	1 Headbands					This is a small miniature vessel that is carved with deep vertical lines around the body to the vessel, on one side it has a anthropomorphic face with applique of two eyes, they are round there is not expression, there is a small headband above the eyes, the pottery is broken into several pieces, was found in a dedicatory cache of str.7 F-3/48M/6
Op.3/46O/2						A fragment of a much larger figurine, this is interestingly modeled eye piece.
Op.7/14S/2		4				bare foot single foot with toes to the side likely left side that still has the scar of a resonator on the back
Op.1/9N/5						This is the beak of a decent size animal figurine like an ibis or heron.

Appendix VIII FAUNAL ANALYSIS

Faunal Legend	
0	None
1	Cut-Marks
2	Burning
3	Cut-Marks and Burning
4	Jewelry
5	Incising/Carving
6	Tool

Structure 6 Faunal Analysis

Unit Identifier	Number Pieces	Mass	Vertebrate	Invertebrate	Unidentified NJSP	Unidentified Weight	Conch NJSP	Conch MNJ	Conch Mass	Modified	Queen Conch NJSP	Queen Conch MNJ	Queen Conch Mass
38X/1	1	34.3	0	1	0	0	1	1	34.3	0	0	0	0
38Z/2	5	22.8	2	3	0	0	3	1	21.1	0	0	0	0
42X/1	7	10.4	6	1	0	0	0	0	0	0	0	0	0
38Z/3	19	28.8	19	0	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0	0	0	0
38Y/1	2	4.5	2	0	0	0	0	0	0	0	0	0	0
32-34Y/2	6	15.5	3	3	0	0	0	0	0	0	2	1	4.1
32Y/1	2	9.2	2	0	0	0	0	0	0	0	0	0	0
44Y/1	2	6.5	2	0	0	0	0	0	0	0	0	0	0
34/1	4	3	0	4	0	0	0	0	0	0	0	0	0
42YZa/3	17	71.1	3	14	0	0	4	4	48.2	0	0	0	0
38-40Y/3	3	4.7	3	0	0	0	0	0	0	0	0	0	0
32Z/2	4	82.3	0	4	0	0	3	3	69.6	0	1	1	12.7
42-44Y/3	10	74.9	8	2	0	0	2	2	54.5	0	0	0	0
34X/1	14	6.63	4	5	0	0	0	0	0	0	0	0	0
40X/1	27	13.3	3	12	0	0	0	0	0	0	0	0	0
38W/1	1	38.7	0	1	0	0	1	1	38.7	0	0	0	0
36Z/3	12	228	5	7	0	0	6	6	209.1	0	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0
32X/1	1	8.1	1	0	0	0	0	0	0	0	0	0	0
36-38W/2	1	14.5	0	1	0	0	1	1	14.5	0	0	0	0
42Z/2	5	18.3	5	0	0	0	0	0	0	0	0	0	0
34W/1	3	8.29	2	1	0	0	0	0	0	0	0	0	0
42Y/1	1	1.5	1	0	0	0	0	0	0	0	0	0	0
36W/1	2	5.8	2	0	0	0	0	0	0	0	0	0	0
34X/?	1	0.9	1	0	0	0	0	0	0	0	0	0	0
32Z/1	5	8.8	4	1	0	0	1	1	3	0	0	0	0
40Y/2	2	16.8	0	2	0	0	2	2	16.8	0	0	0	0
42Y/2	5	7.6	5	0	0	0	0	0	0	0	0	0	0
38a/1	2	0	0	2	0	0	0	0	0	0	0	0	0
38Z/1	1	0	0	1	0	0	0	0	0	0	0	0	0
40W/1	1	0.4	0	1	0	0	0	0	0	0	0	0	0
36Z/2	1	0	0	1	0	0	0	0	0	0	0	0	0
F.6/38Z/5	64	11.2	0	64	0	0	0	0	0	0	0	0	0
38a/2	45	4.3	0	45	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	Modified	Venus Clam	Venus Clam MNI	Venus Clam Mass	Modified	Clam NISP	Clam MNI	Clam Mass	Modified	Mussel NISP	Mussel MNI	Mussel Mass	Tusk Shell NISP	Tusk Shell MNI
38X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32-34Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44Y//1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42YZa/3	0	0	0	0	0	10	1	11.4	0	0	0	0	0	0
38-40Y/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42-44Y/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Z/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34X/?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Z/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38a/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F.6/38Z/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38a/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	Tusk Shell Mass	Terrestrial Snail NISP	Terrestrial Snail MNI	Terrestrial Snail Mass	Jute	Unidentified Bivalve NISP	Unidentified Bivalve Mass	Scallop NISP	Scallop MNI	Scallop Mass
38X/1	0	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	0	0	0	0	0	0
42X/1	0	1	1	0.4	0	0	0	0	0	0
38Z/3	0	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	0	0	0	0	0	0
32-34Y/2	0	0	0	0	0	1	0.5	0	0	0
32Y/1	0	0	0	0	0	0	0	0	0	0
44Y//1	0	0	0	0	0	0	0	0	0	0
34/1	0	4	1	3	0	0	0	0	0	0
42YZa/3	0	0	0	0	0	0	0	0	0	0
38-40Y/3	0	0	0	0	0	0	0	0	0	0
32Z/2	0	0	0	0	0	0	0	0	0	0
42-44Y/3	0	0	0	0	0	0	0	0	0	0
34X/1	0	0	0	0	0	0	0	0	0	0
40X/1	0	0	0	0	0	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0	0
36Z/3	0	0	0	0	0	1	2.2	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0	0
32X/1	0	0	0	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	0	0	0	0	0	0
34W/1	0	1	1	4.3	0	0	0	0	0	0
42Y/1	0	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0	0
34X/?	0	0	0	0	0	0	0	0	0	0
32Z/1	0	0	0	0	0	0	0	0	0	0
40Y/2	0	0	0	0	0	0	0	0	0	0
42Y/2	0	0	0	0	0	0	0	0	0	0
38a/1	0	0	0	0	0	2	0	0	0	0
38Z/1	0	0	0	0	0	1	0	0	0	0
40W/1	0	0	0	0	0	1	0.4	0	0	0
36Z/2	0	0	0	0	0	1	0	0	0	0
F.6/38Z/5	0	0	0	0	0	64	11.2	0	0	0
38a/2	0	0	0	0	0	45	4.3	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	LRG Mammal NISP	LRG Mammal MNI	LRG Mammal Mass	Modification	MED Mammal NISP	MED Mammal MNI	MED Mammal Mass	Modification	SML Mammal NISP	SML Mammal MNI
38X/1	0	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	2	1	1.7	0	0	0
42X/1	0	0	0	0	6	1	10	0	0	0
38Z/3	0	0	0	0	19	1	28.8	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	2	1	4.5	0	0	0
32-34Y/2	0	0	0	0	2	1	7.9	0	0	0
32Y/1	0	0	0	0	2	1	9	0	0	0
44Y/1	1	1	5.5	0	1	1	1	0	0	0
34/1	0	0	0	0	0	0	0	0	0	0
42YZa/3	0	0	0	0	2	1	7.8	0	0	0
38-40Y/3	0	0	0	0	1	1	3.4	2	2	1
32Z/2	0	0	0	0	0	0	0	0	0	0
42-44Y/3	2	1	5.2	0	6	1	15.2	2	0	0
34X/1	0	0	0	0	2	1	1.83	0	0	0
40X/1	1	1	2.3	0	0	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0	0
36Z/3	1	1	9.6	0	3	1	6.2	0	1	1
36Y/2	0	0	0	0	0	0	0	0	0	0
32X/1	1	1	8.1	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	5	1	18.3	0	0	0
34W/1	0	0	0	0	0	0	0	0	1	1
42Y/1	0	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0	0
34X/2	0	0	0	0	0	0	0	0	0	0
32Z/1	0	0	0	0	0	0	0	0	1	1
40Y/2	0	0	0	0	0	0	0	0	0	0
42Y/2	0	0	0	0	0	0	0	0	5	1
38a/1	0	0	0	0	0	0	0	0	0	0
38Z/1	0	0	0	0	0	0	0	0	0	0
40W/1	0	0	0	0	0	0	0	0	0	0
36Z/2	0	0	0	0	0	0	0	0	0	0
F.6/38Z/5	0	0	0	0	0	0	0	0	0	0
38a/2	0	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	SML Mammal Mass	Modification	Pecary NISP	Pecary MNI	Pecary Mass	Modification	Agouti NISP	Agouti MNI	Agouti MASS	Modified	Deer (Unknown Class) NISP
38X/1	0	0	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	0	0	0	0	0	0	0
42X/1	0	0	0	0	0	0	0	0	0	0	0
38Z/3	0	0	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	0	0	0	0	0	0	0
32-34Y/2	0	0	0	0	0	0	0	0	0	0	0
32Y/1	0	0	0	0	0	0	0	0	0	0	0
44Y//1	0	0	0	0	0	0	0	0	0	0	0
34/1	0	0	0	0	0	0	0	0	0	0	0
42YZa/3	0	0	0	0	0	0	1	1	3.7	0	0
38-40Y/3	1.3	0	0	0	0	0	0	0	0	0	0
32Z/2	0	0	0	0	0	0	0	0	0	0	0
42-44Y/3	0	0	0	0	0	0	0	0	0	0	0
34X/1	0	0	0	0	0	0	0	0	0	0	0
40X/1	0	0	0	0	0	0	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0	0	0
36Z/3	0.9	0	0	0	0	0	0	0	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0	0	0
32X/1	0	0	0	0	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	0	0	0	0	0	0	0
34W/1	2.3	2	0	0	0	0	0	0	0	0	0
42Y/1	0	0	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0	0	0
34X/?	0	0	0	0	0	0	0	0	0	0	0
32Z/1	2.5	2	0	0	0	0	0	0	0	0	0
40Y/2	0	0	0	0	0	0	0	0	0	0	0
42Y/2	7.6	0	0	0	0	0	0	0	0	0	0
38a/1	0	0	0	0	0	0	0	0	0	0	0
38Z/1	0	0	0	0	0	0	0	0	0	0	0
40W/1	0	0	0	0	0	0	0	0	0	0	0
36Z/2	0	0	0	0	0	0	0	0	0	0	0
F.6/38Z/5	0	0	0	0	0	0	0	0	0	0	0
38a/2	0	0	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	Deer (Unknown Class) MNI	Deer (Unknown Class) Mass	Modified	Whitetail Deer NISP	Whitetail MNI	Whitetail Deer Mass	Modified	Pocket Gopher NISP	Pocket Gopher MNI
38X/1	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	0	0	0	0	0
42X/1	0	0	0	0	0	0	0	0	0
38Z/3	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	0	0	0	0	0
32-34Y/2	0	0	0	1	1	3	0	0	0
32Y/1	0	0	0	0	0	0	0	0	0
44Y//1	0	0	0	0	0	0	0	0	0
34/1	0	0	0	0	0	0	0	0	0
42YZa/3	0	0	0	0	0	0	0	0	0
38--40Y/3	0	0	0	0	0	0	0	0	0
32Z/2	0	0	0	0	0	0	0	0	0
42-44Y/3	0	0	0	0	0	0	0	0	0
34X/1	0	0	0	0	0	0	0	1	1
40X/1	0	0	0	0	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0
36Z/3	0	0	0	0	0	0	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0
32X/1	0	0	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	0	0	0	0	0
34W/1	0	0	0	0	0	0	0	0	0
42Y/1	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0
34X/?	0	0	0	0	0	0	0	0	0
32Z/1	0	0	0	0	0	0	0	0	0
40Y/2	0	0	0	0	0	0	0	0	0
42Y/2	0	0	0	0	0	0	0	0	0
38a/1	0	0	0	0	0	0	0	0	0
38Z/1	0	0	0	0	0	0	0	0	0
40W/1	0	0	0	0	0	0	0	0	0
36Z/2	0	0	0	0	0	0	0	0	0
F.6/38Z/5	0	0	0	0	0	0	0	0	0
38a/2	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	Pocket Gopher Mass	Modification	Opossum NISP	Opossum MNI	Opossum Mass	Modification	Ave NISP	Ave MNI	Ave Mass	Modification	Reptile NISP	Reptile MNI	Reptile Mass	Modification
38X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40a/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32-34Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42YZa/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38-40Y/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42-44Y/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34X/1	4	0	0	0	0	0	1	1	0.5	0	0	0	0	0
40X/1	0	0	2	1	2.7	0	1	1	0.7	0	0	0	0	0
38W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Z/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32X/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36-38W/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Y/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34X/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32Z/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42Y/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38a/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38Z/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40W/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36Z/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F.6/38Z/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38a/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Structure 6 Faunal Analysis, Continued

