The Belize Valley Archaeological Reconnaissance Project

A Report of the 2018 Field Season



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Editors' Note

The 2018 summer field season of the Belize Valley Archaeological Reconnaissance (BVAR) Project marks the 31st year of regional field investigations in the upper Belize River Valley. Excavations and settlement survey were conducted at Cahal Pech, Baking Pot, Lower Dover, and Xunantunich to understand the development and decline of complex societies in the upper Belize River Valley from a broad, regional perspective. BVAR excavations at Cahal Pech have revealed that this site is the location of one of the earliest settled Maya communities ~1200 BC, and was continuously occupied until ~850 AD. The 2018 investigations at the site focused on excavations not only within the monumental epicenter, but also on survey in the hinterland settlements. Ebert (Chapter 1) continued excavations in Plaza B, which began in 2017, to expose the largest and most elaborate Middle Preclassic (700-400 BC) building in the plaza to date. The results of the 2018 excavations indicate that the building was composed of a multi-tiered platform measuring approximately 16x20 m, and may have served as the western structure of an eastern triadic group. Excavations of this building have allowed us to develop a more precise chronology for the development of monumentality at Cahal Pech.

Excavation by AFAR (Chapter 2) and Douglas and Brown (Chapter 3) also focused on monumental architecture, but structures which date much later to the Late and Terminal Classic periods. Work by AFAR cleared the terminal architecture of Cahal Pech's Western Ballcourt, documenting the shape of the associated buildings. Excavations were followed by conservation of the buildings. Douglas and Brown (Chapter 3) discuss the results of investigations in Plaza H at Cahal Pech, summarizing the results of excavations from 2011-2018 that documented previously unknown architectural features. They also present results of recent geochemical analyses of Mount Maloney Black ceramics from Cahal Pech and the nearby center of Xunantunich, characteristic of the Terminal Classic period. Results suggest that the specimens from Cahal Pech were slipped with materials distinct from those present in the Xunantunich samples. This is important because Mount Maloney ceramics are a major component of a peri-abandonment deposit documented in Plaza H. Douglas and Brown argue that the ceramic type may have developed a new importance at Cahal Pech just before Plaza H was abandoned, or that these items were brought to the spot by local individuals as offerings shortly after abandonment.

The 2018 BVAR Project field season also saw renewed settlement research. Hemsley (Chapter 4) worked to fill in the gaps from previous survey efforts, aided in large part by LiDAR remote sensing data. A total of 62 new Late Classic settlement groups were documented in the alluvial plains north of the Cahal Pech epicenter, and in the karstic zone to the east and south.

Research at Baking Pot focused on understanding social and political changes occurring at the site throughout the Classic period. Davis and colleagues (Chapter 5) conducted excavations in Baking Pot's Group B to establish a chronology for construction. Excavations were placed in areas where peri-abandonment deposits, representing the final activities at the site after monumental construction ceased, had previously been documented. Excavations encountered three superimposed burials as well as a Late Classic (AD 700-850) cruciform cache. Other research at Baking Pot focused on laboratory analyses. Gillaspie (Chapter 6) created the first comprehensive database of ceramic figurines from the site, recovered between 2009 and 2016.

Research at Lower Dover in 2018 continued to focus on exploring the establishment and decline of the site's Late and Terminal Classic epicenter, and its relationship to the peripheral settlement. Romih (Chapter 7) concluded excavations of an extensive peri-abandonment deposit in Courtyard 4 (CT4), the southern-most courtyard of the Lower Dover palatial complex. Based on ceramic and other artifact analyses, she argues that the deposit may be a termination deposit, rather than the results of visitation, based on its spatial location directly on the terminal courtyard floor. Collins and colleagues (Chapter 8) discuss the results of excavations conducted in 2017 at Plaza G, a small *plazuela* group located in the monumental epicenter of Lower Dover. Excavation data suggest that Plaza G was an intermediate or middle elite residence that may have been occupied as early as the Preclassic period. In Chapter 9, Guerra discussed preliminary analyses of ceramics from excavations conducted in the Lower Dover site core between 2010 and 2017. Results indicated higher frequencies of Tiger Run (AD 600-700) and Spanish Lookout (AD 700-900) complex types, which confirm a Late Classic apogee for Lower Dover.

The 2018 settlement research at Lower Dover saw continued excavation of the Tutu Uitz Na neighborhood, directed by John Walden. Walden, Guerra and Qiu (Chapter 10) present an introduction to these excavations and overview the test pitting program directed by Guerra at smaller Late Classic (AD 600-900) settlement groups in the Tutu Uitz Na neighborhood and surrounding the Lower Dover civic-ceremonial epicenter. Excavation focused on Settlement Group 1, the Tutu Uitz Na minor center (Biggie et al., Chapter 13) and the high status commoner household of Settlement Group 42, Mamjuchtun (Shaw-Müller et al., Chapter 11). The 2018 investigations revealed a series of burials in the Eastern Triadic Shrine at Tutu Uitz Na (SG 1) and a large Early Classic component on SG 42. The test-pitting program revealed that the Tutu Uitz Na neighborhood grew dramatically in terms of population in the Late Classic period when Lower Dover emerged, as smaller household groups developed around older pre-existing households.

The 2018 field season at Xunantunich marked the final year of the Xunantunich Archaeology and Conservation Project (XACP). The goal of XACP was to document the rapid rise of this major polity through the excavation of monumental architecture and elite residential groups. Another goal was conservation work to continue to develop Xunantunich for tourism. One of the largest structures targeted for excavation and conservation at Xunantunich was Structure A-7 located in Plaza A-1. Excavations by Watkins, Tilden, and Awe (Chapter 13) of the building documented at least 4 construction phases. Radiocarbon also revealed a surprise when the second phase of construction was dated to the Late Preclassic period. These data suggest that, contrary to previous arguments, monumental construction activity occurred in the Xunantunich site core during the Preclassic. Other XACP investigations of monumental architecture included new excavations in Ballcourts 1 and 2 by Feely (Chapter 14). Excavations focused on placing test pits in the alleyways of both ballcourts prior to conservation. While excavations in Ballcourt 1 exposed bedrock at a very shallow level, suggesting a Late Classic construction, a possible Early Classic structure was documented below the alleyway of Ballcourt 2. Additionally, excavations in Ballcourt 2 uncovered four separate caches, two in each end of the playing alley, with lip-to-lip vessels containing a total 86 chert and obsidian eccentrics.

Smaller-scale Terminal Classic architecture was investigated by Austin (Chapter 15) in Plaza A-1. Specifically, he looked at the construction of a series of platforms abutting Structure A1 and the Castillo. Relative ceramic dating indicates that a series of long, low platforms were

built up against some of the largest architecture at Xunantunich perhaps in order to revitalize the buildings in the face of a collapsing polity.

Messinger and colleagues (Chapter 16) also report on XACP research at Xunantunich's Group B, and elite residential group. The 2018 Group B excavations continued to focus on documenting the complete form and function of the group, as well as associated peri-abandonment deposits. This research is an extension of the 2017 field season that documented several large deposits in association with Structures B1, B4, and Courtyard 1. Ceramic analyses suggest that the deposits fit squarely in the Terminal Classic period. Understanding this terminal layout and construction chronology at Group B is a primary avenue for defining the events leading up to the rapid construction and subsequent abandonment of Xunantunich in the Late to Terminal Classic (AD 750-900).

The concluding chapters of this year's volume present comprehensive lab analyses. In Chapter 17, DeLance reports ongoing efforts to catalog the BVAR Project special finds collections. A comprehensive cataloging systems has been applied to organize at least 800 artifacts so far, including figurines, lithic tools, jade, groundstone, and decorated ceramics. The goal is to make this database available for future comparative research. Another comprehensive lab study was conducted by Tiesler and colleagues (Chapter 18) analyzing three burials from the site of Baking Pot to reconstruct a biological profile of these individuals. This report is presented in Spanish, and we hope it will receive wide readership.

The 2018 BVAR Project field season was completed in no small part with the help of many individuals and local establishments. We would like to thank Hode's Place Restaurant, Mana Kai Cabins, Lower Dover Field Station, Big Boy's Garage, and the Shell Gas station, among others, in San Ignacio. The owners and employees of these businesses were essential in aranging housing, transport, and providing comfort and success in the daily lives of the BVAR Project staff and students. We would also like to acknowledge the 2018 field school students, staff, and local field assistants, who also were instrumental to the success of our research. We graciously thank Doug Tilden for supporting the Xunantunich excavation and consolidation work, which was funded by the Tilden Family Foundation (San Francisco, CA). Other funding sources are noted in the acknowledgments for individual chapters. Last but not least, we offer our thanks to Dr. John Morris and the Belize Institute of Archaeology (NICH) for permission to excavate all four sites and their continued support of BVAR Project research. We look forward to working with the IA, Dr. Morris, and Belizeans generally in our efforts to document and protect Belize's cultural heritage.

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Volume 24

EARLY MONUMENTALITY IN THE BELIZE RIVER VALLEY: EXCAVATIONS OF A MIDDLE PRECLASSIC E-GROUP ASSEMBLAGE AT CAHAL PECH, BELIZE

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INTRODUCTION

The questions of when, why, and how hierarchical societies emerge and grow has been a topic of archaeological research for decades. One of the clearest indicators of the emergence of hierarchies in the archaeological record is the appearance of monumental architecture located within civic-ceremonial centers. Monumental constructions first appear during the Middle Preclassic (1000/900-300 BC) across the southern Maya lowlands, implying significant increase in the mobilization of resources and labor by some individuals within local communities (Doyle 2012, 2017). In most instances, intense planning was involved in the construction of these buildings typically located within large plazas that served as gathering places for communities.

While the earliest monumental buildings in the lowlands were low platforms constructed in both round and rectangular shapes (Aimers et al. 2000; Awe et al. 1990; Inomata et al. 2013), constructions erected after 700 BC include more elaborately built temples and pyramids (Doyle 2012). Through the Middle Preclassic, architecture became increasingly massive, concurrent with the appearance of shared lowland traditions of architecture, the foremost of which were E-Group assemblages. Intensive research has focused on examining E-Groups in the central Maya lowlands of the Petén, Guatemala. Numerous studies have documented similar features and orientations between E-Group assemblages (see Aimers and Rice 2006; Doyle 2012), with the archetype found at the site of Uaxactun aligned for viewing the sunrise during the solstices and equinoxes (Blom 1924:60; Ricketson 1928). Typical E-Group configurations consist of a series of buildings arranged around an open plaza (Figure 1). On the western side of the plaza sits a single, large platform or temple structure. Western buildings were square-based, often with staircases at each face creating a radial shape. On the eastern size of the plaza sits a long, narrow platform running north-to-south, with three smaller superstructures usually constructed on top. The frequency and broad distribution of E-Groups across the southern Maya lowlands suggests that the building plan played an essential role in community life during the Middle Preclassic (Doyle 2017).

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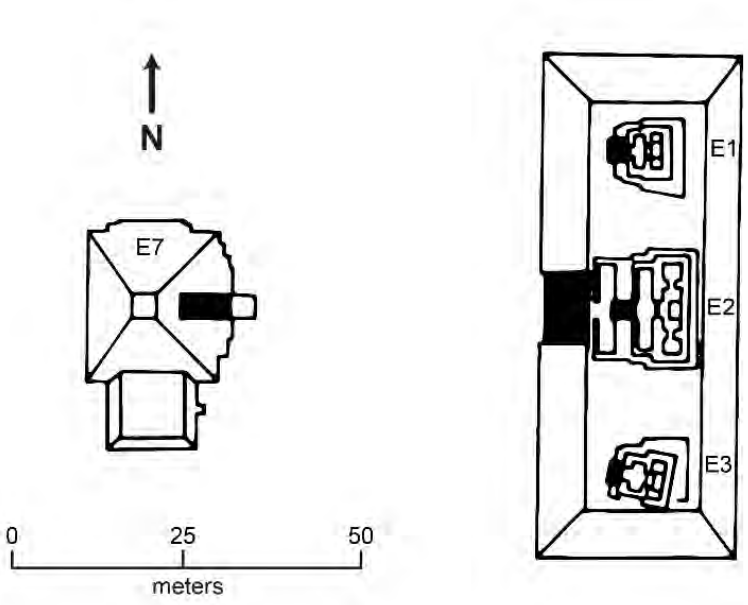


Figure 1: Map of E-Group at Uaxactun (after Rice 2004: Fig 4.3).

More recently, archaeologists working outside of the Petén in the eastern Maya lowlands, in what is today western Belize, have begun to consider the role of E-Groups in Middle Preclassic communities. In many cases there has been less work on assemblages from western Belize because they are often deeply buried beneath superimposing Classic period architecture. Therefore, much of the recent research on E-Groups in the eastern lowlands has been based on analysis of published site plans that often feature Classic buildings. Analyses suggest that while similar to the Petén configurations, Belize Valley E-Groups are distinct (Awe et al. 2017; Micheletti 2016). They are composed of free-standing structures on the eastern side of the plaza, with a tall central structure flaked by shorter northern and southern buildings (Figure 2). Additionally, while many Belize Valley E-Groups often possess a western radial platform, this is not always the case (Awe et al. 2017). The function of these eastern Maya lowland complexes are not astronomical. Instead evidence from excavations suggest that they more likely functioned as forums for public events taking place in open plazas. At each Belize Valley site with a possible E-Group, it also appears that buildings were constructed and modified independently, and that construction histories across the Belize Valley are not contemporaneous.

Beginning in the early Late Preclassic (~300-1 BC), early Belize Valley leaders increased the scale of building in and around E-Groups assemblages. Building expansion was likely part of a strategy used to establish a centralized political authority under an elite dynastic lineage. In many cases, western radial platforms associated with E-Groups were covered over, and buildings located on the eastern side of large plazas were converted into triadic shrines that housed royal burials. Other changes in monumental architecture also appear at this time, including development of elite private space in palaces. These shifts in architecture mark the hallmark for the transition "of Preclassic Maya society into its Classic Period socio-political and dynastic patterns" (Chase and Chase 1995:100).

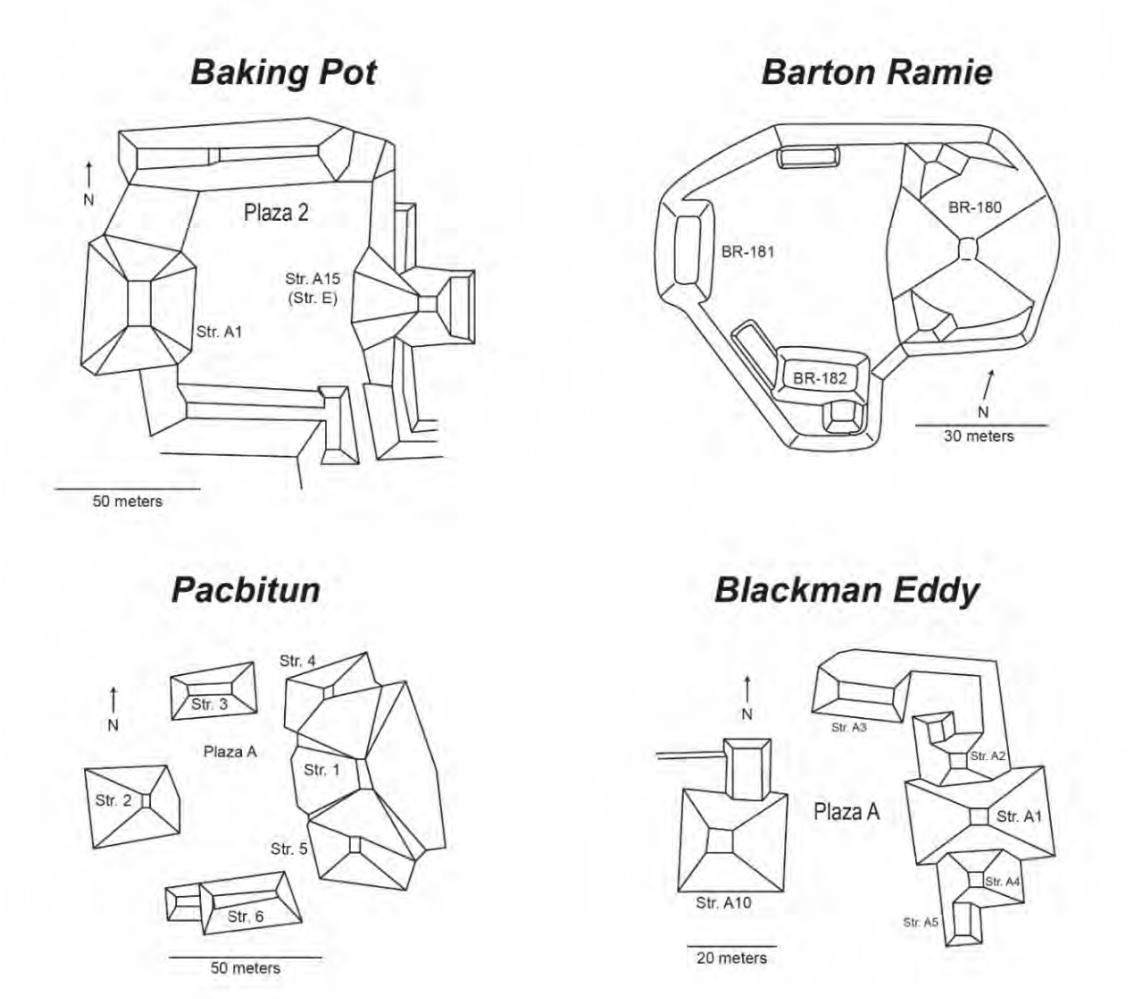


Figure 2: Examples of E-Groups from the Belize River Valley sites of Baking Pot (after Hoggarth 2012), Barton Ramie (after Willey et al. 1965), Pacbitun (after Micheletti 2016), and Blackman Eddy (after Garber et al. 2004).

The report presents the results of the 2017 and 2018 excavations at the Belize Valley site of Cahal Pech that documented Middle Preclassic (~900-300 BC) monumental architecture, including the western building of an E-Group assemblage. Cahal Pech was a medium sized Maya center located in the Belize Valley of west-central Belize. The monumental epicenter sits on top of a natural hill above alluvial flood plains ~2 km south of the confluence of the Macal and Mopan Rivers (Figure 3). Excavations by the Belize Valley Archaeological Reconnaissance (BVAR) Project have been ongoing at Cahal Pech since 1988, with a goal on understanding the foundation and growth of the community during the Preclassic period. Ceramic and radiocarbon data indicate that Cahal Pech was first settled during the end of the Early Preclassic, between approximately 1200-1000 BC, as a small farming village (Awe 1992; Ebert 2017; Ebert et al. 2017). The Early Preclassic period is associated with Cunil complex ceramics, the majority of which are unslipped utilitarian as well as decorated serving vessels (Sullivan and Awe 2013; Sullivan et al. 2018). The architecture of the Early Preclassic includes small agrarian residences in the site's epicenter (Awe 1992; Peniche May 2016). No formal masonry architecture has been dated to this time.

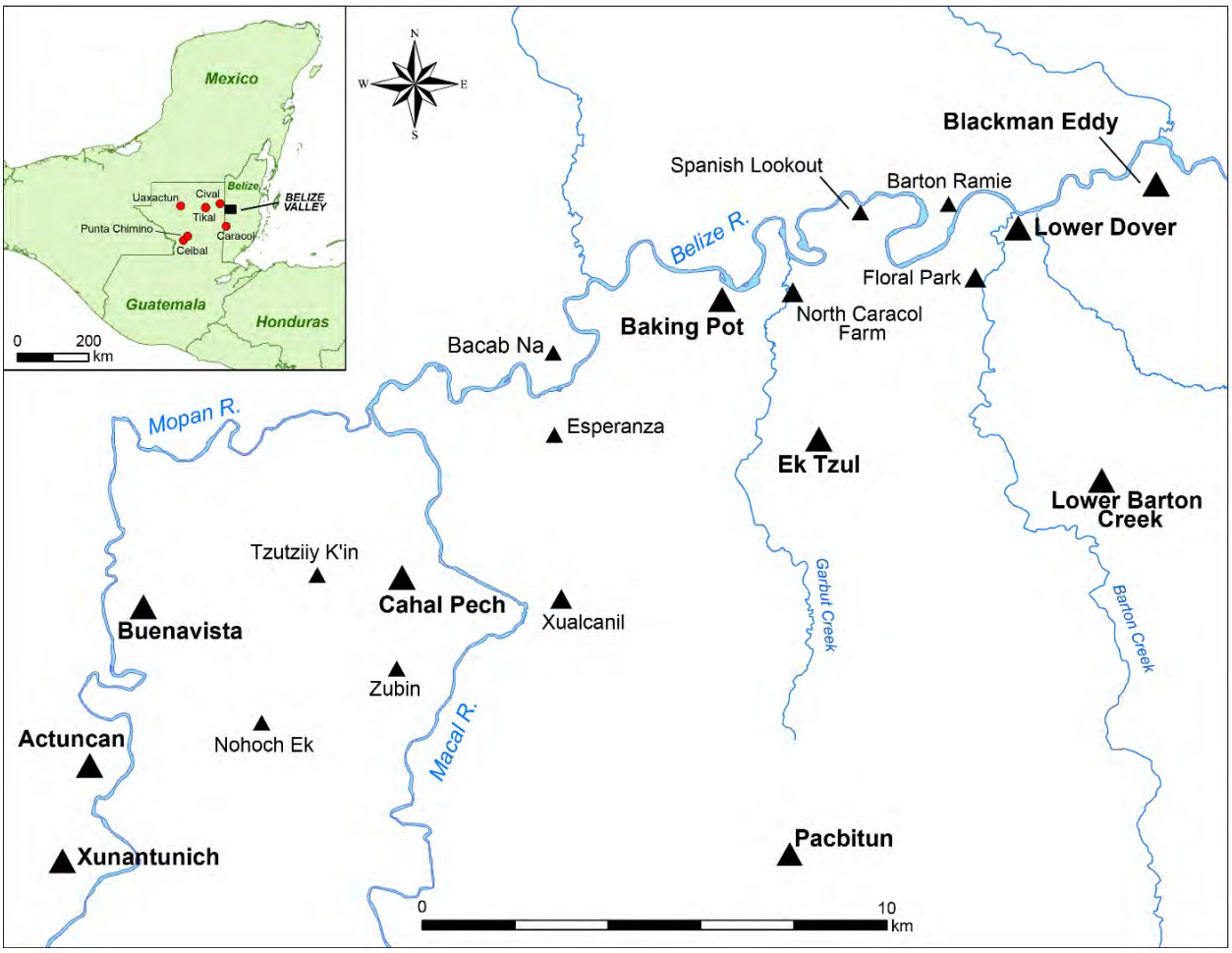


Figure 3: Map of Belize Valley and Maya lowlands (inset) with major sites mentioned in text (map by C. Ebert, 2018).

Plaza B at Cahal Pech, the largest open plaza at the site, has been the focus of intensive archaeological research for over 31 years (see Awe 1992; Horn 2015; Peniche May 2016). Previous excavations, however, have only provided limited exposures of larger Middle and Late Preclassic monumental structures within the site's epicenter (Figure 4). These include low platforms constructed out of one or two courses of cut limestone blocks (see Horn 2015; Peniche May 2016), sometimes with burials and caches associated. In the Late Preclassic period (350 BC-AD 300), elaborate burials in tombs and plazas, and monumental temple architecture began to dominate the Cahal Pech site core. Previous excavations suggest that the site's Eastern Triadic Assemblage, located on the eastern side of Plaza B, expanded at this time (Figure 5; see Awe et al. 2017). The building is also associated with the most elaborate royal burials at the site, and subsequently became the focal point of the Cahal Pech epicenter during the Classic period. The construction of these buildings implies the centralized organization of labor beyond the level of a single household, and signals the appearance of extreme status differentiation within the community. These architectural changes also reflect increasing community integration and ideological changes associated with the development of a royal dynastic lineage at the site during the Late Preclassic.

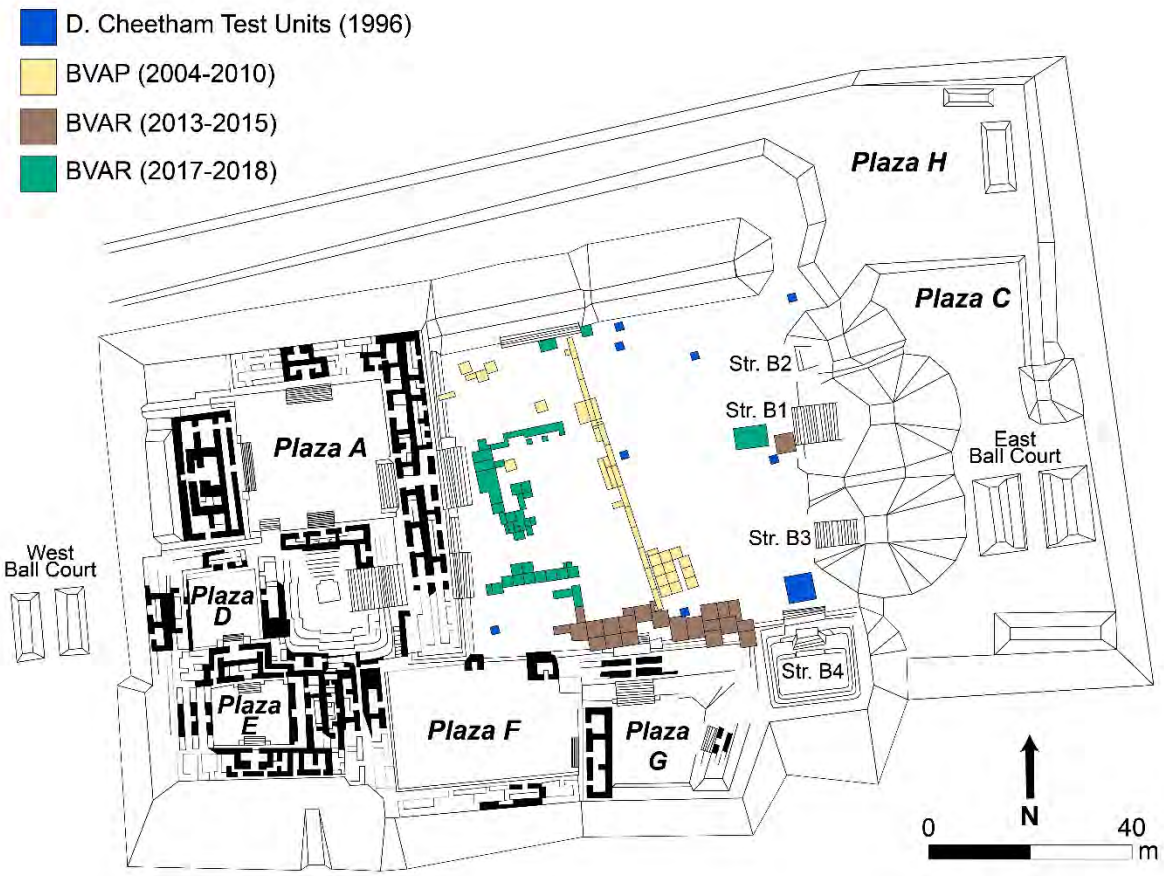


Figure 4: Cahal Pech site core showing locations of major Plaza B excavations from 1996 through 2018 (map by C. Ebert, 2018).

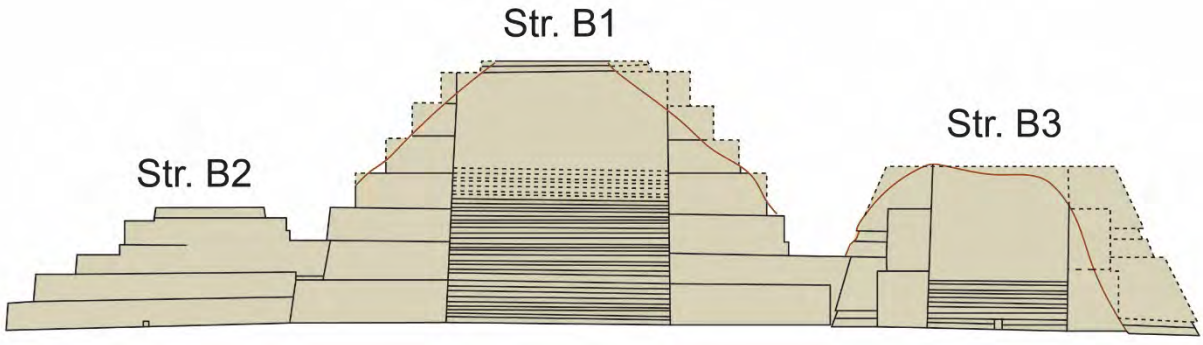


Figure 5: Cahal Pech Eastern Triadic Assemblage (after Awe et al. 2017: Fig. 2).

RESULTS OF THE 2017 AND 2018 PLAZA B EXCAVATIONS

Plaza B East Excavations

Previous BVAR Project excavations in Plaza B concentrated primarily on large exposures in the southern portion of the plaza. Beginning in 2017, and continuing through the 2018 field season, excavations concentrated on exposing east and west portions of Plaza B with the goal of documenting additional Preclassic architecture (Ebert 2018). Initially, a large exposure (4x6m) was placed on the eastern size of Plaza B. These excavations were oriented east-to-west, perpendicular to the centerline of the Structure B1 central stairway. Excavations recorded a total of 6 floors, which have also been documented elsewhere in Plaza B (see Peniche May 2016), though no formal masonry architecture was encountered. Excavations below Floor 6, however, encountered two caches aligned with the centerline of Structure B1. Both caches were also associated with a small cobble platform (see Ebert 2018), and were placed directly on top of bedrock in front of the small, informal platform.

Cache 2017-1 was located on the northwest side of the small cobble platform and contained 13 vessels placed lip-to-lip (all unslipped bowls). The number of vessels is likely symbolic, perhaps reflecting a layered view of the Maya cosmos that included a heaven with 13 levels (Schele and Freidel 1990: 67). Cache 2017-1 was located on the northwest side of the small cobble platform and contained 26 vessels placed lip-to-lip in two distinct layers. Many of the vessels were unslipped bowls, though two small Savana Orange (v. Savana) bowls were also present in the cache, placing it during the Middle Preclassic period. Other items associated with these deposits included chert microdrills (*n*=35) made from burin spalls modified into uni-tipped or bi-tipped tools and high frequencies of marine shell beads and debitage from bead production. Intentional placement of Middle and Late Preclassic dedicatory caches aligned with the centerline of eastern architectural groups has been documented at several other lowland Maya sites (e.g., Cival, Estrada-Belli 2011: 260; Ceibal, Inomata et al. 2017; Triadan et al. 2017).

Plaza B West Excavations

During the 2017 field season additional excavation units were placed on the west side of Plaza B along the centerline of Structure A2, across the plaza from Structure B1, with the goal of exposing additional centerline deposits and associated architectural features. The 2017 and 2018 excavations on the west side of Plaza B exposed the largest and most elaborate Middle Preclassic building in the plaza to date (Structure B8). The initial 2017 excavations encountered the central stairway of the building, as well as a flanking stairside-outset located to the south (Figure 6; Ebert 2018). The centerline of the western stairway also roughly aligned with the two centerline caches documented in 2017, suggesting an association between Structure B8 and these deposits. A total of five constructions phases were recorded for the building (see Ebert 2018), though excavations in both years concentrated on exposing Structure B8/2nd, the second phase of construction, which consisted of the construction of a large masonry platform. Later construction activity was also exposed immediately below the humic layer of Plaza B. These contexts were less well-preserved, and were aligned with Classic period architecture present on the site's surface today.



Figure 6: Photograph of 2017 Plaza B-West showing exposed architecture of Plaza B West, viewed from the north (photograph by C. Ebert, 2017).

The goal of excavations in 2018 was to continue exposing Structure B8, in order to document the complete footprint of the building and determine the building's function. Initially, the 2018 excavations concentrated on revealing the entire western façade of the building, which was partially exposed in 2017. To accomplish this goal, a total of 11 units were placed to the south of the 2017 excavations, and two units were also placed just to the north (Figure 7 and Figure 8). Excavations exposed the entire extent of the western and northern faces of the building. The west face extended approximately 20 m north-to-south, with the central stairway outset approximately 2.5 m from the west face (Figure 9). While the southern extent of the western face was very poorly preserved, the northern face was intact, the north side of the western face was intact. This part of the building was composed of 3-5 courses of cut stone blocks and measured approximately 1.5 m tall. The northern façade of Structure B8 was also outset with two buttresses on the east and west sides, and measures approximately 12.5 m in length. We currently hypothesize that the building is relatively symmetrical with a central stairway on eastern face, and future excavations will test this assumption.

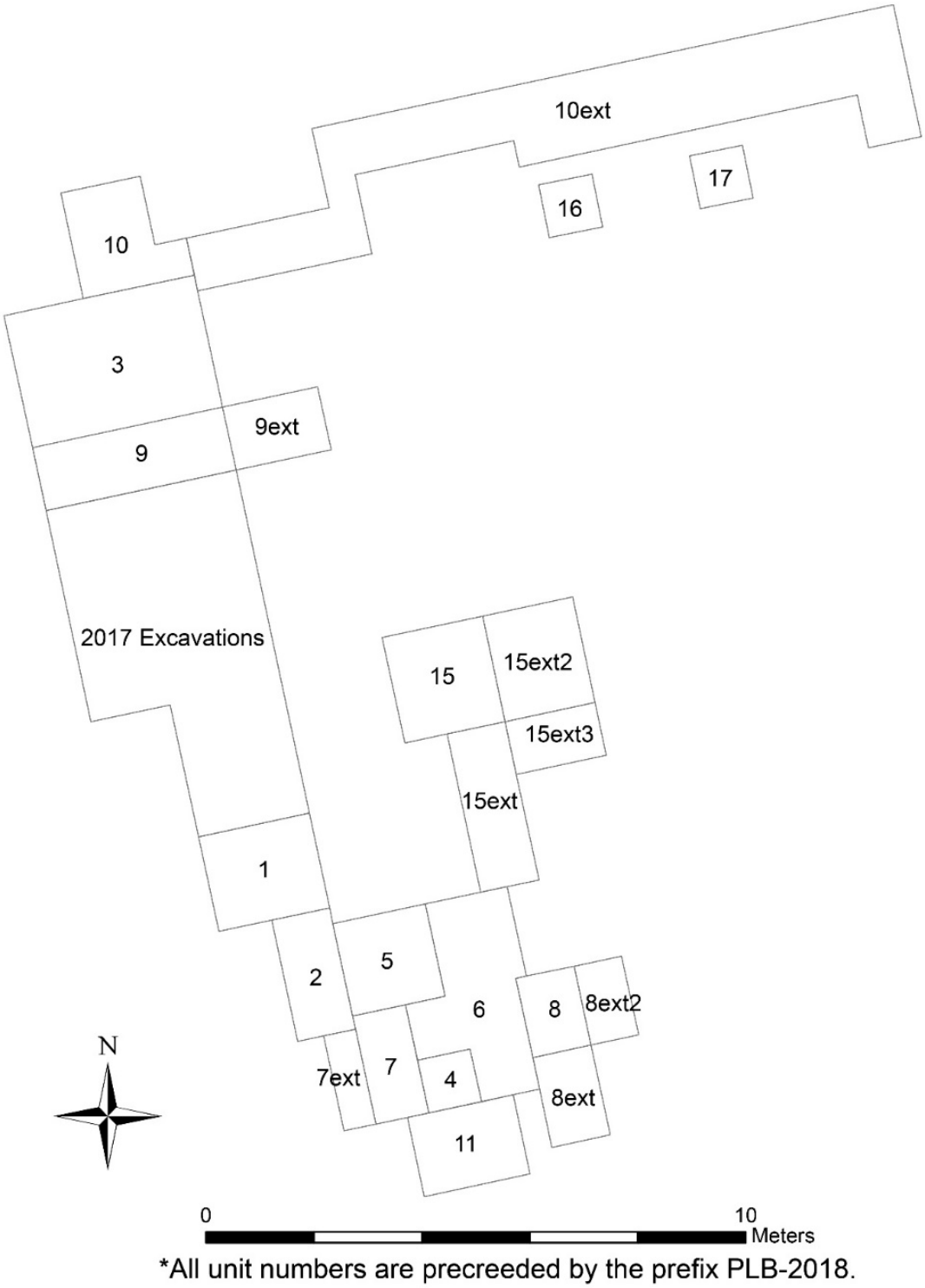


Figure 7: Plan map of 2017 and 2018 excavations at Structure B8 (drawing by D. Papavasiliou, 2018; digitization by C. Ebert, 2019).



Figure 8: Photograph of 2018 Plaza B-West showing exposed architecture of Plaza B West, viewed from the west (Photo by J. McGee, 2018).

Artifact associations have allowed us to preliminarily date the construction of Str. B8/2nd. High proportions of Mars Orange/Savana Orange sherds dating to the Middle Preclassic, with some Cunil sherds also recovered from the fill within the building itself, indicating initial construction sometime after 900/800 BC. Many of these ceramics are similar in form and paste composition to those present in the caches documented on the east side of Plaza B. Units PLB-2018-3 and PLB-2019-9 were also excavated below Structure B8/2nd. The strata below this building phase contained relatively dense concentrations of Cunil (Early Preclassic) ceramics, suggesting that the structure was placed later during the early Middle Preclassic. An additional 4 units also exposed portions of an earlier structure within Structure B8 that likely also dates to the early Middle Preclassic.

Other types of artifacts also point to an early Middle Preclassic construction date for Str. B8/2nd. A total of 25 figurine fragments, including heads and other appendages, were received from the 2018 Plaza B excavations (Figure 10; see also Appendix B). While a small number have pastes resembling Cunil ash tempered ceramics (Awe n.d), the majority are made from Middle Preclassic Jocote or Savana Orange pastes. Higher concentrations of figurine fragments from Middle Preclassic contexts has been documented throughout the Cahal Pech site core (Awe 1992; Awe n.d.; Peniche May et al. 2018; see also DeLance 2016), perhaps representing locations that played prominent roles in ceremonies or ritual activities. Anthropomorphic (and sometimes zoomorphic) imagery may represent visual and tangible evidence for social and political changes that may be related to the construction of monumental buildings like Structure B8.

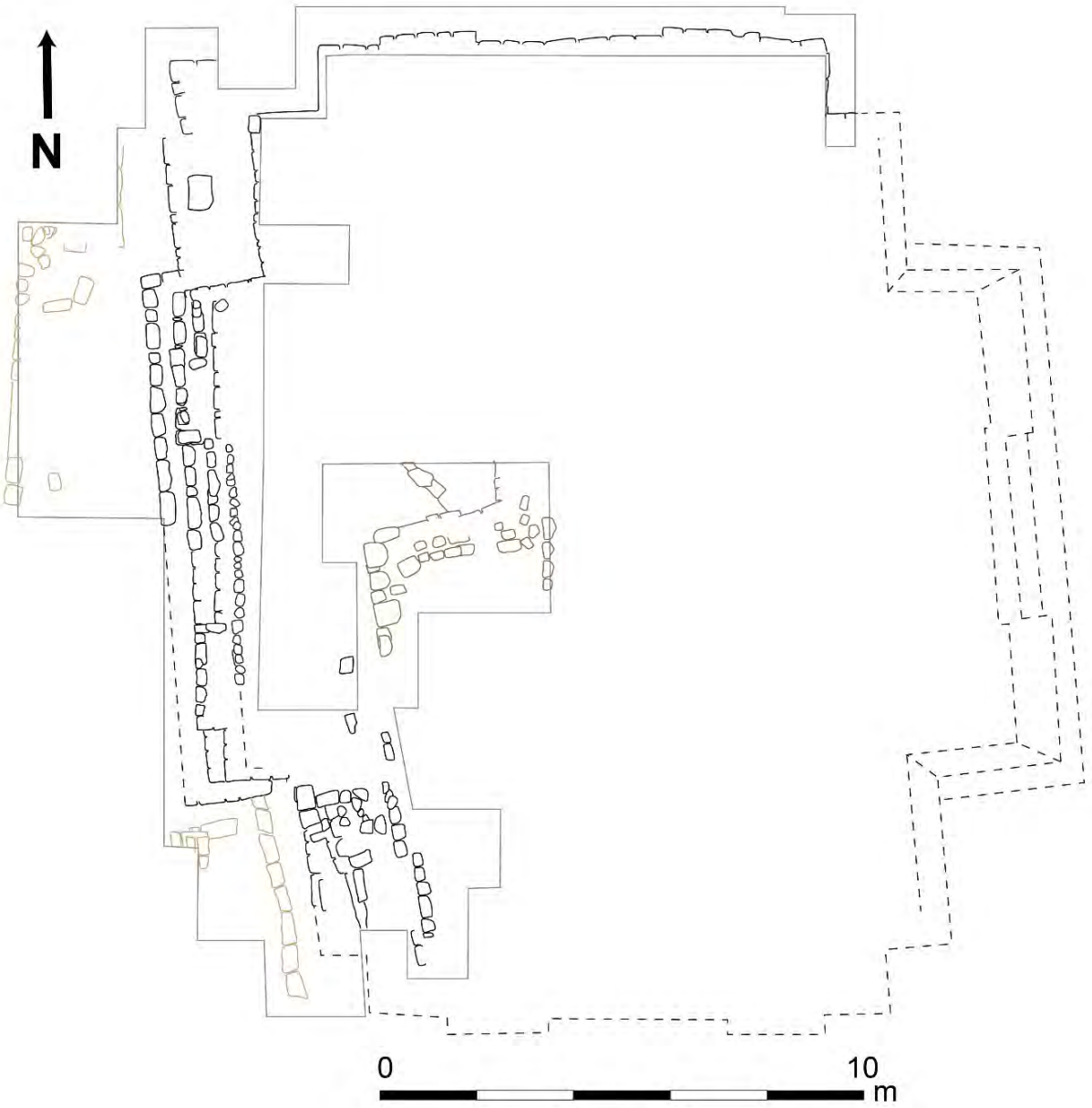


Figure 9: Plan map of Structure B8. Black lines indicate Structure B8/2nd. Dark drown lines in the center of the structure are associated with an earlier building. (Drawing by M. Alfaro, 2018; Digitization by C. Ebert, 2018).

Other artifacts associated with Structure B8 including high frequencies of chert microdrills (*n*=168; Figure 11). Most of these tools are made from burin spalls modified into uni-tipped or bi-tipped tools, many of which exhibit evidence for retouch (Hohmann 2002:133; Pencihe May 2016:267). Microdrills are common in Middle Preclassic contexts both within the Cahal Pech site core and high status peripheral settlement groups (e.g., Cas Pek and Tolok Groups). These tools have been identified as part of the toolkit used to produce shell crafts such as beads (Hohmann 2002; Powis 1996). Marine shell beads in different stages of production were also found in association with Structure B8, including rough shell fragments with drilled holes and finished

pendants (Figure 12; Chrissina Burke, personal communication 2019). Shell species include *Lobatus gigas* (Queen Conch), *Strombus alatus* (Florida fighting conch), both of which would have been imported from the Caribbean Sea. Shell beads were also crafted from freshwater species such as *Nephronaias* sp. (mussels; PLB-2018-SF-62). It is possible that the building was a location where individuals were engaged in craft production focusing on marine shell beads.



Figure 10: Examples of figurine fragments from 2018 Plaza B excavations.

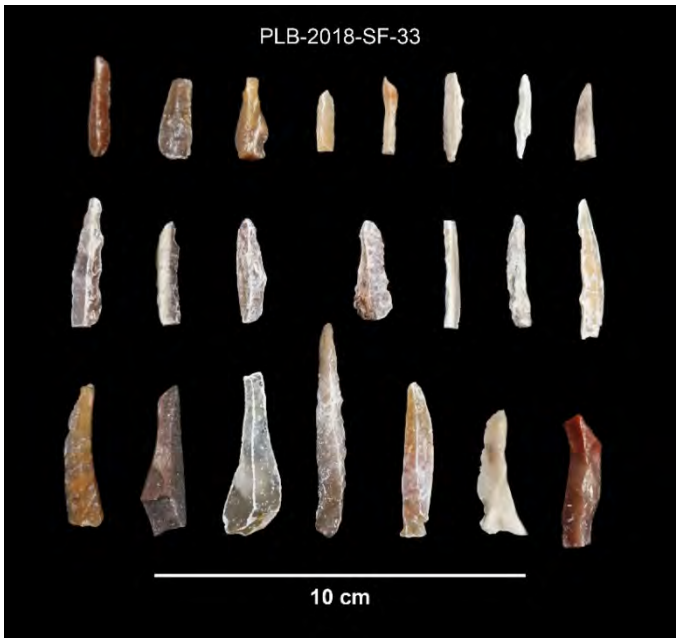


Figure 11: Examples of chert microdrills and bipolared artifacts from 2018 Plaza B excavations.

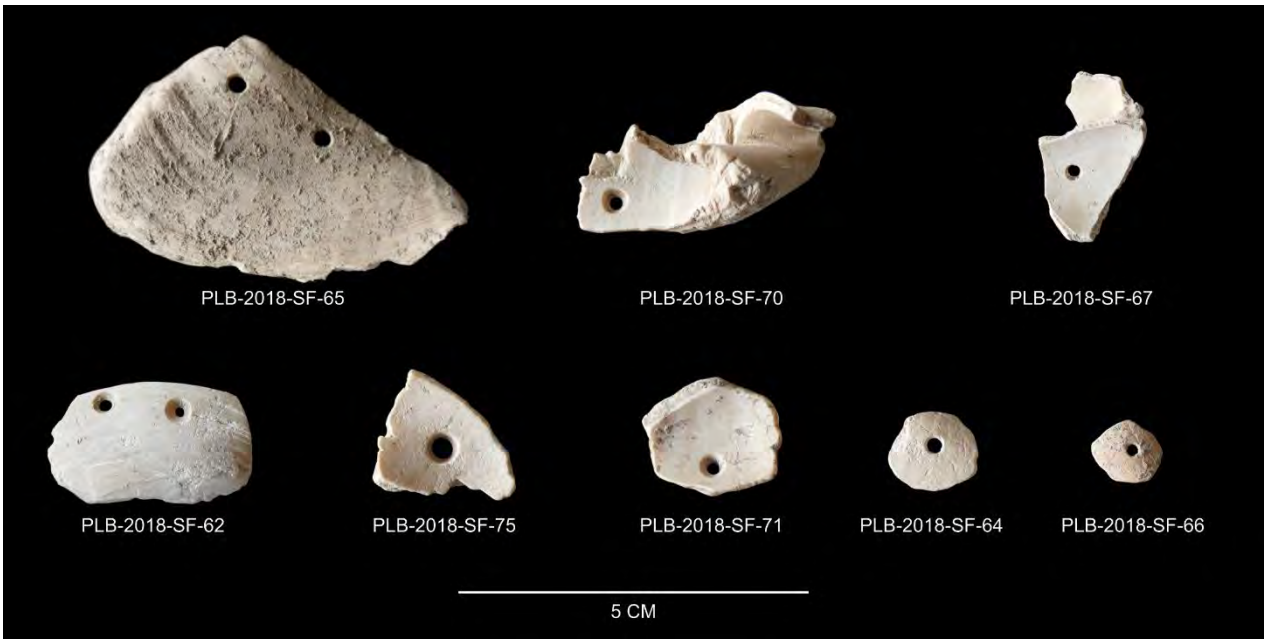


Figure 12: Finished and unfinished marine shell beads from 2018 Plaza B excavations (photographs by C. Burke, 2018).

DISCUSSION AND CONCLUSIONS

Before our 2017 excavations on the west side of Plaza B, little was known about the presence, let alone form or function, of any western building of the Cahal Pech E-Group. If such a structure was present, it was believed to have been completely covered by the subsequent construction of Plaza A (see Awe et al. 2017). Based on preliminary results from the 2017 and 2018 Plaza B excavations at Cahal Pech, we hypothesize that Structure B8 likely functioned as the western structure of a Middle Preclassic E-Group. Excavations also indicate that the building was continually modified and expanded throughout the Middle Preclassic.

The documentation of Structure B8 now allows us to develop a more precise chronology for the development of monumentality at Cahal Pech (Figure 13). Previous excavations and radiocarbon dating (n=30) of contexts spanning the Early through Late Preclassic suggest that monumentality appeared early during the occupational history of Cahal Pech. The earliest architecture at Cahal Pech, associated with the Cunil ceramic phase, consisted of a series of superimposed living surfaces composed of tamped earth floors supporting wattle-and-daub superstructures. Cunil domestic architecture has been documented in Plaza B (Healy et al. 2004; Horn 2015; Peniche May 2016) and also at Structure B4 on the south side of Plaza B (Awe 1992; Sullivan and Awe 2013). These domestic buildings have been radiocarbon dated to ~1200-950 cal BC (Ebert et al. 2017).

In the Middle Preclassic, the inhabitants of Cahal Pech invested in the construction of larger, more formal masonry architecture. Beginning as early as 900 cal BC, new styles of large public buildings replaced small Early Preclassic domestic structures (Awe, 1992; Ebert et al. 2017; Peniche May 2016). These include round, apsidal, and key-hole shaped structures that were

constructed out of cut limestone blocks and were likely used for public ceremonies (Aimers et al. 2000). The beginning around 700 cal BC, excavations document the construction of larger temple structures, when rectangular platforms in Plaza B replaced round structures. A series of low rectangular platforms documented in Plaza B (Plaza B/8th through Plaza B/12th) may also have served as higher-status residences (Peniche May 2016). The first architectural phase of Structure B1 (the central structure of the Eastern Triadic Assemblage) dates slightly later to around 600 cal BC (Awe et al. 2017), with subsequent construction of the northern and southern structures. Based on initial relative dating with ceramics, this is when we hypothesize that initial construction of Cahal Pech's E-Group first occurred. If Structure B8 functioned as the west building of the E-Group, its construction was likely concurrent with the construction of Structure B.

In addition to the reorganization of elite space at Cahal Pech, other important shifts also reflect developments in changing social and community organization from the Middle to Late Preclassic. While figurines are recovered in high frequencies from Middle Preclassic contexts at Cahal Pech, such as Structure B8, they become less common during the Late Preclassic (Awe n.d.; Peniche May et al. 2018). At some lowlands sites, these forms of imagery were replaced by large stucco masks and monuments that were erected on, and in front of, large public buildings. This shift in anthropomorphic depictions is concurrent with the construction of the largest monumental buildings at Cahal Pech, suggesting that elite began to use art and architecture to publicly manifest and display their more elevated status in the society. A discontinuity of large-scale marine shell bead production, marked by the relative absence of chert microdrill and marine shell fragments, also occurs at the end of the Middle Preclassic, suggesting shifts in the economy were household craft production may have been less important as an elite strategy to gain wealth.

At the beginning of the Late Preclassic (~AD 300-100), Plaza B was enlarged as populations were growing at Cahal Pech. We suggest that it is during this time that focus shifted from the E-Group assemblage to the Eastern Triadic Assemblage on the east side of Plaza B. We believe that Structure B8 was likely taller than it currently stands, but was partially torn down as Plaza B was leveled and expanded. Additionally, very few Late Preclassic diagnostic sherds were recovered from the Structure B8 excavations, suggesting that construction of the building had ceased by this time. Sequential modifications dating to the Late Preclassic also linked all the three buildings – Structures B1, B2, and B3 – on the eastern side of Plaza B. The reasons for the shift of focus from the E-Group to the Eastern Triadic Assemblage are likely linked to changes in social organization, when communally focused ritual space was replaced by an ancestor shrine and buildings demarcating public civic space from private elite space. Construction of a large *audiencia* style building in Plaza A, to the west of the Plaza B, was also initiated at the end of the Preclassic. The first royal burials from Cahal Pech also date to the end of the Preclasic, when they were entombed in Structure B1. The appearance of royal burials and *audiencia* style architecture provide evidence for the formalization of dynastic rulership by an emerging elite class. The earliest dated royal burial suggests these changes were firmly in place by at least the end of the Late Preclassic (~cal AD 150-300; Novotny et al. 2018).

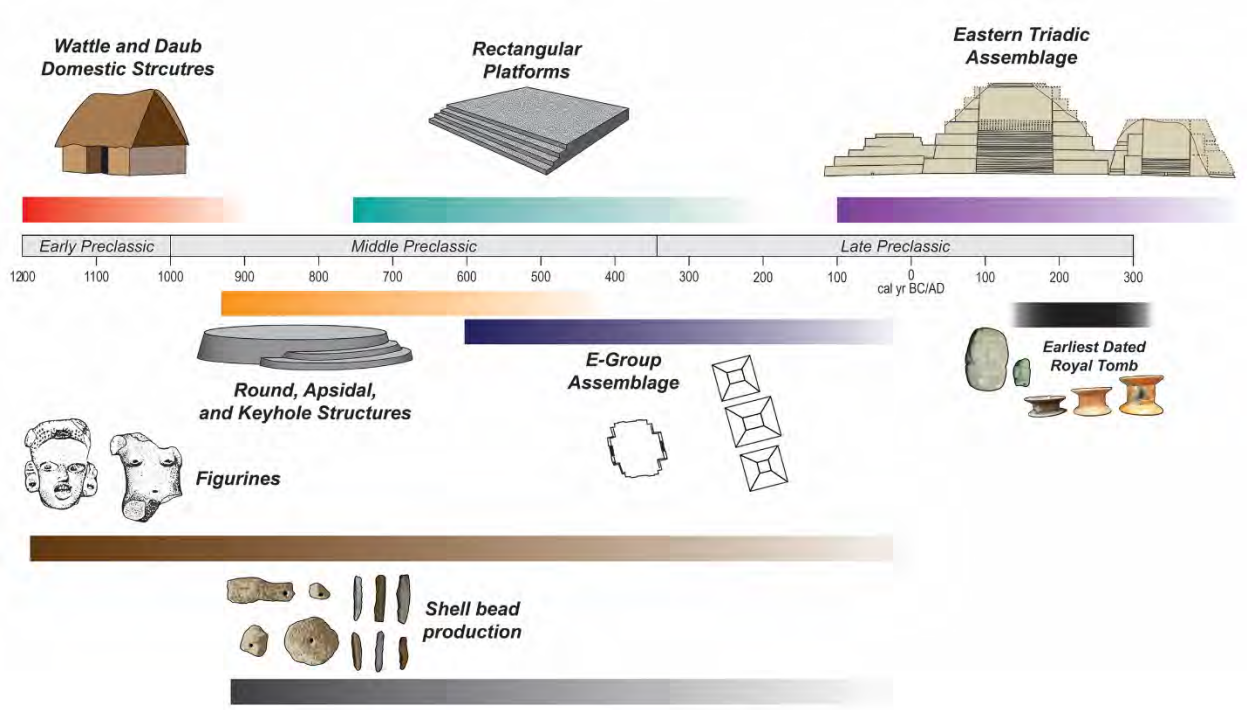


Figure 13: Chronology for monumentality at Cahal Pech.

The 2019 Plaza B excavations at Cahal Pech will focus on exposing the remainder of Structure B8 to determine exact form of the building, which will help us to determine its function. An expanded radiocarbon dating program, focusing on directly dating discrete construction episodes at Structure B8 is also underway. Dating of a total of 25 samples has been funded by the Rust Family Foundation, and results are expect mid-2019. Future excavations will also target additional Preclassic components of Cahal Pech's Eastern Triadic Assemblage to understand its construction history more precisely. These data will aid documenting the origins of monumentality and its relationship with elite dynastic traditions at this important Maya center during the Preclassic period.

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APPENDIX A: Plaza B 2018 Radiocarbon Sample Index

EU	*Lvl.*	*Lot*	*Date*	*Description*	*^{14}C Sample Number*
PLB-2018-12	2	PLB-2018-12-2	21-Jun-18	204 cmbd, Below Str. B8 Fl. 1	PLB-2018-12-1
PLB-2018-9	--	PLB-2018-9-1	30-Jun-18	147 cmbd From unit wall	PLB-2018-9-2
PLB-2018-9	--	PLB-2018-9-1	30-Jun-18	146 cmbd From unit wall	PLB-2018-9-1
PLB-2018-9	--	PLB-2018-9-1	30-Jun-18	172 cmbd From unit wall	PLB-2018-9-3
PLB-2018-9	--	PLB-2018-9-1	30-Jun-18	156 cmbd From unit wall	PLB-2018-9-4
PLB-2018-4	2	PLB-2018-4-2	5-Jun-18	152 cmbd, Fill outside Str. B8	PLB-2018-4-1
PLB-2018-4	2	PLB-2018-4-2	5-Jun-18	171 cmbd, Fill outside Str. B8	PLB-2018-4-2
PLB-2018-2	3	PLB-2018-2-3	4-Jun-18	175 cmbd, Below Floor 1	PLB-2018-2-4
PLB-2018-2	3	PLB-2018-2-3	1-Jun-18	165 cmbd, Below Floor 1	PLB-2018-2-1
PLB-2018-2	3	PLB-2018-2-3	4-Jun-18	175 cmbd, Below Floor 1	PLB-2018-2-2
PLB-2018-1/2	2	PLB-2018-1/2-2	31-May-18	133 cmbd, Below terminal plaza floor	PLB-2018-1/2-1
PLB-2018-1/2	2	PLB-2018-1/2-2	31-May-18	117 cmbd, Below terminal plaza floor	PLB-2018-1/2-2
PLB-2018-1/2	2	PLB-2018-1/2-2	31-May-18	142 cmbd, Below terminal plaza floor	PLB-2018-1/2-3
PLB-2018-1/2	2	PLB-2018-1/2-2	31-May-18	125 cmbd, Below terminal plaza floor	PLB-2018-1/2-4
PLB-2018-1/2	2	PLB-2018-1/2-2	31-May-18	120 cmbd, Below terminal plaza floor	PLB-2018-1/2-5
PLB-2018-13	2	PLB-2018-13-2	29-Jun-18	171 cmbd, Below floor 1	PLB-2018-13-2
PLB-2018-13	2	PLB-2018-13-2	26-Jun-18	178 cmbd, Below floor 1	PLB-2018-13-1
PLB-2018-7	--	PLB-2018-7-1	7-Jun-18	194 cmbd From unit wall	PLB-2018-7-1
PLB-2018-7ext	2	PLB-2018-7ext-1	21-Jun-18	199 cmbd, Below Floor 2	PLB-2018-7-2
PLB-2018-3	3	PLB-2018-3-3	1-Jun-18	51.5 cmbd	PLB-2018-3-1
PLB-2018-3	3	PLB-2018-3-3	1-Jun-18	51 cmbd	PLB-2018-3-2
PLB-2018-3	3	PLB-2018-3-3	1-Jun-18	59 cmbd	PLB-2018-3-3
PLB-2018-3	--	--	5-Jun-18	151 cmbd From unit wall	PLB-2018-3-5
PLB-2018-3	--	--	5-Jun-18	158 cmbd From unit wall	PLB-2018-3-6
PLB-2018-3	--	--	5-Jun-18	159 cmbd From unit wall	PLB-2018-3-7
PLB-2018-3	--	--	5-Jun-18	182 cmbd From unit wall	PLB-2018-3-8
PLB-2018-3	--	--	5-Jun-18	185 cmbd From unit wall	PLB-2018-3-9
PLB-2018-3	--	--	5-Jun-18	185 cmbd From unit wall	PLB-2018-3-10
PLB-2018-3	--	--	5-Jun-18	210 cmdb From unit wall	PLB-2018-3-11
PLB-2018-3	--	--	5-Jun-18	198.5 cmbd From unit wall	PLB-2018-3-12
PLB-2018-3	--	--	5-Jun-18	221 cmbd From unit wall	PLB-2018-3-13
PLB-2018-3	--	--	5-Jun-18	259 cmbd From unit wall	PLB-2018-3-14
PLB-2018-3	--	--	5-Jun-18	249 cmbd From unit wall	PLB-2018-3-15
PLB-2018-15	8	PLB-2018-3-9	21-Jun-18	285 cmbd, on bedrock	PLB-2018-3-16

APPENDIX B: 2017 Plaza B Special Finds Index

EU	*Lvl.*	*Lot*	*This lot is*	*Class*	*Special Find No.*	*Freq.*	*Description*	*Additional Notes*
PLB-2018-3	4	PLB-2018-3-5	Below fill	Ch	PLB-2018-SF-09	3	Chert drills	
PLB-2018-2	3	PLB-2018-2-3	Below Floor 1	Ch	PLB-2018-SF-05	3	Chert drill	
PLB-2018-3	3	PLB-2018-3-3	Below Floor 1	Ce	PLB-2018-SF-07	1	Roller stamp fragment	
PLB-2018-3	3	PLB-2018-3-3	Below Floor 1	Ch	PLB-2018-SF-08	7	Chert drills	
PLB-2018-15	1	PLB-2018-15-2	Below Floor 1	Ch	PLB-2018-SF-44	3	Chert drills	
PLB-2018-2	3	PLB-2018-2-3	Below Floor 1	Ch	PLB-2018-SF-51	5	Figurine fragment	Unknown portion, Savana calcite paste
PLB-2018-2	4	PLB-2018-2-4	Below Floor 2	Ch	PLB-2018-SF-06	1	Chert drill	
PLB-2018-3	6	PLB-2018-3-6	Below Floor 2	Ch	PLB-2018-SF-10	7	Chert drills	
PLB-2018-4	3	PLB-2018-4-4	Below Floor 2	Ch	PLB-2018-SF-16	1	Chert drill	
PLB-2018-9	1	PLB-2018-9-1	Below Floor 2	Ch	PLB-2018-SF-26	1	Chert drill	
PLB-2018-15	2	PLB-2018-15-3	Below Floor 2	Ce	PLB-2018-SF-50	1	Figurine head	Coati, dark red/brown paste
PLB-2018-10	4	PLB-2018-10-4	Below Floor 2	Ce	PLB-2018-SF-54	1	Incised ceramic sherd	Savana paste, fine Reforma?
PLB-2018-7ext	1	PLB-2018-7ext-1	Below Floor 3	Ch	PLB-2018-SF-20	10	Chert drills	
PLB-2018-13	1	PLB-2018-13-1	Below Floor 3	Ch	PLB-2018-SF-40	1	Chert drill	
PLB-2018-14	1	PLB-2018-14-1	Below Floor 3	Ce	PLB-2018-SF-41	1	Figurine head	
PLB-2018-14	1	PLB-2018-14-1	Below Floor 3	Ch	PLB-2018-SF-42	5	Chert drills	
PLB-2018-14	1	PLB-2018-14-1	Below Floor 3	Ce	PLB-2018-SF-52	1	Figurine fragment	Unknown portion; Jocote paste
PLB-2018-14	1	PLB-2018-14-1	Below Floor 3	Sr	PLB-2018-SF-53	1	Serpentine fragment	
PLB-2018-12	2	PLB-2018-12-2	Below Str. B8 Floor 1	Ch	PLB-2018-SF-39	3	Chert drills	
PLB-2018-12	1	PLB-2018-12-1	Below Str. B8 Terrace	Ch	PLB-2018-SF-38	4	Chert drills	

EU	*Lvl.*	*Lot*	*This lot is*	*Class*	*Special Find No.*	*Freq.*	*Description*	*Additional Notes*
PLB-2018-12	1	PLB-2018-12-1	Below Str. B8 Terrace	Ce	PLB-2018-SF-49	1	Figurine head	profile, Savana calcite paste
PLB-2018-1/2	2	PLB-2018-1/2-2	Below terminal plaza floor	Ch	PLB-2018-SF-04	6	Chert drill	
PLB-2018-8ext	1	PLB-2018-8ext-2	Below terminal plaza floor	Ch	PLB-2018-SF-25	13	Chert drills	
PLB-2018-11	2	PLB-2018-11-2	Below terminal plaza floor	Ce	PLB-2018-SF-36	1	Figurine head	No hair, flat head; Savana calcite paste
PLB-2018-11	2	PLB-2018-11-2	Below terminal plaza floor	Ch	PLB-2018-SF-37	1	Chert drill	
PLB-2018-15ext2	2	PLB-2018-15ext2-2	Below terminal plaza floor	Ch	PLB-2018-SF-55	3	Chert drills	
PLB-2018-15ext2	1	PLB-2018-15ext2-2	Below terminal plaza floor	Ch	PLB-2018-SF-57	1	Chert drill	
PLB-2018-1/2	2	PLB-2018-1/2-2	Below terminal plaza floor	Ms	PLB-2018-SF-64	1	Shell bead	Cf. Lobatus Sp.
PLB-2018-15ext2	2	PLB-2018-15ext2-2	Below terminal plaza floor	Ms	PLB-2018-SF-67	1	Unfinished Shell bead	Lobatus gigas
PLB-2018-8ext	2	PLB-2018-8-ext2	Below terminal plaza floor	Ms	PLB-2018-SF-71	1	Unfinished Shell bead	Cf. Lobatus gigas
PLB-2018-10	1	PLB-2018-10-2	Collapse	Ch	PLB-2018-SF-30	3	Chert drills	
PLB-2018-16-2	1	PLB-2018-16-2	Construction pen fill	Ch	PLB-2018-SF-59	2	Chert drills	
PLA-2018-3	1	PLA-2018-3-1	Humic layer	Ch	PLA-2018-SF-1	1	Figurine fragment	
PLB-2018-1	1	PLB-2018-1-1	Humic layer	Ch	PLB-2018-SF-01	1	Chert drills	
PLB-2018-1/2	2	PLB-2018-1/2-1	Humic layer	St	PLB-2018-SF-02	1	Drilled slate	possible pendant
PLB-2018-1/2	1	PLB-2018-1/2-1	Humic layer	Ce	PLB-2018-SF-03	1	Figurine head	partial
PLB-2018-4	1	PLB-2018-4-1	Humic layer	Ce	PLB-2018-SF-12	2	Figurine fragments	Unknown portions
PLB-2018-4	1	PLB-2018-4-1	Humic layer	Ch	PLB-2018-SF-13	1	Chert point	
PLB-2018-4	1	PLB-2018-4-1	Humic layer	Ce	PLB-2018-SF-14	1	Incised ceramic sherd	possible "la" glyph
PLB-2018-4	1	PLB-2018-4-1	Humic layer	Ch	PLB-2018-SF-15	5	Chert drills	
PLB-2018-8	1	PLB-2018-8-1	Humic layer	Ch	PLB-2018-SF-22	9	Chert drill	

EU	*Lvl.*	*Lot*	*This lot is*	*Class*	*Special Find No.*	*Freq.*	*Description*	*Additional Notes*
PLB-2018-8ext	1	PLB-2018-8ext-1	Humic layer	Ce	PLB-2018-SF-23	1	Figurine body	Highly eroded, Savana. ash tempered paste
PLB-2018-8ext	1	PLB-2018-8ext-1	Humic layer	Ch	PLB-2018-SF-24	7	Chert drills	
PLB-2018-11	1	PLB-2018-11-1	Humic layer	Ce	PLB-2018-SF-34	1	Figurine foot	Savana calcite paste
PLB-2018-11	1	PLB-2018-11-1	Humic layer	Ch	PLB-2018-SF-35	3	Chert drill	
PLB-2018-15	1	PLB-2018-15-1	Humic layer	Ch	PLB-2018-SF-43	4	Chert drills	
PLB-2018-15-1	1	PLB-2018-15-1	Humic layer	Sh	PLB-2018-SF-45	1	Marine shell bead	
PLB-2018-15ext3	1	PLB-2018-15ext3-1	Humic layer	Ch	PLB-2018-SF-56	2	Chert drills	
PLB-2018-15ext3	1	PLB-2018-15ext3-1	Humic layer	Ce	PLB-2018-SF-58	3	Figurine body	
PLB-2018-12ext2	1	PLB-2018-15ext-2-1	Humic layer	Ms	PLB-2018-SF-65	1	Shell pendant with drilled holes	*Strombus alatus*
PLB-2018-15	1	PLB-2018-15-1	Humic layer	Ms	PLB-2018-SF-66	1	Shell bead, unfinished	Species indeterminate
PLB-2018-5-1	1	PLB-2018-5-1	Humic layer/Fill outside Str. B8	Ch	PLB-2018-SF-17	5	Chert drills	
PLB-2018-6	1	PLB-2018-6-1	Humic layer/Fill outside Str. B8	Sr	PLB-2018-SF-18	1	Polished greenstone fragment	
PLB-2018-6	1	PLB-2018-6-1	Humic layer/Fill outside Str. B8	Ch	PLB-2018-SF-19	16	Chert drills	
PLB-2018-6	1	PLB-2018-6-1	Humic layer/Fill outside Str. B8	Ms	PLB-2018-SF-69	1	Shell bead fragment	Species indeterminate
PLB-2018-6	1	PLB-2018-6-1	Humic layer/Fill outside Str. B8	Ms	PLB-2018-SF-70	1	Shell pendant	*Lobatus gigas*
PLB-2018-15ext	1	PLB-2018-15ext-1	Humic/Below Floor 1	Ce	PLB-2018-SF-46	1	Figurine head	
PLB-2018-15ext	1	PLB-2018-15ext-1	Humic/Below Floor 1	Ch	PLB-2018-SF-47	7	Chert drills	
PLB-2018-15ext	1	PLB-2018-15ext-1	Humic/Below Floor 1	Ce	PLB-2018-SF-48	1	Figurine body	Lower half, ash temper
PLB-2018-9	1	PLB-2018-9-3	Marl above Floor 2	Ce	PLB-2018-SF-27	1	Figurine fragment	Highly eroded, red paste
PLB-2018-9	1	PLB-2018-9-3	Marl above Floor 2	Sr	PLB-2018-SF-28	1	Serpentine celt	
PLB-2018-9	1	PLB-2018-9-3	Marl above Floor 2	Ch	PLB-2018-SF-29	3	Chert drills	

EU	*Lvl.*	*Lot*	*This lot is*	*Class*	*Special Find No.*	*Freq.*	*Description*	*Additional Notes*
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Ce	PLB-2018-SF-31	1	Figurine leg with foot	Jocote paste
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Sr	PLB-2018-SF-32	1		
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Ch	PLB-2018-SF-33	19	Chert drills	
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Ce	PLB-2018-SF-60	1	Figurine head	Ash temper, highly weathered
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Ch	PLB-2018-SF-61	8	Chert drills	
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Fs	PLB-2018-SF-62	1	Shell pendant	*Nephronaias* Sp.
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Ms	PLB-2018-SF-62	1	Unfinished Shell bead	Species indeterminate
PLB-2018-10ext	1	PLB-2018-10ext-1	Fill outside Str. B8	Sr	PLB-2018-SF-63	1	green stone frag	
PLB-2018-3	9	PLB-2018-3-10	Paleosol	Ch	PLB-2018-SF-11	1	Chert drill	
PLB-2018-3	4	PLB-2018-3-10	Paleosol	Ms	PLB-2018-SF-68	1	Unfinished Shell bead	*Lobatus gigas*
PLB-2018-7ext	2	PLB-2018-7ext-2	West of wall alignment	Ce	PLB-2018-SF-21	1	Figurine head	Face with hair, Savanna calcite paste

CONTINUED EXCAVATIONS OF THE WESTERN BALLCOURT, CAHAL PECH, BELIZE

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Davidson Day School
American Foreign Academic Research

Stanley Guenter
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INTRODUCTION

This report summarizes the excavations conducted at Cahal Pech, Cayo District, Belize during July and August of 2018 by the American Foreign Academic Research (AFAR) field school project that operates in conjunction with the Belize Valley Archaeological Reconnaissance Project (BVAR). Dr. Jaime Awe and C. Mathew Saunders oversaw all aspects of the project with the support of Christy W. Pritchard, James C. Pritchard, Dr. Stanley Guenter, and Dr. Marc Zender. Two graduate students from Tulane University, Emily Davis-Hale and Sidney Coates, also assisted with excavations, along with fifteen field school students and seven local workers. Dr. Maxime Lamoureux St-Hilaire also contributed to the project.

