

UNLEASHING THE BEAST: EVALUATING MAYA PERI-ABANDONMENT DEPOSITS
AT LOWER DOVER WITHIN THE CONTEXT OF THE BELIZE R. VALLEY

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ABSTRACT

UNLEASHING THE BEAST: EVALUATING MAYA PERI-ABANDONMENT DEPOSITS AT LOWER DOVER WITHIN THE CONTEXT OF THE BELIZE R. VALLEY

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Peri-abandonment deposits appear to contradict the widely held belief that ancient Maya communities disappeared after royal courts began to be abandoned in the Late Classic (600-900 AD) period. Peri-abandonment deposits are found in ceremonial centers of varying sizes all over the Maya lowlands and typically contain intentionally smashed ceramics, faunal and human remains, as well as a variety of lithics. What past behavior peri-abandonment deposits represent, however, is still largely debated. Because peri-abandonment deposits can contain thousands of pottery sherds and other artifacts, they can be “beastly” projects to excavate and analyze. As part of a larger multi-disciplinary effort to understand these contentiously interpreted features, my thesis research ascertains whether peri-abandonment deposits are associated with ritual (ceremonial) or mundane depositional events by evaluating peri-abandonment deposits at Lower Dover within the context of the Belize River Valley.

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CHAPTER 1

THE CONTEXT OF PERI-ABANDONMENT DEPOSITS

INTRODUCTION

Peri-abandonment deposits, also known as problematic or terminal deposits, found all over the Maya lowlands in elite ceremonial centers, provide contrasting evidence to the widely held belief that the Maya civilization simply disappeared after royal courts began to be abandoned in the Late Classic Period (600-900 AD). The prefix “peri” simply means “in or around the time of.” The term “abandonment” is, however, somewhat problematic because it tends to ignore the continued occupation or use of Maya centers by non-elites at the time, and by descendant groups since then—a fact that peri-abandonment deposits ironically attest to. While the term certainly carries historically misleading baggage that the reader should be aware of, it nonetheless usefully distinguishes the temporal range of peri-abandonment deposits, as well as their variability over a period when lowland Maya sites were being abandoned. Peri-abandonment deposits are primarily associated with the Late Classic (600-900 AD), and Terminal Classic periods (900-1000 AD); the time when many, but not all, royal courts were being abandoned by Maya elites most likely in response to drought (Hoggarth et al. 2018), and political destabilization across the Maya lowlands (Demarest et al. 2004).

Dozens of peri-abandonment deposits containing smashed ceramics, broken and whole lithic materials, jadeite, faunal remains and sometimes human remains have been found in the Belize River Valley (see Figure 1.1.) sub-region alone. What past human behavior such deposits represent, however, is still largely contested, partly

because peri-abandonment deposits have rarely been excavated or analyzed using systematic or standardized methodological approaches, and partly because of theoretical limitations for determining differences between “ritual” and “non-ritual” behavior in the distant past.

Compounding the interpretive issue is that almost all studies of peri-abandonment deposits have been conducted using single site analyses (See Table 2). Part of the reason for the interpretative issue, is that when first encountered, peri-abandonment deposits can seem like “beastly” projects to excavate, analyze, and interpret. Peri-abandonment deposits can stretch across entire courtyards, and often contain smashed ceramics in astounding quantities. Peri-abandonment deposits are daunting projects when purposefully investigated, let alone when they are accidentally come upon during excavations. Hence the name, and aim of this thesis to “unleash” the archaeological conundrum of Maya peri-abandonment deposits by evaluating them using a fresh regional perspective.

In contrast to earlier archaeological approaches, my research applies a regional approach for investigating peri-abandonment deposits using micro-stratigraphic excavation techniques to compare material assemblages of peri-abandonment deposits, and their expected archaeological correlates. *Micro-stratigraphic excavation*, which will be discussed in greater detail in the Methods chapter (Chapter 3), refers simply to excavating deposits in tiny discrete layers (1-5cm) that can be determined either arbitrarily, or culturally if there are differences in the matrix. The different types of artifacts that constitute everything in a single peri-abandonment deposit are called an *artifact assemblage*, and *archaeological correlates* are characteristics of certain features

(like peri-abandonment deposits) that are expected for some type of past human behavior. My research of this lowland Maya subregion—the western Belize River Valley—serves as a pilot-study to identify any evident patterns in the assemblages of peri-abandonment deposits on a regional scale for the first time. It is my hope that future researchers may explore the meaning of such patterns in greater detail, and with greater precision using the newly applied methods described in this thesis.

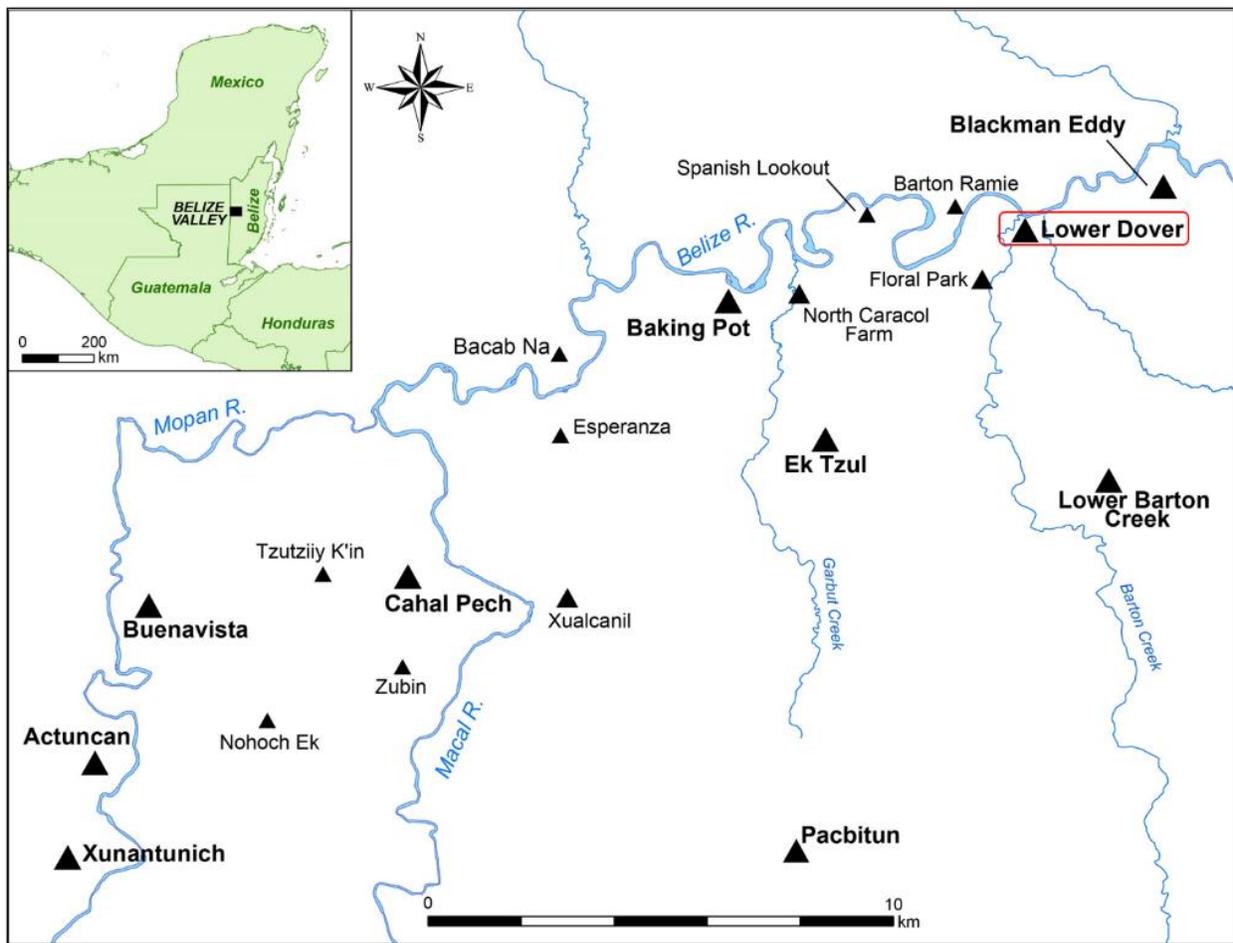


Figure 1.1. Map of the Belize River Valley with Lower Dover outlined in red (Map courtesy of Dr. Claire Ebert, modified 2018).

The Western Belize River Valley

The central Maya lowlands comprise nearly all of the Yucatan Peninsula in Central America, stretching down to the foot of the Maya mountain range in southern Belize. Just to the north of the Maya Mountains is the Belize River Valley, which is intersected by the Belize River and its two major tributaries, the Macal and the Mopan. In and between the rainforest covered hills that mark the Belize Valley landscape are wide stretches of alluvial plain that are among the most agriculturally fertile regions of Belize. The hills are formed from natural limestone outcroppings or cliffs, and caves or rock-shelters of various sizes are common across the karst topography of a lush jungle valley. *Karst topography* is characterized by underground drainages, rivers, sinkholes, and cave systems that result from the dissolution of water-soluble rocks such as the limestone present across the Maya region. Most of the major centers in the valley are either spread out on the hilly terrain of this landscape, or on the higher terraces overlooking the three major rivers.

Chapter Organization

Most of the Chapter 1 discussion will focus on the Belize River Valley where I conducted excavations of a peri-abandonment deposit at Lower Dover (see Figure 1.1.). In addition to describing the Belize Valley context, Chapter 1 focuses on the salient background information for understanding the temporal, cultural, environmental, and political context of peri-abandonment depositional practices. Towards the end of Chapter 1 I also provide a basic framework of Maya cosmology and animism that is necessary for contextualizing peri-abandonment deposits.

Chapter 2 provides an overview of the theoretical frameworks used to inform my research and the interpretations of peri-abandonment deposits. In Chapter 2, I begin with a brief explanation of cognitive archaeology and symbolism. Then, I consider how resilience theory provides useful frameworks for understanding peri-abandonment deposits, especially through the concepts of social memory and the rigidity trap. I end Chapter 2 with a discussion of ritual and pilgrimage are important aspects to consider when studying the Maya generally, and particularly when examining possible ritual or ceremonial interpretations of Maya practices.

Chapter 3 details the methods employed during this thesis research, from field work, to lab and computer analysis. In Chapter 3 I discuss the application of the microstratigraphic excavation technique and subplot methods used in our field investigation, as well as why new methodological approaches are so relevant to further studies of peri-abandonment deposits. I provide a synthesis of the challenges of lab analysis when dealing with the Lower Dover Courtyard 4 (CT4) deposit, and what types of information I collected. I also consider the limitation of assemblage distribution and statistical analysis at the current stage of peri-abandonment deposit investigation, and how I conducted my comparison through material correlates.

Chapter 4 covers the results of my excavations at Lower Dover, as well as the subsequent preliminary analyses of ceramic, lithic, and faunal artifact classes. Chapter 4 also provides the results of AMS ¹⁴C dating of the northern Courtyard 4 peri-abandonment deposit. While Chapter 4 focuses in great detail on the Lower Dover peri-abandonment deposit where I supervised the collection of the primary data, I also

provide short synthesized descriptions of the hallmarks of peri-abandonment deposits at other sites to illustrate their similarities and differences.

The last chapter of this thesis, Chapter 5, returns to the research questions set out in Chapter 1, and answers each in turn. Chapter 5 discusses the observations and patterns noted during the analysis of cultural remains, especially in terms of how the archaeological correlates of peri-abandonment deposits are similar or different regionally and what that tells us about the cultural scope and significance of peri-abandonment deposits to the Maya during the turmoil and change that ensued during the Late and Terminal Classic periods. Lastly, Chapter 5 discusses how the predictive ability of resilience theory was applied to my investigation of peri-abandonment deposits in the Belize valley.

BACKGROUND

The Terminal Classic Period

The Terminal Classic has been defined by Maya archaeologists as a period of social, political, and religious changes that likely resulted from severe long-term drought, in conjunction with the disintegration of political organization in the Maya lowlands (Awe and Helmke 2007; Demarest et al. 2004; Guderjan 2005; Stanton et al. 2008; Webster et al. 1998). The Maya civilization's decline lasted from approximately 750 A.D. to 1200 A.D. Table 1 depicts the rough chronology of the Maya civilization with the understanding that the date ranges are widely debated, and that new dating evidence is always forthcoming. Individual elite centers responded differently to the

collapse of 'classic Maya' society during the Terminal Classic, and each center likely experienced different stresses which caused some to fail, and others to subsequently rise in power during the Postclassic period (1000 AD-1521 AD) (Demarest et al. 2004). Archaeologists must recognize then, that 'peri-abandonment' deposits within and between ceremonial centers could be formed in unique, but identifiable, ways and that the majority of 'peri-abandonment' deposits are too large and systematic in deposition to have been a viable option for ancient people to orchestrate while under assault.

Table 1.1. Maya Chronology

Name of Time Period	Gregorian Calendar Approximations
Archaic	Before 2000 BC
Early Preclassic	2000 BC - 900 BC
Middle Preclassic	900 BC- 300 BC
Late Preclassic	300 BC- 250 AD
Early Classic	250 AD- 600 AD
Late Classic	600 AD- 900 AD
Terminal Classic	900 AD- 1000AD
Early Postclassic	1000 AD- 1250 AD
Late Postclassic	1250 AD- 1521 AD
Historic Periods	1521- to present

While the decline of the elite "Kingship" political system can be traced into the Late Classic period in some areas, in others—the Belize Valley region for example—the decline begins well in the Late Classic period (Demarest et al. 2004:9). The Terminal Classic itself is widely acknowledged as a time of sociocultural transition and

transformation in response to the decline of elite institutions (Demarest et al. 2004:9). Therefore, many local ceremonial centers, which housed elites and represented single political entities, were abandoned at different times during the Terminal Classic, and even the Post-Classic period. It is during the transitional times of the Late Classic and Terminal Classic that peri-abandonment deposits are most abundant in the archaeological record from what we know thus far, however, interpretations of what kinds of behaviors or practices led to peri-abandonment deposits are extremely varied.

A Brief Literature Review of Peri-abandonment Deposits

In their attempts to understand peri-abandonment deposits in the Maya lowlands previous researchers have postulated vastly disparate interpretations of these features over the last 70 years, ranging from mundane to ritual explanations (Aimers et al. 2019). Some of the most prominent interpretations, see Table 2, of peri-abandonment deposits vary from squatters trash (Thompson 1954; Pendergast 1998), domestic refuse (Webster et al. 1998), 'de facto' refuse (Chase and Chase 2004; Taschek and Ball 2003), warfare (Inomata 2003), feasting (Suhler et al. 2004), termination rituals (Guderjan 2005; Stanton et al. 2008), and more recently ancestor veneration practices associated with pilgrimages to places representing sacred landscapes (Aimers and Awe 2019; Awe et al. In Press-b; Awe et al. 2019a, 2019b; Hoggarth et al. 2019; Stemp and Awe 2019).

Table 1.2. Summary Table of Previous Research on Peri-Abandonment Deposits

Publication	Interpretation	Problems
Thompson 1954 Pendergast 1998	Evidence of the lavish, careless living of squatters after the site's abandonment.	Valued goods present Blocked entrances to buildings
Webster et al. 1998	Domestic Refuse	Valued goods present, and domestic items in ritual contexts (caves)?
Inomata 2003	Rapid abandonment- Warfare	Recurring behavioral patterns in deposits, presence of actual burials Piled deposits, when time?
Chase and Chase 2004	De facto refuse- "in situ"- Conflict? Disease?	Valued goods present Burials Piled, when time to coordinate?
Suhler et al. 2004	Feasting prior to Termination Ritual	Defining "feasting" –could be offerings? Contexts of deposits, material remains in deposits
Guderjan 2005	Feasting Midden/ Termination Ritual	Defining "feasting"—could be offerings?
Awe et al. In Press-a; Awe et al. In Press-b	Ancestor Veneration/ Pilgrimage to Sacred Places	Difficulties in providing evidence for symbolic and ritual behavior Relies on ethnographic and ethnohistoric data and analogy

*Table 1.2. is not an exhaustive list of all interpretations.

Squatters

One of the first archaeologists to comment on peri-abandonment deposits was Sir J. Eric S. Thompson, who, over 60 years ago, proposed the "squatter theory" based on evidence for the use of structures in a ruin after the site's abandonment (Thompson 1954). He suggested that the on-floor deposits found in elite plazas provided evidence of the lavish, or careless living of squatters who simply disposed of their trash wherever it suited them (Thompson 1954). There is no ethnographic evidence to suggest such behavior among ancient Maya peoples, however, most ethnographic work has not

focused on descriptions of abandoned domestic structures (Stanton et al. 2008). Ethnographic evidence from the Maya highlands does suggest, however, that discard behavior is ruled by three main factors: (1) economy of effort, (2) potential value of refuse, and (3) potential hindrance by refuse (Stanton et al. 2008:230). The ethnographic evidence further indicates that the Maya do not create dumps adjacent to their living spaces, or that they purposefully dispose of valued goods such as complete chert bifaces, spindle whorls, shell beads, and jade jewelry in their garbage. We can, therefore, assume that squatters would have followed similar behavioral patterns.

Domestic Refuse and “De Facto” Refuse

Until relatively recently, Thompson’s squatter model went unchallenged. More recent interpretations of peri-abandonment deposits include domestic refuse or “ceremonial trash generated from termination rituals” (Stanton et al. 2008:227). In their extensive examination of the ethnographic literature on discard disposal in contemporary Maya communities, Stanton and colleagues (2008:230) also suggest that Maya houses and public spaces such as courtyards and plazas were kept very clean and were routinely swept. It is therefore, just as unlikely that ‘peri-abandonment’ deposits are piles of domestic refuse. Both ethno-archaeological and archaeological data from the study of abandonment processes, however, suggest that site maintenance may be put off if a relocation is planned, therefore “the process of anticipated abandonment results in accumulation of refuse in areas that would normally be kept clean in pre-abandonment contexts. If there is anticipated return, objects may be cached,” (Stanton et al. 2008:233). Thus, it is possible that some of the extensive

deposits in the Maya lowlands could be explained by impromptu dumping sites if people were planning to leave, however, some peri-abandonment deposits date to a time after abandonment of the site by elites (Awe et al. In Press-b; Awe et al. 2019b).

Furthermore, the “de facto” refuse explanation does not account for the fact that the deposits contain complete artifacts, burials, incense burners, and musical instruments.