Unit Identifier	Unknown Vertebrate	Unknown Vertebrate Mass	Modification	Fish NISP	Fish MNI	Fish Mass	Unidentifiable Count	Unidentifiable Weight	Notes
38X/1	0	0	0	0	0	0	0	0	
38Z/2	0	0	0	0	0	0	0	0	
42X/1	0	0	0	0	0	0	0	0	
38Z/3	0	0	0	0	0	0	0	0	
40a/1	0	0	0	0	0	0	0	0	
38Y/1	0	0	0	0	0	0	0	0	
32-34Y/2	0	0	0	0	0	0	0	0	Deer astragalus
32Y/1	0	0	0	0	0	0	0	0.2	
44Y//1	0	0	0	0	0	0	0	0	Large mammal epiphysis - not deer nor tapir
34/1	0	0	0	0	0	0	0	0	
42YZa/3	0	0	0	0	0	0	0	0	Agouti left femur. Med mam possible human remains
38-40Y/3	0	0	0	0	0	0	0	0	Med sized burnt bone appears to be the tibia of a mammal possible armadillo
32Z/2	0	0	0	0	0	0	0	0	
42-44Y/3	0	0	0	0	0	0	0	0	Large mam - metatarsal or phalange, possible human remains
34X/1	0	0	0	0	0	0	5	0.3	V. small unidentifiable. Possible Ave scapula
40X/1	0	0	0	0	0	0	12	7.6	Large mammal ankle bone
38W/1	0	0	0	0	0	0	0	0	
36Z/3	0	0	0	0	0	0	0	0	
36Y/2	0	0	0	0	0	0	0	0	All jute - just dust by the time we analyzed. Discarded the bag.
32X/1	0	0	0	0	0	0	0	0	Large mammal bone is likely a calcaneus (heel bone) for either a canine or feline (potentially jaguar)
36-38W/2	0	0	0	0	0	0	0	0	
42Z/2	0	0	0	0	0	0	0	0	
34W/1	1	1.69	2	0	0	0	0	0	Small mam - left humerus - rabbit? Unknown vertebrate - burned heavily
42Y/1	1	1.5	0	0	0	0	0	0	
36W/1	2	5.8	0	0	0	0	0	0	
34X/?	1	0.9	0	0	0	0	0	0	
32Z/1	1	1	1.1	2	2	2.3	0	0	
40Y/2	0	0	0	0	0	0	0	0	2 bones identified as human and removed
42Y/2	0	0	0	0	0	0	0	0	Small mam - possible radius and pelvis - potentially identifiable
38a/1	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead
38Z/1	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead
40W/1	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead
36Z/2	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead
F.6/38Z/5	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead
38a/2	0	0	0	0	0	0	0	0	unknown bivalve is a puca shell bead