Cahal Pech is located atop a tall hill in the Belizean town of San Ignacio and has been investigated archaeological by a number of different archaeological teams, but especially the BVAR Project, since the 1980s (see Awe 1992, 2008, 2013; Awe and Campbell 1989). AFAR's 2018 field season investigations focused on western ballcourt of Cahal Pech (Structures WBC-1 and WBC-2). The western ballcourt is located at the foot of a steep slope directly west of Plaza A and Plaza D (Figure 1). Plaza A and Plaza D are considered to be the western limits of the Cahal Pech monumental site core, through maps of the site core proper usually include the two structures that make up the western ballcourt. The existence of two ballcourts at this center, the other being located south of Plaza C, raises a number of questions. When was this second ballcourt built and why were two ballcourts constructed at Cahal Pech? Are there any material remains that might suggest different patterns of use of these two ballcourts? For example, were they used in different eras or by different segments of the population? Questions specifically about the western ballcourt can also be raised and tested by our excavations. Is there a construction history in this area or were the two buildings constructed only once, with no later renovations? Are the buildings actually identical in size and shape and can we, in fact, confirm their status as ballcourt structures?

All of these questions were ones that first drew our project to begin investigations of the western ballcourt in 2016 (Pritchard et al. 2017). Preliminary excavations barely scratched the surface, but did document the presence of a *metate* cache in the middle of the playing alley of the western ballcourt and encountered the side walls of this same playing alley. We originally intended on continuing our excavations in 2017, but when Hurricane Earl hit Belize in August of 2016 it caused significant treefall, including right above the western ballcourt at Cahal Pech. As this had not been cleared by the summer of 2017 we were unable to continue our excavations that season

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but rather carried out an excavation in the southwestern portion of Plaza B that encountered a strange stone wall (Guenter et al. 2018).

The 2018 field season started where the 2016 field season left off. Excavations were carried out over two consecutive weeks in late July and early August of 2018, which was followed by one week of conservation directed by Jorge Can.

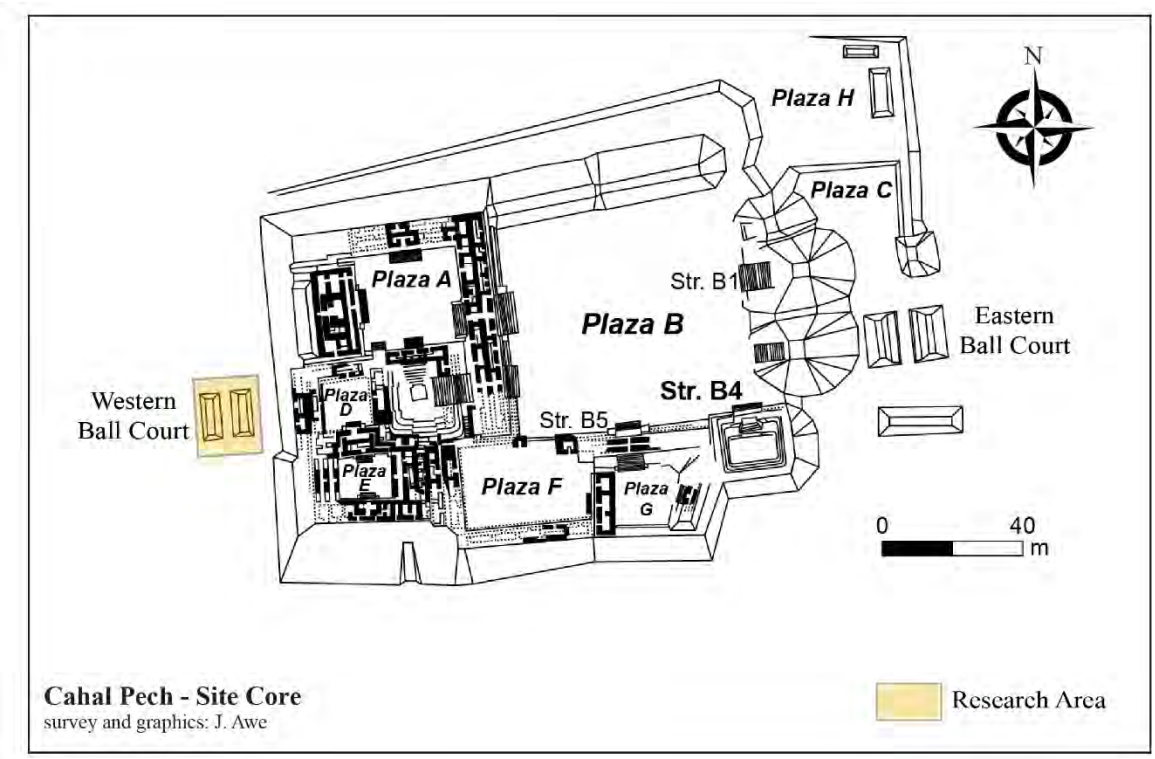


Figure 1: Cahal Pech site core map with highlighted research area.

BACKGROUND

Although exact origins and dates are not entirely clear, variations of a ballgame played by bouncing a rubber ball with the hips were played by all the major cultures in Mesoamerica, some with courts and some without,. Most scholars agree that these games had varied rules, number of participants, and stakes (Scarborough 1991). Iconography provides glimpses of details such as player appearance, equipment, and ballcourt size and again these representations all vary (Barrois 2005). The architectural remains of these courts can also be found across Mesoamerica and their placements within the sites in which they are found tell us of their importance.

The Belize River Valley in western Belize follows the trend of using prime real estate when choosing a site for ballcourts. The two ballcourts at Cahal Pech are found on opposite sides of the site core; the eastern one is located in the middle of Plaza C, resting in the shadows of Structures B1 and B3, with the western ballcourt located below and to the west of the A and D Plazas. From 1988 to 1992, Dr. Jaime Awe directed a survey of the periphery of Cahal Pech. Aside from that

reconnaissance work, the only other known investigations on the western ballcourt were carried out by Joe Ball in the mid-1980s. Formal reports of those excavations are not on file with NICH, however.

Although both ballcourts were discovered and investigated after the original surveys carried out by Awe, only the ballcourt in the C Plaza had been extensively investigated and excavated before the 2016 season. In 1995, James F. Garber of Texas State University directed an investigation of the eastern ballcourt as part of the Belize Valley Preclassic Maya Project (BVPMP) at Cahal Pech (Santasilia 2013). In 2012, Catharina Santasilia, University of Copenhagen, carried out further excavations on the eastern ballcourt, defining the alleyway and penetrating through the terminal floor resulting the in discovery of multiple substructures (Santasilia 2013).

METHODS

The two structures that make up the western ballcourt are designated Structure CHP-WBC-1, which is on the west side of the alley, and Structure CHP-WBC-2, which is on the east (Figure 2). In 2016 the alley itself and the alley-facing walls of each structure (eastern wall of CHP-WBC-1 and western wall of CHP-WBC-2) were excavated to the terminal level during the 2016 field season. With this preliminary information already obtained, our team focused in our 2018 season on excavating the northern and southern ends of both structures. If time allowed, we would continue excavating the exterior walls of each structure (the western wall of CHP-WBC-1 and the eastern wall of CHP-WBC-2). We also placed excavations across each structure in an effort to capture the profile of the buildings.

All units were excavated using cultural levels. Normally we would excavate from construction episode to underlying construction episode through such levels until final excavation for each lot was reached, usually bedrock. However, due to our short field season we intended only to excavate through humus and accumulated erosion atop the latest construction phase. All matrices were screened through 1⁄4-inch mesh. All cultural material was collected and bagged per class and unit. All collected material was washed, sorted, counted and re- bagged for future study. Materials removed and saved for later analysis include ceramics, chert, freshwater shell, marine shell, quartzite, obsidian mano and metate fragments. The collected materials are currently awaiting analysis and results are not ready yet to report. No complete artifacts were found, nor did we find any well-preserved or “special finds”, not surprising given our concentration on only revealing the latest phase of architecture and thus all of our finds are of materials deposited or eroded out since final abandonment of the structure. Documentation of our excavation includes plan view photos and plan view maps for the base of each level of excavation.

Upon completion of excavation, a team of conservators, under the direction of Jorge Can consolidated the portions of the excavated buildings that were found intact (Figures 3 and 4). The area is now cleared of undergrowth and the ballcourt is visible from the A Group palace above and to the east. Thus, our 2018 field season has finally allowed tourists to see this last part of Cahal Pech that has been included on site maps for many decades now but, until the conclusion of our field season, was not visible or consolidated.

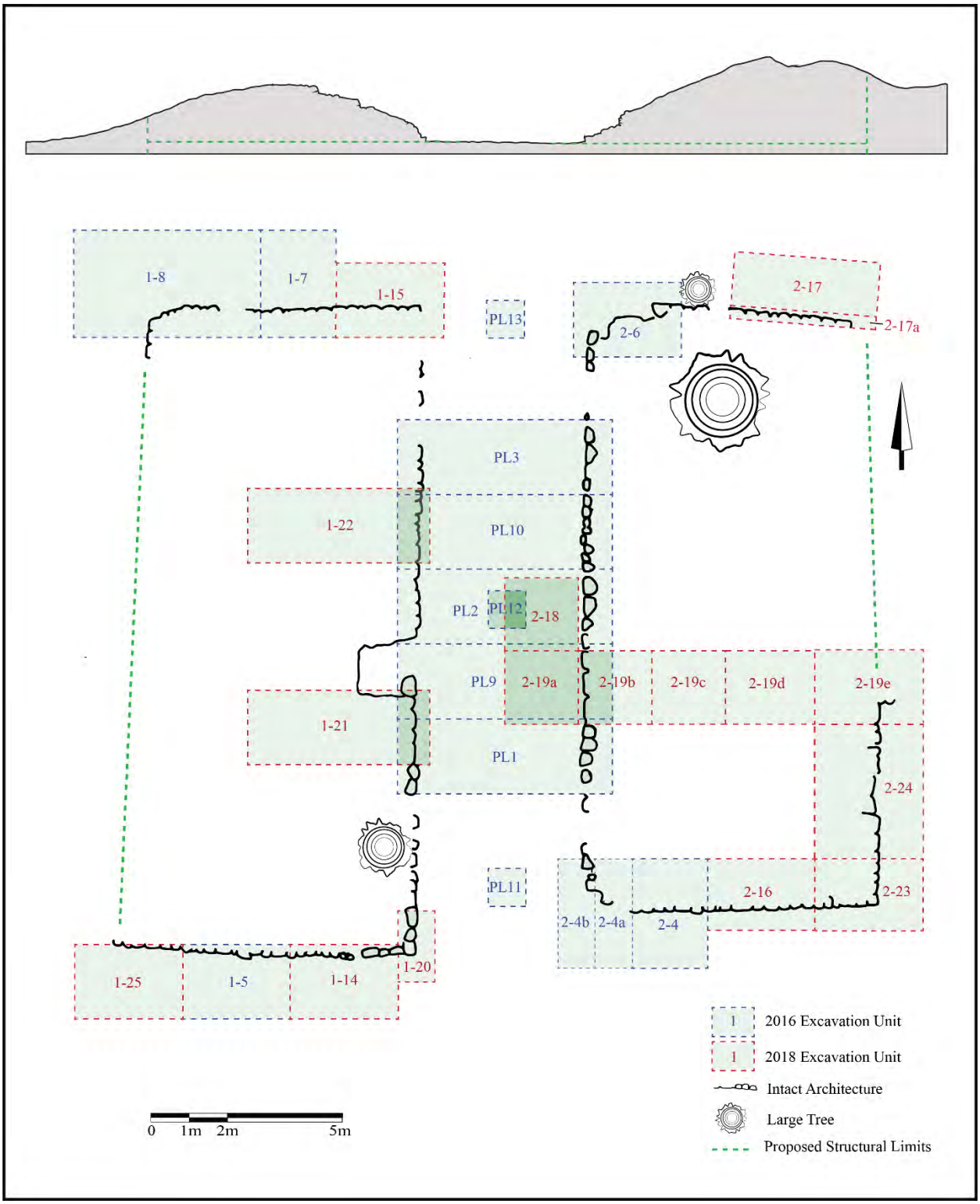


Figure 2: Profile and plan maps showing unit placement and known architecture at the Western Ballcourt of Cahal Pech.



Figure 3: View of northern portion of Structures CHP-WBC1 and CHP-WBC2 following conservation. View looks to the southeast.



Figure 4: View of southern portion of Structures CHP-WBC1 and CHP-WBC2 following conservation. View looks to the northeast.

EXCAVATIONS

Structure CHP-WBC-1 Excavations

Northern Wall

The northern wall of Structure CHP-WBC-1 was first defined by excavations in 2016. These consisted of Units 1-7 and 1-8. Unit 1-7 was a 3x2 m unit placed roughly in the center of the northern face of the structure and revealed a wall made of small, rectangular stone blocks, preserved in place in some areas up to 4 courses high. Unit 1-8 was placed immediately to the west of Unit 1-7 and discovered the NW corner of Structure WBC-1. Unit 1-8 was a 5x3 m unit. Our excavations in this area in the 2018 field season consisted of Unit 1-15, a 3x2 m unit and this excavation recovered the NE corner of the structure. The investigation of Unit 1-15 was overseen by Jim Pritchard with the assistance of Christian Yates, Jake Breunig, and Grace Meister. The northern wall, as ultimately revealed, is almost complete in its lowest course and in places rises up to 4 remaining superimposed courses, though in most of our excavations we found only two courses remaining.

Southern Wall

The southern wall of Structure WBC-1 was first defined in 2016 with Unit 1-5, a 3x2 m unit placed roughly in the center of the wall. In order to define the edges of the wall further units were placed during the 2018 field season, with excavations overseen by Sidney Coates and Marc Zender, with the assistance of Mark Breunig, Charlotte Ratcliff, and Jackson Holt. Unit 1-14 was a 3x2 m unit placed immediately east of Unit 1-5. The wall was found very close to the northern edge of this unit but, when this unit failed to turn up the expected structure corner, a further unit, Unit 1-20, was placed immediately to the east. Unit 1-20 is a 1x2 m unit placed so that the mid-line of this unit corresponds to the northern edge of Unit 1-14. This staggered position was due to how far to the north in Unit 1-14 we were finding the wall and we wanted to make sure of catching the corner in Unit 1-20. This was indeed found in Unit 1-20.

In order to find the SW corner of the southern wall of Structure WBC-1 we placed another 3x2 m unit immediately to the west of Structure 1-5. This was Unit 1-25 and it appeared to include the corner of the structure, although time prevented us from expanding our excavations to the west side of the structure to confirm our suspicions.

Profile Excavations

We also placed two large excavations on the eastern side of the structure in order to define the profile of the eastern wall of the structure, which would have been the ancient playing wall of the ballcourt. These were overseen by Jorge Can, with the assistance of Roberto Pacheco, Angel Itza, and Jaime Iglesia, and the units were placed on either side of a significant excavation that had gouged out the eastern wall of the structure just south of its centerline. We have not been able to find any reference to this excavation in any excavation report and, while this could have been due to an attempted looting, its location would be very odd for such an activity, not being directed towards an area likely to have a tomb. We thus still suspect that this was a test excavation

conducted at some point in the last few decades but not properly recorded or at least not published or registered.

These excavations consisted of two large units, each 5x2 m. Unit 1-21 was immediately south of the "looted" hole in the eastern façade of the structure, while Unit 1-22 was placed 2 m north of the north edge of this hole. These excavations merely cleared down to the uppermost evidence of the structure, which was in a poor condition of preservation. However, a few lines of stone were found, suggesting that further excavation of the upper placing surface of these structures may yet recover enough architectural detail to facilitate an understanding of what the upper surface once looked like. These excavations reached over the highest point of the mound but did not reach the back (western) face of the structure. This is something planned for next field season.

Structure CHP-WBC-2 Excavations

Northern Wall

The northeastern corner of Structure WBC-2 was defined by excavations in 2016, in the form of Unit 2-6, a 3x2 m unit. In order to fully uncover the northern façade of the structure Unit 2-17 was placed. This was a large, 4x2 m unit and excavations were overseen by Christy Pritchard, with the assistance of Israella Freidline, Hadley Zucker, and Evan Rosato. Unit 2-17 reached the northern wall but only in the southern extreme of the unit and then only in the far western edge of the wall. To properly uncover the wall an extra 0.5 m was excavated across the entire southern end of this unit and this was recorded as Unit 2-17a. Unfortunately, erosion to the NE corner of Structure WBC-2 means that the exact corner has not yet been defined but excavations of the eastern wall of the structure, planned for next season, should allow us to identify where that corner originally was. The NW corner of the structure, excavated in 2016, was also damaged but can be identified given that both the northern and western walls of Structure WBC-2 are now mapped.

Southern Wall

In 2016 Unit 2-4 was placed just west of center on the southern edge of Structure WBC-2. While this unit did help define the southern wall, it did not capture the SW corner of the structure and so Unit 2-4a was extended to the west. Unit 2-4 was a 2x3 m unit and Unit 2-4a was a 1x3 m. Unit 2-4a still did not find the corner and so a further 1x3 m unit, Unit 2-4b, was added to its west, and this finally did capture the corner, although it was found in a damaged state. In order to uncover the rest of the southern wall and find the SE corner of the structure Unit 2-16 was placed immediately east of Unit 2-4. Unit 2-16 was a 3x2 m unit and excavations were overseen by Marc Zender and Emily Davis-Hale, with the assistance of Natalie Schory, Hailey Higbea, and Alex Cozza. In order to catch the SE corner of Structure WBC-2 another 3x2 m unit, Unit 2-23, was excavated immediately east of Unit 2-16. These excavations recovered the corner and the walls on this eastern side of the southern façade and the southern part of the western wall are the best preserved yet found from the Western Ballcourt excavations. The wall is preserved up to 5 courses on the southern façade, in Unit 2-23, and up to 7 courses on the eastern façade.

Profile Excavations

As on Structure WBC-1, we placed a series of excavations in order to define the profile of Structure WBC-2. These excavations were directed by Stanley Guenter and Mat Saunders, with the assistance of Arwen Zender, Saoirse Coyle, and Caleb Tate. Excavations began with Unit 2-18, a 2x2 m unit placed right on the E-W central axis of the ballcourt, designed to touch the western façade stones of Structure WBC-2. This first excavation went down to the terminal floor of the playing alley of the ballcourt before it was decided to move the planned excavations to define the profile of the structure 2 m to the south in order to have an easier excavation due to tree roots, etc.

Unit 2-19a was placed immediately south of Unit 2-18 and was also a 2x2 m unit. Due to time constraints this was not excavated. Units were laid out immediately to the east of Unit 2-19a and these ended up being two 2x2 m units, Units 2-19b and 2-19c. These were excavated but found little evidence of well preserved courses and were ultimately terminated when larger rocks were uncovered. Immediately east of Unit 2-19c we left an unexcavated unit that became Unit 2-19d. This was the area of the top of the mound and our excavations in Unit 2-19b and 2-19c indicated that it would likely be in a very ruinous state and extremely difficult to define any terminal architecture here and so we left it alone. Instead, we placed a large 2x3 m unit, Unit 2-19e, immediately to the east, designed to come down upon and help define the eastern wall of the structure. The western side of Unit 2-19e was measured to correspond to the break between Units 2-16 and 2-23 on the southern façade of the structure. This leaves the unexcavated Unit 2-19d as being a 2x2.8 m unit.

In order to help define the eastern structure wall, especially in Unit 2-19e, where we were coming down upon the wall from the very eroded top, we excavated Unit 2-24, Given that Unit 2-24 was simply the area between Units 2-19e and 2-23 it is much larger than the other units and while it is 3 m east to west. Unit 2-24 was excavated by Jim Pritchard and his crew and while the wall in the southern part of this unit was fairly well-preserved, up to seevn courses of stone blocks, the northern section is much less well preserved and by the northern edge of the wall in Unit 2-24 all but completely disappears. In Unit 2-19e this wall reappears, but only up to a couple of courses high. Most curiously, there is a clear architectural outset towards the northern side of the unit. This is not well preserved, except in the corner, where the outset emerges from the eastern structure wall. This outset cannot yet be defined but future excavations will hopefully determine how far out and how wide this architectural feature is, and whether a similar outset is found on Structure WBC-1.

CONCLUSIONS

Our investigations of the western ballcourt over the 2016 and 2018 field seasons have yielded a bounty of valuable insights into the shape and form of Structure CHP-WBC-1 and Structure CHP-WBC-2 but further investigations will be required to gain a clearer understanding. At the conclusion of the 2018 field season, we have exposed seventy-five percent of the walls of the two structures, managed to capture a profile of the buildings and their “playing alley”, and collected and analyzed the cultural material associated with the terminal occupation of the structures. Although these insights have been useful, several issues have prohibited a fuller understanding of the area. To begin, the entire area has suffered a great deal of natural and cultural

disturbance. Evidence of looting and/or undocumented excavation is present on both structures. Bioturbation is also present in the form of trees, roots, and other vegetation. Adding to these issues is the recent hurricane damage sustained following our 2016 field season.

Aside from the *mano* and *metate* cache found in the northern end of the ballcourt alley in 2016, the archaeological record that has formed over the last two field seasons has provided no solid evidence of ritual or ballgame-related activity. This is not entirely surprising as this is probably due to the fact that we are only excavating to the terminal layer and the structures were likely reutilized during this occupation. We have found no ballcourt markers nor any sculpted stones, which is perhaps not surprising as no such carved stones were found at the eastern ballcourt at Cahal Pech either and this ballcourt is not as closely integrated into the ritual center of the site.

The north and south walls of both structures and the basal courses of the internal alley-facing walls provide a relatively clear picture of form and size. The slopes of the interior walls are clear in shape but our efforts have yet to provide us with an intact view of the architectural detail of the shape. The upper levels of the surface stone of the structure has been too badly damaged in the currently excavated areas to make its final form exactly clear.

Most interestingly, our excavations have shown that the two structures of the western ballcourt are not identical in size. Structure CHP-WBC-1, the western structure, has the same length as Structure CHP-WBC-2, its near twin to the east, but i lower and is thus slightly smaller. Until further excavations are carried out atop and behind both structures we cannot determine exactly the reason for these differences but it is a curiosity that we did not expect at the beginning of our excavations.

In addition to a better understanding of overall shape and form, further excavations of the external walls of each structure may provide us with an understanding of how the tops of each structure were accessed. Excavations of the eastern side of Structure CHP-WBC-2 should also provide us with an understanding of the liminal space between it and the slopes of the acropolis to its east. More thorough excavations of the central alley might also yield a more direct tie to ballgame activities.

Acknowledgments. We would like to thank the 2018 AFAR field school students for their hard work in preparation and during the field season, as well as the entire board of directors of American Foreign Academic Research and Davidson Day School. We would also like to acknowledge the BVAR project for their continued collaboration with the AFAR program and field work at Cahal Pech. We especially want to thank the BVAR Project, including Drs. Jaime Awe, Julie Hoggarth, and Claire Ebert, as well as the Institute of Archaeology, including Dr. John Morris, for permitting BVAR research.

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PLAZA H, CAHAL PECH: RESEARCH OUTCOMES IN 2018

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INTRODUCTION

This report reviews the seventh season of research at Plaza H, Cahal Pech, Cayo District, Belize by students and faculty of The University of Montana (UM), Missoula, Montana, U.S.A., co-director Jaime Awe, Ph.D. Director of the Belize Valley Archaeological Reconnaissance (BVAR) project, and assisted local Belizean excavators. Work took place January 4-18, 2018. John Douglas, Ph.D. and Linda Brown, M.A. brought nine UM students—Rachael Bauer, Kellin Devine, Patricia "Tricia" Johnsen, McKenzie Morgan, Paige Plattner, Madison "Dustin" Salka, Rachel Steffen, Riley Wood, and Kathryn Yoder—to learn archaeological field methods and the prehistory of Belize. Antonio Itza, a long-time supervisor of archaeological excavations, including most of our earlier work at Plaza H, and Orvin Martinez, an experienced excavator, assisted with all aspects of the archaeological work, including student training. We were fortunate in having a great team assembled to do the fieldwork. This chapter presents the excavation and the initial artifact examination from the 2018 field efforts.

We also include here an update about the Mount Maloney Black ceramic research that has taken place over the last year. In 2016, with the express help of Dr. John Morris, Director of the Institute of Archaeology, we exported 64 pottery sherds from Plaza H and Xunantunich; at the beginning of 2018 this was supplemented from an additional sample of 29 sherds from two other contexts at Cahal Pech. We are pleased to update the UM team analysis, following up on work outlined in Douglas and Brown (2017).

UM/BVAR RESEARCH HISTORY AND QUESTIONS

In 2006, an unexpected discovery in Plaza H changed BVAR research priorities concerning this unassuming area, at the northeast corner of Cahal Pech's core (Figure 1). The discovery was a tomb constructed of massive limestone blocks, encountered while trenching the walls of a modest Terminal Classic (Terminal Classic) platform, Structure H-1. The single older male in the tomb was, accompanied by 11 ceramic vessels, jade ornaments, and other socially valuable items (Figure 2; Jaime Awe, personal communication 2011; Awe 2013). Given the date, size of the tomb, and the exotic material; this burial "represents the last ruler in Cahal Pech's incredibly long history of occupation" (Awe 2013:47).

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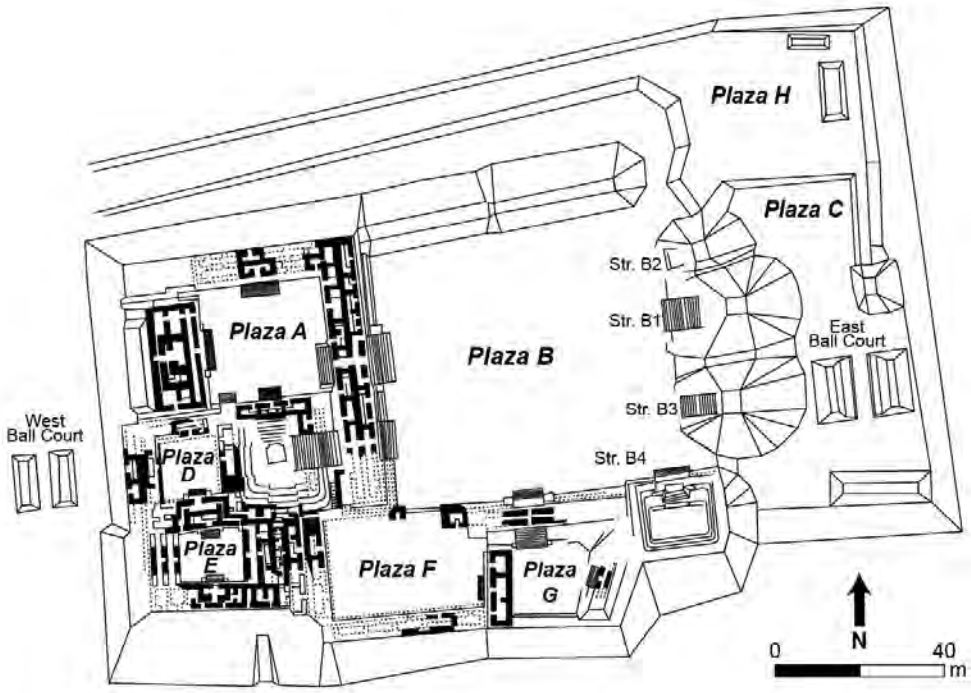


Figure 1: Cahal Pech with Plaza H in the upper right corner. This map does not reflect current knowledge of the Plaza H Terminal Classic (Terminal Classic) structures (after Archaeological Institute of America 2016).



Figure 2: Interior of the Tomb H-1-1. Photograph taken June 2006, facing north.

The discovery of a Terminal Classic tomb and the remodeling of Structure H-1, built over a Late Classic platform, raised questions about how people were using Plaza H at the end of Cahal Pech's occupational history. During a visit to the site in July 2010, Dr. Awe suggested that we address this rather broad question. We have worked on this question and related questions since our first field work in January 2011. With similar goals, other projects have been conducted in Plaza H since 2006 (Pritchard et al. 2011; Santasilia 2012). Together we hope that these studies will provide to our understanding of the people who built and made use of Plaza H during the Terminal Classic.

The 2011 research questions for Plaza H were: What types of activities were occurring during the Terminal Classic Period? What is the construction history and arrangement of platforms and rooms? These questions are foundational, but have evolved (Figure 3). To provide a spatial framework for the UM/BVAR excavations, we present our current reconstruction of Plaza H's Terminal Classic features (Figure 4). Each year the map has been revised to reflect a growing understanding of the architecture. Despite the refinements, the structures shown in Figure 4 remain hypothetical outlines of the Terminal Classic structures. There will always be gaps in our understanding of the extent and size of Terminal Classic buildings on Plaza H even if we could clear the top soil to the level of Terminal Classic layer. Formation processes, such as erosion along the hilltop edge on the north and west side, has meant the loss of deposits. Cultural formation processes, where people may have "borrowed" stones to remodel areas outside and possibly within Plaza H have likely taken place. These types of changes to the "original" surface and subsequent uncertainties are part and parcel with what archaeologists deal with when reconstructing the past.

Topography provides clues to the layout of the structures, and was considered in estimating platform locations when excavations were unavailable. It is to our advantage that the Plaza H surface is close to the surface and easily observed. However, the Terminal Classic walls typically stand only about 30 cm high, which can make structural boundaries difficult to infer from the surface or even from excavation in compromised areas. Past experience suggests that future excavations will most certainly lead to refinements.

Questions concerning the Terminal Classic (TC) in Plaza H:

1. What types and densities of TC artifacts and features are found in Plaza H?
2. What TC activities took place, as evidenced by the artifacts and features?
3. Can the reconstructed activities be connected to a broader interpretation of plaza function?
4. Did the function of the space change in Plaza H between the Late Classic (Late Classic) and TC? Was the occupation continuous?
5. Can TC construction activities in Plaza H be chronologically ordered?
6. What material is available for absolute dating? What contexts are these materials from? Once dates are available, what date range best defines the TC in Plaza H?
7. What happened in Plaza H after the TC abandonment?
8. Can TC activities in Plaza H be related to the identity of the users?
9. How does TC use of Plaza H relate to TC materials found in the Cahal Pech acropolis?
10. How do the TC patterns seen at Cahal Pech relate to other sites in the Valley and, ultimately, to the entire Mayan lowlands?

Figure 3: Research questions for Plaza H.

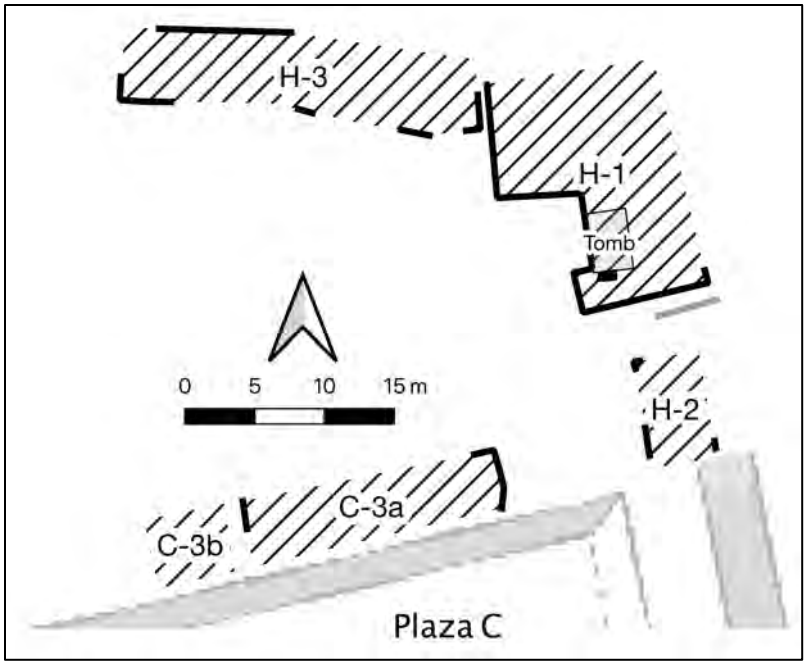


Figure 4: Plaza H Terminal Classic structure walls identified by UM/BVAR (black lines) with presumptive structures shown by hatched areas. Line running east to west, south of H-1, is an earlier Terminal Classic H-2 structure defined in 2018.

The eight-year history of the UM/BVAR project (Douglas and Brown 2011, 2013, 2014, 2015, 2016, 2017) began with the 2011 season, when units were placed to partially uncover the H-3 and C-3 structures of Plaza H. Unit 3 (Figure 5) bisected H-3 and Plaza H. From Unit 3, we recovered a large quantity of lithic debitage close to the surface of the structure and in the portion of the unit that intruded into the plaza (similar to finds by Santasilia 2012:101). Two parallel 1 by 3 m units (4 and 5) bisected C-3 and Plaza H. The excavators uncovered a series of four well-plastered plaza floors, and found an east-west platform wall in Unit 4. We had expected to see a wall running across units 4 and 5 as they were closely spaced and the topography suggested that they were similar. However, Unit 5, one meter farther east, showed only plaster floors until the fourth floor, when a rock feature was identified in the southwestern corner of the unit, disturbing the floor. The feature was distinctly lower in elevation than the platform wall in Unit 4. Unit 6, placed south of units 4 and 5 on what was believed to be inside the platform, revealed a north-south wall on the eastern side at the same level as the Unit 4 platform wall.

In 2012, we explored the stone features in units 4-6 and the eastern edge of the plaza. The subsequent work around Unit 5 demonstrated that the "rock feature" found in Unit 5 was the northeast corner of a lower Terminal Classic building foundation, which had been remodeled by replacing it with the near-surface platform wall located in Unit 4, producing a taller platform with a slightly smaller footprint; simultaneously, the plaza was raised and plastered, covering the earlier, lower Terminal Classic platform corner. The corner of the last platform, found in Unit 5A, aligned with the perpendicular wall in Unit 6. Thus, we found the northeast corner of Terminal Classic platform C-3 and determined that there were two building phases of Terminal Classic construction.

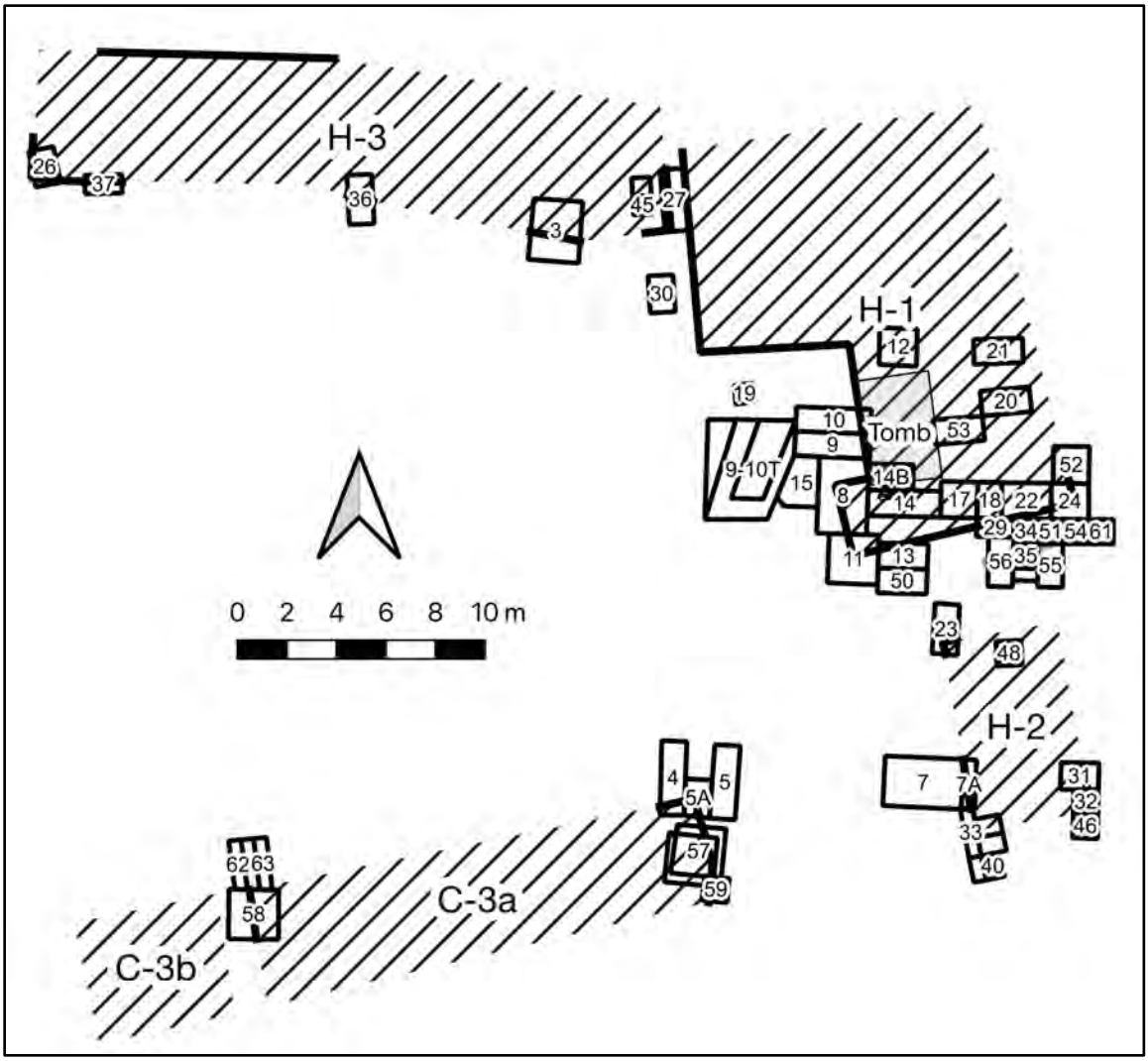


Figure 5: Locations of UM/BVAR excavations in Plaza H, 2011-18.

Other work in 2012 looked at Plaza H's eastern structures, H-1 and H-2. H-2 is near the southeast corner of Plaza H, and the placement of Unit 7 (Figure 5) was to see if there were walls or masonry that connected to the nearby northeast structure (C-2) in Plaza C (Figure 4). However, Unit 7 located a section of the western platform wall of H-2 with a series of plaza floors in front of the wall, making it clear that H-2, as with C-3, stood apart from Plaza C structures to the south.

Unit 8 was dug in H-1; the 2 m (E-W) by 3 m (N-S) unit was placed with the intention of crosscutting the west wall of H-1 and Plaza H, adjacent to the southwest corner of the tomb. The excavation located two thick, surprisingly well-preserved plaster floors and two apparent N-S "walls" (Figure 6 illustrates these floors and walls). Later work (in June 2013) demonstrated that the stacked limestone blocks along the eastern edge of the unit, initially interpreted as a wall, were stacked fill used to block the stairway entrance to the tomb (Figure 6). The crude upright stone wall incorporated part of the lower plaza floor in its interior was part of the later Terminal Classic remodeling event that included the raising the plaza floor, constructing the tomb, and extending the H-1 platform to the south.



Figure 6: H-1-1 tomb staircase stone fill as seen in east unit sidewall and part of the upright stone wall (foreground) in Unit 8 B and D. Also visible are upper plaza floor (foreground) and lower plaza floor (background).

Field research in 2013 was conducted in both January and June (the later in conjunction with the first 2-week session with BVAR students). The season included a limited effort (units 12 and 19) to dig through H-1 and examine the long-term construction history of the platform mound, which extends at least to the Late Classic. However, the greatest effort was placed in expanding Unit 8 from its 2012 boundaries. Ultimately, the units added onto the edges of Unit 8 covered about a 35 m² continuous area, excavated into Structure H-1 and into the adjacent plaza area; all of excavation was terminated before reaching Late Classic materials.

The 2013 excavations connected to Unit 8 can be grouped into three categories, each involving different types of deposits. First, expansion to the north and west (i.e., units 10, 11, 15, 16 Trench 10/11, Trench 10/11 interior) are in the plaza. We found two distinct floors (and some localized evidence of additional floors/plastering events) and a series of rock alignments that served as construction pens when the area had been filled when building the Terminal Classic H-1 structure over the dismantled Late Classic structure. Second, excavators in units 14, 14B, 17, and 18, all east of Unit 8, removed deposits from within the Terminal Classic H-1 structure, generally down to the level of the earlier Terminal Classic plaza floor. This operation also found the staircase for Tomb H-1-1 cut into this floor (the staircase subsequently filled with the stacked rock visible in Figure 6). This feature of the tomb had not been recognized during the 2006 tomb excavations. This eastward expansion of units created a trench across H-1, but it failed to reach

anything recognizable as the eastern wall of H-1, even though surface contours indicated its proximity. Third, units 11 and 13 were added to the south and east of Unit 8 to define the west and south walls of the platform. These efforts provided important data, but were difficult to interpret at the time. Unit 11 was rather disturbed, and while it located a credible southwest corner of the structure, the wall was discontinuous and the deposits ambiguous. Unit 13 had a sizable boulder in its northeast corner that could be a part of wall, and had a dense Terminal Classic deposit of large sherds in its middle levels, different than most units, which tended to have the densest deposits near the surface.

The 2014 fieldwork consisted of diverse efforts to define the architecture of the plaza. The largest portion of this effort was focused on identifying the south and east walls of Structure H-1. This included excavating units 20 and 21 in the central eastern portion of the structure, with the desire to locate the east wall of the structure; however, the excavators determined that the units were inside the structure. In Unit 20, they uncovered a feature: a rough pit with a large amount of charcoal that stratigraphically can be placed in the early Terminal Classic: the pit was cut into the plaza floor that was covered by the final construction phase of H-1. Although these units did not locate an east wall of the structure, excavators were successful at defining the southern walls of H-1 in Units 18, 22, 24 and 29, where they found the southeast corner of H-1 and confirmed the southwest corner and south wall found in 2013. They also identified a dense sherd deposit in Unit 13 along the outside of the south wall.

Other 2014 excavation efforts were scattered across the plaza to look for missing corners of Terminal Classic structures. These efforts included definitively relocating the northwest corner of H-2 (Unit 23); tentatively locating the H-2 east wall (units 31 and 32); and tentatively locating the southwest corner of H-3 (unit 26). Finally, the session was used to explore the previously excavated southeast corner of H-3, including the alleyway with H-1, and some of the surrounding plaza (units 27 and 30). While some of this work simply removed back dirt for mapping, Unit 30 included excavating a series of floors that incorporated dense chert debitage fill, similar in material type and density as initially identified in Unit 3. In all, some 19 kg of chert artifacts were removed from this 0.75 m by 1.5 m unit, consisting of thousands of small flakes. Because this deposit of small retouch flakes is widespread in the northeast corner of the plaza—it was noted in the 2006 excavations as well—but poorly understood, a 2 kg sample was exported to the University of Montana for study (results in Douglas and Brown 2015).

The 2015 excavation units were located within or around H-1, H-2, and, H-3. At H-1, three contiguous units (34, 35, and 49) were placed just south of the structure, with the purpose of testing the extent of the dense artifact deposit found along H-1's south wall in 2013. The excavations demonstrated that the main cultural deposit was about 20 cm thick and located about 10 cm below the ground surface. The deposit tapers off about 2.5 m from the south wall. A large number of sherds was recovered from these units, but also an unusual amount of chert bifaces, granite ground stone artifacts, obsidian blades, marine shell and other items, including human skull fragments from at least one, likely two, humans.

In total seven excavation units (33, 38-40, 44, 46, 48) were placed in or near H-2 to add information about the north wall, the southeast corner, and southwest corner. The results were mixed. The most extensive of these efforts was an attempt to identify and understand how the

southwest corner connected to the larger architectural design of Plaza H abutting with the top of the Plaza C wall, which then drops about a meter to Plaza C. Although tree roots made interpretation difficult, a corner cache with a biface appears to mark the southwest corner of H-2, and a step or terrace to the south (Unit 39) appears to be a route from the floor of Plaza H to the top of H-2 to the north and to the top of C-2 to the south.

At H-3 in 2015, excavation units (36 and 37) were positioned to look for missing gaps in the structure's south wall. Units 45 and 46 were placed on the surface of the mound near the southeast corner, aimed at identifying the source of the flint knapping activities that produced the dense deposits around H-3, as noted in earlier excavations (units 3 and 30 discussed above).

The 2016 project continued explorations at and around H-1. Unit 53 tested the interior of H-1 near the tomb, targeted to locate any additional features related to the tomb. Although no new feature was located, the unit allowed a better description of the east tomb wall and the buried fire feature first described in 2014 at the bottom of Unit 20, predating the final construction episode for structure H-1. Unit 52 extended the search for the structure walls north of the SE corner of H-1; that work showed that the stone wall ended just north of the corner. A third area of excavation just outside the southern wall continued to inspect the extent and content of the dense sherd deposit, accompanied by an unusually rich density of stone tools, shell items, and human and faunal remains. The three excavated units, 50, 51, and 54, lay between 25 cm and 2 m from the south wall of H-1, testing the special deposit. Beyond adding significantly to the number of special finds from this deposit, these units were important for studying the spatial patterning of artifacts in the deposit (see Douglas and Brown 2017).

The testing outside H-1's southern wall below the rich cultural deposits detected a single stone alignment below the rich cultural deposit that paralleled the south wall of structure H-1 but was about 1.35 m to the south; although visible in units 35 and 51, its clear definition in Unit 54 demonstrated a previously undefined architectural element that called for further field study.

RESEARCH DIRECTIONS FOR 2018

Research in 2018 focused on two architectural features. The first was an alignment south of H-1 recognized in Unit 54 in 2016 (Figure 5). We wanted to know: What was the western and eastern extent? What purpose did the feature serve, and did it relate to the known architectural features? The excavations of Unit 34 in 2015 had documented the top of the wall, although its significance had not been understood at the time—excavations had ended with the bottom of the special deposit, which corresponded with the top of the alignment. In Unit 54, it appeared that ballast filled on the south side, indicating that the structure related to H-2 rather than H-1, but the exposure was small. We also knew that further excavation at least on the western side of the alignment would expose more of the special deposit, and likely provide more information on the range and organization of artifacts in that deposit (Douglas and Brown 2017), which served as a secondary goal for the excavations south of H-1.

In selecting a second area for excavation in 2018, we were mindful that because of changes in the University of Montana academic calendar, this was likely the last winter season of the UM/BVAR field school, and therefore a final opportunity within that framework to map the plaza,

with the ultimate aim of future reconstruction and public interpretation. After reflecting on what was most poorly understood in the Plaza, we were drawn to structure C-3. The AFAR program, working with BVAR in summer 2010, had excavated a significant portion of the structure in 2010, providing new details of the structure, although no map was published (Prichard and Prichard 2011); the UM/BVAR project had worked on defining the northeast corner of the structure in 2011 and 2012, but then stopped work on the southern edge of the plaza. We therefore sought to define the southeast corner of the structure and better locate the western limits of C-3 during the 2018 field season.

METHODS

Units were placed to expose various features and deposits based on expectations from surface indicators and/or the results of previous excavations. The units were generally aligned to magnetic north. Excavation units on our project have been given a sequential number within the plaza (starting with number 3); extensions and subdivisions were given letter suffixes. We excavated most deposits with hand picks and buckets, and used trowels for finer work, such as identifying floors. Students worked closely with the experienced members of the crew in evaluating and identifying fill and features.

Vertical and horizontal control during the excavation emphasized natural stratigraphy and context. At the start of each level, a level form was begun, including measuring the depth of the unit's corners with a line level from an arbitrary elevation point. Levels were halted when there was a significant change in the deposits, generally signifying architectural features: fill, walls, or floors. The exception to natural levels was near the surface in the excavations, where the change from the A horizon to lower levels tended to be gradual; first levels were ended around 10 cm. Once a level ended, closing elevations were noted on the level forms, artifact bags for the level closed, final photographs taken, and summary notes made on the level form. In cases where horizontal differences were identified, units were subdivided using letter designations, with subsequent levels kept separate.

The excavation units, elevation stakes and nails, and visible walls, were tied into the site coordinate system by measuring to known points determined by Rafael Guerra with a Topcon total station in previous years. A master map has been developed from the seven years of work and is kept in the geographical information system QGIS 3.

All deposits, minus large rocks and ballast stones, were screened through ¼" screen. All cultural materials were collected, with the exception of undecorated ceramic body sherds smaller than 2.5 cm. Ecofacts were also collected, such as animal bones as well as freshwater and marine mollusks. The retained materials were bagged by unit, level, and material type, washed (when appropriate), dried, and then repackaged for later study.

Documentation is an important part of the project. Accurate and thorough record keeping was a priority; students were given written instructions on note keeping (Douglas and Brown 2012b) and provided regular feedback on their field notebooks. Douglas and the students kept notebooks with field observations. These notebooks, along with the level forms and profiles, were retained by BVAR as part of the primary record of the excavation; PDF copies were kept by UM.

Extensive digital photography, taken with a Pentax Optio WG-3 16 megapixel camera, was also used to document the excavations. The mug board and north arrow placed in the photographs of the units provided information on the unit, level, date, scale, and cardinal direction. The names of the photo jepg files were recorded in student notebooks and level forms to provide the full context of each photograph.

While excavating and identifying level changes, students were encouraged to tag floors and distinctive sediments observed in the sidewalls to improve the accuracy of the final profile for the units. Detailed plan maps and profiles were drawn when relevant. More information about field and laboratory procedures, including profiling, can be found in Douglas and Brown (2018). None of the excavation units reached bedrock or sterile soil.

EXCAVATION UNITS AND FEATURES

Nine units, numbered 55 through 63, were excavated in 2018 (Figure 7); unit summaries are in Appendix 1. The discussion below categorizes these units in three groups: south of H-1 (55, 56, and 61), eastern end of C-3a (57 and 59), and western end of C-3a (58, 60, 62 and 63).

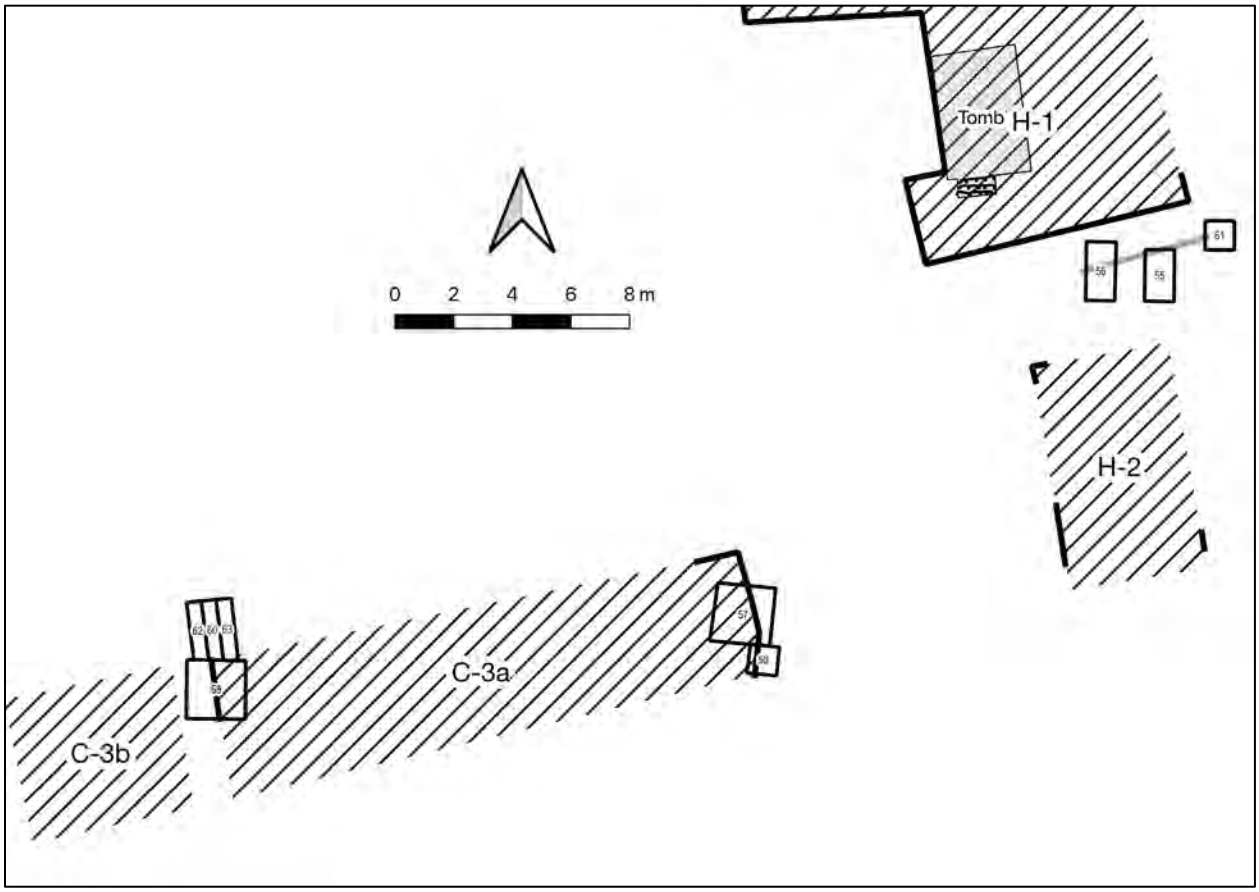


Figure 7: Location of 2018 excavation units.

Units south of H-1

Excavation units 55, 56, and 61 all abutted 2014 excavations near the southeast corner of structure H-1. The primary purpose of these units was to better define a puzzling wall feature identified in Unit 54 (shown in Douglas and Brown 2017:91, Figure 12), which was thought to be an early Terminal Classic structure not previously recorded. In addition, Unit 55 and 56 further described the floors and special deposit that were exposed in earlier units, and Unit 61 provided information on the limit of the intact Terminal Classic deposits.

Unit 61, 1 m^2, was located east of Unit 54, at the edge of the hill slope, making it the farthest east unit excavated by the UM/BVAR project. The purpose of the unit was to follow the rock feature that could be seen in the eastern wall of Unit 54. Excavating at this location proved challenging, because a nearby tree had blown over between seasons, blocking the east extension. After the sizable trunk was removed, Unit 61 was laid out and excavated in two levels. The movement of the root mass had caused some damage to the upper level of the unit, although it did not affect the integrity of the alignment. The excavators found that the rock feature ended at the very west end of the unit, not extending beyond the rock visible in the east profile of Unit 54. The loamy, dark soil throughout both levels was distinct from the cultural deposits found in the units to the immediate west. The undifferentiated deposit was artifact-rich, but intermixed a piece of slate, an obsidian blade, chert chipped stone debris, and sherds amongst historic materials ranging from bottle caps to a mop handle. Although the prehistoric artifacts likely relate to the Terminal Classic deposit to the west, the unit's contents appear to be a mixture of different temporal materials. Formation processes are clearly at work here where we have at the edge of the site's mound a combination of erosion and an area being used to discard unwanted items. Although the recovered artifacts are out of primary context, the excavation of the unit was important for defining the limits of the alignment. As in the northeast corner of the plaza with H-1, an abrupt termination of a structure, including the lack of a corner, reflects erosion or possibly the removal of rocks from the back of the structure for reuse, rather than the architectural plan.

Units 55 and 56, farther west, are 1 m east to west and 2 m north to south. They were more productive in defining the feature. The units are located south of previous excavations in the special deposit, in line with the alignment noted in 2016. The excavation of these units was deeper than the previous nearby units: rather than ending at the bottom of the special deposit, each unit was taken down two additional natural levels for a total of 50 cm of excavated deposits in six levels. These additional levels served to expose the alignment and ballast in the structure evident in Unit 54. Thus, these excavations provided information about both the special deposit and the underlying structure.

For both units, the special deposit was found in Levels 2 through 4, and represents a considerable mass of artifacts, including 2,962 sherds; among these sherds is a pseudoglyph from a probable Martins Incised vase; 20 obsidian blades; and a range of other special finds including a notched arrowhead and a large biface. These finds are inventoried and presented below in the artifact section.

Previous excavations have documented patterned variation within the deposit, therefore it is unsurprising that these units differed in important ways, even though they are only 1 m apart.

Density peaked in level 2 for Unit 55 and a tamped earth floor was located at the bottom of Level 3. In Unit 56, no such floor was discovered, perhaps because of differences in past disturbances, and the artifact density peaked in Level 3. Further, the artifact density in Unit 55 was higher, with sherds by weight about four times higher and by count five times higher than Unit 56.

Interpretation of Unit 54 in 2016 suggested that the stone alignment was backed by structural ballast to the west, indicating a wall defined a low structure related to H-2. That unit, however, did not allow a definitive examination of the structural fill. Units 55 and 56 resolved the issue, confirming the structural fill on the south side. The wall is made of rough stones and the fill consisting of a moderate density of medium to small stones with a considerable amount of fine matrix (Figure 8). The floor in front of the structure is at the same height as the floor the tomb was cut into (Douglas and Brown 2015), indicating that the structure dates to the early Terminal Classic construction phase of Plaza H. The structure must have been covered before the second phase of construction, and because it is below the Late Terminal Classic plaza level, could not have served as a step or apron for H-2. The structural fill, about 20 cm thick, rests on a plaster floor that was not excavated, but its depth suggests that it is Late Classic in age, equivalent to Late Classic floor levels found under H-1. Implications of this structure are discussed in the conclusions.



Figure 8: Unit 56, bottom of Level 3, showing wall crossing e-w in the unit and some of the rock fill to the south (left in this picture).

Units on the east end of C-3

The east end of C-3 was the subject of UM/BVAR excavation in 2011 and 2012: these defined the northeast corner of the structure and part of the east wall. In the 2018 season, we sought to trace that wall to the south where it meets the Late Classic structure defining sunken Plaza C to the south. Unit 57, a 2 m by 2 m unit, was intended to trace the eastern C-3 wall, but was poorly placed. Given that the original units locating the walls had been backfilled in 2012, and there was no survey equipment to check locations, Unit 57 was laid out base on original photographs, field

notes, and recollections. It was only after completing Level 1, dug to an average depth of 10 cm, that it was noted that the still-present nail employed as the elevation datum in 2011-12 had been mapped and therefore a reference point for taping the location of Unit 57. Positioning Unit 57 on the GIS map made it obvious that ~70% of the unit overlapped with Unit 5 from 2011. The excavators confirmed that most of the relatively meager near-surface artifacts had come form the east and north sides of the unit, coinciding with the portion of the unit that had not been previously excavated. Excavation of the unit was halted.

After the completion of Unit 57, a check of 2011 photographs of Unit 5 showed that Level 1 of Unit 57 had exposed the top of the east wall of C-3 near the unit's southeast corner. That exposure simplified placing a meter square unit, Unit 59, to intercept that wall and trace it further south. We chose a small unit because a tree and the steep slope to the Late Classic wall defining sunken Plaza C made it impossible to place a single unit without committing to tree removal, which was not an option.

Unit 59, however, answered most questions concerning the east side structure C-3. A well-defined, roughly N-S, Terminal Classic wall was discernible in Level 1 and the two stone high wall, made of rough boulders, was fully visible at the end of Level 2, running nearly the length of the west side of the unit. The east wall of C-3 near its southern end changed orientation slightly from its northern segment. The southeast corner of the structure appears to be located in the southwest corner of the unit, although a larger exposure is needed to confirm that this unit exposed the entire wall. A thick plastered floor, up to 18 cm, was found at the level of the wall's base at the bottom of Level 2; below this is another, not as well preserved, floor, followed by a third plastered floor about 75 cm below the ground surface. At this point, the bottom of Level 4, this 1 m^2 unit was 45 cm below the structure wall. The small quantity of mostly plain ceramics in Level 4, between the second and third floor, was entirely calcite tempered (no ash temper pottery), suggestive of a Late Classic rather than a Terminal Classic occupation level. Excavations were stopped at Level 4, ending work on this portion of the Plaza.

Units on the west end of C-3

Unit 58 and its contiguous added units (60, 62, and 63) represent the only 2018 excavations of an area unconnected with previous testing. We excavated a flat, open area on the southwest portion of the plaza, shaded by large trees. In past seasons we were reluctant to conduct work in this area because of the 2010 AFAR excavation (Prichard et al. 2011) along the western portion of structure C-3 had answered most questions concerning the size and western wall of C-3. From the incomplete spatial data from that project—specifically, their report does not provide a map of features and units, although we have a coordinate file of labelled survey points that provides some spatial information— it appeared that there was a sizable gap between our work on the eastern portion of C-3 and the AFAR work farther west. From the data available, the AFAR excavations located what they believed was the northwest edge of the C-3 about 6 meters west of where we placed Unit 58.

We intended the 2 m^2 Unit 58 to intersect the north wall of structure C-3 between these two early projects. The unit is about 18.5 m southwest from the northeast corner of C-3. When platform fill was exposed in the southeast corner of the unit at the bottom of Level 1, the unit

seemed to be yielding the expected results. But, this was confounded when a north-south, rather than east-west, platform wall emerged dividing the unit near the middle. Platform fill was identified for the east portion of the unit, and a carefully constructed, by Terminal Classic standards, two-course wall divided this platform with a western plastered floor at the base of the wall. It appeared that we had located the northwest wall of C-3, in contradiction to the AFAR report, an issue that we return to below.



Figure 9: Western wall of structure C-3a as defined by Unit 58.

The floor to the west was exposed at the bottom of Level 4, about 30 cm below ground level, 20 cm below the top of the platform. The wall appeared to have been subject to erosion, likely with a top course missing, as the platform fill was higher than the wall. But the apparent corner stone was not followed by an alignment to the east, but covered by a high floor in the northeast corner of the unit. Because C-3 has been considered the final occupation of the plaza, the plastered surface was confusing; we wondered if it was a step, but the location seemed unlikely for such a feature.

After the structure wall was defined to its base, we first turned to excavations to the west of the structure, labeled Unit 58a after Level 4. A second plaster floor was found 7 cm below the floor at the base of the structure, ending Level 5, and a last identified floor 3 cm deeper, ending Level 6 (Figure 9). The sequence of lower floors was identical to the floor sequence found near the southwest corner of structure C-3, 20 m to the east, as discussed for Unit 59. Further, similar to Unit 59, field checking the 102 sherds between the second and third floors found no obvious diagnostic types, but the absence of ash-tempered Belize Red Group is suggestive of a Late Classic date. We concluded that the wall and platform are consistent with the eastern corner of structure C-3.

In sum, the platform and wall feature in Unit 58 makes stratigraphic and locational sense as the northwest corner structure C-3. But the north-south wall is also confounding, for two reasons. The first is that Prichard et al. 2011 suggested that a west-facing, stepped entrance onto C-3 was located some 7 meters further west. Without access to all the information collected by Prichard et al in 2010 and/or the resources to do large-scale excavations to expose all structures in the southwest area of Plaza H, it was not possible to definitely explain the discrepancy. The obvious possibility is that the 2010 excavations found a small, standalone structure to the west of C-3, suggesting that C-3 should be subdivided into a C-3a and C-3b. Another possibility is that the structure identified in the Pritchard et al. 2011 report was from an early Terminal Classic architecture, not the final arrangement. Work in 2012 (Douglas and Brown) identified a low structure at the northeast corner of C-3; it is possible that early structure extended west well beyond the later structure walls, just as the location of early Terminal Classic H-2 walls appear discussed early in this chapter are very different than the Late Terminal Classic version.

The more immediate difficulty, which we tackled with further excavation, was understanding the lack of a clear north wall and the high plaster floor in the northeast corner of the unit. This floor doesn't fit the overall reconstruction of Terminal Classic Plaza H: the area north of Unit 58 should drop off into the Plaza floor, as found by both UM/BVAR (Douglas and Brown 2010) and Prichard et al (2011) to the east. In order to provide more information on what lay to the north of Unit 58, a narrow trench, 2 m by 0.5 m, labeled Unit 60, placed in middle north wall of Unit 58, placed and oriented to follow the identified wall to determine if it continued to the north. No such wall was located; instead, a plaster floor appeared at the bottom of Level 2 at the same elevation as the plaster the floor in the northwest corner of Unit 58. The unit ended at the top of a third floor, apparently massive—its thickness was partially visible because of heavy root disturbance. The floor averaged 37 cm below the surface, considerably higher than the floor at the base of the wall in Unit 58. Adding further confusion to the enigmatic feature was a large herbivore tooth embedded in final floor (Level 4); from photos, a veterinarian tech in Montana, Torrie Thompson (personal communication 2017), identified the tooth as from *Bos taurus.*

Puzzled by the high floor and lack of a north wall for C-3, and with only an afternoon to excavate before profiling and backfilling on the last field day, we opened up the narrow trench by adding flanking 0.5 m by 2 m units, Unit 62 to the west and Unit 63 to the east. These units, guided by earlier excavations, were dug in two levels each. The same floors were found in the expanded examination of the deposits. A stone in alignment to be possibly part of the north wall of C-3a was found in the southeast corner of Unit 63, but these units were not dug to a depth to fully test for a north wall of C-3a, because we traced the high floor north of the structure.

The only viable explanation of the high floor visible in the corner of Unit 58 and Units of 60, 62, and 63 is an episode of construction after the filling in of Plaza H—post-dating the "final" Terminal Classic occupation. This is an important and surprising find, not previously recognized. The artifacts overlying this high floor include domestic materials: freshwater shell, a groundstone fragment, a nondescript collection of weathered sherds, and chipped stone, including obsidian blades. Could the historic cow tooth found in Unit 60 suggest that these native artifacts on the plastered floor date to the Spanish Colonial period? Possibly, but tree disturbance of the floors found in Unit 60 was heavy. A variety of formation processes scenarios could explain how this tooth ended up stratigraphically at level 35-40 cm below the present ground level.

RECOVERED ARTIFACTS AND ECOFACTS

Three analyses were conducted in 2018: (1) a summary of the 2018 recovered artifacts and their contexts; (2) a study of Mount Maloney Black paste variation through microphotography and thin section studies; and, (3) a study of Mount Maloney Black slip and paste through chemical analysis. These are summarized in turn.

2018 Recovered Artifacts

Linda Brown led the laboratory efforts during the field season. Recovered artifacts and ecofacts were washed (when appropriate) and sorted by provenience and material (Table 1). There were 34 proveniences (levels or other subdivisions within units) as detailed in Appendix 1; thus, the Table 1 column "proveniences" provides the number of contexts where an artifact category occurred and thus providing a measure of the ubiquity of categories (e.g., there were 34 proveniences in total, so 100% included ceramics and chert chipped stone).

Table 1. Artifact categories, number of proveniences represented, and frequency.

Material	*Proveniences*	*Frequency*
Charcoal	8	
Ceramic	34	5,158
Chert chip stone	34	1,337
Daub	1	7
Faunal Remains	6	9
Granite	1	1
Historic (recent)	3	3
Human Remains	1	1
Obsidian	19	31
Quartz	3	7
Special find	34	54
Shell	31	129
Slate	4	5
Speleothem	1	1

Following the pattern of previous seasons, the special deposit south of H-1, Units 55 and 56, were responsible for most recovered objects (62%), with a high density of artifacts compared with most Plaza H deposits. However, the H-1 units excavated this season were farther from the south wall of H-1 and recovered somewhat fewer items of high symbolic content compared with the previous two seasons. The higher symbolic content items from the special deposits this year included two adorno or ocarina fragments; two polished pieces of marine shell; a tiny stone mosaic piece; and a sherd showing a pseudoglyph (Figure 10). The last is tentatively typed as Martins Incised, a type of Belize Red Group. This example is tempered with fine calcite, which, despite its identification with Belize Red, was a characteristic of about 8% of Gifford's initial sample of Martins Incised (Gifford 1976:262). LeCount (1996:158) suggests the type is "restricted to the

Late Classic II phase" in the Upper Belize Valley. No similar sherds have been identified previously in the UM/BVAR excavations.

Besides those finds having unusually high and obvious artisan or decorative qualities, other potentially symbolically charged objects were found in the special deposit. A possibly human vertebra was found in Unit 55, Level 4, adding to the scattered human bone discoveries from this deposit. A small, notched, projectile point (Figure 11) was found in Unit 55, a style strongly connected with the Terminal Classic. Only one other notched point has been reported for Plaza H, found near the southeast corner of H-3 (Santasilia 2011). A small metate fragment made from a sedimentary rather than granitic rock was also found in the deposit (Unit 55, Level 3), joining other metate fragments from the deposit. A large (17.5 by 6.7 by 3.7 cm), complete biface of coarse chert was found in the special deposit (Unit 56, Level 3), raising the total count of chert bifaces from the deposit to 13. Finally, half the obsidian blades (17 out of 34) from this season's work were from the special deposit. All obsidian from the 2016 and 2018 seasons were scheduled for export for further study by Claire Ebert over the summer, so these artifacts were individually recorded in 2018. In the process, we noted that one blade found from the special deposit in 2016 (Unit 51, Level 3), 27 mm long, is from green Pachuca obsidian, the first such sourced material identified from the special deposit.



Figure 10: Sherd with a pseudoglyph on a probable Martins Incised vessel from Unit 56, Level 2. Scale in CM.



Figure 11: Notched projectile point, Unit 55, Level 2. Scale in CM.

Table 2: Chert artifacts recovered in 2018.

Category	*Count*
Projectile Point	1
Large Biface	2
Unifacial tools	22
Core	15
Core/hammerstone	1
Flakes	1,337

Finally, we systematically separated out tools and cores from flakes among the chert chipped stone, putting these modified stones in special finds. Table 2 provides a basic breakdown of the chert objects for the season. The special deposit is relatively impoverished in chert flakes with about 37% of the season's total derived from Units 56 and 57 (compared with 69% of the ceramics), hinting that flakes were treated differently than most of the objects left south of structure H-1. It is possible that the flakes found in the special deposit were not purposefully included. Because Table 2 crosscuts different contexts, it provides relatively little specific information on chipped stone manufacture and use, although the high flake and tool to core ratio reinforces the idea that early stage reduction frequently occurred outside the plaza (see Douglas and Brown 2017; Santasilia 2011).