Peri-abandonment deposits have also been termed “de facto refuse,” meaning the artifacts have not strayed far from their original contexts if people simply picked up and left (Taschek and Ball 2003; Chase and Chase 2004). Again, one of the main problems with examining peri-abandonment deposits as refuse disposal is that the “ethnoarchaeological contexts we have, have been very different from the archaeological contexts of the deposits in question,” (Stanton et al. 2008:234). The peri-abandonment deposits are predominantly found in elite civic areas such as palaces, and temples, whereas all of the ethnoarchaeological data is focused almost exclusively on domestic refuse (Stanton et al. 2008:234). There is no logical explanation for the items typically found in peri-abandonment deposits being kept in a pile on the floor in front of someone’s home, especially considering that the deposits would prevent or impede access to the structure while the site was still occupied.

Warfare

Other scholars have suggested that peri-abandonment deposits, which often contain evidence of burning, are associated with the rapid abandonment of sites (Chase and Chase 2004) during times of conflict such as that proposed for the site of Aguateca (Inomata 2003; Stanton et al. 2008). The assumption of the warfare model is that

people were forced to flee quickly from the site due to warfare and therefore dumped all that they could not carry. To test the warfare hypothesis (Ishihara 2007) investigated the chasm that was allegedly bridged during the invasion and destruction of Aguateca. She found that the chasm contained various nooks and crannies in the cliff wall where Aguatecans had placed offerings and caches, but found no human remains and weaponry at the bottom of the chasm to suggest Aguateca was attacked and destroyed by a marauding army as Inomata had inferred (Ishihara 2007). Thus, it is unlikely that peri-abandonment deposits are evidence of the rapid abandonment of sites due to warfare. Other problems with the warfare model are the fact that it fails to explain why most peri-abandonment deposits consistently contain similar artefactual assemblages that include spindle whorls, incense burners, figurines, jewelry, animal remains, and actual burials.

Termination Rituals

While the ritual nature of the sprawling floor assemblages that characterize peri-abandonment deposits was acknowledged by Robert Wauchope in 1948, and William Coe in 1959, it was not until the 1990's that Maya archaeologists began to accept ritual termination of structures as a possible alternative model (Stanton et al. 2008:235). Ethnographic accounts of Maya communities indicate that the ancient Maya conceptualized the world around them as entirely animate; meaning that, dead ancestors, objects and landscapes had a spirit, or life, and that these supernatural forces could be manipulated by living people, so that all ritual behavior revolved around this cosmological base (Stanton et al. 2008:235). Structure animation through

“consecration rituals” is perhaps best exemplified by (Vogt 1998) where chickens were sacrificed and consumed, their heads removed and buried facing the cardinal directions (cited in Stanton et al. 2008:235). By contrast, there are also termination rituals which de-charge, or kill, the structure, and often involve the burning of copal incense for purification, prayers or chants, and offerings of food, tobacco, maize and cacao (Stanton et al. 2008:236).

Rituals petitioning ancestors and deities for divine intervention during times of stress

The BVAR project is exploring whether peri-abandonment deposits in the Belize Valley are associated with rituals performed by peri-abandonment Maya populations seeking divine intervention during times of stress (Awe et al. In Press-b; Awe and Helmke 2007; Awe et al. 2019a; 2019b). This new interpretation is founded on archaeological, ethnographic, and ethnohistoric evidence, in combination with data from pilgrimages to ancient Maya centers and other sacred landscapes. It also takes into consideration contemporary visitation to sites like Cahal Pech and Xunantunich by descendant groups who perform ceremonies at the sites and leave improvised altars, areas where fires are burnt, and the remains of offerings such as tobacco, alcohol, and food. Pilgrimages to sacred sites have been documented archaeologically as well, particularly in the case of La Milpa, Belize where several lines of evidence indicate that people visited the site to perform rituals after its abandonment (Hammond and Bobo 1994). The first of these lines of evidence is the resetting of fallen monuments—first documented by Pollock at the site of Cobá. The base of a stela seemed to have been broken off and reworked “suggest[ing] that the stela was set up in its present position by

a later people than the actual sculptors, perhaps as a venerable object rather than a contemporaneous record (Pollock 1929: 328-9). Pollocks interpretation also suggests that people who visited the site recognized the stela as a symbol of power from their ancestors. While knowledge of the written text on the stela themselves was lost, the stela still functioned as shrines because of their ritual significance in the social memory of descendants. Furthermore, *incensario* fragments, dating to the 15th or 16th century, were also found at the base of Stela 12 at La Milpa, suggesting that someone regularly visited the site to perform ceremonies because of the association of incense with purification in Mayan rituals (Hammond and Bobo 1994:27). One of the ways in which deposits associated with rituals that petition ancestors may be distinguished from termination deposits archaeologically is through an accumulation of soil between the deposit and the plaza floor. Such a depositional pattern indicates that time had passed since the site was occupied and that the adjacent structures had started to deteriorate. While it was occupied the courtyard would likely be routinely swept as ethnographic and archaeological evidence suggests (Palka 2014).

Some Case Examples

The issue of interpretation becomes most apparent when examining the form of peri-abandonment deposits, which superficially appear very similar. As always, the context and content of individual deposits must be closely observed to grasp the full picture of the ancient past, but crucial to that understanding are the assumptions we make in theoretical models. At the site of Altun Ha, Pendergast attributed a relatively small deposit containing 2,000 sherds to refuse from squatters after abandonment

(Pendergast 1998). More extensive deposits have been documented in the Belize Valley by the BVAR Project. For example, a peri-abandonment deposit containing over 50,000 sherds has been excavated at the Zopilote Group, a sacbe terminus group associated with the monumental epicenter of Cahal Pech (Ebert and Fox 2015; Fox and Awe 2017).

A similar peri-abandonment deposit was reported at the site of Blue Creek, in northern Belize, where feasting refuse was placed on the floor of a ceremonial building (Structure 3) when the structure was abandoned. Researchers from Blue Creek suggest that the deposits “resemble middens in composition but are ritual in context, as they are often located at the centerline of monumental, ceremonial architecture,” (Guderjan 2005:119). Guderjan goes on to suggest that the deposit found at Structure 3 is clearly a termination ritual deposit as evidenced by intentional smashing and layering of ceramics.

The peri-abandonment deposit pattern is also evident at larger centers across the Maya region. At Copan, Honduras the edges of two elite courtyards, group 8N-11, and 9N-8, were described as littered with domestic refuse right before site abandonment (Webster et al. 1998). The northern Yucatán site of Yaxuna also exemplifies a peri-abandonment deposit pattern in its northern most acropolis. It is understandable that archaeologists would have concluded that as people were planning to leave, they stopped bothering to clean the place, however, in light of the growing body of evidence for peri-abandonment deposits, this interpretation has come into question. Termination rituals were performed on Str. 6F-4 whereby a bed of ash was laid on the plaza floor and covered with a deposit containing “whole and fragmented

ceramic vessels, faunal remains, obsidian blades, and a chert biface,” (Suhler et al. 2004:465). At structure 6F-68 more deposits containing smashed household goods were found lining entire walls of rooms, and along the face of the structure, however the researchers describe them as evidence of feasting, prior to the termination of the structure (Suhler et al. 2004:475). Feasting is a particularly difficult interpretation to substantiate because it requires far more than simply evidence of relocation and the presence of faunal remains. For example, if a deposit represents a feasting event, we would expect to find faunal remains that favor large game, such a deer, with evidence for large cuts of meat (Burke et al. In-Press). One of the main issues with the feasting hypothesis is that it ignores the presence of human remains which are very common in peri-abandonment deposits (Awe et al. In-press-a). Perhaps the most misleading aspect of peri-abandonment deposits is the predominance of “utilitarian” pottery such as bowls and dishes, but archaeologists now know that plain bowls and dishes were not only used for serving food, but also for ceremonial purposes such as to burn incense or tobacco in (Awe et al. In-Press-a; Palka 2014). If peri-abandonment deposits did represent feasting events, moreover, we would also expect to find a great deal of unique, fine serving wares, which is rarely the case in the Belize Valley.

The Site of Lower Dover

Lower Dover’s temporal and spatial location make it an excellent site to examine these so-called “problematic” deposits. The small number of building phases with associated architecture at the site core has led archaeologists to suggest that the Lower Dover elite ceremonial center was rapidly constructed during the Late Classic Period

(Guerra and Awe 2017), and therefore a temporally ideal space for finding such deposits. Furthermore, based on existing evidence most structures at Lower Dover were abandoned during the Terminal Classic period, though there is some limited evidence for Postclassic activity, making it also a uniquely contextually restricted site for examining peri-abandonment assemblages.

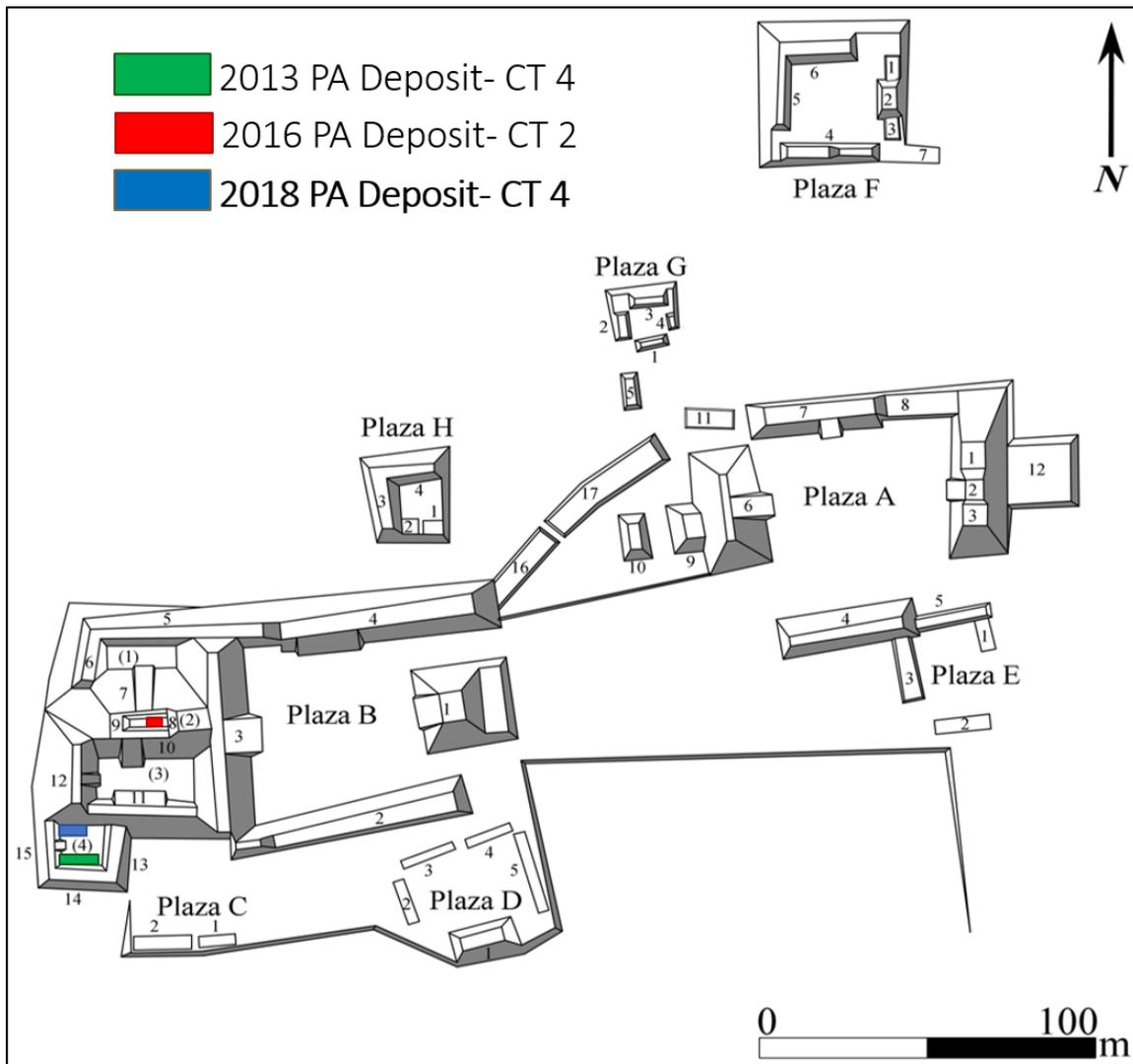


Figure 1.2. A site plan of the Lower Dover site core, with the locations of peri-abandonment deposits shown in color (Modified from Guerra and Awe 2017).

To date, three peri-abandonment deposits have been discovered in the palatial complex of the Lower Dover site core, though only two have been excavated using BVAR's new methods developed specifically to investigate peri-abandonment deposits in greater detail. The first of the two deposits were found in Courtyard 2 in 2016 at the summit of the acropolis in the site core. The second peri-abandonment deposit to be excavated using the new methods developed by BVAR was on the northern side of Courtyard 4; marked in blue in Figure 1.2. below. The contents of each will be discussed in Chapter 4.

Maya Cosmology, Animism, and the Sacred Landscape

Post-modernist perspectives in archaeology focused on critiquing grand theories of human development in ways that emphasized the subjectivity of archaeological interpretations. Prior to post-modernist influence in archaeology then, there was little interpretation that focused on the cosmological narrative of the ancient Maya. It is now abundantly clear that for the Maya, the distinction between the sacred and profane, was likely not neatly discrete. Yet, the distinction between what is ritual and what is mundane remains one of the most prominent areas of dispute surrounding peri-abandonment deposits to date. While entire books exist on Maya cosmology and the creation myth (Paxton 2011; Tedlock 1996), this chapter section strives to demonstrate only the most salient characteristics of Maya cosmology as they relate to ritual interpretations of peri-abandonment deposits.

The book known as the *Popol Vuh* was recorded by a Mayan author using the Latin alphabet during the colonial period, and chronicles the story of the K'iche Maya

people, and how human kind was created (Christenson 2007). According to the *Popol Vuh*, the Maya perceived themselves as direct descendants of the Maize God and his sons the Hero Twins (Christenson 2007). People were created from corn after some failed attempts to make humans from other materials such as wood, who ultimately became the monkeys of the New World (Christenson 2007).

Corn is obviously a crop that is grown in the earth, and requires water to grow. Since corn is a central tenant of the Maya conception of the world and themselves, it propagates symbolic imagery of all sorts relating to the earth and water, with a special focus on animals that traverse both of these terrains such as crocodiles (Awe In press). The symbolic imagery found as motifs and carvings on architecture (Coe 1999:142), as statuettes, and on pottery (Coe 1999:148) also focus on the many other animals that inhabit a tropical jungle with people. There are many stories that focus on how humans got their powers from animals (Friedel et al. 2001:60), and rulers were often depicted wearing jaguar skins and in some cases were even buried with a jaguar or puma (Awe et al. In Press-c).

The other central focus in Maya cosmology is the Underworld, known as *Metnal* or *Xibalba*, which is accessed through caves and sinkholes, or openings in the earth. It is a place of death and danger, where the Maize God was lured and sacrificed by the Gods of the Underworld, and where his twin sons were also slain, only to be reborn as the Gods foolishly granted their last request to throw their bodies in the water (Christenson 2007; Friedel et al. 1993:109). The Twins return to Xibalba disguised, sacrifice each other, and bring each other back to life for the entertainment of the Gods of the Underworld (Christenson 2007). When the Gods request that they also be

sacrificed and brought back, the Twins oblige, but trick the Gods of the Underworld and do not resurrect them (Christenson 2007). That sacrifice permeates all aspects of Maya life becomes evident in this part of the creation myth, and the notion of corn people coming out of Xibalaba as they are reborn, is depicted in iconography and motifs across Mesoamerica, not just within the Maya region (Coe and Houston). Sacrifice is also abundantly visible in the archaeological record of cave use in the Belize Valley such as at Actun Tunchil Muknal (ATM), and within the extended Barton Creek Cave system where offerings were brought in large quantities and sizes and where young people were sacrificed to the Gods during times of stress connected with severe droughts (Awe et al. In Press-b).

The Maya conceived the world as divided into four parts, where the earth is a flat plane that is supported by deities at all four corners (Friedel et al. 1993, Palka 2014). The world tree, the ceiba tree in the Maya case, represents the axis mundi or world pillar (Friedel et al. 1993:73). The axis-mundi tree connects the earthly plane of human existence with the thirteen levels of the heavens, through its supporting branches, and the nine levels of the underworld through its submerged roots. The significant numbers of nine, seven, and thirteen are repeated in architecture, calendrics (Awe 2008; Friedel et al. 1993:63) and even caching practices (Stemp and Awe In Press).

In the Maya worldview, all things have life, or are animate, including natural features on the landscape such as mountains, but also material objects such as pottery (Palka 2014:59). The belief that all things can be animate provides a basis for the ritual charging (giving life to) and termination (ritual killing) of architectural structures which often themselves mimic mountains on the landscape (Palka 2014:242) while at the

same time representing a microcosm of the heavens. It is thus no mere coincidence that nearly all major centers in the Belize Valley are on the largest hills closest to the Belize River and its tributaries as shown on the map in Figure 1.1. Not only were elites demonstrating their right to rule by associating themselves with the heavens through their elevated residences (Awe 2008), but access to water was instrumental for both ritual and practical purposes such as farming and trade.

Viewed within the Maya cosmological context, the presence of artifacts in peri-abandonment deposits, such as faunal remains, quartz, broken and whole stone tools, anthropomorphic and zoomorphic *ocarinas* (globular flutes), tubular flutes and figurines, all take on a new meaning that suggests something more than just a pile of abandoned garbage, especially considering that some of the artifacts are complete. Therefore, an artifact that appears to be simply a mundane object, can and frequently does, take on new meaning in ritual contexts. In the case of the ancient Maya, such transformative or dualistic properties in objects are exemplified archaeologically by the various household items found in ceremonial cave contexts (Awe et al. In Press-a; Peterson 2006:285). Peri-abandonment deposits are also, notably, found in specific locations in site cores (Awe 2017) suggesting a placement pattern not concurrent with typical Maya dumping behavior on the periphery of living spaces (Stanton et al. 2008).

The Great Droughts and Climate Change

I would be remiss not to mention the environmental conditions and changes that contextualize the period when peri-abandonment deposits appear in the Maya lowlands, especially in the light of the immediate relevance to today's climatic crisis. In recent

years, a growing body of climatic evidence taken from dry prehistoric lake cores and cave speleothems in Belize suggests massive decadal-long droughts during the Late Classic, and Terminal Classic periods (Hoggarth et al. 2017). This natural but dramatic shift to a drier climate, combined with unsustainable farming practices that led to deforestation and soil erosion, may have precipitated the decline of Maya society at the end of the Classic Period (Hoggarth et al. 2017). Peri-abandonment deposits therefore may reflect changes or intensification in Maya ideology and ritual practices during times of stress (Awe et al.- In press-b).