Structure 50 Faunal Analysis

Unit Identifier	Number Pieces	Mass	Veterbrate	Invertebrate	Unidentified NISP	Unidentified Weight	Conch NISP	Conch MNI	Conch Mass	Modified	Queen Conch NISP	Queen Conch MNI	Queen Conch Mass	Modified
208/2	5	92.3	0	5	0	0	3	3	35.3	0	2	2	57	0
18N-O/3	4	121.1	0	4	0	0	3	3	107.6	0	0	0	0	0
20Q-R/3	5	145.5	0	5	3	4.0	3	3	119.3	0	0	0	0	0
20P/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18O/1	1	14.5	0	1	0	0	0	1	14.5	0	1	52	0	0
14N/1	0	55.5	0	0	0	0	0	2	55.5	0	0	0	0	0
18P-Q/2	66	1147	6	60	0	0	25	25	749.6	0	3	2	266.7	0
14S/2	16	25.1	4	12	0	0	0	0	0	0	0	0	0	0
16N/1	1	10.6	0	1	0	0	1	1	10.6	0	0	0	0	0
20L/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P/2	1	16.5	0	1	0	0	1	1	16.5	0	0	0	0	0
18M/1	1	21.7	0	1	0	0	0	0	0	0	0	0	0	0
20N/2	5	34.8	2	3	0	0	1	1	0	0	0	0	0	0
16R/3	29	523.9	6	23	0	0	5	5	215.3	0	3	1	233.5	1
20T/2	1	20	0	1	0	0	1	1	20	0	0	0	0	0
16P/3	3	5.2	1	2	0	0	0	0	0	0	0	0	0	0
18LMNO/3	19	363.6	2	17	0	0	9	9	341.9	0	0	0	0	0
18S/2	9	97.5	2	7	0	0	2	2	54.2	0	1	1	29.1	0
18L/1	1	9	1	0	0	0	0	0	0	0	0	0	0	0
16S/2	28	91.3	8	20	1	1	0	0	0	0	3	1	43.8	0
18R/2	23	164.2	1	22	0	0	1	1	79.3	0	0	0	0	0
14R/2	16	56.5	5	11	0	0	0	0	0	0	2	2	18.2	0
16O-14O/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N/4	2	27.8	1	1	0	0	1	1	18.2	0	0	0	0	0
16P/2	3	3.6	2	1	0	0	0	0	0	0	0	0	0	0
16O/1	2	1	2	0	0	0	0	0	0	0	0	0	0	0
16R-S/3	5	67.3	1	4	0	0	1	1	24.8	0	0	0	0	0
18P/1	2	12.1	0	2	0	0	0	0	0	0	0	0	0	0
16O/3	2	2	0	2	0	0	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16O/2	2	48.7	0	2	0	0	2	2	48.7	0	0	0	0	0
20O/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20N/1	2	3.9	1	1	0	0	0	0	0	0	0	0	0	0
14N/3	2	3.6	0	2	0	0	1	1	2.3	0	0	0	0	0
14O/4	3	8.5	0	3	0	0	1	1	5.6	0	0	0	0	0
16N/2	0	2	0	0	0	0	0	2	2	77	0	0	0	0
20R/2	10	2.6	8	2	0	0	1	1	3.6	0	1	1	8	0
20M/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16T/2	2	42.7	0	2	0	0	1	1	2.4	0	1	1	40.3	0
16T/1	2	2.2	2	0	0	0	0	0	0	0	0	0	0	0
14N/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P/1	1	7.5	1	0	0	0	0	0	0	0	0	0	0	0
20O/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20R/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18T/2	1	3.4	0	1	0	0	0	0	0	0	0	0	0	0
18S/1	8	22.6	0	8	0	0	0	0	0	0	0	0	0	0
18R/1	5	7.7	5	0	0	0	0	0	0	0	0	0	0	0
19P/1	3	97.1	0	3	0	0	1	1	29	0	1	1	65.1	0
14R/1	1	6.5	1	0	0	0	0	0	0	0	0	0	0	0
14M/5	3	8	3	0	0	0	0	0	0	0	0	0	0	0
18Q-R/4	7	20.9	1	6	0	0	0	0	0	0	0	0	0	0
18T/1	2	7.5	2	0	0	0	0	0	0	0	0	0	0	0
14O/1	1	17.7	0	1	0	0	1	1	17.7	0	0	0	0	0
14O/2	10	7.1	0	10	0	0	1	1	7.1	0	0	0	0	0
14O/5	3	3.4	1	2	0	0	0	0	0	0	0	0	0	0
F: 716S/1	7	78.1	1	6	0	0	1	1	44.5	0	1	1	11.1	0
16-18S/3	4	174.8	1	3	0	0	0	0	0	0	1	1	165	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	Venus Clam	Venus Clam MNI	Venus Clam Mass	Modified	Clam NISP	Clam MNI	Clam Mass	Modified	Mussel NISP	Mussel MNI	Mussel Mass	Tusk Shell NISP	Tusk Shell MNI	Tusk Shell Mass
20S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18N-Q/3	1	1	13.5	0	0	0	0	0	0	0	0	0	0	0
20Q-R/3	1	1	23.1	0	1	1	3.1	0	0	0	0	0	0	0
20O/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18O/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18F-Q/2	5	2	39.6	0	1	1	6.2	0	1	1	4.2	0	0	0
14S/2	0	0	0	0	10	1	18.1	0	2	1	0	0	0	0
16N/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20J/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18M/1	1	1	21.7	0	0	0	0	0	0	0	0	0	0	0
20N/2	2	1	20.2	0	0	0	0	0	0	0	0	0	0	0
16R/3	1	1	5.7	0	14	1	4.5	0	0	0	0	0	0	0
20T/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16P/3	0	0	0	0	1	1	1	0	0	0	0	1	1	0.9
18LMNO/3	0	0	0	0	5	1	6.1	0	2	1	5.8	0	0	0
18S/2	0	0	0	0	4	1	9.6	0	0	0	0	0	0	0
18L/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16S/2	1	1	2.5	0	14	1	29.7	0	1	1	3.1	0	0	0