Mount Maloney Black Paste and Slip Studies

Mount Maloney Black (MMB) shows an unexpected surge in popularity in the special deposit south of H-1, compared with earlier deposits in Plaza H, and that change possibly provides evidence for how Plaza H was abandoned. MMB is a simply made calcite tempered pottery type (Pine Ridge Carbonate ware) featuring a fugitive black slip (Figure 12) generally in the form of incurved bowls with a sharply defined lip, and sometimes modest-sized jars with necks (Gifford 1976: 242). The high ratio of MMB made us interested in how the sherds at Cahal Pech might relate to Xunantunich, where the type is a defining utility ware from the Late Classic through the Terminal Classic (LeCount 2010; see also the discussion in Douglas and Brown 2017). In asking whether the surge of MMB might indicate Xunantunich influence, we first sought answers to where MMB was produced, using multiple lines of evidence.



Figure 12: Typical exported Plaza H MMB sherd; note the fugitive slip (MBV32, Unit 50, Level 2).

Three different studies were undertaken with a small sample of MMB exported from Belize that included 93 sherds from three contexts at Cahal Pech and one context from Xunantunich. To conduct these studies, John Douglas received two small grants from different organizations at The University of Montana (the Office of Sponsored Research and the Humanities Institute) to examine the chemical variability. Dr. Brandi MacDonald conducted the work at the Archaeometry Laboratory at the University of Missouri Research Reactor (MURR).

The main technique used to determine slip composition was LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry), a sophisticated system to determine the elemental composition of a precisely targeted sample. The application of the technique to these samples was challenging. MMB is not a fine, elite ware, as employed in the textbook examples of slip sourcing. Rather, it is thin and flaky, making it difficult to analyze. Nonetheless, the lab overcame technical difficulties to identify differences in the slips (MacDonald 2018). In a first, smaller study, the slips seemed to segregate by site strongly: Xunantunich showing more use of a manganese mineral paint, Cahal Pech showing more use of carbon to achieve the black color. Trends are present after a larger sample was run, but the variability in slip recipes overwhelms any simple correlation of clusters found by multivariate analysis and the four localities that were analyzed.

MURR further included these sherds in a study of paste variability using NAA (Neutron Activation Analysis), the preeminent technique for identifying elemental variability in ceramic bodies or pastes (available at only two labs in the US). Compositional groups based on the ceramic bodies were tighter and better identified than slip recipes (MacDonald 2018). Some, but not all, paste groups were found in Plaza H at Cahal Pech and the Xunantunich samples, but the proportions were very different. A chi-square calculation for a contingency table of the five paste groups comprising all the grouped sherds found in the two localities shows differences significant at the 0.001 level ($X^2 = 20.5$, N = 60, df = 4). The results do not rule out shared pottery sources, but they do indicate different suppliers for the two sites. Thus, the study provides an answer to the original question: Cahal Pech ceramics were not imported as a group from the Xunantunich ceremonial center. The other two samples, from within the Cahal Pech polity but very different contexts than Plaza H, also suggest local manufacture and specific frameworks for the movement of pottery. An outlying residential group, the Tzutziiy K'in group (Ebert et al. 2016) has most sherds from a single paste group, a group that is rare at other locations, suggesting a third pattern of acquisition. The ritual deposit with many smashed vessels appears highly diverse (both in pastes and slip groups), indicating ritual participants brought pots from diverse localities.

Kara Johannesen, a graduate student at UM, received a 2018 UM small grant (Toelle-Bekken award) to undertake thin section analysis of some of these same sherds. In December, Kara Johannesen completed her thesis, now available electronically through the UM Mansfield Library, using microscopic and thin section techniques (2018). Importantly, her work also suggests differences in the paste recipes found at Cahal Pech and Xunantunich, with the firing, thickness, ratio of matrix to temper, and mineral content all showing differences between these sites.

There is work still to be done in scrutinizing these data for patterns and interactions between these different domains, and to date no attempt has been made to correlate slip chemical

characteristics, paste chemical characteristics, and paste physical characteristics discussed above. This is pioneering work whose potential is still being explored.

SUMMARY AND CONCLUSIONS

The work in 2018 accomplished three major goals that expands our understanding of Plaza H. The first was a larger exposure of the early Terminal Classic north H-2 wall that lies about 1.5 m south of H-1 and 3 m north of H-3, at least as those structures are known in the late Terminal Classic, a structure whose significance was first recognized in 2016. About 4.3 m of this wall has now been traced. It is the clearest example of an early Terminal Classic structure that appears to have been partially dismantled and buried as part of a major renovation of the Plaza that was initiated in conjunction with interring the elite male in the tomb. Evidence of leveling, reconstruction, and covering of earlier constructions by raising the plaza also occurs at the northwest corner of structure C-3a and for H-1, south of the east-west wall northeast of the tomb. Despite the well-defined structure wall explored in 2018, the corners of this structure have not been identified and its overall size is unknown. Assuming a straight wall, Unit 50 should have intersected the wall if it continued 2.5 m farther to the west, but reviewing the forms and notebooks from 2016 verifies that no wall appeared to pass into Unit 50 at the appropriate depth and direction. Presumably, the northwest corner of the structure exists in the critical 2.5 m between units 50 and 56, but that will be difficult to confirm because of a moderate size tree with a dense root system in that span. Unit 61 demonstrated that erosion has removed any traces of the structure east of Unit 54.

The secondary accomplishment of Units 55 and 56 was sampling another 4 m^2 of the special deposit south of H-1. Overall, the artifact density was lower than units closer to structure H-1, but Unit 56, closer to the H-1 structure and more aligned to the middle of the structure than Unit 55, did hold a dense deposit of large sherds characteristic of the deposit. Similar to the other units in the special deposit, there was a higher number of special finds and more diverse assemblage than typically found excavating Plaza H. The finds in 2018 include a metate fragment, a high proportion of obsidian blades, a possible human vertebra, marine shell ornaments, a large biface and a notched arrowhead. The only Martins Incised sherd yet found in Plaza H, which displays a stylized head from a pseudoglyph panel, comes from Unit 56. It is particularly interesting because it may suggest a Late Classic rather than a Terminal Classic date (LeCount 1996).

The remainder of the fieldwork focused on structure C-3a: the southeast corner and, apparently, a newly recognized northwest corner. Unit 57, our 2 m by 2 m initial effort to continue work along the eastern wall of C-3 for the first time since 2011, was regrettably poorly placed and almost completely overlapped with Unit 6, dug in 2011. Fortunately, removing a 10 cm Level 1 helped us relocate the east wall, accurately locate the unit on the map, and then to lay out Unit 59, a 1 m by 1 m unit that allowed us to expose the rest of the east wall, including very likely its bond with the Plaza C retaining wall.

Unit 58, to the west, provided more surprising results. Rather than exposing the expected north wall of structure C-3 that would align with an apparent northwest corner of the structure found by the AFAR project in 2010 (Prichard et al. 2011) further west, a western wall and corner

was found that ended the structure. The only reasonable interpretation is that the AFAR project had located a separate structure; hence, we now divide C-3 into an A and B section. Further excavation, including re-exposing the AFAR work, will be required to fully check the architecture on the western end of C-3.

Equally puzzling, but potentially more significant to the story of Plaza H, is a high, thick, plaster floor, apparently plastered three times, in front of the apparent northwest corner of structure C-3a. Based on stratigraphic placement, this floor must postdate "the final occupation" of Plaza H as it has been defined since 2006. But when and by whom would such a floor be built after the Terminal Classic? The artifacts found on this floor—quite close to the present ground surface—was a rather bland mixture of chipped stone including obsidian, riverine shell, eroded calcite tempered sherds, and some charcoal fragments. A single large granitic fragment *metate*—one of only two *metate* fragments found in the excavations in 2018—adds to the suggestion of household activities. Thus, the floor might be the remains of a house indicating Postclassic reuse of the hilltop, apparently by a non-elite household. The cow mandible fragment near the bottom of these excavations is a historic marker, and is either intrusive or the structure is historic. The floor, although thick, is rough and has been broken by tree roots. Only further research with the artifacts or acquiring absolute dates on objects related to the floor—using radiocarbon dates or some other technique— could potentially answer the occupation period question fully. However, the near-surface context is not particularly promising for precise dating. It is worth noting that a child burial from Plaza G has been ^{14}C dated as likely falls in the Colonial Period (Awe et al. 2017).

Analysis of Mount Maloney Black or MMB pottery from Cahal Pech and Xunantunich, first discussed in Douglas and Brown 2017, is ongoing, although point counts of microphotographs and thin sections (Johannesen 2018) and chemical analysis of slips and paste (MacDonald 2018) are now complete. These studies show that Cahal Pech MMB derives from a different source than Xunantunich, likely from the Cahal Pech area. This is important because MMB is a major component of the special deposit south of H-1, which is thought to indicate a new importance of the type at Cahal Pech just before Plaza H is abandoned, or as offerings brought to the spot shortly after abandonment. Emulation indicates that Xunantunich did not simply replace the earlier assemblage with a type produced at Xunantunich. Nevertheless, rising quantities of MMB either in the final years of occupation (if the assemblage is a termination deposit) or immediately afterwards (if the assemblage is a post-abandonment ritual deposit) likely indicates both more local production of pottery —assuming Belize Red is nonlocal—and an interest in adhering more closely with Xunantunich, likely an indication of economic, political and social upheaval.

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APPENDIX A:
SUMMARY OF EXCAVATIONS

Unit	*Location*	*Size*	*Horizontal divisions*	*Average depth (cm)*	*Levels*	*Comments*	*Excavators that kept notebooks*	*Unique contexts (="lots")*
55	South of H-1 exterior south wall, western portion	1x2 m	None	52	6	Includes part of special deposit south of H-1 and the final Terminal Classic tamped earth plaza floor and subfloor, below which is single course with ballast to the south, likely structure H-2 early	Johnsen, Steffen, Wood	6
56	South of H-1 exterior south wall, eastern portion	1x2 m	None	52	6	Includes part of special deposit south of H-1 and the final Terminal Classic tamped earth plaza floor and subfloor, below which is single course with ballast to the south, likely structure H-2 early	Bauer, Devine, Plattner	6
57	C-3a	2x2 m	None	10	1	After Level 1, it was found that it overlapped ~80% with Unit 4 excavated in 2011. Those unit walls were not visible, but low artifact counts in the unit evident.	Morgan, Salka, Yoder	1
58	C-3a	2x2 m	After Level 5, split into a west side, 58a, with fill and plaza floors, and an east side, 53a, a platform, not excavated	72	7		Morgan, Salka, Yoder	7

Unit	*Location*	*Size*	*Horizontal divisions*	*Average depth (cm)*	*Levels*	*Comments*	*Excavators that kept notebooks*	*Unique contexts (="lots")*
59	C-3a	1x1 m	None	69	4	Exposed the east wall of C-3a and likely the SE corner. Excavated by Itza, forms completed by Brown	Douglas	4
60	C-3a	0.5x2 m	None	37	4	Western extension of Unit 58	Morgan, Salka, Johnsen, Yoder	4
61	H-2	1x1 m	None	57	2	East extension of U 54. Disturbed-eroded materials at the edge of the hilltop. Unit was to locate the east edge of the plaza floor and extent of H-2 early north wall.	Devine, Plattner, Wood	2
62	C-3a	0.5x2 m	None	34	2	West and parallel to U 60	Morgan, Salka, Plattner, Wood	2
63	C-3a	0.5x2 m	None	48	2	East and parallel to U 60	Johnsen	2
							Total Contexts:	**34**

RESULTS OF THE 2018 LIDAR-BASED SETTLEMENT SURVEY AT CAHAL PECH, BELIZE

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INTRODUCTION

Investigation during the 2018 BVAR field session focused primarily on survey and surface collection in the immediate region surrounding the Maya site of Cahal Pech. Survey within this region was divided into two separate environmental zones, the first zone being the low-lying alluvial zone to the north of the Cahal Pech site core, which contains the outlying settlements of Cahal Pech. The second environmental zone examined during the survey was the hilly karstic region to the south of the site core.

Despite multiple pervious surveys in the region (e.g., Awe and Brisbin 1993; Dorenbush 2013; Ebert et al. 2016; Willey et al. 1965), gaps still exist in the survey data for area. Many areas around Cahal Pech were passed over because time and resource constraints, as surveyors must finish their work before the various crops being grown in an area become too dense to meaningfully conduct survey. LiDAR (light detection and ranging) technology helps expedite the process as analysis of a hillshade model produced from the LiDAR data quickly provides a model of the wider landscape. With this technology settlement densities can been estimated and specific areas targeted for "ground truthing". LiDAR has therefore benefitted Maya archaeologists working in semi-urban/agricultural regions in a similar ways to their counterparts working in dense jungle. With this in mind, one of the aims of the 2018 Cahal Pech survey was to continue test the reliability of the BVAR LiDAR dataset.

PREVIOUS SURVEY IN THE BELIZE RIVER VALLEY

The Belize River Valley has had a long history of archaeological survey. The 1954 and 1956 settlement investigations conducted by Gordon Willey and his colleagues investigated the sites of Cahal Pech, Spanish Lookout, Baking Pot, Melhado, Floral Park and Barton Ramie (Willey et al. 1965). Of these sites, Barton Ramie became the focus of more extensive investigation given the fact it was cleared of vegetation and house mounds were clearly visible. Barton Ramie is located roughly 15 km to the east of the Cahal Pech site core (Willey et al. 1965). Willey's investigations represented one of the first extensive archaeological surveys conducted in the Maya lowlands, and laid the foundation for much of the settlement survey and household investigations in the region.

Cahal Pech

Extensive excavation and research at the site of Cahal Pech has only occurred relatively recently, under the auspice of the BVAR Project, despite the site being located in such a prominent place on the landscape. Early investigations at Cahal Pech were conducted by Linton Satterthwaite

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in the 1950s, but ceased shortly after. Excavations recommenced at the site in 1984, and have continued for the last three decades under the guidance of Dr. Jaime Awe (Awe 1992). Despite the scale of investigation at the site core recently, the immediate hinterlands of the polity have been less intensely investigated (but see Ebert 2017).

Surveying began in 1989 with the aim of creating the first comprehensive map of the Cahal Pech site core and to create an area around the central structures for the creation of what is now the Cahal Pech Archaeological Reserve. In addition to creating the map, another goal was the recording of settlements found in the hinterland regions of Cahal Pech, as they were rapidly being destroyed by development. The survey recorded features in an area roughly 1 km x 2.5 km from the Cahal Pech site core, resulting in a total of 75 recorded groups, many of which are part of the southern "tail" seen in Figure 1. The 1993 field report (Awe and Brisbin 1993) noted the difficulties of preforming survey in the region, as well as the impact the development has had and continues to have on the settlement groups in the area (see also Ebert et al. 2016).

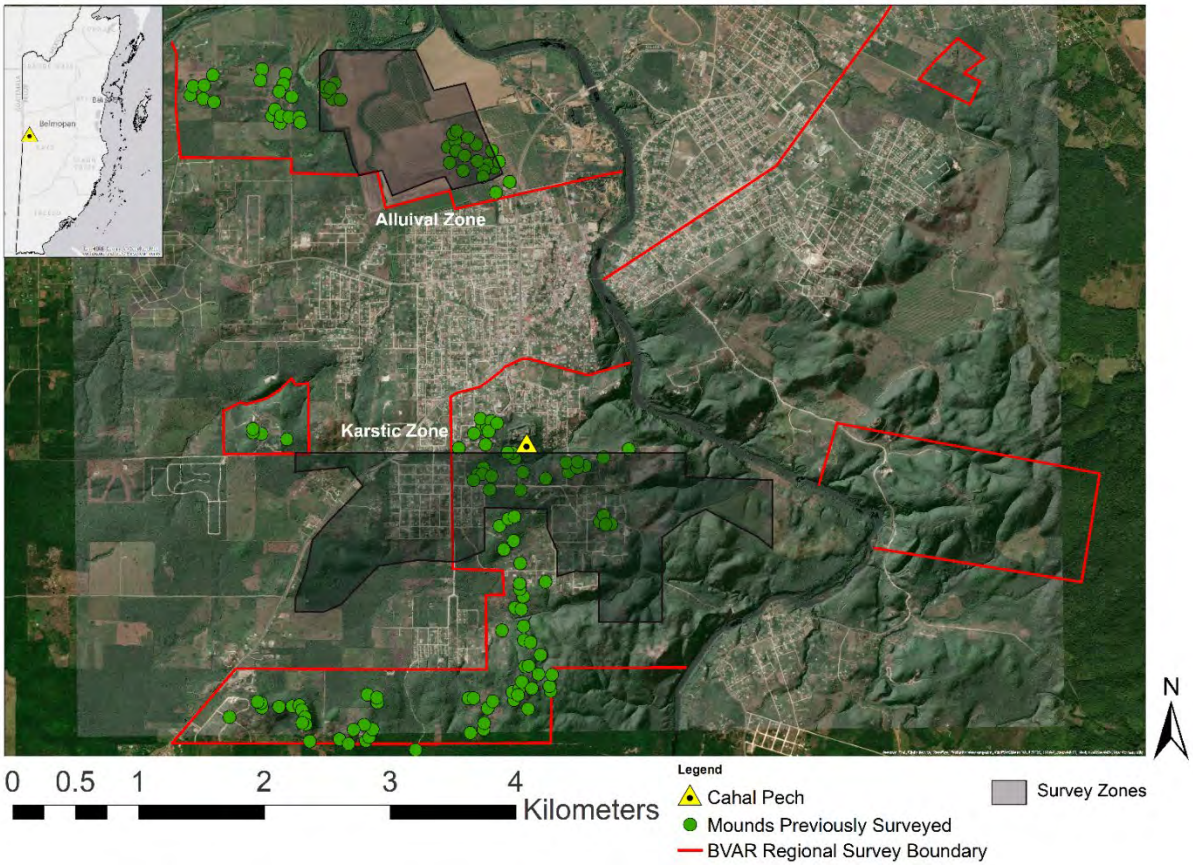


Figure 1: Map of the Cahal of the Cahal Pech sustaining area with the BVAR regional settlement survey data included. In addition to this research's survey zones, mounds recorded in past surveys are in green. (Imagery Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community).

Little survey work was performed in the hinterlands of Cahal Pech after the 1989 survey was completed in 1995. Survey again began in the area in 2011 (Dorenbush 2012), with a focus on settlement groups in the southern periphery, as these were least disturbed by modern development. During the 2012 survey, efforts were focused to the northwest of the Cahal Pech site core, in the corn fields and orange orchards located in the alluvial soils. The results of the 2012 survey indicated the presence of densely settled areas in these alluvial regions, with mounds spread evenly across the landscape. Dorenbush notes that this distribution is in opposition to the settlement distribution found to the south of the Cahal Pech site core, where settlements were less evenly distributed (Dorenbush 2013).

In contrast to the elevated and canopied site core, the Cahal Pech hinterland encompasses two environmental zones, fertile alluvial bottomlands to the north and hilly limestone regions to the south. The rolling landscape found in hilly regions, combined with the presence of dense brush in this area, makes traditional ground survey particularly difficult and time intensive and makes Cahal Pech an ideal context to employ LiDAR assisted survey. Furthermore, the variability in environments across the settlement allow us to compare how settlement patterns change in different ecological zones. The site also offers a good opportunity to test the reliability of LiDAR data in two very different environments.

LiDAR Analyses

The use of LiDAR in Belize for archaeology first began with a LiDAR survey of the site of Caracol (Chase et al. 2011; Chase et al. 2012). During these studies, the advantages of LiDAR in rugged, tropical environments was shown as the survey revealed structures and features which were otherwise hidden by the terrain, including small scale features such as chultuns and agricultural terraces. The LiDAR data allowed for the examination of the site as a complete whole, rather than as a small sample of complete site. This in turn provided better examination of the spatial relations present between the structures found at the site and therefore a more complete understanding of ancient Maya society.

The success of the Caracol LiDAR survey led to the 2013 Belize Valley Lidar Survey, which recorded 1057 km^2 of west central Belize. This large survey provided a wealth of information about ancient settlement densities, land use practices and the scale of regional polities in the region (Chase et al. 2014) and was subsequently applied to mapping efforts done in Belize Valley (Awe et al. 2015; Ebert 2015; Ebert et al. 2015; Ebert et al. 2016). Recently, BVAR researchers such as Dr. Claire Ebert and John Walden have employed LiDAR to understand the settlement systems of the Belize River Valley and to reconstruct the settlement hierarchy (Ebert et al. 2016; Walden et al. 2016).

Ebert preformed the first survey and study using LiDAR in the area during the 2014 BVAR field season. Topographic Position Index (TPI) spatial analyses were used in combination with the LiDAR data received from the 2013 Belize Valley Lidar survey to identify archaeological features in three survey zones around Cahal Pech. These identified features where then ground-truthed, recorded and mapped. The 2014 survey further filled in the survey gaps present for settlements in the Cahal Pech periphery in addition to establishing a LiDAR based survey method. Ebert and colleagues preformed another study at Cahal Pech utilizing LiDAR in 2016, which expanded upon

the 2014 research and preformed TPI analysis at two other locations in the Belize River Valley, the sites of Baking Pot and Lower Dover (Ebert et al. 2016).

SURVEY AND LAB METHODS

Field Methods

Before the 2018 field season began, preliminary analysis of LiDAR data collected during the 2013 Belize Valley LiDAR survey (Chase et al. 2014) was performed to allow for the tentative identification of possible structural groups and other sites of archaeological interest. In addition, the 2018 survey also built upon past pedestrian survey in the region (Awe and Brisbin 1993; Dorenbush 2013; Ebert 2015). Previously published reports and maps were used to identify areas within the chosen environmental regions, which remained un-surveyed. Survey methods in the field setting used standard BVAR procedures for tape and compass surveying and mapping. A GPS point was taken in the patio of smaller residential groups and the plazas of larger elite centers, then the surrounding settlement was sketch mapped from that point (see Walden et al. 2016). The height of the mounds was also recorded. For plowed mounds we used the methods developed by Walden et al. (2016) to arrive at a rough idea of the structural arrangement around and patio.

Survey consisted of the crew walking in spaced transects across the settlement group, collecting or flagging any artifacts discovered as the crew progressed. Diagnostic ceramic sherds were the primary focus of surface collections as these provided some relative chronological data about when different households were occupied. Survey efforts attempted to collect at least 30 diagnostic ceramic sherds from each Surveyed Group (SG), though this was not always possible. The collection of 30 diagnostic ceramic sherds represents the minimum number needed to make comparisons between settlements in different ecological zones with a decent degree of statistical significance. In some instances, other cultural materials were collected such as lithic tools and points.

Settlement Typology

Prior research at Maya sites has employed a site typology categorizing groups by the number of structures, spatial arrangement, and architectural volume (Ashmore and Wilk 1988; Becker 2003; Ebert 2015; Hoggarth 2012). At the Cahal Pech, groups have been divided into seven types based on structure number, structure height, spatial arrangement, and presence of absence of a focal structure, based on a typology developed at the nearby site of Xunantunich by Wendy Ashmore and Jennifer Ehret (Table 1; Ashmore et al 1994). Accordingly, as the Xunantunich group typology has been developed in the area, it has been used for this survey.

Table 1: Group Typology (after Ashmore et al 1994; Ehret 1995).

Group Type	*Attributes*
Type I	Isolated mounds 1m or less in height.
Type II	Informally arranged patio groups or clusters of mounds 1m or less in height
Type III	Formally arranged patio group 1m or less, lacks a focal point.
Type IV	Structure-focused groups of 1-2m in height.
Type V	Group-focused clusters of low to moderate height with at least one formal group on a platform.
Type VI	Formal patio group with platform and mounds 2-5 meters high.
Type VII	Formal Patio group with platform and focal mounds 5 meters or greater in height.

Laboratory Analyses

Ceramic analysis focused on the categorization of diagnostic ceramic material using the type-variety system outlined by Gifford (1976). Because of the extreme slip erosion present on many of the sherds in the assemblage, the author primarily used rim forms to type sherds to particular groups. When a ceramic sherd could not be assigned a specific type because of extreme wear, a ware type was assigned instead. If neither type could be assigned, the ceramic was labeled as unknown.

Lithic analysis involved the identification and morphometric analysis of lithic tools. The dimensions of lithic tools were measured and the descriptive qualities of the artifact recorded in an excel spreadsheet, focusing on color, texture, wear, and the presence of diagnostic features such as platforms or shelves. Lab photos were taken of each lithic tool for further identification in the future.

SURVEY RESULTS AND ANALYSIS

Settlements

The 2018 survey of the Cahal Pech region recorded a total of 62 settlement groups. Of the groups, 31 were found in the low-lying alluvial regions by the Macal River, while the other 31 groups were present in the karstic, southern region of the site. With the addition of this field seasons findings the total recorded groups in the survey region numbers 201 groups, though several locations have been identified with more possible groups. In both environmental regions, extreme site erosion and destruction was present, either in the form of agricultural practices such as plowing in the north, or bioturbation and bulldozing for construction in the south. The destruction was particularly notable to the southeast of the site core, as much of the area appears to have been repurposed for either cattle pasture or modern habitation.

Alluvial zone

Despite years of agricultural activity, the settlement groups located in the alluvial zone are still apparent on the landscape when the fields lie unplanted. The groups located in the alluvial flood regions appear to be more densely clustered than groups found in the karstic region. Almost all of surveyed settlement groups were found within a kilometer of one another (see Figure 2), and there is some evidence the groups continue to the west, though during the time of survey this region became an impassible seasonal swamp. The groups appear to form a clustered "string" along an embankment that serves as the high-water mark for the zone and settlement density appears to drop off approximately 0.25 km south of the embankment, possibly due to flooding.

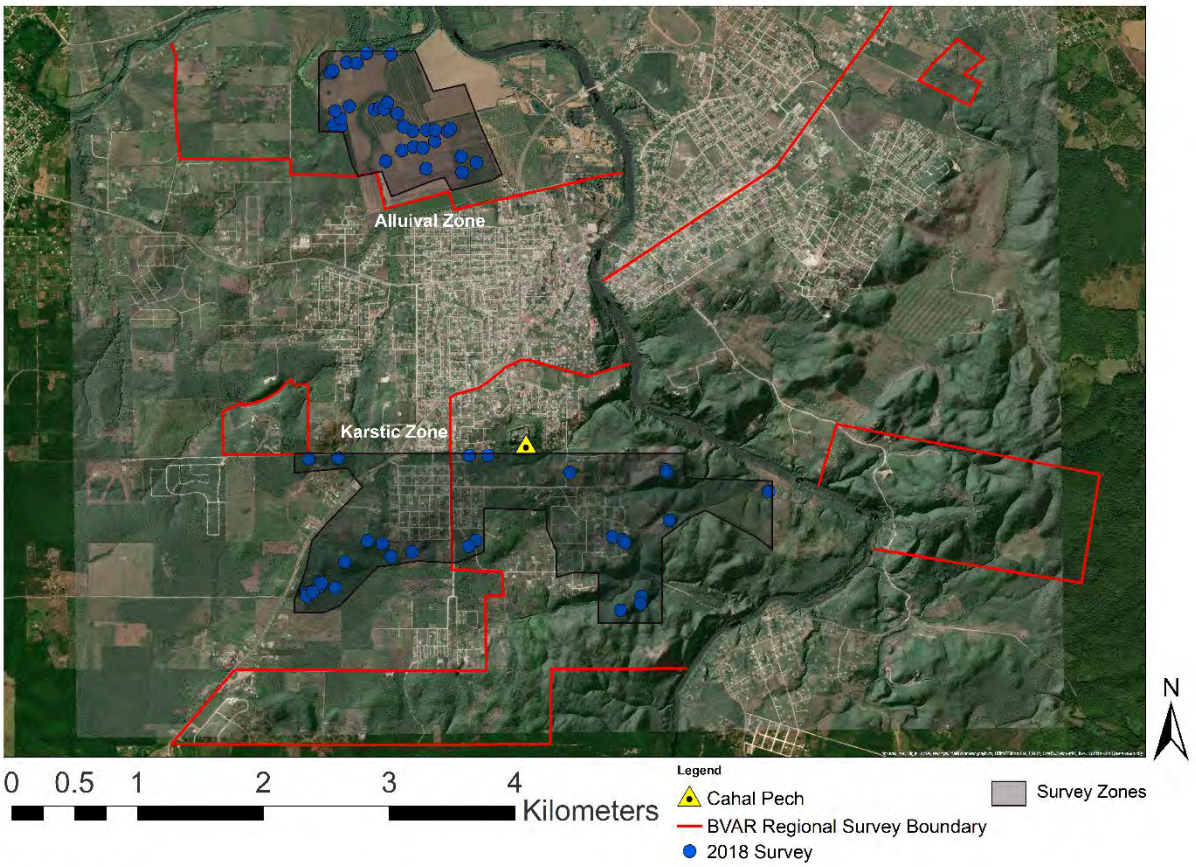


Figure 2: The survey zones and recorded groups. The site core of Cahal Pech is noted for reference. Mounds identified during survey are shown in blue. (Imagery Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community).

Surveyed settlement groups in the alluvial region appear to consist primarily of Type I, II, and III groups (Table 2 and Figure 3), with one possible Type VI or VII group recorded. The 15 of the groups recorded in the region were Type I groups consisting of single isolated mounds spread out over the landscape. The other 16 groups examined appear to have consisted of two or more structures placed around a central platform. In addition, one group, SG-17, located in the orchard near the Macal and Mopan river confluxes, appears to be an elite household group (Figure 4). SG-17 is notable both due to the height of the structure, being 3.18 m tall. SG-17 is possibly

part of nearby SG-23 to the west, which consists of two rectangular structures perpendicular to one another forming an 'L' shape. SG-17 has several looters pits located on the top of the structure, though conversations with the local field hands revealed the looters were caught and arrested quickly. A check of police records might be helpful in understanding the cultural materials found at the group, though the type and size of the group suggest that those of elite status might have inhabited it (Ashmore et al 1994; John Walden, personal communication 2018).

Another group of note in the alluvial region is SG-25, located along the western edge of the cornfields, before they terminate in a steep slope and flooded swampland. SG-25 is a formal group with three structures cardinally surrounding a platform with an open space to the east. The open space terminates into the steep slope that delimitates the farmland from the swamp and offers a good view of landscape to the west.

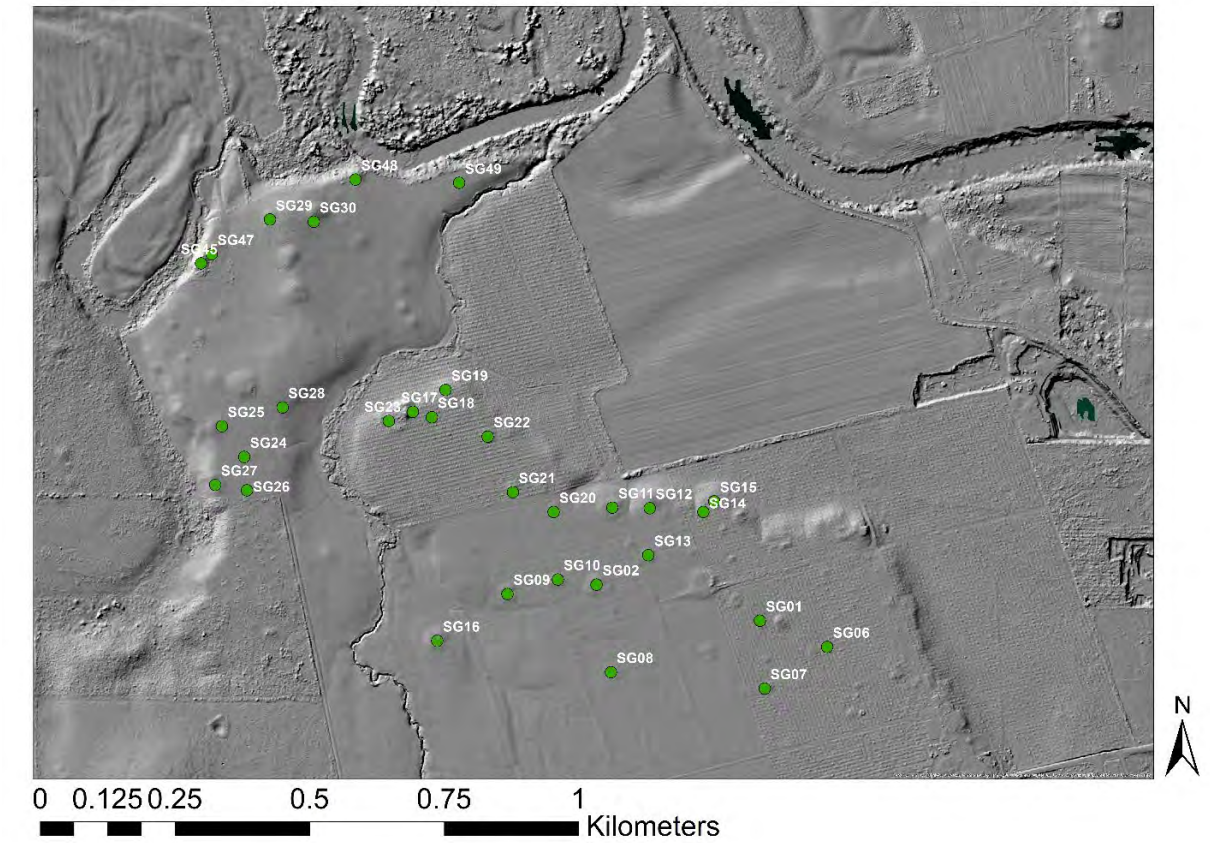


Figure 3: The 31 surveyed groups located in the alluvial region to the north of San Ignacio and the Cahal Pech site core.

Table 2: Group type totals for the 2018 BVAR Cahal Pech survey.

Survey Zone	Type I	Type II	Type III	Type IV	Total Groups
Alluvial	15	6	9	1	31
Karstic	25	4	2	0	31
Total	40	10	12	1	62



Figure 4: SG-17 looking west from the eastern base. SG-17 is one of the tallest features in the area, though the orange orchard obscures easy comparison. On the south side of SG-17 is SG-23, possibly making them part of the same group.

Karstic Zone

The karstic zone proved to be a difficult region to survey, even with the assistance of LiDAR. A total of 31 structures were recorded during the course of the survey in this zone (Figure 5). The groups in the karstic zone appear more spread out when compared to the groups found in the alluvial region, though a large factor to this appears to be the modern development for housing in much of the karstic region today. In comparison to the settlement groups found in the alluvial region, the surveyed groups in the karstic region seem to consist of primarily Type I groups, mostly consisting of single isolated mounds, in contrast to the groups found in the alluvial region during the survey, which had a higher number of clustered Type II and III groups

Groups with multiple structures (Type II and III) are present in the area are mostly found to the southwest of the Cahal Pech site core, where modern development has less of an impact. Further difficulties were caused by continual human interaction and changes to the landscape since the LiDAR was recorded in 2013, as several courtyard groups appear to have been destroyed during modern housing development. One group of note is SG-46, which is located on a small hill outside of town. SG-46 appears to be a Type I group but is associated with a nearby chultun (Figure

3). SG-46 is possibly part of a larger settlement group, but the tree density on the survey on the hill difficult. The group cluster consisting of SG-56 through SG-62 was another notable find during the survey. The settlement group appears to be located on what is now an abandoned tilapia farm, according to my work crew and some of the debris left behind. The groups are clustered close together, and several of the groups (SG-55, SG-57, SG-59) are Tier II and III groups, which were relatively uncommon in the karstic survey area (Table 2).

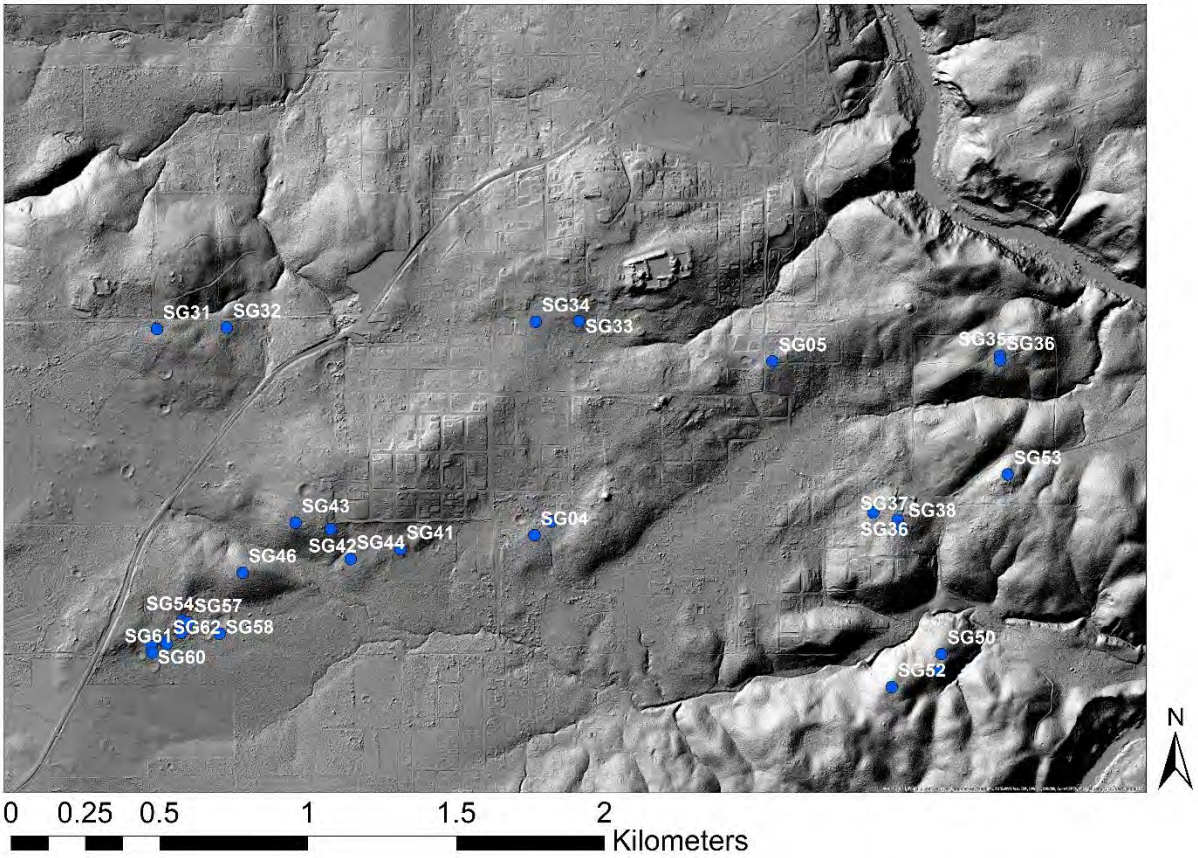


Figure 5: The 31 surveyed groups in the karstic zone south of the Cahal Pech epicenter.

Cultural Materials

Ceramics

Ceramic materials formed the basis of our chronologic analysis for the survey. Over the course of the field season 731 ceramic sherds were surface collected, primarily rim and other diagnostic samples. Ceramic rim profile and ware analysis points to the Terminal Classic occupation of both settlement zones, with the Spanish Lookout ceramic complex being dominate in the collection, forming roughly 70% of the sample, which follows known patterns for the region. Approximately 19% of the sample was unidentifiable, due to weathering. The remaining percentage of the ceramics appear to be from a mix of New Town, Hermitage, and Jenney Creek ceramic complex types (Table 3).

Many of the ceramics collected appear utilitarian in nature, comprising of plates or dishes. Polychrome sherds were present in the sample however, and several sherds with glyphs or pseudo-glyphs were collected. Several modified octagonal ceramic sherds (Figure 6) were collected in the karstic region of the survey and were marked as special finds for future examination. Most of the polychrome sherds in the collection was collected in the alluvial region. This is likely because of a combination of the sherds being easier to see in the plowed fields as well as the sherds being less exposed to erosional forces of decay and root damage compared to the sherds in the humus layer found in the karstic region.



Figure 6: One of the octagonal modified sherds collected in the karstic region, this one being associated with SG-33 and SG-34. The sawgrass seen in the background is one of the many features, which made survey and collection difficult.

Table 3: Ceramic analyses for the Cahal Pech settlement zone. Sherds are listed by ceramic complex (oldest to youngest) and frequency.

Ceramic Complex	***Alluvial Zone***		***Karstic Zone***	
	Count of Sherds	***Percent of Sample***	***Count of Sherds***	***Percent of Sample***
Jenney Creek	2	<1%	1	<1%
Barton Creek	9	2%	2	<1%
Floral Park	5	1%	1	<1%
Mount Hope	1	<1%	0	0%
Hermitage	10	2%	1	<1%
Tiger Run	15	3%	12	5%
Spanish Lookout	353	72%	169	69%
New Town	11	2%	3	1%
Unknown	89	18%	54	22%
Totals	487	100%	244	100%

Lithics

During the course of the survey, 62 lithic items were collected, excluding obsidian shards. Several different lithic artifact types are present in the collection, though large (10-18 cm) chert bifaces (Figure 7) make up the single largest artifact type, consisting of 24 of the 62 items collected. The large chert bifaces found in the alluvial area appear to be somewhat of a mystery. At least several of the collected bifaces appear to be broken axes (Figure 8), while others were likely used as agricultural tools.



Figure 7: A large chert biface associated with SG-16 in the alluvial survey region. The biface measures 22 x 9.5 x 5 cm and was the largest recovered during survey.



Figure 8: Another large biface collected in the alluvial region in association with SG-12. The biface appears to be a broken hand axe and the proximal end is worn smooth.

Several lithic projectile points were also collected during the survey. One particular projectile point of note collected is what appears to be an unfinished early chert projectile point (Figure 9). The point was found along a gravel road to the south east of the Cahal Pech site core, an exact location is labeled in the GPS data created during the survey. Preliminary morphological analysis further suggests the early origins of the point, with it possibly being from the preceramic Archaic period (8000 – 1200; Stemp et al. 2018).

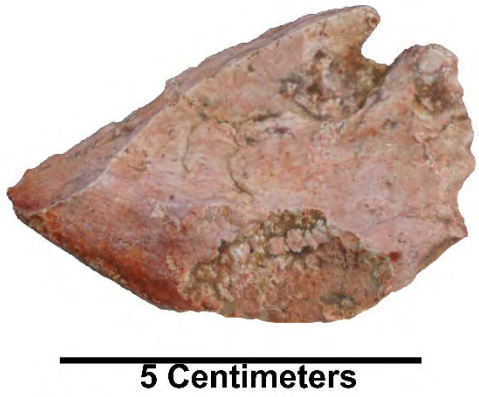


Figure 9: The possible archaic point found during survey to the southeast of the Cahal Pech site core. The projectile point appears unfinished and was possibly discarded.

Finally, 205 obsidian shards were collected during the survey, primarily in the alluvial floodplain zone to the North of the Cahal Pech site core. Several groups contained large concentrations of obsidian. For example, a total of 29 obsidian blade shards were recovered from SG-19, while SG-22 had 36. In total 205 obsidian artifacts were collected during survey, and have been exported to the Northern Arizona University Mesoamerican Archaeology Lab for XRF analysis.

CONCLUSIONS AND FURTHER RESEARCH

The purpose of the 2018 Cahal Pech survey was to fill in the gaps in the survey data for the region, as well as to see if there were any differences between settlement patterns between the alluvial and karstic zones. The survey revealed that the groups in the alluvial region seemed to have been more affluent. The region itself was also densely populated, having more structures in each group than the groups found in the karstic zone. The alluvial region also had heavy concentrations of obsidian and chert shards and flakes, particularly around SG-17 and SG-19, while surface collection in the karstic region turned up much less materials. It is likely, however, that due to the deposition of the humus layer and the difficulties inherent in preforming surface collection in the brush, surface collection may have been biased.

While the survey has helped fill in some gaps, others are still present. Numerous groups are still present in the alluvial zone to the north of town that remain unrecorded because of corn being planted that forced the survey season to end. To help remedy this I present two areas where

I recommend survey begin during the next Cahal Pech survey. The first promising area identified is located at the eastern extent of the Macal River, where the river bends and begins to head south. Examination of the LiDAR data for this specific location reveals what appears to be one large monumental structure and several associated structures. The area is mainly cow pasture and sawgrass fields, though the cows were absent at time of survey. The second promising area is located to the northwest of town, among a series of cornfields. The mounds located in this area are easily visible on the LiDAR data as well as in person when the surrounding cornfields have not yet been planted. During planting and growing season, however, the site is concealed and inaccessible, so prospective researchers should attempt to do survey of the area before the corn is planted.

The results of the 2018 Cahal Pech survey also further tested the use of LiDAR for archaeological research in the region. LiDAR presented a fantastic tool during the preliminary stage of the research, helping identify areas to survey and work in. Furthermore, the ability for LiDAR to reveal the landscape was greatly beneficial in understanding settlement placement, for instance, allowing one to easily see the elevation decrease the marks the flooding zone in the alluvial region. However, it is not a silver bullet and the imagery seen can be misleading, which can lead to lost time and resources as I discovered after an ill-fated venture to hypothesized ballcourt. A well-rounded understanding of the archaeological history of the research area is still a requirement for the most efficient and cost-effective use of LiDAR.

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APPENDIX A:
SPECIAL FINS FROM THE 2018 CAHAL PEHC SETTLEMENT SURVEY

Letter	*SG Number/GPS Point*	*Description*
A	SG-29	Chert Large Oval Biface
B	SG-10	Chert Large General Utility Biface
C	CHP-SR-1-2018-SG-Biface 5	Chert Large General Utility Biface Butt
D	SG-10	Chert Large General Utility Biface Butt
E	SG-17	Chert Large Oval Biface
F	SG-47	Chert Large Oval Biface
G	SG-21	Chert Large General Utility Biface
H	SG-30	Chert Large Oval Biface
I	SG-58	Possible Chert Preform Large Biface
J	SG-48	Chert Preform Large Biface
K	SG-10	Chert Large General Utility Biface
L	SG-12	Chert Large General Utility Biface, Usewear Polish Present
M	SG-27	Chert Large General Utility Biface
N	SG-16	Chert Large Oval Biface
O	CHP-SR-1-2018-SG-Biface 1	Chert Large Oval Biface
P	SG-17	Chert Thin Biface
Q	CHP-SR-1-2018-SG-Macroblade	Retouched Macroblade Tool
R	CHP-SR-1-2018-SG-OB3	Chalcedony Biface Medial Section
S	SG-22	Chalcedony Biface Medial Section
T	SG-19	Chert Thin Shouldered Bifacial Tool
U	SG-22	Chert Possible Thick Narrow Biface
V	SG-21	Chalcedony Side-notched Thin Biface
W	SG-23	Chert Thin Shouldered Bifacial Tool
X	SG-23	Chalcedony Projectile Point Medial Section
Y	SG-19	Chert Late Classic Period Dagger
Z	SG-APP1	Chert Paleopoint
A1	SG-21	Chert Burin
B1	SG-22	Quartz Crystal
C1	CHP-SR-1-2018-SG-Biface 5	Quartz Crystal
D1	SG-12	Spindle Whorl Half
E1	SG-24	Obsidian Microdrill
F1	SG-6	Granite Mano
G1	SG-34	Wedge-styled Exhausted Chert Core
H1	SG-10	Limestone Barkbeater

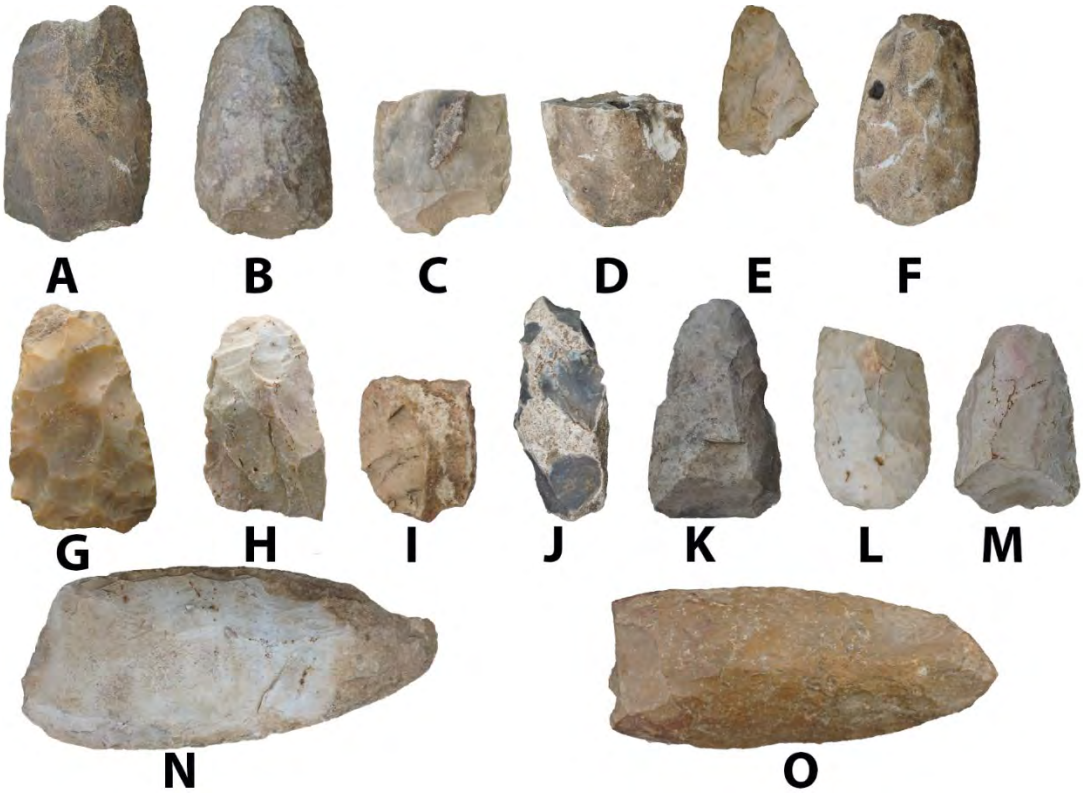


Figure 9: Large Bifaces collected during survey. The images are not to scale.

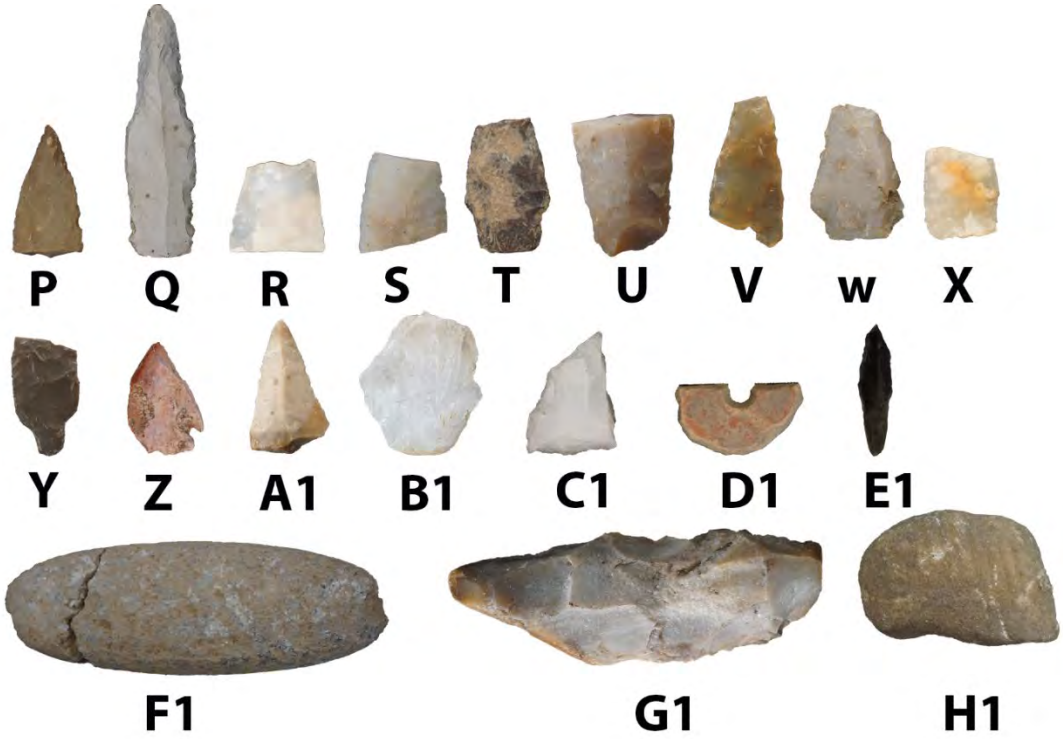


Figure 10: Cultural materials collected during the survey. Images are not to scale.

LOOKING BELOW THE ABANDONMENT: EXCAVATIONS IN BAKING POT'S GROUP B IN 2018

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INTRODUCTION

During the 2018 field season, the Belize Valley Archaeological Reconnaissance (BVAR) Project conducted excavations in Baking Pot's Group B (Figure 1). Under the direction of Dr. Julie Hoggarth, Britt Davis and Sydney Lonaker led excavations in Courtyard 4 and Plaza B. Excavation units (EU) were placed in locations where previous excavations had documented the presence of peri-abandonment deposits (Hoggarth et al. 2014b, Lonaker et al. 2017). The primary goals of these excavations were twofold: 1) to obtain charcoal samples from the construction of the terminal floor below peri-abandonment deposits, in order to constrain the radiocarbon dates of the peri-abandonment deposits above, and 2) to establish a construction sequence for Group B. The BVAR Project has established these goals in accordance with a multi-year research agenda for Baking Pot with the purpose of assessing and evaluating the nature of peri-abandonment deposits located in various corners and flanking stairways throughout Group B (Davis 2018a, 2018b; Hoggarth et al. 2014a, 2015, 2016), creating a high-precision AMS ^{14}C chronology (Hoggarth et al. 2015, 2016), and developing a construction phase sequence for Group B (Lonaker et al. 2017).

The past five years of research at Baking Pot have emphasized understanding the form and function of peri-abandonment deposits. These deposits date to the Terminal Classic period (AD 750-900/1000), and provide opportunity to decipher human behavior during a period of societal and demographic collapse. To date, the analysis of peri-abandonment deposits has shed light on the Classic Maya response to environmental changes (see Hoggarth et al. 2014b, 2017) and the decline of the *k'uhul ajaw* political system (see Demarest et al. 2004; Ebert et al. 2014; Webster 2002). To better understand the Classic period disintegration of the Baking Pot polity, and centers across the Belize Valley region more generally, additional temporal data associated with these depositional events are required. By collecting and analyzing ^{14}C samples from the terminal floor directly beneath the deposits, and using ^{14}C data already collected from the deposits themselves, the date range will provide a *terminus post quem* for the depositional contexts.

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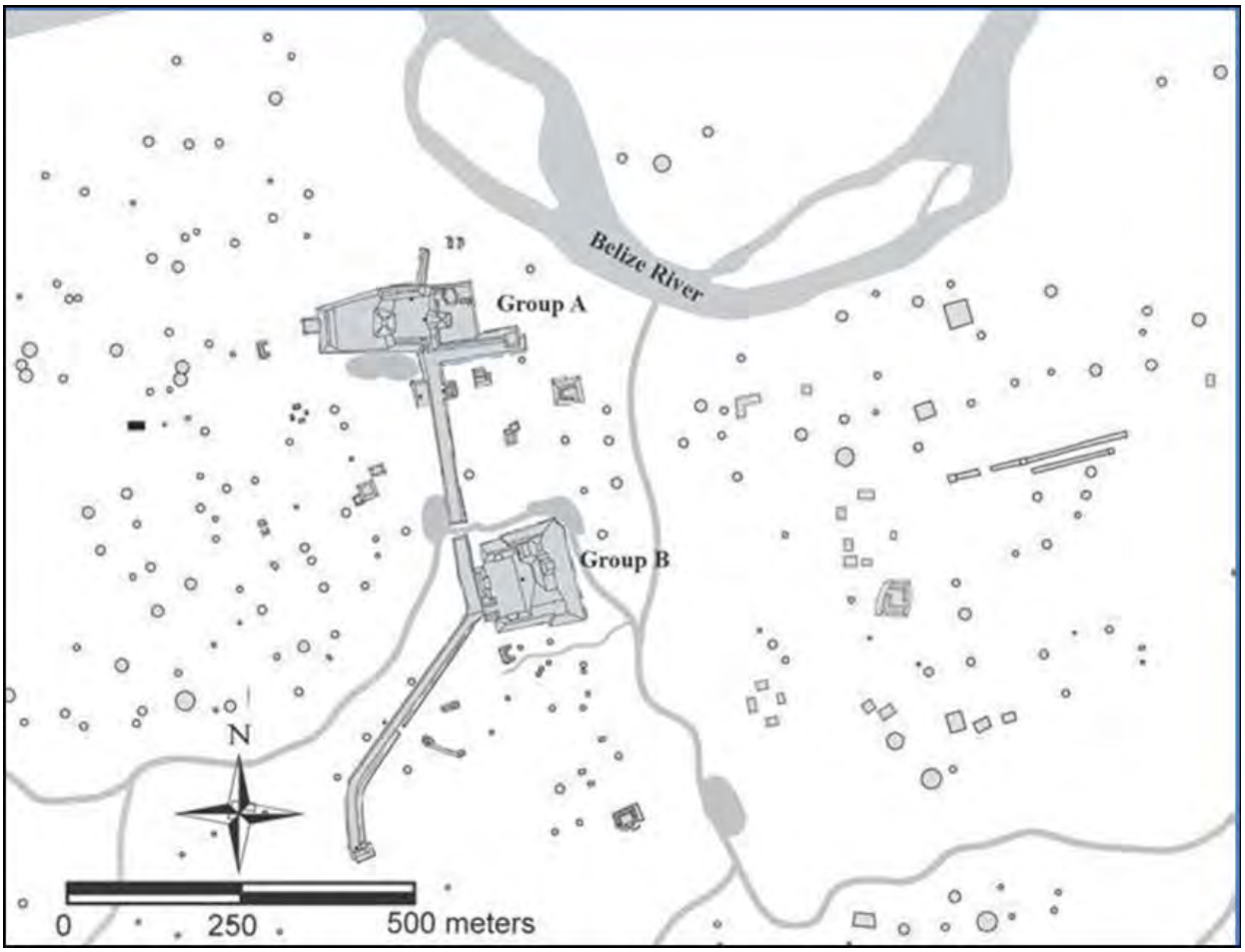


Figure 1: The site core of Baking Pot. This research is situated in Group B (after Hoggarth et al 2014b: Fig. 3).

Excavations in 2018 explored two additional research objectives. After excavating through the terminal plaza floor and recovering ^{14}C samples, the excavations continued until the end of the field season. Bedrock was not located in either excavation unit, which is expected given the location of Baking Pot on the deep alluvial flood plain. These excavations, however, did expose older plaza and courtyard floors furthering our understanding of the construction phases of Group B. In accordance with the dating program at Baking Pot, ^{14}C samples were collected from almost all floors to expand the high-precision AMS ^{14}C chronology for the site. Additionally, in Courtyard 4, four burials (CT4-1-1, CT4-1-2, CT4-1-3, and CT4-2) were documented. In Plaza B a penultimate structure was located below Floor #2 in EU B17-100B and two caches were located in EU B7-100B.

BACKGROUND

Archaeological investigations over the past century at Baking Pot are characterized by long gaps between episodes of fieldwork, until the BVAR Project began a consistent program of excavations in the 1990s. Fieldwork at Baking Pot began nearly 80 years ago with informal, small-scale work by A. H. Anderson in 1929, after he noticed the architecture from Group B was being

dismantled for use as fill in the construction of the Western Highway. Years later, Bullard and Bullard (1965) began more formal excavations into Structure B1, the center structure of the Eastern Triadic Shrine. After another several decades, the BVAR Project began archaeological research in the settlement (Conlon 1993; Powis 1993) and in Group B (Aimers 1997; Conlon 1996). Excavations in the settlement continued through the 2000s (Conlon and Ehret 2000; Piehl 2004) and into the 2010s (Hoggarth 2012). Audet (2005, 2006) excavated in both Groups A and B to understand Baking Pot's positioning within the socio-political system of the Belize Valley, and Helmke (2008) excavated Structure B7 to assess the function of the structure and continued excavations into Structure B1 to identify the construction phases of the Eastern Triadic Shrine.

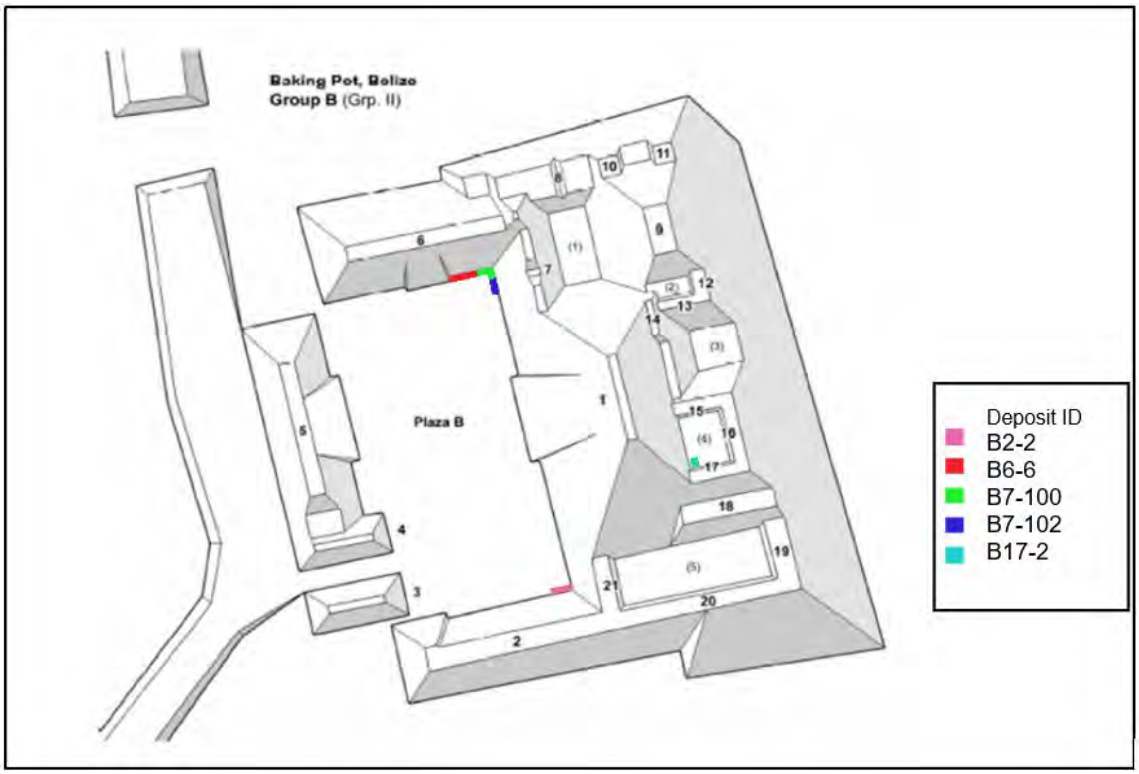


Figure 2: Locations of previously excavated peri-abandonment deposits.

Excavations in 2013 brought about a new research program focused on the development of a high-precision AMS ^{14}C chronology for Baking Pot. Developed and initiated by Julie Hoggarth (2014a, 2014b), the program sought to understand the timing and nature of the Classic Maya collapse. In conjunction with peri-abandonment deposit research (Davis 2018a, 2018b; Davis et al. 2017; Hoggarth et al. 2018), chronology building at Baking Pot aims to "precisely date the time frame associated with the end of royal and elite mortuary activity in Baking Pot's ceremonial center and to contrast these dates with chronometric assays on peri-abandonment deposits in the site core to understand the end of ritual activity" (Hoggarth et al. 2016: 240).

Following Awe's (2012) hypothesis on the spatial arrangement of peri-abandonment deposits, 2013 investigations in the southwest corner of Courtyard 4 revealed the first peri-abandonment deposit found in Group B (Hoggarth et al. 2014b). Excavations in 2015 located two

more peri-abandonment deposits in the northeast and southeast corners of Group B's Plaza B (Hoggarth et al. 2016), and further excavations in Plaza B during the 2016 field season located two additional peri-abandonment deposits, one flanking the eastern side of Structure B6's stairway and continuing east to 2015's deposit in the NE corner of Plaza B, and the other flanking the northern side of Structure B7's stairside outset and continuing north to 2015's deposit (Lonaker et al. 2017; also see Figure 2 for peri-abandonment deposit locations).

The term peri-abandonment deposit, sometimes called "terminal deposits" in previous the BVAR Project reports, is defined as "dense midden-like features that consist of large quantities of broken ceramic sherds and various other artifacts that appear ritual in context" (Lonaker et al. 2017: 1). The peri-abandonment deposits discussed in this report all date to the Late/Terminal Classic period and are associated with the decline and abandonment of the site and the region during that period. As previously mentioned, the analysis of peri-abandonment deposits is crucial to understanding the timing and nature of societal and demographic collapse during the Terminal Classic period, not only at Baking Pot, but also in the Belize Valley region and the broader Maya lowlands. The function, and symbolism, of peri-abandonment deposits is highly debated, however, and the research objective becomes more difficult when these depositional contexts are compared to those at various other sites throughout the Maya lowlands. There are some similarities between the artifact assemblages and contexts, but overall these deposits tend to be more compositionally different between more distant sites (Davis 2018a). These differences have led to a slew of functional, and symbolic, hypotheses for what peri-abandonment deposits represent. Several interpretations for these types of deposits include: *de facto* refuse associated with rapid abandonment (Chase and Chase 2004), termination rituals (Garber et al. 1998; Guderjan 2004; Stanton et al. 2008), refuse from feasting events (Sagebiel and Haines 2017), post-abandonment squatter refuse (Harrison 1999; O'Mansky and Dunning 2004; Pendergast 1979, 1982, 1990; Thompson 1954), primary or transposed middens (Clayton et al. 2005), and peri-abandonment rituals (Awe 2012; Awe et al. 2017; Davis 2018a; Hoggarth et al. 2018). These types of deposits probably represent different activities throughout the Maya lowlands, but at Baking Pot, Davis (2018a) demonstrates that they are likely associated with peri-abandonment rituals such as ancestor veneration, pilgrimage, and/or petitioning the gods.

METHODS

Excavations in 2018 focused on three units in Group B: EU B7-100B and EU B7-102B in the northeast corner of Plaza B where structures B6 and B7 converge, and excavation unit B17-2B in the southeast corner of Courtyard 4 where Structures B1 and B17 converge (Figure 2). All of the excavation units were placed beneath the location of previously excavated peri-abandonment deposits, and to maintain unit number continuity they were assigned postfix letter B.

Excavations were conducted by cultural levels (i.e., floors and re-plastering events). All matrices were screened through ¼ inch wire mesh, and all artifacts found in a screen or EU were separated by artifact class (e.g., ceramic, chert, obsidian) and documented by level and lot. Lot designations were changed upon reaching a new level or upon locating a burial, cache, or wall as designated by the BVAR Project Supervisor's Manual. Charcoal was collected *in situ*, placed into an aluminum envelope, and point plotted, meaning depth and planar measurements within the unit were recorded.

Once artifacts were brought into the lab they were separated by unit, level, and lot, washed and dried, and recorded. Some artifact classes skipped the washing phase (e.g., ground stone, human and faunal remains, and select ceramics) so that future analyses could be conducted. Some artifacts, primarily pottery, were briefly analyzed to gather temporal and typological data. All artifacts were stored in sealed buckets and await further, and more in depth, analyses.

EXCAVATION RESULTS

B7-100B, Plaza B

Excavations in Plaza B were supervised by Sydney Lonaker and were conducted primarily by Orvin Martinez and Edgar Peñados between May 30 and July 8, 2018. EU B7-100B was located in the northeast corner of Plaza B and ran 3 m E/W along Structure B6 by 2 m N/S along Structure B7 (see Figure 2). The unit was placed directly below where a peri-abandonment deposit was located in 2015 (Hoggarth et al. 2016). This unit was primarily established to seek out charcoal samples for radiocarbon dating from the construction fill of the terminal floor to constrain the date range for the peri-abandonment deposit above. A secondary objective was to develop and refine the construction phase history for Baking Pot's Group B.

Upon the start of excavations, the terminal plaza floor was labeled 'Floor #1' and a datum was established in the Structure B6/B7 corner. Floor #1 consisted of a 6cm thick plaster. Below Floor #1 was an additional 6 cm of ballast with a high concentration of small (2-5cm) river cobbles and a low density of artifacts. Floor #2 was encountered below this ballast and was extremely similar to Floor #1, consisting of 6 cm thick of laid plaster with 6cm of ballast below containing a low density of artifacts. Two special finds were recovered in the ballast below Floor #2, SF# B7-100B-1 and SF# B7-100B-2, a spindle whorl and ceramic pendant.

Coinciding with the start of Floor #3, a line of facing stones was noted in the center of the unit, protruding from below Structure B6 and running N/S, parallel to Structure B7. Further excavation of this line of facing stones determined this to be a 4-course wall, creating a corner of a penultimate structure. Two additional floors were located in the fill covering the 4-tier structure (Floor #4 and Floor #5) with the bottom of the structure resting on Floor #6. Floor #6 was a thick, nicely plastered floor slanting downwards south to north, hinting at a possible drainage system in the original plaza. Because the penultimate structure and Floor #6 protrude to the north undercutting Structure B6, we believe the original plaza to be larger than the current terminal plaza. Once the penultimate structure was located and fully exposed in EU B7-100B, excavations were halted at this level so as not to disturb the structure.

B7-102B, Plaza B

A new unit, EU B7-102B, was opened directly south of B7-100B with matching dimensions (3 m E/W x 2 m N/S). The objective of this unit was to continue exposing the construction sequence of Plaza B without disturbing the penultimate structure. However, excavations in this unit were taken substantially deeper than in EU B7-100B, ultimately reaching 190cm below surface, recording a total of eight floors and two caches below the level of Floor 8. Because floors were concurrent with EU B7-100B and this EU was excavated to a deeper level,

one profile map was completed to reflect both units on the southern wall of B7-102B. (Figure 3). Cache 1 was identified at 150 cm below the ground surface, approximately 70 cm below Floor 8 and consisted of a concentration of ceramic sherds (representing the Barton Creek through Hermitage complexes). Cache 2 was identified 20 cm below Cache 1, consisting of a complete three-pronged censer, a complete dish, several long bone fragments, and numerous freshwater shells (Figures 4 and 5). The contextual relationship between the vessels, the bowl containing evidence of burning, suggests that the dish was originally placed atop the pronged *incensario*. Cache 2 may have continued beneath Structure B7, but no excavations followed below the structure to test this assumption.