While the rise in popularity of fundamentalist religions in recent decades is perhaps largely propagated on the globalization of modern Western values and ideals, I argue that it is also no mere coincidence that a rise in fundamentalism occurs in the age of global climate change. I hypothesize that the evidence for abundant peri-abandonment deposits in the Maya region during the Late to Terminal Classic, may reflect a similar shift towards a more fundamentalist Maya ideology as a result of the failure of elites to mediate effectively with the Gods in restoring the rains—that divine relationship being the source and justification of elite political and social power.

Research Questions

My research aimed to determine whether peri-abandonment deposits are associated with sacred or profane activities and to ascertain what cultural significance peri-abandonment deposits may have had in the Belize Valley during the Terminal Classic period. The following research questions guided the collection of extensive data about the particular deposit excavated at Lower Dover in an attempt to add to a growing

regional examination of peri-abandonment deposits in greater detail. My analysis will show that future in-depth research of the individual features identified in peri-abandonment deposits is merited through a regional comparison of the material correlates found in these deposits at the sites of Lower Dover, Baking Pot, Cahal Pech, and Xunantunich. The following research questions guided this research:

1. Are peri-abandonment deposits at Lower Dover and across the Belize Valley associated with *sacred (ritual)* or *profane (mundane)* activities?
2. What is the cultural significance of peri-abandonment deposits at Lower Dover?
 - A) Does the site of Lower Dover present evidence for post-abandonment use by descendant groups, and in what manner?
 - B) When did the deposition occur, specifically, before, at the time of, or post abandonment of the site?
3. What is the cultural significance of peri-abandonment deposits across the Belize Valley?
 - A) How do the artifact assemblages present at Lower Dover compare with other sites across the valley?
 - B) Are any discernible patterns exhibited by the data across sites?

CHAPTER 2

THEORETICAL PERSPECTIVES

Chapter 2 focuses on a number of useful theoretical perspectives for understanding peri-abandonment deposits. I begin with a brief overview of cognitive archaeology and the value of symbolism in archaeological investigations. I then explain resilience theory and show how this framework informs archaeological understanding of the interaction between people and the environment. Finally, I discuss the problematic term ‘ritual’ and consider how pilgrimage to sacred places might apply in the context of peri-abandonment deposits.

In recent decades, archaeologists have taken several approaches to explaining cultural transitions through the relationship between material culture and cultural practices, as well as how material culture shapes cultural identity (Marcus and Flannery 1994; Renfrew 2001). Fundamentally, these approaches toward material culture are often distinguished by a theoretical dichotomy wherein one sees culture as an active process that is constantly renegotiated—meaning actively resisted, or changed—by individual agents but that also structures their lives in patterned ways. The other approach, often employed by strictly processualist and structuralist researchers (hailing from 1960’ and 1980’s heritage of making archaeology more scientific), views culture as passive, specifically because artifacts themselves are passive objects and cannot tell us their symbolic value.

The realm of cognitive archaeological theory—belonging to the former of the archaeological approaches that views culture as active—attempts to consider how

ancient peoples thought about the world they occupied by examining the symbolic structures perceived in ancient cultures. The symbolic structures provide valuable insight into the ritual practices of such ancient cultures, which are often saturated with symbolic meaning (Renfrew 2001). Theories revolving around symbolism and its use specifically therefore, can inform archaeologists' understanding of how normally mundane objects are transformed into ritually charged items through certain ritual practices (Marcus and Flannery 1994; Renfrew 2001).

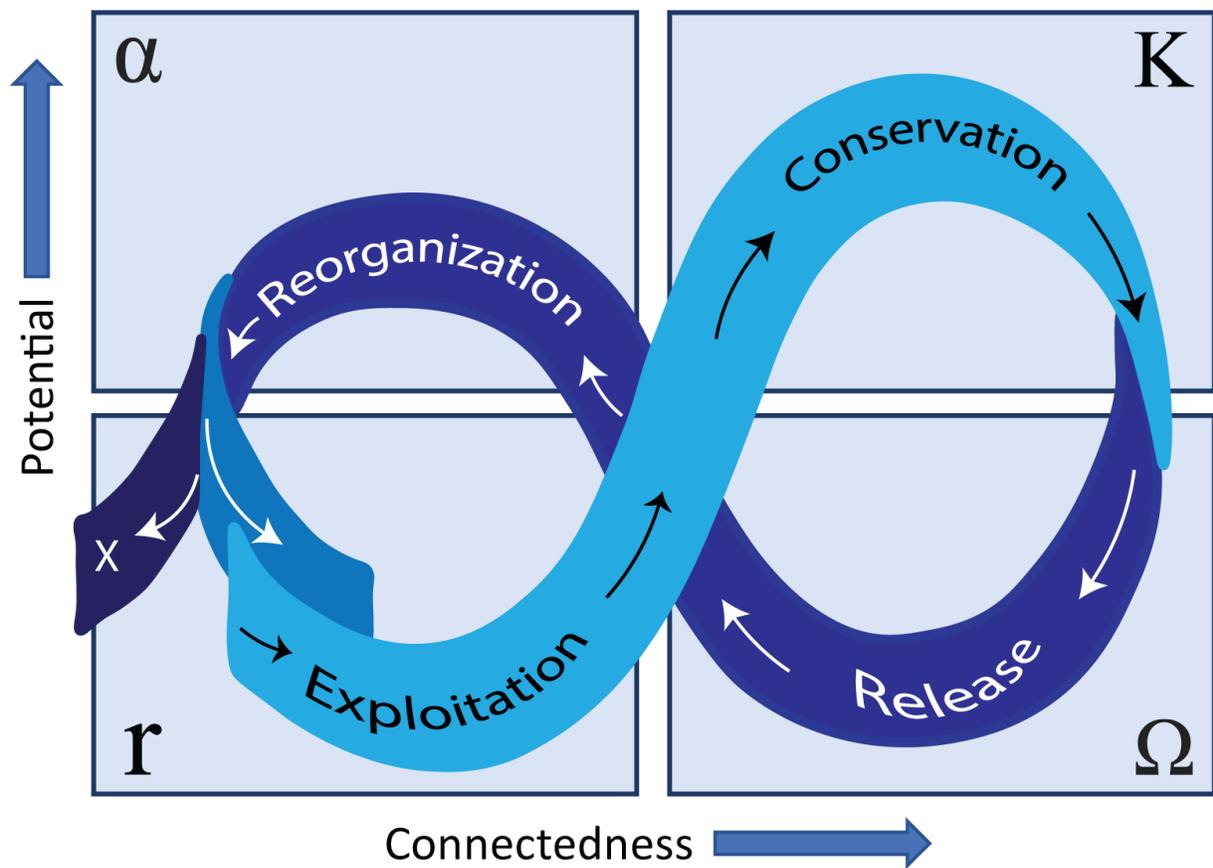


Figure 2.1. Conceptualized infinity loop of an 'adaptive cycle' based on Stanley Holling's original publication (1986).

RESILIENCE THEORY

More recently some archaeologists have adopted elements of resilience theory, particularly social memory, to attempt to explain peri-abandonment deposits as ritual practices of descendant communities (Gillespie 2010). Resilience theory is also useful for understanding the effect of Maya political collapse at a time of climate change particularly through the concept of the rigidity trap. I will first undertake to define the different relevant components upon which this theory is based, and then provide examples of how resilience theory can be understood and used in archaeological contexts.

Resilience theory is a framework developed from the systems ecology of the 1970's and focuses on examining the changing relationships –that is between stability and transformation— between people and their environment over extended periods of time (Folke 2006). What makes it unique from other attempts to make archaeology more scientific during the 20th century is its inherent focus on the agency, or capacity, of individuals to shape the world around them and influence the adaptive cycle of both culture and the environment. It views ecological resilience as the ability of an adaptive system, a culture for example, to undergo change and possible reorganization without losing its fundamental processes and functions (Folke 2006). Resilience theory seeks to understand which processes are capable of fundamentally altering adaptive systems across a variety of spatial and temporal scales (Folke 2006). The adaptive cycle which moderates the change between spatial and temporal scales is envisioned as an infinity loop (See Figure 2.1.) which consist of four phases: exploitation (r), conservation (K), release (Ω), and reorganization (α) (Folke 2006). More colloquially, the phases of the

adaptive cycle are referred to as (r) rebirth, (K) growth/maturation, (Ω) death/ destruction/ release, and (α) reorganization and renewal.

Systems do not necessarily follow the adaptive cycle in the order shown in Figure 2.1., and while times of stability such as the conservation phase seem static, there is a slow accumulation of change occurring that will eventually spill over in to the next phase of the cycle (Folke 2006). Social memory—meaning the notions, ideas, and practices passed down through generations that generally govern how people view and interact with their world—is seen as one of the key factors which can alter this adaptive cycle (Peoples et al. 2006).

The final important aspect of resilience theory is the rigidity trap (Folke 2006). Most resilience theory work is primarily focused on the transformative aspects of adaptive systems, and how those changes occur and under what conditions (Folke 2006). A rigidity trap is human resistance to leave the K-phase, or growth and accumulation, in which people intentionally attempt to maintain a certain situation. Transformative periods allow for the recombination of established structures and processes and therefore provide a healthy source of adaptive capacity to systems, which is why rigidity traps can explain why systems collapse (Folke 2006).

The present-day denial of global warming provides a useful, if general, example of how a rigidity trap works. Despite warnings from the sciences of what over consumption and pollution does to environments, and the atmosphere, human agency is still attempting to maintain the exploitation of resources and the production of more goods because it is perceived to be the only way toward economic development. This is the rigidity trap. What resilience theory predicts in this climate change example is that if

we do not change our patterns of consumption in regards to fossil fuels and raw materials, then eventually our human civilization will collapse.

Social Memory and the Sacred Landscape

Norman Hammond and Mathew R. Bobo's work on Maya pilgrimages to sacred sites is a great example which illustrates how social memory plays a role in the practice of ancestor veneration, and how those practices might appear in the archaeological record (1994). Hammond and Bobo believe that descendant communities after the abandonment of La Milpa returned there to perform rituals and give offerings to their ancestors (1994). The authors also argue that pilgrimages were established during times of stress and therefore represent stabilizing practices that required inter-group cooperation to organize (Hammond and Bobo 1994). Through practices of ancestor veneration—which they evidence with reset and remodeled stelae with associated ritual artifacts such as *incensarios*—Hammond and Bobo hope to show how stelae were re-appropriated as venerable objects at La Milpa, rather than as political symbols of long forgotten past rulers (Hammond and Bobo 1994).

Hammond and Bobo employ the concept of social memory found in resilience theory to explore how people connect to the past through practices of ancestor veneration, and also to examine how and through what specific practices ancient Maya centers were woven into the fabric of social memory, as sacred places after their decline. Emerging out of the post-processual tradition, which originally was mainly a critique of processual ideas about the objectivity of scientific inquiry, resilience theory pointed to a key tenant of post-processual work—the idea of human agency. However,

backlash against most post-processual thought by processual archaeologists has focused on questioning the validity of post-processual interpretations precisely because of their subjectivity including that of cognitive archaeology. One of resilience theory's main critiques then is the difficulty in distinguishing which practices are more resilient than others due to the complexity of adaptive systems as well as their interplay amongst each other (Peoples et al. 2006). In other words, how resilience theory is used to explain the past is largely dependent on the interpreter. Despite the subjectivity limitation—that arguably all theoretical approaches share—resilience theory is nonetheless useful in understanding peri-abandonment deposits because of the predications it makes about adaptive systems.

Resilience theory has been previously employed in the Maya area, especially in conjunction with landscape archaeology. M. Kathryn Brown combines landscape archaeology with ideas from resilience theory to understand Post-Classic period ancestor veneration practices at Xunantunich, Belize (Brown 2011). The researchers at Xunantunich noted the presence of Post-classic ancestor veneration practices at altars with associated ritual material remains and indications of burning. Brown suggests that the decision of which sites to visit was largely dependent on the social memory of communities, and less on the monumentality of sites. She argues that the Maya pilgrimages to ceremonial sites were a form of sacred placemaking, whereby social memory was created and maintained through the rebuilding or termination of certain ceremonial structures accompanied by veneration rituals when sites were occupied, and through the practice of visitation after the sites were abandoned (Brown 2011).

In the Southwest US, researchers have focused on how social changes occur through creation, destruction, and transformation (Mills 2008). Mills looks at how material culture is socially constituted with meaning; in this case, the ways in social memory is created and destroyed through material objects (Mills 2008). Chaco Canyon provides an example of these types of practices, where they can be seen in ornament caching practices that sanctified or terminated structures. Such caching practices are surprisingly consistent between all structures at Chaco Canyon suggesting a well-established and standardized ritual order in which the Pueblo people negotiated social memory (Mills 2008). Forgetting was likewise important and is indicated both by the hiding away of caches, but also by other large deposits of inalienable possessions, or those which are owned by the community, or by certain kinship groups (Mills 2008). Finally, when the Chacoan rituals were completed, the objects left behind became material manifestations of the ideology that were not needed in the next place, and therefore acted to memorialize the structures themselves (Mills 2008). The frequent occurrence of missing pot sherds within peri-abandonment deposits in the Maya lowlands could be interpreted as an act of remembering through the practice of taking sherds to commemorate the ritual (Palka 2014:40) before leaving the site.

What resilience theory brings to a regional look at peri-abandonment deposits is its predictive ability in regards to adaptive systems. Recall the global warming example of a rigidity trap from earlier in this chapter, and how resilience theory predicted the eventual collapse of our consumptive culture simply because of limited resources.



Figure 2.1. Maya ritual at Tikal. Notice how the fire is burning directly on the plaza floor and darkening the floor around it (Photograph courtesy of Dr. Jaime J. Awe).

Similarly, resilience theory predicts that if the adaptive systems of Maya ceremonial centers were too rigid to deal with problems of the Late Classic (if they could not adapt to the climatic and social changes), then the systems failed and the

ceremonial centers were therefore abandoned. Resilience theory predicts, therefore, that peri-abandonment deposits are in response to the rigidity trap that led to the political decline of many Maya centers. Resilience theory may also suggest that peri-abandonment deposits are components of social memory—meaning that the events that created the deposits were active ritual performances that sought to alter the adaptive cycle.

RITUAL AND PILGRIMAGE TO SACRED PLACES

Pilgrimage and ritual are intrinsically linked together as the following discussion will demonstrate; however, it was necessary first to provide the social memory framework to understand the very condensed view of Maya pilgrimage below. For a long time, little attention was given to ethnographic data regarding modern pilgrimage practices as a potential source of archaeological analogy, partly because early research biases in the 20th century favored the collection of exotic museum pieces, and partly because of the difficulties in predominately Anglo researchers establishing rapport with indigenous peoples. While a great deal of ethnographic data does exist on contemporary Maya groups today, that data is often limited in scope because of the need for secrecy within the community (Menchu 2010, 57). I will first briefly define how I am using the terms pilgrimage and ritual, and then explain how both concepts may relate to peri-abandonment deposits.

Pilgrimage is a complex human phenomenon fundamentally grounded in ritual practices that for the Maya often featured purification, sacrifice and transformation. While the term pilgrimage is often associated with religious practices in terms of “ritual

travel” (Bielo 2015, 85), it can be more broadly associated with belief in general and can even take on memorial or grieving purposes. An example of non-religious pilgrimage is the Rolling Thunder cross-country motorcycle journey made by hundreds of Americans to the Vietnam Memorial Wall every year (Dubisch 2001). Pilgrimage, in the sense that I will be using it to consider Maya pilgrimage, is a “ceremonial journey to ritual landscapes that takes place in accordance with myths and beliefs in supernatural forces associated with these special sites” (as cited in Palka 2014, 38).

Ritual has a very historically-laden meaning, and in Maya studies is typically used in conjunction with the term ceremonial. Ritual has been called by many names, but what is significant is that in Maya archaeology, ritual is typically relegated to the realm of the symbolic and the unexplained. The emphasis on symbolism in terms of understanding ritual is well encapsulated by anthropologist Godfrey Lienhardt who in his work with the Dinka people refers to ritual as “symbolic action” (Lienhardt 1961). For the purposes of discussion in this thesis, I define “ritual” as performances grounded in mythology and cosmology that people do, in order to fulfill spiritual or social obligations to deities or other people (births/deaths) that allow for some intended or needed result to become possible (as opposed to guaranteed). While that is a necessarily vague definition, some examples of Maya ritual behavior include burning incense, and bloodletting. What is key, however, is that ritual practices are rooted in mythos, or stories, that shape how people understand themselves and interact with the world around them.

To be clear, participation in the pilgrimage and its ceremonies is just one way in which the social obligations I use in my definition of ritual may be fulfilled. Researchers

suggest that the foundational aspect of modern-day Maya pilgrimage is the “covenants” between Maya people and “spiritual or non-human forces,” (as cited in Palka 2014, 13). These covenants are understood as “constant obligations to spiritual forces...but this continuous interaction is for the mutual benefit of all,” (Palka 2014, 13). Therefore, I understand Maya pilgrimage not only as a performative act impacting social memory, but also as an expression of social obligations to maintain the covenant between humans and deities not only for the individual, but ultimately the whole community.

Landscapes can also be ritualized (Palka 2014, 41) through the myths that form conceptions of the universe and people’s place in that universe, such as the Maya creation story—The Popul Vuh (Christenson 2007). For the Maya, the notion of ritualized landscapes is especially potent, as mountains and caves on the landscape provide life-giving water (Palka 2014, 38), and importantly, a means of communication with a pantheon of deities that reside in the Heavens and the Underworld (Christenson 2007). What makes the Maya people so interesting to study in terms of pilgrimage, is that in Maya society “pilgrimage is part of daily life, and it deals with everyday concerns, such as the maintenance of food sources and the continuation of life” (as cited in Palka 2014, 11). Modern Maya pilgrims, for example, believe that “frequent pilgrimages to ritual mountains to petition the deities and pay them offerings for rain, crop health, and good harvests are just as necessary for successful farming as planting seeds and weeding” (Palka 2014, 12). In the past, Maya elites would have exploited the sacred mountain association by building pyramidal ceremonial temples that mimicked mountains on the landscapes, and invested the elites who resided among them with a special spiritual connection to the Heavens.



Figure 2.2. Maya ritual at the large archaeological site of Caracol, Belize. The altar where the fire is burning was specially built to accommodate such traditional ceremonies, while preserving the manicured grassy grounds for tourism. (Photograph courtesy of Dr. Jaime J. Awe).