18R/2	1	1	1.5	0	19	1	48.9	0	0	0	0	0	0	0
14R/2	0	0	0	0	8	1	22.5	0	0	0	0	0	0	0
16O-14O/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N/4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16P/2	0	0	0	0	1	1	2.7	0	0	0	0	0	0	0
16O/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16R-5/3	1	1	9.2	0	2	1	31.8	0	0	0	0	0	0	0
18P/1	1	1	9.6	0	1	1	2.5	0	0	0	0	0	0	0
16O/3	0	0	0	0	1	1	0.8	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16O/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20O/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20N/1	0	0	0	0	0	0	0	0	1	1	1.8	0	0	0
14N/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O/4	0	0	0	0	1	1	2.4	0	0	0	0	0	0	0
16N/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20K/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20M/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16T/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16T/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20R/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18T/2	1	1	3.4	0	0	0	0	0	0	0	0	0	0	0
18S/1	1	1	4.2	0	6	1	17.1	0	0	0	0	0	0	0
18R/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19P/1	0	0	0	0	1	1	3	0	0	0	0	0	0	0
14R/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14M/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18Q-R/4	1	1	6.7	0	5	1	12.6	0	0	0	0	0	0	0
18T/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O/5	0	0	0	0	2	1	2.7	0	0	0	0	0	0	0
F. 716S1	0	0	0	0	3	1	3.3	0	1	1	1.3	0	0	0
16-18S/3	0	0	0	0	2	1	4.1	0	0	0	0	0	0	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	Terrestrial Snail NISP	Terrestrial Snail MNI	Terrestrial Snail Mass	Jute	Unidentified Bivalve NISP	Unidentified Bivalve Mass	Scallop NISP	Scallop MNI	Scallop Mass	LRG Mammal NISP	LRG Mammal MNI
20S2	0	0	0	0	0	0	0	0	0	0	0
18N-Q/3	0	0	0	0	0	0	0	0	0	0	0
20Q-R/3	0	0	0	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0
18Q/1	0	0	0	0	0	0	0	0	0	0	0
14N/1	0	0	0	0	0	0	0	0	0	0	0
18P-Q/2	0	0	0	0	24	62.8	1	1	3.5	0	0
14S/2	0	0	0	0	0	0	0	0	0	0	0
16N/1	0	0	0	0	0	0	0	0	0	0	0
20L/1	0	0	0	0	0	0	0	0	0	0	0
20P/2	0	0	0	0	0	0	0	0	0	0	0
18M/1	0	0	0	0	0	0	0	0	0	0	0
20N/2	0	0	0	0	0	0	0	0	0	0	0
16R/3	0	0	0	0	0	0	0	0	0	1	1
20T/2	0	0	0	0	0	0	0	0	0	0	0
16P/3	0	0	0	0	0	0	0	0	0	0	0
18L/MNO/3	1	1	1	0	0	0	0	0	0	1	1
18S/2	0	0	0	0	0	0	0	0	0	0	0
18L/1	0	0	0	0	0	0	0	0	0	0	0
16S/2	1	1	0.5	0	0	0	0	0	0	0	0
18R/2	0	0	0	0	1	32.2	0	0	0	0	0
14R/2	1	1	3.4	0	0	0	0	0	0	1	1
16O-14O/3	0	0	0	0	0	0	0	0	0	0	0
14N/4	0	0	0	0	0	0	0	0	0	1	1
16P/2	0	0	0	0	0	0	0	0	0	0	0
16Q/1	0	0	0	0	0	0	0	0	0	0	0
16R-S/3	0	0	0	0	0	0	0	0	0	0	0
18P/1	0	0	0	0	0	0	0	0	0	0	0
16Q/3	1	1	1.2	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0
16O/2	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0
20N/1	0	0	0	0	0	0	0	0	0	0	0
14N/3	1	1	1.3	0	0	0	0	0	0	0	0
14O/4	1	1	0.5	0	0	0	0	0	0	0	0
16N/2	0	0	0	0	0	0	0	0	0	0	0
20R/2	0	0	0	0	0	0	0	0	0	1	1
20M/2	0	0	0	0	0	0	0	0	0	0	0
16T/2	0	0	0	0	0	0	0	0	0	0	0
16T/1	0	0	0	0	0	0	0	0	0	0	0
14N/2	0	0	0	0	0	0	0	0	0	0	0
20P/1	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0
20R/1	0	0	0	0	0	0	0	0	0	0	0
18T/2	0	0	0	0	0	0	0	0	0	0	0
18S/1	0	0	0	0	1	1.3	0	0	0	0	0
18R/1	0	0	0	0	0	0	0	0	0	0	0
19P/1	0	0	0	0	0	0	0	0	0	0	0
14R/1	0	0	0	0	0	0	0	0	0	0	0
14M/5	0	0	0	0	0	0	0	0	0	0	0
18Q-R/4	0	0	0	0	0	0	0	0	0	0	0
18T/1	0	0	0	0	0	0	0	0	0	1	1
14O/1	0	0	0	0	0	0	0	0	0	0	0
14O/2	0	0	0	0	0	0	9	0	0	0	0
14O/5	0	0	0	0	0	0	0	0	0	0	0
F. 7/16S/1	0	0	0	0	0	0	0	0	0	1	1
16-18S3	0	0	0	1	0	0	0	0	0	0	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	LRG Mammal Mass	Modification	MED Mammal NISP	MED Mammal MNI	MED Mammal Mass	Modification	SML Mammal NISP	SML Mammal MNI	SML Mammal Mass	Modification	Peccary NISP