B17-2B, Courtyard 4

Excavations in Courtyard 4 were supervised by Britt Davis and were primarily conducted by Antonio Itza and Manuel Itza between May 30 and July 16, 2018. EU B17-2B started as a 3 m N/S x 2 m E/W excavation unit located in the southeast corner of Courtyard 4 where Structures B1 and B17 join. The unit was placed directly below where a previous peri-abandonment deposit was located in 2013 (Hoggarth et al. 2014b). The Courtyard 4 datum was found, and a new datum for unit B17-2B was placed 1m below the previous datum. Like unit B7-100B, this unit was established to measure the elevation of charcoal samples and to establish a radiocarbon construction sequence for Group B.

The soil that had accumulated on the terminal floor since 2012 was removed, and the unit was staked out. Excavations into the terminal floor began as Lot B17-2B-1. Very few artifacts were recovered, but those that were included ceramics, chert, and obsidian, one charcoal sample, designated RC# B17-2B-1, was recovered. Lot B17-2B-1 was terminated when an older floor was reached at approximately 10 cm below the terminal floor. Excavations continued through Lot B17-2B-4, approximately 25 cm below the terminal floor, when further excavation in the western quarter of the unit was impeded by an architectural apron on Structure B1, and therefore, the unit was extended 1m to the east. The extension unit, EU B17-2B-ext1, was excavated down to the same level as the main unit, and then they were combined. The artifact assemblage for the first four levels of both the main unit and the extension was fairly light with some chert debitage (*n*=32), ceramic sherds (*n*=99), few faunal remains and freshwater shell (*n*=3), and a small piece of daub. At least one charcoal sample was taken from each level (see Appendix A). At the bottom of Lot B17-2B-ext1-4, a cut into the floor was discovered in the eastern portion of the unit going into the baulk.

Lot B17-2B-5, the newly combined main unit and extension 1, went through the fifth floor and into a roughly 50cm level of river cobbles and midden fill. The artifact density greatly increased with hundreds of ceramic sherds and pieces of chert debitage. Low densities of faunal remains, obsidian, daub, ground stone, and slate were also recovered, and one chert biface, SF# B17-2B-1, was found (Table 2). Two caches were recorded and mapped in Lot B17-2B-5. Cache #1 was found in the southeast corner of the unit and consists of 36 polychrome sherds from several vessels. Cache #2 was located partially extruding from the eastern baulk of the unit above the river cobble fill and consists of six vessels in a cruciform pattern, however, the easternmost vessel was recovered in an extension unit. The Cache #2 vessels were arranged with two stacked, face-up

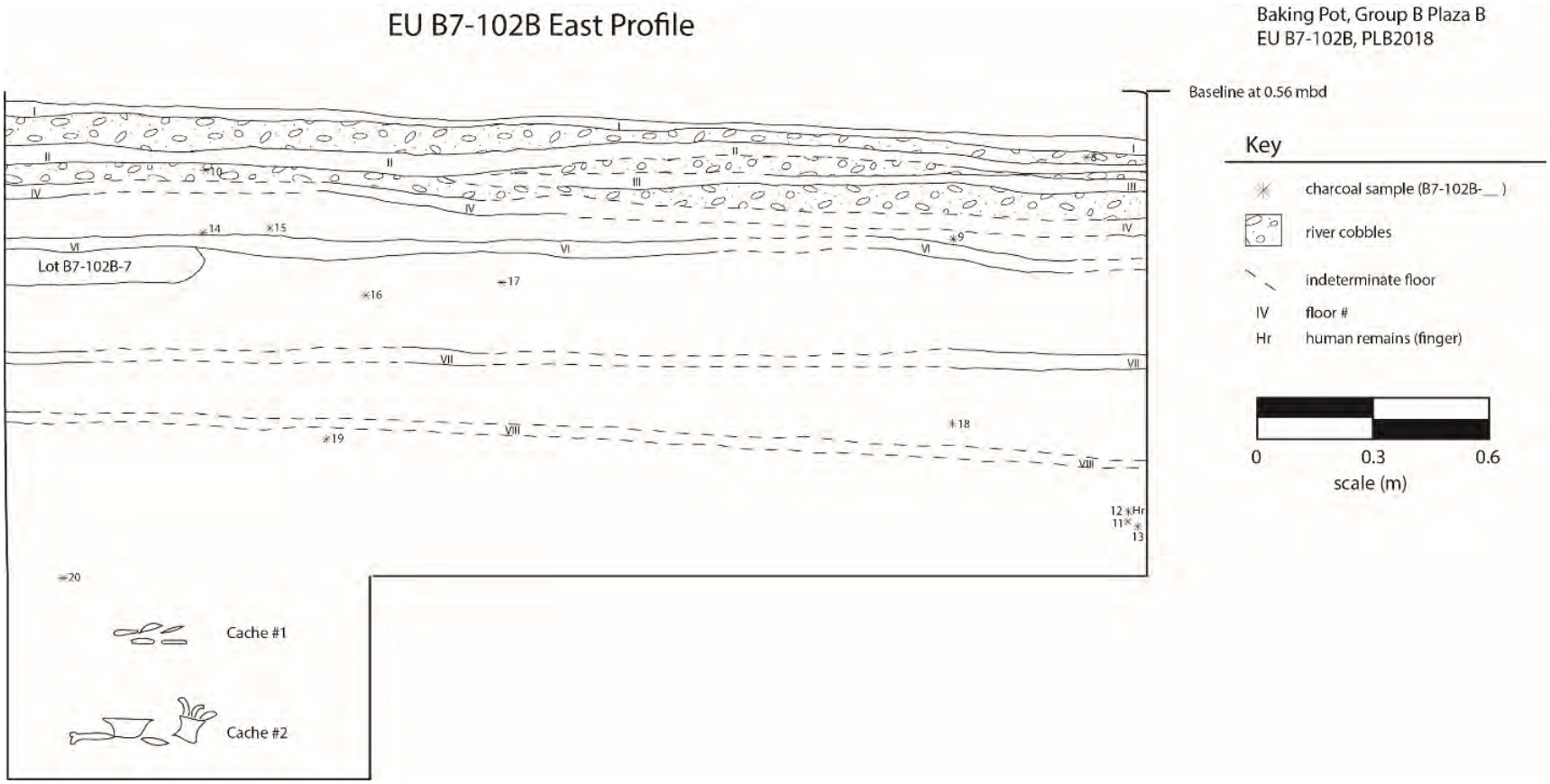


Figure 3: Profile of east baulk of EU B7-102B.



Figure 4: Vessels from Cache 2, consisting of a three-pronged censer and matching dish, as well as freshwater shell and human long bone.



Figure 5: Vessels from Cache 2.

Dolphin Head Red bowls to the south, one face-up Dolphin Head Red bowl to the west, two stacked, face-down Dolphin Head Red bowls to the north, and one face-down Belize Red bowl to the east. Once the river cobble and midden fill was removed from the unit, a floor (Floor 6) was reached and the floor cut in the eastern side and baulk of the unit was still present.

To investigate the floor cut, another 2.25 m N/S x 1 m E/W extension unit was excavated down to the floor cut in two lots. The terminal floor (Floor 1) down through river cobble level was excavated as Lot B17-2B-ext2-1, where the easternmost vessel of Cache #2 was located and mapped. The floor cut was then fully exposed and excavations began into the feature as Lot B17-2B-ext2-2. Upon removing cobbles that had fallen into the feature from the fill above, Burial CT4-1-1 was located (Figure 8). Burial CT4-1-1 was found in an extended prone position with the head oriented to the south and facing west. The burial was poorly preserved with the pelvis and lower vertebrae highly fragmented and partially obliterated. Two charcoal samples were recovered from the burial context, RC# B17-2B-ext2-1 from the cranium area and RC# B17-2B-ext2-2 from the rib area. No distinct grave goods were associated with Burial CT4-1-1. While excavating Burial CT4-1-1 a second cranium was noticed below the first individual, and upon removing the first burial a second burial was confirmed. Burial CT4-1-2 was also found in an extended prone position with the head oriented south and facing west (Figure 9). The preservation of Burial CT4-1-2 was poor with both hands missing and various other elements highly fragmented. One radiocarbon sample was recovered from the burial context. RC# B17-2B-ext2-3. Two special finds were associated with Burial CT4-1-2, SF# B17-2B-ext2-1, a carved faunal hairpin, and SF# B17-2B-ext2-2, a carved faunal bone. A layer of large rocks was found beneath Burial CT4-1-2, and upon removing these rocks a third burial, Burial CT4-1-3, was located (Figure 10). Burial CT4-1-3, like the two above, was found in an extended prone position with the head oriented to the south, but in contrast, the ankles were crossed right over left and the head was facing east. This burial was moderately preserved, and the cranial sutures were still connected *in situ*. One charcoal sample was collected, RC# B17-2B-ext2-4, but no grave goods were associated with this burial. After Burial CT4-1-3 was recovered, the pit feature ended at a floor (Floor 10) and Lot B17-2B-ext2-2 was closed. Further excavations revealed that three floors (Floors 7-9) were dug through to inter the three burials (Figures 6 and 7).

Excavations in the main unit continued starting at Lot B17-2B-6 and continued to Lot B17-2B-13, floors 6-9 below the terminal floor, with few recovered artifacts. Lots changed based on the discovery of new floors or re-plastering events. Charcoal samples were collected from almost every level. While excavating Lot B17-2B-13, a cranium was encountered in the north baulk of the unit. A 1.5 m N/S x 1 m E/W extension unit, B17-2B-ext3, was excavated down to investigate the burial in two lots. Lot B17-2B-ext3-1 consisted of levels 1-5, and Lot B17-2B-ext3-2 consisted of levels 6-9. Once Burial CT4-2 (Figure 11) was reached, Lot B17-2B-ext3-3 was began. Burial CT4-2 was located in an extended prone position with the head oriented to the south and facing west. The preservation of this burial is poor to bone meal, with several of the elements disintegrating upon contact. The burial pit for the individual was dug through three floors, like the three burials recovered to the southeast, however, there were multiple grave goods associated with Burial CT4-2. To the east of the individual's left shoulder several fragmented faunal bone needles, carved faunal bones, one ceramic ink pot with red pigment still inside, and three bundles of obsidian blades were recovered. One small nodule of some decaying white mineral, possibly soapstone, was also noted but disintegrated upon contact. The obsidian blade bundles were clearly

tied together with some type of, long since decayed, organic cordage, and were cardinally positioned. The west bundle contained 5 complete obsidian blades, the north bundle contained 8 complete obsidian blades, and the east bundle contained 11 complete obsidian blades. Additionally, one ground stone chert artifact was recovered to the east of the individual's pelvis. One charcoal sample, R.C.# B17-2B-ext3-1, was also recovered from the burial. Once Burial CT4-2 was removed, excavations in Courtyard 4 were ceased, and the field season came to an end. Lot B17-2B-13 was never completed due to rain complications, so a tarp was placed in the bottom of the unit before backfilling concluded the field season.

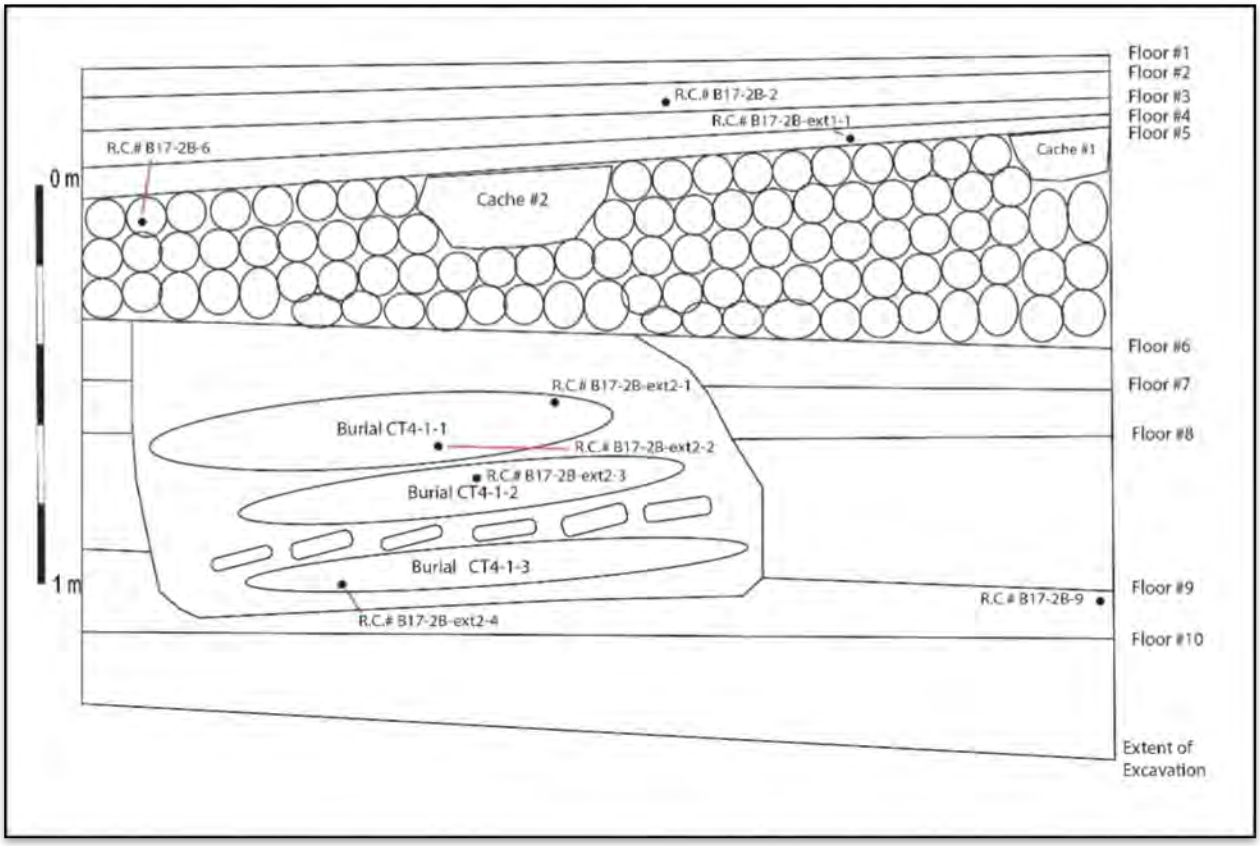


Figure 6: East profile for EU B17-2B.

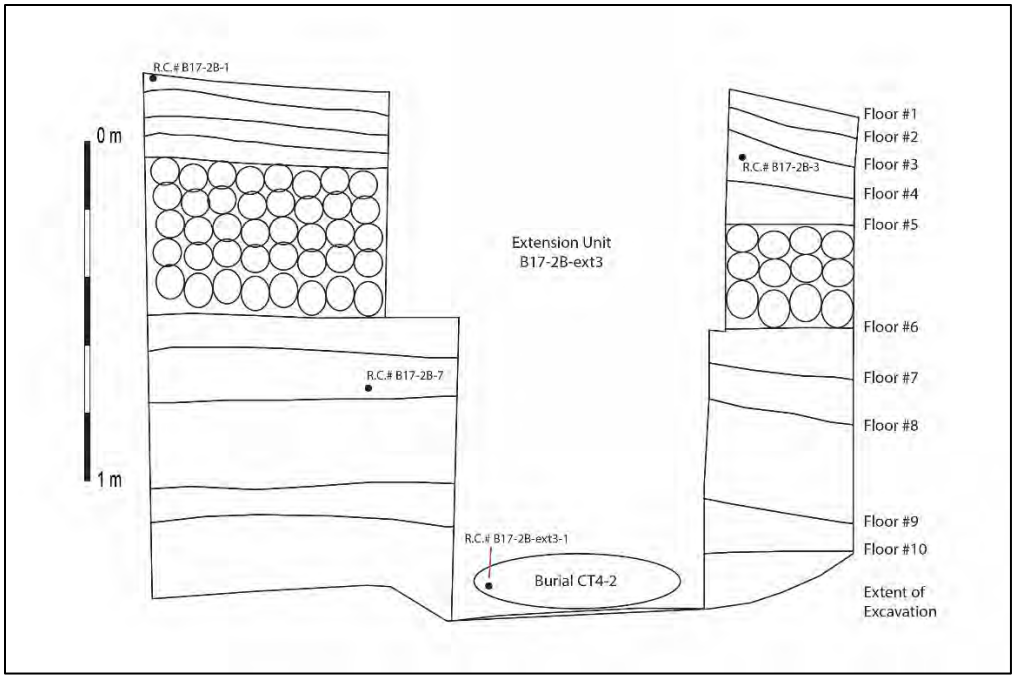


Figure 7: North profile of EU B17-2B. Burial CT4-2 was located in the baulk of EU B17-2B, so EU B17-2B-ext3 was excavated through the northern baulk.



Figure 8: Courtyard 4 Burial 1-1, the uppermost of three vertically superimposed burials.



Figure 9: Courtyard 4 Burial 1-2, the middle of three vertically superimposed burials.



Figure 10: Courtyard 4 Burial 1-3, the lowest of three vertically superimposed burials.



Figure 11: Courtyard 4 Burial 2, located north of the three superimposed burials.

DISCUSSION AND CONCLUSIONS

The research objectives for 2018 were met with great success. Charcoal samples for radiocarbon dating were collected from the terminal floor construction in each excavation unit, these will help to constrain the dates of the peri-abandonment deposits located in years past. Continued excavations below the terminal plaza floor revealed several construction phases of Baking Pot's Group B, and radiocarbon data will enhance the resolution at which the history of the site is understood. Several unique features were encountered during the 2018 excavations, such as Cache #2 and the burials from EU B17-2B as well as the penultimate structure located in EU B7-100B. The remainder of this discussion will examine the features from EU B17-2B and will hopefully shed light on caching and burial practices within Baking Pot's ceremonial center.

Caching behavior of the Maya is well studied (see McParland 2003 for a summary), and cruciform caching is particularly prevalent starting in the Middle Preclassic (Aoyama et al. 2017; Estrada-Belli 2006; Inomata et al. 2017). Little evidence is available, however, for the cruciform practice continuing through the Classic period. Cruciform caches are usually oriented toward cardinal directions, and some debate exists about the symbolism behind this behavior. Chase and Chase (1998:303) for instance assert that cruciform caches may represent "the sacred landscape of

the present world". Others interpret cruciform caches across Mesoamerica as representations of the axis mundi, offerings to natural forces, and germinating maize (Tate 2001).

At Baking Pot, Cache #2 in E.U. B17-2B exhibits a cruciform pattern with two bowls face-down to the north and one to the east, and two bowls face-up to the south and one to the west. (Figure 12). Five of the six bowls are Late Classic period Dolphin Head Red type, while the easternmost bowl is a Late Classic period Belize Red type. Why are some of the bowls facing up and the others facing down? Why is the cache present atop the cobble and midden fill and not directly on the burials?

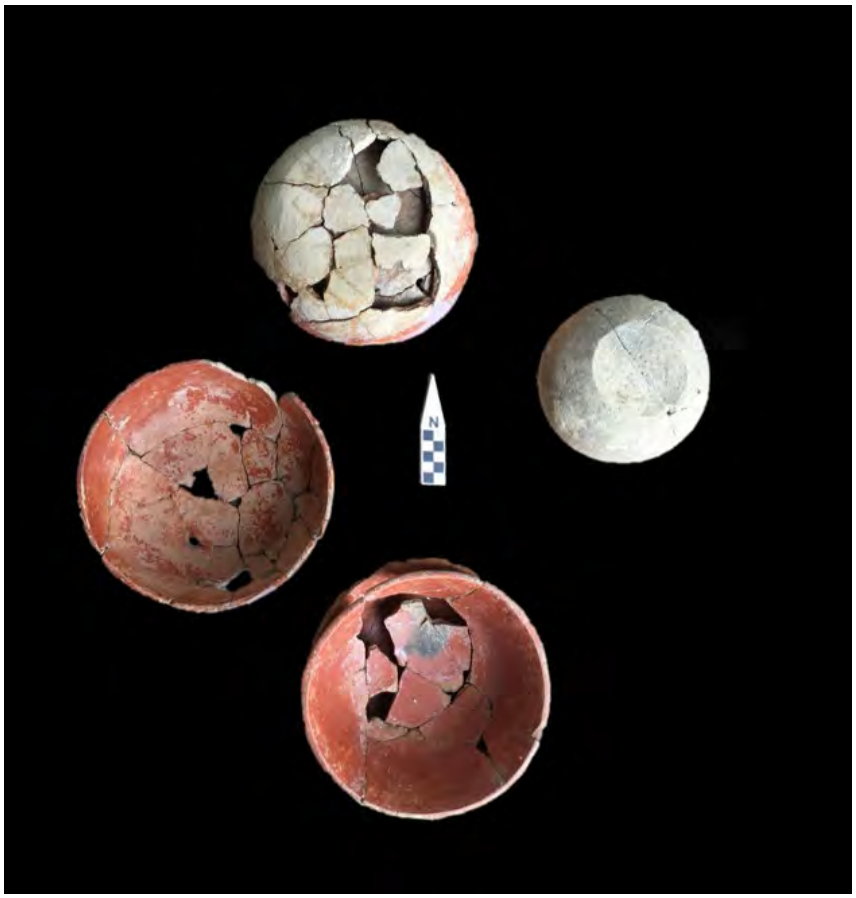


Figure 12: Cache 2 from EU B17-2B. The cache is arranged in a cruciform manner.

The direction of the vessels, and whether they sat face-up or facedown, likely has to do with symbolism pertaining to the cardinal directions in Maya cosmology. When considered in relation to ancient Maya beliefs about death and rebirth, the position of the cache above three burials, may mean it functioned as a symbolic offering for the dead. Chase and Chase (1998) note these types of deposits help to define sacred spaces, and likely represent an array of activities including the veneration of ancestors. The sun rises in the east, the Jaguar God of the Underworld rises in the east, and that which lives rises in the east (Stuart 1998; Taube 1992). The easternmost cache vessel is facing down, and the offering contents of the vessel would be facing the direction

of the rising *ch'ulel*, or the spirit which inhabits all natural things (Friedel et al. 1993; Mock 1998). Likewise, the sun sets in the west, the Jaguar God of the Underworld descends back into the underworld in the west, and that which dies goes into the west (Stuart 1998; Taube 1992). The direction of the westernmost cache vessel is facing up, the direction from which the spirit descending into the west would receive the offering contents. This leaves the north and south sets of bowls unaccounted for. Perhaps, if the offering was placed in the spring of the year, the sun would have risen more to the northeast, which would make the northern facedown bowl's contents available to the ascending *ch'ulel*.

Since Cache 2 was found directly below a cut in Floor #5, but atop river cobble and midden fill, it is likely that the cache is intrusive, and can be explained by social memory. Based on the location of the cache it seems likely that the elite inhabitants of Baking Pot remembered where their ancestors were buried in the courtyard and were able to leave offerings for their ancestors before adding a new layer of plaster to the courtyard. The three burials were placed into a deep cut in the courtyard floor, then the interred individuals and Floor #5 were buried by approximately 50cm of river cobbles and midden fill, and finally a new plastered floor, Floor #4, was laid to cover the newly raised courtyard. At some time following the construction of Floor #4, a cut was made into the floor above the burials and the cache was placed. With no evidence of re-plastering Floor #4 above the cache, it is likely that a new construction phase was enacted and another new floor, Floor #3, was laid above Floor #4. One of the co-authors, Davis, interprets this as an act of remembrance before Floor #3 was laid. How much time passed between the interment of the three burials and the construction of Floor #3? Future radiocarbon analysis may help to answer this question. For now, the ceramic types found beneath the burials all date to the Late Classic, as do the burial patterns, so it is likely that the caching event happened sometime between AD 700-850.

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APPENDIX A:
2018 BAKING POT RADIOCARBON SAMPLE INDEX

Unit	*Level*	*Lot*	*Sample Number*	*Provenience/Event Dated*
B7-100B	1	B7-100B-1	B7-100B-1	Below Floor (Floor #1)
	1	B7-100B-1	B7-100B-2	Below Floor (Floor #1)
	2	B7-100B-2	B7-100B-3	Below Floor (Floor #2)
	2	B7-100B-2	B7-100B-4	Below Floor (Floor #2)
	2	B7-100B-2	B7-100B-5	Below Floor (Floor #2)
	2	B7-100B-2	B7-100B-6	Below Floor (Floor #2)
	3	B7-100B-3a	B7-100B-7	Below Floor (Floor #3)
	3	B7-100B-3a	B7-100B-8	Below Floor (Floor #3)
	3	B7-100B-3a	B7-100B-9	Below Floor (Floor #3)
	3	B7-100B-3a	B7-100B-10	Below Floor (Floor #3)
	3	B7-100B-3a	B7-100B-11	Below Floor (Floor #3)
	4	B7-100B-4a	B7-100B-12	Below Floor (Floor #4)
	4	B7-100B-4a	B7-100B-13	Below Floor (Floor #4)
	4	B7-100B-4a	B7-100B-14	Below Floor (Floor #4)
	4	B7-100B-4a	B7-100B-15	Below Floor (Floor #4)
	5	B7-100B-5a	B7-100B-16	Below Floor (Floor #5)
	5	B7-100B-5a	B7-100B-17	Below Floor (Floor #5)
	5	B7-100B-5a	B7-100B-18	Below Floor (Floor #5)
	3	B7-100B-3b	B7-100B-19	Below Floor (Floor #3)
	1	B7-100B-1	B7-100B-20	Below Floor (Floor #1)
	4	B7-100B-4a	B7-100B-21	Below Floor (Floor #4)
B7-102B	4	B7-102B-4	B7-102B-1	Below Floor (Floor #4)
	4	B7-102B-4	B7-102B-2	Below Floor (Floor #4)
	4	B7-102B-4	B7-102B-3	Below Floor (Floor #4)
	8	B7-102B-8	B7-102B-4	Below Sherd
	6	B7-102B-6	B7-102B-5	Below Floor (Floor #6)
	6	B7-102B-6	B7-102B-6	Below Floor (Floor #6)
	6	B7-102B-6	B7-102B-7	Below Floor (Floor #6)
	1	B7-102B-1	B7-102B-8	Below Floor (Floor #1)
	4	B7-102B-4	B7-102B-9	Below Floor (Floor #4)
	2	B7-102B-2	B7-102B-10	Below Floor (Floor #2)
	11	B7-102B-11	B7-102B-11	Artifact Concentration
	11	B7-102B-11	B7-102B-12	Artifact Concentration
	11	B7-102B-11	B7-102B-13	Artifact Concentration
	4	B7-102B-4	B7-102B-14	Below Floor (Floor #4)
	4	B7-102B-4	B7-102B-15	Below Floor (Floor #4)
	6	B7-102B-6	B7-102B-16	Below Floor (Floor #6)
	6	B7-102B-6	B7-102B-17	Below Floor (Floor #6)
	9	B7-102B-9	B7-102B-18	Below Floor (Floor #7)
	10	B7-102B-10	B7-102B-19	Below Floor (Floor #8)
B17-2B	1	B17-2B-1	B17-2B-1	Below Floor (Floor #1)
	2	B17-2B-2	B17-2B-2	Below Floor (Floor #2)
	3	B17-2B-3	B17-2B-3	Below Floor (Floor #3)
	4	B17-2B-4	B17-2B-4	Below Floor (Floor #4)
	5	B17-2B-5	B17-2B-5	Below Floor (Floor #5)
	5	B17-2B-5	B17-2B-6	Below Floor (Floor #5)

Unit	*Level*	*Lot*	*Sample Number*	*Provenience/Event Dated*
B17-2B, cont.	7	B17-2B-7	B17-2B-7	Below Floor (Floor #7)
	9	B17-2B-9	B17-2B-8	Below Floor (Floor #9)
	13	B17-2B-13	B17-2B-9	Below Floor (Floor #9)
B17-2B-ext1	4	B17-2B-ext1-4	B17-2B-ext1-1	Below Floor (Floor #4)
	4	B17-2B-ext1-4	B17-2B-ext1-2	Below Floor (Floor #4)
	4	B17-2B-ext1-4	B17-2B-ext1-3	Below Floor (Floor #4)
	4	B17-2B-ext1-4	B17-2B-ext1-4	Below Floor (Floor #4)
B17-2B-ext2	6	B17-2B-ext2-2	B17-2B-ext2-1	Burial CT4-1-1
	6	B17-2B-ext2-2	B17-2B-ext2-2	Burial CT4-1-1
	6	B17-2B-ext2-2	B17-2B-ext2-3	Burial CT4-1-2
	6	B17-2B-ext2-2	B17-2B-ext2-4	Burial CT4-1-3
B17-2B-ext3	9	B17-2B-ext3-3	B17-2B-ext3-1	Burial CT4-2

* All samples are charcoal

APPENDIX B:
2018 BAKING POT SPECIAL FINDS INDEX

Unit	*Level*	*Lot*	*Special Find Number*	*Description*
B7-100B	1	B7-100B-1	B7-100B-1	Painted plaster
	2	B7-100B-2	B7-100B-2	Ceramic spindle whorl
	2	B7-100B-2	B7-100B-3	Ceramic pendant
	5	B7-100B-5	B7-100B-4	Stone spindle whorl
B7-102B	1	B7-102B-1	B7-102B-1	Chert biface fragment
	6	B7-102B-6	B7-102B-2	Ceramic sherd with pseudo-glyphs
	6	B7-102B-6	B7-102B-3	Round stone
	11	B7-102B-11	B7-102B-4	Polychrome ceramic vessel
B17-2B	5	B17-2B-5	B17-2B-1	Chert biface
B17-2B-ext2	1-5	B17-2B-ext2-1	B17-2B-ext2-1	Chert biface
	6	B17-2B-ext2-2	B17-2B-ext2-2	Carved faunal bone associated with burial CT4-1-2
	6	B17-2B-ext2-2	B17-2B-ext2-3	Carved faunal bone associated with burial CT4-1-2
	6	B17-2B-ext2-2	B17-2B-ext2-4	Freshwater shell associated with burial CT4-1-3
B17-2B-ext3	5-9	B17-2B-ext3-2	B17-2B-ext3-1	Ceramic sherd with glyphs
	9	B17-2B-ext3-3	B17-2B-ext3-2	Ground chert biface associated with burial CT4-2
	9	B17-2B-ext3-3	B17-2B-ext3-3	Faunal bone needle associated with burial CT4-2
	9	B17-2B-ext3-3	B17-2B-ext3-4	Faunal bone needle fragments associated with burial CTt4-2
	9	B17-2B-ext3-3	B17-2B-ext3-5	Carved faunal bone associated with burial CT4-2
	9	B17-2B-ext3-3	B17-2B-ext3-6	Carved faunal bone associated with burial CT4-2
	9	B17-2B-ext3-3	B17-2B-ext3-7	Faunal tooth associated with burial CT4-2
	9	B17-2B-ext3-3	B17-2B-ext3-8	Ceramic inkpot with red pigment inside associated with burial CT4-2

PRELIMINARY RESEARCH OF THE BAKING POT CERMAIC FIGURINE COLLECTION

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University of Colorado Denver

INTRODUCTION

This paper reports the results of recent investigations of ceramic figurines and musical instruments from Classic Belize River Valley site of Baking Pot, located approximately 8 km northeast of the modern town of San Ignacio in the Cayo District of Belize (Figure 1). Baking Pot's monumental epicenter located adjacent to the Belize River, and was first excavated in a scientific capacity in 1924 by Oliver Ricketson, Jr. (Ricketson Jr.:1931). In 1965, Gordon Willey and colleagues conducted their seminal settlement survey in the Belize River Valley, and excavations at Baking Pot's Group B by William R. Bullard Jr. and Mary Ricketson Bullard were part of this study (Bullard and Bullard 1965). The Belize Valley Archaeological Reconnaissance (BVAR) Project began conducting research at the site in the early 1990s, and work has continued at Baking Pot since then under BVAR's management. These investigation have yielded extensive information on the site's political structure, residential settlement, as well as the site's eventual abandonment in the Terminal Classic period (see Aimers 1997; Audet 2006; Conlon 1993 and 1996; Davis 2018; Helmke 2008; Hoggarth 2012; Hoggarth et al. 2014 for examples).

This study focuses specifically on analyses of the ceramic figurine assemblage from Baking Pot. Previous BVAR Project studies have focused wholly on figurines from the site of Cahal Pech (Awe 1992; DeLance 2016; Peniche May et al. 2018; Zweig 2010). The Cahal Pech figurine assemblage dates primary to the Middle and Late Preclassic periods (900 BC-AD 300). Analysis of the temporal and spatial distribution of these artifacts both in the Cahal Pech site core and residential settlement zones indicates that figurines were used in a variety of ritual events related to invoking ancestors in domestic rituals. This study represents the first systematic exploration of the Baking Pot figurines collection. A total of 214 figurines, including anthropomorphic or zoomorphic musical instruments and fragments, were analyzed. Many of these artifacts were recovered by BVAR Project researchers from peri-abandonment deposits, which represent the final activity within the site's epicenter. Analysis of the iconographic features of the Baking Pot collection indicate that the figurines and instruments are mostly mold-made items, with a division of mostly figurine fragments, fragments of musical instruments, or unknown fragmented items. A nearly equal division of anthropomorphic and zoomorphic items are present in the collection. Anthropomorphic fragments almost always include heads or headdresses and hair. A few arm or leg appendage fragment are present as well. Zoomorphic items are often heads as well, with dogs, bats, and birds frequently represented. Other items included in the collection include ceramic beads and censer fragments, but do not represent much of the collection. Lastly, some artifacts recovered were so fragmented and without explicitly diagnostic traits, and are counted in this analysis as unknown fragments, as it is unclear if they were instruments or figurines themselves, but clearly were not part of ceramic wares such as vases, bowls, plates, or other serving types.

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2018 Field Season, edited by Claire E. Ebert, John P. Walden, Julie A. Hoggarth & Jaime J. Awe, Volume 24, pp. 101-114. Department of Anthropology, Northern Arizona University, Flagstaff; Institute of Archaeology, Baylor University, Waco. © 2019

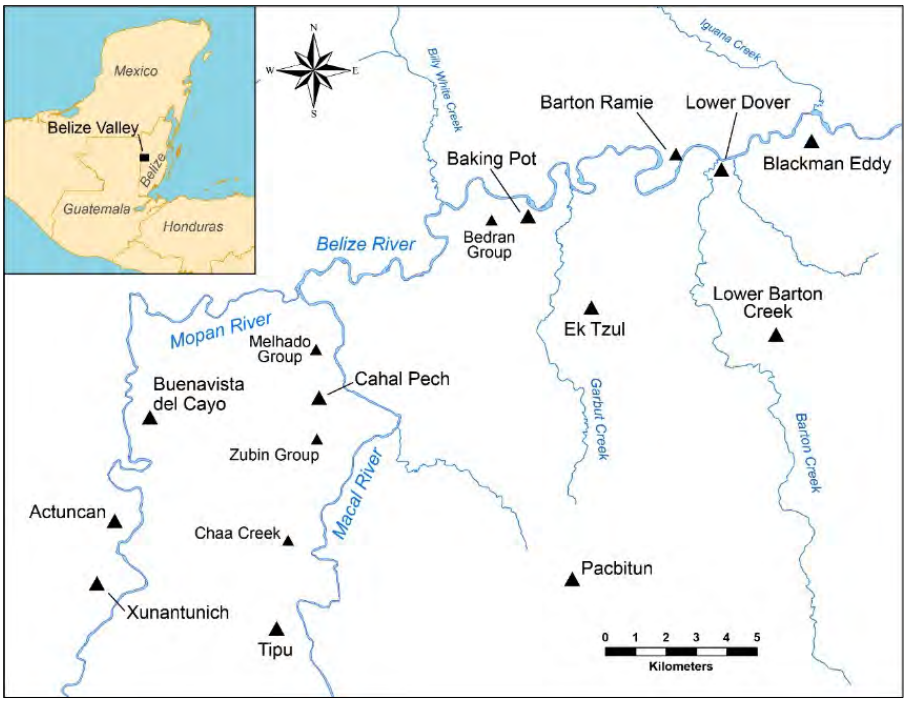


Figure 1: Map of the Belize River Valley with the location of Baking Pot (map by Claire Ebert, 2018).

PRIOR FIGURINE AND PERI-ABANDONMENT DEPOSIT RESEARCH

The Baking Pot Figurine collection is composed of 214 ceramic figurines, figurine fragments, music instruments, and instrument fragments that have either zoomorphic or anthropomorphic decorations or appliques. The 214 items were collected during six different excavation seasons and come from a variety of contexts at Baking Pot. Items recovered in 2009, 2010, and a part of 2012 were from targeted household excavations focused understanding household reorganization and adaptation during site abandonment (Hoggarth 2012). Items excavated during part of 2012, and all of 2013, 2015, and 2016 were part of peri-abandonment research in Group B at the site core of Baking Pot. Of these excavations and locations, 90.3% of the collection comes from Group B excavations, and 9.7% of the artifacts were recovered in household excavations outside of the Baking Pot site core.

One of the recent goals of the BVAR Project is to understand the temporal association between peri-abandonment deposits in multiple sites in the Belize River Valley, and the assemblages contained within each. Excavations targeting these peri-abandonment deposits began in 2013 at the site of Baking Pot (Hoggarth and Awe 2015), among others in the regions (Cahal Pech, Awe et al. n.d.; Lower Dover, Romih, this volume; Xunantunich, Alvarado et al. 2017), and continued on through the 2018 excavation season (see Davis et al. 2018, this volume). Because these deposits represent the final activity in areas with monumental architecture, excavations can provide a chronology of collapse at the major city centers. At Baking Pot, peri-abandonment deposits were first excavated while looking for architectural features to help understand the chronology of building phases in Group B. The first peri-abandonment deposit to be excavated in Group B was located adjacent to Structure B17, and ended up yielding 56.7% of the figurine sample from Group B for this research (Hoggarth et al. 2016; Sullivan and Hoggarth 2015).

Large Terminal Classic (AD 750-900/1000) deposits are common across the Maya lowlands, but have only recently been discussed as purposeful deposits of ritual artifacts left after a site core has been abandoned. Previous arguments for these deposits have included discussions naming them feasting events (Sagebiel and Haines 2017), *de facto* refuse (Chase and Chase 2004), or termination ritual deposits (Awe et al. n.d.). What defines peri-abandonment deposits themselves, however, includes their context and their content. Peri-abandonment deposits specifically are found in important or cardinal locations in site cores with a soil build-up between the final floor of a courtyard and the bottom layer of the deposit, showing that time has passed from abandonment of the location and the first deposition event (Davis 2018: 29). Other lines of evidence for peri-abandonment deposits include the inclusion of ritual artifacts in the deposits, and sometimes human burials within the deposits (Davis 2018: 23).

Figurines and musical instruments are one important artifact class found in peri-abandonment deposits at Baking Pot (Figure 2). While they are represented in much smaller frequencies than other artifact classes—including ceramics, faunal remains, lithics, freshwater shell, slate, mano and metate fragments, obsidian fragments, and spindle whorls—the inclusion of figurines is likely linked to the ritual nature of deposits. Additionally, because they are extremely detailed and diagnostic, the presence of figurines can help us understand political and personal relationships between elites and households in this area (Halperin 2014). For example, one peri-abandonment deposit located at the junction of Structures B6 and B7excavated in 2015 and 2016 contained fragments of what is now known as the Komkom Vase (Helmke et al. 2017). This vessel possesses, the only example of formal hieroglyphic writing present in the peri-abandonment assemblages, bearing long count date of AD 812. A total of 24.1% of the figurines in this collection were unearthed in association in the same deposit that contained the Komkom Vase, highlighting the important of analyses of these artifacts.

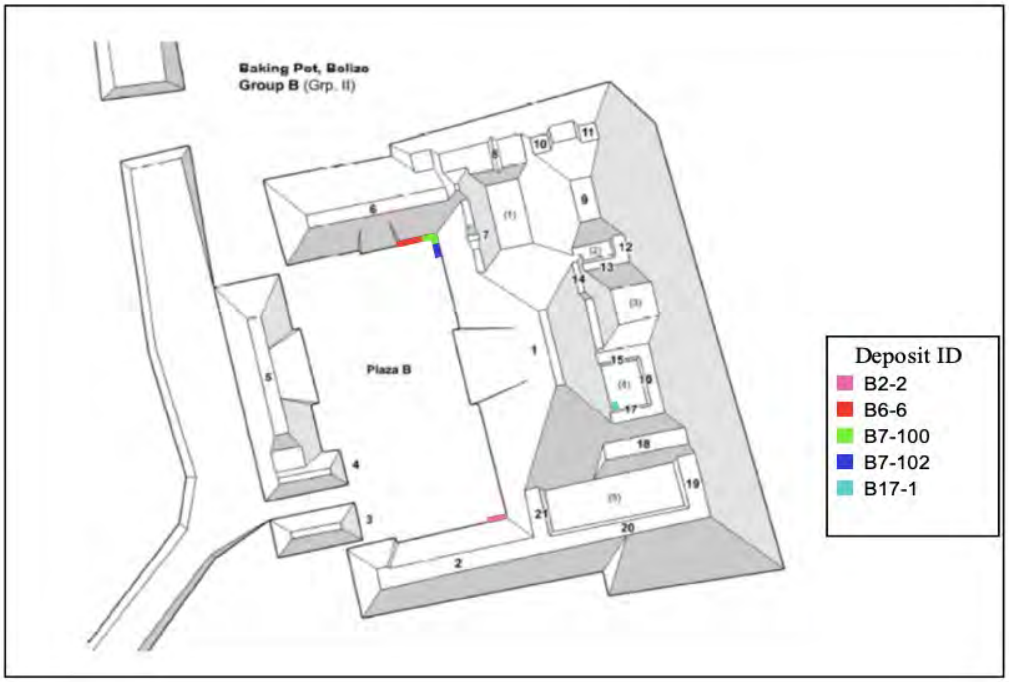


Figure 2: Locations of Group B peri-abandonment excavation lots (from Davis 2018: Fig. 3.1).

BAKING POT FIGURINE ASEMBLAGE ANALYSIS

While preliminary cataloging of the Baking Pot figurine collection began in 2017, systematic analyses were undertaken in July 2018. Upon receiving the collection, the first step was to create a master catalog to document each item and their associated contexts within the Baking Pot site core or residential settlement. Attributes recorded included catalog number (each artifact was assigned a unique BKP-#), special finds number (assigned as SF-# in the field by the excavator), lot, and a detailed description of the artifact. Cataloging of the Baking Pot figurine collection is ongoing, and not all artifacts have been assigned a catalog number at this time. All artifacts have been assigned a special finds number. Following the data entry into the spreadsheet, each artifact analyzed was also photographed. These photographs serve as both a reference point for each of the artifacts during this study and will be published in full for reference in the primary author's upcoming Master's Thesis. A front photo and a back photo of each artifact was then taken, and for more detailed figurines and instruments, other angles, including sides, tops, bottoms, and close up of details or paint were taken.

Following photography, each of the artifacts were inspected to see if any additional refits were possible, though no refits were found. Yet, one lot did yield two identical ocarinas, differing only slight in overall size. Figures 3 and 4 show artifact numbers BKP-00016 and BKP-00024 from Lot B17-4, level 2. These identical ocarinas are anthropomorphic, with a mold-made face as the distinguishing feature of the instrument. The face is identical on both ocarinas, and shows a person with puffy cheeks, likely the depiction or representation of a musician blowing into an instrument (Lisa DeLance, personal communication 2018).

After each artifact was individually analyzed, they were laid out all together to compare and contrast diagnostic features and contexts. Figurines from the site core were laid out by their respective deposit starting with all levels excavated from lot B1. The same process was then for all levels from lots B2, B6, B7, B15, and B17 (see Figure 2). The household artifacts were laid out by their respective lots as well: all items from mounds 90, 99, 184, 195, and 410 were grouped together. Each of these lot groups, once placed out on the table, were photographed together as a group for future research and reference.

PRELIMINARY RESULTS

Based on preliminary analyses of the Baking Pot figurine collection, a total of five distinct artifact classes were identified, including figurines (anthropomorphic and zoomorphic), musical instruments, unknown fragments, ceramic beads, and censer fragments. Figure 5 shows the frequency and proportion of the assemblage for each artifact category. Musical instruments compose the majority of the assemblage (43%), with 92 instruments identified. Musical instruments are items that were uncovered whole or as fragments, and can be themselves flutes, whistles, or ocarinas. These instruments are either entirely anthropomorphic or zoomorphic figures themselves (meaning the body of the item is anthro- or zoomorphic) or is an attachment, appendage, or applique to an instrument in the shape of an anthro- or zoomorphic character. Figure 6 provides an example of a musical instrument from this collection.

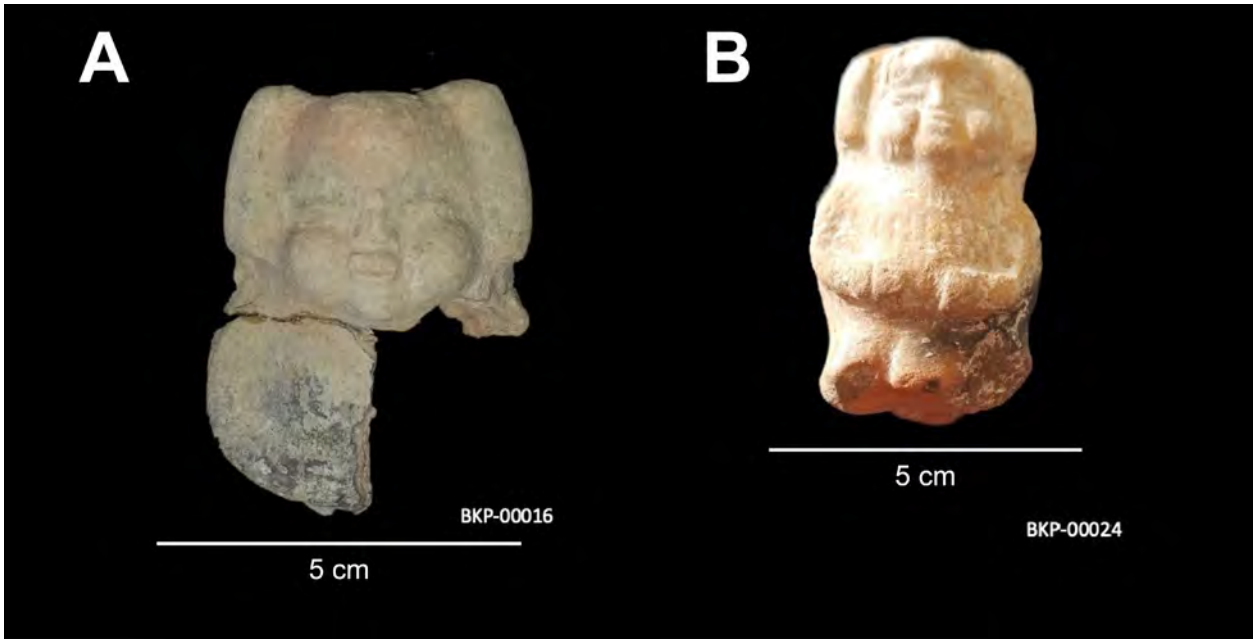


Figure 3: Front view of two nearly identical mold-made anthropomorphic ocarinas (A) BKP-0016 and (B) BKP-0024.

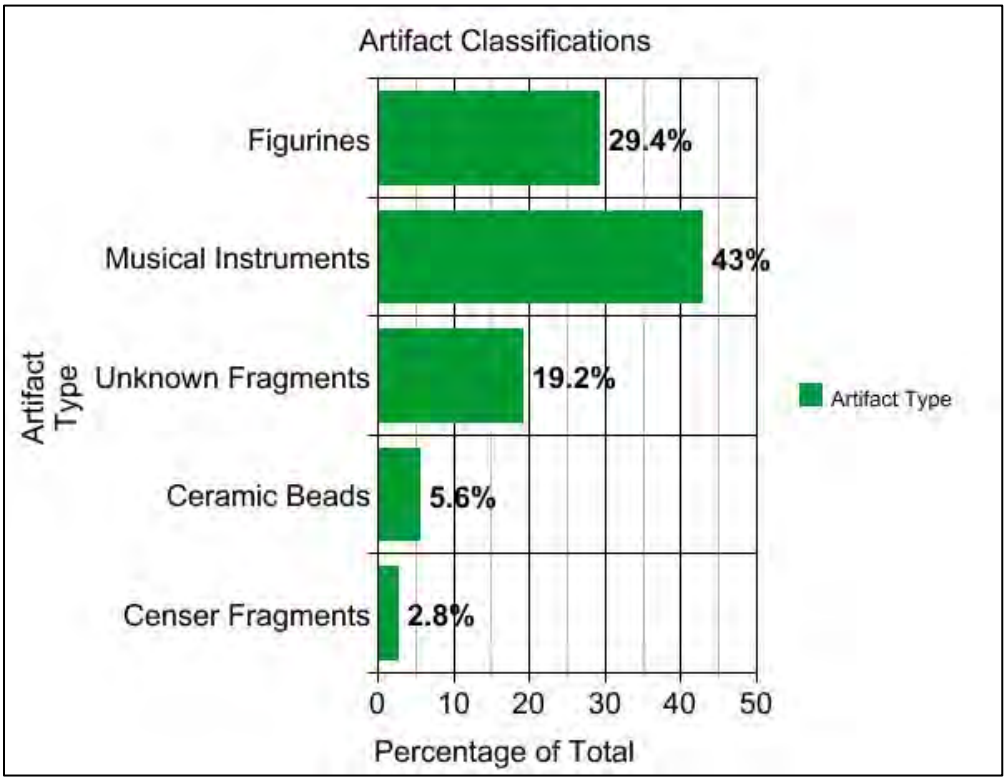


Figure 5: Types of artifacts in the Baking Pot figurine collection.



Figure 6: Ocarina portraying an adult holding a child on their hip, front, side, and rear views.

Anthropomorphic and zoomorphic figurines are the next most common artifact class, with 63 documented (29.4% of the total assemblage). For this project, ceramic figurines include items that are either whole figurines or figurine fragments with no evidence of having been a part of a musical instrument. Figure 7 shows a typical example of a figurine from this collection.

Unknown fragments are items found *in situ* together that were either 1) found in association with other figurines but not found to refit any artifact; or 2) fragments that were obviously part of a figurine or instrument by shape and technology, but have no associated items with which it can refit. Unknown fragments, having oftentimes been excavated together, have previously been assigned either one single Special Finds number or one single Catalog number. For the sake of this study and to keep with this cataloging system, unknown fragments are counted as one item whether they include one fragment or multiple fragments. Figure 8 is an example of items classified as unknown fragments.

Ceramic beads and bead fragments were found in association with these figurines and instruments, and at this time are being included as part of the study. It is undecided at this time how they will fit into future research, or if they will be excluded at a later time from the collection. Figure 9 is an example of ceramic fragments that were refit.

Censer fragments or apparatuses are items that were part of censers, likely used for ritual contexts. Some of these items are in the shape of faces, or have zoomorphic features to them. Figure 10 is an example of censer fragments from this collection.



Figure 7: Anthropomorphic figurine from Baking Pot. Note the "puffy cheeks" of this figurine, possibly representative of a musician playing a wind instrument.



Figure 8: Unidentifiable figurine fragments from Baking Pot.



Figure 9: Refit ceramic bead fragments.



Figure 10: Ceramic censer fragment depicting a human nose, nostrils, mouth, and chin. Note the holes in the nostrils as a location for smoke to escape from inside the censer.

Considering that the majority of the Baking Pot figurine collection was recovered from peri-abandonment deposits in Baking Pot's Group B (90.3%), analyses additionally sought to distinguish discrete contexts within this location of the site. Of the Group B artifacts, 39% (*n*=76) were found directly inside peri-abandonment deposits. A total 31% (*n*=59) of the artifacts were recovered from collapse, and approximately 20% (*n*=40) were found among the limestone marl. Figure 11 shows the total distribution of locations items were recovered from in Group B.

Finally, it is important to understand the locations of these deposits as were excavated from Group B. It is common knowledge that the Maya adapted a cosmologic worldview into the building of their cities, and placement of peri-abandonment deposits tend to be located in corners of plazas or open areas, as well as in alleyways (Beardall 2017; Davis 2018). All of the Group B artifacts in this collection were recovered from corners of plazas, adjacent to buildings. Figure 12 outlines the distribution of artifacts in this sample by location. Of particular note is the fact that 56.7% (*n*=108) of the Group B figurines and instruments were recovered from unit B17, located further into the Group B building complex, and with more remote access. Future studies will look at this heavy distribution to discover if there is a significance to the B17 location.

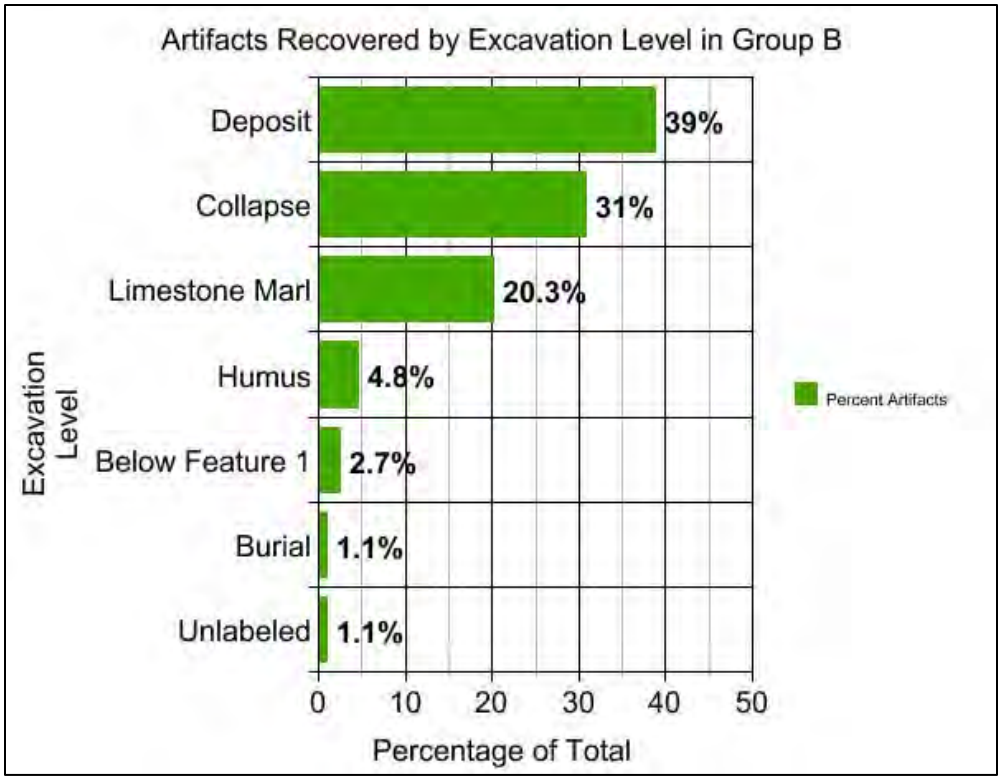


Figure 11: Artifact distribution between excavation levels for all Group B artifacts.

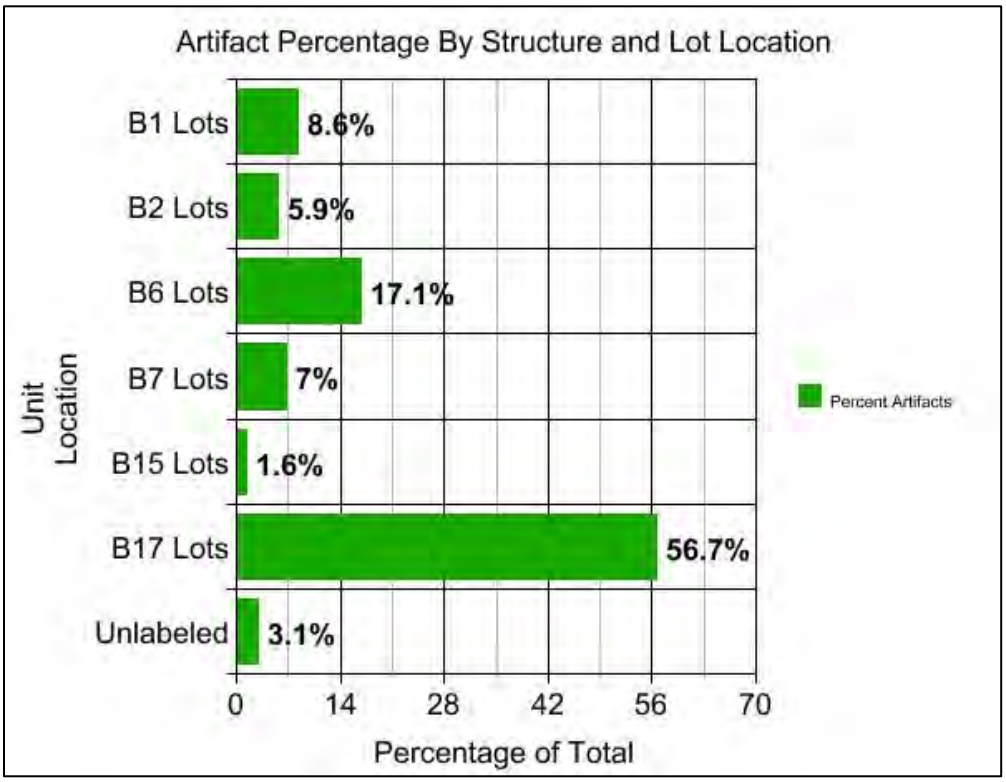


Figure 12: Artifact distribution by location of associated structure and lot number for all Group B artifacts.

CONCLUSIONS AND FUTURE DIRECTIONS

The Baking Pot figurine analysis project will continue into the future and will serve as the basis of the primary author's Master's Thesis. As such, the figurine collection will be viewed through a theoretical lens, and not just as an iconographic study. While we can learn about the Classic Maya of Baking Pot through iconographic studies, it is important to take this work a step further, and work toward an understanding of why these figurines were included in peri-abandonment deposits during an intense time of social and political change. Therefore, future analyses will incorporate discussions of ritual theory and social memory, and how these figurines were likely tools for rituals enacted during site abandonment.

Anthropology has no shortage of writings on ritual, let alone ritual theory. For the purpose of this study, it is important to understand that there are different distinctions of rituals enacted by people. Different approaches to discussing ritual include liturgics, religious or secular rituals, ritual versus ceremonial rites, political or civic ceremonies, private or collective rituals, rites of rebellion or solidarity, dramatic or ritual performance, formal games in play or organize sports, festivals, holidays, and more (Bell 1992:69-70). The inclusion of ritual artifacts in peri-abandonment hints toward ritual activity taking place at Baking Pot. Future studies of this figurine collection will look at the roll of ritual specifically as a rite of social solidarity, as the peri-abandonment deposits at Baking Pot have been dated to around AD 800-850, during the time of the Classic Maya collapse. Peri-abandonment deposits might have been a way to help assuage social anxiety during a time of monumental change for the populations at Baking Pot. An additional aspect of these rituals will include looking at rituals as actions of social memory, another aspect of helping to bring the Maya of Baking Pot together during a time of change and stress (Megged and Wood 2012). The figurines, zoomorphic, and anthropomorphic musical instruments were included in the peri-abandonment deposits, and offer insight to a time of immense change for the Maya. Future studies of these figurines will strive to understand the roll these items played in these rituals.

Acknowledgements. I would like to thank the Belize Valley Archaeological Reconnaissance Project for three wonderful field seasons and experiences in growing as an archaeologist with them. I deeply appreciate the support and guidance of Project Co-Directors Dr. Jaime Awe and Dr. Julie Hoggarth during my research with this figurine collection. Also, I extend thanks to the Institute of Archaeology, and Dr. John Morris, for granting BVAR the permission to conduct research in Belize. Personally, I am grateful for the help and many discussions on figurines that I have shared with Dr. Lisa DeLance, as well as my theoretical discussions with Dr. Claire Ebert. I cannot offer enough thanks to Britt Davis for his discussions in person, via email, and his wonderful thesis research that deals with peri-abandonment deposits directly at Baking Pot and helped guide much of my research. His extensive work provides amazing context for my figurine studies. Finally, but not in the least, I extend my thanks as well to my fellow BVAR colleagues and staff members for their support and many excellent memories during my field seasons working with BVAR.

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ANALYSES OF A PERI-ABANDONMENT DEPOSIT IN COURTYARD 4 AT LOWER DOVER: RESULTS OF THE 2018 FIELD SEASON

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Northern Arizona University

INTRODUCTION AND BACKGROUND

The site of Lower Dover is located on the grounds of Lower Dover Field Station, owned by William and Madeline Reynolds in Unitedville Village, Cayo District, Belize. The Lower Dover site core sits on a limestone bluff just south of the Belize River, and is geographically bounded by Lower Barton Creek to the east and Upper Barton Creek to the west (Guerra and Awe 2017). The minor center of Barton Ramie, where Gordon Willey conducted his seminal research on Maya settlement studies, lies just north of the Lower Dover site core across the Belize River. As shown in Figure 1, the major centers of Baking Pot and Blackman Eddy are located 7 km to the west and 3 km to the east of Lower Dover, respectively (Guerra and Awe 2017).

As shown in Figure 2, 2018 excavations resumed on the peri-abandonment deposit discovered in 2017 in Courtyard 4 (CT4) of Lower Dover's palatial complex. Peri-abandonment deposits appear to vary in content across the Belize Valley (Awe 2012; Hoggarth et al. 2016; Lonaker et al. 2017) and the Maya lowlands generally (Adams 1990; Stanton et al. 2008). For a more thorough definition and background of these contentious deposits see Romih et al. (2018). At Lower Dover, peri-abandonment deposits have previously been identified as 'sheet deposits' containing vast quantities of ceramics dating to the Terminal Classic period (AD 750-900/100), along with chert fragments and partial bifaces, marine shell beads, faunal remains, *jute* shells (*Pachychilus glaphyrus* and *Pachychilus indiorum*), obsidian blade fragments, jade, ocarina fragments, and spindle whorls (Guerra et al. 2014; Guerra and Romih 2017). See Table 1 for other instances where peri-abandonment deposits appear, by their many names, across the Maya lowlands.

The Terminal Classic period has plagued Maya archaeology with querulous debate because of the massive social, religious, and political changes which occurred during this time (Demarest et al. 2004; Guderjan 2005; Stanton et al. 2008; Webster et al. 1998). Some have viewed the Terminal Classic as a cultural horizon "characterized as 'spatial continuum represented by the wide distribution" of recognizable artifacts, styles, or practices, defined most saliently by "it's relatively limited time dimension and its significant geographic spread," (Phillips and Willey 1953:625). The identification and analysis of peri-abandonment deposits most often, but not exclusively, found in elite contexts may provide an avenue to investigate the Terminal Classic period as a distinct cultural horizon. Because deposits are indicators of the final activities in elite contexts, they can provide important contextual information about the timing of the political collapse and the abandonment of monumental centers.

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2018 Field Season, edited by Claire E. Ebert, John P. Walden, Julie A. Hoggarth & Jaime J. Awe, Volume 24, pp. 115-133. Department of Anthropology, Northern Arizona University, Flagstaff; Institute of Archaeology, Baylor University, Waco. © 2019

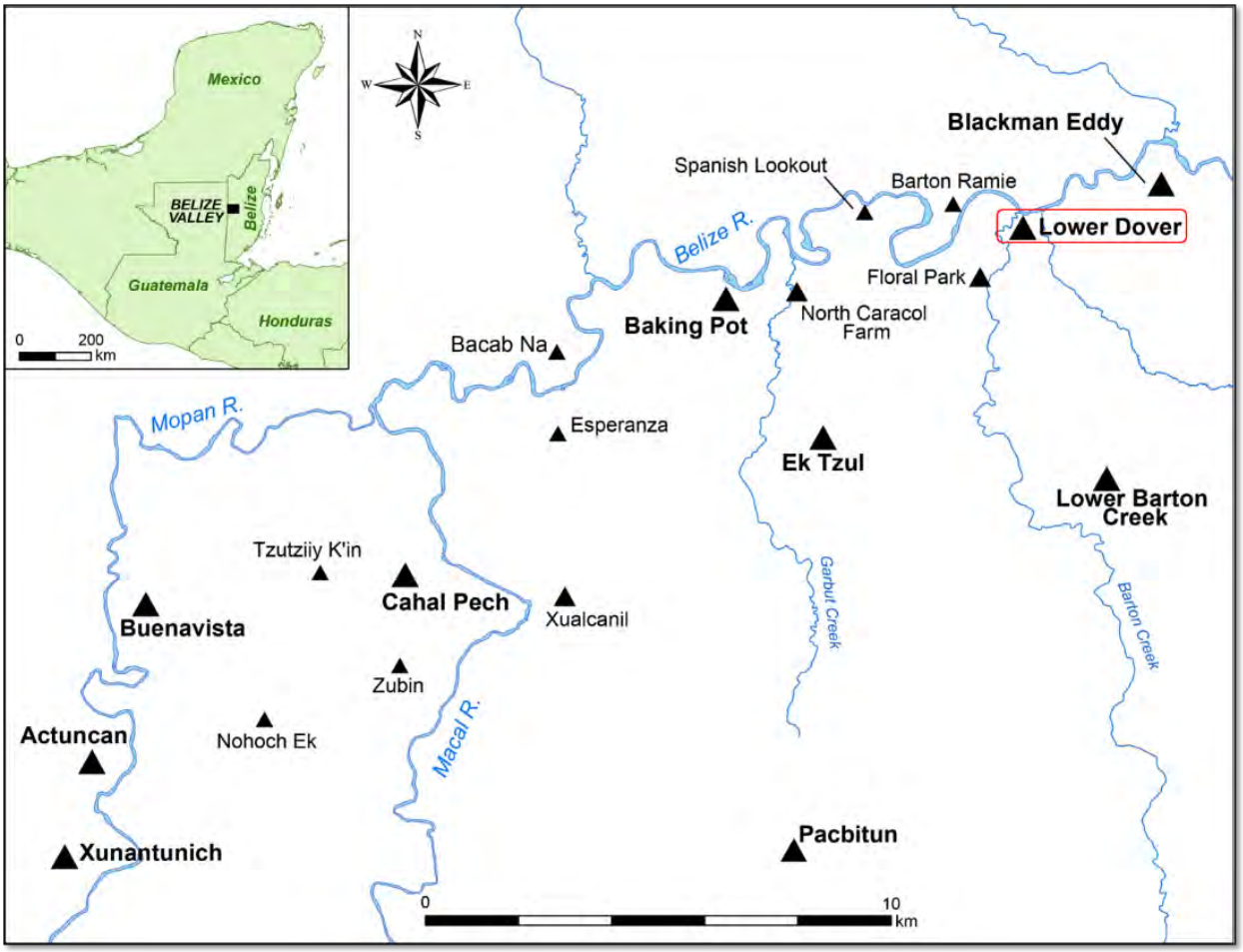


Figure 1: Map of archaeological sites in the upper Belize River Valley, Cayo District, Belize (map by Claire Ebert, 2018).

Table 1: Summary previous research and interpretations of peri-abandonment deposits.

Interpretation	***Publication***
Evidence of the lavish, careless living of squatters after the site's abandonment.	Pendergast 1998; Thompson 1954
Domestic refuse	Webster et al. 1998
Rapid abandonment because of warfare	Inomata 2003
De facto refuse; possibly related to conflict or disease	Chase and Chase 2004
Feasting prior to termination ritual	Suhler et al. 2004
Feasting midden and/or termination ritual	Guderjan 2005
Ancestor veneration and/or pilgrimage to sacred places	Awe 2012

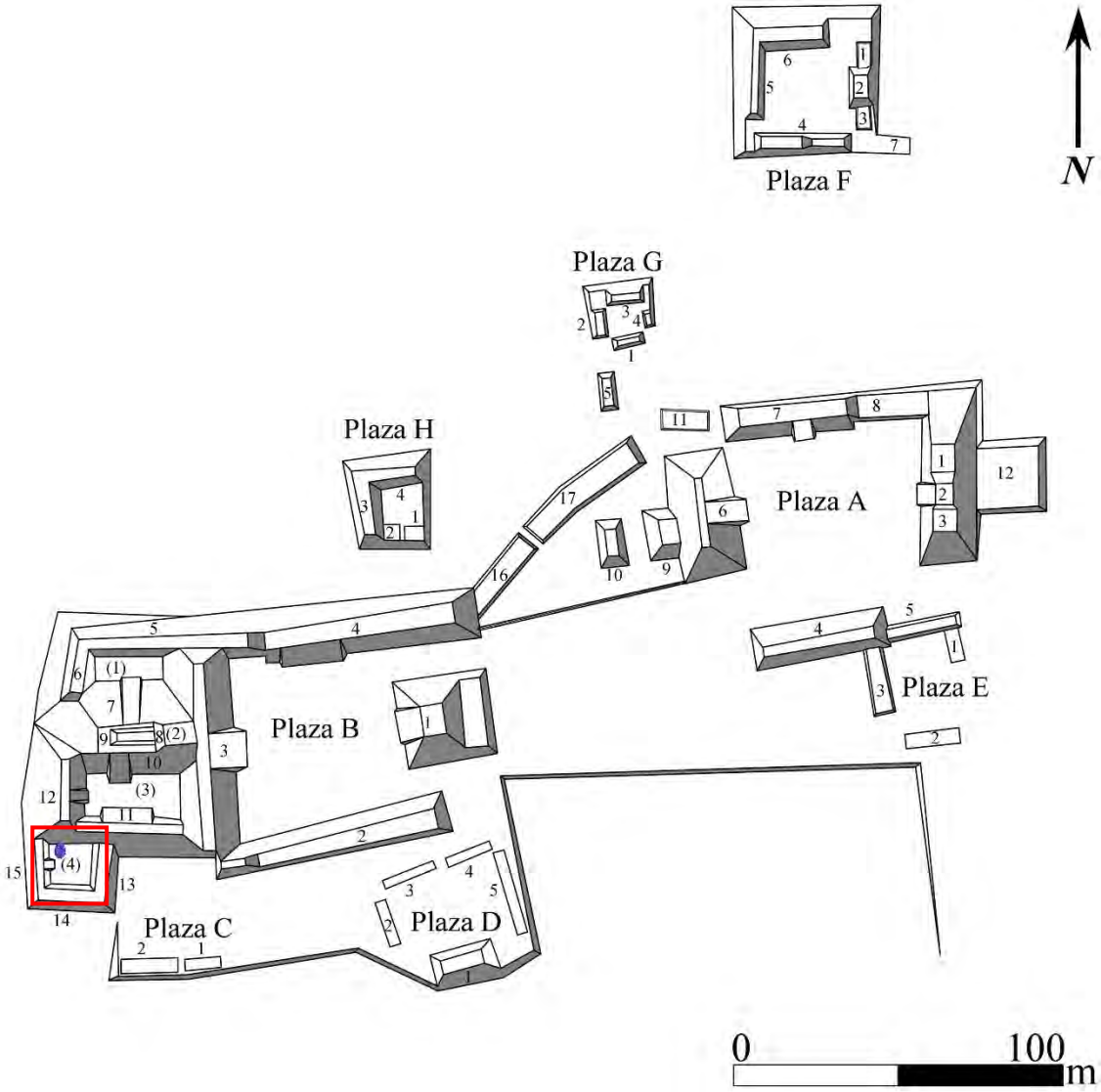


Figure 2: Site plan of the Lower Dover epicenter. Courtyard 4 is highlighted by the red box, with the blue dot representing the location of the peri-abandonment deposit excavated in 2018 (after Guerra 2018: Fig. 2).