More recent work on pilgrimage in the Maya world, for example, takes the stance that “ritual landscapes are not only constructed based on their unique features and connection to memories and identity, they are created through people’s ceremonies in the landscape,” (Palka 2014, 8). Archaeologists should then consider the possibility that peri-abandonment deposits in the Maya lowlands are the results of such ceremonies, and acknowledge that Maya belief would have had an important role in determining the

appropriate responses to drought, and societal instabilities; for example, such as those that occurred during the Late Classic period.

CONCLUSION

The pattern of returning to old places of habitation even temporarily is well developed in the archaeological literature globally, and it extends to Maya lowland sites. What my research is a part of, in the examination of peri-abandonment deposits across the Belize Valley, is looking at how the Maya people interacted with and remembered their own past through termination rituals and/or pilgrimages at ceremonial centers. Resilience theory's predictive power in respect to how adaptive systems function in interplay is particularly useful in understanding the complex archaeological phenomena of peri-abandonment deposits as well. The elements of social memory and the rigidity trap tie in well with the ritual or ceremonial elements present in peri-abandonment deposits across the Maya lowlands, and have great explanatory potential.

CHAPTER 3

RESEARCH METHODS

In an effort to determine the cultural significance of peri-abandonment deposits, I excavated a peri-abandonment deposit at the lowland Maya site of Lower Dover, Belize (see Figure 3.1.). In this thesis research, I applied microstratigraphic excavation techniques (excavation in tiny discrete layers 1-5cm thick) coupled with a subplot system (horizontal grid to break up the feature) that was recently developed by the Belize Valley Archaeological Reconnaissance (BVAR) Project (Lonaker et al. 2016) specifically to investigate peri-abandonment deposits with greater detail and precision. The data yielded by the excavation approach at Lower Dover was subsequently compared to other peri-abandonment deposits excavated by BVAR to discern whether patterns exist between the material assemblages. Below I provide a detailed description of the field, lab, and comparative methods I utilized to assess the nature of peri-abandonment deposits in the Belize Valley, as well as a table identifying the material correlates used for regional comparison. My regional study of peri-abandonment deposits serves as a pilot-study to a more intensive examination once patterns can be regionally identified.

WHY THE NEED FOR NEW METHODS?

Several methods were employed to investigate peri-abandonment deposits at Lower Dover, and across the Belize Valley. Most importantly, out of the literature review arose a clear need for a specific set of methods for the excavation of peri-abandonment deposits. Because the new microstratigraphic/sublot approach has not been published

in a peer-reviewed journal yet, I will briefly justify the uses of the new methods by pointing to the loss of data because of the less rigorous excavation methods applied by previous studies of peri-abandonment deposits.

One methodological problem with previous work on peri-abandonment deposits is that earlier research focused on single-site analyses. Single site-analyses prevented many archaeologists from seeing the broader pattern of peri-abandonment deposits and how seemingly distinct or similar deposits are (Awe et al. In Press-a; Stanton et al. 2008). Due to a lack of regional comparison between deposits, some archaeologists simply saw them as evidence of refuse disposal after feasting events because there was a lack of consensus that such deposits may be related (Chase and Chase 2004).

Another methodological problem with previous research is that peri-abandonment deposit features were excavated as one single layer, which prevented meticulous vertical control. For example, some deposits date after site abandonment and can provide a great proxy for the site abandonment date—which can be evidenced by a layer of accumulated soil (Schiffer 1983) before the deposit event. Moreover, excavating the whole feature at once prevented archaeologists from being able to see the stratigraphy of a deposit—such as using cross sections by excavating an entire subplot first. The last issue of methods used in previous research is coupled with that of the lack of vertical and horizontal control of the features described above.

A lack of “layering” and “subplot-ing” of the features consequently led to a lack of ample photography and drawing of the features during excavation and a great loss of irretrievable data. In addition, solely functional analyses of peri-abandonment deposits failed to recognize that mundane non-ritual domestic objects, such as jars, can take on

different meaning in ritual contexts such as in practices of termination and ancestor veneration that have been ethnographically documented in Guatemala (Brown 2002) and as have been archaeologically documented at cave sites in Belize (Peterson 2006).

FIELD METHODS

Excavations

I utilized a microstratigraphic approach to excavation that focused on greater vertical control of the depositional features because once they are excavated, they cannot be put back in the same spatial arrangement without careful recording. The microstratigraphic excavation approach is coupled with a subplot system that divides the deposit feature into smaller units for greater horizontal control (Lonaker et al. 2017). This new approach was originally developed by the BVAR Project at Cahal Pech (Awe et al. In Press-b), it was subsequently refined by BVAR's investigations at Pook's Hill and Baking Pot by Dr. Christophe Helmke and Dr. Julie A. Hoggarth, and has now been applied by the BVAR Project's ongoing investigations at Baking Pot, Cahal Pech, Lower Dover, and Xunantunich.

A microstratigraphic approach means that while excavating the deposit feature, an arbitrary layer of remains (the visible sherds once the full extent is exposed) is removed at a time. Then the next layer is exposed to its full extent with the intention of leaving all the newly visible sherds in place until that new arbitrary layer is ready to be peeled back. Each individual layer is usually anywhere between 1-5cm, and this thickness largely varies on the type of matrix present. For example, the deposit may be

in loose silty matrix that easily slips between pottery sherds, as opposed to clay infused matrix which may cause sherds to stick to each other, or to clumps of soil. Sometimes collapsed stones from nearby structures can also be intermixed into portions of the deposit, so that an arbitrary layer may be deeper on one end of the feature than the other. The point is, the feature is excavated in as-discrete-as-possible, arbitrary layers for several reasons: 1) to document matrix changes in the deposit that may represent multiple events, 2) to see if sherds rest directly on one another, or are separated by soil which again, might indicate multiple events, and 3) to document any matrix accumulation between the deposit features and terminal floors that might indicate abandonment.

The subplot system method that is coupled with the microstratigraphic approach is designed to maintain horizontal control of the feature during excavation, and consequently forces the archaeologist to expose the feature in its entirety horizontally. The subplot system approach is useful to examine how far apart pieces of same vessels were from one another in the deposit, which may suggest whether the deposit was moved there, or whether pottery was smashed in that particular location. The subplot approach is also useful in identifying possible cosmological arrangements of objects because each arbitrary excavation layer is documented both horizontally and vertically.

Photography and Drawings

The new methods outlined by the BVAR project promote photography of peri-abandonment deposits to a nearly obsessive level, because the photographic evidence can be used to reconstruct 3D digital models of deposits by layer with the proper

software (Lonaker et al. 2017). While 3D modelling technology is largely too expensive for all archaeologists to employ, the data collected can be stored for when this technology becomes more affordable.



Figure 3.1. Photograph of the peri-abandonment deposit discovered in CT4 at Lower Dover during the 2017 field season. Note the 1m by 1m sublots over the deposit, and that the area around it has been completely cleared to expose the deposit's extent.

The importance of documenting the way in which deposits are laid out, with attention to the way the artifacts are spatially arranged, cannot be under-stressed as there may be patterns in the spatial distribution or material remains as well. Profile and plan views similarly are illustrated at the beginning of each layer of the deposit with all special finds labeled. Ideally, a key is also included in the illustration, demonstrating

different artifact classes in pattern or color (Lonaker et al. 2017). Drawings potentially contribute to an understanding of the spatial distribution of specific artifacts and help the archaeologist to examine the data while excavations are ongoing.

LAB ANALYSIS

Faunal Analysis

Faunal analysis of the remains found in the deposit was conducted by Dr. Chrissina Burke's team at the Northern Arizona University Department of Anthropology Faunal Analysis Laboratory (NAUDAFAL) due to an ongoing research project that is examining the role of fauna in peri-abandonment deposits. Shell was analyzed in Belize during the summer excavation season as it is difficult to export to the U.S. due to soil restrictions. Both animal bones, and the shell were analyzed using the same methods.

The analysis process as outlined by Burke et al. (In-Press) begins with thoroughly cleaning the remains. Dry-brush cleaning reveals any natural or cultural changes made to the bone over time including cultural modifications such as cut-marks on the bone from butchery, or even decorative designs carved into the exterior surface. Natural changes on the other hand, are often related to chemical weathering from exposure to the elements, as well as rodent tooth gnawing, and carnivore chewing.

Every specimen had to be identified to skeletal element, portion of said element, or body portion. In addition, researchers attempted to identify the age, sex, and taphonomic modifications for each specimen, however, the poor preservation and therefore fragmentation of the faunal remains for the northern CT4 deposit presented

significant challenges to that end. Finally, an important acronym for reference widely used in faunal studies is NISP, standing for Number of Identified Specimens. This number simply reflects to total count of specimens in the particular assemblage being examined (Burke et al. In-press).

Ceramic Analysis

I applied the type-variety-mode method of analysis in my study of the ceramics recovered in the deposit utilizing James Gifford's seminal work on Maya ceramics in the Belize River Valley (Gifford 1976). Gifford's investigation focused on ceramics from Barton Ramie, a site located just across the Belize River from Lower Dover (Gifford 1976). Gifford presents a comprehensive guide for identifying ceramics in the Belize Valley that is still widely used by archaeologists today (Gifford 1976). In this thesis, I identify ceramic types, groups, and forms and include a section for comments on unique finds, such as those that bridge two distinct forms or types.

Ceramic groups in Gifford's typology are subdivided into types and varieties based on stylistic attributes. In my analysis, ceramic types were determined based on the best fit for three main attributes: decoration, form, and temper type (or ware). Form was distinguished only from rim, base and other diagnostic characteristics such as basal ridges. Stylistic attributes, such as slip color, were often the most difficult characteristics to discern due to poor preservation of the assemblage, and due to the general effects of soil chemistry on the ceramics. Ware was often simply determined by temper type such as ash and carbonate ware, however, some ware varieties reflect slip attributes, rather than temper, such as the Peten Gloss Ware.

The forms of the vessels were helpful for distinguishing between different types of vessels present in deposits across sites in the valley, whereas ceramic groups and types served to inform my understanding of whether peri-abandonment practices occurred on a local or regional scale in the Belize Valley.

Lithic Analysis

Lithic analysis was conducted in San Ignacio, Belize using Andrefky's (2005) methods as a formal guide to macroscopic analysis. The entire lithic assemblage from the peri-abandonment deposit was first separated into debitage, and formal tools. For all debitage I recorded flake type counts (primary, secondary, tertiary), and also included core counts in the debitage category because cores would not be analyzed in greater detail for the purposes of preliminary analysis. Formal tools were distinguished into two categories: bifaces, and unifacial borer. I collected information on the stage of production, completeness, material texture, as well as max width, max length, thickness, and weight. The tool analysis conducted was thus designed to be simple in order to make it logistically possible to complete, and to effectively provide a means to compare types of bifaces within the deposit. Given the above, the lithic analysis in my thesis does not reflect a complete formal tool analysis of the materials recovered in the deposit, but rather a preliminary lithic analysis intended to explore the data.

Andrefsky (2005) provides definitions for each of the analytical categories noted above. Primary flakes, for example, were defined by the presence of cortex anywhere on the flake, except on the striking platform. If a flake did not contain cortex, or if it only had cortex on the striking platform, then it was likely a secondary flake. Tertiary flakes,

also known as biface thinning flakes, were secondary flakes that had a distinct feathering out pattern from a narrow striking platform and tended to be long, and very thin in comparison to other secondary flakes. Using a simple Microsoft Excel database, I counted the amount of each of type of flake per bag collected, and per lot.

COMPARISON METHODS

Assemblages Across Sites

Table 3.2. below lists artifact types recovered in peri-abandonment deposits at several sites in the Belize River Valley, however does not distinguish between possible types of the deposits discussed in Chapter 1. Rather, the table examines peri-abandonment deposits as a whole cultural phenomenon, and compares the types of material found in them across several sites. Cahal Pech was the first site where BVAR excavated a “terminal occupation deposit” using the microstratigraphic approach, and the subplot system was implemented once an investigation was launched into similar deposits at Baking Pot and Xunantunich. While there is variability in the specific manner of excavation for some deposits, it does not interfere with my comparison because, for now, I am examining peri-abandonment deposits across the Belize Valley as a whole.

The next step is perhaps to apply a statistical approach to peri-abandonment deposits to determine whether they are in fact significantly similar. The problem for now, however, is that peri-abandonment deposits at each site need to be differentiated so that appropriate “types” of deposits can be compared to one another. For example, it would not really due to compare a midden deposit with a termination deposit; i.e. apples

to oranges. My research, rather, seeks simply to add to a larger multidisciplinary regional contextualization of peri-abandonment deposit by integrating new data from Lower Dover.

Table 3.2. Cultural Remains Recovered in Peri-abandonment Deposits in the Belize Valley

Cultural Remains	CHP	BKP	LWD	XUN	ATM	BCC
Ceramic Vessels	Y	Y	Y	Y	Y	Y
Ocarinas/Figurines	Y	Y	Y	Y	Y	Y
Flutes	Y		Y	Y		
Drums	Y	Y	Y	Y	Y	Y
Censers	Y	Y	Y	Y		Y
Jade bead/pendants	Y	Y	Y	Y	Y	Y
Spindle whorls	Y	Y	Y	Y		Y
Needles/Awls	Y	Y	Y	Y		Y
Obsidian blades	Y	Y	Y	Y	Y	Y
Chert oval bifaces	Y	Y	Y	Y	Y	Y
Stemmed/Un-stemmed Bifaces	Y	Y	Y	Y	Y	Y
Chert flakes/nodules	Y	Y	Y	Y	Y	Y
Mano/Metate	Y	Y	Y	Y	Y	Y
Marine shell	Y	Y	Y	Y	Y	Y
Freshwater shell	Y	Y	Y	Y	Y	Y
Human remains	Y	Y	Y	Y	Y	Y
Animal remains	Y	Y	Y	Y	Y	Y
Charcoal/evidence of burning	Y	Y	Y	Y	Y	Y
Crystal Quartz	Y		Y	Y	?	?
Other	pyrite and slate	pyrite	Speleothem and slate	slate	pyrite and slate	net bags, pine needles

(Modified table, courtesy of Dr. Jaime J. Awe, 2018 SAA Conference).

*All sites with italicized abbreviations in Table 3.2. represent cave sites in the Belize Valley.

CHAPTER 4

EXCAVATION AND ANALYSIS RESULTS

The first part of this chapter discusses the results of the excavation of the peri-abandonment deposit found on the northern side of Courtyard 4 (CT4) within the site core of Lower Dover. The second part of the chapter focuses on the results of four carbon samples collected from the aforementioned excavations, and the preliminary data analysis of lithic, ceramic, and faunal remains discovered within the deposit. The last part of the chapter details the archaeological evidence of three peri-abandonment deposits from other sites in the valley that I compare to the Lower Dover peri-abandonment deposits.

THE LOWER DOVER DEPOSIT

As I noted above, my thesis research focuses on a peri-abandonment deposit (Figure 4.1) that was recently discovered on the northern flank of Courtyard 4 within the site core at Lower Dover. The Lower Dover deposit was much less extensive than other peri-abandonment deposits noted in the Belize Valley, taking up an area of approximately 1.5m (N to S) by 2.5m (E to W). At its highest point, the deposit was just 15cm above the terminal courtyard floor. The deposit predominantly contained broken ceramics, fragments of charred faunal remains, daub, and a handful of lithic artifacts. The deposit was excavated in three arbitrary layers, measuring between 3 to 5 centimeters each.

Once each layer was fully exposed by excavators, all artifacts were carefully removed from their in-situ positions and bagged by sublots corresponding to a 1m by 1m grid that was laid out horizontally across the deposit. Once a layer was removed, excavators resumed the tasks of exposing the next layer of artifacts to its full extent while carefully trying to leave everything in-situ. Only once a full visible layer was exposed were photographs of the second exposed layer taken, and did Layer 2 begin stratigraphically. The same process was used to reach and excavate Layer 3 which ended at the terminal courtyard floor.



Figure 4.1. Photograph of the northern-side of CT4 and the peri-abandonment deposit. The stone wall represents the southern edge of Str. B12 at Lower Dover and was conserved after the 2017 excavations in the courtyard.

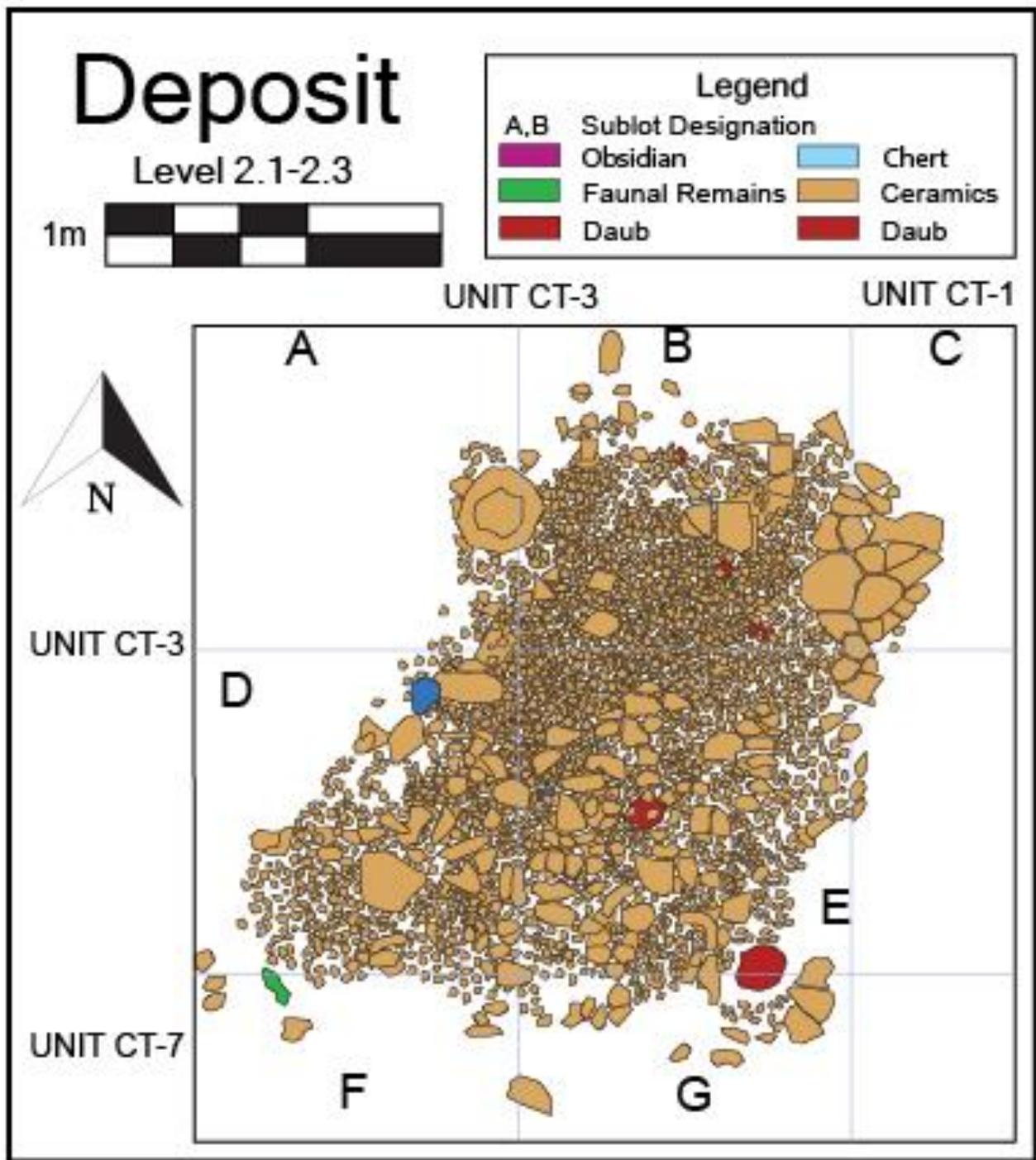


Figure 4.2. Drawing of the peri-abandonment deposit, with the subplot designations utilized to excavate the northern CT4 peri-abandonment deposit. This digitized image represents all arbitrary layers of the deposit, or in other words, the deposit in its entirety.