20S/2	0	0	0	0	0	0	0	0	0	0	0
18N-O/3	0	0	0	0	0	0	0	0	0	0	0
20Q-R/3	0	0	0	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0
18O/1	0	0	0	0	0	0	0	0	0	0	0
14N/1	0	0	0	0	0	0	0	0	0	0	0
18P-O/2	0	0	5	5	11.2	0	0	0	0	0	0
14S/2	0	0	4	1	7	0	0	0	0	0	0
16N/1	0	0	0	0	0	0	0	0	0	0	0
20L/1	0	0	0	0	0	0	0	0	0	0	0
20P/2	0	0	0	0	0	0	0	0	0	0	0
18M/1	0	0	0	0	0	0	0	0	0	0	0
20N/2	0	0	0	0	0	0	0	0	0	0	0
16R/3	7.2	0	5	1	17.2	1	0	0	0	0	0
20T/2	0	0	0	0	0	0	0	0	0	0	0
16P/3	3.3	4	0	0	0	0	0	0	0	0	0
18LMNO/3	0	0	2	1	8.8	0	0	0	0	0	0
18S/2	0	0	2	1	4.6	0	0	0	0	0	0
18L/1	9	0	0	0	0	0	0	0	0	0	0
16S/2	0	0	5	1	6.8	0	0	0	0	0	0
18R/2	0	0	1	1	2.3	1	0	0	0	0	0
14R/2	6.4	0	3	1	4.8	0	0	0	0	0	0
16O-14O/3	0	0	0	0	0	0	0	0	0	0	0
14N/4	9.6	0	0	0	0	0	0	0	0	0	0
16P/2	0	0	0	0	0	0	2	1	0.9	2	0
16Q/1	0	0	2	1	1	2	0	0	0	0	0
16R-5/3	0	0	1	1	1.5	0	0	0	0	0	0
18P/1	0	0	0	0	0	0	0	0	0	0	0
16O/3	0	0	0	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0
16Q/2	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0
20N/1	0	0	1	1	2.1	0	0	0	0	0	0
14N/3	0	0	0	0	0	0	0	0	0	0	0
14O/4	0	0	0	0	0	0	0	0	0	0	0
16N/2	0	0	0	0	0	0	0	0	0	0	0
20R/2	1.8	1	5	1	10.6	1	0	0	0	0	2
20M/2	0	0	0	0	0	0	0	0	0	0	0
16T/2	0	0	0	0	0	0	0	0	0	0	0
16T/1	0	0	2	1	2.2	0	0	0	0	0	0
14N/2	0	0	0	0	0	0	0	0	0	0	0
20P/1	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0
20R/1	0	0	0	0	0	0	0	0	0	0	0
18T/2	0	0	0	0	0	0	0	0	0	0	0
18S/1	0	0	0	0	0	0	0	0	0	0	0
18R/1	0	0	4	1	4.1	0	0	0	0	0	1
19P/1	0	0	0	0	0	0	0	0	0	0	0
14R/1	0	0	1	1	6.5	1	0	0	0	0	0
14M/5	0	0	3	1	8	0	0	0	0	0	0
18Q-R/4	0	0	1	1	1.6	0	0	0	0	0	0
18T/1	4.1	0	1	1	3.4	0	0	0	0	0	0
14O/1	0	0	0	0	0	0	0	0	0	0	0
14Q/2	0	0	0	0	0	0	0	0	0	0	0
14Q/5	0	0	1	1	0.7	4	0	0	0	0	0
E. 7/16S/1	17.9	6	0	0	0	0	0	0	0	0	0
16-18S/3	0	0	0	0	0	0	0	0	0	0	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	Pecary MNI	Pecary Mass	Modification	Agouti NISP	Agouti MNI	Agouti MASS	Modified	Deer (Unknown Class) NISP	Deer (Unknown Class) MNI	Deer (Unknown Class) Mass	Modified
28S2	0	0	0	0	0	0	0	0	0	0	0
18N-O/3	0	0	0	0	0	0	0	0	0	0	0
20Q-R/3	0	0	0	0	0	0	0	0	0	0	0
20O/1	0	0	0	0	0	0	0	0	0	0	0
18O/1	0	0	0	0	0	0	0	0	0	0	0
14N/1	0	0	0	0	0	0	0	0	0	0	0
18P-Q/2	0	0	0	1	1	3.2	0	0	0	0	0
14S/2	0	0	0	0	0	0	0	0	0	0	0
16N/1	0	0	0	0	0	0	0	0	0	0	0
20L/1	0	0	0	0	0	0	0	0	0	0	0
20P/2	0	0	0	0	0	0	0	0	0	0	0
18M/1	0	0	0	0	0	0	0	0	0	0	0
20N/2	0	0	0	0	0	0	0	1	1	7.3	0
16R/3	0	0	0	0	0	0	0	0	0	0	0
20T/2	0	0	0	0	0	0	0	0	0	0	0
16P/3	0	0	0	0	0	0	0	0	0	0	0
18LMNO/3	0	0	0	0	0	0	0	0	0	0	0
18S/2	0	0	0	0	0	0	0	0	0	0	0
18L/1	0	0	0	0	0	0	0	0	0	0	0
16S/2	0	0	0	0	0	0	0	0	0	0	0
18R/2	0	0	0	0	0	0	0	0	0	0	0
14R/2	0	0	0	0	0	0	0	0	0	0	0
16O-14O/3	0	0	0	0	0	0	0	0	0	0	0
14N/4	0	0	0	0	0	0	0	0	0	0	0
16P/2	0	0	0	0	0	0	0	0	0	0	0
16O/1	0	0	0	0	0	0	0	0	0	0	0
16R-S/3	0	0	0	0	0	0	0	0	0	0	0
18P/1	0	0	0	0	0	0	0	0	0	0	0
16O/3	0	0	0	0	0	0	0	0	0	0	0
20Q/1	0	0	0	0	0	0	0	0	0	0	0
16O/2	0	0	0	0	0	0	0	0	0	0	0
20O/2	0	0	0	0	0	0	0	0	0	0	0
20N/1	0	0	0	0	0	0	0	0	0	0	0
14N/3	0	0	0	0	0	0	0	0	0	0	0
14O/4	0	0	0	0	0	0	0	0	0	0	0
16N/2	0	0	0	0	0	0	0	0	0	0	0
20R/2	1	2	0	0	0	0	0	0	0	0	0
20M/2	0	0	0	0	0	0	0	0	0	0	0
16T/2	0	0	0	0	0	0	0	0	0	0	0
16T/1	0	0	0	0	0	0	0	0	0	0	0
14N/2	0	0	0	0	0	0	0	0	0	0	0
20P/1	0	0	0	0	0	0	0	0	0	0	0
20Q/2	0	0	0	0	0	0	0	0	0	0	0
20R/1	0	0	0	0	0	0	0	0	0	0	0
18T/2	0	0	0	0	0	0	0	0	0	0	0
18S/1	0	0	0	0	0	0	0	0	0	0	0
18R/1	1	3.6	0	0	0	0	0	0	0	0	0
19P/1	0	0	0	0	0	0	0	0	0	0	0
14R/1	0	0	0	0	0	0	0	0	0	0	0
14M/5	0	0	0	0	0	0	0	0	0	0	0
18Q-R/4	0	0	0	0	0	0	0	0	0	0	0
18T/1	0	0	0	0	0	0	0	0	0	0	0
14O/1	0	0	0	0	0	0	0	0	0	0	0
14O/2	0	0	0	0	0	0	0	0	0	0	0
14O/5	0	0	0	0	0	0	0	0	0	0	0
F. 7/16S/1	0	0	0	0	0	0	0	0	0	0	0
16-18S/3	0	0	0	0	0	0	0	1	1	5.7	0