METHODS

The 2018 field season was divided into two phases: excavation and analysis. The general BVAR Project excavation guidelines for excavating peri-abandonment deposits outlined in the Supervisor Manual was used to excavate the northern side of CT4 last field season (Hoggarth and Awe 2017). Continuing excavations of the Courtyard 4 peri-abandonment deposit this field season however, were carried out according to methods outlined by Lonaker and colleagues (2017) utilizing a microstratigraphic approach and a 1m by 1m sublot system (see Figure 4).



Figure 3: Photograph of Layer 1 of the deposit feature discovered in CT4 when it was completely exposed. The white spots or flakes in the photograph are a part of the heavily eroded terminal courtyard floor.



Figure 4: Sublot grid system for the 2018 peri-abandonment deposit excavations.

Excavations

All matrix from the deposit was sifted through 1/8th inch screens, as opposed to the standard 1/4th inch screen, since the presence of microartifacts is common in these types of deposits. Microartifacts include bone, beads, and pyrite mosaic pieces. Each of the three layers of the deposit were documented with hand-drawn maps in the field which were then digitized into Figure 5, and Figures 7-9 below.

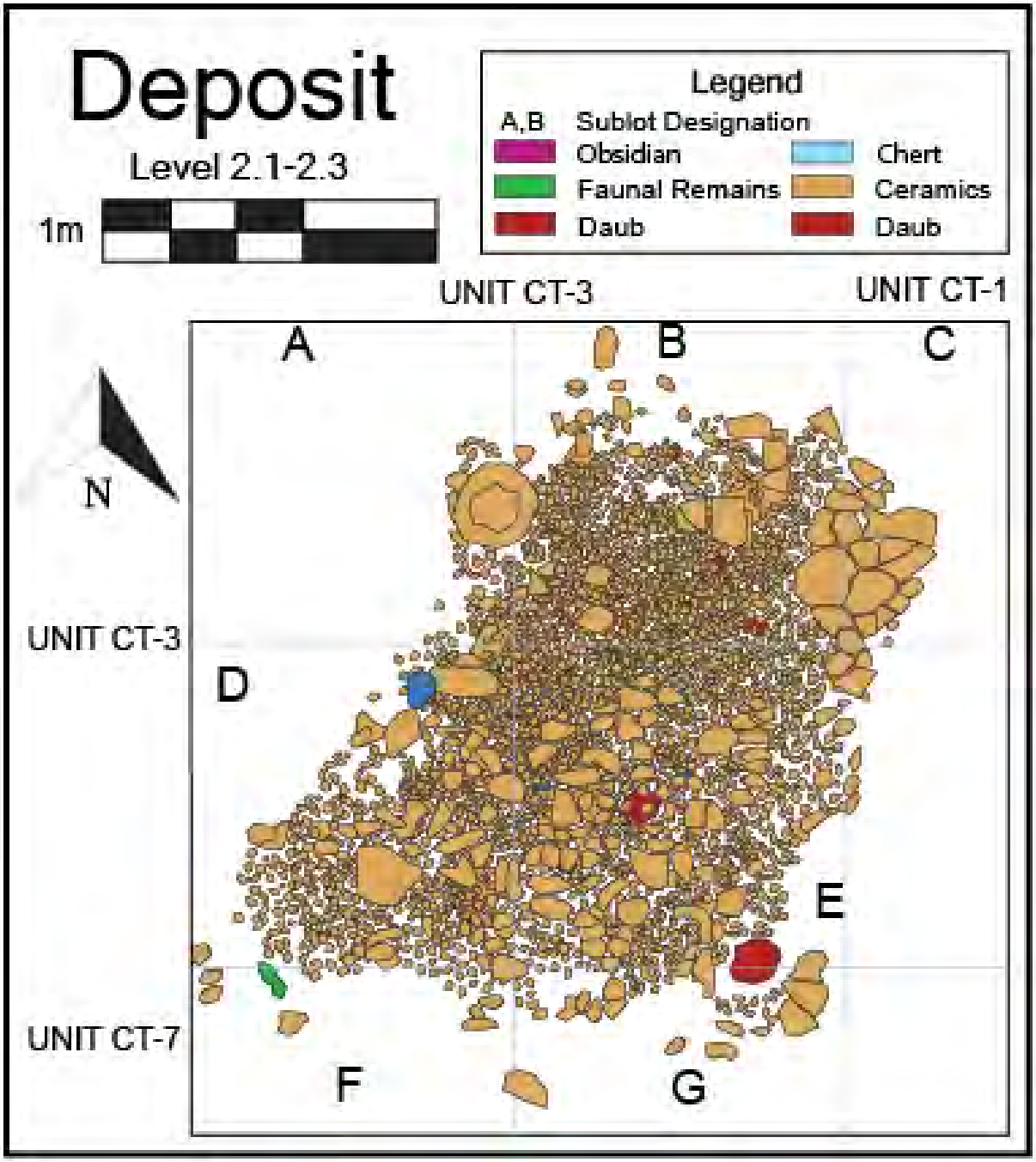


Figure 5: Plan map of the all the arbitrary deposit layers compiled on top of each other.

Photography

The beginning of every unit, and the change of every lot and level were documented photographically as per general BVAR excavation procedures. When deposits are discovered, the photographic evidence becomes even more crucial because the photographs can be used to create 3-D models. For this project, the deposit itself was extensively photographed at each layer of sediment removal and per sublot. These photographs in addition to drawn maps will be used to compile digital plan view maps of each micro layer in the deposit itself.

Floatation Samples

Each layer of the deposit is screened through 1/8-inch mesh and a soil sample taken from the sifted matrix, which will be floated for light and heavy fraction. Heavy fraction can contain very small artifacts such as lithic debitage, whereas the light fraction is collected for paleobotanical analyses.

Analysis

Lithic analysis was conducted in San Ignacio, Belize using standard practices of macroscopic analysis (Andrefky 2005). The entire lithic assemblage from the peri-abandonment deposit was first separated into debitage, and formal tools. I recorded flake type counts (primary, secondary, tertiary) for all debitage, and also included core counts in this category because cores would not be analyzed in greater detail for the purposes of this research. Formal tools were distinguished into two categories: primarily bifaces, and a one unifacial borer.

The ceramic analysis of the deposit layers was conducted according to established local ceramic typologies from Barton Ramie (Gifford 1976). Gifford presents a comprehensive guide for identifying ceramics in the Belize Valley that is still widely used by archaeologists today (Gifford 1976). I collected data on ceramic types, groups, and forms including a section for comments on unique finds, such as those that bridge two distinct forms or types.

RESULTS

While the focus of this report has largely been on the peri-abandonment deposit, the analysis included all ceramics and lithics from the CT4 excavations leading up to the discovery of the deposit feature. Ceramics were therefore analyzed from both 2017 and 2018 field seasons and are all discussed in turn below.

As shown in Figure 3, the deposit's spread was fairly small compared to similar peri-abandonment deposits noted in the western Belize Valley, covering an area of approximately 1.5m (N/S) by 2.5m (E/W). At its highest point, the deposit was just 15cm above the terminal courtyard floor. The deposit contained predominately smashed ceramics, broken and charred faunal remains, daub, and a handful of lithic artifacts. The peri-abandonment deposit was excavated in three arbitrary layers, each 4-5 centimeters thick. It is difficult to specify exactly how thick each layer was as its compactness and depth varied across its spread. Rather, the first fully exposed extent of the deposit was deemed the first layer.

Ceramic Results

Excluding the deposit assemblage, a total of 1278 diagnostic ceramics were cataloged on the northern side of CT4. Formal analysis of the assemblage is ongoing, but initial results indicate that earliest sherds present are associated with the Barton Creek complex (*n*=2), though four Hermitage complex sherds were also present, corresponding roughly to the Early Classic period. These sherds may represent legacy, or heirloom, artifacts because of to their small quantity, rather than an indication of an earlier occupation of the Lower Dover site core. This assumption is also based on the fact that the majority of the diagnostic sherds were identifiable as Spanish Lookout (*n*=939). The rest of the diagnostic sherds included the Tiger Run (*n*=88), and Newtown (*n*=4) ceramic complexes, however, 241 sherds were not identifiable to the group level.

The analysis of the Molded-Carved ceramics (Figure 6) was also limited due to weathering, however all of the sherds were identified as closest to the Altar Complex in the Bayal Group as defined by Smith and colleagues (1975). While most sherds fell into the Pabellon Molded Carved ceramic type (*n*=19) two sherds were identified as Unnamed Yucatan Waxy Finish with Fine Paste closely following the Islas Gouged Incised (see Romih et al. 2018 for additional photographs).

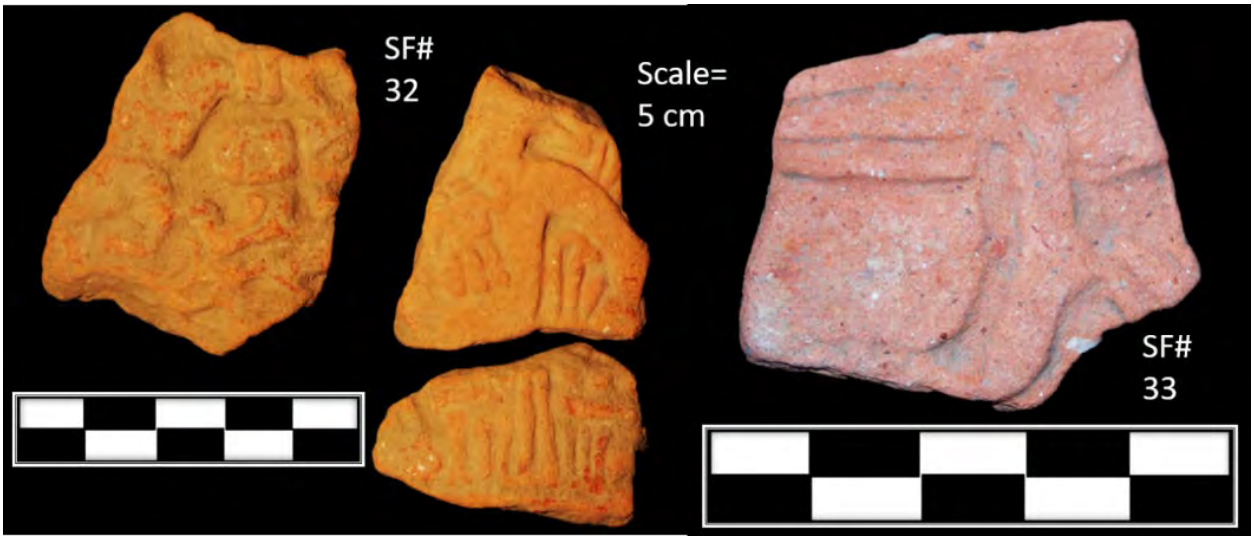


Figure 6: Photograph of molded-carved ceramics discovered during analysis of ceramic assemblage from CT4 excavations.

Deposit Ceramics

The analysis of the 1,095 sherds revealed several notable features regarding this deposit. All ceramics from the peri-abandonment deposit, no matter the size, were included in this analysis. Nearly all of the ceramics fell into the Tiger Run (*n*=9) and Spanish Lookout (*n*=165) ceramic complexes, which broadly correspond to the Late Classic to Terminal Classic periods. The remainder of the sherds were severely eroded, or had forms which were not temporally diagnostic.

Layer 1

The top-most layer of the deposit, which encompassed the largest surface area was named Layer 1. Layer 1 contained 495 sherds, the majority of which were only identifiable to the Group level due to slip erosion, however there were 94 Spanish Lookout sherds, and two Tiger Run sherds present. One of the Tiger Run ceramic complex sherds was identified as a Macal Orange-Red drum fragment (Gifford 1976: Fig. 4.3).

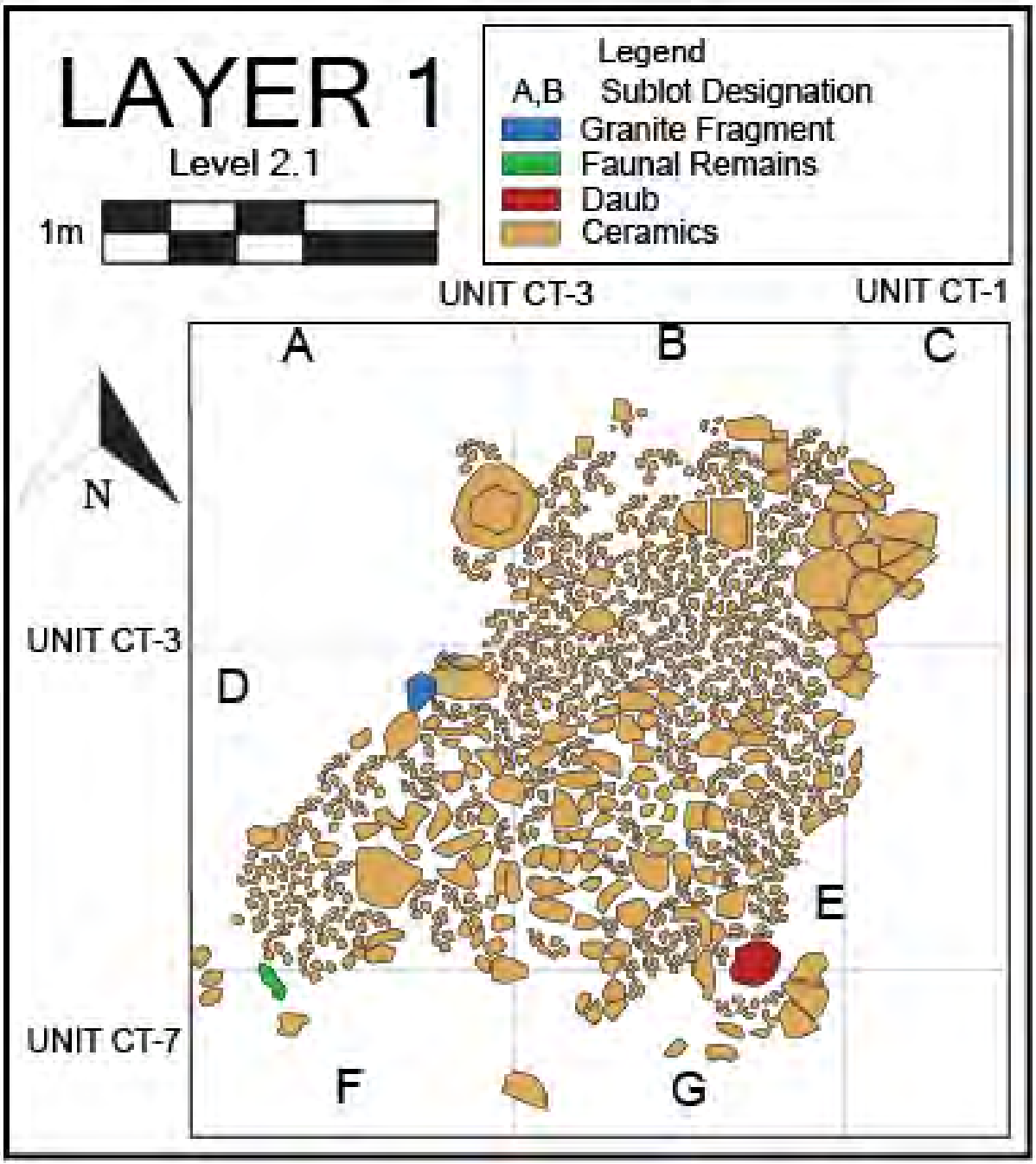


Figure 7: Plan map of the first layer of the deposit.

Layer 2

The second layer was considerably smaller in surface area and no matrix difference was noted indicating that this deposit was a single event. Out of a total 254 pottery sherds, 299 were unknown, three were Tiger Run, and 51 were Spanish Lookout. During lab processing of the ceramics, a figurine fragment was also discovered with some Maya blue paint still visible (Figure 10).

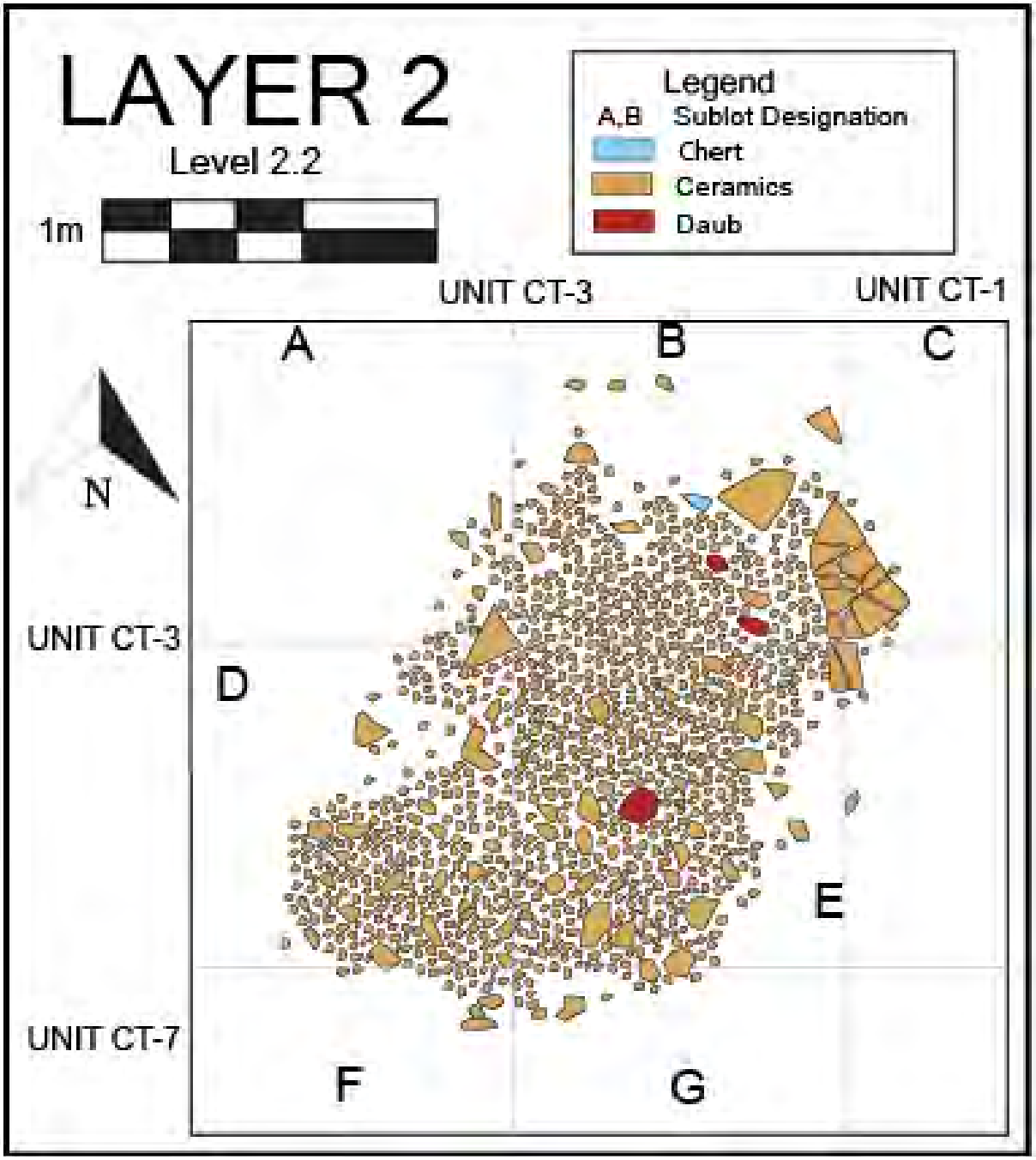


Figure 8: Plan map of the second layer of the deposit.

Layer 3

The third layer was only about 1m by 1m, and had only 234 pottery sherds. This layer had four Tiger Run sherds, and 20 Spanish Lookout sherds. Some ceramic sherds were directly on the floor surface indicating that the courtyard was still being routinely swept before the depositional event. One notable artifact from this layer is a small unworked slate piece for which the closest known source is the Mountain Pine Ridge area (~20 km to the south).

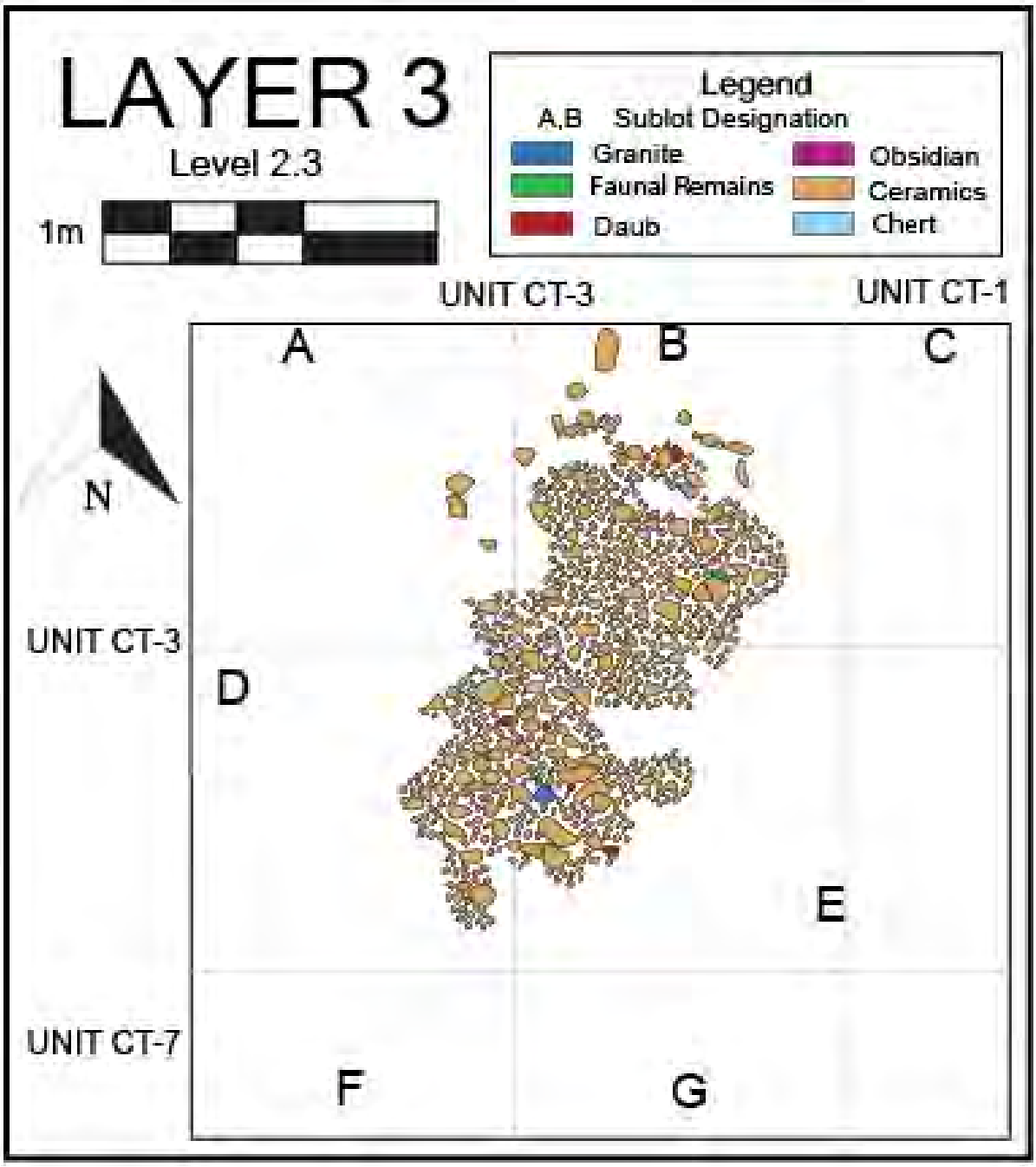


Figure 9: Plan map of the second layer of the deposit.



Figure 10: Photograph of the two special finds discovered within the deposit. SF #30 is a very rough chert biface, and SF #31 is a ceramic figurine fragment with a string hole.

Lithic Results

Excluding the deposit, excavations on the northern side of CT4 produced 669 lithic artifacts, of which there were several formal tools including: 11 cores, one finished unifacial tool (see Figure 11), and 12 bifaces in varying degrees of production (for photographs see Romih et al. 2018). The lithic debitage on the northern side of CT4 was fairly sparse compared to other plazas in the site core based on comparisons with assemblages from the southern side of CT4. The debitage consists of 361 primary flakes, 259 secondary flakes, and 38 tertiary or bifacial thinning flakes.

Deposit Lithics

Excavation of this deposit produced little in the way of lithic artifacts. Lithic debitage consisted of fifteen primary flakes, fifteen secondary flakes, and eleven bifacial thinning flakes 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). This biface (SF# 30, see Figure 10 above) 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.



Figure 11: Photograph of a patented chert borer (drill-like instrument) discovered during lithic analysis of cultural material from the northern side of CT4.

DISUCUSSION

Overall, the excavation of the northern side of CT4 has produced a greater understanding of the function of Courtyard 4 at Lower Dover. The distribution of lithic flakes for example, may indicate that most of the fine thinning work on bifaces was not occurring here in this courtyard, but rather that raw material was either being tested or made into preforms. The ceramic evidence continues to support the theory that the Lower Dover site core was predominately occupied during the Late Classic period.

At the very least, the peri-abandonment deposit discovered in CT4 provides an avenue to investigate the final activities in this courtyard and the palace complex at Lower Dover. The peri-abandonment deposit described above appears to be largely a ceremonial deposit based on the ritual elements present, though it may be difficult to say beyond that. These ritual elements include: *incensario (*censer) fragments, drum fragments, a piece of slate, a broken figurine, a shard of polished crystal quartz, and its location at the bottom of the central axis of a single pyramidal temple structure.

This deposit may be a termination deposit based on its spatial location directly on the terminal courtyard floor like the deposit found on the southside in 2013, however, formal analyses are still ongoing, and new archaeological correlates are being established and tested for different types of peri-abandonment deposits in the Belize Valley. 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. Such a deposit also makes sense in the context of Lower Dover where there is very limited Post-classic activity documented at the site thus far.

Acknowledgements. First, I would like to thank the Belize Institute of Archaeology as well its director Dr. John Morris for permitting BVAR Project research in Belize. I would also like to thank the Reynolds family for their continued support of ongoing research and conservation at Lower Dover. I would especially like to express my gratitude to this year's student excavators for their tireless efforts, enthusiasm, patience, and assistance in the excavation of the peri-abandonment deposit, including: Audrey Pappalau, Jon Gonzales, Olivia Ellis, Lauren Garcia and Benji Byers. I would lastly like to thank BVAR co-directors Dr. Julie Hoggarth and Dr. Jaime Awe for their support and guidance throughout the process, the BVAR Project overall for their financial and logistical support, as well as the BVAR Project Staff who advised, and assisted with this research.

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APPENDIX A:
2018 CT4 EXCAVATIONS - SPECIAL FIND INVENTORY

E.U.	*Lvl.*	*Lot #*	*Lot Designation*	*Class*	*Bag*	*Freq.*	*Notes*	*Photos*
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	CH	4 OF 4	1/1	SF#30- Biface	2422-2429
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	CE	4 OF 4	1/1	SF#31-Figurine Frag.	2457-2464
CT4-7	1	CT4-7-1	Humus and Collapse	CE	1 OF 1	3/3	SF#32-Molded Carved	2465-2473
CT4-7	1A	CT4-7-1A	Collapse	CE	1 OF 1	1/1	SF#33-Molded Carved	2474-2490
CT4-1	1	CT4-1-1	Humus and Collapse	CH	1 OF 1	1	SF #34-Chert Borer	2480-2488

APPENDIX B:
2018 CT4 EXCAVATIONS- FULL ARTIFACT INVENTORY

E.U.	*Level*	*LOT #*	*Lot Designation*	*Class*	*Bag*	*Freq.*
CT4-3	2.1	CT4-3-2.1A	Deposit Layer 1	Ce	1 of 1	4/7
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Ce	1 of 3	5/55
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Db	2 of 3	n/a
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Fa	3 of 3	n/a
CT4-9	2.1	CT4-3-2.1C	Deposit Layer 1	Ce	1 of 1	44/44
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ce	1 of 3	7/65
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Gr	2 of 3	1/1
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Fa	3 of 3	n/a
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ce	1 of 6	8/91
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ce	2 of 6	5/59
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ch	3 of 6	1/1
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Fs	4 of 6	1/1
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Db	5 of 6	n/a
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Fa	6 of 6	n/a
CT4-7	2.1	CT4-7-2.1F	Deposit Layer 1	Ce	1 of 2	2/23
CT4-7	2.1	CT4-7-2.1F	Deposit Layer 1	Fa	2 of 2	n/a
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Ce	1 of 2	3/23
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Db	2 of 2	n/a
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Db	1 of 1	n/a
CT4-3	2.1	CT4-3-2.1C	Deposit Layer 1	Ce	1 of 1	0/6
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Fa	1 of 2	n/a
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ch	2 of 2	0/1
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ce	1 of 4	3/45
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Db	2 of 4	n/a
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ch	3 of 4	5/5
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Pl	4 of 4	n/a
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Ce	1 of 4	6/47
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Db	2 of 4	n/a
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Ch	3 of 4	1/1
CT4-7	2.1	CT4-7-2.1G	Deposit Layer 1	Fs	4 of 4	1/1
CT4-7	2.1	CT4-7-2.1F	Deposit Layer 1	Ce	1 of 2	0/3
CT4-7	2.1	CT4-7-2.1F	Deposit Layer 1	Db	2 of 2	n/a
CT4-3	2.1	CT4-3-2.1A	Deposit Layer 1	Ce	1 of 2	0/2
CT4-3	2.1	CT4-3-2.1A	Deposit Layer 1	Db	2 of 2	n/a
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ce	1 of 4	0/19
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ch	2 of 4	2/2
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Db	3 of 4	n/a
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Fa	4 of 4	n/a
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Ce	1 of 2	2 of 2
CT4-3	2.1	CT4-3-2.1E	Deposit Layer 1	Db	2 of 2	n/a
CT4-3	1B	CT4-3-1B	Collapse	Ce	1 of 2	0/35

E.U.	*Level*	*LOT #*	*Lot Designation*	*Class*	*Bag*	*Freq.*
CT4-3	1B	CT4-3-1B	Collapse	Db	2 of 2	n/a
CT4-3	1B	CT4-3-1B	Collapse	Ce	1 of 3	3/17
CT4-3	1B	CT4-3-1B	Collapse	Ch	2 of 3	1/1
CT4-3	1B	CT4-3-1B	Collapse	Db	3 of 3	n/a
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Ce	1 of 3	1/11
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Ch	2 of 3	1/1
CT4-3	2.1	CT4-3-2.1B	Deposit Layer 1	Db	3 of 3	n/a
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ce	1 of 3	5/16
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Ch	2 of 3	2/2
CT4-3	2.1	CT4-3-2.1D	Deposit Layer 1	Db	3 of 3	n/a
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ce	1 of 4	5/56
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ch	2 of 4	2/2
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Db	3 of 4	n/a
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ch	4 of 4	1/1
CT4-3	2.2	CT4-3-2.2C	Deposit Layer 2	Ce	1 of 1	18/23
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ce	1 of 3	8/51
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ch	2 of 3	3/3
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Db	3 of 3	n/a
CT4-3	2.2	CT4-3-2.2A	Deposit Layer 2	Ce	1 of 1	1/3
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ce	1 of 3	7/28
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Db	2 of 3	n/a
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ca	3 of 3	n/a
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ce	1 of 4	3/44
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ch	2 of 4	2/3
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Db	3 of 4	n/a
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ce	4 of 4	1/1
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ce	1 of 5	12/95
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ch	2 of 5	5/5
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Db	3 of 5	n/a
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Fa	4 of 5	n/a
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ob	5 of 5	1/1
CT4-7	2.2	CT4-3-2.2G	Deposit Layer 2	Ce	1 of 2	2/12
CT4-7	2.2	CT4-3-2.2G	Deposit Layer 2	Ch	2 of 2	1/1
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ce	1 of 5	1/4
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ch	2 of 5	1/2
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Db	3 of 5	n/a
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Qz	4 of 5	1/1
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Mx	5 of 5	n/a
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ce	1 of 4	2/18
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ch	2 of 4	6/6
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ca	3 of 4	n/a
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Mx	4 of 4	n/a
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ce	1 of 3	0/4

E.U.	*Level*	*LOT #*	*Lot Designation*	*Class*	*Bag*	*Freq.*
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Ca	2 of 3	n/a
CT4-3	2.2	CT4-3-2.2D	Deposit Layer 2	Fa	3 of 3	n/a
CT4-3	2.2	CT4-3-2.3D	Deposit Layer 2	Ca	1 of 1	n/a
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Ce	1 of 2	2/13
CT4-3	2.2	CT4-3-2.2B	Deposit Layer 2	Db	2 of 2	n/a
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ce	1 of 2	1/5
CT4-3	2.2	CT4-3-2.2E	Deposit Layer 2	Ch	2 of 2	1/1
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Ce	1 of 8	7/92
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Ch	2 of 8	2/2
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Db	3 of 8	n/a
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Fs	4 of 8	/1
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Fa	5 of 8	n/a
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Ca	6 of 8	n/a
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Ca	7 of 8	n/a
CT4-3	2.3	CT4-3-2.3B	Deposit Layer 3	Mx	8 of 8	n/a
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Ce	1 of 8	16/140
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Ch	2 of 8	7/10
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Db	3 of 8	n/a
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Fa	4 of 8	n/a
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Ca	5 of 8	n/a
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Ob	6 of 8	2/2
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	Mx	7 of 8	n/a
CT4-3	2.3	CT4-3-2.3E	Deposit Layer 3	St	8 of 8	1/1

EXCAVATIONS OF STRUCTURE G2 AT PLAZA G, LOWER DOVER

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INTRODUCTION

In the summer of 2017, the Belize Valley Archaeological Reconnaissance (BVAR) Project continued excavations at Plaza G, a small plazuela group located in the monumental epicenter the site of Lower Dover, Unitedville, Cayo District Belize. Lower Dover is a Late to Terminal Classic Period (AD 500-900/1000) Maya center situated on the southern bank of the Belize River, adjacent from the smaller polity of Barton Ramie (Figure 1). Lower Dover is located approximately 3 km west of site of Blackman Eddy and 6 km east of the site of Baking Pot. Lower Dover is bordered on the north by the Belize River, followed by two tributaries Lower Barton Creek on the east and on the west by the Upper Barton Creek (Guerra and Awe 2017; Guerra and Morton 2011). The ceremonial center of Lower Dover consists of nine formal and two informal plaza groups with 56 structures (Figure 2), including one ballcourt, and a possible *aguada* just north of Plaza A (Guerra and Collins 2015).

During the 2010 field season of the Belize Valley Archaeological Reconnaissance (BVAR) Project, preliminary survey and initial excavations began at Lower Dover (Guerra 2011; Guerra and Awe 2017). Rafael Guerra and Shawn Morton (2011) conducted a preliminary survey of Lower Dover, which included mapping of the monumental site core. Excavations focused on the ceremonial plazas and to determine an overall site chronology. The 2010 field season also included excavations of the site's Eastern Triadic Complex (Plaza A) and ballcourt under the supervision of Patrick Wilkinson (Wilkinson and Hude 2010). The results of excavations suggested that the construction of the site core occurred over a relatively short period of time during the Late and Terminal Classic Periods. Since 2013, Mike Petrozza (2015) and John Walden (2017) have led extensive research in the southern settlement area of Lower Dover.

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2018 Field Season, edited by Claire E. Ebert, John P. Walden, Julie A. Hoggarth & Jaime J. Awe, Volume 24, pp. 134-153. Department of Anthropology, Northern Arizona University, Flagstaff; Institute of Archaeology, Baylor University, Waco. © 2019

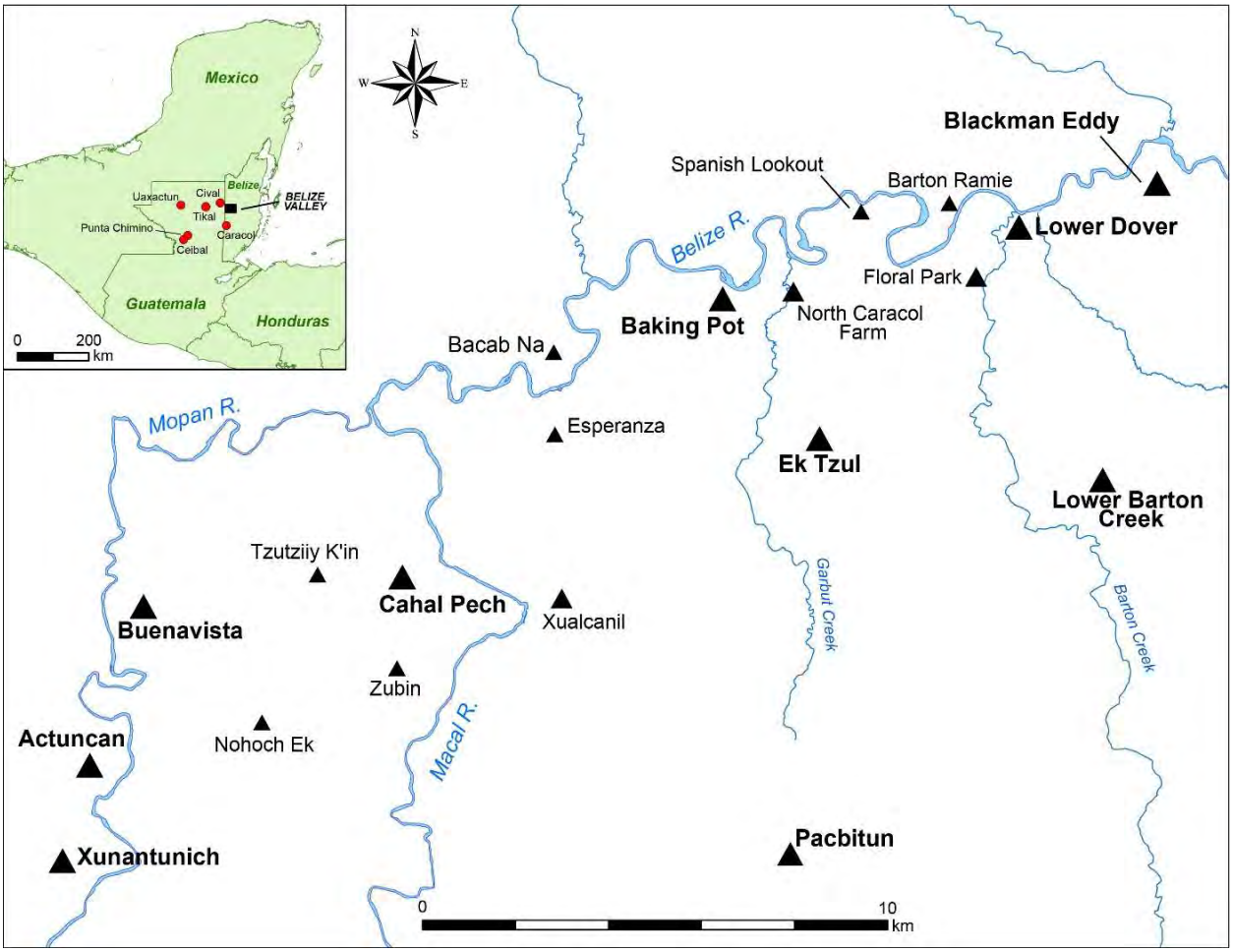


Figure 1: Map of Belize Valley and Maya lowlands (inset) with major sites mentioned in text (map by C. Ebert, 2018).

Formal excavations were conducted in the Plaza G, a small household group, during the 2011 and 2016 BVAR Project field seasons. Plaza G is a small, low-lying residential group located north of the Lower Dover ballcourt (Figures 2 and 3). The group is composed of four structures organized around a central plaza (Structures G1-G4), with a fifth (Structure G2) low platform located to the southwest (Collins and Guerra 2016). Initial investigations of Plaza G began in 2011 with excavations focused on the eastern structure in the group, Structure G1. The excavators placed a 2x6 m unit along the east-west axis of the structure, revealing two architectural phases. Excavations also exposed a crypt containing the remains of an adult male (Burial G4-002). The crypt was oriented north-to-south and covered by four fragmentary capstones (Guerra and Awe 2017:245). While the remains were relatively poorly preserved, four drilled incisions and jade inlaid teeth were present, suggesting that the interred individual was of relatively high status. Direct AMS radiocarbon dating of the remains place the burial between cal AD 430-590 (Guerra et al. 2015), indicating that initial construction of building occurred as early as the end Early Classic or beginning of the Late Classic Period. Guerra and Awe (2017:245) suggest that this early date, the earliest direct date for the Lower Dover site core, may indicate that Plaza G was one of the first household groups within the general area of the site core. The artifact analysis subsequent modifications to the structure occurred during the Spanish Lookout ceramic phase (Late and Terminal Classic Periods; Guerra and Arskey 2011).

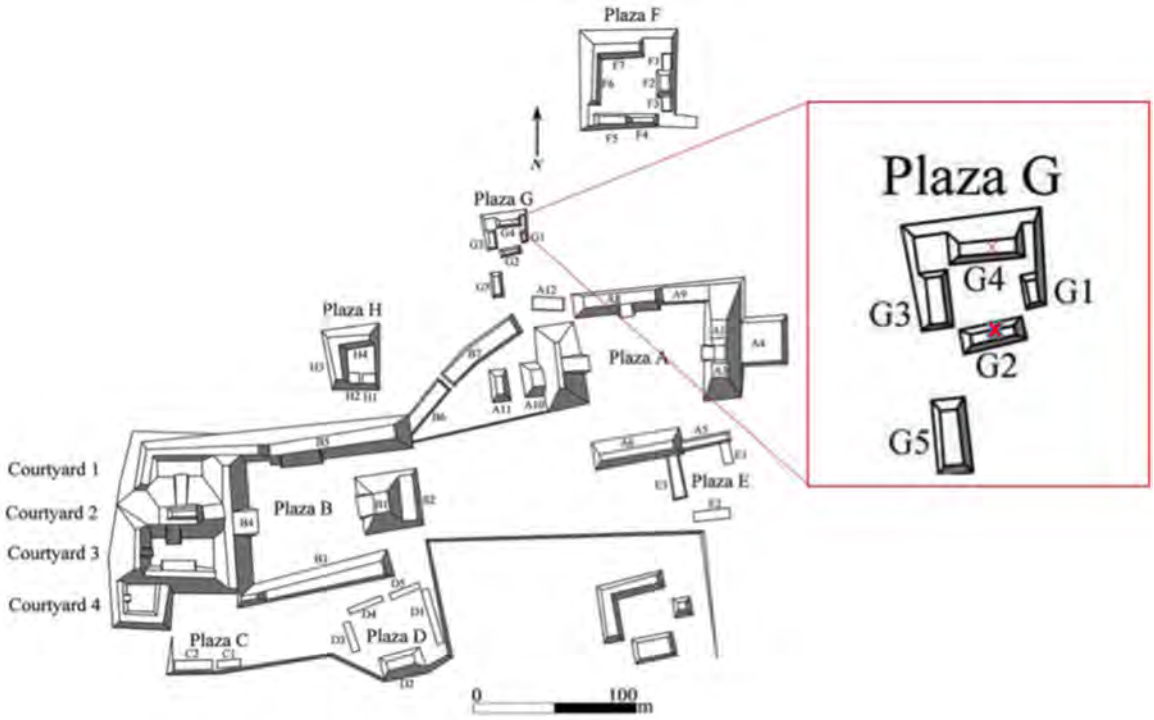


Figure 2: Map of the Lower Dover monumental epicenter, showing the location of Plaza G relative to other architectural groups.

In 2012, Carrie Perkins excavated a *chultun* located in front of the northern structure (G4). *Chultunobs* are described as small subterranean chambers that are ubiquitous throughout the landscape of the Maya Lowlands. (Perkins 2013; Aylesworth 1993). *Chultunob* are usually located where the bedrock is close to the surface. That could be the case for the *chultun* in Plaza G, the bedrock in the housegroup is relatively close to the surface. There has been documentation that the presence of *chultunob* are in relation to domestic settlements (Perkins 2013). The primary reason for *chultunobs* is that they are multifunctional and they are not just used for storage of water, but followed by food storage or refuse deposit when the chultuns can no longer be able to retain water (Perkins 2013; Puleston 1965). Through the course of excavations, the presence of a small shelf-like structure was discovered on the posterior wall (Perkins 2013). Perkins was hesitant to describe the feature as an altar, reason being the use of the word "altar" can imply the connotation of religion or ritual, which there were no artifacts or evidence to support (Perkins 2013). Over 3,000 individual artifacts were recovered from the *chultun*. A majority of the artifacts recovered were items such as, lithic debitage or non-diagnostic ceramics (Perkins 2013). The ceramics recovered from the chultun ranged from the Late Classic period (AD 600-900). Due to the collapsing of the antechamber, it is possible several artifacts washed inside the chultun from structure G4 (Perkins 2013).

BVAR Project researchers revisited Plaza G in 2016 to conduct excavations at the northern structure, Structure G4. Stratigraphic excavations were oriented north-to-south along the central axis of the building in order to determine the construction sequence (Guerra and Collins 2017). Excavation data from the structure suggests that it was constructed in three architectural phases.

The purpose of excavations of structure G4 is to determine the last occupational episode of the structure. By placing vertical excavations placed upon the central axis of the structure, we were able to obtain a profile view of G4. Three plaster floors were uncovered in G4. Each floor contained ballast and was filled with different types of sediment to level out each construction episode. At a depth of 165 centimeters the penultimate phase was achieved due to the slopping of the bedrock river cobbles and orange clay was transported in from the Belize River to level out the plaza prior to construction (Guerra and Collins 2016). The building of the terrace wall was constructed with cut limestone blocks, the terrace seemed to be constructed in one construction episode. The artifact analysis of the structure was not conducted in the 2016 field season, in the 2017 field season artifacts from structure G4 concluded it was constructed in the Late to Terminal classic period. Ceramic analysis revealed Spanish lookout Phase ceramic variety. Artefacts recovered from structure G4 had typical utilitarian items such as, bifaces, obsidian blades, projectile points, and net sinkers. The data recovery from G4 seemed to reveal that this structure or the plaza in general enjoyed some level of affluence.

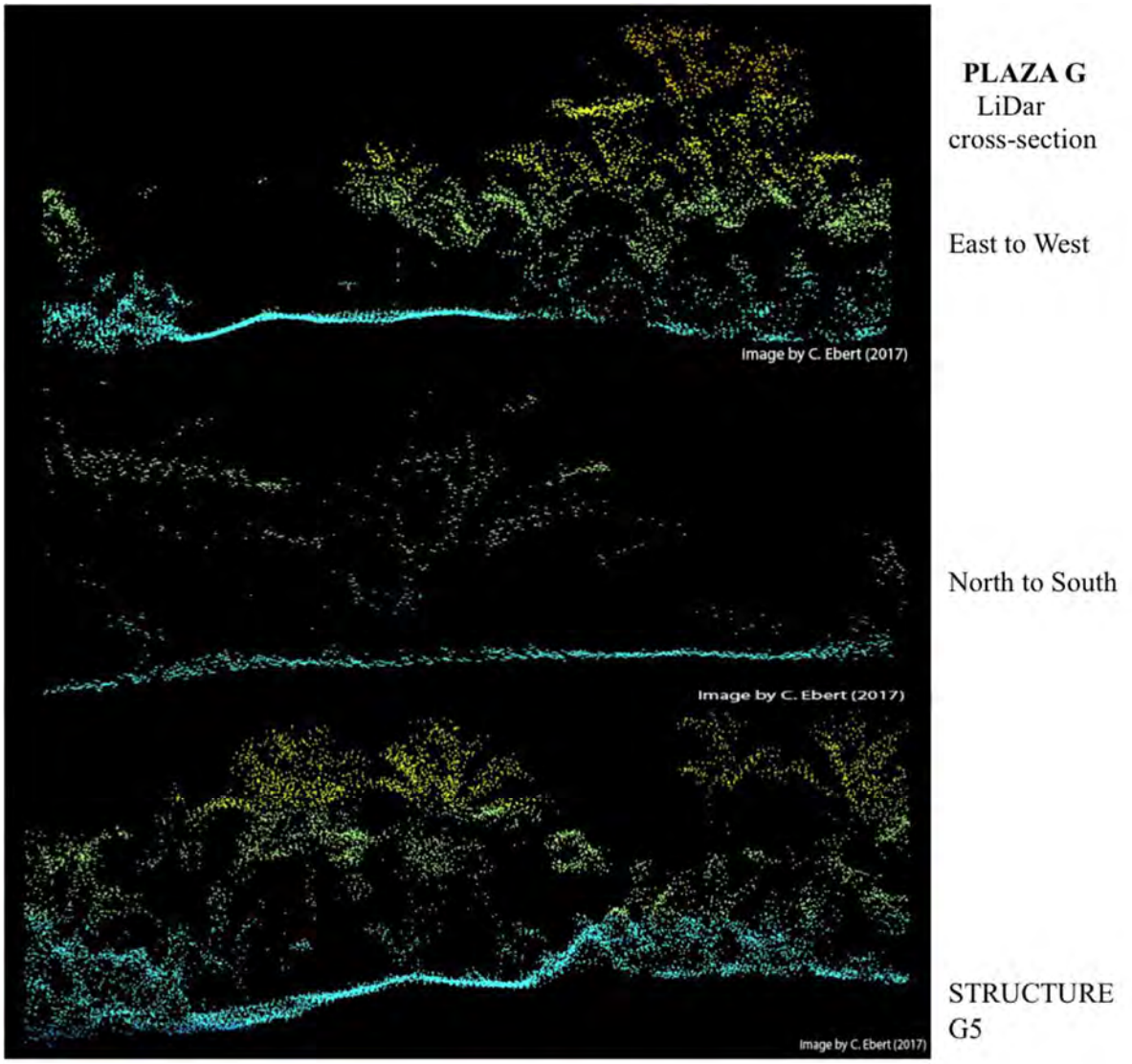


Figure 3: Cross-section of Plaza G based on LiDAR (light detection and ranging) point could (image by Claire Ebert, 2016).

EXCAVATIONS AT STRUCTURE G2

During the 2017 BVAR Project field season, the final phase of excavations at Plaza G focused on documenting the form and function of the southern structure, Structure G2. This structure is the largest of the four in the *plazeula* group. The goal of excavations were to answer the following questions:

1) What is the function of Plaza G at Lower Dover? Did the *plazuela*/courtyard serve ritual and/or domestic functions? While utilitarian artifacts (plainware ceramics, ground stone tools) suggest a domestic function for the group overall, the presence of Burial G4-002 may indicate that the group served other functions.

2) If Plaza G served domestic purposes, can we determine what relationships existed between its inhabitants and those of the site core? The internment of a high-status individual in Burial G4-002 may indicate that the group may have served as an elite residence within the site core.

3) Previous investigations at other building in the site core of Lower Dover suggest that the center developed rapidly during the Late to Terminal Classic period (Guerra and Awe 2017). Does Plaza G reflect a similar developmental sequence with that of the site core? While excavated structure in Plaza G were built in two or three phases, the early date associated with Burial G4-002 may indicate a long span of occupation for the group compared to the rest of the Lower Dover epicenter.

EXCAVATION RESULTS

A horizontal exposure measuring 4x6 m was placed at the vertical axis of Structure 2 to expose the terminal architecture of the building and expose a possible central stairway (Figures 4 and 5). The horizontal exposure was divided into five discrete units (Units G2-1 through G2-5) and revealed an outset patio in addition to the northern wall of the structure. Each was cleared to a depth of approximately 60-100 centimeters in depth. While units focused on the northern portion of the exposure showed evidence of heavy bioturbation (G2-1, G2-3, and G2-5), the exposed a wall alignment running east-to-west which composed the northern wall of Structure G2. The bioturbation affected a portion of the wall exposed in Units G2-1 and G2-3, with large cut limestone blocks located on the second terrace disturbed by root growth. Nestled within the eastern corner of G2-1 a partial *mano* and *metate* were also recovered on the surface of the latest plaza floor. In the first level of G2-1 horizontal excavations we also discovered a fragment of a zoomorphic ocarina that appears to be a tapir, as well as a modified olivella shell tinkler. Another partial *mano* was also unearthed in unit G2-5 on the floor against the architecture. In level 1 of G2-3 we also noted the presence of molded carved ceramics, however these have not yet been analyzed due to time constraints in the field.

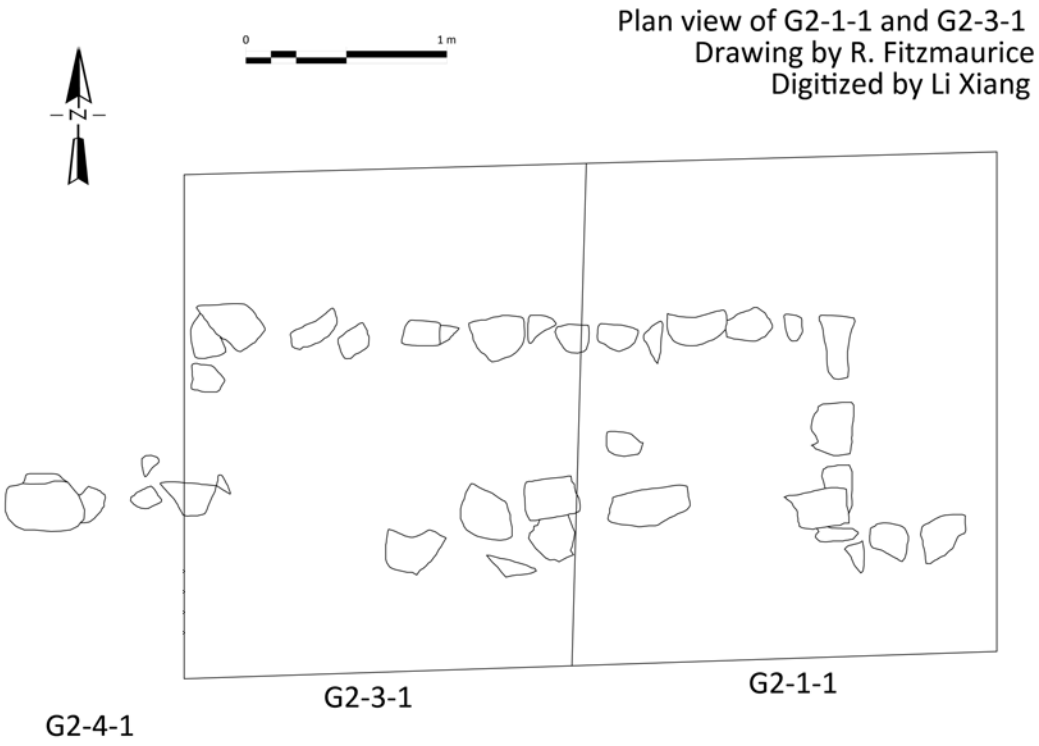


Figure 4: Baseline offset map of G2 excavations (map by Rosamund Fitzmaurice, digitized by Li Xiang [李翔]).



Figure 5: Photo taken of Plaza G horizontal exposure.

After clearing of the terminal architecture, two stratigraphic test units measuring 1.5x4 m, Units G2-6 and G2-7, were placed along the central axis point of the structure to expose the construction sequence of the building (Figure 6). The goal of excavations of Unit G2-6 was to determine the terminal occupation period of the structure, while excavations of Unit G2-7 were primarily focused on determining the depth of bedrock associated with initial construction at Plaza G. Previous excavations at Plaza G indicated that the group was built directly on bedrock. Prior to construction of the main structures, river cobbles and clay were retrieved from the Belize River to level out the entire plaza (Collins and Guerra 2016).

Unit G2-6 was excavated to a depth of 169 cm below the datum, and revealed three occupational phases, with a possible fourth (Figures 7 and 8). The latest occupation at the structure, encompassed levels 1 through 2 with a single floor plastering event and an architectural feature noted near the surface whose function to date is unclear, though it may represent part of a collapsed second terrace to the structure. The feature was composed of six small limestone blocks running north-south across the unit's southern-most edge in the first level of excavations. The third floor (numbered sequentially from the earliest to latest) which represents the final construction episode of structure G-2, was noted immediately after the humic layer transitioned into a light colored sandy loam in level 2 of our excavations. Beneath the third floor of Structure G2 was cobble ballast mixed with crumbled limestone plaster and light brown loose matrix in between.



Figure 6: Complete stratigraphic excavation of Units G2-6 and G2-7.

The artifacts noted in levels 1 and 2 of our excavations for unit G2-6 consisted of body, bowl and jar ceramic fragments matched to predominately the Spanish Lookout ceramic complex; however, some Tiger Run ceramics were also present. Spanish Lookout and Tiger Run ceramic complexes both date to the Terminal Classic period. Interestingly, there were also two sherds associated with the Floral Park ceramic complex dating to the Late Preclassic, and two sherds of Hermitage ceramics dated to the Early Classic. Other artifacts noted in the latest occupation of Structure G2 are chert, daub, freshwater shell and plaster that was remarkably well preserved.

Approximately 15 cm below the start of level 3, the cobble ballast, a second floor (Floor 2) was discovered representing the middle construction phase of the structure, as well as the second-latest occupational phase. Directly beneath floor 2 and starting off level 4 was large boulder fill that had previously been noted in other sections of the site core, and whose suspected origin are the creek beds in close proximity to the site core of Lower Dover. The artifacts noted in levels 3 and 4 representing the second-latest occupation phase, contained Tiger Run only above floor 2, with five Barton Creek ceramic sherds, and three sherds of Hermitage complex ceramics noted in level 4, below floor 2. Other artifacts noted in the middle occupation phase of the structure are chert, daub, freshwater and marine shell, faunal remains, quartz and obsidian. Amongst those was also one human molar that was not suitable for radiocarbon dating, and a marine shell bead.

Level 4 was ended by the discovery of Floor 1 of Structure G2, representing the terminal architecture of the earliest occupation phase as far as we can tell based on current investigations at the plaza. Beneath Floor 1 was level 5, which was composed of dark-colored compact clay-like matrix with small pebbles intermixed. All other stratigraphic excavations in Plaza G have documented an orange compacted clay fill at this depth (Guerra and Collins 2017). This fill was not present in the earliest levels of construction at Structure G2.

At the end of the dark compacted clay layer of level 5, was a feature distinguished only by a 5 cm matrix change to sandy loam intermixed with grain-sized limestone bits. We suspect this feature may be the remains of a floor that has been destroyed by water contained in the dense clay fill that was placed over it, however, the feature did not extend into the west and east baulks of our excavation. The end of the small stratigraphic feature also marked the beginning of the last level of our excavations which contained a light brown matrix that was relatively loose and intermixed with small cobbles. The bedrock is beneath this layer at different elevations. While we believe that levels 5 through 6 likely represent the earliest occupation of plaza G the lack of floor over the bedrock as present in many other structures across the sitecore, leaves little evidence to support this current hypothesis. The artifacts present in levels 5 and 6 were ceramics, chert, daub, faunal, freshwater and marine shell, obsidian, quartz and a small jade bead. The ceramic complexes noted in these levels just above the bedrock are Spanish Lookout, Tiger Run, and a single Hermitage ceramic sherd. Level 6 only contained freshwater shell remains and some chert flakes.



Figure 7: Photograph of Unit G2-6 profile depicting occupational phases.

Excavations of Unit G2-7 focused on exposing the first terrace of Structure G2. The maximum depth achieved in the unit was 112 centimeters from the datum, when bedrock was reached. No other evidence for construction was encountered in Unit G2-7. Instead the unit exposed two levels. The first consisted of a humic layer, and the second was fill that was composed of a fine slit and progressed to a more compacted clay towards the bottom of the level. The bedrock seems to slop in different locations of the plaza, so it is quite possible modifications were made through Plaza G. A profile view of unit G2-6 and G2-7 was established to conclude excavations (Figures 12-13). The artifacts recovered from Unit G2-7 consisted primarily of ceramics and chert.

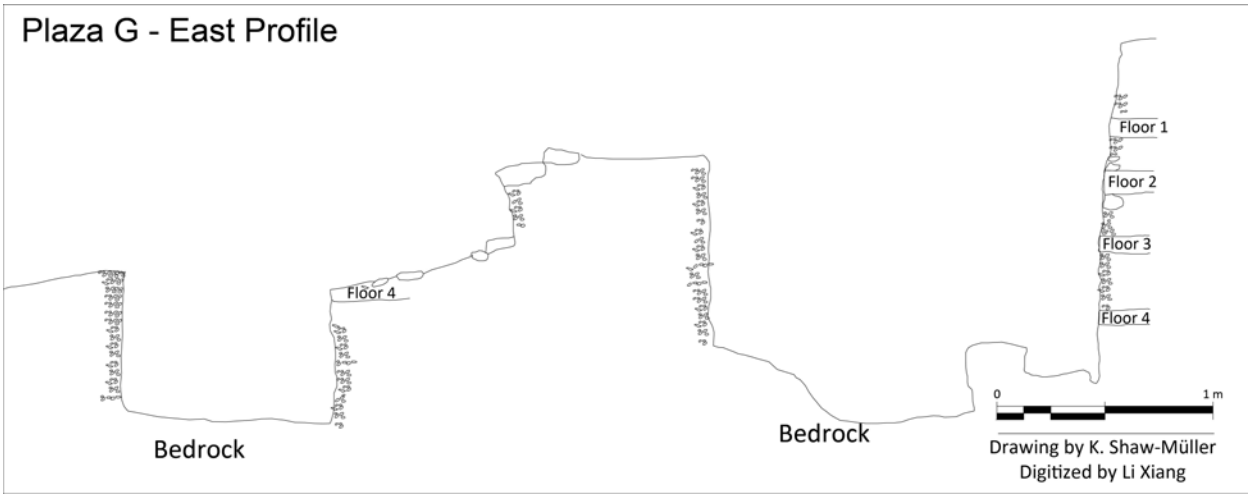


Figure 8: Profile of unit G2-6 and G2-7 (map by Kyle Shaw-Müller, digitized by Li Xiang [李翔]).

PRELIMINARY LITHIC ANALYSIS OF STRUCTURE G2 EXCAVATIONS

A total of ten bifaces were recovered from excavations in structure G2 (Table 2). A majority of these bifaces were fragments only two completed bifaces were present. The presence of the bifaces demonstrates a basic tool in a residential setting. The recovery of bifaces was taken from the first level of the horizontal exposure located in the humic layer. The lithics recovered demonstrated a range of production stages some finished while others were roughly made. In addition, due to time constraints measurement were not taken. Interestingly, all of the bifaces were discovered in the horizontal exposure units G2-1 through G2-5 in the humic layer.

Table 2: Biface types from 2017 excavations.

Biface Type	*Frequency*	*Percent*
Fragment	6	60
Point	1	10
Rough	1	10
Whole	2	20
Total	**10**	**100**



Figure 9: Special finds recovered from Structure G2: SF11 biface fragment; SF 1 biface fragment; SF 14 partial biface fragment; SF 8 partial biface fragment; SF 2 whole biface; SF 12 whole biface; SF 9 partial biface; SF 10 whole biface; SF 4 projectile point fragment.



Figure 10: Special finds recovered from Structure G2 continued: SF 6 Molded Carved ceramic; SF 16 biface fragment; SF 15 partial biface; SF 17 jade bead; SF 16 freshwater shell bead; SF 5 zoomorphic ocarina fragment (tapir); SF 3 worked olivella shell.

FAUNAL ANALYSIS OF STRUCTURE G2 EXCAVATIONS

Faunal remains recovered from Structure G2 and Plaza G were limited. Many skeletal elements could not be identified to a taxon using conservative analysis and were instead identified to size class when taxonomic classification was not possible (Table 5). One potential bone awl fragment, one bone needle fragment, and one cut-worked marine shell (*Oliva reticularis*) were present in the assemblage. The natural taphonomy impacting the faunal remains includes breakage, polish, rodent gnawing, root etching, and possibly burning that may be natural or cultural.

Two species of jute were present, with a number of identified specimens (NISP) of 87 *Pachychilus glaphyrus*, and 1,120 *Pachychilus indiorum* making up the majority of jute and overall materials. A total of 779 jute had the ends broken off culturally or naturally, which could not be differentiated. Of these, 80 were *Pachychilus glaphyrus*, and 699 were *Pachychilus indiorum*. Many jute in the collection also show holes of various sizes in the sides. Because of the shape, number variation, and placement of these holes, they were likely created by natural processes (e.g., root growth through the shell). Some jute also possess various degrees of burning, which may be natural or cultural, including 13 *Pachychilus indiorum*, and three Pachychilus sp. Three marine shell fragments (*Strombus gigas*) were also burned. Other marine shell species in the assemblage include one cut worked *Oliva reticularis*, and four indeterminate marine shell fragments. There is one instance of excavators collecting a complete *Orthalicus princeps* shell, the largest land snail found in Belize and often mistaken for freshwater shell.

Few mammal remains were present, with the majority of the assemblage consisting of shell. Mammalia identified to size class include: one thoracic vertebra spinous process, one left proximal femur of an indeterminate small-medium mammalia, one long bone shaft fragment of an indeterminate medium mammalia, two long bone fragments of an indeterminate medium-large mammalia, two long bone fragments and one vertebra fragment of an indeterminate large mammal,

and one long bone fragment of an indeterminate mammal. The indeterminate large mammal long bone fragment is burned in the browned burn category. The indeterminate large mammal vertebrae fragment shows naturally caused polish, likely from movements with the surrounding matrix.

Mammalia identified to taxon include: three Baird's tapir (*Tapirus bairdii*) long bone fragments, two left distal scapula fragments cf. Artiodactyla , one first phalanx shaft fragment cf. *Odocoileus virginianus* (white-tailed deer), and one nine-banded armadillo (*Dasypus novemcinctus*) dermal scute fragment. Root etching is present on the *Dasypus novemcinctus* scute fragment and three *Tapirus bairdii* long bone fragments. The cf. *Odocoileus virginianus* first phalanx shaft fragment shows severe rodent gnawing, and polishing from natural processes.

CONCLUSIONS

Excavation data from the southern structure suggests that the construction episodes were in three architectural phases. G2 is the largest structure of Plaza G, where it could be suggested the head of the household resided. The material correlates recovered from this structure such as jade can suggest this is an intermediate or middle elite residence. The location of the household, is situated between two informal structures Plaza A and Plaza B, this could suggest this group had access to both plazas. Future excavation into the last remaining structure G5 can conclude the final thoughts on the household group.

Table 5: Faunal Remains Recovered from Lower Dover Plaza G.

Taxonomic Category	***NISP****	***%NISP for Structure***
Pachychilus glaphyrus	87	6.68%
Pachychilus indiorum	1120	86.02%
Pachychilus sp.	55	4.22%
Nephonaias sp.	6	0.46%
Oliva reticularis	1	0.08%
Indeterminate Marine Shell	4	0.31%
cf. *Tapirus bairdii*	3	0.23%
cf. Artiodactyla	2	0.15%
Indeterminate Small-Medium Mammalia	2	0.15%
Indeterminate Medium Mammalia	1	0.08%
Indeterminate Medium-Large Mammalia	2	0.15%
Indeterminate Large Mammalia	3	0.23%
Indeterminate Mammalia	1	0.08%
cf. *Odocoileus virginianus*	1	0.08%
Dasypus novemcinctus	1	0.08%
Orthalicus princeps	1	0.08%
Strombus gigas	12	0.92%
Total	**1302**	**100%**

*NISP = Number of Identified Specimens, where identified is to skeletal element

Artifact analyses of Plaza G suggest a primarily domestic function; however, the house group seemingly has the longest occupation of any other *plazuela* groups correlated to the site core. This is based upon the presence of Burial G4-002 the internment of a high-status individual indicating that the group may have served as an elite residence within the site core. While excavated structures in Plaza G were built in two or three phases, the early date associated with Burial G4-002 suggests a long span of occupation for the group compared to the rest of the Lower Dover epicenter. In lieu of earlier dates from any other site core excavations, I tentatively conclude that Plaza G predates the initial construction of the site core. More intensive excavations within the site core could yield a date that suggests an earlier occupation.

Based on our limited knowledge of the polity of Lower Dover to date, Plaza G's earlier occupation suggests that the site likely sprung up around it sometime during the Late Classic period, however Plaza G's role in that enterprise remains a mystery. As the abandonment of the hinterlands began opportunistic elites may have settled along the Belize River and the construction of Lower Dover began. It is possible therefore, that Lower Dover acted as a new trading center to utilize and control the three waterways at a time when most other centers in the region are beginning to falter. Well-off commoners and intermediate elites living in the periphery of the sinecure in contrast, may have banded together as other centers in the valley began to decline to form a new polity—Lower Dover. The well-off commoners, "New money", might have provided the financial means, whereas the intermediate elites, "old money", might have provided the necessary status and lineage to legitimize the emergence of the new polity. However, both scenarios are purely speculative until we learn more about Lower Dover's socio political role in the valley.