Methodological Issues Encountered

Some sections of the deposit were difficult to excavate as meticulously as BVAR peri-abandonment deposit methods advocated for because their contents were mixed with a layer of burnt daub; the clay mortar used for the wattle-and-daub on thatched superstructures by the ancient and modern Maya. Preliminary investigations in CT4 during the 2017 season suggested that a superstructure, likely from the top of Str. B12, collapsed south into the courtyard at some point after the site was abandoned (Romih et al. 2018). The wet-ness of the clayey-loam matrix that the deposit was in also impacted the preservation of the first layer of the deposit. Not only were sherds weathered and fragile until dried, but small ceramic sherds (less than 3 cm in diameter) were frequently dislodged and collected by excavators exposing an in-situ layer.

CERAMIC ANALYSIS

All 1,101 pot sherds from the peri-abandonment deposit, no matter the size, were included in the ceramic analysis. Nearly all of the ceramics fell into the Spanish Lookout and Tiger Run ceramic complexes, which broadly corresponds to the Late Classic, and Terminal Classic periods, respectively. The remainder of the pottery sherds were severely eroded, or their forms were very common throughout time periods. Therefore, many pottery sherds were unidentifiable except perhaps for their basic ware (carbonate or ash). Most unidentifiable sherds were also unclassifiable to the ceramic Type level, and therefore, no complex could be determined to situate these ceramics temporally.

Table 4.1. Ceramic Typology of the Late Classic period in the Belize Valley

Complex/Phase	Ceramic Group	Ware
Spanish Lookout	Dolphin Head	Pine Ridge Carbonate
Spanish Lookout	Belize	British Honduras Volcanic Ash
Spanish Lookout	Garbutt Creek	Pine Ridge Carbonate
Spanish Lookout	Vaca Falls	Pine Ridge Carbonate
Spanish Lookout	Danta	Peten Gloss
Spanish Lookout	Asote	Peten Gloss
Spanish Lookout	Tialipa	Peten Gloss
Spanish Lookout	Nanzal	Peten Gloss
Spanish Lookout	Yaha Creek	Ware Unspecified
Spanish Lookout	Mount Maloney	Pine Ridge Carbonate
Spanish Lookout	Meditation	Peten Gloss
Spanish Lookout	Achote	Peten Gloss
Spanish Lookout	Yalbac	Pine Ridge Carbonate
Spanish Lookout	Chunhuitz	Vinaceous Tawny
Spanish Lookout	Palmar	Peten Gloss
Spanish Lookout	Tu-Tu Camp	Uaxactun Unslipped
Spanish Lookout	Cayo	Uaxactun Unslipped
Tiger Run	Mountain Pine	Pine Ridge Carbonate
Tiger Run	Tasital	Peten Gloss
Tiger Run	Molino	Peten Gloss
Tiger Run	Sotero	Ware Unspecified
Tiger Run	Macal	Ware Unspecified
Tiger Run	Teakettle Bank	Peten Gloss
Tiger Run	Saxche	Peten Gloss
Tiger Run	Saturday Creek	Pine Ridge Carbonate
Tiger Run	Jones Camp	Uaxactun Unslipped
Tiger Run	White Cliff	Uaxactun Unslipped
Tiger Run	Zibal	Uaxactun Unslipped

*Based on (Gifford 1976:53).

Table 4.2. Frequencies and Percentages of Vessel Forms in the Northern CT4 Peri-abandonment Deposit

Vessel Forms in the Deposit	Frequency of Sherds	Percent Of Assemblage
Bowl	112	10.2%
Dish	2	.2%
Drum	3	.3%
Jar	38	3.5%
Miniature vessel	1	.1%
Periform	3	.3%
Plate	1	.1%
Vase	24	2.2%
Unknown	917	83.3%
Total	1101	100.0%

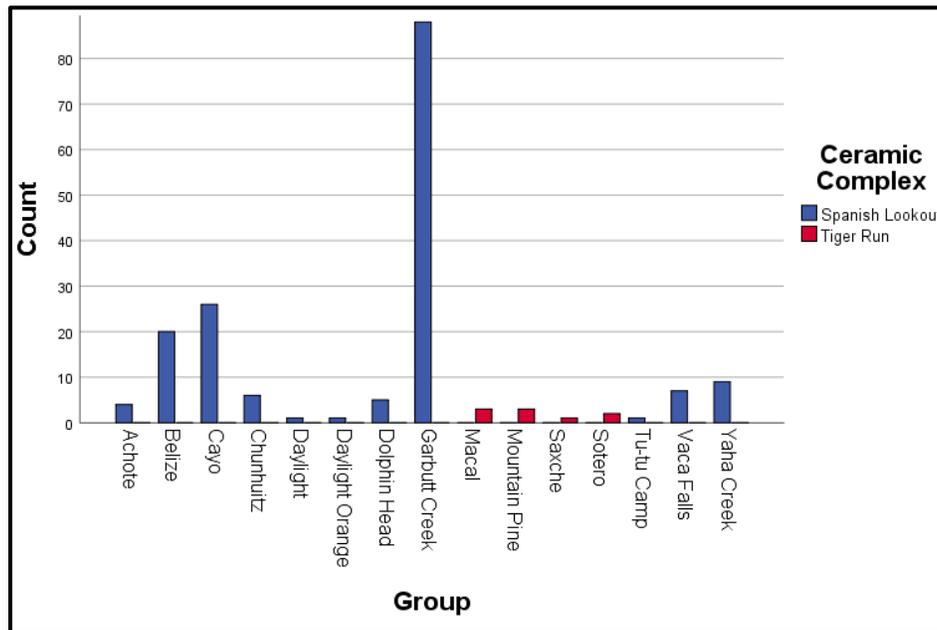


Figure 4.3. A bar graph showing the ceramic complexes and ceramic groups present in the peri-abandonment deposit. This graph only shows the sherds that were identifiable to both complex and group (n=177).



Figure 4.4. Photograph of the ceramic drum fragment present in the deposit. The drum fragment is comprised of two ceramic sherds (Sherd A and Sherd B) which refit together. The side angle view of Sherd A shows the roundedness of the drum fragment.

Layer 1

The top-most layer of the deposit, which encompassed the largest surface area, was designated as Layer 1. Layer 1 measured 2 m by 2.5 meters, it was 4cm thick, and contained 495 pottery sherds, the majority of which were only identifiable to the ware

type due to slip erosion; however, there were 94 Spanish Lookout phase sherds, and 2 Tiger Run phase sherds placing the deposit squarely in the Late Classic period. The Tiger Run ceramic complex sherds are represented by two sherds that refit together and form the fragment of a drum in Figure 4. 3.. The drum fragment was identified as a Macal Orange-Red type based on the definitions in Gifford 1976.

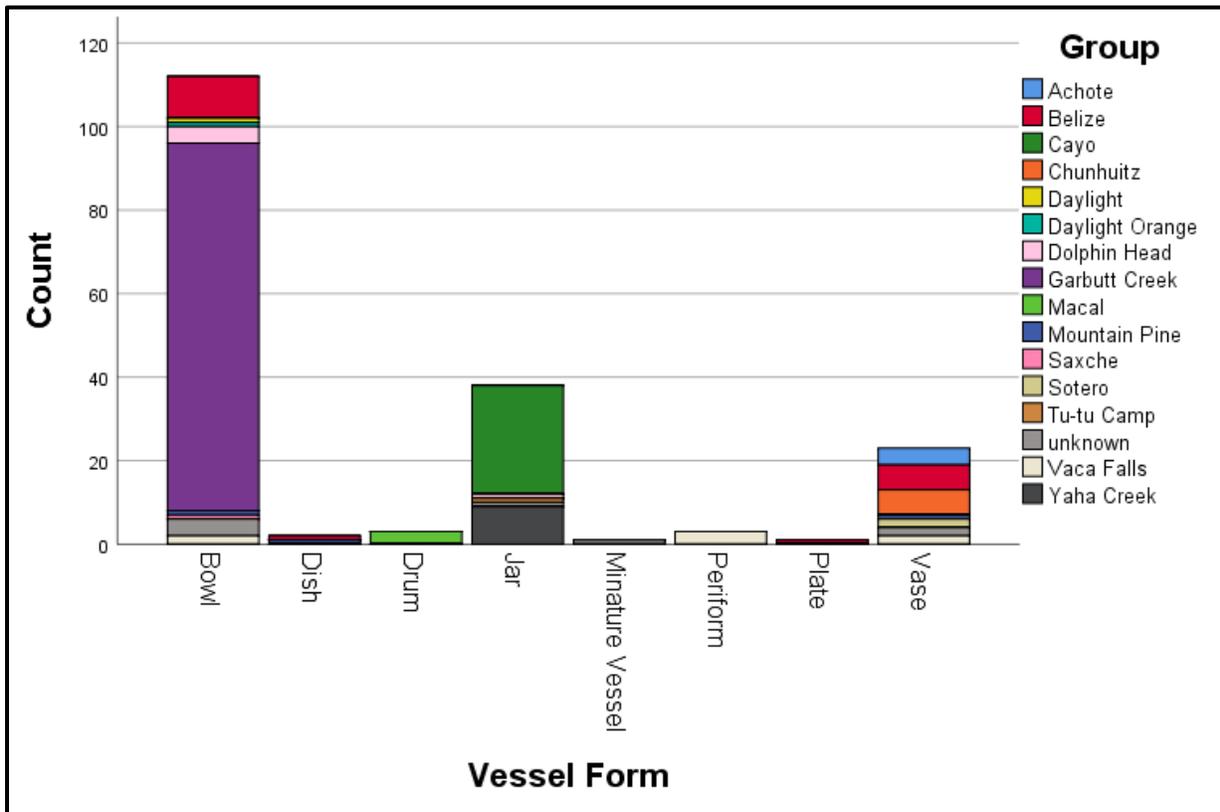


Figure 4.5. A bar graph showing vessel forms present in the peri-abandonment deposit assemblage. As an added source of information, the different colors inside each bar represent the ceramic groups identified within that vessel form category. This graph only shows the sherds that were identifiable to vessel form (n=183).

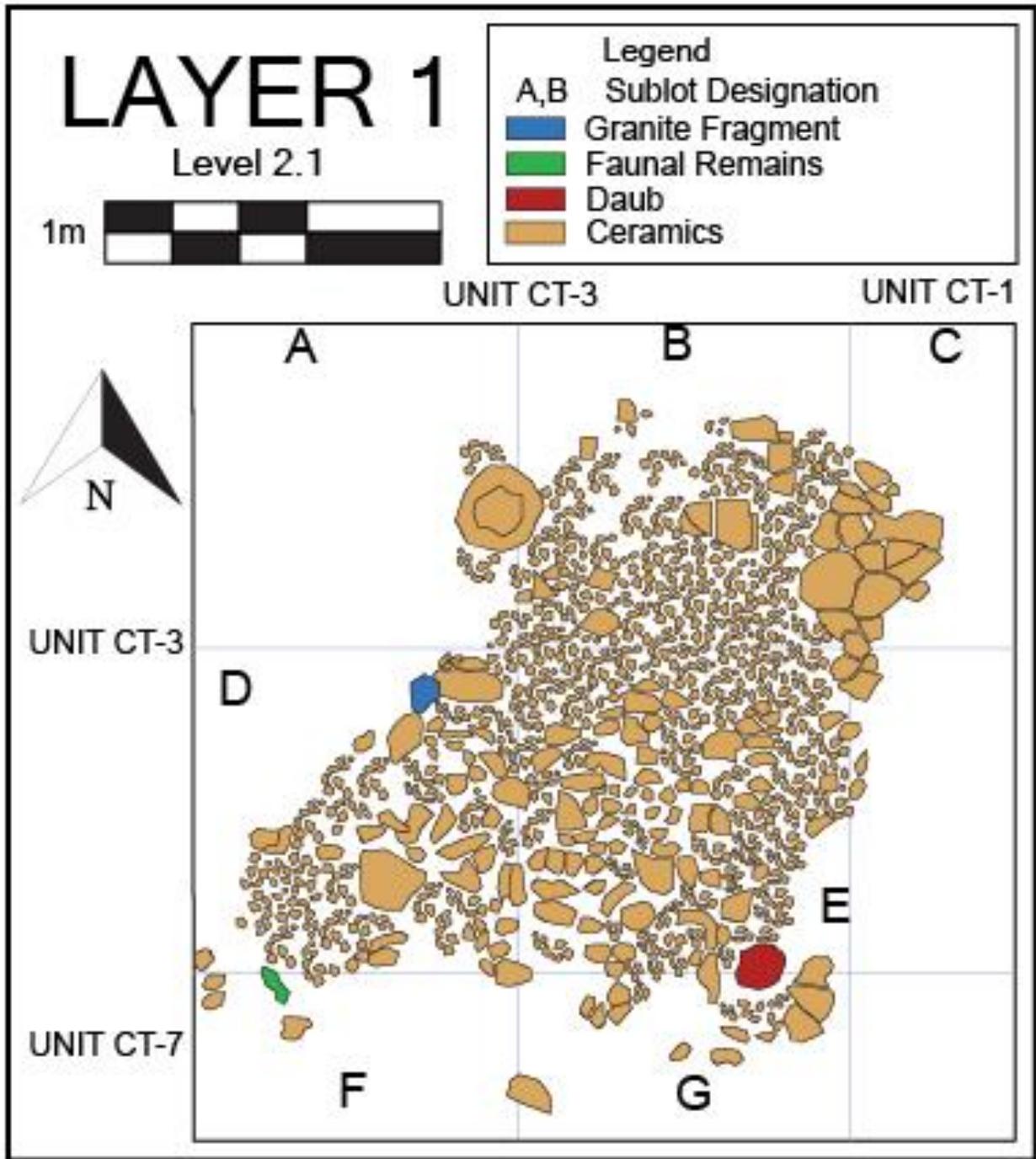


Figure 4.6. Digitized drawing of the first layer of the deposit, with the sublot designations utilized to excavate the northern CT4 peri-abandonment deposit.



Figure 4.7. Photograph of the only ceramic special find found in the northern CT4 peri-abandonment deposit (Layer 1). The artifact is most likely an anthropomorphic figurine or ocarina, with two key features. A small amount of blue paint is still present on the spool, and the artifact has a string hole, indicating that it may have been suspended on a string.

Layer 2

The second layer was considerably smaller in surface area than Layer 1, and measured 4cm in thickness in most sublots. Out of a total 254 pottery sherd in the deposit, 299 were unknown, 3 were typed to the Tiger Run Complex, and 51 were identified as Spanish Lookout Complex types. There was also a single Newtown ceramic Complex sherd of the Daylight Ceramic group. During lab processing of the ceramics a figurine fragment was also discovered with some Maya blue paint still visible (see Figure 4.5.).

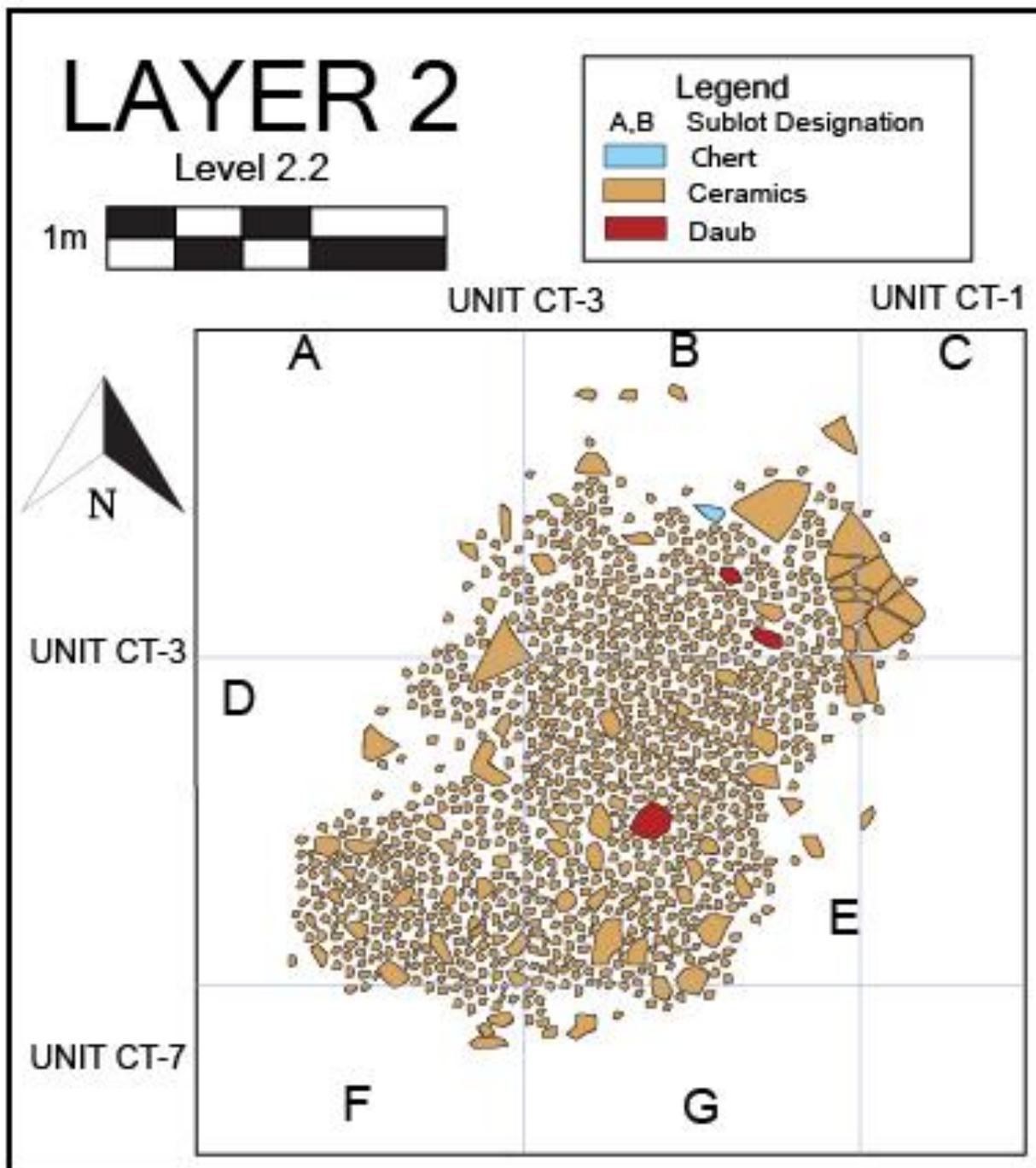


Figure 4.8. Drawing of the second layer of the deposit, with the subplot designations utilized to excavate the northern CT4 peri-abandonment deposit.