Unit Identifier	White-tail Deer NISP	White-tail MNI	White-tail Deer Mass	Modified	Pocket Gopher NISP	Pocket Gopher MNI	Pocket Gopher Mass	Modification	Opossum NISP	Opossum MNI	Opossum Mass	Modification
20S2	0	0	0	0	0	0	0	0	0	0	0	0
18N-O3	0	0	0	0	0	0	0	0	0	0	0	0
20Q-R3	0	0	0	0	0	0	0	0	0	0	0	0
20O1	0	0	0	0	0	0	0	0	0	0	0	0
18O1	0	0	0	0	0	0	0	0	0	0	0	0
14N1	0	0	0	0	0	0	0	0	0	0	0	0
18P-Q2	0	0	0	0	0	0	0	0	0	0	0	0
14S2	0	0	0	0	0	0	0	0	0	0	0	0
16N1	0	0	0	0	0	0	0	0	0	0	0	0
20L1	0	0	0	0	0	0	0	0	0	0	0	0
20P2	0	0	0	0	0	0	0	0	0	0	0	0
18M1	0	0	0	0	0	0	0	0	0	0	0	0
20N2	1	1	7.3	0	0	0	0	0	0	0	0	0
16R3	0	0	0	0	0	0	0	0	0	0	0	0
20T2	0	0	0	0	0	0	0	0	0	0	0	0
16P3	0	0	0	0	0	0	0	0	0	0	0	0
18LAMNO3	0	0	0	0	0	0	0	0	0	0	0	0
18S2	0	0	0	0	0	0	0	0	0	0	0	0
18L1	0	0	0	0	0	0	0	0	0	0	0	0
16S2	0	0	0	0	0	0	0	0	0	0	0	0
18R2	0	0	0	0	0	0	0	0	0	0	0	0
14R2	0	0	0	0	0	0	0	0	0	0	0	0
16O-14O3	0	0	0	0	0	0	0	0	0	0	0	0
14N4	0	0	0	0	0	0	0	0	0	0	0	0
16P2	0	0	0	0	0	0	0	0	0	0	0	0
16O1	0	0	0	0	0	0	0	0	0	0	0	0
16R-S3	0	0	0	0	0	0	0	0	0	0	0	0
18P1	0	0	0	0	0	0	0	0	0	0	0	0
16O3	0	0	0	0	0	0	0	0	0	0	0	0
20Q1	0	0	0	0	0	0	0	0	0	0	0	0
16O2	0	0	0	0	0	0	0	0	0	0	0	0
20O2	0	0	0	0	0	0	0	0	0	0	0	0
20N1	0	0	0	0	0	0	0	0	0	0	0	0
14N3	0	0	0	0	0	0	0	0	0	0	0	0
14O4	0	0	0	0	0	0	0	0	0	0	0	0
16N2	0	0	0	0	0	0	0	0	0	0	0	0
20R2	0	0	0	0	0	0	0	0	0	0	0	0
20M2	0	0	0	0	0	0	0	0	0	0	0	0
16T2	0	0	0	0	0	0	0	0	0	0	0	0
16T1	0	0	0	0	0	0	0	0	0	0	0	0
14N2	0	0	0	0	0	0	0	0	0	0	0	0
20P1	1	1	7.5	0	0	0	0	0	0	0	0	0
20Q2	0	0	0	0	0	0	0	0	0	0	0	0
20R1	0	0	0	0	0	0	0	0	0	0	0	0
18T2	0	0	0	0	0	0	0	0	0	0	0	0
18S1	0	0	0	0	0	0	0	0	0	0	0	0
18R1	0	0	0	0	0	0	0	0	0	0	0	0
19P1	0	0	0	0	0	0	0	0	0	0	0	0
14R1	0	0	0	0	0	0	0	0	0	0	0	0
14M5	0	0	0	0	0	0	0	0	0	0	0	0
18Q-R4	0	0	0	0	0	0	0	0	0	0	0	0
18T1	0	0	0	0	0	0	0	0	0	0	0	0
14O1	0	0	0	0	0	0	0	0	0	0	0	0
14O2	0	0	0	0	0	0	0	0	0	0	0	0
14O5	0	0	0	0	0	0	0	0	0	0	0	0
F, 716S/1	0	0	0	0	0	0	0	0	0	0	0	0
16-18S3	0	0	0	0	0	0	0	0	0	0	0	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	Ave NISP	Ave MNI	Ave Mass	Modification	Reptile NISP	Reptile MNI	Reptile Mass	Modification	Unknown Vertebrate	Unknown Vertebrate Mass	Modification	Fish NISP	Fish MNI	Fish Mass
20S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18N-O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20Q-R3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20Q-R3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18O-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18O-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18P-Q2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16N-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20L-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18M-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20N-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16R-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20T-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16P-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18L-MNO-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18L-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16S2	2	1	1.4	0	0	1	3.5	0	0	0	0	0	0	0
18R-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14R-2	1	1	1.2	1	0	0	0	0	0	0	0	0	0	0
16O-14O-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16P-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16O-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16R-S-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18P-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16O-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20Q-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16O-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20O-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20N-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16N-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20R-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20M-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16T-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16T-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14N-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20P-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20Q-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20R-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18T-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18S-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18R-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19P-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14R-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14M-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18Q-R-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18T-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14O-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F. 716S/1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16-18S-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Structure 50 Faunal Analysis, Continued