All things considered Lower Dover is a relatively new site to archaeologists and will likely yield promising new data in the coming decades. We can assume that Plaza G was associated with the site core due to its proximity and the presence of an elite burial, and prestige goods such as molded carved ceramics and jade, which not only determine the status of the individual but also the household. The jade inlays worn by the individual also demonstrate the family's ability to acquire goods through a long-distance trade connection–the nearest jade source is located on the Motagua River in Guatemala. As excavations continue at Lower Dover more information will become available of the site's function and imprint on the sociopolitical landscape of the Belize River Valley

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APPENDIX A:
SPECIAL FINDS INDEX FOR 2017 STRUCTURE G2 EXCAVATIONS

Op.	*Unit*	*Lvl*	*Lot*	*S.F. No.*	*Description*
LWD-2017-PLG	G2-1	1	G2-1-1	1	Chert Biface Fragment
LWD-2017-PLG	G2-1	1	G2-1-1	2	Chert Biface
LWD-2017-PLG	G2-1	1	G2-1-1	3	Olivella Tinkler w/face
LWD-2017-PLG	G2-2	1	G2-2-1	4	Chert Projectile Point
LWD-2017-PLG	G2-1	1	G2-1-1	5	Ocarina Fragment (Tapir)
LWD-2017-PLG	G2-3	1	G2-3-1	6	Ceramic molded carved
LWD-2017-PLG	G2-4	1	G2-4-1	7	Chert Biface
LWD-2017-PLG	G2-4	1	G2-4-1	8	Chert biface Fragment
LWD-2017-PLG	G2-4	1	G2-4-1	9	Chert Biface
LWD-2017-PLG	G2-4	1	G2-4-1	10	Chert Biface Fragment
LWD-2017-PLG	G2-1	1	G2-1-1	11	Chert Biface
LWD-2017-PLG	G2-1	1	G2-1-1	12	Chert Biface
LWD-2017-PLG	G2-4	1	G2-4-1	13	Chert Biface
LWD-2017-PLG	G2-4	1	G2-4-1	14	Chert Biface Fragment
LWD-2017-PLG	G2-5	1	G2-5-1	15	Fragmented Biface
LWD-2017-PLG	G2-6	4	G2-6-4	16	Shell Bead
LWD-2017-PLG	G2-6	5	G2-6-5	17	Jade Bead

APPENDIX B:
CERAMICS FROM THE 2017 EXCAVATIONS AT STRUCTURE G2

Unit	*Level/Lot*	*Form*	*Freq*	*Ceramic Complex*	*Type*
G2-1	**1/G2-1-1**	Bowl	1	Barton Creek	Sierra Red
		Plate	2	Tiger Run	Mountain Pine Red
		Plate	1	Tiger Run	Mountain Pine Red
		Bowl	1	Spanish Lookout	Achote Black
		Bowl	1	Spanish Lookout	Belize Red
		Body	1	Spanish Lookout	Belize Red
		Body	2	Spanish Lookout	Belize Red
		Bowl	1	Spanish Lookout	Belize Red
		Jar	3	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Cayo Unslipped
		Jar	2	Spanish Lookout	Cayo Unslipped
		Jar	2	Spanish Lookout	Cayo Unslipped
		Body	3	Spanish Lookout	Dolphin Head Red
		Plate	1	Spanish Lookout	Dolphin Head Red
		Bowl	2	Spanish Lookout	Garbutt Creek Red
		Body	2	Spanish Lookout	Garbutt Creek Red
		Bowl	2	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red
		Body	1	Spanish Lookout	Garbutt Creek Red
		Bowl	2	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red
		Bowl	2	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Meditation Black

Unit	*Level/Lot*	*Form*	*Freq*	*Ceramic Complex*	*Type*
G2-1, cont.	**1/G2-1-1, cont.**	Bowl	6	Spanish Lookout	Meditation Black
		Body	2	Spanish Lookout	Mount Maloney Black
		Plate	2	Spanish Lookout	Platon Punctated-incised
		Bowl	1	Spanish Lookout	Roaring Creek Red
		Plate	1	Spanish Lookout	Roaring Creek Red
		Plate	1	Spanish Lookout	Roaring Creek Red
		Bowl	1	Spanish Lookout	Rubber Camp Brown
		Bowl	1	Spanish Lookout	Rubber Camp Brown
		Bowl	1	Spanish Lookout	Rubber Camp Brown
		Bowl	2	Spanish Lookout	Yalbac Smudge Brown
		Jar	1	Unknown	Unknown
		Rim	1	Unknown	Unknown
		Jar	1	Unknown	Unknown
		Jar	2	Unknown	Unknown
		Strap handle	1	Unknown	Unknown
		Base	1	Unknown	Unknown
		Unknown	1	Unknown	Unknown
		Jar	2	Unknown	Unknown
		Jar	2	Unknown	Unknown
		pedestal	1	Unknown	Unknown
		Bowl	1	Unknown	Unknown
		Plate	1	Unknown	Unknown
G2-2	**1/G2-2-1**	Body	2	Tiger Run	Mountain Pine Red
		Jar	1	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Cayo Unslipped
		Body	2	Spanish Lookout	Cayo Unslipped
		Body	1	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red

Unit	*Level/Lot*	*Form*	*Freq*	*Ceramic Complex*	*Type*
G2-3	**1/G2-3-1**	Bowl	1	Barton Creek	Sierra Red
		Plate	2	Hermitage	Hewlett Bank Unlsipped
		Body	2	Hermitage	Minanha Red
		Jar	2	Hermitage	Minanha Red
		Medial Ridge	1	Hermitage	Minanha Red
		Jar	2	Tiger Run	Jones Camp Striated
		Plate	1	Tiger Run	Mountain Pine Red
		Plate	2	Tiger Run	Mountain Pine Red
		Bowl	2	Tiger Run	Mountain Pleasant
		Jar	2	Spanish Lookout	Alexanders Unslipped
		Vase	1	Spanish Lookout	Belize Red
		Bowl	1	Spanish Lookout	Belize Red
		Plate	2	Spanish Lookout	Belize Red
		Bowl	2	Spanish Lookout	Belize Red
		Bowl	3	Spanish Lookout	Belize Red
		Plate	2	Spanish Lookout	Belize Red
		Jar	7	Spanish Lookout	Cayo Unslipped
		Jar	4	Spanish Lookout	Cayo Unslipped
		Bowl	1	Spanish Lookout	Cayo Unslipped
		Bowl	1	Spanish Lookout	Cubeta Incised
		Bowl	2	Spanish Lookout	Dolphin Head Red
		Plate	1	Spanish Lookout	Dolphin Head Red
		Bowl	3	Spanish Lookout	Garbutt Creek Red
		Bowl	4	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Platon Punctated-incised
		Plate	6	Spanish Lookout	Roaring Creek Red
		Body	2	Spanish Lookout	Roaring Creek Red
		Bowl	1	Spanish Lookout	Rubber Camp Brown
		Plate	1	Spanish Lookout	Rubber Camp Brown
		Bowl	1	Spanish Lookout	Rubber Camp Brown

Unit	*Level/Lot*	*Form*	*Freq*	*Ceramic Complex*	*Type*
G2-3, cont.	**1/G2-3-1, cont.**	Dish	1	Spanish Lookout	Silver Creek Impressed
		Jar	1	Spanish Lookout	Tutu Camp striated
		Bowl	1	Spanish Lookout	Yalbac Smudge Brown
		Vase	1	Unknown	unknown
		Bowl	3	Unknown	Unknown
		Jar	2	Unknown	Unknown
G2-4	**1/G2-4-1**	Jar	2	Jenny Creek	Savana Orange
		Rim	2	Barton Creek	Sapote Strirated
		Bowl	2	Barton Creek	Sierra Red
		Jar	2	Hermitage	Minanha Red
		Jar	2	Hermitage	Socotz Striated
		Plate	2	Tiger Run	Mountain Pine Red
		Plate	1	Tiger Run	Mountain Pine Red
		Bowl	2	Tiger Run	Mountain Pleasant
		Jar	2	Spanish Lookout	Alexanders Unslipped
		Bowl	1	Spanish Lookout	Alexanders Unslipped v. Beaverdam
		Bowl	12	Spanish Lookout	Belize Red
		Jar	2	Spanish Lookout	Cayo Unslipped
		Bowl	2	Spanish Lookout	Cayo Unslipped
		Body	5	Spanish Lookout	Cayo Unslipped
		Plate	3	Spanish Lookout	Cayo Unslipped
		Body	2	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Garbutt Creek Red
		Bowl	1	Spanish Lookout	Platon Punctated-incised
		Plate	2	Spanish Lookout	Roaring Creek Red
		Jar	2	Spanish Lookout	Roaring Creek Red
		Plate	2	Spanish Lookout	Roaring Creek Red
		Jar	2	Spanish Lookout	Roaring Creek Red
		Bowl	2	Spanish Lookout	Roaring Creek Red
		Base	2	Spanish Lookout	Rubber Camp Brown

Unit	*Level/Lot*	*Form*	*Freq*	*Ceramic Complex*	*Type*
G2-4, cont.	**1/G2-4-1, cont.**	Plate	2	Spanish Lookout	Rubber Camp Variety
		Plate	1	Spanish Lookout	Silver Creek Impressed
		Vase	1	Spanish Lookout	Xunantunich Black-on-orange
		Bowl	1	Unknown	Unknown
		Jar	1	Unknown	Unknown
		Jar	2	Unknown	Unknown
G2-6	**1/G2-6-1**	Bowl	2	Floral Park	Aguacate Orange
		Body	1	Tiger Run	Mountain Pleasant
		Bowl	2	Spanish Lookout	Belize Red
		Bowl	1	Unknown	Unknown
G2-6	**2/G2-6-2**	Jar	2	Hermitage	Mopan Striated
		Jar	2	Tiger Run	Mountain Pine Red
		Bowl	1	Tiger Run	Saturday Creek
G2-6	**3/G2-6-3**	Bowl	1	Tiger Run	Jones Camp Striated
		Bowl	4	Tiger Run	Mountain Pine Red
		Jar	1	Tiger Run	Teakettle Bank Black
G2-6	**4/G2-6-4**	Bowl	2	Barton Creek	Flor Cream
		Jar	2	Barton Creek	Savana Orange
		Bowl	1	Barton Creek	Sierra Red
		Bowl	2	Hermitage	Fowler Orange-red
		Lid	1	Hermitage	Pucte Brown
		Body	3	Tiger Run	Mountain Pleasant
G2-6	**5/G2-6-5**	Bowl	1	Hermitage	Minanha Red
		Jar	3	Tiger Run	Mountain Pine Red
		Bowl	2	Spanish Lookout	Garbutt Creek Red
G2-7	**1/G2-7-2**	Bowl	3	Spanish Lookout	Cayo Unslipped
		Jar	1	Spanish Lookout	Garbutt Creek Red
		Bowl	3	Unknown	Unknown

CERAMIC ANALYSES FROM THE ANCIENT MAYA SITE OF LOWER DOVER, BELIZE: PRELIMINARY RESULTS

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INTRODUCTION

This report provides the preliminary results of ceramic analyses of collections from excavations in the site core at Lower Dover, Belize. Since 2010, the Belize Valley Archaeological Reconnaissance (BVAR) Project has been conducting excavations at the Lower Dover site core and settlement area. This report represents the first systematic analysis of the ceramics collected from excavations conducted in 2010 through 2017 in the monumental site core at Lower Dover. Previous analyses (e.g., Sullivan et al. 2014; Petrozza 2015; Romih, this volume) were more limited in scope and based on smaller sample sizes. The primary goal of the present analyses is to provide temporal information for the construction of buildings in the site core and a portion of the surrounding settlement area.

SITE LOCATION & SETTING

Lower Dover is situated on the southern bank of the Belize River approximately 15.4 km downriver of modern town of San Ignacio. The site is bordered on the north by the Belize River, on the east by Lower Barton Creek and on the west by the Upper Barton Creek (Guerra and Morton 2012; Guerra 2011). The Lower Dover monumental epicenter sits on the property of William and Madeline Reynolds in Unitedville Village, Cayo District. At its nearest, the Belize River runs a mere 20 m from the site, and average elevations of the site fluctuate between approximately 14-20 m above the mean elevation of the river. The monumental architecture is located on a 50 acre parcel covered with taller trees and Cohune Palm (*Attalea cohune)* and secondary growth shrub (*wamil*).

In relation to other ancient Maya Sites, Lower Dover lies approximately 6.6 km east of Baking Pot and 3 km west of Blackman Eddy, the two nearest major centers (Figure 1). To the south is the small major center of Lower Barton Creek, which is roughly 5.9 km distant. The site's settlement area extends to the south into the foothills of the Maya Mountains. Several small formal plazuelas have been recorded in this area (Guerra 2010; Petrozza 2015; Walden et al. 2017), mainly within the higher elevations. Few to no mounds have been recorded in the flatter plain between the foothills and the site core. It is possible that this area may have served as farm land to the ancient community.

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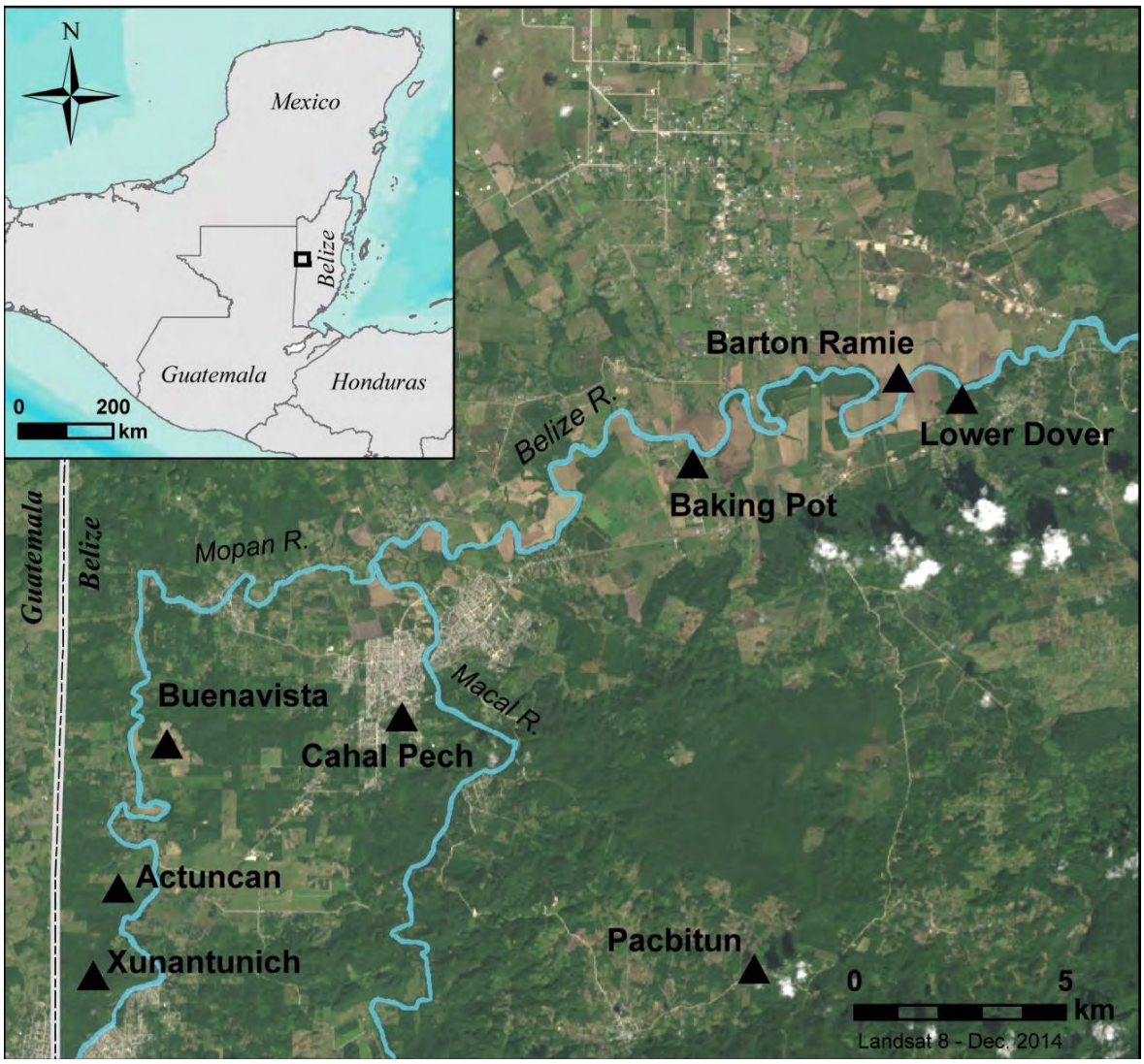


Figure 1: Map showing the location of Lower Dover in the Belize River Valley (map by Claire Ebert, 2017).

PREVIOUS EXCAVATIONS

The monumental architecture of the site covers approximately 3.0 hectares (Helmke et al. 2015). The total surface area of the site makes it the seventh largest known site in central Belize (after El Pilar, Buenavista del Cayo, Actuncan, Pacbitun, Xunantunich and Baking Pot; see Helmke and Awe 2008). The site is composed of two primary large plazas of similar dimensions (Figure 2). Plaza A to the east contains 12 structures with an attached ballcourt to the west and a single low-lying structure to the northwest. Plaza B to west contains 17 structures most of which are on the west and form 4 restricted access courtyards that likely functioned as an elite residential palace complex. The two plazas are connected by a small low-lying wall no more than 4 courses high (Guerra and Arksey 2012). Three formal patio groups are located to the north (Plaza F, G and H) and three informal groups to the south (Plaza C, D and E). A total of 52 structures have been identified thus far.

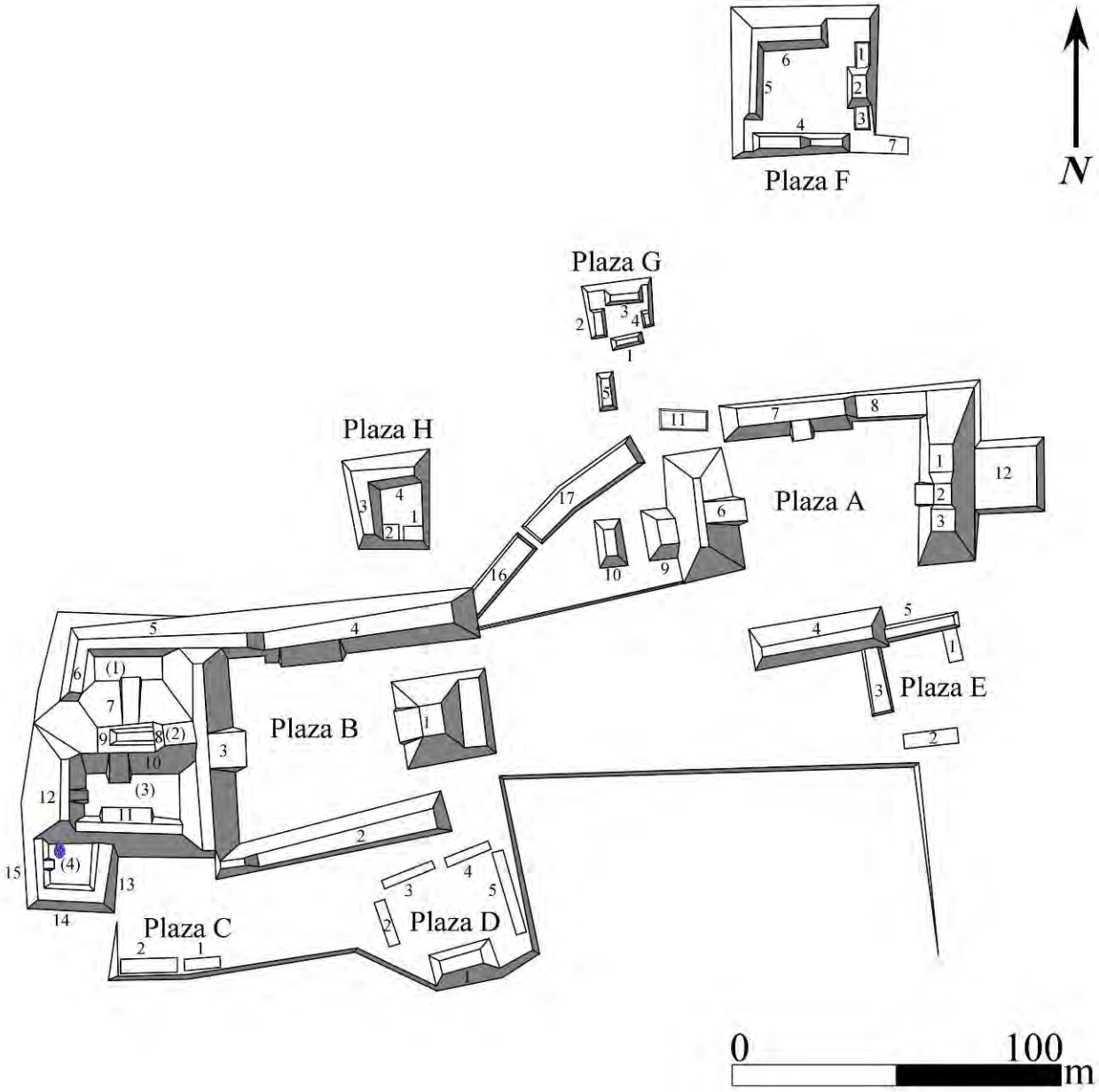


Figure 2: Lower Dover site core plan with updated structure designations.

Initial excavations at Lower Dover were conducted in 2010. These excavations focused on Structure A2 (part of the site's Eastern Triadic complex), and the ballcourt alley way between structures A9 and A10 in Plaza A (Wilkinson and Hude 2010). Excavations in 2011 were conducted in Plaza G to the north of the Ballcourt, specifically structures G2 and G4 and a wall feature (W45) to the south of the ball court (Guerra and Arksey 2012). Excavations in the 2011 field season were focused on the western structure, G2. Units G2 -1 and 2 were laid out along the east west axis of the structure, as 2x2 m unit, and served to uncover the terminal phase architecture. Unit G2-2 also served as a vertical test unit in order to determine the chronological construction sequence. Additional units were added as needed to expose the terminal architecture of the

structure. Excavations also began on a structure tentatively identified as a wall or *sacbe* that ran between Plaza A and Plaza B near the ballcourt. The structure was visible where the lined stones broke through the surface in many places, and it was decided to excavate a cross section of the "wall" to determine how it was constructed and its function

In 2012, excavation efforts were focused on Structure B14 in Courtyard 4 (Guerra et al. 2013). To begin the 2012 excavations, the interior of Plaza F was covered in a grid of 2x2 m units (Figure 2). Surface artifacts in each 2x2 m unit were collected. The surface collection served for analysis of the terminal occupation. At the centerline of each cardinal direction, one 2x2 m unit was initiated along the base of each structure (E24, F25, F26, and F27) in order to identify the plaza floor and the base of the architecture. Once the structure's architecture and plaza floor were defined, adjacent units were opened to continue large-scale exposure of the structures to identify orientation and extent of the basal architecture. One plaza unit was selected along the base of Structure E24 to conduct vertical excavations of the plaza in order to collect data to assess the chronology of the plaza floor.

The 2013 excavations were also concentrated in Courtyard 4, formerly known as Plaza F (Guerra et al. 2014). In the southern portion of the courtyard, the remains of a peri-abandonment deposit extending across the northern face of Structure B13, north into the plaza area and east to Structure B14. A total of nine units were opens to fully expose the deposit. Two plaza units were also placed in Courtyard 4 in order to recover stratified chronological material for construction episodes for this part of the site. A single penetrative unit was also placed on the summit of Structure B13.

In 2014, excavations were focused on several parts of the site. Two excavation units were initiated along the northwest corner of Courtyard 1 to identify the terminal phase construction and collect material remains associated with the final occupation at Structures B5 and B6 (Guerra and Collins 2015). Horizontal excavations in Courtyard 3 were also initiated to identify the architectural component of the southern structure in the group (Structure B10) as well as to recover material remains related to the terminal phase occupation (Guerra and Collins 2015). In addition, a unit was initiated within an existing looter's pit in order to identify the stratigraphic sequence of construction in the plaza. In Plaza B, a single unit was placed on Structure B14 to determine the chronological sequence of construction at this building (Barillas 2015). Excavations in Settlement Group 2, formerly Plaza M, concentrated on Structure SG2-4, with the intention of exposing the structure's terminal architecture as well as all existing plaza construction phases (Rawski 2015).

For the 2015 season, excavations were focused in several areas in and around the site core of Lower Dover. Excavations were conducted at the base of Structure A2 and in Plaza A, Structure A9 in the ballcourt, Structure B16, Structure D1 in Plaza D, Structure B5 and B6 in Courtyard 1, Structure B9 in Courtyard 2, formerly Plaza D, and Structure SG2-1in SG2, formerly Plaza M (Guerra and Collins 2016). Excavation units in all cases were initiated at this group to identify the terminal phase construction, collect material remains associated with the final occupation period, as well as to identify the construction sequence of the group. The excavation in the Plaza B area was located to the east of the plaza on Structure B15, a small low-lying structure attached to Plaza B proper. The alignment of this structure is unusual and does not match the alignment of other structures throughout the site. This unusual alignment suggested that perhaps the structure was

built later than everything else at the site core and may have dated to the Early Postclassic (AD 900-1200; Guerra and Collins 2015:229).

The 2016 field season focused excavations across the site core. The excavations in Plaza B were initiated in order to investigate the existing looter's trench. However, four other units were opened once a fairly intact room was discovered along the western edge of the looter pit in Structure B1. Excavations also provided a horizontal exposure to uncover the staircase along the western face of the building (Guerra and Romih 2017:12500129). Excavations in Plaza F exposed the western façade of Structure F2, from the top most architecture visible, to the present-day plaza surface below (Guerra and Romih:129-133). Excavations in Courtyard 2 also documents the construction phases of the site's palace complex (Watkins et al. 2017), and in Plaza G, an elite residential group (Collins and Guerra 2017, see also Collins et al., this volume).

In the 2017 field season a test pit scheme was carried out, by the author, in Plaza A to investigate the possibility of the ancient Maya using Plaza A as a market place. Small 30 x 30 cm, test pits were dug on a grid to collect materials for floatation and chemical analyses. In addition, excavations were conducted at 12 settlement groups around the site core to the south (Walden et al., this volume). The 2017 field season a test pitting program was focused in Plaza A in order to collect soil samples for (1) the identification of cultural materials related to market activity in the plaza and (2) organic chemical residue analyses particularly, phosphate, associated with the decomposition of organic materials and the physical burning of material associated with food preparation and hearths.

These excavations represent the totality of data collection used for this report. All ceramic materials collected from these excavations were analyzed, with the exception of 10 unsorted buckets and three studies that analyzed materials from special deposits (see Kulig 2015; Watkins 2016; Romih, this volume). A total of 33,176 ceramic sherds were analyzed from the site core and a total of 5,719 ceramic sherds from the settlement groups giving a total of 38895 sherds used in this report. The results of these analysis are presented below.

CERAMIC ANALYSIS

All diagnostic sherds were analyzed using the type/variety method established for the Belize River Valley (Gifford 1976). For the propose of this report the term diagnostic refers to any sherd that contains diagnostic attributes such as surface treatment, paste composition and vessel form. It is worth noting that the most common type variety established by Gifford (1976) was based on the site of Barton Ramie, located only 1 km to the north of Lower Dover. When sherds were unidentifiable or undetermined by the Gifford (1976) typology, other typologies were used to help identify them such as Sabloff (1975).

A total of 33,176 ceramic sherds were analyzed from various contexts of the site core excavations. These specimens do not represent materials collected from burials or other special deposits, but instead were samples from construction fill contexts to help date construction in each plaza at Lower Dover. These deposits have been previously analyzed as a whole or will be analyzed as a whole in the near future. Results of analyses are presented in Tables 1 and 2. Figure 3 shows examples of ceramics from these analyses.

Table 1: Frequency of all ceramics analyzed from the Lower Dover site core excavations (*n*=33,176).

Location	*Ceramic Complex*	*Type/Variety*	*Frequency*
Plaza A	**New Town**	Paxcaman Red	1
	Spanish Lookout	Cayo Unslipped	86
		Belize Red	65
		Dolphin Head Red	64
		Garbutt Creek Red	38
		Roaring Creek Red	16
		Pedregal Modeled Carved	3
		Alexanders Unslipped	2
	Tiger Run	Mount Pleasant Red	6
		Mountain Pine Red	2
		Sotero Red Brown	2
	Hermitage	Pucte Brown	1
	Unknown		32
Plaza B	**New Town**	Augustine Red	1
		Paxcaman Red	1
	Spanish Lookout	Cayo Unslipped	129
		Belize Red	103
		Garbutt Creek Red	101
		Roaring Creek Red	59
		Dolphin Head Red	55
		Miseria Appliqued	19
		Yaha Creek	18
		Pedregal Modeled Carved	5
		Alexanders Unslipped	3
		Sibun Red Neck	3
		Rubber Camp Brown	2
		Meditation Black	1
		Palmar Orange	1
		Puhuy Zibal Composite	1
		Vaca Falls Red	1
		Yalbac Smudge Brown	1
	Tiger Run	Mount Pleasant Red	7
		Mountain Pine Red	7
		Sotero Red-Brown	4
		Mangrove Black	1
	Hermitage	Dos Arroyos	5
	Unknown		41
Plaza D	**Spanish Lookout**	Dolphin Head Red	21
		Garbutt Creek Red	18
		Miseria Appliqued	15
		Belize Red	9
		Cayo Unslipped	6
		Pedregal Modeled Carved	4
		Roaring Creek Red	3
		Alexanders Unslipped	1
	Tiger Run	Mount Pleasant Red	4
		Sotero Red-Brown	1
	Unknown	Unknown	5

Location	*Ceramic Complex*	*Type/Variety*	*Frequency*
Plaza F	**Spanish Lookout**	Dolphin Head Red	20
		Garbutt Creek Red	17
		Cayo Unslipped	15
		Roaring Creek Red	12
		Yaha Creek	11
		Belize Red	9
		Cayo Unslipped	4
		Alexanders Unslipped	3
		Pedregal Modeled Carved	1
		Rubber Camp Brown	1
		Sibun Red Rim	1
		Tutu Camp Striated	1
	Tiger Run	Mountain Pine Red	21
		Zibal Unslipped	19
		Mount Pleasant Red	12
		Mangrove Black	10
		White Cliff	7
		Sotero Red-Brown	2
	Barton Creek	Sierra Red	1
	Unknown		12
Plaza G	**Spanish Lookout**	Cayo Unslipped	93
		Garbutt Creek Red	25
		Roaring Creek Red	19
		Belize Red	18
		Dolphin Head Red	15
		Yalbac Smudge Browm	7
		Alexanders Unslipped	1
		Meditation Black	1
		Pedregal Modeled Carved	1
	Tiger Run	Mount Pleasant Red	20
		Sotero Red-Brown	7
		Mountain Pine Red	2
		Zibal Unslipped	2
		Macal Orange Red	1
	Hermitage	White Cliff	4
		Dos Arroyos Polychrome	2
		Sacatel Cream	1
	Unknown		36
Ballcourt	**Spanish Lookout**	Cayo Unslipped	15
		Dolphin Head Red	6
		Garbutt Creek Red	3
		Mount Maloney Black	2
		Belize Red	1
		Pucte Brown	1
		Roaring Creek Red	1
	Tiger Run	Mount Pleasant Red	4
		Mountain Pine Red	1
	Unknown		1

Location	*Ceramic Complex*	*Type/Variety*	*Frequency*
Courtyard 1	**New Town**	Daylight Orange	3
	Spanish Lookout	Cayo Unslipped	82
		Belize Red	59
		Roaring Creek Red	15
		Rubber Camp Brown	3
		Alexanders Unslipped	2
		Miseria Appliqued	2
		Yaha Creek Cream	2
	Tiger Run	Dolphin Head Red	38
		Sotero Red Brown	17
		Macal Orange Red	3
		Meditation Black	3
		Mountain Pine Red	1
	Unknown		32
Courtyard 2	**Spanish Lookout**	Cayo Unslipped	20
		Belize Red	11
		Roaring Creek Red	8
		Garbutt Creet Red	2
		Rubber Camp Brown	2
		Dolphin Head Red	1
		Macrae Impressed	1
	Tiger Run	Mountain Pine Red	2
	Unknown		7
Courtyard 3	**New Town**	Paxcaman Red	1
	Spanish Lookout	Cayo Unslipped	61
		Garbutt Creek Red	32
		Roaring Creek Red	31
		Belize Red	28
		Dolphin Head Red	7
		Rubber Camp Brown	6
		Martins Incised	3
		Meditation Black	2
		Sibun Red Rim	2
		Miseria Applqued	1
		Mount Maloney Black	1
		Pedregal Modeled Carved	1
		Yaha Creek Cream	1
	Tiger Run	Sotero Red Brown	2
		Macal Orange Red	1
		Mountain Pine Red	1
	Unknown	Unknown	18
Courtyard 4	**New Town**	Daylight Orange	8
		Augustine Red	1
		Paxcaman Red	1
	Spanish Lookout	Cayo Unslipped	379
		Garbutt Creek Red	266
		Belize Red	185
		Roaring Creek Red	133
		Dolphin Head Red	93

Location	*Ceramic Complex*	*Type/Variety*	*Frequency*
		Rubber Camp Browm	17
		Alexanders Unslipped	14
		Martins Incised	14
		Yaha Creek Cream	12
		Ahkutu Molded Carved	8
		Achiote Black	3
		Pedregal Modeled Carved	2
		Yalbac Smudged Brown	2
		Gallinero Fluted	1
		Meditation Balck	1
		Sibun Red Rim	1
		Tutu Camp Striated	1
	Tiger Run	Macal Orange Red	19
		Mount Pleasant Red	19
		Mountain Pine Red	6
		Sotero Red Brown	6
		Mangrove Black	3
	Hermitage	Minanha Red	2
		White Cliff	2
		Pucte Brown	1
		Succotz Striated	1
	Unknown	Unknown	131
Settlement Group 2	**Spanish Lookout**	Cayo Unslipped	62
		Belize Red	41
		Dolphin Head Red	34
		Roaring Creek Red	24
		Yaha Creek Cream	2
		Ahkutu Modeled Carved	1
		Rubber Camp Brown	1
	Tiger Run	Mountain Pine Red	4
	Hermitage	Pucte Brown	2
	Unknown	Unknown	9
Wall	**Spanish Lookout**	Cayo Unslipped	12
		Dolphin Head Red	4
		Garbutt Creek Red	3
		Roaring Creek Red	1
	Unknown	Unknown	2

Table 2: Proportions of diagnostic ceramics by forms, rounded to the nearest tenth.

Location	*Vessel Form*	*Frequency*	*Percentage by Plaza %*
Plaza A	Jar	121.0	40.1
	Plate	110.0	36.4
	Bowl	65.0	21.5
	Censer	3.0	1.0
	Vase	3.0	1.0
Plaza B	Plate	191	36.4
	Jar	161	30.7
	Bowl	135	25.7
	Censer	27	5.1
	Vase	9	1.7
	Comal	2	0.4
Plaza D	Bowl	47	62.7
	Censer	19	25.3
	Jar	7	9.3
	Figurine	1	1.3
	Vase	1	1.3
Plaza F	Jar	60	35.5
	Bowl	53	31.4
	Plate	53	31.4
	Vase	2	1.2
	Censer	1	0.6
Plaza G	Jar	123	52.3
	Plate	50	21.3
	Bowl	45	19.1
	Unknown	8	3.4
	Vase	8	3.4
	Censer	1	0.4
Ballcourt	Jar	13	37.1
	Plate	11	31.4
	Bowl	9	25.7
	Unknown	1	2.9
	Vase	1	2.9
Courtyard 1	Jar	98	33.3
	Bowl	78	26.5
	Plate	73	24.8
	Vase	36	12.2
	Unknown	4	1.4
	Ocarina	3	1.0
	Censer	2	0.7
Courtyard 2	Jar	20	45.5
	Plate	13	29.5
	Bowl	8	18.2
	Vase	3	6.8
Courtyard 3	Jar	74	40.2
	Bowl	53	28.8
	Plate	52	28.3

Location	*Vessel Form*	*Frequency*	*Percentage by Plaza %*
	Censer	2	1.1
	Vase	2	1.1
	Unknown	1	0.5
Courtyard 4	Jar	451	37.3
	Bowl	377	31.2
	Plate	283	23.4
	Vase	56	4.6
	Unknown	22	1.8
	Piriform	13	1.1
	Censer	2	0.2
	Comal	2	0.2
	Drum	1	0.1
	Figurine	1	0.1
	Ocarina	1	0.1
Settlement Group 2	Bowl	52	28.7
	Jar	64	35.4
	Plate	60	33.1
	Vase	5	2.8
Wall	Bowl	3	14.3
	Jar	12	57.1
	Plate	5	23.8
	Unknown	1	4.8

DISCUSSIONS AND CONCLUSIONS

The ceramic analysis conducted in the 2018 field season generated much needed data to understand the development of the site core of Lower Dover. The type/variety analysis indicate that the majority of the building and occupation at Lower Dover took place during the Late and Terminal Classic (AD 600-900). This is indicated by the vast amount of material from the Tiger Run and Spanish Lookout complexes. Indeed, only a handful of ceramics collected, dated to either before or after this period. The earlier ceramics are few and may indicate use as construction fill as they were mostly found in lower levels of stratigraphic units. The ceramic from later Postclassic periods, mainly Augustine Red and Paxcaman Red were recovered from either humic levels or collapse levels overlying the earlier Spanish Lookout phase contexts indicating possible reoccupation after the site was abandoned. This data is in line with the architectural and chronological sequence previously presented by the author.

The modal analysis of the artifacts indicates a high abundance of either jars, plates, or bowls, with the exception of Plaza D where bowls and *incensarios* were more common. The latter may be due to a sample bias where only one structure was excavated in this plaza. Furthermore, it is possible that this structure may have served a special function. The high percentage of jars, bowls, and plates may be indicative of utilitarian activities in each plaza. Further spatial analyses for each plaza is necessary to understand the possible use and chronologies for structure and/or features in each respective loci.

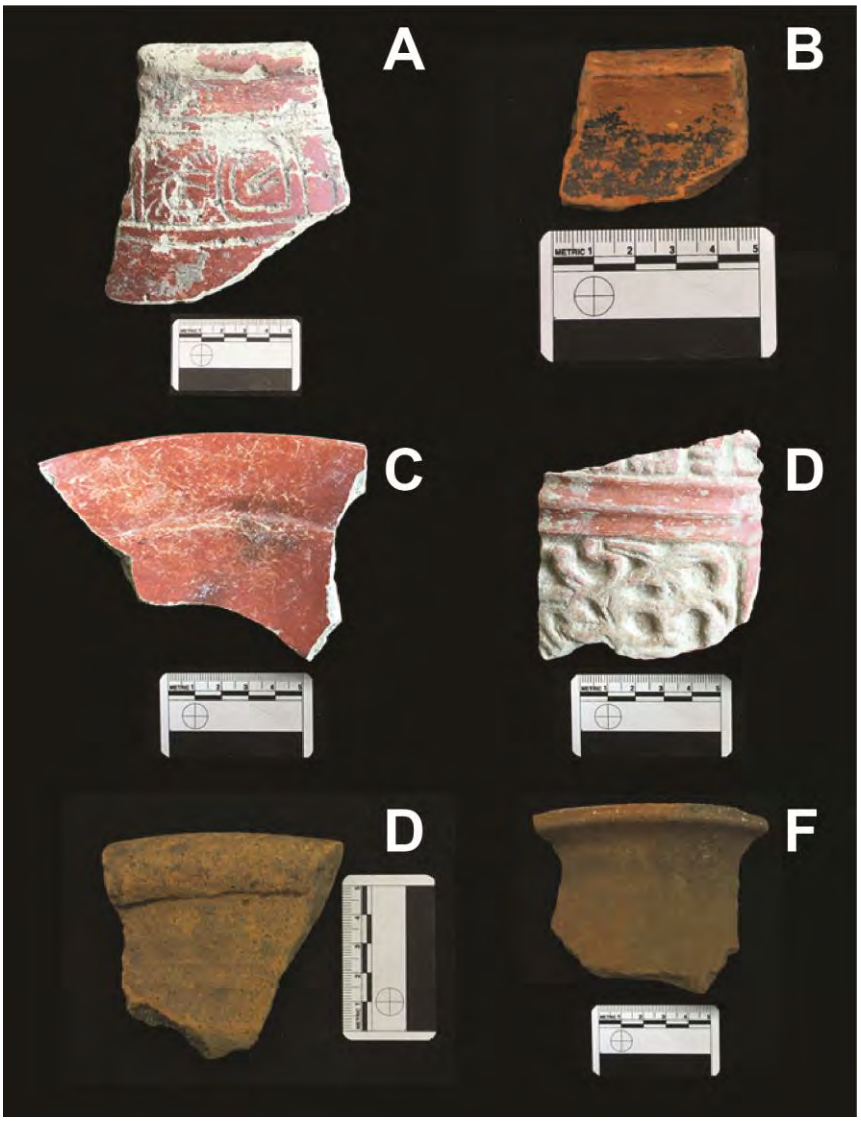


Figure 3: Examples of common ceramic types from Lower Dover, including A) Martins Incised, B) Meditation Black, C) Roaring Creek Red, D) Ahkutu Modeled Carved, E) Alexanders Unslipped. and F) Cayo Unslipped.

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THE 2018 LOWER DOVER SETTLEMENT SURVEY AND EXCAVATIONS IN THE TUTU UITZ NA NEIGHBORHOOD

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INTRODUCTION

Settlement excavations at Lower Dover continued during the summer of 2018. During this time excavations at the Tutu Uitz Na neighborhood were concluded, when one additional commoner household, Mamjuchtun (SG 42) was excavated. Additionally, the 2017 excavations on the eastern triadic shrine, Structure E2 at Tutu Uitz Na (SG 1) was completed. Ten test units were excavated on smaller, seemingly single component Late Classic settlement groups (SGs 13, 17, 20, 23, 29, 38, 45, 50, 87 and 91) to corroborate initial dating of these sites based on the presence of surface ceramics. Eight of these house groups were located in the Tutu Uitz Na neighborhood, the other two were located adjacent to the Lower Dover civic-ceremonial center. We provide background information for the two chapters reporting on excavations at SG 1 (Biggie et al. this volume) and SG 42 (Shaw-Müller this volume), and then report on the test units in the settlement.

The sample of commoner households included two high status commoner patio groups (SG 3 and SG 51), and two low status commoner patio groups (SG 28 and SG 11; Figure 1). The sampling strategy was designed to examine the ways in which people of varying social statuses were affected by, and reacted to the emergence of Lower Dover as a regional polity during the Late Classic Period (AD 500-750; Guerra and Awe 2017; Helmke and Awe 2013; Walden et al. 2017). The 2018 Lower Dover settlement excavations expanded upon survey and excavations carried out in the 2016 and 2017 Belize Valley Archaeological Reconnaissance (BVAR) project field seasons. Investigation during the 2017 BVAR Project field season identified a possible sacrificial deposit consisting of multiple inhumations (atop Structure E2, the eastern triadic shrine at Tutu Uitz Na), a lithic workshop (SG 28, Structure N2), and preliminary evidence that at least three commoner dwellings predate the Late Classic rise of Lower Dover.

In the Tutu Uitz Na neighborhood, excavations at SG 42 documented a high-status commoner dwelling which was first settled in the Late Preclassic, which is was likely abandoned and then resettled in the Terminal Preclassic-Early Classic phase before its final abandonment in the Terminal Classic. Ongoing excavations in the elite eastern triadic shrine at Tutu Uitz Na (SG

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1) exposed another seven burials. These included a Terminal Classic burial cut into the terminal structure floor (SG1-BU6) and a large intrusive seated burial beneath the central staircase of the shrine (SG1-BU4). This intrusive burial seems to have been part of the same event as the placement of two ventrally placed, legs flexed (VPLF) burials discovered in 2017 (Donis et al. 2011; Wrobel and Graham 2015). These burials have commonly been associated with the Early Postclassic Buk phase (AD 900-1200/1250) at Lamanai, however the Tutu Uitz Na VPLF burials date to the Late Classic. Five additional VPLF burials are present at Barton Ramie and one in the Lower Dover civic-ceremonial center (Watkins 2017; Willey et al. 1965). Earlier construction phases were identified during the 2018 season however these were difficult to pinpoint because of the extensive structural modification in the Late Classic. Two potentially Late Preclassic crypt burials were uncovered at the base of the structure. Lastly, during late 2018, modern construction outside Unitedville saw the destruction of the hilltop commoner group SG51, or Ikilna which was excavated in 2017.

The 2018 excavations in the Tutu Uitz Na neighborhood periphery were conducted to address three primary questions:

1) How did the political power of the Tutu Uitz Na elites, and the wealth and status of their surrounding commoner households, wax and wane throughout the developmental trajectory of the Lower Dover polity? Previous excavations and survey data indicate that the initial settlement of some households occurred as early as the Middle Preclassic period (900-300 BC; Table The presence of fairly large and elaborate residential and ceremonial architecture at Tutu Uitz Na (Walden et al. 2017), in addition to BR-180/168 (Willey et al. 1965) and Floral Park (Driver and Garber 2004), reflects the sociopolitical status of their resident elites. The 2016 and 2017 excavations focused on smaller households to understand the ways in which the rise of Lower Dover impacted commoners, and their relative integration into the ascendant Lower Dover polity. Reconstruction of household wealth and status based on assemblages and architecture allows the charting of diachronic trends throughout the occupational history of each residential group.

2) How did the economic and ritual activities of the intermediate elite at Tutu Uitz Na, and their constituent commoner households change following the emergence of Lower Dover? The quantification and comparison of the relative amount, quality, and diversity of artifacts related to economic and ceremonial activities provides a window into what households were doing.

3) How did broader demographic patterns shift during the Early Classic to Late Classic transition with the emergence of Lower Dover? Previous excavation in the Lower Dover settlement revealed a surprising number of Preclassic households (Walden and Biggie 2017; Walden et al. 2018). Walden's dissertation sampling strategy required a sample of early households to assess the degree to which commoners changed during the rise of Lower Dover, but even some seemingly innocuous low mounds with predominantly Late Classic surface ceramics had earlier components (SG 11 and SG 28). To address this, Guerra test pitted ten small house mounds, at the early stages of the domestic cycle <2 structures, with Late Classic surface sherds to corroborate the initial dating of these settlement groups.

Table 1: Relative time periods of occupation for aspects of the Lower Dover polity.

Time Period	*Date Range*	*Lover Dover*	*Tutu Uitz Na*	*BR-180/168*	*Floral Park*
Terminal Classic	AD 750-900/1000	Active	Active	Active	Active
Late Classic	AD 500-750	Active	Active	Active	Active
Early Classic	AD 300-500	Active?	Active	Active	Active
Late Preclassic	300 BC-AD 300	Inactive	Active	Active	Active
Middle Preclassic	900-300 BC	Inactive	Active	Active	Active

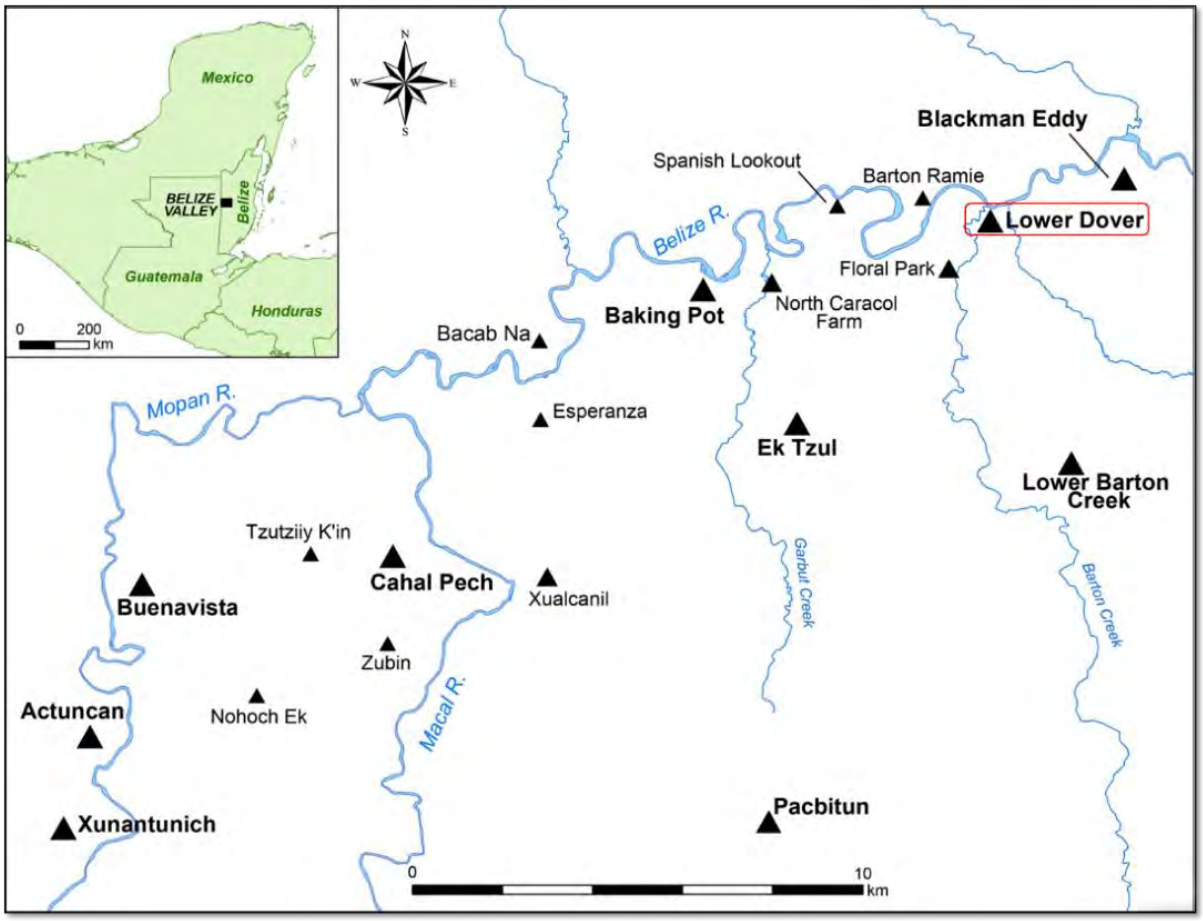


Figure 1: Map of Maya centers in the upper Belize River Valley (by Claire Ebert, 2018).

PREVIOUS SETTLEMENT EXCAVATION AT TUTU UITZ NA

Tutu Uitz Na was first recorded by Wölfel and colleagues (2010:20-21) as Lower Dover, Plaza F. It was later revisited by BVAR Project researchers Petrozza and Biggie (2015:29) and renamed Group 1. It was subsequently renamed SG 1 in the 2016 survey for consistency with other settlement groups (see Walden et al. 2017). The name Tutu Uitz Na (roughly translating to "snail sacred mountain house" in Yucatec Mayan) originated from the massive deposit of freshwater snail called *jute* or *tutu* in Mayan (*Pachilyus* sp.) documented beneath the plaza (~25,650,000;

Petrozza 2015:44; Walden and Biggie 2017; Walden et al. 2018). Tutu Uitz Na is a medium sized intermediate elite center located 600m southeast of the Lower Dover civic-ceremonial center (Walden et al. 2017, Walden et al. n.d.). In 2016, Walden and colleagues (2017) surveyed the southern portion of Lower Dover (12 square km). The Tutu Uitz Na neighborhood was surveyed in 2016. The neighborhood surrounds the Tutu Uitz Na intermediate elite center, and extends to the south of Lower Dover (Walden et al. 2017). The Tutu Uitz Na neighborhood covered a rough area of 3.5 km² and included 46 settlement groups. Tutu Uitz Na had a relatively high population density of 108 people per km² in the Late Classic period.

A stratified random sample of households was selected for excavation. Initial test excavations were conducted at the Tutu Uitz Na center (SG 1) in 2016, and at the Pechna Group (SG 9), a smaller commoner house group located near Tutu Uitz Na. 2017 saw excavation of Structure E2, the eastern triadic shrine begin, as well as an elite rockshelter shrine, RS-2. The Tutu Uitz Na neighborhood was extensively excavated in 2017 also. Excavations at commoner groups SG 3, SG 11, SG 28, and SG 51 elucidated commoner wealth, status and lifeways across the neighborhood. SG 3 comprised a large Late Preclassic commoner household which was occupied into the Terminal Classic. SG 11 was a small household which was situated in the seasonal bajo on the south-eastern flank of the Tutu Uitz Na neighborhood. Despite its diminutive size and unappealing location, it revealed evidence of an Early Classic component. Excavation of SG 28 confirmed our suspicions that the group represented a specialized chert tool production site. Lastly, SG 51, despite its location atop a hill, and the fact it completed the residential domestic cycle (with four structures; see Haviland et al. 1988; Tourtellot et al. 1988), SG 51 proved to be a Late Classic household with little in the way of ostentatious wealth markers.

THE 2018 EXCAVATION METHODS

Two excavation units and 10 test units were excavated during the 2018 BVAR Project field season to answer the research questions outlined above. One in a higher status commoner group (SG 42), and one on the eastern triadic shrine at the Tutu Uitz Na intermediate elite group (SG 1), and 10 test units in small house mounds (SGs 13, 17, 20, 23, 29, 38, 45, 50, 87 and 91). Units excavated in architecture comprised of centerline axial trenches which ran perpendicular to the structure. This excavation strategy allows greater scope for hitting burials and ritual caches which were often interred in the center of ancient Maya households (Welsh 1988), in addition to providing the greatest understanding of the construction sequence within a structure. Lot numbers were assigned to different contexts in the order they were exposed archaeologically. The first lot number was consistently designated to the ground surface regardless of whether artifacts were present as this practice can provide valuable data for survey archaeologists who primarily deal with surface deposits. Excavation units were recorded using a two-digit number, the first designating the settlement group number, and the second number designating the numerical order of excavations; for instance E.U. 1-4 is located on SG 1 and is the fourth excavation unit placed in this group. Each excavation unit was dug using cultural or natural stratigraphy and excavated to either bedrock, where possible, or sterile matrix.

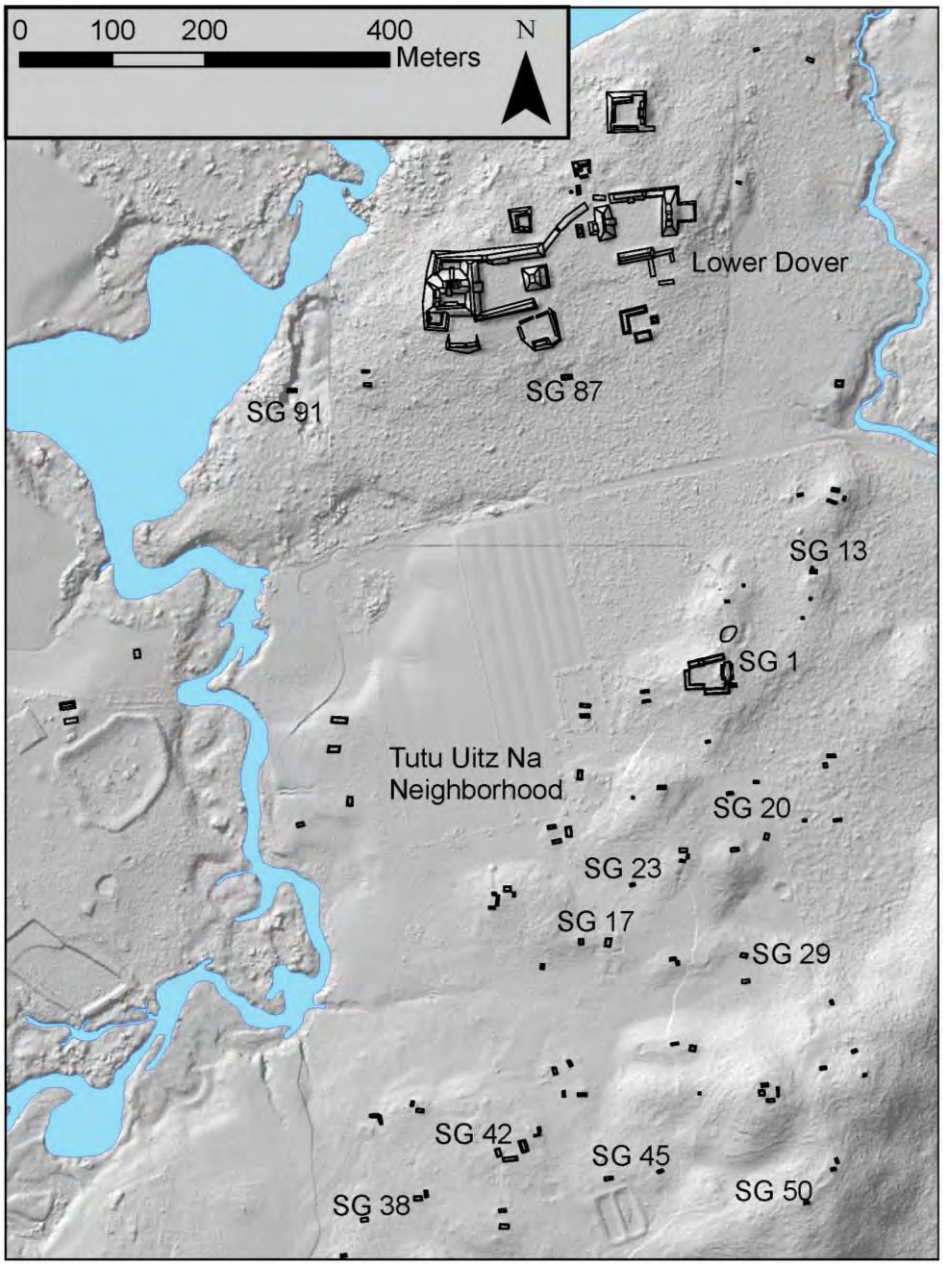


Figure 2: Map of the 2018 settlement excavations in the Lower Dover settlement.

Settlement Test Unit Excavations

The primary goal of the test-pitting strategy was to target single, isolated mounds which were tentatively assigned a Late Classic date based on the presence of surface ceramics and confirm their dating. A sample of 10 house groups were selected, eight of which were located in the Tutu Uitz Na neighborhood and two were located adjacent to the Lower Dover civic-ceremonial center. In total this brought our sample of excavated commoner households in the Tutu Uitz Na neighborhood to 16 (35% of total households). This sample provides data for a predictive model for evaluating the age of settlement based on the number of mounds (domestic cycle),

presence of diagnostic ceramics, environmental zone and height of mound. Test units (T.U.s) were placed on the flanks, tops and patios of house groups. T.U.s were situated in a number of locations to better inform future test pitting strategy.

SG 13, Structure N1

Test unit (T.U.) SG13-1 consisted of a 1.5x1.5m unit, which was excavated to a depth of 2.14 m and reached bedrock. At a depth of 154 cm, a poorly preserved plaster floor (Floor 1) was exposed. Sitting directly on this floor was a single course of rough limestone cobbles measuring approximately 35cm in diameter, which were in an alignment that and ran north-to-south along the eastern edge of the unit. These limestone cobbles were labeled as SG 13-1st and were likely the first construction level on the settlement group. Above SG 13-1st were small rocks (fill) no bigger than 10 cm in diameter. No architectural features were identified in the upper level. Artifact analyses of SG13 indicate a Late Classic construction date based on the presence of Spanish Lookout complex ceramics including Belize Red plates and bowls and Cayo Unslipped jar fragments.

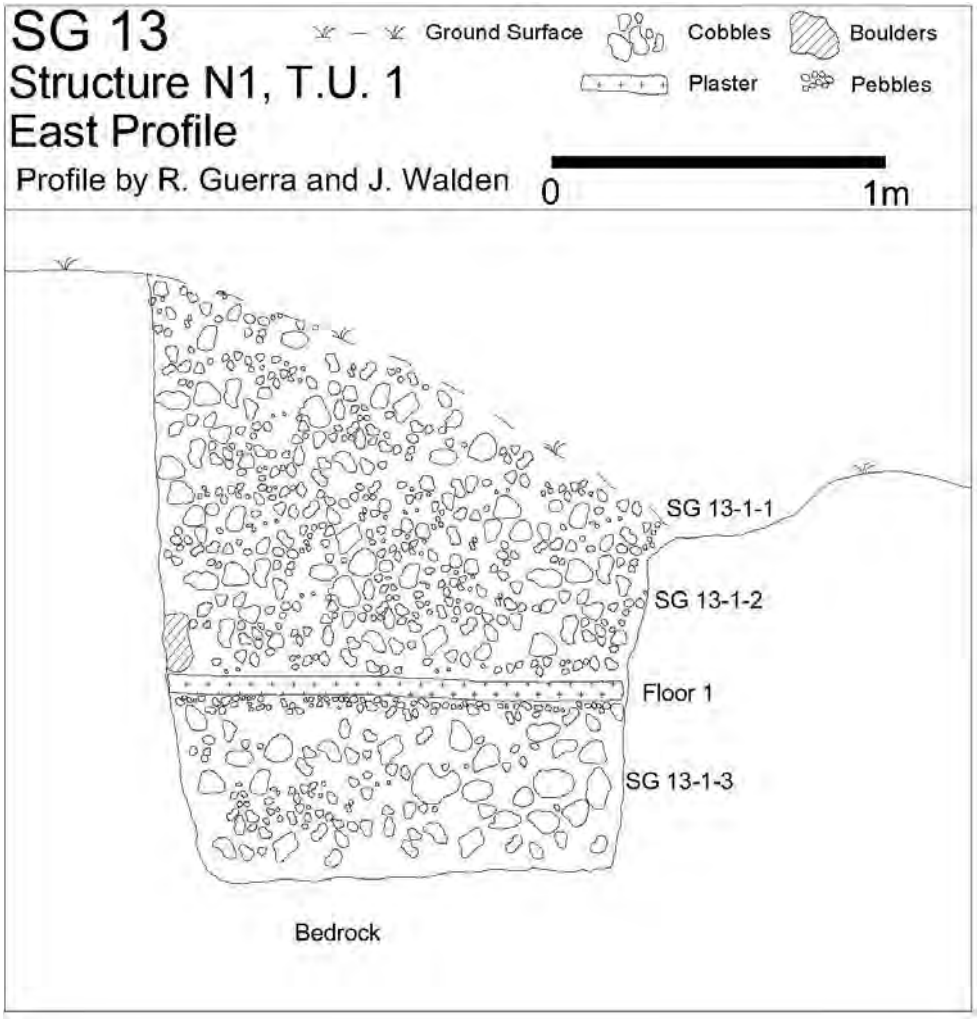


Figure 3: Profile of SG 13, Structure N1.

SG 17, Patio

T.U. 17-1 was a 1.5x1.5 m unit placed in the patio of SG17 was excavated to a maximum depth of 55cm, where limestone bedrock was reached. The construction of SG17 was a single phase with smaller river cobbles, no larger than 12 cm in diameter comprising the bioturbated fill from bedrock to contemporary ground surface. No architectural features were identified in the patio of this settlement group. Ceramic analysis indicates a Late Classic occupation based on the presence of Roaring Creek Red plates, Belize Red plates and bowls, and Cayo Unslipped jar fragments.

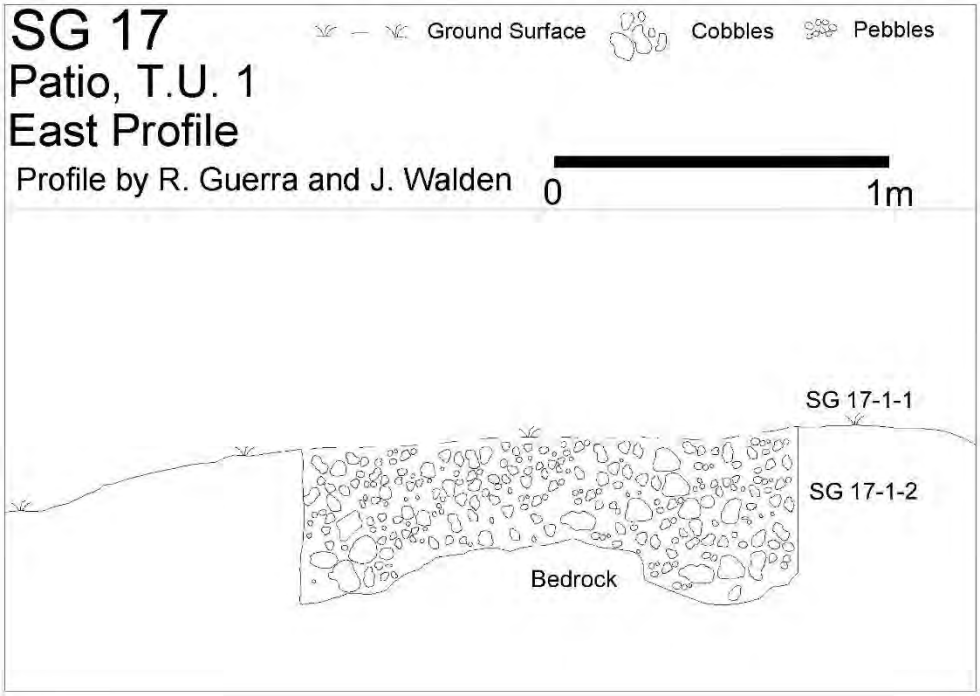


Figure 4: Profile of SG 17, Patio.

SG 20, Structure N1

T.U. SG 20-1 consisted of a 1.5x1.5m unit, which was excavated to a depth of 1.13 m where limestone bedrock was reached. This unit consisted of two architectural phases as evidenced by two successive floors (Floor 1 and Floor 2). Floor 1 was located at a depth of 32 cm below the ground surface and was associated with SG20-2nd. This level consisted mostly of river cobble fill of no more than 8cm in diameter. Few artifacts were recovered from these contexts and only a handful of rim sherds were identified as diagnostic. The diagnostic sherds included Spanish Lookout phase Belize Red plates and Cayo Unslipped jar fragments. Floor 2 was located at a depth of 50 cm below the ground surface and was associated with SG20-1st. This level consisted of fill comprised mostly of river cobbles of no more than 20 cm in diameter. This level sits directly on a 22 cm thick, dark brown clay matrix that may have been a tamped floor. The few ceramics recovered here mirrored the level associated with SG20-2nd and were of the Belize Red and Cayo Unslipped types.

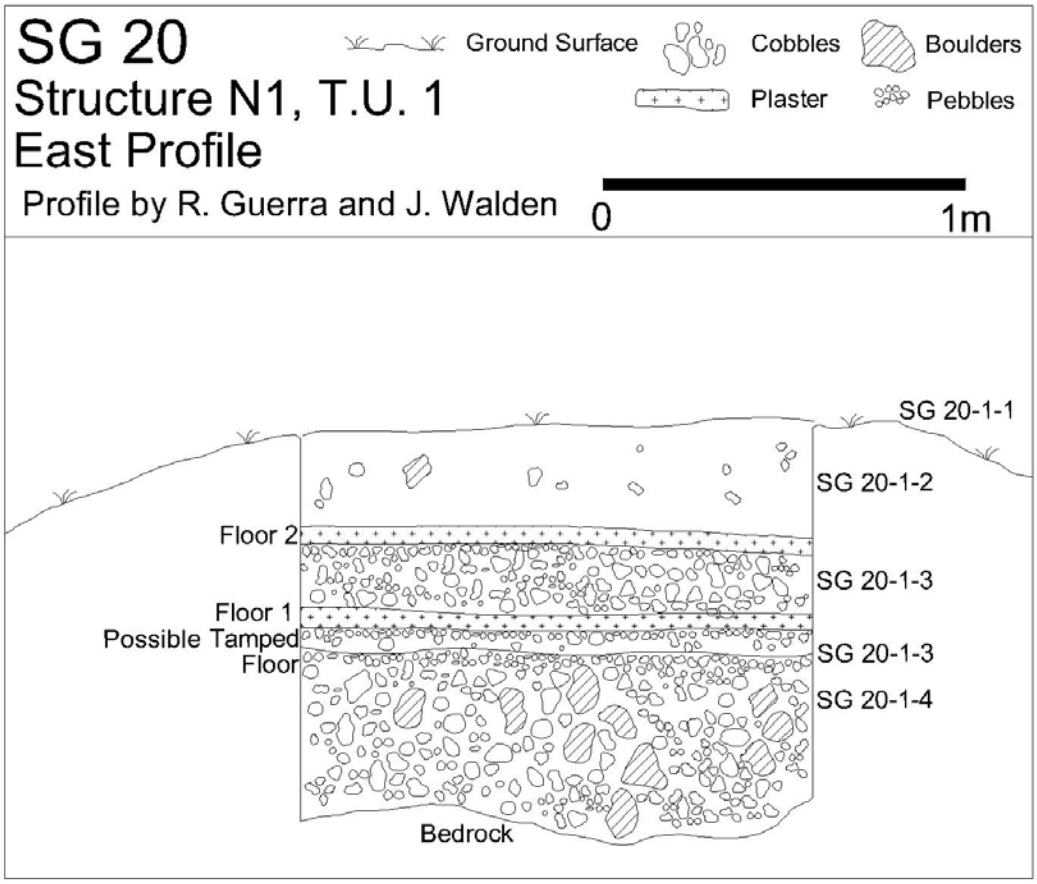


Figure 5: Profile of SG 20, Structure N1.

SG 23, Structure S1

T.U. SG 23-1 consisted of a 1.5x1.5 m unit, which was excavated to a maximum depth of 91cm where limestone bedrock was exposed. A single architectural feature was exposed along the eastern edge of the unit, and consisted of a rock alignment extending across the north-south axis of the unit. It is likely that this feature was covered over by SG 23's terminal architecture. Artifacts recovered from this unit include ceramics, chert and obsidian. Diagnostic sherds include Belize Red, Platon Punctated Incised, Tutu Camp Striated, and Cayo Unslipped types, all dating to the Late Classic period.

SG 29, Structure S1

T.U. SG 29-1 consisted of a 1x1.5 m unit was excavated to a maximum depth of 103cm, where limestone bedrock was exposed. In this unit a three course alignment of uncut limestone boulders extending from north-to-south along the centerline of the unit was exposed. This alignment was intersected by another rock alignment running from the west to the east of the unit. These architectural features comprised SG29-1st, which was eventually covered by the terminal architecture of the structure. Excavation into SG29-1st revealed a layer of dry rock fill of river cobbles ~25 cm in diameter. No artifacts were recovered from this structure.

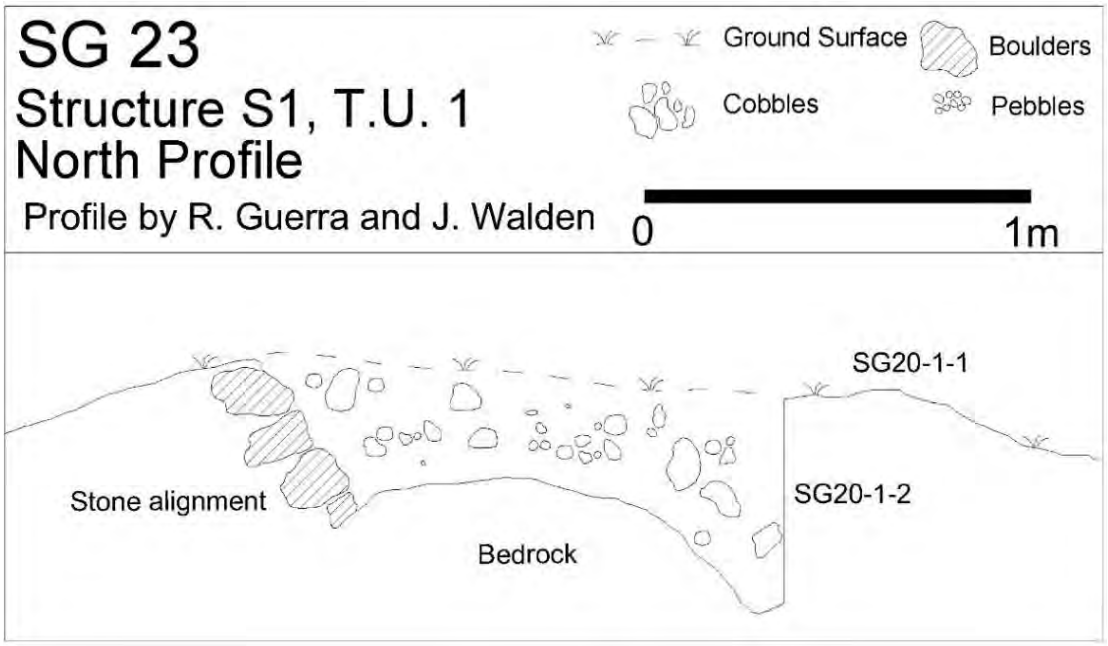


Figure 5: Profile of SG 23, Structure N1.