Layer 3

The third layer covered an area approximately 1m by 1m and how thick, and had only 234 pottery sherds. Layer 3 had 4 Tiger Run sherds, and 20 Spanish Lookout sherds. Some pottery sherds were directly on the floor surface indicating that the deposit remains were placed here at the time of abandonment. One notable artifact from this layer is a small unworked slate piece for which the closest known source is the Pine Ridge area.



Figure 4.10. Some of the most interesting and best-preserved ceramic pieces in the peri-abandonment deposit assemblage.

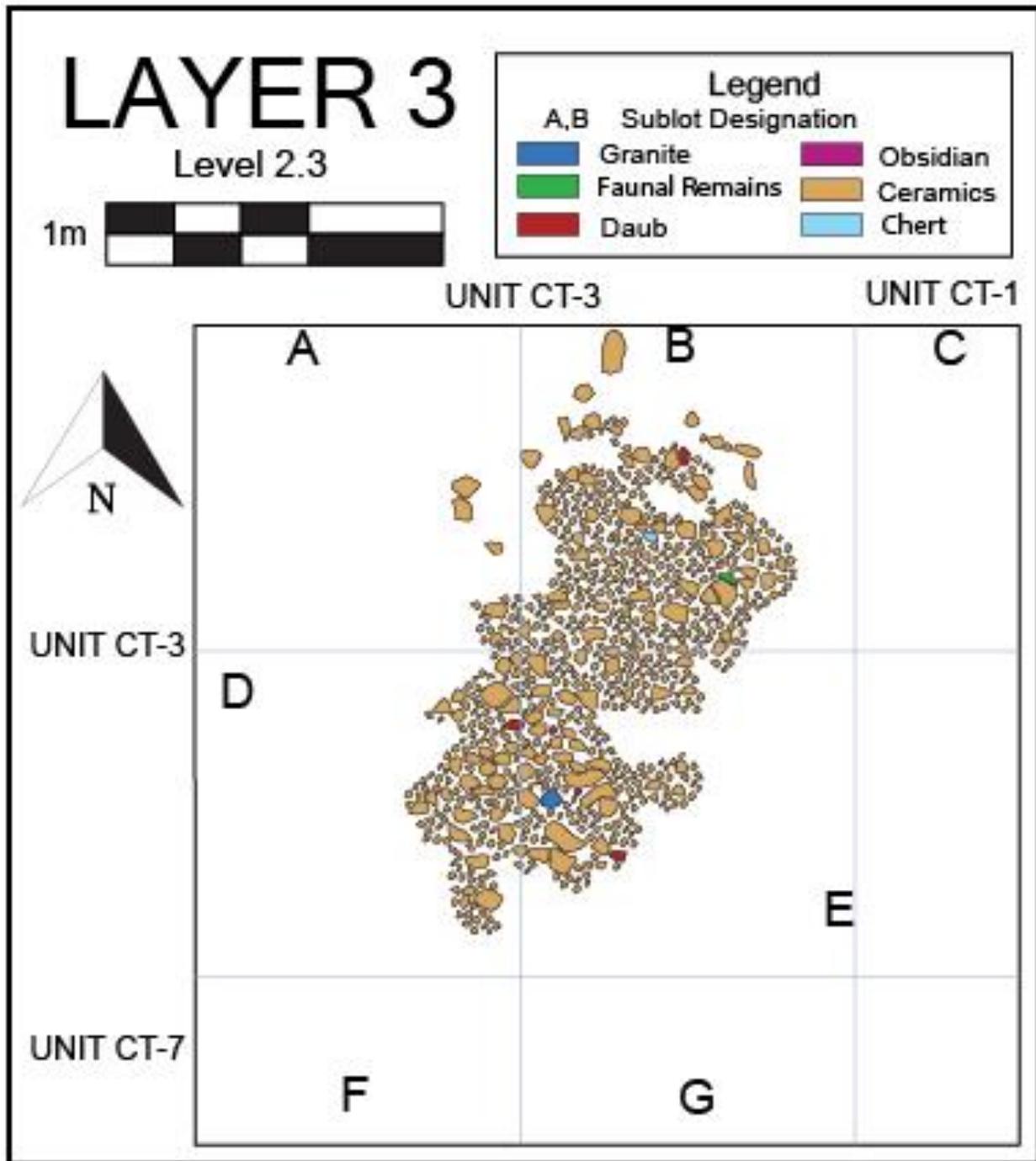


Figure 4.9. Drawing of the third layer of the deposit, with the subplot designations utilized to excavate the northern CT4 peri-abandonment deposit.

LITHIC ANALYSIS

Excavation of the northern CT4 peri-abandonment deposit produced little in the way of lithic artifacts. Lithic debitage consisted of primary flakes (15), secondary flakes (15), and bifacial thinning flakes (13) spread throughout the three deposit layers. One heavily used core was also present in layer 2 of the deposit, as was one very rough unfinished biface evidenced by the presence of cortex (see Figure 4.6.). The biface may have served as an expedient core once a mistake was made working the biface that resulted in a step-fracture near the mid-line. Due to time constraints and the limited scope of my research, raw material sources were not determined.



Figure 4.11. Photograph of the only formal stone tool present (a rough unfinished biface) in the peri-abandonment deposit from CT4 called SF#30.

FAUNAL ANALYSIS

While much of faunal remains were difficult to identify at the species level due to their poor preservation, some notable features were present during analysis conducted at the NAU Zooarchaeology Lab. For example, three different varieties of freshwater shell were found in the deposit, along with many fragmented mammalian remains (see Table 4.3.). The freshwater shell varieties, noted in Table 4.2., are all local, and common in the three waterways bordering the Lower Dover site core.

It was impossible to type the mammalian remains to the species level due to severe fragmentation and poor preservation. However, there is some evidence for hoofed animals in the northern CT4 peri-abandonment deposit assemblage. What is abundantly clear, even from the fragmented state of the faunal collection, is that all the mammalian remains were from a large class-size such as a white-tailed deer or tapir. Due to the small size of the faunal collection from the peri-abandonment deposit (94 NISP) it was difficult to detect any notable differences between the excavation layers. In conjunction with the fact that no matrix change was noted during excavation of the arbitrary layers, the fact that no noticeable changes in matrixed were documented suggests that the northern CT4 peri-abandonment deposit was likely produced during a single event.

Table 4.2. Faunal Classes Present in the Peri-abandonment Deposit

Class	Frequency	Percent of Total NISP
Bivalvia	21	22.3 %
Gastropoda	2	2.1 %
Mammalia	71	75.5 %

Table 4.3. Genus/ Species Present in Peri-abandonment Deposit

Genus/ Species	Frequency	Percent of Total NISP
Identifiable to a higher Taxon with Comparative Collection	10	10.6%
Indeterminate	60	63.8%
<i>Nephronaias Sp.</i>	21	22.3%
<i>Odocoileus Virginianus</i>	1	1.1%
<i>Pachychilus Glaphyrus</i>	1	1.1%
<i>Pomacea Flagellata</i>	1	1.1%

AMS ¹⁴C DATING RESULTS

Table 4.4. AMS ¹⁴C dates from Lower Dover Courtyard 4, EU CT4-3.

Sample Number	E.U.	Lvl.	Lot	Context	¹⁴ C age (BP)	2σ Calibrated Date Range
5853	CT4-3	2.2	CT4-3-2.2D	Deposit layer 2	1280 ± 20	AD 670-770
5851	CT4-3	2.2	CT4-3-2.2E	Deposit layer 2	1255 ± 20	AD 675-855
5854	CT4-3	2.3	CT4-3-2.3B	Deposit layer 3	1180 ± 20	AD 770-895
5852	CT4-3	2.3	CT4-3-2.3B	Deposit layer 3	1235 ± 20	AD 690-870

Samples for AMS ¹⁴C dating at were recovered *in situ* from stratified contexts in Courtyard 4 during excavations. Samples were collected in situ from isolated features, construction fill, and in association with plaster floors and other architectural features. When possible, carbonized short-lived twig samples were selected for dating to reduce erroneous age assignments from the “old wood effect” (Schiffer 1986; Kennett et al. 2002). All dates in are reported as conventional ¹⁴C ages corrected for fractionation, with

measured $\delta^{13}\text{C}$ following Stuiver and Polach (1977). Date calibrations and stratigraphic models were produced in OxCal v.4.3 (Bronk Ramsey 2009) using the IntCal13 Northern Hemisphere atmospheric curve (Reimer et al. 2013). Calibrated and modeled date ranges are reported at the 2- σ level in Table 4.4.

A Bayesian stratigraphic model was created OxCal to understand the deposition of the peri-abandonment deposit in Courtyard 4. Traditional statistical analysis of radiocarbon dates relies on probability distributions to determine the likelihood that two dated events were sequential or contemporaneous. The Bayesian approach incorporates additional contextual and stratigraphic information obtained in the field to model sequences of dates and constrain probability distributions (Bayliss and Bronk Ramsey 2004; Bronk Ramsey 2015; Culleton et al. 2012).

Radiocarbon dates from stratified contexts at Cahal Pech were modeled within ordered *sequences* and *phases* to estimate the age of events that are not directly dated (e.g., initial clearing of bedrock, placement of plaster floors) to represent discrete construction phases. Phases represent groups of dates separated by a common stratigraphic marker (e.g., dates from the CT4 deposit). Strata that separate directly dated deposits were modeled as single *Boundaries* in OxCal, which are events that temporally bracket the beginning and end of a phase, but are not directly dated. Additional *Boundaries* were placed at the beginning of each sequence to represent the beginning of activity and the end of each sequence to provide an approximate time range for the termination of use of the structure or of site occupation.

The model was created using two *boundaries* to represent the beginning and end of the placement of the deposits. AMS 14C dates were placed in a *phase*. While results

of modeling do not drastically constrain the calibrated ranges of dates, the results indicate that the deposit was placed sometimes between cal AD 505-775. This date is represented by the *boundary* “Earliest Deposit”. The final activity of the deposits is represented by the *boundary* “End Deposits” and is estimated to have occurred between cal AD 725-1055. Based on the mean values of the molded distribution, it is most likely that the deposit was placed during a single event sometime between cal AD 735-805.

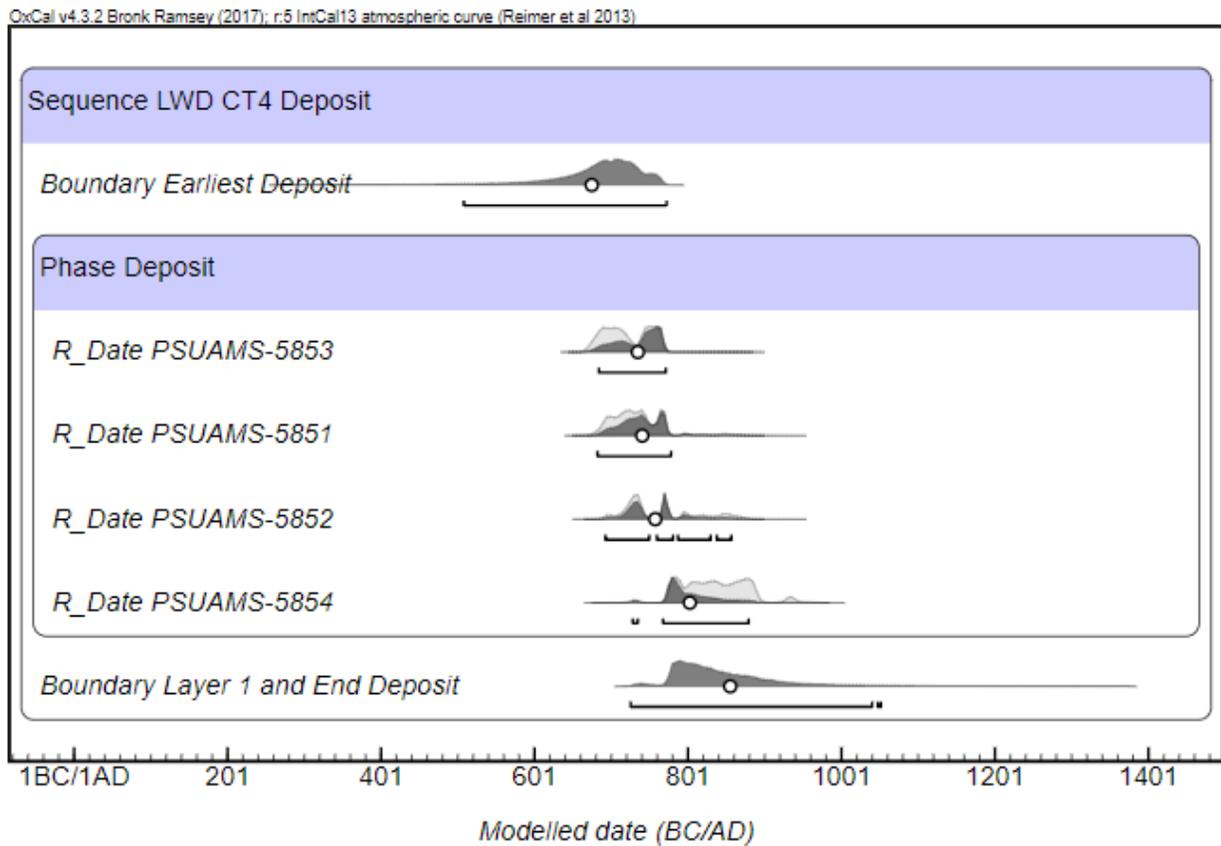


Figure 4.13. Modeled calibrations for the northern Courtyard 4 peri-abandonment deposit.

Name	Unmodelled (BC/AD)				Modelled (BC/AD)				Indices				Select	Page break	
	from	to	%	μ	from	to	%	μ	A_{comb}	A	L	P			C
▼ Sequence LWD CT4 Deposit														<input checked="" type="checkbox"/> 2	<input type="checkbox"/>
Boundary Earliest Deposit					505	775	95.4	675					96.3	<input checked="" type="checkbox"/> 3	<input type="checkbox"/>
▼ Phase Deposit														<input checked="" type="checkbox"/> 4	<input type="checkbox"/>
R_Date PSUAMS-5853	670	770	95.4	720	680	775	95.4	735		99.7			99.3	<input checked="" type="checkbox"/> 5	<input type="checkbox"/>
R_Date PSUAMS-5851	675	855	95.4	735	680	780	95.4	740		101.2			99.2	<input checked="" type="checkbox"/> 6	<input type="checkbox"/>
R_Date PSUAMS-5852	690	870	95.5	765	690	860	95.4	760		108.1			99.4	<input checked="" type="checkbox"/> 7	<input type="checkbox"/>
R_Date PSUAMS-5854	770	895	95.4	835	725	880	95.4	805		97.4			99.4	<input checked="" type="checkbox"/> 8	<input type="checkbox"/>
Boundary Layer 1 and End Deposit					725	1055	95.4	855					96.6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/>

Figure 4.12. OxCal model for the Courtyard 4 Peri-abandonment deposit.

OTHER PERI-ABANDONMENT DEPOSITS IN THE VALLEY

At Lower Dover

Previous excavations at Lower Dover have revealed the presence of other peri-abandonment deposits at the site. The first was noted on the southern side of Courtyard 4 (CT4) and stretched across the entire southern side of courtyard (See Figure 1.2. for a map of the Lower Dover Site Core). Material remains present in the southern CT4 deposit included broken ceramics, partial and complete chert bifaces, figurine heads and body parts, ocarinas, flutes, jade beads, polished crystal quartz, and faunal remains—a large portion of which was worked bone (Guerra et al. 2014). The first deposit found at the site was excavated prior to the new methods developed for peri-abandonment deposits, therefore, no attempts were made to split the deposit into layers, however the deposit was divided into several 2m by 2m horizontal units to cover

its extent. Researchers working at the site concluded that the peri-abandonment deposit was likely associated with termination rituals.



Figure 4.12. Photograph of the first peri-abandonment deposit being mapped at Lower Dover. It was located on the southern side of Courtyard 4 (see Figure 1.2.).

Another Lower Dover peri-abandonment deposit was discovered in Courtyard 2, at the summit of the acropolis in the site core. The deposit was located against the northern wall of a masonry palace building. In the northeast corner where the deposit was most heavily concentrated was the burial of an adult male, likely of elite status as evidenced by his filed incisors (Watkins et al. 2017). Material remains found in the CT2 peri-abandonment deposit included predominately broken ceramics, along with chert points, marine shell, quartz, modified cobblestone, mano/ metate fragments and obsidian blades (Watkins et al. 2017). The CT2 peri-abandonment deposit was excavated using the same methods I employed for my investigation of the new northern CT4 deposit and therefore offered a convenient opportunity to examine differences of deposits with the palatial complex at Lower Dover.

Baking Pot Deposits

BVAR's intensive study of peri-abandonment deposits in the Belize River Valley began in earnest at Cahal Pech, and included excavations of five such deposits within the site's epicenter (Awe et al. In Press-b). Investigations of similar deposits were subsequently conducted at Pook's Hill, Xunantunich, and Baking Pot, after the pattern of peri-abandonment deposits was noted in plaza corners, in front of stairs, and less often at the centerline of monumental architecture (Awe et al. In Press-a; Davis 2018; Helmke 2009; Hogarth et al. In Press-c). During the 2016 field season, four peri-abandonment deposits were located and excavated at the Baking Pot site core, each with unique characteristics, demonstrating that several different types of peri-

abandonment deposits (as discussed in Chapter 1) can and should be expected within site cores.