Unit Identifier	Undentifiable Count	Undentifiable Weight	Notes
20S2	0	0	
18N-O/3	0	0	
20Q-R/3	0	0	
20O/1	0	0	
18O/1	0	0	
14N/1	0	0	
18P-Q/2	0	0	Argent is a Right distal end of Femur
14S/2	0	0	
16N/1	0	0	
20L/1	0	0	
20P/2	0	0	
18M/1	0	0	
20N/2	0	0	Deer material is a molar
16R/3	0	0	
20T/2	0	0	
16P/3	0	0	Modified bone appears to have been a bracelet or large ring/bead
18L/MNO/3	0	0	
18S/2	0	0	
18L/1	0	0	Likely deer fragment long bone
16S/2	0	0	Reptile mandible no teeth
18R/2	0	0	
14R/2	0	0	large mammal bone appears to be mandible fragment likely deer or tapir no teeth or roots
16O-14O/3	0	0	
14N/4	0	0	these specimens were washed depositional erosion is not clear
16P/2	0	0	
16O/1	0	0	heavily burnt
16R-S/3	0	0	
18P/1	0	0	
16O/3	0	0	
20Q/1	0	0	
16O/2	0	0	
20O/2	0	0	
20N/1	0	0	
14N/3	0	0	
14O/4	0	0	
16N/2	0	0	
20R/2	0	0	
20M/2	0	0	
16T/2	0	0	Pecuary remains are two task fragments
16T/1	0	0	
14N/2	0	0	
20P/1	0	0	Astragalus bone of deer; likely white tail
20Q/2	0	0	
20R/1	0	0	
18T/2	0	0	
18S/1	0	0	
18R/1	0	0	pecuary remain is a mask
19P/1	0	0	
14R/1	0	0	
18Q-R/4	0	0	sample washed exterior affected
18T/1	0	0	
14O/1	0	0	
14O/2	0	0	
14O/5	0	0	possible ring or bead of bone
F. 7/1 6S/1	0	10	Flute made of large animal bone
16-18S/3	0	1	Deer Radius head fragment