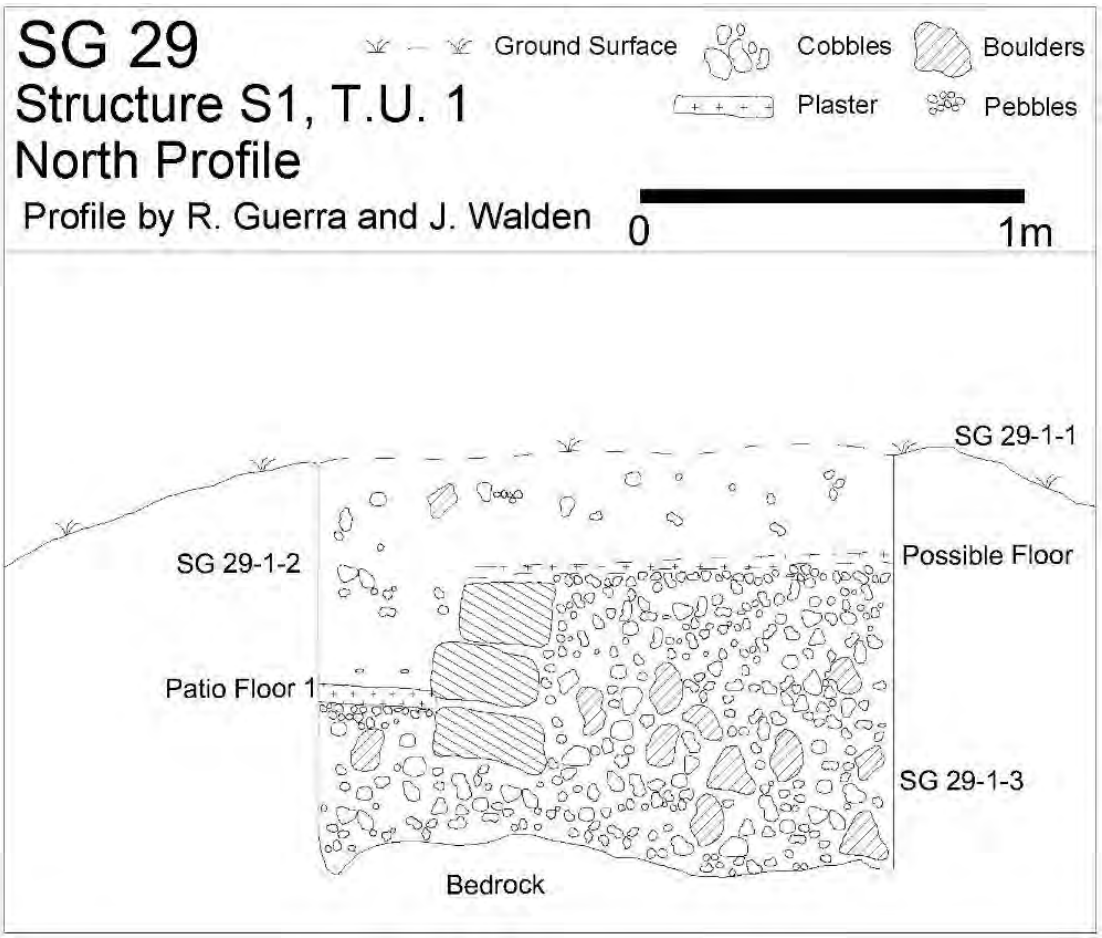


Figure 6: Profile of SG 29, Structure S1.

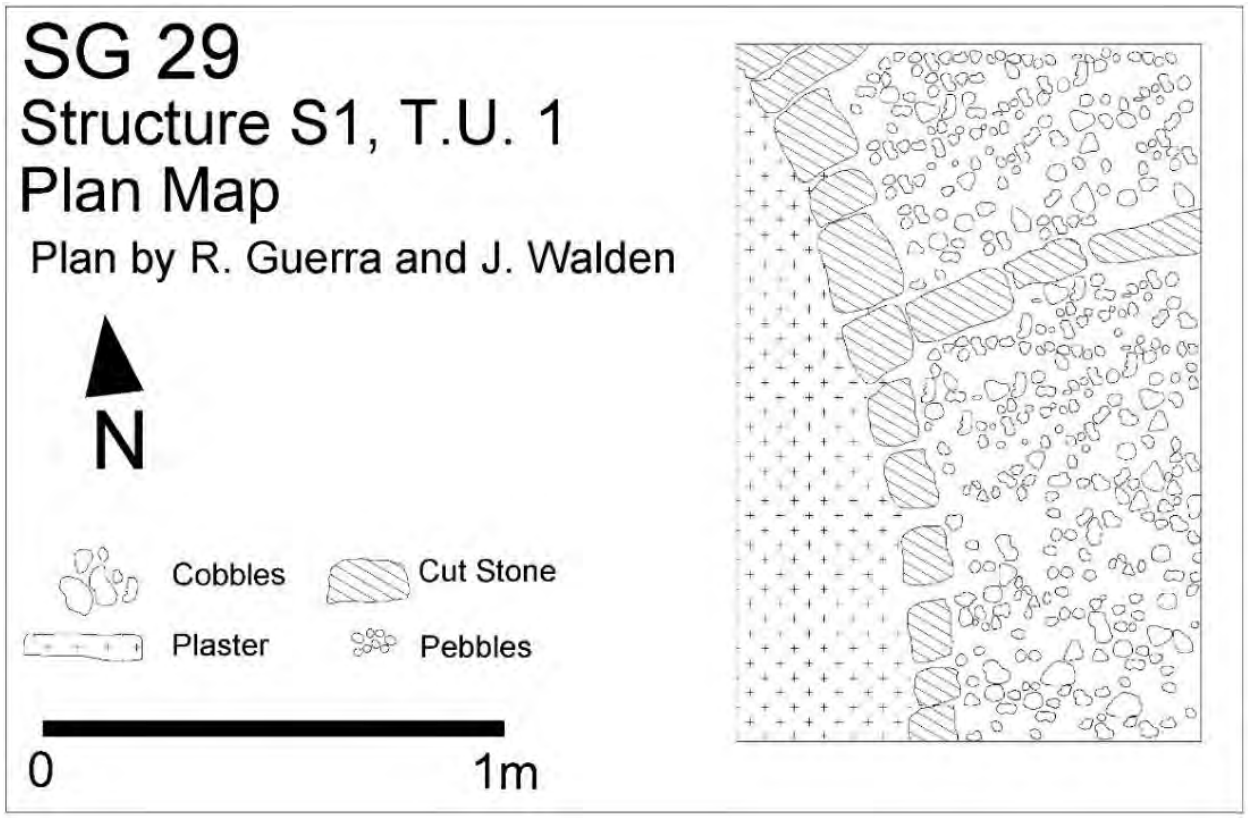


Figure 7: Plan of SG 23, Structure S1.

SG 38, Structure N1

T.U. SG 38-1 comprised a 1.5x.1.5 m unit which was excavated to a maximum depth of 72 cm where bedrock was uncovered. Two floors were exposed, one directly on top of the other at a depth of 17 cm. These two floors are associated with SG 38-1st and likely represents a re-plastering of episode of SG38 1st. Both layers were comprised of dark loam and small river cobbles no more than 8 cm in diameter. In both level primarily chert and ceramics artifacts were recovered. The ceramics were identified as Spanish Lookout phase types including Belize Red, Platon Punctated Incised, Tutu Camp Striated and Cayo Unslipped.

SG 45, Structure N1

Test Unit SG 45-1 was a 1.5x.1.5m unit, excavated to a maximum depth of 94 cm. Floor 1, 2, and 3 lay one on top of the other starting at 5 cm below the present ground surface measuring 17 cm in total thickness. Floor 4 is located at 16 cm below floors 1, 2 and 3. Floor 4 is associated with SG45-1st and no artifacts were found in this level. The level between Floor 1, 2, and 3 and floor 4 yielded very little artifact materials. Identified ceramics included Cayo Unslipped Jar, Tutu Camp Striated Jar, and Belize Red plate fragments all dating squarely to the Late Classic period.

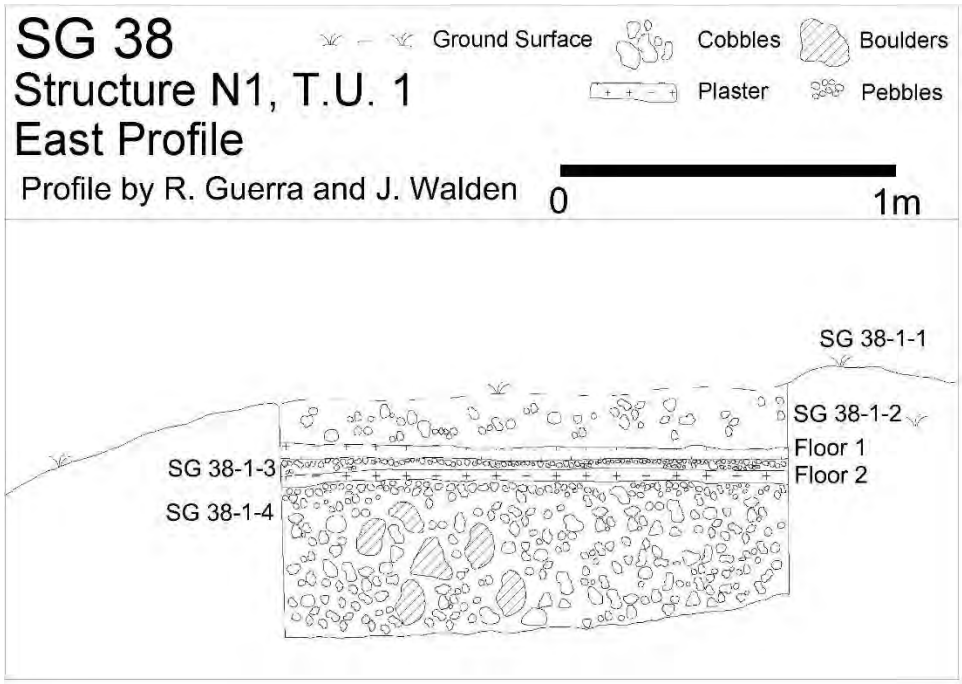


Figure 8: Plan of SG 38, Structure N1.

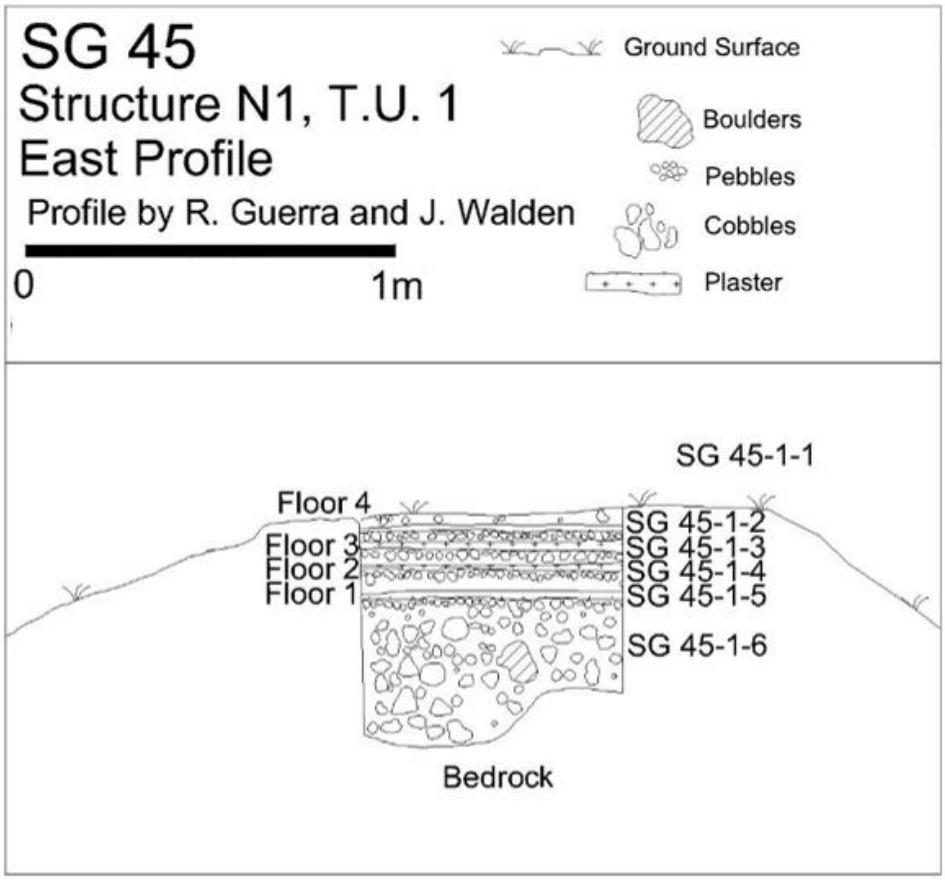


Figure 9: Profile of SG 45, Structure N1.

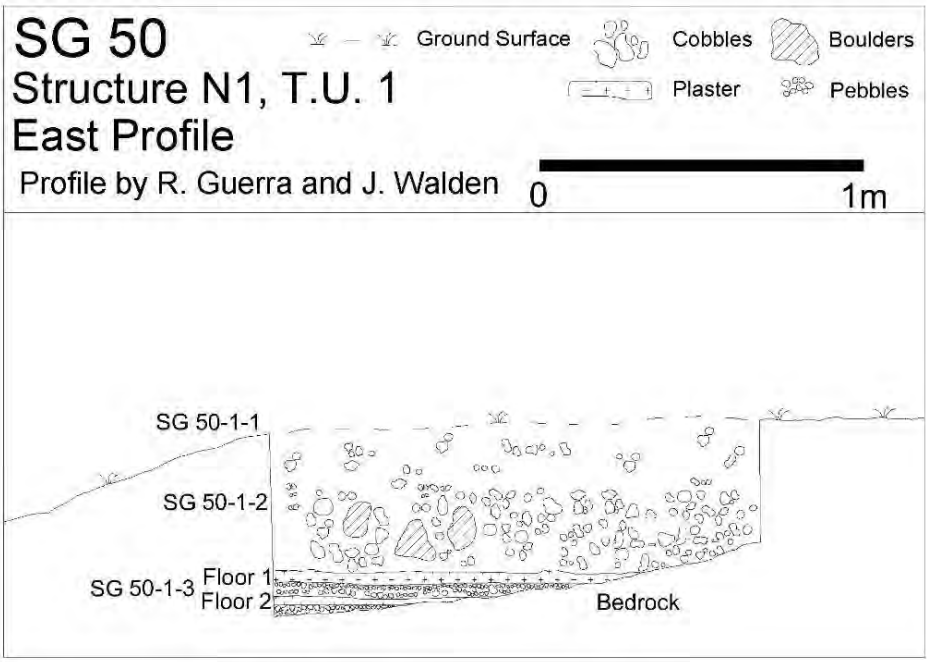


Figure 10: Profile of SG 50, Structure N1.

SG 87, Structure S1

Test unit SG 87 was a 1x1 m unit, which was excavated to a maximum depth of 68 cm where limestone bedrock was exposed. No architectural features were identified in this unit. The matrix comprised of loamy clay. The only artifact recovered included a total of 10 poorly preserved ceramic sherds. Although the ceramics were poorly preserved, the temper and paste are consistent with Late Classic ceramic sherds, specifically Cayo Unslipped jars.

SG 91, Structure S1

Test unit SG 91 was a 1x.50m unit excavated to a depth of 1.98m to a sterile matrix. A series of four plastered floors were uncovered in the Unit, starting from the top down Floor 1 was at a depth of 21cm below modern surface, Floor 2 was at 16 cm below Floor 1, Floor 3 was at 22 cm below Floor 2 and Floor 4 was at 22 cm below Floor 3. Between each floor was a layer of river cobbles and clayey loam. Floor 4 appears to represent the earliest construction floor SG91-3rd, Floor 3 represent SG91-2nd, Floor 2 represents SG91-1s and Floor 1 represent the floor surface of the terminal construction on the structure. Sitting directly of Floor 1 was a two course high wall extending from the east to the west edge of the unit. Each level produced large amounts of ceramic sherds that were very similar. The identifiable ceramics from these levels include Belize Red Plates and Bowls, Roaring Creek Red Plates, Daylight Orange Plates, Ahkutu Molded Carved, Cayo Unslipped and Tutu Camp striated jars and fragments of Miseria Appliqued *incensario* fragments. Lot SG 91-1-2 produced eight obsidian fragments, including one exhausted core, and a miniature ceramic vessel (Unspecified type-variety). Other elements from the other levels included flaked chert and granite *mano* fragments. Excavations in this unit were halted at a sterile dark red clay matrix.

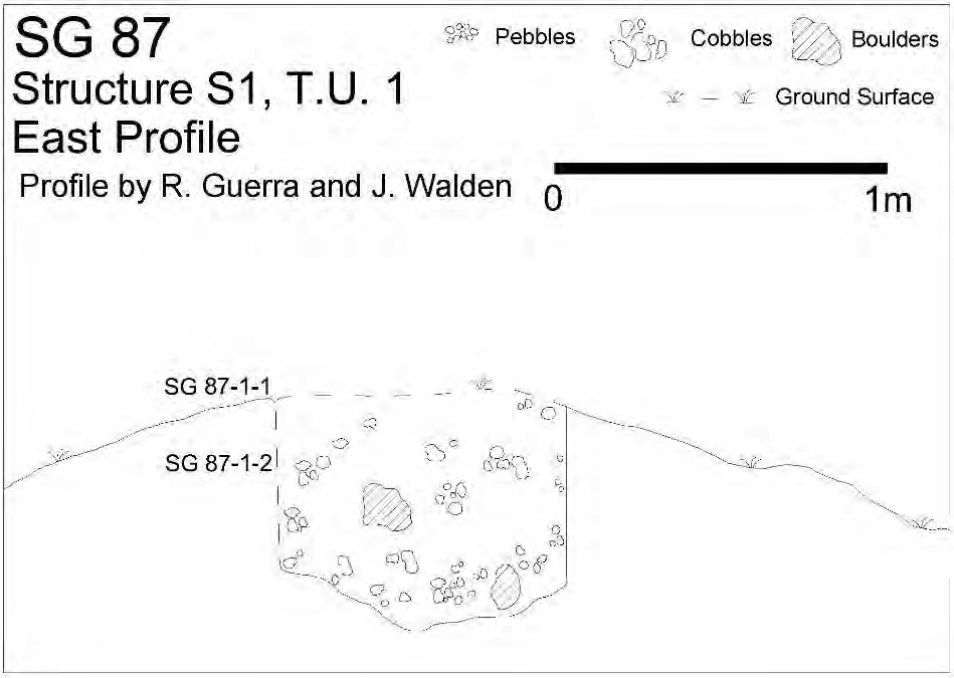


Figure 11: Profile of SG 87, Structure S1.

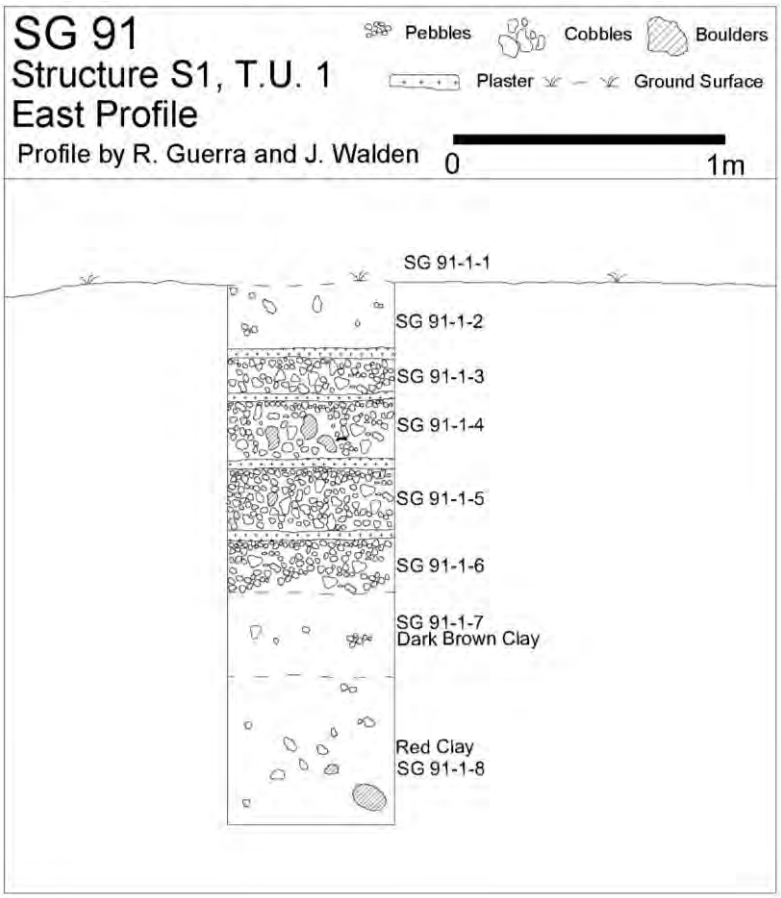


Figure 12: Profile of SG 91, Structure S1.

DISCUSSION AND CONCLUSION

The data presented above is as a result of continuing research to define the chronological sequence(s) in the settlement zone of Lower Dover. All 10 test units excavated in informal house groups showed these structures dated to the Late Classic and Terminal Classic periods. The structural assemblages contain type-varieties like Belize Red plates and bowls, Platon Punctated Incised plates and dishes, Roaring Creek Red plates, Daylight Orange plates, Ahkutu Molded Carved, Cayo Unslipped and Tutu Camp striated jars and fragments of Miseria Appliqued *incensario* fragments. A few units identified multiple construction phases all dating to the aforementioned periods. This is in stark contrast to the excavations done in formal household groups, by the coauthors. It appears that the majority of formal groups were likely placed on hill tops in the Middle to Late Preclassic and were occupied until the Terminal Classic. Single mounds and informal groups appear to have been built and remodeled only in the Late and Terminal Classic periods. Organic remains, mostly charcoal have been exported to the University of New Mexico where they will be prepped for radiometric dating in order to better understand the occupation of these single mounds and informal groups. The initial implications of this finding is that the Tutu Uitz Na neighborhood at least doubled in size at the onset of the Late Classic period, probably growing from ~18 house groups to the total of 46 evident today. It is possible that this demographic growth occurred internally, but is more likely to have been the result of an influx of migrants from outside the area in the Late Classic period. Interestingly, these demographic patterns roughly parallel changes identified by Willey and colleagues (1965) at Barton Ramie during the Early to Late Classic threshold.

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EXCAVATIONS IN THE EASTERN TRIADIC SHRINE AT TUTU UITZ NA (SG 1): RESULTS OF THE 2018 FIELD SEASON

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INTRODUCTION

Tutu Uitz Na was first recorded by Wölfel and colleagues (2010:20-21) as Lower Dover, Plaza F. It was later revisited by the Belize Valley Archaeological Reconnaissance (BVAR) Project researchers Petrozza and Biggie (2015:29) and renamed Group 1. It was subsequently renamed SG 1 in the 2016 survey for consistency with other settlement groups (see Walden et al. 2017). The moniker Tutu Uitz Na (roughly translating to "*jute* sacred mountain house" in Mopan Mayan) derived from the sizeable shell deposit of freshwater snail called *jute* or *tutu* in Mayan (including *Pachilyus glaphyrus*, *Pachilyus indiorum*, *Pachilyus largiertti* species) documented beneath the plaza, and from the compound's hilltop location (Petrozza 2015:44). Tutu Uitz Na is located approximately 500 m southeast of the Lower Dover civic ceremonial center, and functioned as an intermediate elite residence and a neighborhood level ceremonial center. Based on previous excavations, construction activity at the group first occurred during the Middle Preclassic (900-300BC). The group fits into regional settlement typologies as a large *plazuela* or 'medium minor center' (Walden et al. n.d.), and is larger than Bedran, a satellite of the Baking Pot political center (Conlon and Moore 2003), but smaller than minor centers near Cahal Pech, like Nohoch Ek and Zubin (Coe and Coe 1956:171; Iannone 2003).

The Tutu Uitz Na minor center (Figures 1 and 2) has a sizeable central plaza (703 m^2) surrounded by four structures, the highest being the northern range structure (Structure N1) measuring over 3m high. The eastern structure (Structure E2) measures just under 3 m in height and appears to have been modified into a small eastern triadic shrine in the early Late Classic (Tiger Run phase; see Walden et al. 2018), with the eastern end of southern structure S3 set back to allow for E2's expansion. Structures S3 and W4 are smaller structures, both around 80 cm high. Wölfel and collages (2010:23-26) mapped the group and profiled a looter's trench on Structure N1, revealing four exposed plaster floors. Following this, Petrozza and Biggie (2015) placed two units on the group. The first, E.U. 1-1 was located in the northwest corner of the plaza. The second, E.U. 1-2, was placed perpendicular to the southern looter's trench in Structure E2, with salvage excavations aimed at documenting a burial (SG1-BU1) present in the baulk of the looter's trench.

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BVAR Project excavations in 2016 targeted the groups' plaza and northern structure, ultimately revealing that Tutu Uitz Na, like the settlements of Barton Ramie and Floral Park, was occupied at least as early as the Middle Preclassic (900-300 BC; Garber et al. 2004:28; Gifford 1976:23), pre-dating the rise of Lower Dover by over 1000 years (Guerra and Awe 2017; Petrozza and Biggie 2015:36; Walden et al. 2017). The presence of a high volume of Late Classic (AD 500-750) ceramics indicates that Tutu Uitz Na was active throughout the local trajectory and was occupied contemporaneously with the Lower Dover political center. In 2017 the central stairs of E2 were exposed, and two Late Classic "Buk" burials (ventrally placed, legs flexed, or VPLF) were discovered (Wrobel and Graham 2015). These burials were intrusive, having been dug into existing terminal architecture. There was no evidence of construction being refinished post-burial suggesting the structure went out of use following these interments. The unit was backfilled at the end of the 2017 field season.

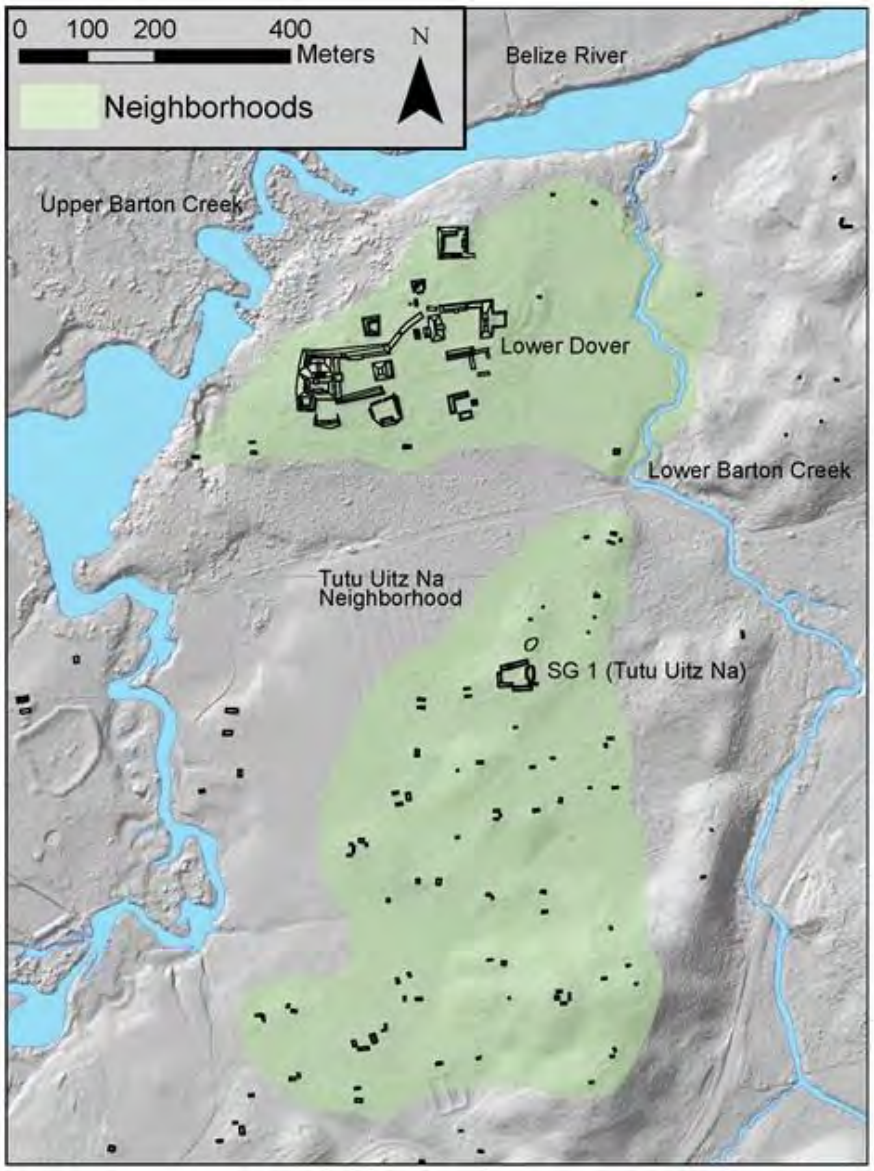


Figure 1: Map of Tutu Uitz Na Neighborhood with the Tutu Uitz Na center (SG 1) shown.

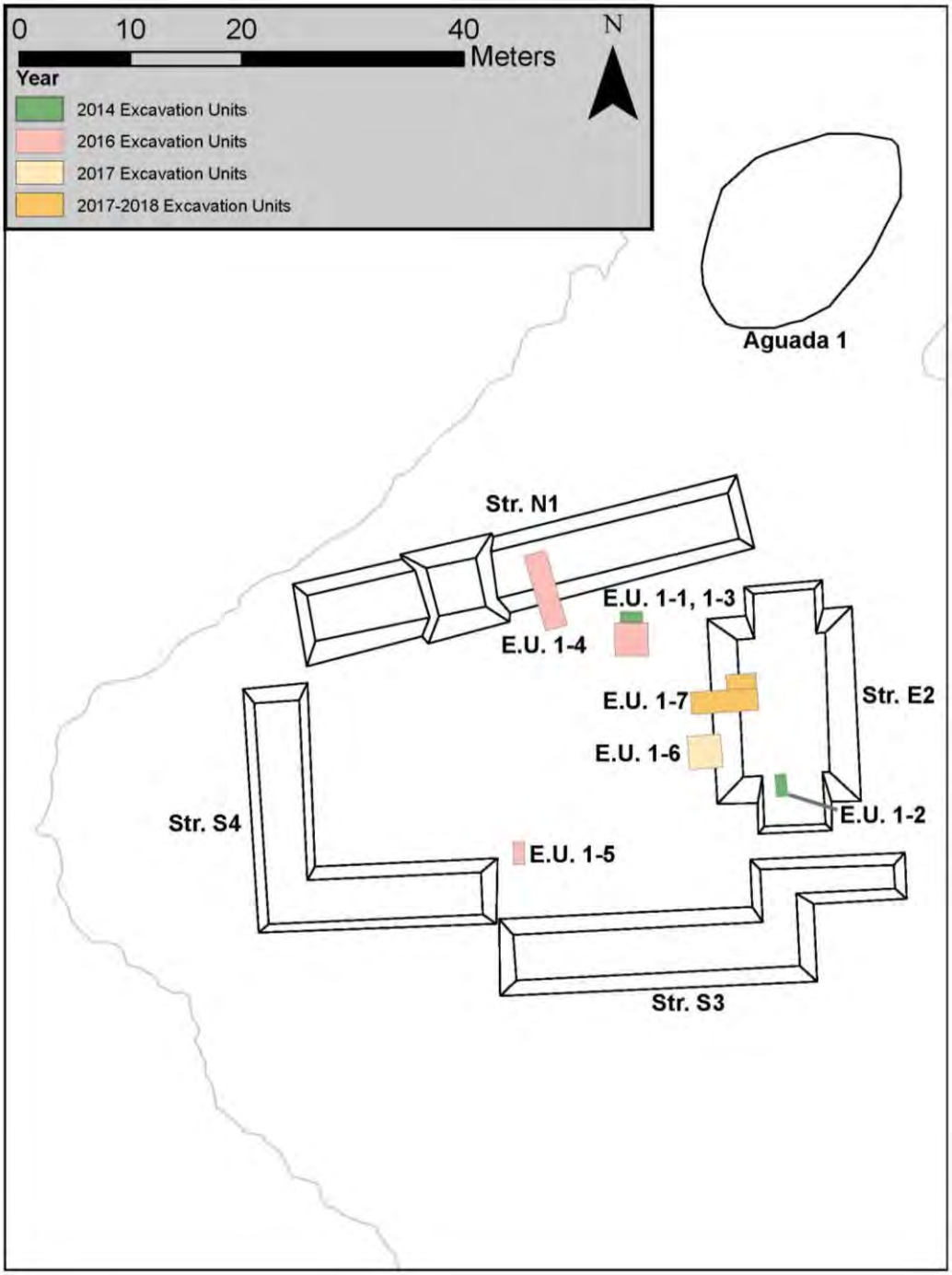


Figure 2: Plan of Tutu Uitz Na (SG 1) with excavations shown.

The excavation unit consisted of centerline axial trench which ran perpendicular to the structure's north-south alignment. Axial trenching was undertaken as it maximizes chances of encountering burials and ritual caches (Welch 1988), as well as providing the clearest profile of the structural construction sequence. Lot numbers were assigned to contexts in the order they were exposed archaeologically. The first lot number was designated to the ground surface regardless of

whether artifacts were present as this practice can provide valuable data for survey. Excavation units have been recorded using two integers, the first designating the settlement group number, and the second number designating the numerical order of excavations; for instance, E.U. SG1-7 is located in Settlement Group 1 and was the seventh excavation unit placed the minor center. Excavation units were dug using cultural or natural stratigraphy and excavated to bedrock. Artifacts recovered from units excavated in 2018 are listed in Appendix A. Appendix B displays a selection of the special finds recovered in 2018.

EXCAVATIONS

In 2018, unit SG1-7 was revisited. The terminal architecture was once again exposed, and a 2.5m (E/W) x 1.5m (N/S) extension was set in the NE corner of SG1-7 in order to better define the terminal phase architecture, and to recover any remaining artifacts associated with the burials found the previous season. The central stairs were bisected E/W and trenched. The construction chronology of SG1-E2 was revealed (Figures 3 through 7).



Figures 3 and 4: SG1-7 bisection of central staircase.

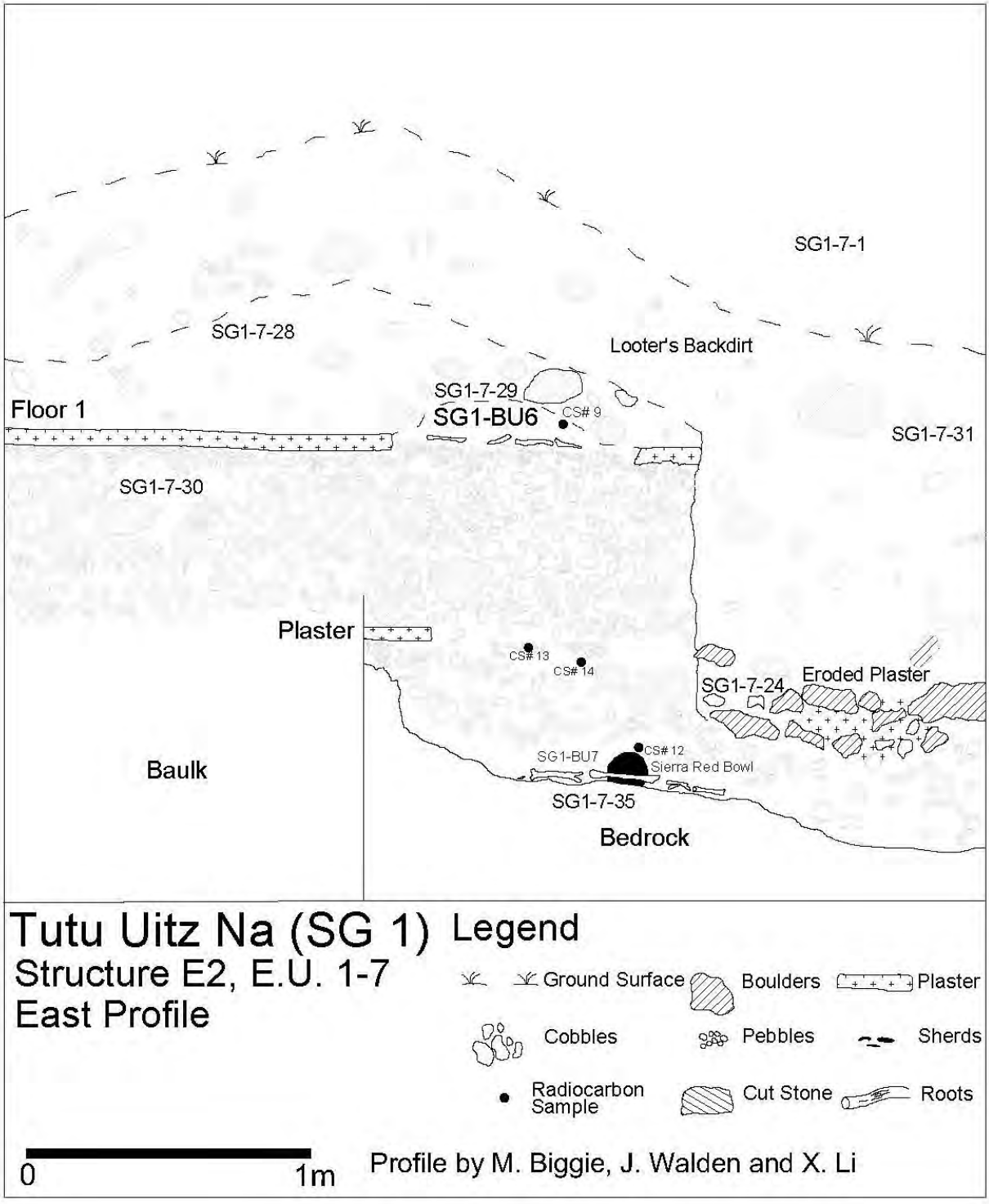


Figure 5: East profile of EU 1-7.

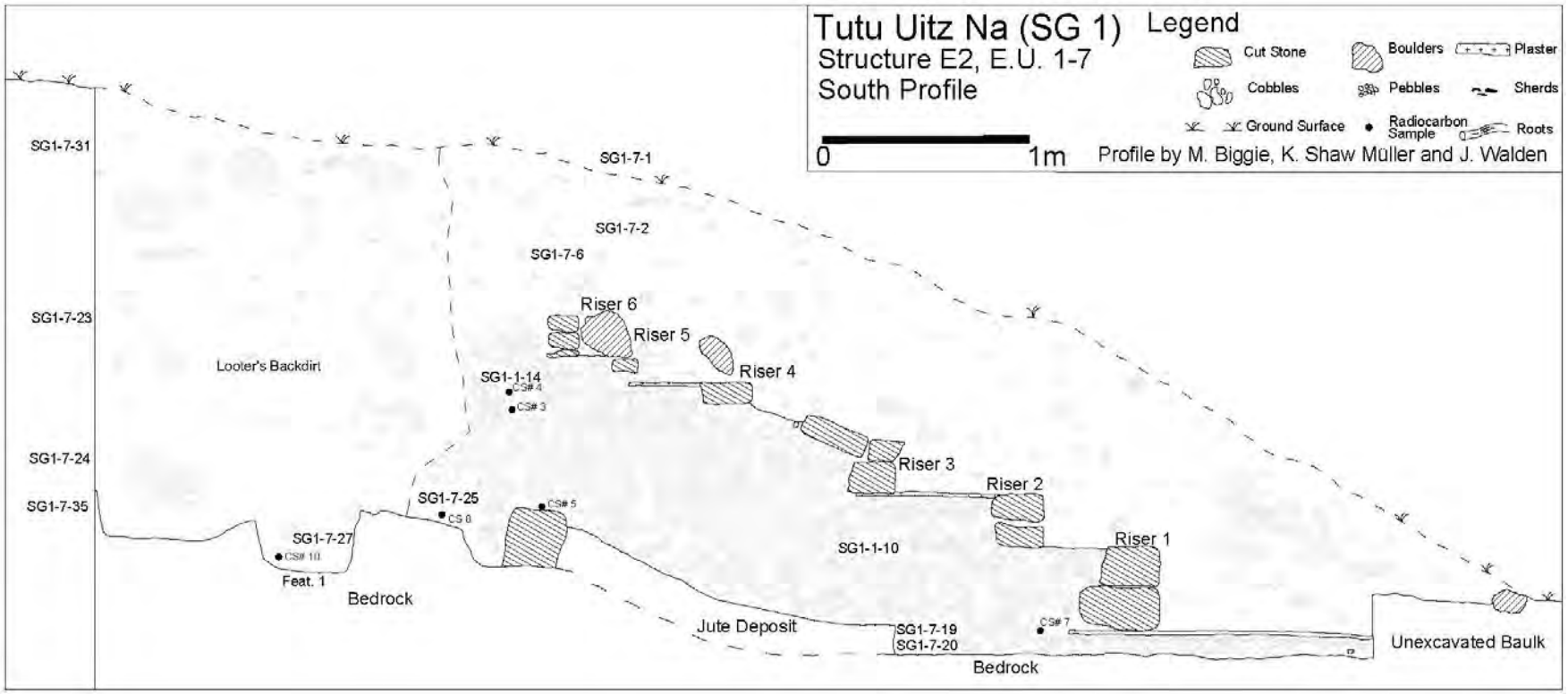


Figure 6: South profile of EU 1-7.

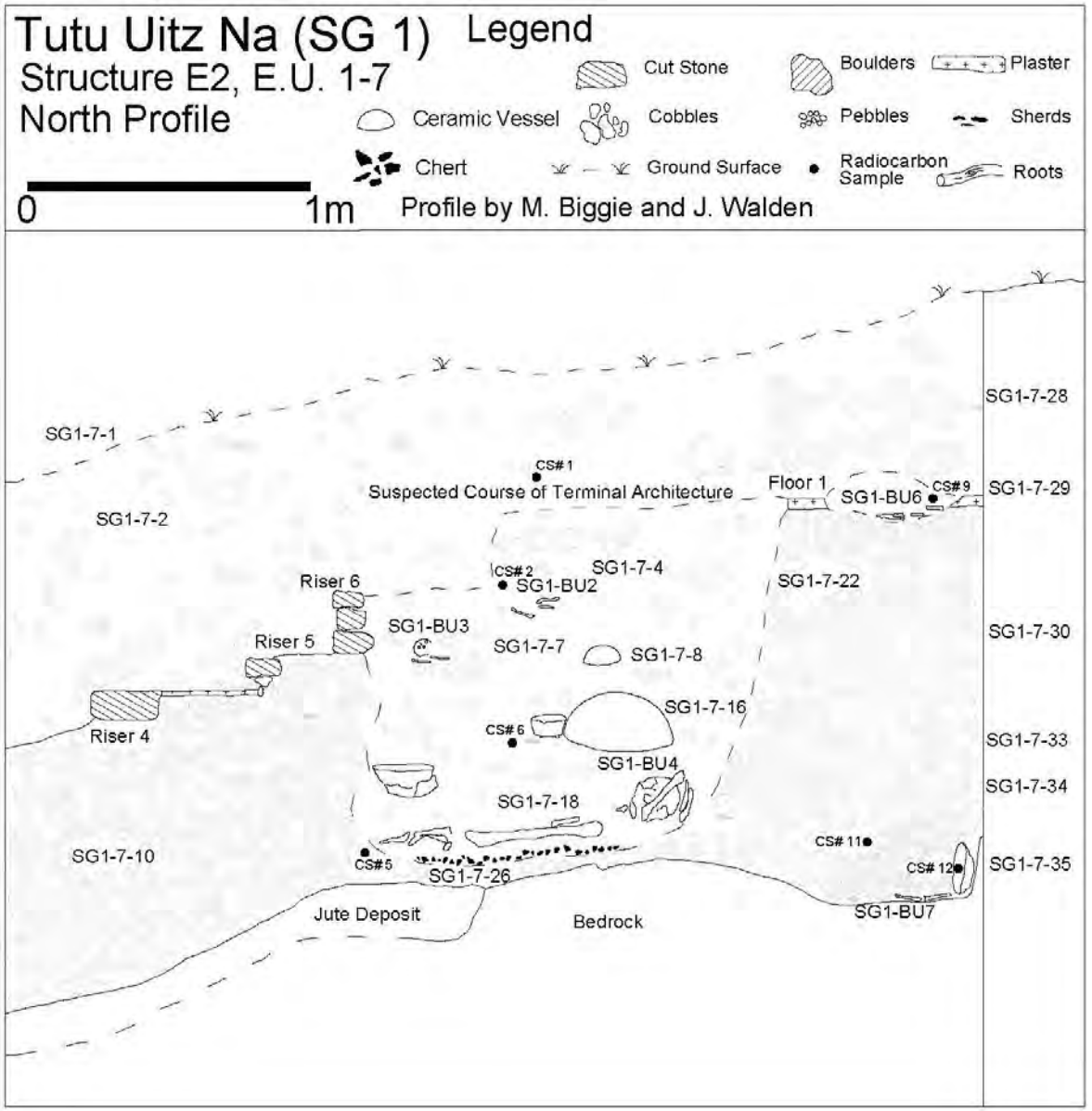


Figure 7: North profile of EU 1-7.

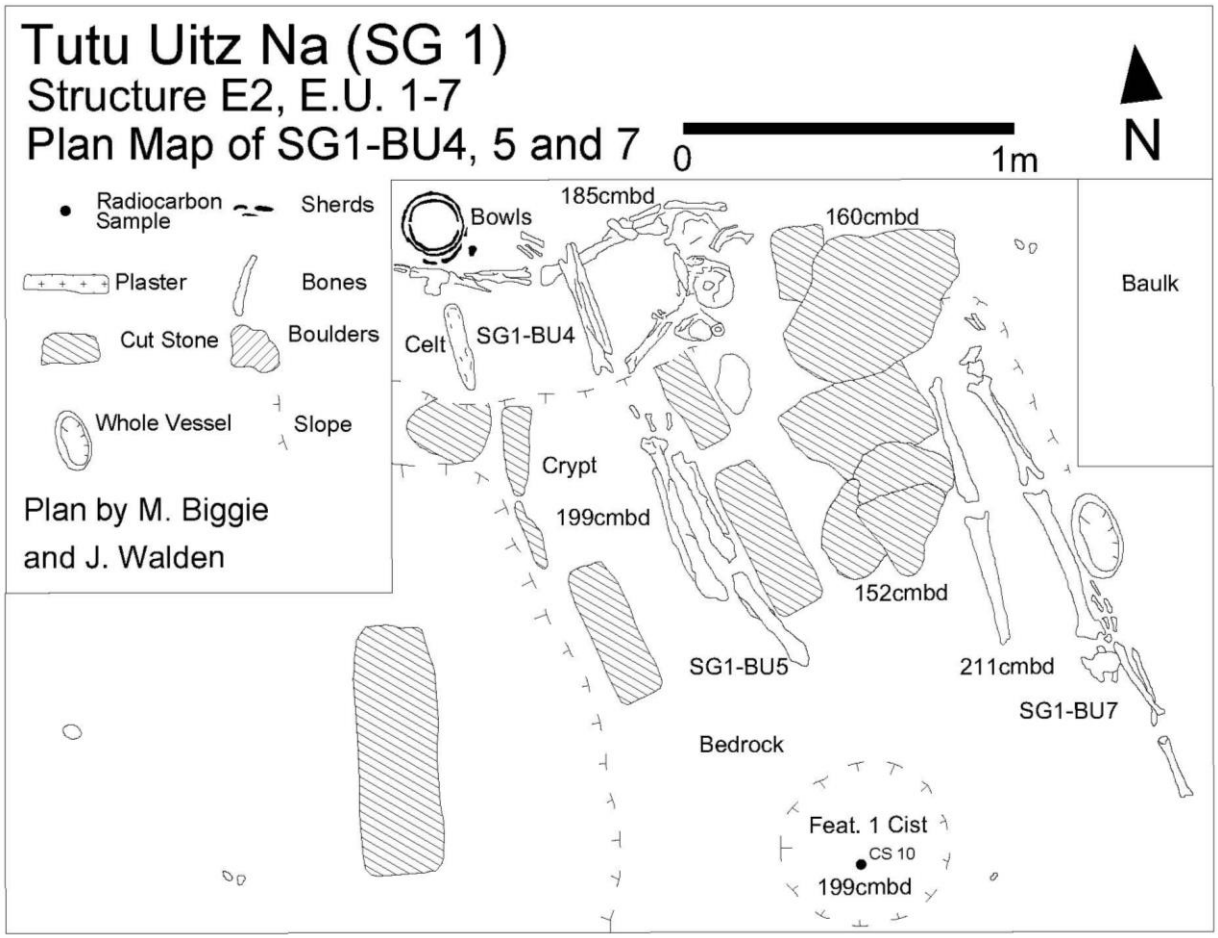


Figure 8: Plan of burials and deposits documented in EU 1-7.

Str. E2-1st

This first construction event in the plaza involved the Maya clearing the natural topsoil down to bedrock and depositing vast quantities of jute, an event documented elsewhere in plaza excavations at the group (Petrozza and Biggie 2015; Walden and Biggie 2017). The *jute* layer was found to continue beneath the structure of SG1-E2, in a similar manner to the northern structure (SG1-N1). This season a 1x1m sampling of the layer (Lots SG1-7-19, 20) produced Middle to Late Preclassic ceramic sherds of the Savana Orange and Polvero Black types, *jute* (*Pachilyus glaphyrus, indiorum and largillierti*) shells (though in fewer quantities than elsewhere in the plaza), quartz, marine shell debitage, apple snails (*pomecea flagellata*), worked shell (SF# SG1-7-55), a chert blade (SF# SG1-7-56) and a piece of jade debitage (SF# SG1-7-57). These artifacts appear to reinforce the theory that the *jute* deposit had ritual significance to the Maya, and were not basic midden materials (Figure 6).

Str. E2-2nd

The first detectable phase of construction of SG1-E2 occurred in the Late Preclassic (300 BC-AD 300), when the structure was created as an eastern mortuary shrine (Figure 8). Solid

evidence of walls and floors in this phase are absent, ostensibly due to extensive modification during Phase 3. Sherds found in the central structure fill include Barton Creek types such as Chan Pond Unslipped, Sierra Red, Hillbank Red and Society Hall Red (Lots SG1-7-17, 25, 30). Carbon was found on the bedrock (CS# SG1-7-8). Directly atop the limestone bedrock within the central structure were 2 burials. Burial SG1-BU5 (Lot SG1-7-21) was a crypt burial (Figure 9). The sides of the crypt consisted of large flat stones stood vertically (Figures 9 and 12), with the bedrock modified in some places to keep the stones in an upright position.



Figure 9: Burial SG1-BU5.

The individual within was adult, interred in extended prone position, head to the south. The preservation was poor, and the bones had fused to the bedrock. All skeletal remains were present up to the right tibia/fibula and halfway up the left femur. Any other remains and associated grave goods (and crypt stones) were missing, having been located in the looted section of the unit. The southern half of the crypt had been built over a circular cist cut into the bedrock (Lot SG1-7-26). This, too, had been cleared by the looters, although a piece of carbon was found (CS# SG1-7-10). Immediately north of the crypt a cache of obsidian blades and a Sierra Red ceramic bowl had been set directly atop the bedrock (SF# SG1-7-58; Lot SG1-7-26). 36 obsidian blades and blade fragments were found both above and below the ceramic fragments (Figure 10 and 11). Associated ceramics were Middle to Terminal Preclassic in date, including Reforma Incised, Chan Pond Unslipped, Sierra Red, Hillbank Red, Flor Cream and San Antonio Golden Brown types. Other associated artifacts included freshwater shell and a fragment of a Savana Orange paste figurine (SF# SG1-7-40).

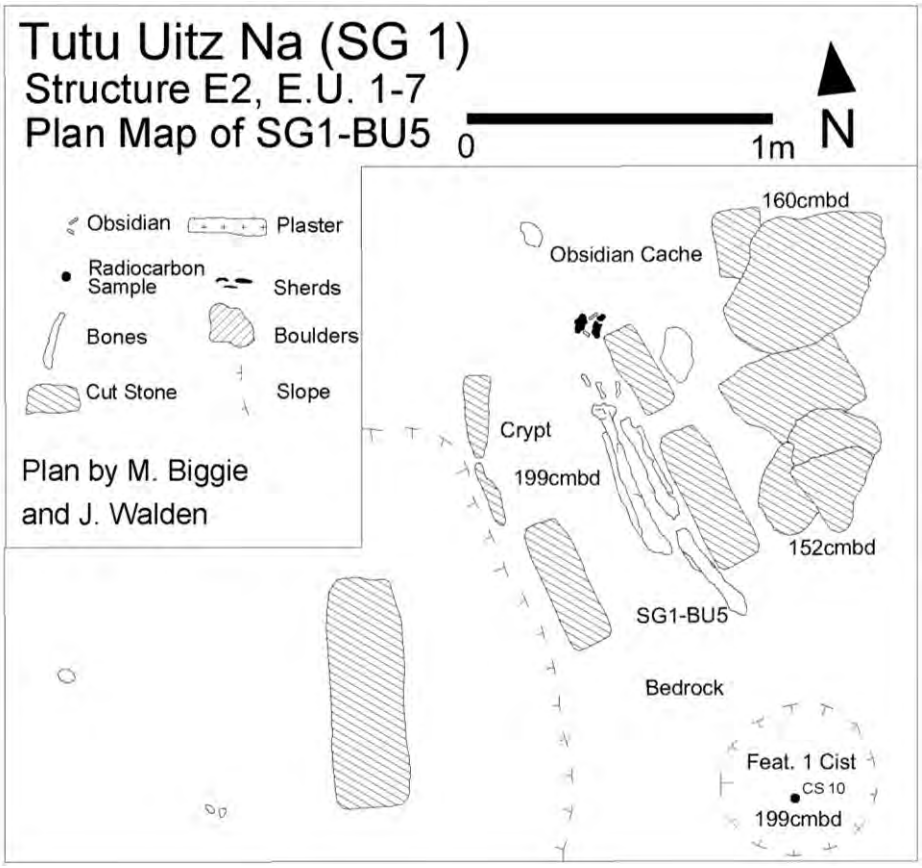


Figure 10: Plan of burial SG1-BU5.



Figure 11: Obsidian cache.

At the easternmost edge of the unit, again directly on top of the bedrock, was another burial (Figures 13 and 14). Burial SG1-BU7 (Lot SG1-7-35) was a burial of an adult individual represented by elements from the right arm, os coxa, right and left legs and feet. This was a primary burial of a supine individual, placed head to the south. The legs were extended with the right arm extended along the right side of the body, palm down with fingers straight out. Because of the poor preservation of this burial, no biological information was able to be determined. The bones were fused to the limestone bedrock. Just east of the right femur was an intact Sierra Red bowl (SF# SG1-7-63). Other associated artifacts included a shell bead (SF# SG1-7-61), carved shell (SF# SG1-7-62) and obsidian. There was carbon found throughout the matrix surrounding burial (CS# SG1-7-11). All skeletal remains and any other grave goods in the southern portion of the burial were removed by looters. The burial was covered with a 25cm layer of stones (fist to grapefruit sized). Just above these stones was an odd patch of matrix – less compact, and with the look of wet soil and small rocks. This was beneath what appeared to be waterlogged yellowish limestone or plaster. There was carbon interspersed throughout and continuing into the north baulk, covering a span of approximately 1m (CS# SG1-7-13, 14). This appeared to be the remnants of an offering placed atop the stones covering Burial SG1-E2-BU7. A matrix sample was taken for further study. There was also a broken vessel containing carbon on top of the stones (CS# SG1-7-12). Associated ceramics all dated to Late Preclassic to Early Classic periods (Lots SG1-7-33, 34).



Figure 12: West wall of Crypt 1.



Figure 13: Burial SG1-BU7.

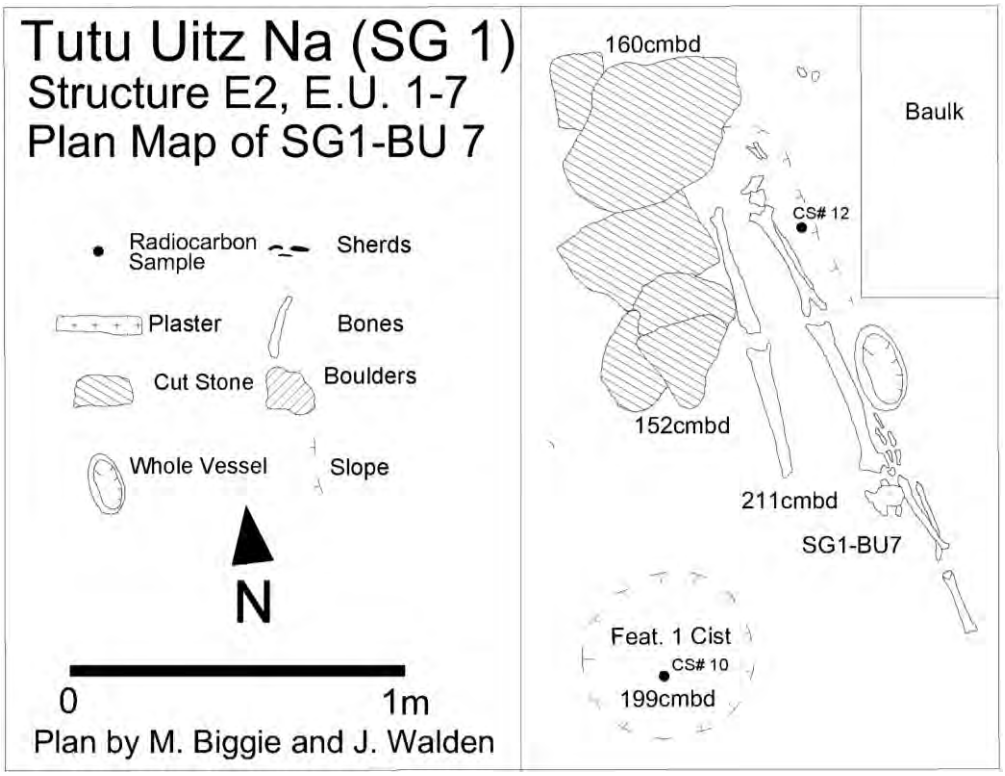


Figure 14: Plan of burial SG1-BU7.

Str. E2-3rd

The third phase of construction occurred in the Early Late Classic, possibly when the structure was expanded from a smaller eastern mortuary shrine to a larger eastern triadic shrine. The structure was fronted by an outset staircase with a 50 cm average run (i.e., tread) and a 30 cm average rise. Removing the first step of terminal architecture revealed Plaza Floor 1. This plaster ended abruptly 30 cm back from the terminal first step. Carbon was found at this "cut" (CS# SG1-7-7). This section was taken to bedrock (Lots SG1-7-19, 20), revealing nothing other than the *jute* deposit. A total of six risers were uncovered leading eastward towards a plaster floor at the structure's summit (Figure 14). Below this plaster floor was 45 cm of compact fill atop a dense matrix of larger stones (Lot SG1-7-13; Figures 15 and 16). Excavation of the SG1-7 extension concluded when this matrix was reached.



Figure 15: Floor 1 and Risers 5 and 6.



Figure 16: Stony matrix below sub-floor ballast and fill.

Artifacts contained in this sub-floor fill included freshwater shell, speleothem, worked shell (SF# SG1-7-34, SG1-7-35) and a possible burnisher (SF# SG1-7-36). The central steps consisted of cut limestone blocks fronting dry-laid fill. Construction was in the cruder style of the Late Classic, with less attention paid to the quality of stonework. There was evidence of plaster remaining on steps 3 and 5 (Figure 6). The fill within the staircase was Late to Terminal Preclassic (Lot SG1-7-10), but it sat on a layer of soil containing Early and Late Classic sherds (Lot SG1-7-12). A hypothesis is that the central staircase was dismantled during the Late Classic expansion, and a base of fill was laid to level the ground in preparation for the new (now more southerly) central outset stair. A radiocarbon sample was collected in this layer (CS# SG1-7-3, 4). The original Preclassic fill was then used to reconstruct the staircase. The floor topping Step 6 was re-plastered (Figure 17), adding another 7cm of plaster to the original. This was the terminal architectural phase as evidenced by our excavations.



Figure 17: Floor 1.

Str. E2-4th (Terminal Occupation)

The structure was revisited in the Late Classic for a series of intrusive burials. The area directly behind step 5 was excavated to the depth of Crypt 1 (Lot SG1-7-22). The crypt appears to have been reopened at this time, which would account for a row of capstones placed on the matrix directly east of the crypt (Figure 16) This intrusion may have been to collect ancestral remains for veneration (McAnany 2013). At the foot of the crypt a layer of chert debitage was deposited. Atop this chert was interred SG1-BU4, a young adult male (Lot SG1-7-18; Figure 17) in poor health and with evidence of perimortem trauma, placed in a seated position and facing west.



Figure 18: East side of Crypt 1 and associated capstones.



Figure 19: Burial SG1-BU4.

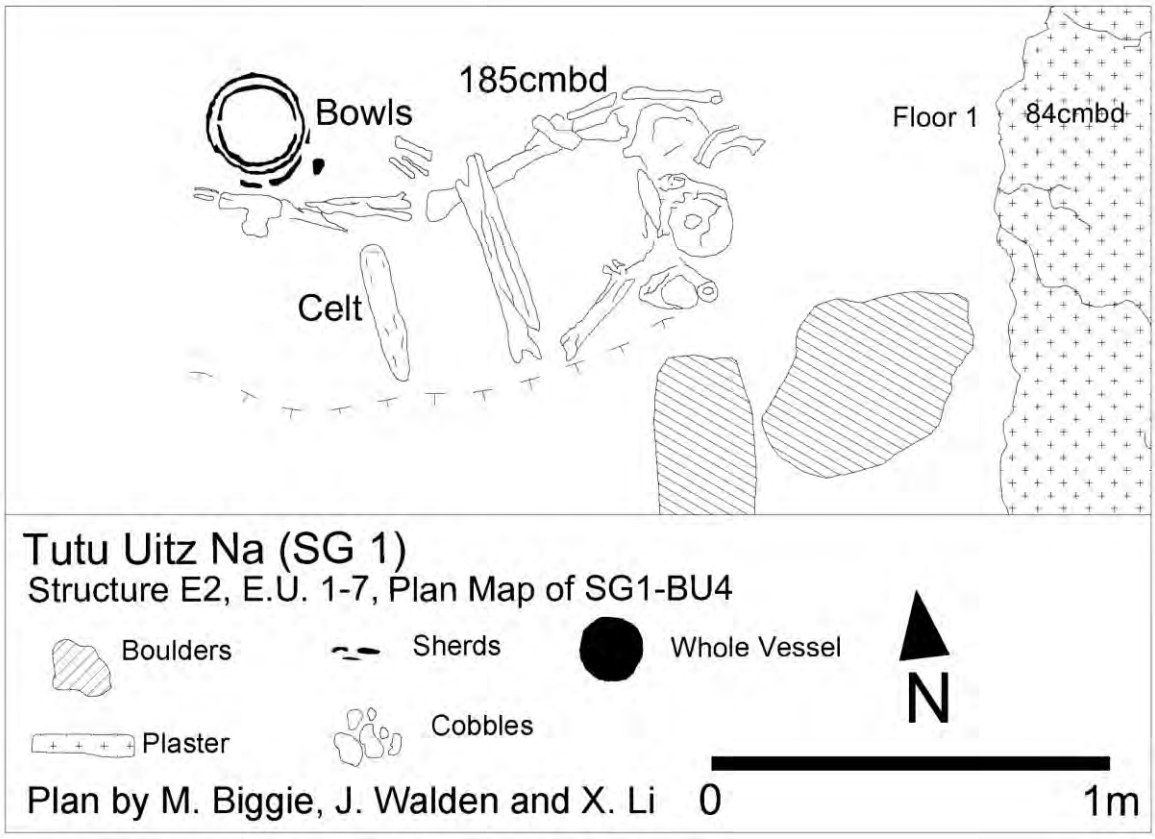


Figure 20: Plan of burial SG1-BU4.

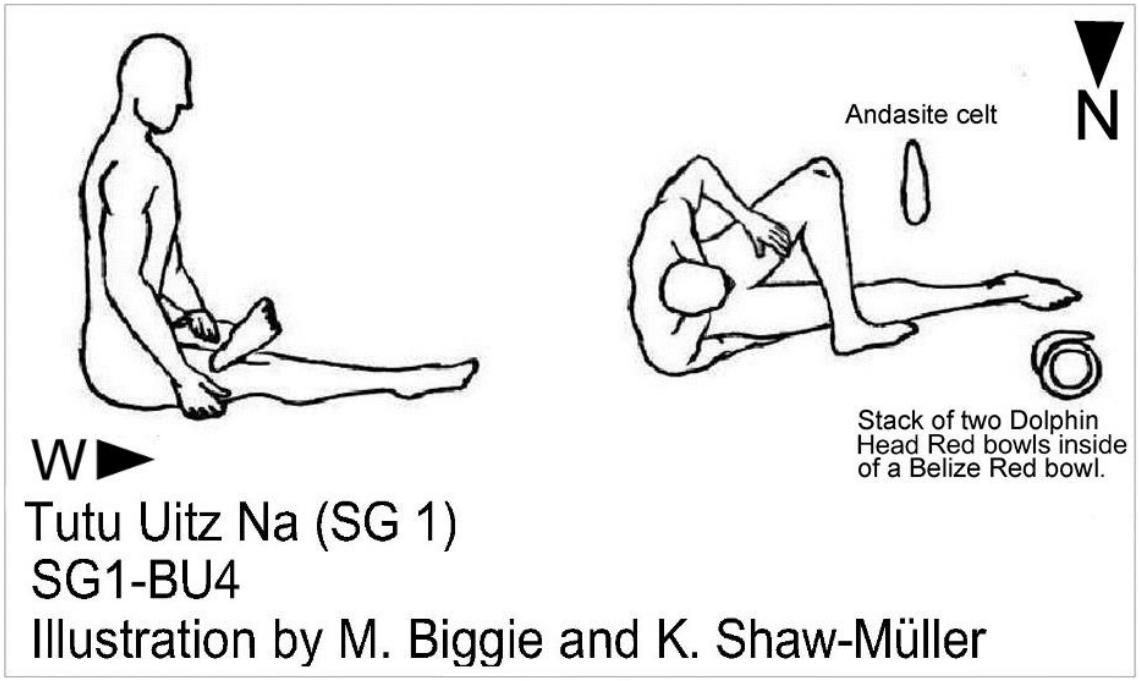


Figure 21: SG1-BU4 burial position.

This was a primary burial and the remains were in poor condition. The seated position of this individual was evident by the surrounding architecture and the collapse of the upright portion of the skeleton (most clearly the skull) onto the lap. The right leg of the individual was extended with the right foot severely dorsiflexed. The left leg was bent at the knee, the left ankle crossed over the right knee and the left foot plantarflexed. The right arm was extended along the right side of the individual, with the right hand below the right femur. The left arm was extended along the left side of the individual, with the left hand above the left femur (Figures 19- 21).

The sex of this individual was determined by the features present on the skull. The occipital bone exhibits a strong nuchal area and the mandible has a square gonial angle and chin. This individual also has a marked gluteal tuberosity, which may indicate male as it is the insertion point of the gluteus maximus muscle. The age of this individual was determined by the pubic symphysis and the dental wear. The morphology of the pubic symphysis was damaged postmortem and the phase of the individual is an estimate of what remains of the symphysial face. The corresponding phase of this feature places this individual between an average age of 28.7 years to 35.2 years with a range between 19-57 years. The slight wear on the dentition places this individual between the ages of 18-24 years. A unique characteristic of this individual is that they have a supernumerary peg tooth situated between the left PM2 and M1 and displaced lingually.

This individual exhibits signs of infection throughout multiple areas of the body. Because of the poor preservation of the remains, this report contains only the infection that was able to be identified. Infection was observed in the vertebrae, the temporal bone, the frontal bone, the maxillary bone (which may be evidence of an abscessed tooth and not the same infection in the other elements), the pubis, and the humerus. Widespread infection of this type may be caused by a variety of factors, such as osteomyelitis or tuberculosis. The health of this individual is also evident from the dentition. The right maxillary third molar exhibits signs of an abscess and antemortem tooth loss. The mandibular incisors have calculus on the lingual surface and cementosis is present on several of the roots of the mandibular dentition. The left mandibular first molar and right mandibular molars 1 and 2 have carious lesions. This individual exhibits signs of perimortem trauma to multiple skeletal elements. Perimortem fractures are observed on the vertebrae, ribs, right zygomatic, and left ulna. It is not determined whether these injuries (nor infection) are the cause of death, however it is evident that healing did not occur after the injuries, therefore occurring at or around time of death.

To the outside of the right foot were 3 vessels. One was a poorly preserved Belize Red dish (SF# SG1-7-54), and within it were two intact nested Dolphin Head bowls (SF# SG1-7-51, 53; Figure 19). A sticky substance resembling *copal* (incense) remained in the bottom of the inner bowl, and was collected for future testing. Just west of the bent left leg was a large celt fashioned from andesite and containing olivine inclusions (SF# SG1-7-46; Figure 23; see Appendix B). The surface layer of the celt was eroded and pitted, resembling one identified by Willey and colleagues (1965:472) at BR-123 Barton Ramie.



Figure 22: Nested bowls at foot of burial SG1-BU4 *in situ*.



Figure 23: Burial SG1-BU4, andesite celt *in situ*.