Without delving into the specific contents of each deposit too much—for they do all superficially appear much the same (i.e. broken pottery, musical instruments, projectile points, animal remains, etc.)—archaeologists are now trying to understand what distinguished these types of deposits from one another. Five peri-abandonment deposits were recently excavated in Plaza B at Baking Pot consisting predominantly of broken ceramics and high-status objects, with concentrated areas of burning (Hoggarth et al. 2017; Davis 2018). Furthermore, unlike the deposits at Lower Dover, there was accumulated soil between the deposit and the terminal floor at all of the peri-abandonment deposits, and each had a burial associated with it. Researchers at the site concluded that the most likely explanation for the peri-abandonment deposits involved rituals of ancestor veneration, or pilgrimage (Davis 2018).

Cahal Pech Deposits

Peri-abandonment deposits were first discovered at Cahal Pech in 2012 and continued to be excavated into the summer of 2017. Several such deposits were discovered during conservation efforts in the palatial complex in Plaza A of the site core. The Plaza A deposits, which were concentrated along buildings on the northern and eastern perimeters of the courtyard included large quantities of broken pottery, as well as whole projectile points, musical instruments, spindle whorls, and jade beads and pendants (Awe et al. In Press-b). Amongst the deposit remains were also mano and metate fragments, animal and human remains, marine shell, and evidence for burning

activity like those noted at the new peri-abandonment deposit discovered in Courtyard 4 at Lower Dover. Researchers at Cahal Pech concluded that peri-abandonment deposits at the site are the result of two possible scenarios: 1) that a small group of people remained in the site core during a stretched-out abandonment period or 2) that some years after the site was initially abandoned local Belize Valley people took up residence in a portion of the sites. In either scenario, the people present performed venerative rituals at Cahal Pech that resulted in the peri-abandonment deposits that archaeologists find today (Awe et al. In Press-b).

Xunantunich Deposits

The most recently investigated deposits in the Belize Valley are those in Group B at Xunantunich. Group B, which is comprised of three, maybe four, courtyards, is an elite residential compound that is located on the western periphery of the Xunantunich site core. Most of the deposits in Group B were distributed on all four sides the courtyards, as well as to the south of Str. B4. The most recently excavated deposit was discovered against the south flank of the eastern structure in Group B (Str. B1). The south flank peri-abandonment deposit was excavated using the same microstratigraphic techniques as those of peri-abandonment deposits at Baking Pot and Lower Dover. The eastern shrine peri-abandonment deposit at Xunantunich contained a slate pendant, a metate fragment, and a worked marine shell artifact shaped into a 6-pointed star with a circle in the middle. This deposit also included animal remains, abundant ceramic remains, chert artifacts, and obsidian blade fragments (Aimee Alvarado, personal communication 2019). Researchers analyzing the artifact assemblage of the south flank

peri-abandonment deposit at Str. B1 in the Xunantunich site core interpreted the deposit as the result of pilgrimage related ceremony, or a ritual relating to petitioning the Gods and ancestors for water during times of drought (Aimee Alvarado, personal communication 2019).

CONCLUSION

As the variety of results in this chapter reiterates, the investigation of peri-abandonment deposits can be a “beastly” project in terms of the sheer amount of data produced by such features. This chapter sought to show not only the difficulties in excavating peri-abandonment deposits even with very rigorous methods, but also the wide array of specialty knowledge required to thoroughly analyze the artifact assemblages of such deposits. Importantly, the results of other BVAR excavations at four major centers in the valley also provide an immediate glimpse of how the northern CT4 peri-abandonment deposit may compare to other such deposits, as will be discussed in detail in the following chapter.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

In this final chapter I return to the questions that were the focus of my thesis research and use them as a guide for the discussion. I will first discuss the evidence from the northern Courtyard 4 (CT4) deposit in light of the possible interpretations, and then synthesize the evidence for ritual vs mundane interpretations of peri-abandonment deposits at Lower Dover. I also discuss the similarities and differences between deposits across several sites in the western Belize River Valley. The last section this chapter considers the cultural significance of peri-abandonment deposits in the Belize River Valley by considering the theoretical approaches discussed in Chapter 2, and the archaeological correlates presented below.

RESEARCH QUESTIONS REVISITED

To consider the conclusions gleaned from this research, I turn to my research questions:

1. Are peri-abandonment deposits at Lower Dover and across the Belize Valley associated with *sacred (ritual)* or *profane (mundane)* activities?
2. What is the cultural significance of peri-abandonment deposits at Lower Dover?
 - A) Does the site of Lower Dover present evidence for post-abandonment use by descendant groups, and in what manner?
 - B) When did the deposition occur, specifically, before, at the time of, or post abandonment of the site?

3. What is the cultural significance of peri-abandonment deposits across the Belize Valley?

A) How do the artifact assemblages present at Lower Dover compare with other sites across the valley?

B) Are any discernible patterns exhibited by the data across sites?

The Archaeological Correlates

In a recent article, Hoggarth et al. (2018) provided a list of archaeological correlates (see table 5.1. below) for each proposed interpretation of peri-abandonment deposits.

Table 5.1. Correlates Associated with Peri-abandonment Deposits

(from Hoggarth et al. 2018, SAA Electronic Symposium Paper)

Feasting (Modified from Hayden 2001:40-41).

Food

- Rare or labor-intensive plant/animal species • Larger species such as deer
- Larger cuts of meat to feed large number of participants
- Exotic species such as marine fish or other non-local species
- Waste of food items
- Articulated joints
- Unprocessed bone
- Recreational foods
- Cacao (or cacao drinking vessels)
- Tobacco

Preparation vessels

- Unusual or rare ceramic types
- Unique forms
- Unique decorations (e.g., molded carve)
- Unusual numbers of plain bowls
- Unusual sizes of plain bowls
- Unusual numbers of jars

Serving vessels

- Unusual quality (e.g., highly decorated)
- Relative abundance of decorated serving vessels
- Unusual size of serving vessels
- Unusual numbers of serving vessels

Special food disposal features

- Bone dumps (processed bone from butchery)
- Special refuse fires containing feasting items
- Feasting middens

Feasting facilities

- Special structures for high-ranking guests or large numbers of people
- Special display facilities, scaffolds, poles, other features

Special locations

- Loci associated with residential corporate households, central community spaces

Feasting (Cont.)

- Ideologically important locations
- Associated prestige items focused on entertainment/presentation*
- Presence or absence, and relative abundance of prestige items typically used in features:
 - Ritual paraphernalia
 - Jewelry or other carved adornments
 - Musical instruments
 - Decorated serving vessels
- Associated ritual materials*
- Ritual objects (censers, figurines)
- Human remains (ancestor bundles, burials)
- Radiocarbon expectations*
- 14C dates on materials from deposits date to the same time as the location was actively in use (construction or mortuary activity)

Termination Rituals

- Smashed/broken artifacts in high amounts
- Large numbers of ceramics can be re-fitted
- Presence of kill-holes on some artifacts
- Ideologically important locations (center axes, corners)
- Ritual artifact classes in relative abundance:
 - Censers
 - Figurines (broken)
 - Musical instruments
- Association with death (burials, human remains)
- Rooms made unusable by filling with marl or other materials
- Relative abundance of elite materials
- Radiocarbon expectations* • 14C dates on materials from deposits date to the same time as the location was actively in use (construction or mortuary activity)

Desecration Events

Extensive damage to structures

Intensive burning

High percentage of non-local types of ceramics (or not)

Floors cut open

Burials looted

Monuments defaced

Evidence for violence

Decapitation/scalping

Relative abundance of weapons, both in deposit and other nearby similarly dated contexts

Evidence for "Scattering" of materials

Re-fittable vessels (even between deposits)

Large quantities of elite objects (from location being sacked?)

14C dates on charcoal from burning episode is largely contemporaneous with the final royal/elite activities in ceremonial center

Squatters (Residential refuse)

Relative abundance of domestic materials

Plain ceramics

Food preparation items, such as manos and metates

Evidence of butchery on faunal remains

Evidence of low-scale production of household goods

• Spindle whorls

• Bone tools

• Ceramic production

• Lithic production

• Textile production

• Obsidian and other utilitarian items

Absence/low relative abundance of elite prestige goods

Radiocarbon expectations

14C dates on materials from deposits post-date royal activity in the center, although can be contemporaneous with remaining occupation in the settlement.

Transposed Midden Materials

Relatively large amount of ceramics cannot be re-fitted

Some ceramics in other deposits can be refitted with materials in other contexts Highly eroded sherds or patinated lithics.

Radiocarbon expectations

• 14C dates on materials from deposits pre-date or are contemporaneous with the timing for the last use of the ceremonial space.

De Facto Refuse

Objects left in context of use

Many objects in areas expected to be maintained and cleaned, but not in locations where they would interfere with normal activities (doorways, stairs, etc.)

Mostly re-fittable vessels, although incomplete garbage collection might have taken some partial vessels

Typical elite domestic debris (see squatter section, but with more elite activity, food, and paraphernalia).

Radiocarbon expectations • 14C dates on materials from deposits date to the same time as the final use of ceremonial space (evidence of sacking/burning/abandonment event)

Post-Abandonment Ritual (Pilgrimage/ Ancestor Veneration)

Soil matrix level above floor but below deposit

Relatively higher numbers of ritual artifact classes

Censers

Figurines

Musical instruments

Connections with ancestor veneration

Burials

Ancestor bundles

Anthropogenic figurines representing ancestors

Low abundance of domestic activities (see Squatters section)

Some prestige goods, but relatively low abundance in comparison with total artifacts

• Ideologically charged ritual items "ideofacts"

• Food or items meant to be intended for food/use by gods

Ideologically important locations for rituals

If conducted by locals, local isotopes for burials, if conducted by non-locals, non-local strontium values and possible foreign material types

Radiocarbon expectations

14C dates on materials from deposits post-date period of initial decline of ceremonial center or are contemporaneous with final activities.

The northern CT4 deposit contained predominantly smashed ceramics, and partial refitting of vessels was possible. The northern CT4 peri-abandonment deposit was also a single event, as evidenced by no discernable difference in the matrix of the deposit. Many pot sherds were found sitting on the terminal courtyard floor with no sediment accretion between the two indicating that either the courtyard was still being routinely swept as ethnographic evidence suggests (Stanton et al. 2008), or the plastered walls of the buildings enclosing the courtyard had not yet started to erode

(Schiffer 1983). Evidence of burning was also abundant in this deposit and included: burnt chunks of daub, darkened spots on the limestone floor, charcoal throughout the deposit, and charred faunal remains.

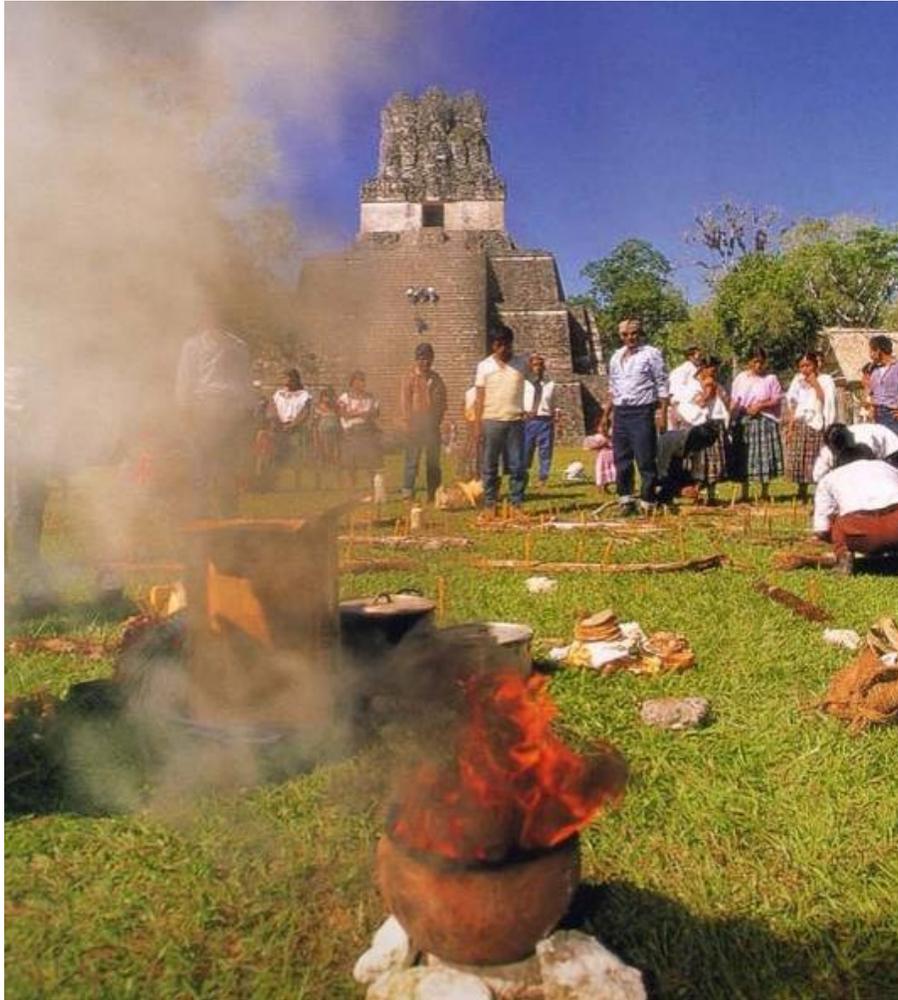


Figure 5.1. Maya ritual at Tikal, Guatemala. Notice the small bowl that the offering is being burned in (Photograph courtesy of Dr. Jaime Awe).

Although limited in number, the few elite associated goods in the deposit, such as the crystal quartz shard, and the polychrome pottery, suggests elite residence in Courtyard 4 (CT4) as corroborated by previous investigations in the site core (Guerra et

al. 2014). The small amount of elaborate elite items or exotic goods in the deposit was somewhat surprising considering that CT4 is part of the palatial complex and that the artifact assemblage of the deposit directly across the courtyard (southern CT4 deposit) contained noticeably more elite goods, including jade beads (Guerra et al. 2014). At the same time, if the deposit represents the material remains of objects associated with peri-abandonment activities, then it is likely that they could have been deposited by non-elite people after the palace was no longer occupied. The predominance of household pottery is not contradictory to a termination or veneration deposit interpretation however, because again, utilitarian objects take on new meanings in ritual contexts. Examples of such ritual contexts include modern Maya ceremonies (Palka 2014), and cave sites in the Belize Valley (Awe-In Press-a). For example, small plain ceramic bowls which were common in the northern CT4 deposit based on the ceramic analysis, are also often used for burning incense and holding offerings (Awe-In Press-a).

Which Interpretations Do Not Fit

The few deposit characteristics discussed above disqualify the northern CT4 peri-abandonment deposit from several possible interpretations. For example, this deposit does not reflect objects left in the context of their use and therefore cannot support a de facto refuse interpretation. One new proposed interpretation is dedication or consecration deposits. Dedication ritual deposits are in many ways the opposite of termination rituals, are highly associated with burials because the bones of powerful ancestors were potent ritual objects, and often represent the first activities at new structures. The northern CT4 deposit, however, does not reflect a dedication or

consecration deposit because excavations of the northern CT4 peri-abandonment deposit discovered fragmented rather than whole ritual items, including the broken figurine and shard of crystal quartz, but also because of what is missing such as human remains.

While it might appear as if the low frequency of elite items suggests a squatter refuse deposit, there was no evidence for any kind of low-scale household production in or around the deposit making the squatter refuse interpretation unlikely as well.

Desecration deposits are those best fitting with a warfare hypothesis, such as argued for at Aguateca by Innomata 2008. There is zero evidence for intentional damage to structures in CT4 at Lower Dover, despite several slumping walls from natural erosion processes. While there certainly was evidence for some concentrated burning, there were no weapons in the northern CT4 deposit.

It is also very unlikely that the northern CT4 peri-abandonment deposit reflects a feasting event because of the limited amount of faunal remains recovered during excavations. A feast would have produced a deposit with many faunal bones, and specifically large body cuts intended to be cooked and served. There is also no evidence for fancy serving ware in this deposit, despite the few sherds of polychrome vases present in the assemblage. For much the same reasons, it is also unlikely that the northern CT4 deposit represents a transposed feasting or transposed midden event.

RITUAL OR MUNDANE IN SIGNIFICANCE

In response to the first research question then—whether peri-abandonment deposits are associated with ritual or mundane activities—the northern CT4 peri-

abandonment deposit was distinctly ceremonial/ritual in nature just like the other two deposits discovered at Lower Dover. The ritual connotations of the northern CT4 deposit are presented in the form of *incensario* (censer) fragments, drum fragments, a piece of slate, a broken figurine, a shard of polished crystal quartz, faunal remains, and its location at the bottom of the central axis of a single pyramidal temple structure.

As discussed in Chapter 1, music is a central part of Maya pilgrimage and ceremony from ancient times to the present (Palka 2014). The refittable ceramic drum fragments found in the deposit are therefore, yet another testament to the ritual elements present in peri-abandonment deposits. Figurines and ocarinas are ritually charged objects that are well established elements of ceremonial peri-abandonment artifact assemblages, and similarly, are used by the Lacandon Maya in various rituals (McGee 1990:40,53).

While the faunal remains in the northern CT4 deposit were poorly preserved, the presence of mammalian remains in a larger size class, such as a deer or tapir, along with several varieties of freshwater shell, are cosmologically significant. The offering of deer, particularly in association with traditional ceremonies and ritual sacrifices is an ancient Mesoamerican tradition, and in the Maya world are often symbolically associated with the sun. This symbolic association is seen in the Dresden Codex (Pohl 1981), and their presence in several ritual-based peri-abandonment deposits at Baking Pot and Xunantunich (Burke et al. In-press). Other researchers have suggested that because deer were commonly consumed by elites, that they were also often used in ritual offerings and ritual feasting (Emery 2004). Some researchers suggest that certain freshwater shell varieties, like the two species of jute, are meant to represent the primordial sea associated

with the Maya cosmology (Halperin et al. 2003). Deer are also associated with water, and thus often used in rituals that petition rain deities during times of drought (Jaime J. Awe, personal communication 2019).

Crystal quartz has been found in a variety of fractured, fragmented, and polished forms in offerings documented by archaeologists throughout the Maya lowlands and highlands (Brady and Prufer 1999). In contemporary Maya communities quartz stones are also used by some shamans as divining tools (Brady and Prufer 1999:130-131). Crystals are acquired by venturing into caves, and therefore might be intended to symbolically represent the underworld—much in the same way that jute shells can represent the primordial sea. Furthermore, caves are the abodes of the rain god, and are also the location of many rain ceremonies such as the Cha Chak ritual (Palka 2014; Vogt 1969, 1976).