Appendix IX JUTE DATA

Jute Data Structure 6

Op/SubOp/Lot	P. glaphyrus (spiky) whole	P. glaphyrus (fragment)	P. indiorum (smooth) whole	P. indiorum (smooth) Fragment
6/32X/1	0	0	0	0
6/32X/2	0	0	0	0
6/32XYZ/3	0	0	0	0
6/32Y/1	0	0	1	0
6/32Y/2	0	0	0	3
6/32Z/1	0	0	0	0
6/32Z/2	0	0	3	0
6/33W/1	0	0	0	0
6/34W/1	0	0	0	0
6/34X/1	0	0	0	0
6/34X/2	0	0	0	0
6/34X/3	0	0	0	0
6/34Y/1	0	0	0	0
6/34Z/1	0	0	0	0
6/36038W/2	0	0	0	0
6/36W/1	0	0	0	0
6/36X/1	0	0	0	0
6/36Y/1	0	0	0	0
6/36Y/2	0	0	0	0
6/36Z/1	0	0	0	0
6/36Z/2	1	0	0	0
6/36Z/3	0	0	1	3
6/38040Y/3	0	0	0	0
6/38a/1	0	0	0	0
6/38a/2	0	0	0	0
6/38W/1	0	0	0	0
6/38X/1	0	0	0	0
6/38X/2	0	0	0	0
6/38Y/1	0	0	0	0
6/38Z/1	1	0	0	0
6/38Z/2	0	0	0	0

Jute Data Structure 6, Continued

Op/SubOp/Lot	P. glaphyrus (spiky) whole	P. glaphyrus (fragment)	P. indiorum (smooth) whole	P. indiorum (smooth) Fragment
6/38Z/3	0	0	0	0
6/40a/1	0	0	0	0
6/40W/1	0	0	0	0
6/40X/1	0	0	0	0
6/40X/2	0	0	0	0
6/40Y/1	0	0	0	0
6/40Y/2	0	0	0	0
6/42044Y/3	0	0	1	1
6/42a/1	0	0	0	0
6/42X/1	0	0	1	0
6/42Y/1	0	0	0	0
6/42Y/2	0	0	0	0
6/42YZa/3	1	0	4	6
6/42Z/1	0	0	0	0
6/42Z/2	0	2	0	1
6/42Z/4	0	0	0	0
6/44Y/1	0	0	0	0
6/44Z/1	0	0	0	0
6/46Y/1	0	0	0	2
Total	3	2	11	16

Jute Data Structure 50

Op/SubOp/Lot	P. glaphyrus (spiky) whole	P. glaphyrus (fragment)	P. indiorum (smooth) whole	P. indiorum (smooth) Fragment
7/14N/1	2	0	0	0
7/14O/1	0	1	0	0
7/14P/1	0	0	0	0
7/14R/1	0	0	0	0
7/14S/1	0	0	0	0
7/16N/1	0	0	0	0
7/16O/1	0	0	1	0
7/16P/1	0	0	0	0
7/16R/1	0	0	0	0
7/16S/1	0	0	0	0
7/16T/1	0	0	0	0
7/18K/1	0	0	0	0
7/18L/1	0	0	0	0
7/18M/1	0	0	0	0
7/18N/1	0	0	0	0
7/18O/1	1	0	0	0
7/18PQ/1	3	1	2	5
7/18R/1	2	0	0	1
7/18S/1	0	0	0	0
7/18T/1	0	0	0	0
7/19P/1	5	1	4	2
7/20L/1	0	0	0	0
7/20M/1	0	0	0	0
7/20N/1	0	0	1	1
7/20O/1	0	0	1	4
7/20P/1	0	0	0	0
7/20Q/1	0	0	0	1
7/20R/1	0	0	0	3
7/20S/1	0	0	0	0
7/20T/1	0	0	0	0
7/14N/2	1	0	0	0

Jute Data Structure 50, Continued

Op/SubOp/Lot	P. glaphyrus (spiky) whole	P. glaphyrus (fragment)	P. indiorum (smooth) whole	P. indiorum (smooth) Fragment
7/14O/2	0	0	2	0
7/14R/2	3	2	59	60
7/14S/2	10	6	15	64
7/16N/2	0	0	2	1
7/16O/2	1	1	2	3
7/16P/2	2	0	5	1
7/16S/2	6	8	8	1
7/18PQ/2	75	25	127	100
7/18S/2	5	2	10	14
7/18T/2	2	0	3	3
7/20L/2	1	0	0	0
7/20M/2	0	0	1	0
7/20N/2	1	0	0	0
7/20O/2	3	0	1	0
7/20P/2	0	0	0	0
7/20Q/2	1	0	2	0
7/20R/2	4	0	2	0
7/20S/2	2	5	3	0
7/20T/2	3	0	3	1
7/18R/2	22	15	36	70
7/14-16O/3	1	0	3	1
7/14N/3	0	0	4	0
7/16P/3	1	0	3	2
7/16R/3	12	8	35	36
7/18LMNO/3	9	0	24	16
7/18NO/3	0	0	2	0
7/20PQRS/3	10	1	20	0
7/18M/4	0	0	0	0
7/16O/4	2	0	2	5
7/14O/4	0	0	3	2
7/18QR/4	2	2	2	2

Jute Data Structure 50, Continued

Op/SubOp/Lot	P. glaphyrus (spiky) whole	P. glaphyrus (fragment)	P. indiorum (smooth) whole	P. indiorum (smooth) Fragment
7/18LMN/4	0	0	0	0
7/14N/4	0	0	0	0
7/14N/5	0	0	0	0
7/14O/5	0	0	1	0
7/18O/5	1	0	0	0
Total	190	77	388	399

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