Figure 5.2. shows the archaeological correlates expected for a termination ritual. On the right-hand side of the figure, is the same list in different colors. These colors represent what was present and not present in the Northern CT4 deposit, as a quick means of comparison. In orange are the characteristics that require more analysis or data. Excavations at Lower Dover have revealed the presence of other peri-abandonment deposits as described in the previous chapter (Chapter 4). Recall that, the peri-abandonment deposit on the south side of CT4 stretched across the entire E-W extent of the courtyard. Material remains present in this deposit included broken ceramics, partial and complete chert bifaces, partial figurines, ocarinas, flutes, jade beads, polished crystal quartz, and faunal remains—a large portion of which was worked bone. If the data from the southern CT4 deposit is added to the archaeological

correlate comparison in Figure 5.2., the color representations of what was present/not present would not change at all.

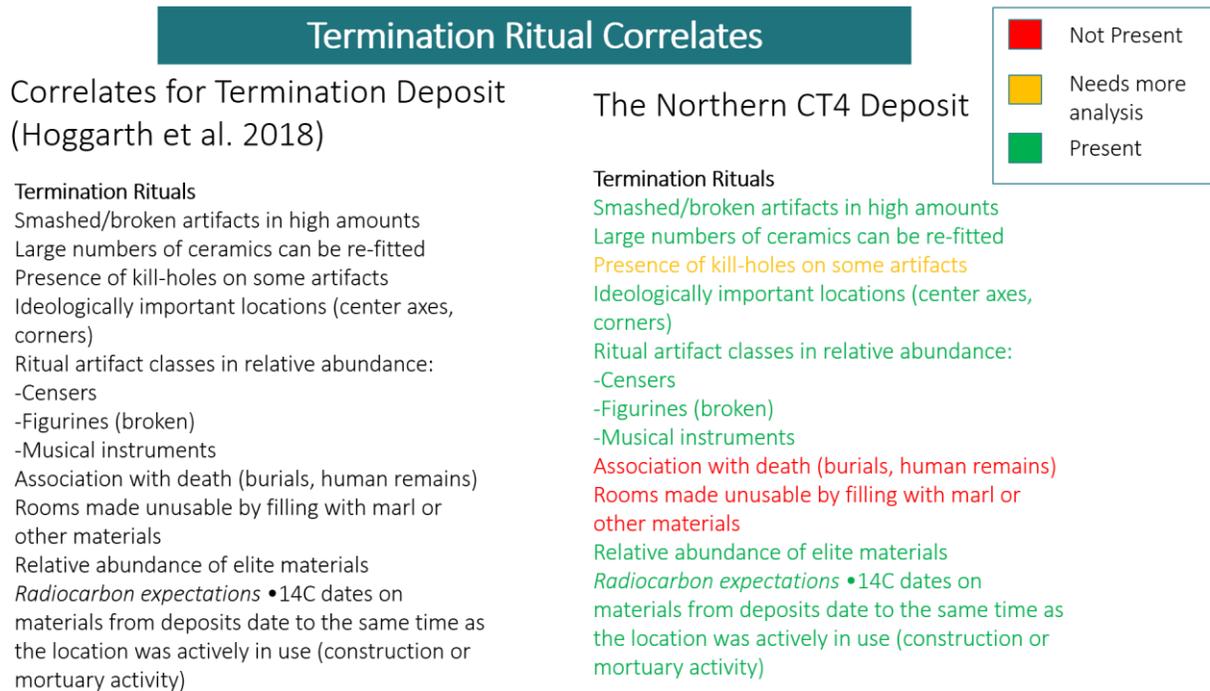


Figure 5.2. Comparison of expected archaeological correlates for a termination ritual to the northern CT4 deposit.

The other Lower Dover peri-abandonment deposit was discovered in Courtyard 2, at the summit of the highest pyramid in the site core. The deposit was located against the northern wall of a masonry palace building. In the northeast corner where the deposit was most heavily concentrated was the burial of an adult male, likely of elite status as evidenced by his filed incisors. Material remains found in the northern CT4 deposit included predominately broken ceramics, along with chert points, marine shell, quartz, modified cobblestone, mano/ metate fragments and obsidian blades. If the data

from the peri-abandonment deposit discovered at the summit of the highest pyramid at the site is added to the archaeological correlate comparison in Figure 5.2., the color representations of what was present/not present would change because of the presence of a burial.

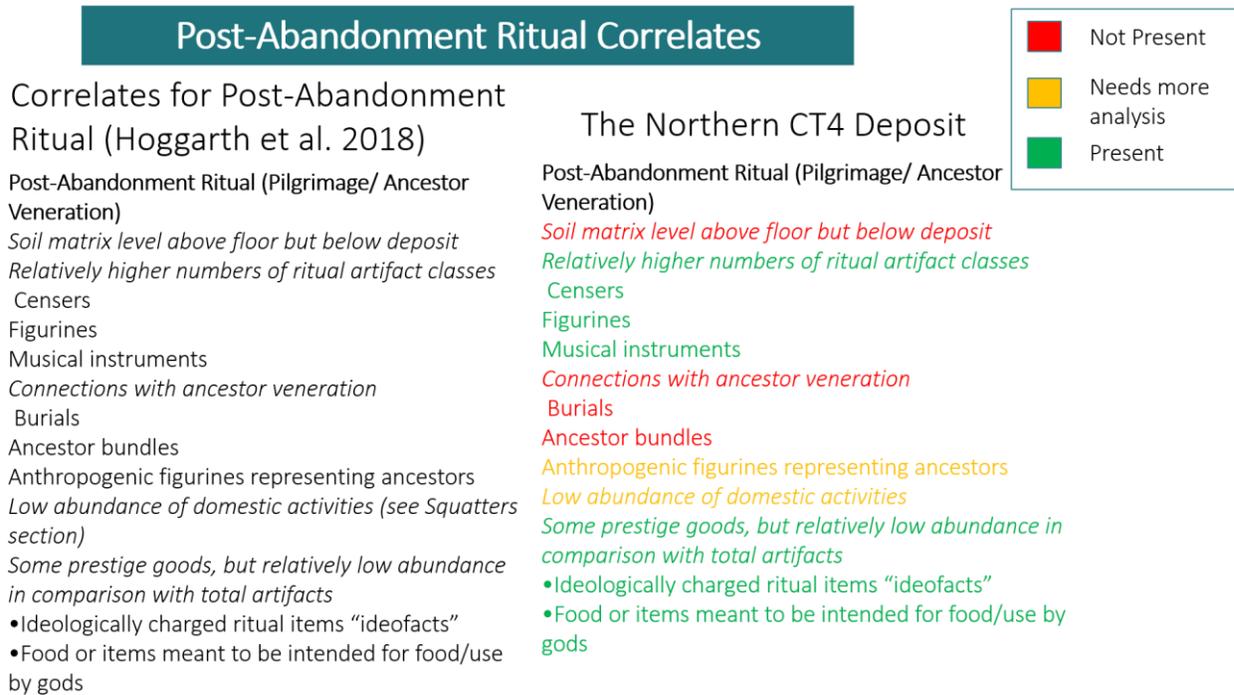


Figure 5.3. Comparison of expected archaeological correlates for a post-abandonment ritual to the northern CT4 deposit.

POST ABANDONMENT RITUALS

Now that the evidence has established that the northern CT4 deposit is overwhelmingly ritual or ceremonial in nature, the only two interpretations left are post-abandonment visitation deposit, or termination deposit. According to the Hoggarth et al. 2018 list of archaeological correlates for peri-abandonment deposits (Table 5.2.) one of

the main differences between post-abandonment rituals and termination rituals in the archaeological record will be in a layer of soil between the floor and the deposit event. Post-abandonment visitation ceremonies also typical contain burials, ancestor bundles and food meant for the ancestors and/or Gods as offerings.

Figure 5.4. (below) is the same exact layout as Figure 5.2. earlier in this chapter, except that Figure 5.4. reflects the archaeological correlates for a post-abandonment ritual. Rituals involving pilgrimage, petitioning deities help during times of stress, as well as general visitation for ancestor veneration purposes are all lumped into this category. The inclusion of data from the southern CT4 deposit would not change the comparison for post-abandonment rituals, just as was the case with termination rituals. The evidence of a burial from the CT2 peri-abandonment deposit would make a post-abandonment interpretation even stronger according to the defined correlates—just as was the case with the termination ritual comparison above.

In response to part A of the second research question then—whether Lower Dover present evidence for post-abandonment use through peri-abandonment deposits—there is some evidence to suggest the northern CT4 deposit may be a post-abandonment visitation ritual including the ritually charged items in the artifact assemblage, and the presence of faunal remains. Both the ritually charged items and the specific classes of faunal remains are problematic bits of evidence, however. There were no burials nor any ancestor bundles present in the artifact assemblage for the northern or southern CT4 deposits, and the faunal remains were so poorly preserved that there is no way to tell whether the faunal remains were butchered for consumption or intended as offerings. The remaining line of evidence for post-abandonment

visitation then—ritually charged items—is problematic because it is also an archaeological correlate used to identify termination deposits.



Figure 5.4. A Maya ritual in Courtyard A of the palace complex at Cahal Pech, Belize. (Photograph courtesy of Dr. Jaime J. Awe).

THE TEMPORAL ELEMENT OF PERI-ABANDONMENT DEPOSITS

Part B of the 2nd research question asked when the event of the peri-abandonment deposit I excavated occurred. In response to that question: the event that formed the northern CT4 deposit had to have occurred before, or at the end of the use of the courtyard since the collapse of the abutting structure lay on top of the deposit,

and the daub from the superstructure collapse embedded in the deposit itself. As mentioned before, the added evidence of pot sherds being directly on floor suggests that the deposit event occurred before the courtyard had begun to deteriorate.

There is a no distinct difference in time between the CT4 deposit, and the Baking Pot, Xunantunich or Cahal Pech deposits based on the available evidence. The peri-abandonment deposits present at the four sites overwhelmingly dated to the Late and Terminal Classic period though some Early Classic sherds are present. These sherds likely reflect heritage items, repurposed fill material, or form fluidity between the time periods rather than that some deposits were placed during the Early Classic.

It is important to remember that both the Late Classic, and the Terminal Classic periods are wide stretches of time culminating in approximately 400 years of human experience. Time periods are determined by ceramic styles as defined by archaeologists, and new carbon data from archaeological investigations. Researchers are therefore limited in their temporal precision. It is possible that peri-abandonment deposits may have been placed all within one century, or even in a matter of a few decades in that four-hundred-year stretch. Peri-abandonment deposits that archaeologists believe to be contemporaneous, may actually reflect several years of ritual activity in courtyards and plazas. All to say, the exact timing and events of the Late Classic and Terminal Classic period are as widely debated as peri-abandonment deposits themselves.

REGIONAL COMPARISON

In response to the first part of the third research question—that sought to understand how artifact assemblages from peri-abandonment deposits compared across sites—several of the peri-abandonment deposits at Lower Dover, Cahal Pech, Baking Pot and Xunantunich had evidence of concentrated burning which is likely indicative of ritual fires and incense-burning common in Maya rituals and ceremonies (Palka 2014). Baking Pot only had one such deposit containing concentrated burning out of five excavated in the site core (Davis 2018).

Table 5.2. Cultural Remains in Peri-abandonment Deposits across the Belize Valley

Cultural Remains	CHP	BKP	LWD	XUN	ATM	BCC
Ceramic Vessels	Y	Y	Y	Y	Y	Y
Ocarinas/Figurines	Y	Y	Y	Y	Y	Y
Flutes	Y		Y	Y		
Drums	Y	Y	Y	Y	Y	Y
Censers	Y	Y	Y	Y		Y
Jade bead/pendants	Y	Y	Y	Y	Y	Y
Spindle whorls	Y	Y	Y	Y		Y
Needles/Awls	Y	Y	Y	Y		Y
Obsidian blades	Y	Y	Y	Y	Y	Y
Chert oval bifaces	Y	Y	Y	Y	Y	Y
Stemmed/Un-stemmed Bifaces	Y	Y	Y	Y	Y	Y
Chert flakes/nodules	Y	Y	Y	Y	Y	Y
Mano/Metate	Y	Y	Y	Y	Y	Y
Marine shell	Y	Y	Y	Y	Y	Y
Freshwater shell	Y	Y	Y	Y	Y	Y
Human remains	Y	Y	Y	Y	Y	Y
Animal remains	Y	Y	Y	Y	Y	Y
Charcoal/evidence of burning	Y	Y	Y	Y	Y	Y
Crystal Quartz	Y		Y	Y	?	?
Other	pyrite and slate	pyrite	Speleothem and slate	slate	pyrite and slate	net bags, pine needles

(Table data courtesy of Dr. Jaime Awe). Y = Present. Gray boxes= Not Present. ? = unknown
 *All sites with italicized abbreviations in Table 5.2. represent cave sites in the Belize Valley.

As shown in the reiterated Table 5.2. from Chapter 1, all of the peri-abandonment deposits documented using BVAR's new microstratigraphic method also contained ritual artifacts such as slate, figurines, musical instruments, stingray spines, and crystal quartz. Intrusive or secondary burials are also common to peri-abandonment deposits at all four sites, though human remains are not always present such as in the case of both CT4 peri-abandonment deposits at Lower Dover. To reiterate once more from the previous chapter, researchers working at Cahal Pech (Awe et al. In-Press-b), Baking Pot (Davis 2018) and Xunantunich (Aimee Alvarado, personal communication 2019) interpreted peri-abandonment deposits primarily as ancestor veneration or pilgrimage deposits.

While there were refittable vessels present at all Baking Pot deposits, and those at Lower Dover and Cahal Pech, none were even close to 100% refittable despite dedicated efforts to this end (Aimers et al. 2019). This pattern indicates at least that de facto refuse is not evidenced by any of the peri-abandonment deposits in the Belize River Valley. In their article that associates specific faunal correlates to three different types of peri-abandonment deposits (midden, feasting, and ritual), Burke et al. (In-Press) also conclude that a large percentage of peri-abandonment deposits at Cahal Pech and Xunantunich were associated with ritual activity.

When compared to other peri-abandonment deposits found at the sites of Baking Pot and Cahal Pech, the northern CT4 deposit was small and contained relatively few cultural remains. Furthermore, the northern CT4 deposit only had two special finds, represented by a very rough unfinished biface and a figurine fragment. The relatively few special finds are unusual for peri-abandonment deposits because the deposits tend

to be located in palace complexes where one would expect to find elite goods in abundance, although, perhaps this simply reflects the diversity amongst particular types of peri-abandonment deposits.

THE CULTURAL SIGNIFICANCE OF PERI-ABANDONMENT DEPOSITS

The second research question of this thesis research addresses the cultural significance of peri-abandonment deposits at Lower Dover. After a thorough review of the material correlates associated with different types of peri-abandonment deposits, I believe Courtyard 4 at Lower Dover was commemorated at some point between 575-855 AD in the Late Classic period, and its structures ritually terminated as evidenced by the northern CT4 deposit I excavated in 2018, and the southern CT4 deposit excavated in 2013. I concluded that the northern CT4 deposit was most likely a termination deposit rather than a post-abandonment because we found no sediment between the floor and deposit feature, because there were fewer agreeing correlates, and because the southern CT4 deposit also exhibited signs primarily of a termination ritual. If the burial data from the peri-abandonment deposit found on top of Courtyard 2 is included, then the archaeological correlates align even more thoroughly with termination rituals.

As my theoretical approaches concerning symbolism and ritual also pointed to, nearly everything in the Maya conception of the universe is animate, and structures are often animated through consecration ceremonies. Termination deposits, in contrast, reflect a well-established pattern of behavior in the archaeological record, and in contemporary Maya groups wherein structures are ritually terminated after their use-life.

This also makes sense in the context of Lower Dover where there is very limited Post-classic activity documented at the site thus far.

In response to the third research question concerning the cultural significance of peri-abandonment deposits on a regional scale then, the specific cultural significance of individual peri-abandonment deposits is varied and still being investigated, but at least in the Belize Valley, peri-abandonment deposits are overwhelmingly associated with ceremonial activity. It may be difficult for archaeologists to say with absolute certainty beyond that. What is important in understanding peri-abandonment practices is the notion of social memory borne out of resilience theory. Maya ceremonial centers are places where powerful ancestors live (their remains are literally buried there). This makes Maya ceremonial centers powerful places that are imprinted on the sacred landscape. The concept of social memory is evidenced by peri-abandonment deposits, regardless of their specific ritual type, because termination deposits reflect commemorative practice of a place or structure, and post-abandonment rituals reflect that Maya ceremonial centers are places known on the sacred landscape.

Consider the simple analogy of a birthday party. Everyone knows the basic elements: you need a cake-like food, maybe some candles, and people. Birthday parties obviously can, and do take many variations depending on the person; they can be grand or simple, but the point of the ritual or ceremony is conceptually the same—to commemorate a coming of age. If we extend this analogy to peri-abandonment deposits, these features make a little more sense. All the common elements of a Maya ceremony are there, but they vary in size, specific composition, and placement.

Recall that peri-abandonment deposits are most abundant during the political decline and droughts that plagued the Late Classic period across the Maya Lowlands. At the very least, then, the cultural significance of the northern CT4 peri-abandonment deposit is that it represents one of the final activities in the Lower Dover palatial complex. The intensification of peri-abandonment deposits during the Late and Terminal Classic periods speaks to a profound social change.

As such, the resilience theory framework of adaptive cycles becomes all the more relevant. If we think of the Maya civilization, or their culture, as an adaptive system then the end of the Late Classic is the last bit of the stability period, before it spills over into the transformation and reorganization phases. Individual Maya political centers can be understood as smaller adaptive systems working in interplay, and where the adaptive systems of those individual centers (like Lower Dover) were too rigid and failed, archaeologists find the presence of peri-abandonment deposits in at least one form. In other words, as predicted in the theoretical approaches chapter of this thesis, resilience theory shows that peri-abandonment deposits are the results of a rigidity trap that led to the collapse of adaptive systems (ceremonial centers) across the Maya lowlands. Resilience theory also predicted that social memory would play a huge part in how adaptive systems deal with environmental challenges, but also how those systems respond to political and social factors. Peri-abandonment deposits may therefore be understood as strategy employed by Maya people to commemorate sacred places being abandoned on the landscape; Or, in the case of veneration rituals, as performances that call upon social memory, and at the same time re-install it. Peri-abandonment deposits, in all their types and varieties, are a testament to the profound

cultural transformation that altered Maya political organization forever-after the Late Classic period.

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