A number of worked oliva shell tinklers (SF# SG1-7-41, 45, 47, 48, 52) were found around the skull, which was resting upright directly atop the pelvic bones. As no tinklers were found outside or beneath the os coxae, it is likely they belonged to an adornment worn on the head or around the neck. Between the upper and lower teeth of the skull was a large thin chert biface (SF# SG1-7-43), resting on edge with the tip pointed south (Figure 24). The chert was non-local, probably originating in the northern Belize chert bearing zone around Colha. We have been unable to find any similar examples in the literature thus far, and are unsure what the positioning of a biface between the teeth indicates in terms of beliefs and mortuary treatment. Seated burials are relatively uncommon in the Maya Lowlands (Freiwald et al. 2014), and the significance of such a burial is not well understood. It has been suggested that the individual was interred as a "dance burial" (Scherer 2015), but the seated pose and the positioning of the left leg make this unlikely, as it follows no known Maya dance iconography, that said the right foot is placed in a position highly reminiscent of the raised heel motif common in dance scenes on ceramics and this possibility is tentatively corroborated by the shell tinklers which are associated with dancing (Figure 19 and 21; Looper 2009).



Figure 24: Burial SG1-BU4, skull and biface *in situ*.

Two other items were found, a chert scraper (SF# SG1-7-42) and a piece of worked shell (SF# SG1-7-44). Above the head of this individual was an intact overturned Late Classic Vaca Falls bowl (SF# SG1-7-38), approximately 45 cm in diameter and 17 cm deep. The Vaca Falls had a sizeable break on one side, which was interpreted as a "kill hole" (Lucero 2010). Directly to the west was an upright Belize Red nubbin-footed dish (SF# SG1-7-37; (Figures 25 and 26).



Figure 25: Vessels found above Burial SG1-BU4.

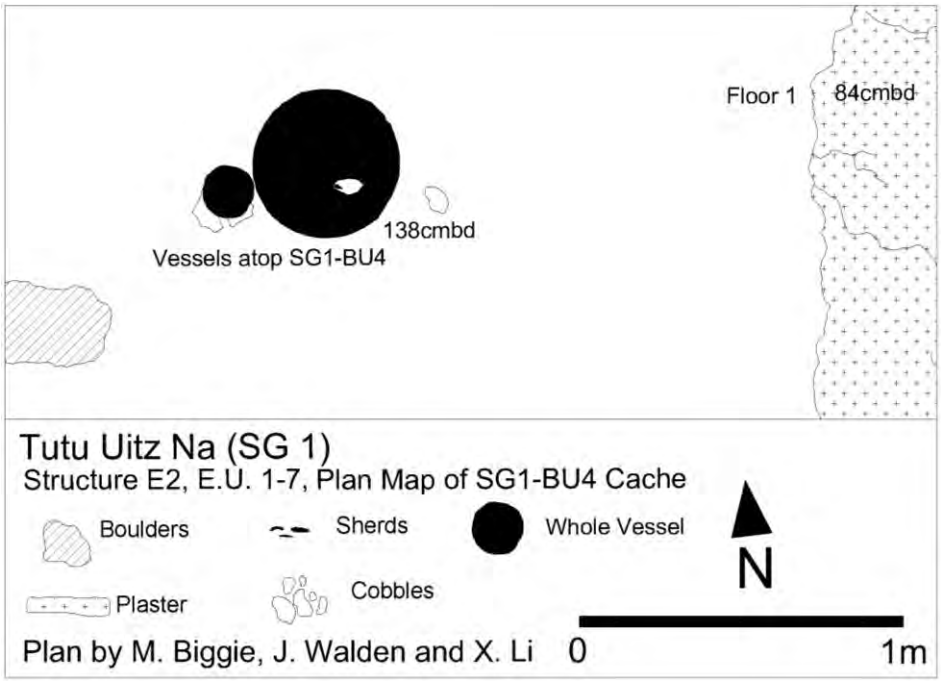


Figure 26: Plan of vessels above SG1-BU4.



Figure 27: Burial SG1-BU3.

Other fragmented Late Classic vessels were found in the surrounding matrix, along with obsidian, quartz, and an antler needle (SG1-7-39). A radiocarbon sample was collected from this context (CS# SG1-7-6; Lot SG1-7-16). Directly above these vessels were the two burials discovered in 2017 (Walden et al. 2018). Burial SG1-BU3 contained the remains of an adult female individual, interred face down with the head to the north (Figure 27). The upper legs were straight, with lower legs flexed with feet over the ox coxae. The shoulders were raised and scapulae vertical, arms straight alongside the body with right hand tight to leg, palm inward. Though skeletally intact, poor preservation caused bones to crumble upon removal. An overturned intact bowl was located on the same level near the eastern baulk.



Figure 28: Burial SG1-BU2.

Above Burial SG1-BU3 was a second burial, SG1-BU2 (Figure 28). The individual was male, in their early 20's (as indicated by pelvic notch) and was at least 188 cm tall (6 feet). This individual was not particularly muscular, as muscle attachments were not robust. The individual was buried face down, head to the south, hands beneath pelvis, with palms towards the body. The legs were likely bound, as the upper legs were straight, but the lower legs were flexed so that the feet were near the ox coxae. The upper half of the individual's body was missing (having been in the looters trench area), with radius and ulna cleanly cut and nothing above the first couple lumbar vertebrae. The bones were in a very good state of preservation. A mandible fragment was found by the left hip. It is undetermined if this is from the same individual.

North of Burial 2 was an assortment of bones, including metacarpals, metatarsals, a radius, an adult male tibia and the mandible of a small child (1-2 years). Bone pins and pin fragments located near the east baulk possibly indicate that these remains are from a secondary burial, perhaps a bundle. It is not known whether these individuals were buried during a single event, but the calibrated date ranges of AMS ^{14}C analyses on the bone collagen of these individuals overlap temporally. SG 1-BU3 dates to cal AD 770-890. Individual 1 in SG 1-BU2 dates to cal AD 765-885 and Individual 2 in SG 1-BU2 dates to cal AD775-885. This VPLF burial style (ventrally placed, legs flexed; following Donis et al. 2011), with the individual in a prone position, knees fully flexed and feet resting on the hips, was also found in Terminal Classic context in nearby Barton Ramie (Willey et al. 1965).



Figure 29: Burial SG1-BU6.

One other burial was found in SG1-7, at the far east of the unit. Burial SG1-BU6 (Lot SG1-7-29; Figures 29 and 30) was an intrusive burial, dug into (but not through) the re-plastering of Floor 1. This burial appears to represent a single adult individual and contains fragments of the cranium, ribs, clavicle, vertebrae, humerus, radius, femur, tibia, fibula, and feet. The preservation of the remains is poor, and it is unclear how this individual was interred. The remains were not extended, but rather contained in a small area. It is unclear whether the remains are articulated and therefore, whether this is a primary or secondary burial. If primary, then potentially a double flexed or bundle burial. Two muscle markers on these remains suggest a determination of Male. The right tibia exhibits a marked soleal (popliteal) line, which is the inferior boundary of the popliteus muscle insertion and gives rise to the popliteus fascia and soleus muscle. The left femur exhibits platymeria and a marked gluteal tuberosity, which is the insertion point of the gluteus maximus muscle. Also found with the skeletal remains were scrapers and spatulas fashioned from faunal bones (SF# SG1-7-59). The burial had been topped with 3 large capstones. Carbon was found in association with this burial (CS# SG1-7-9). All the aforementioned Late Classic burials are evidently post abandonment, as no repairs were made to structure SG1-E2 afterwards.

Str. S1 Post-abandonment Looting

At some point in the past SG1-E2 was heavily looted. Two large looters trenches have removed nearly the entirety of the central structure, with the looted area intruding into unit SG1-7. All matrix in the SE portion of the unit (behind step 5) from bedrock to humic is looter's backdirt. Artifacts found in the looters backdirt of this unit give a sampling of what may have been removed, including: jade (SF# SG1-7-8), jade beads (SF# SG1-7-4,10), a spondylus bead (SF# SG1-7-24), a spindle whorl (SF# SG1-7-29), a cross spindle whorl (SF# SG1-7-25), a floral spindle whorl (SF# SG1-7-26), shell beads (SF# SG1-7-27, 30), carved shell (SF# SG1-7-31) and 2 small squares of mica (SF# SG1-7-28; Lots SG1-7-3, 4, 23, 24 ,31 ,32). The timespan from the looting event to the present was sufficient to allow the formation of a 20cm humic layer on top of the looters backdirt.

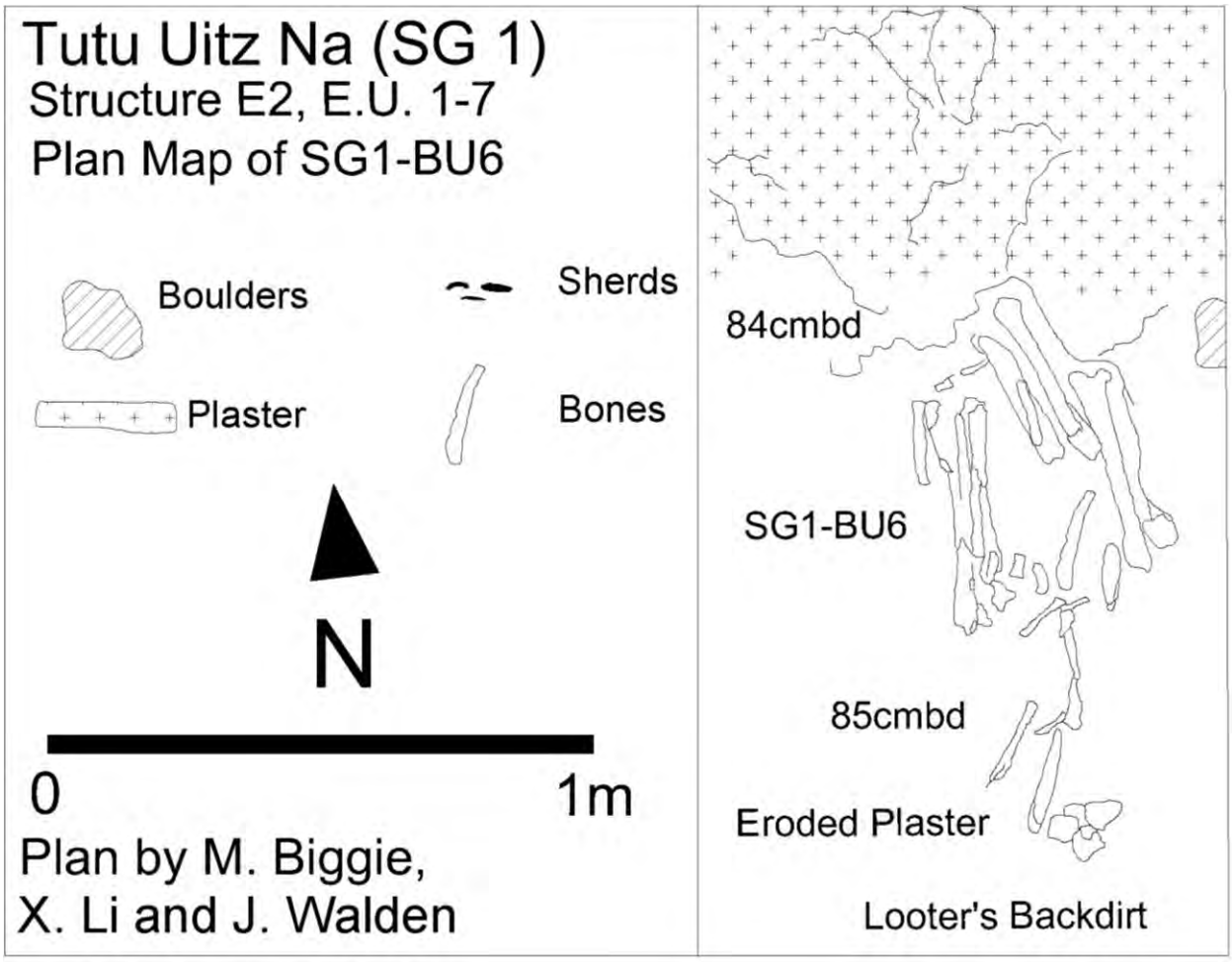


Figure 30: Plan of burial SG1-BU6.

CONCLUSIONS

The 2018 excavations provided fairly clear evidence that Structure E2 was modified into an eastern triadic shrine in the early portion of the Late Classic and may have represented a direct attempt on the part of the intermediate family living at SG 1 to legitimate themselves through ancestor veneration following the rise of Lower Dover (Awe et al. 2017). The burial inventory of SG1 E2 comprises seven interments with 9 individuals. This high density of human remains seems in keeping with our understanding of the role of eastern triadic shrines as ancestral mortuary shrines in the Belize River Valley.

This season's excavations cleared up many of the questions that had arisen in 2017. The mystery of the double humic layer appears to have been resolved. The first humic layer was naturally deposited atop the structure; the structure was then looted at some point in antiquity, with the backdirt placed atop the humic layer. This backdirt was then covered over in time by another natural humic layer. It is still unclear, however, why this humic layer appears directly above the jute deposit, with no evidence of plaster floor or sub-floor ballast. Burials SG1-BU2 and SG1-BU3 no longer appear to be possible sacrifices, but are more likely interred in the VPLF position that has been seen in the Lower Dover site core, Barton Ramie, and more commonly in northern Belize (Wrobel and Graham 2015). The architectural ambiguity caused by the Late Classic intrusive burials was cleared up with the SG1-7 extension. The ritual significance of Tutu Uitz Na is evident. The large volume of *jute* found in SG1-E2's structural fill echoes the cultural deference shown that material in the plaza floor jute layer. The variety of burials discovered is fascinating - none of the 7 burial styles matches another: extended, supine, prone, VPLF, seated, bundled, head to the north and head to the south. Particularly interesting is the sequence represented by burials SG-BU4, SG-BU3 and SG-BU1. If these were all the same burial event, then there is a distinct message behind the placement of the individuals and the associated grave goods. Teasing out that meaning is an intriguing prospect. Further excavation of the north and south wings of SG1-E2 could shed more light on the timeline of Tutu Uitz Na's construction phases, as would an exploration of the "dogleg" of SG1-S3.

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APPENDIX A:
2018 SG1 SETTLEMENT ARTIFACT INVENTORY

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	Surf.	SG1-7-1	Surface	Ce	1/1	SF# SG1-7-64	Pedregal censer flare
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ce	527/1570		
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ch	600		
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ch	1	SF# SG1-7-1	Biface frag.
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ch	1	SF# SG1-7-3	Biface frag.
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ch	1	SF# SG1-7-5	Biface frag.
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Fa	7		
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Fs	N/A		
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Gr	1	SF# SG1-7-6	Mano frag.
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Hr	N/A		
SG1-E2	SG1-7	1	SG1-7-2	Humus and looter's backfill	Ls	1	SF# SG1-7-2	Worked limestone
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ce	205/556		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ch	744		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Fs	1142		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Db	1		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Qz	4		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Mx	1		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ob	10		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Mi	3	SF# SG1-7-28	Mica
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Sh	1	SF# SG1-7-24	Spondylus bead
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ls	1	SF# SG1-7-26	Floral Spindle whorl
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ls	1	SF# SG1-7-25	Cross Spindle whorl
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ls	1	SF# SG1-7-27	Shell bead
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Sh	1	SF# SG1-7-30	Shell bead
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Ls	1	SF# SG1-7-29	Spindle whorl
SG1-E2	SG1-7	2	SG1-7-3	Humus and looter's backfill	Sh	1	SF# SG1-7-31	Carved shell

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Ce	1	SF# SG1-7-7	Ceramic pestle
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Fa	1	SF# SG1-7-12	Worked bone
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Fa	1	SF# SG1-7-9	Worked bone
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Hr	2		Human crania
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Ls	1	SF# SG1-7-13	Grooved stone
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Sh	1	SF# SG1-7-11	Worked shell
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Sp	1	SF# SG1-7-14	Speleothem
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Jd	1	SF# SG1-7-4	Jade bead
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Jd	1	SF# SG1-7-8	Jade bead
SG1-E2	SG1-7	1	SG1-7-3	Humus and looter's backfill	Jd	1	SF# SG1-7-10	Jade bead
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ce	36/140		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ch	41		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ms	4		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Mx	3		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Qz	5		
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ca	1	CS# SG1-7-2	
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fa	1	SF# SG1-7-16	Worked bone pin
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fa	4	SF# SG1-7-17	Worked bone pin
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fa	1	SF# SG1-7-19	Worked bone needle
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fa	1	SF# SG1-7-18	Worked bone needle
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Fa	1	SF# SG1-7-20	Bone awl
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ce	9/17	SF# SG1-7-21	Vessel 1 at feet
SG1-E2	SG1-7	2	SG1-7-4	SG1-BU2	Ce	5/15	SF# SG1-7-67	Vessel 2 at feet
SG1-E2	SG1-7	2	SG1-7-5	Looter's trench fill	Ce	2/12		
SG1-E2	SG1-7	2	SG1-7-5	Looter's trench fill	Ch	11		
SG1-E2	SG1-7	2	SG1-7-5	Looter's trench fill	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-5	Looter's trench fill	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ce	174/802		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ch	411		
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ms	1		
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ob	5		Carved bone
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Wd	1		Shell bead
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ca	1	CS# SG1-7-1	
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ch	1	SF# SG1-7-15	Chert biface
SG1-E2	SG1-7	2	SG1-7-6	Matrix behind Wall 2	Ch	1	SF# SG1-7-22	
SG1-E2	SG1-7	3	SG1-7-7	SG1-BU3	Ce	3/18		
SG1-E2	SG1-7	3	SG1-7-7	SG1-BU3	Ch	16		
SG1-E2	SG1-7	3	SG1-7-7	SG1-BU3	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-7	SG1-BU3	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-7	SG1-BU3	Mx	1		
SG1-E2	SG1-7	3	SG1-7-8	Ballast below terminal floor	Ce	36	SF# SG1-7-23	Complete vessel
SG1-E2	SG1-7	3	SG1-7-8	Ballast below terminal floor	Mx	1		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Ce	59/367		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Ch	561		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Fs	4685		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Qz	2		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Ms	5	SF# SG1-7-33	Carved bone
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Sh	1	SF# SG1-7-32	Shell bead
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Fa	1		Worked bone
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Hr	N/A		
SG1-E2	SG1-7	1	SG1-7-10	Fill under terminal stairs	Ob	1		
SG1-E2	SG1-7	2	SG1-7-11	Fill below terminal phase	Ch	58		
SG1-E2	SG1-7	2	SG1-7-11	Fill below terminal phase	Fs	1092		
SG1-E2	SG1-7	2	SG1-7-11	Fill below terminal phase	Mx	1		
SG1-E2	SG1-7	3	SG1-7-12	Wet-laid fill	Ce	75/92		
SG1-E2	SG1-7	3	SG1-7-12	Wet-laid fill	Ch	13		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	3	SG1-7-12	Wet-laid fill	Fs	210		
SG1-E2	SG1-7	3	SG1-7-12	Wet-laid fill	Mx	1		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Ce	32/157		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Ch	223		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Fs	2765		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Mx	1		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Sh	2	SF# SG1-7-69	Worked shell beads
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Ms	1		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Qz	2		
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Sp	1	SF# SG1-7-66	Speleothem
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Sh	1	SF# SG1-7-34	Worked shell
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Sh	1	SF# SG1-7-35	Worked shell
SG1-E2	SG1-7	3	SG1-7-13	Fill below Floor 2	Ls	1	SF# SG1-7-36	Burnisher
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Ce	19/201		
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Ch	98		
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Fs	143		
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Db	1		
SG1-E2	SG1-7	3	SG1-7-14	Fill behind Wall 1	Qz	1		
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Ca	1	CS# SG1-7-3	
SG1-E2	SG1-7	2	SG1-7-14	Fill behind Wall 1	Ca	1	CS# SG1-7-4	
SG1-E2	SG1-7	3	SG1-7-14	Fill behind Wall 1	Ca	1	CS# SG1-7-5	
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Ce	14/292		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Ch	231		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Ob	1		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Sh	2	SF# SG1-7-68	Shell beads
SG1-E2	SG1-7	4	SG1-7-16	Intrusive fill/ceramic cache	Mx	1		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Db	1		
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Qz	1		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	3	SG1-7-16	Intrusive fill/ceramic cache	Fa	1	SF# SG1-7-39	Antler needle
SG1-E2	SG1-7	4	SG1-7-16	Intrusive fill/ceramic cache	Ce	1	SF# SG1-7-37	Whole Belize Red bowl
SG1-E2	SG1-7	4	SG1-7-16	Intrusive fill/ceramic cache	Ce	1	SF# SG1-7-38	Whole Vaca Falls bowl
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Ce	21/179		
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Ch	132		
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Ob	1		
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Db	3		
SG1-E2	SG1-7	3	SG1-7-17	Fill around capstone	Hr	N/A		
SG1-E2	SG1-7	4	SG1-7-17	Fill around capstone	Ce	1	SF# SG1-7-40	Savana Orange figurine frag.
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	88/448		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ch	233		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Db	6		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Qz	1		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Mx	1		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ca	1	CS# SG1-7-6	
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	1	SF# SG1-7-70	Worked shell bead
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	1	SF# SG1-7-41	Chert scraper
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ch	1	SF# SG1-7-43	Colha chert biface
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	1	SF# SG1-7-44	Oliva
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	9	SF# SG1-7-45	Oliva tinklers
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Gs	1	SF# SG1-7-46	Andasite celt
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	4	SF# SG1-7-47	Oliva tinklers
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	6	SF# SG1-7-48	Oliva tinklers
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	5	SF# SG1-7-49	Ceramics
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	2	SF# SG1-7-50	Partial Belize Red
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Sh	3	SF# SG1-7-52	Oliva tinklers
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	1	SF# SG1-7-51	Partial Belize Red bowl

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	1	SF# SG1-7-53	Dolphin Head Red bowl
SG1-E2	SG1-7	3	SG1-7-18	SG1-BU4	Ce	1	SF# SG1-7-54	Dolphin Head Red bowl
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Ce	2/27		
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Ch	34		
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Ca	1	CS# SG1-7-7	
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Ms	1		
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Uk	1	SF# SG1-7-71	Cave pearl
SG1-E2	SG1-7	2	SG1-7-19	Cut in Plaza Floor 1	Mx	1		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Ce	2/15		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Ch	80		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Qz	2		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Ms	4		
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Jd	1	SF# SG1-7-57	Jade debitage
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Sh	1	SF# SG1-7-55	Worked shell
SG1-E2	SG1-7	3	SG1-7-20	Jute deposit	Ch	1	SF# SG1-7-56	Chert blade
SG1-E2	SG1-7	5	SG1-7-21	SG1-BU5	Ce	1/29		
SG1-E2	SG1-7	5	SG1-7-21	SG1-BU5	Ch	229		
SG1-E2	SG1-7	5	SG1-7-21	SG1-BU5	Fs	16		
SG1-E2	SG1-7	5	SG1-7-21	SG1-BU5	Ob	1		
SG1-E2	SG1-7	5	SG1-7-21	SG1-BU5	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Ce	96/415		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Ch	375		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Db	1		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Ob	2		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Ms	1		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-22	Maya backdirt	Hr	N/A		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	2	SG1-7-23	Looters backdirt	Ce	27/152		
SG1-E2	SG1-7	2	SG1-7-23	Looters backdirt	Ch	120		
SG1-E2	SG1-7	2	SG1-7-23	Looters backdirt	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-23	Looters backdirt	Db	3		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Ce	47/165		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Ch	74		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Db	1		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Ob	4		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Ms	4		
SG1-E2	SG1-7	3	SG1-7-24	Stony fill around crypt	Hr	N/A		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Ce	40/150		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Ch	346		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Fs	N/A		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Hr	N/A		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Db	1		
SG1-E2	SG1-7	4	SG1-7-25	Fill behind Wall 1	Ca	1	CS# SG1-7-8	
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Ce	6/63		
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Ch	101		
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Fs	N/A		
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Ob	36		
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Hr	N/A		
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Bs	1	SF# SG1-7-65	Basalt polishing stone
SG1-E2	SG1-7	4	SG1-7-26	Fill below SG1-BU4	Ce	9/64	SF# SG1-7-58	Whole vessel from cache
SG1-E2	SG1-7	3	SG1-7-27	Feature 1	Ch	6		
SG1-E2	SG1-7	3	SG1-7-27	Feature 1	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-27	Feature 1	Mx	1		
SG1-E2	SG1-7	3	SG1-7-27	Feature 1	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-27	Feature 1	Ca	1	CS# SG1-7-10	
SG1-E2	SG1-7	1	SG1-7-28	Maya fill	Ce	92/240		

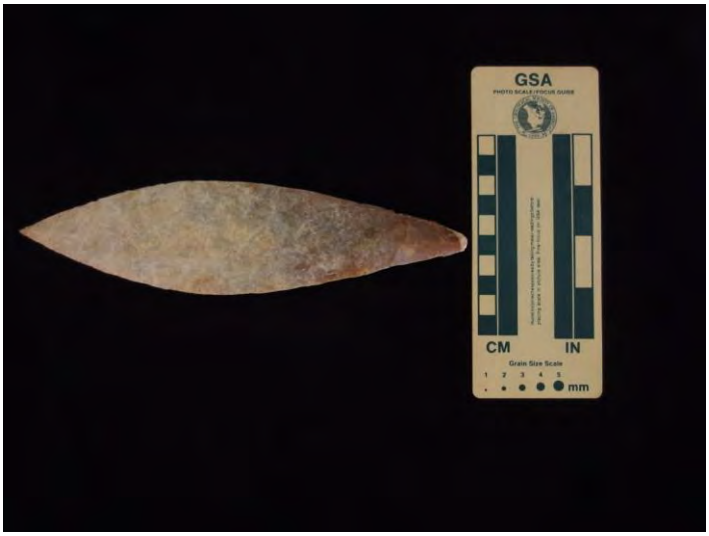
Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	1	SG1-7-28	Maya fill	Ch	48		
SG1-E2	SG1-7	1	SG1-7-28	Maya fill	Fs	N/A		
SG1-E2	SG1-7	1	SG1-7-28	Maya fill	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Ce	8/36		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Ch	11		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Ob	4		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Ca	1	CS# SG1-7-9	
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Fa	13	SF# SG1-7-59	Bone scrapers and spatulas
SG1-E2	SG1-7	2	SG1-7-29	SG1-BU6	Mx	1		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Ce	46/197		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Ch	174		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Mx	1		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Ca	1	CS# SG1-7-14	
SG1-E2	SG1-7	3	SG1-7-30	Fill below Floor 1	Ca	1	CS# SG1-7-13	
SG1-E2	SG1-7	3	SG1-7-31	Humic/looters back fill	Ce	20/72		
SG1-E2	SG1-7	3	SG1-7-31	Humic/looters back fill	Ch	18		
SG1-E2	SG1-7	3	SG1-7-31	Humic/looters back fill	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Ce	22/114		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Ch	62		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Fs	N/A		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Fa	1		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Ms	2		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Hr	N/A		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Mx	1		
SG1-E2	SG1-7	2	SG1-7-32	Dry core fill	Sh	1	SF# SG1-7-60	Worked shell
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Ce	18/113		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID*	*Notes*
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Ch	72		
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Mx	1		
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-33	Crypt 2	Ca	1	CS# SG1-7-11	
SG1-E2	SG1-7	3	SG1-7-34	Stony matrix	Ce	11/76		
SG1-E2	SG1-7	3	SG1-7-34	Stony matrix	Ch	32		
SG1-E2	SG1-7	3	SG1-7-34	Stony matrix	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ce	27/102		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ch	116		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ob	2		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Fs	N/A		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ms	1		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Mx	1		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Hr	N/A		
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ca	1	CS# SG1-7-12	
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Sh	1	SF# SG1-7-61	Shell bead
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Sh	1	SF# SG1-7-62	Carved shell
SG1-E2	SG1-7	4	SG1-7-35	SG1-BU7	Ce	1	SF# SG1-7-63	Complete Sierra Red bowl
SG1-E2	SG1-7	3	SG1-7-35	SG1-BU7	Ce	1	SF# SG1-7-72	Vessel with CS# SG1-7-12

APPENDIX B:
2018 SG1-7 SPECIAL FIND PHOTOGRAPHS



SF# SG1-7-24: Carved shell bead.



SF# SG1-7-43: Chert biface from SG1-BU4.



SF# SG1-7-46: Andesite celt from SG1-BU4.



SF# SG1-7-59: Bone spatulas.



SF# SG1-7-64: Censer flare.

THE 2018 EXCAVATIONS AT SETTLEMENT GROUP 42 IN THE TUTU UITZ NA NEIGHBORHOOD, LOWER DOVER

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INTRODUCTION

The goal of these 2018 Lower Dover settlement excavations was to measure the effects of the polity's Late Classic florescence (AD 500-750) on a high-status commoner household. Excavations focused on Mamjuchtun or Settlement Group 42 (SG 42) in the Tutu Uitz Na neighborhood. This neighborhood was centered on the Tutu Uitz Na minor center, a monumental, intermediate elite settlement group that predates Lower Dover but later became integrated into its political structure. We aimed to excavate households within this neighborhood to see how they were materially affected by such political change (Walden et al. 2017, 2018b). In conjunction with investigations at the minor center proper (Walden et al. 2017, 2018b; Biggie et al., this volume), excavations of commoner settlement groups at varying status levels provide a perspective on how the rise of Lower Dover impacted the local political landscape (see Walden et al., this volume). More specifically, these changes were traced through two guiding questions:

1) Where did the oldest and most wealthy settlement groups emerge relative to their counterparts? In other words, how much distance separated them and what sort of topography was preferable?
2) How did inequality in access to objects that facilitate and represent material wellbeing (Rathje 1983; Smith 1987, 2015) and "Political Capital" (Hoggarth 2012; LeCount 1999; Smith 1987) change throughout the settlement over time? Depending on whether Lower Dover's emerging arrangements of power were more centralizing or heterarchical, how were objects central to these practices, such as fine ceramics or ornamentation, (re)distributed through the community?

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PREVIOUS EXCAVATIONS AT THE TUTU UITZ NA NEIGHBORHOOD

Last season's fieldwork (Walden et al. 2018b) saw much progress in demonstrating the age of the Tutu Uitz Na neighborhood and tracing the changes which occurred there, especially through the Late Classic period. A settlement group superficially comparable to Mamjuchtun in size and prominent position, Mamna (SG 3) was found to have a very long occupational history, possibly extending as early as the Middle Preclassic (300-900 BC), with its inhabitants gaining in prosperity until the Late Classic. Mamna also demonstrated signs of strong association with the Tutu Uitz Na center. This residence emulated local elite practices such as laying large quantities of the river snail known as *jute* (*Pachychilus* sp.) in patio fill (Biggie et al. 2018). There were also several surprises in 2017. Ikilna (SG 51), which was expected to be a high status, long-inhabited group was revealed to be a single component Late Classic set of structures. In contrast, excavations of a presumed low-status Late Classic residential structure at Acbalamna (SG 11) recovered ceramics indicating construction during the Late Preclassic (300 BC-AD 300). Even a very small settlement group, Tokna (SG 28) was revealed in 2017 to have a possible Early Classic component, with its inhabitants then gaining wealth rapidly in the Late Classic through intensive lithics production. Indeed, only one settlement group, excavated in 2016, did not upset expectations: Pechna (SG 9), a small, low status house group with occupation phases purely in the Late Classic.

While excavations have examined relative status of settlement groups around the Lower Dover epicenter, settlement research has only addressed the above questions to a limited extent. Space and topographic prominence do seem to have played a role in the initial settlement of old groups such as SG3 and SG 11, with significant distances between these settlement groups seeming apparent. Prominent (i.e., hilltop) positions on the other hand appear to play less of a role than hypothesized, as demonstrated most clearly by the surprising results of SG 51. As for wealth inequality, recent analyses show a statistically significant decline in the wealth of the Tutu Uitz Na intermediate elite, but otherwise general stasis for commoners when Lower Dover rose (Walden et al. 2018a). Excavating structures present at SG 42 was essential to more fully address both questions as a prominently placed and impressively built commoner settlement group.

THE 2018 EXCAVATION METHODS

Located on a modest rise in what is today a cow pasture approximately 1 km south of Lower Dover, Mamjuchtun (SG 42) is one of the most prominent house groups in the Tutu Uitz Na neighborhood, with a large, elevated patio surrounded by mounds on the east, west, and south (see Walden et al. 2019 for a broader discussion of Mamjuchtun's context). The largest of these mounds was the southern structure, S1, at 170cm tall, extending approximately 10m east-west. There is also a very small house-group (SG 43) several meters northeast of it that was likely an extension of the household.

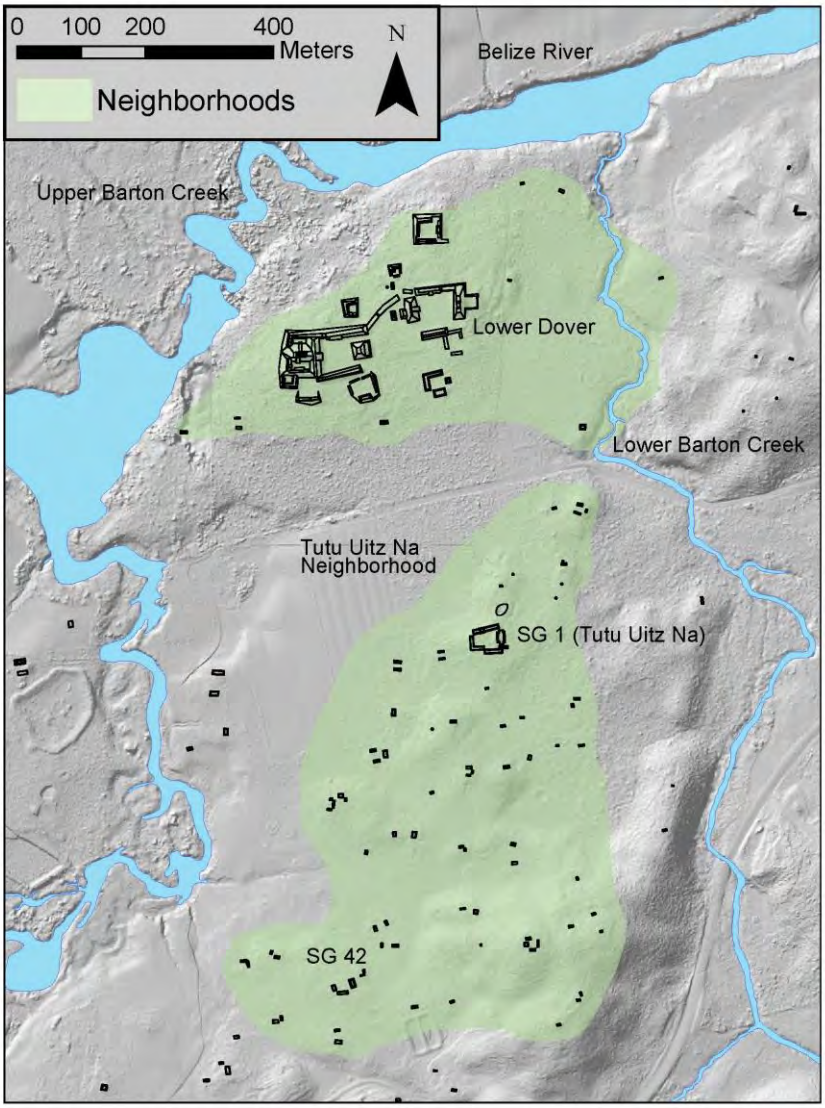


Figure 1: Map of the Lower Dover Settlement with SG 42 labeled.

Our excavation unit was placed on the largest (southern) mound of a high status commoner settlement group, SG 42 (Mamjuchtun). The unit consisted of a centerline axial trench which ran perpendicular to the structure's east-west alignment. Axial trenching was selected because it increases the likelihood of encountering burials, ritual caches, and other significant features typically interred in the center of ancient Maya households (Welsh 1988), as well as providing the greatest understanding of the construction sequence within a structure. Lot numbers were assigned to different contexts in the order they were exposed archaeologically. The first lot number was consistently designated to the ground surface regardless of whether artifacts were present as this practice can provide valuable survey data. Excavation units were recorded using two integers, the first designating the settlement group number, and the second designating the numerical order of excavations; for instance, E.U. 42-1 is located in Settlement Group 42 and was the first excavation unit placed in the group. The excavation unit was dug using cultural or natural stratigraphy and

excavated to bedrock. Artifacts (including special finds) recovered from units excavated in 2018 are listed in Appendix A.

EXCAVATION RESULTS

Excavation Unit 42-1

S1 was selected for excavation due to its size: as a larger structure, it was likelier to have the house group's deepest stratigraphy. Unit SG 42-1 was thus placed on the center of the mound. The unit's dimensions were five meters north-south by two meters east-west. The baseline was strung on the central apex of the mound, with the unit extending out over at least a meter of the presumed patio (See Figure 2). The surface (SG42-1-1) was recorded and photographed. As with most larger units in the 2016-2018 field seasons, the full area of the unit was first excavated to expose what remained of penultimate architecture (Construction Phase 6 for SG 42-1), then bisected with a one meter wide trench to reveal all earlier levels. At SG 42-1, this trench was dug on the unit's west side.

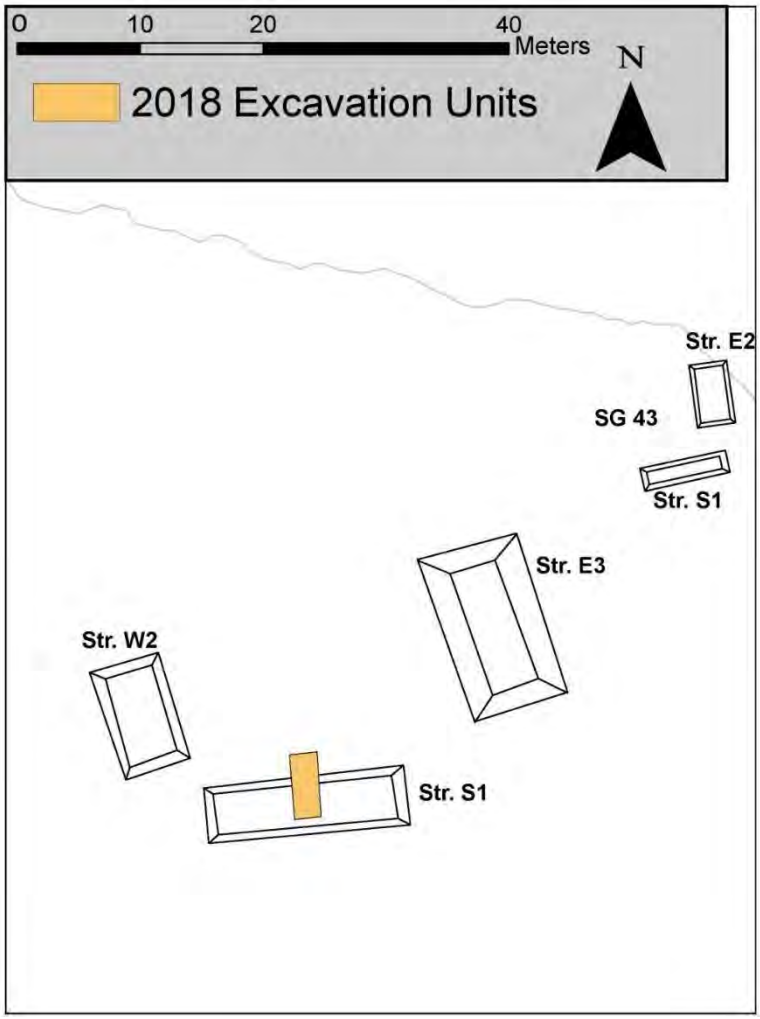


Figure 2: Map of SG 42 with E.U. SG42-1 shown in orange.

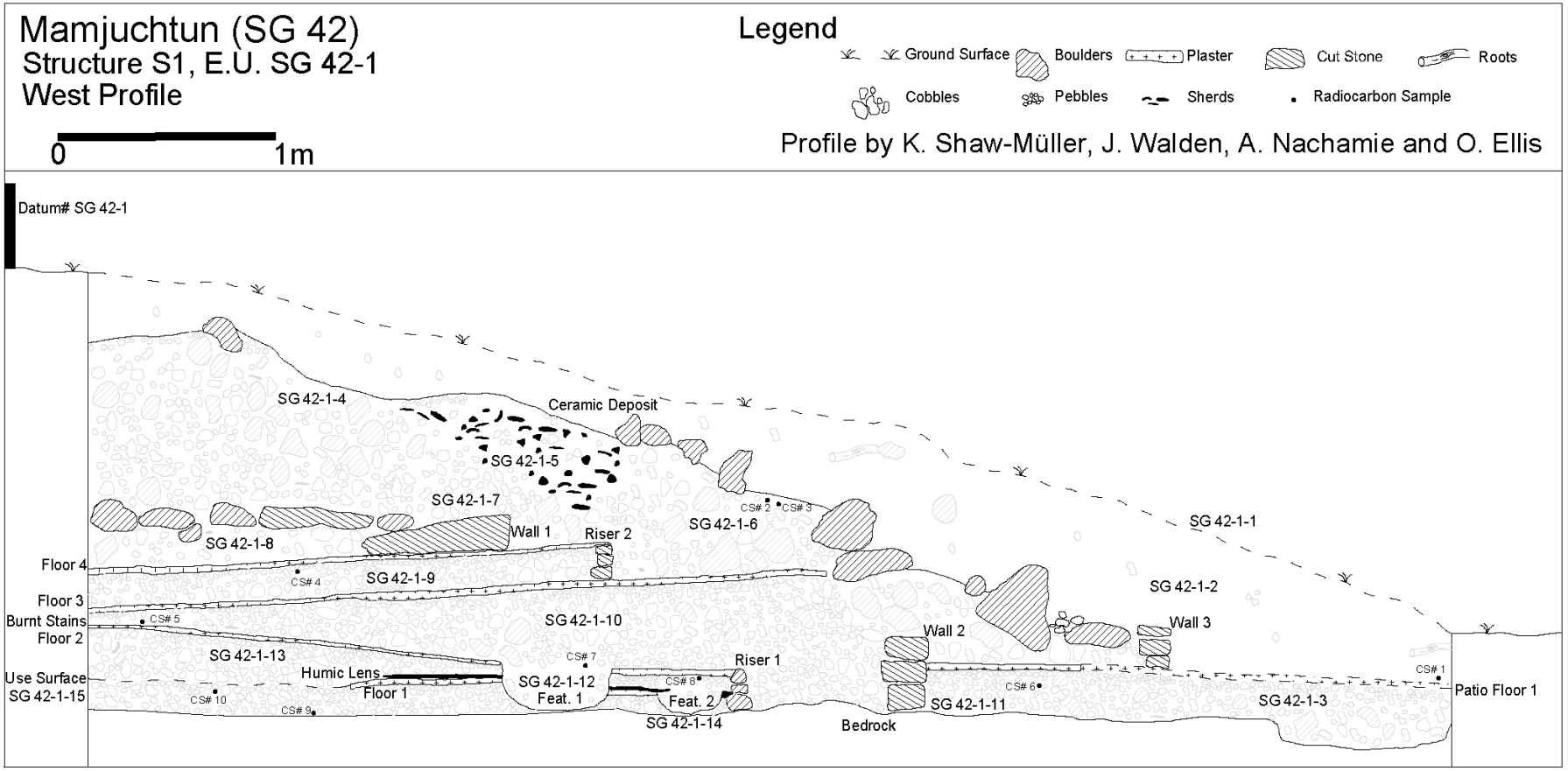


Figure 3: Profile of SG 42-S1 (EU SG 42-1), with locations of important architectural features and radiocarbon samples indicated.

Str. S1-1st

This phase consisted of a very small patch of plaster floor (Floor 1) and a rougher use surface in the southern half of the unit (see Figures 3 and 4). The use surface was a set of undulations in wet-laid limestone fill which extended approximately 1.5 m northward from the southern baulk. This uneven surface lipped up onto the far more even, but less extensive, Floor 1 on its northern edge. The floor measured 1.2 m in length, extending northward from the wet-laid use surface to the approximate center of the unit. The wet-laid fill was excavated as lot SG42-1-15. This phase was built directly on bedrock, and the dense, limestone-rich matrix of both the floor and the use surface was nearly white (2.5Y 8/3). In addition to being materially very similar to the bedrock, this phase measured 7cm in height at Floor 1's northern edge (Riser 1), and was at most 10cm thick closer to the unit's southern baulk. It is likely that this small platform stepped onto a tamped earth surface that initially formed the basis of the patio (no longer extant).

There was a diversity of ceramic finds from this phase despite its diminutive size. Recovered ceramics included 4 Late Preclassic sherds, namely Polvero Black and Flor Cream. The majority of sherds, however, were Early Classic in date (Hermitage ceramic complex; $n = 6$), and included examples of Mopan Striated, and one Actuncan Orange Polychrome sherd. Based on relative ceramic associations, this earliest construction phase likely dated to the Early Classic or possibly the end of the Late Preclassic. Two charcoal samples (CS# SG42-1-9 & 10) were recovered from the wet-laid fill. In addition, typical amounts (n=16) of expedient soft-hammered chert tools were recovered from the fill, alongside unusual amounts of daub (n=6). The inhabitants may have repurposed the materials of a former, more expedient wattle and daub dwelling as the fill of this platform.

Str. S1-1st Abandonment

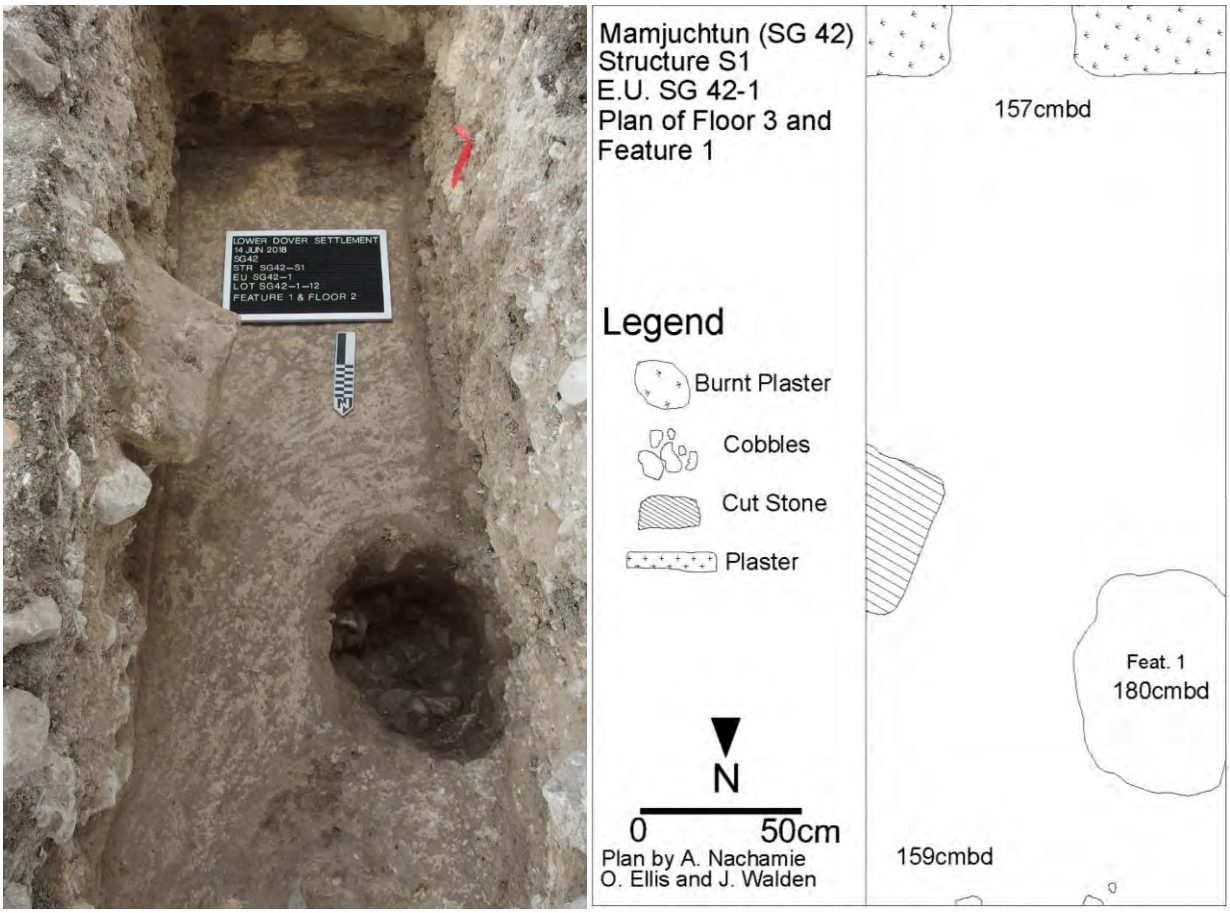
This phase was characterized by a slight modification to the Floor 1 platform, followed by a brief period of abandonment. A small pit (Feature 2) was dug very near the northern edge of Floor 1, measuring 15 cm in diameter. Excavation revealed Feature 2 to be 10 cm deep. No temporally diagnostic artifacts were recovered from this context. After the feature was filled in by matrix, there was a slight accumulation of organic matter on most of the platform. Above the wet-laid fill, a high quantity of carbonized organic fragments were noted, while above Floor 1 a far more substantial lens of dark humic matrix was present (see Figure 3). The accumulation of organic matter was likely because of a period of abandonment; intermittent, ephemeral repurposing of the space; or a combination of such activities. Comparable evidence of an occupational hiatus has not been present in other house-groups excavated in the Lower Dover settlement (Walden and Biggie 2017; Walden et al. 2018).



Figure 4: Floor 1, with Features 1 and 2 excavated.

Str. S1-2nd

This phase was an addition to the original platform's height, extending another 7 cm upward from Floor 1's northern edge, and roughly 15 cm above the southernmost extent of the wet-laid fill's use surface. This addition was capped by a rather thin (2-3 cm) plaster floor (Floor 2) which sloped down southward. The fill was a generally looser matrix of limestone cobbles interspersed with brown-beige soil (10YR 7/3). This modest addition to the platform was excavated as SG42-1-13, and one carbon sample (CS# SG 42-1-8) was collected from just below Floor 2's northernmost section. The only diagnostic sherd recovered from the level was Sierra Red (Late Preclassic). Other finds were equally sparse, consisting of 21 medium-grade, expedient lithics. In light of the earlier platform's clear association with Early Classic materials, it is hypothesized that this phase was also Early Classic in date. As with the use surface on wet-laid fill below, Floor 2 was darkened by organic matter; except, whereas the use surface merely had a high density of carbon, the surface of Floor 2 was itself discolored by fire in the southernmost portion of the unit. This burning was characterized by a dark grey charring of two patches on the floor's southernmost 20cm portion (see Figures 4, 5, and 6).



Figures 5 and 6: Floor 2 and Feature 1 (left) with Plan Map of Floor 2 and Feature 1 (right).



Figure 7: Close-up photo of burnt patches on Floor 2.

Str. S1-3rd

This phase consisted first of a significant modification to Floor 2, as well as a very substantial addition to the structure, which was capped by a new floor (Floor 3). First, Feature 1 was dug into Floor 2, cutting through Floor 1 as well. Feature 1 was excavated as lot SG42-1-12, and only yielded a Dos Hermanos Variety basal flange and 10 flakes created from medium or coarse chert materials. Feature 1 measured 40 cm in diameter and was dug on the western half of the floor, one meter from its northern edge (see Figure 6). The feature was almost certainly filled in the same event that saw the construction of the main component of Phase 3 (Figure 8).

Over 60 cm of fill, in parts, covered the old platform, being faced with the mound's most significant surviving wall (Wall 2), 66 cm north of the old platform's extent, and itself being abutted by a very significant patio floor (Patio Floor 1). The fill of this new platform was covered with the unit's longest, sturdiest (3-4 cm thick) floor (Floor 3), which sloped very slightly downwards from its northern high-point 60cm above bedrock to its low-point 5cm above Floor 2's southern extent. Wall 2 faced this construction phase, remaining largely intact in its lower three courses, which were fashioned of rough-hewn limestone. The fill in this platform contained two Chan Pond jar rims and a Flor Cream bowl rim. The wall was placed directly on bedrock, and Patio Floor 1 abutted its second course. The fill between Patio Floor 1 and bedrock ranged between 25 and 30cm in thickness, had a light-colored matrix (2.5Y 8/3) and consisted disproportionately of river cobbles.

The fill below Floor 3 was excavated as lot SG42-1-10, while the Patio Floor fill was logged largely as SG42-1-11, but also in part as SG42-1-3 (which was a mixed lot). Two carbon samples were taken from this context: CS# SG 42-1-5 in the southern extreme of the unit, and CS# SG42-1-7 at the interface between Feature 1 and the construction above. As for the patio fill, CS# SG 42-1-6 was collected from matrix 5cm below the floor. The only diagnostic ceramic for this phase was a Sierra Red sherd associated with Patio Floor 1. Because of a lack of diagnostic sherds, it was difficult to make any chronological assessment of the level beyond it being at most as old as the Early Classic level located below. Furthermore, lithics were virtually absent from both contexts, in contrast to Feature 1's high density. As with preceding levels, freshwater shells were nearly absent (only one was recovered).

Str. S1-4th

This renovation was far less significant than phase 3, consisting solely of a short platform faced by a 16.5 cm riser (Riser 2). Its contents were labelled as lot SG42-1-9. The platform was capped by SG42-S1's last surviving floor, Floor 4, which was comparable in thickness (3-4 cm) and ran parallel to Floor 3. This phase's fill was almost entirely composed of limestone cobbles, much in line with the fill of prior levels, with the exception of the river-cobble-laden Patio Floor 1. Riser 2 likely distinguished the somewhat higher Floor 4 as a separate space from the (at least) one meter extent of Floor 3 that remained exposed north of it. As with the prior phase, almost no temporally diagnostic ceramics were recovered: only one Aguacate Orange sherd from the Terminal Preclassic was identifiable. Likewise, the other finds were sparse: only 14 chert fragments were recovered, but none were significantly worked. A carbon sample (CS# SG42-1-4) was recovered from fill material a couple centimeters below the middle of Floor 4.



Figure 8: Floor 3 and Wall 2.



Figure 9: Floors 3 and 4 and Riser 2.

Str. S1-5th (Stone Slab Feature)

The function of this construction phase was unclear, but it may have been built in the same event as the Str. S1-6th renovation. This phase was built directly on Floor 4, and consisted of a low, wide wall of limestone boulders (Wall 1) located one meter south of Riser 2. Between 10-15 cm of matrix was capped by several slab-shaped cut limestone boulders and cobbles (Figures 9 and 10). When initially encountered, it was believed to be a crypt, but excavation within revealed matrix with few notable finds, and an undisturbed southern portion of Floor 4. The only diagnostic ceramic found within the slabs (Lot SG42-1-8) was an Early Classic Yaloche Cream Polychrome basal flange, loosely corroborating that this phase and all prior renovations were Early Classic in date. Beyond this sherd and three non-diagnostic ceramic fragments, there were no other artifacts recovered. Possibly, these slabs were placed atop the rather even layer of matrix to protect Floor 4 in the process of the Str S1-6th addition.



Figure 10: Floor 4, Wall 1, and limestone slabs.

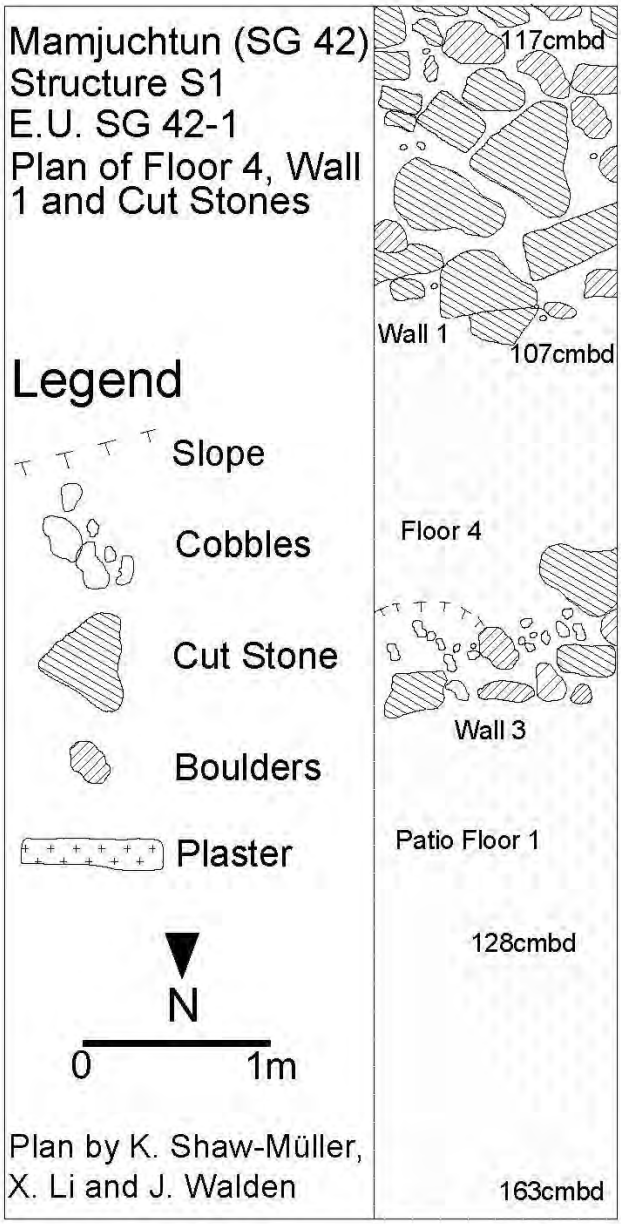


Figure 11: Plan Map of Str. S1-3rd (Patio Floor 1), 4 Str. S1-4th (Floor 4), and Str. S1-5th (Wall 3 with cut stones).

Str. S1-6th (Penultimate)

This construction phase was clearly the most significant in terms of fill volume, but lacked surviving architectural definition. The phase consisted of lots SG42-1-4, 5, 6, and 7, being defined on its northern edge by a rather thin limestone wall (Wall 3) which may have been reinforced by a retaining wall (no longer intact) of far larger limestone boulders behind it. SG 42-1-4 was the largest lot, making up a majority of the fill behind the boulders. It consisted of limestone cobble dry fill surrounded by light brown (5YR 6/2) matrix. On its southern edge, the fill extended 50-55

cm above Str. S1-5th, while on its northern edge, roughly 250 cm northward from the southern baulk, the fill sloped down approximately 50 cm to meet the large cluster of limestone boulders that may have formed a retaining wall. This fill had a uniform density of cobbles except for a significant deposit of ceramics one meter from the southern baulk that was 75 cm wide (north-south), the full width of the trench, and 45 cm deep. This deposit (Ceramic Deposit 1) was labelled lot SG42-1-5 (with a matrix color of 2.5Y-71) and the fill immediately below it SG 42-1-7. This lot was a cluster of midden material that was not fully mixed in with the rest of the fill. Below the limestone boulders which may have formed a retaining wall, the rest of this phase's fill was labelled lot SG42-1-6, and it extended to Wall 3. Wall 3 was built directly on the surface of Patio Floor 1, extending the structure northward by 75 cm. The wall consisted of 3 single-row courses of small cobbles (about 12 cm wide) leading us to believe that the boulders behind this neat wall retained most of this renovation's fill material. The western portion of Wall 3 (where the unit was bisected) was largely collapsed, however, potentially because this hypothetical retaining wall collapsed first.

Unlike prior construction phases, this phase was clearly associated with the Late Classic based on the presence of high frequencies of Spanish Lookout (*n*=14) complex sherds. Lot SG42-1-4 had one Garbutt Creek sherd, three Dolphin Head Red fragments, five Chan Pond Unslipped jar fragments, and two Vaca falls fragments. Granted, it also had several examples of far earlier materials, including an Ixcanrio Orange Polychrome sherd, and a few Middle and Late Preclassic types belonging to the Polvero and Savana groups. On the other hand, the ceramic midden deposit (SG42-1-5) encountered consisted almost purely of sherds from the Early Classic, including a polychrome sherd with a potential glyph on it (SF# SG42-1-8; Figure 12). There were no later materials in this deposit. The most likely explanation for the presence of this early material is that Early Classic material was dumped directly into this later architectural phase as construction fill. Lot SG42-1-6 consisted purely of Early Classic and Terminal Preclassic materials including two from the Hermitage complex, two from the Mt. Hope complex, and one from the Barton Creek complex. Even Lot SG42-1-7, just below the ceramic midden deposit, had clear examples of Early Classic and Late Preclassic complexes including a Dos Arroyos sherd and a Lechugal Incised fragment. While the fill of this phase was temporally mixed, it is based on the presence of some Late Classic sherds that we believe this construction phase coincided with Lower Dover's rise. Alternatively, the limited concentrations of Spanish Lookout sherds in SG42-1-4 were potentially due to high disturbance so near the mound's surface and a lack of clear delineation between the final abandonment phase and this last clear phase of architecture.

Other materials were recovered from Str. S1-6th, namely a large quantity (*n*=241) of lithics, including one flake from SG42-1-4 fashioned of fine chert with a worked edge (SF# SG42-1-7; Figure 13). Some other notable lithics were also recovered from lots SG42-1-5, 6, and 7, including a scraper and pressure-flaked tool from Lot 6, and a high quantity (*n*=55) of flakes from Lot 7 (*n*=55). There was also a very high quantity of lithics from SG42-1-5 (*n*=121), but they were generally amorphous: either produced and used expediently, or largely the result of primary stages of production. A high quantity of other materials were also recovered from SG42-1-4, including a higher quantity of freshwater shells than in any other prior phase, a daub fragment, and two carbon samples (CS# SG42-1-2 and CS# SG42-1-3, which were both from matrix between the limestone boulders on the lot's northern edge). The other three lots also had high quantities of freshwater shell (*n*=109), but SG42-1-6 is noteworthy for also having two quartzite fragments.



Figure 12: SF# SG42-1-8, polychrome body sherd with possible glyph (on left edge).

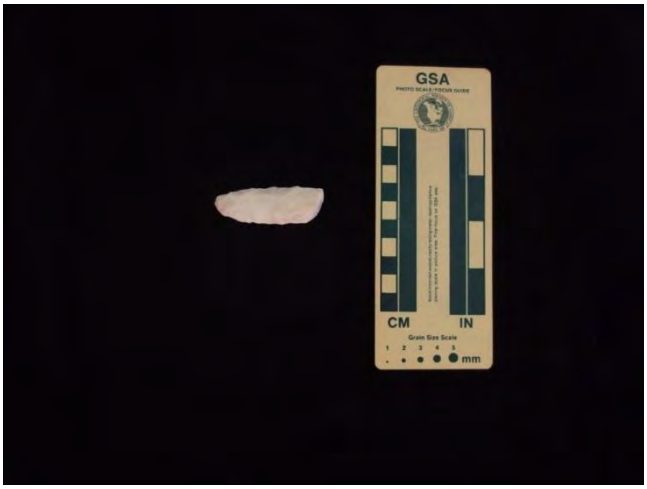


Figure 13: SF# SG42-1-7, bifacially worked flake of fine chert.

Str. S1-7th (Terminal Occupation and Abandonment)

This phase represents the terminal occupation and abandonment of Str. S1. No clear architectural features were present. This phase, which consisted of Lots SG42-1-2 and SG42-1-1 (the surface) and extended over the unit's entire area (not just the western bisection), was heavily bioturbated by plant growth and grazing. The only carbon sample, CS# SG42-1-1, was taken from the surface of Patio Floor 1. Although it lacked any structural definition, many of S1's most remarkable finds were recovered from this phase. The majority of diagnostic sherds (total *n*=125) were of Spanish Lookout, Tiger Run, or other Late or Terminal Classic complexes. These included dozens of common Late/Terminal Classic sherds, such as Mountain Pine Red, Vaca Falls Red, Dolphin Head Red, Belize Red and Mount Maloney. There were also high quantities of earlier polychrome and bichrome fragments, including Zacatel Cream Polychrome, Guacamallo Red-on-Orange, Benque Viejo Polychrome, and Saxche Orange Polychrome. As with the prior phase, freshwater shells were rather common (see Table 1 for exact ceramic quantities).

A wide variety of other artifacts were recovered. Flaked chert artifacts were very numerous (*n*=327), including a uniquely shaped biface (SF# SG42-1-1). Lithics of other materials were also present: there were 12 quartzite fragments; two metate fragments, one made of granite (SF# SG42-1-2) and the other of basalt (SF# SG42-1-5); and a small obsidian blade. Five fragments of daub were recovered as well. Other special finds included a conch spiral (SF# SG42-1-6), a limestone bark beater (SF# SG42-1-3; Figure 14) and, most remarkably, a nodule of chert with fossilized jute and other shells in it (SF# SG42-1-4; Figure 15). Though the presence of shells within the chert may merely be incidental, it is likelier to have some degree of significance, possibly as a peri-abandonment offering or an object curated by pre-abandonment inhabitants (as at Palenque, see Alvarado-Ortega et al. 2017). This fossil was chosen as the namesake for SG 42, Mamjuchtun (literally "Old shell rock").

Table 1 Diagnostic ceramic from SG-41-1.

Ceramic Complex	*Group*	*Quantity*
Jenney Creek	Jocote	3
Mount Hope, Floral Park, & Barton Creek	Aguacate	2
	Chan Pond	3
	Sierra	1
Hermitage	Mopan	1
	Pucte	1
Tiger Run & Spanish Lookout	Achote	2
	Belize	6
	Cayo	18
	Chan Pond	1
	Chunhuitz	1
	Dolphin Head	20
	Molino	1
	Mountain Pine	4
	Mount Maloney	1
	Saxche/Palmar	2
	Tinaja	2
	Vaca Falls	2
	Yaha/Lemonal	9
Unknown	--	79



Figure 14: SF# SG42-1-3 Bark Beater.

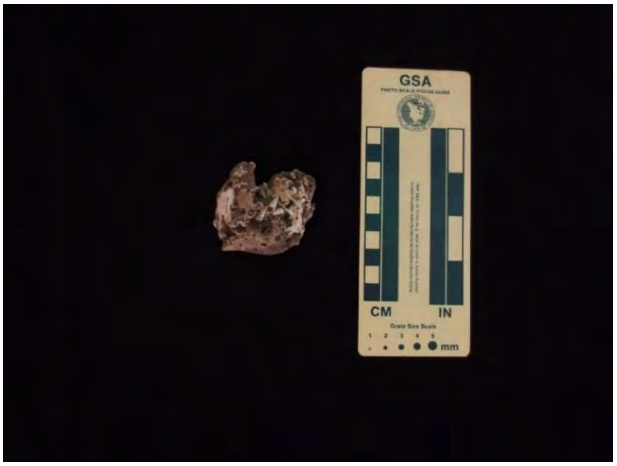


Figure 15: SF# SG42-1-4 Fossilized Jute.



Figure 16: Str. S1-6th with Wall 3 in the bottom left corner.

DISCUSSION AND CONCLUSIONS

Granted its prominent location and superficially impressive appearance, Mamjuchtun was expected to have very clear evidence of early occupation and burials in its largest mound, S1. However, excavation ultimately revealed limited evidence of very early Late or Middle Preclassic occupation, making its foundation likelier to be in the Terminal Preclassic or even Early Classic, and, despite the crypt-like appearance of Phase 5, no interments were found. SG 42 was thus founded later than some of the earliest and best-established groups in the Tutu Uitz Na neighborhood, such as Mamna (SG3), but its size and age still clearly corroborate that its inhabitants were of a higher status than nearby households, such as Tokna (SG 28) and Ikilna (SG 51; Walden et al. 2018b). Also unlike Mamna, all of Mamjuchtun structure S1's major construction

phases, possibly including its penultimate occupation (Phase 6), likely preceded the Late Classic period (and thus Lower Dover's rise); in contrast, Mamna's impressive penultimate construction phase was clearly a Late Classic addition (Walden et al. 2018b). Consequently, it could be argued that Mamjuchtun rose in prominence quickly through the Early Classic, after a brief hiatus with the close of the Terminal Preclassic, and then its inhabitants' power plateaued or relocated in the Late Classic. Furthermore, it is very likely that the household's burials are located in the eastern mound, Structure E3 due to such structures' typical ancestral associations (McAnany 1995; Figure 2), depriving us of some important information about the age of Mamjuchtun and its inhabitants' changing fortunes. Possibly the group's Late Classic inhabitants did muster wealth and labour comparable to their contemporaries in Mamna, but instead devoted that energy to expanding their patio (which does seem artificially extended northward over the hill's slope) or renovating the two other mounds. Certainly the wealth of Late Classic materials, many of them of a fine quality in the final occupation phase of S1, and unique special finds such as a bark beater, conch spiral, and fossil could corroborate this possibility. Alternatively, they could have been offerings deposited after abandonment.

As with the 2017 season, excavations at Mamjuchtun (SG 42) yielded often unexpected data that further address our research questions. Although Mamjuchtun is almost certainly the southern Tutu Uitz Na neighborhood's most prominent settlement group, its southern structure did not yield evidence of any habitation before the Late Preclassic period, setting it very much apart from Mamna (SG 3). SG 42 also differed from SG 3 in its cessation of major renovations in the Late Classic period. In regards to inequality, it could be tentatively claimed that Mamjuchtun complicates last season's initial assessment that Lower Dover's rise hardly led to a change in commoner wealth distribution (Walden et al. 2018a). The lack of new, high quality construction in SG 42 Str. S1's Late Classic phase (despite the accumulation of some interesting items such as the fossil and bark beater) could suggest a plateauing of wealth much as had occurred at Acbalamna (SG 11) around the same time (Walden et al. 2018b). However, additional statistical work is still necessary to corroborate this in a manner similar to recent analysis (Walden et al. 2018a).

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APPENDIX A:
2018 LOWER DOVER SETTLEMENT ARTIFACT INVENTORY

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID#*	*Notes*
SG42-S1	SG42-1	Surface	SG42-1-1	Surface	Ce	0/4		
SG42-S1	SG42-1	Surface	SG42-1-1	Surface	Ch	6		
SG42-S1	SG42-1	Surface	SG42-1-1	Surface	Ls	1	SF# SG42-1-3	Bark beater
SG42-S1	SG42-1	Surface	SG42-1-1	Surface	Ch	1	SF# SG42-1-4	Fossilized *jute*
SG42-S1	SG42-1	Surface	SG42-1-1	Surface	Ob	1		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ce	125/659		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ch	321		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Fs	77		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Qz	10		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ob	1		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Db	5		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ch	1	SF# SG42-1-1	Strange biface
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Gr	1	SF# SG42-1-2	Metate frag.
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ca	1	CS# SG42-1-1	
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Bs	1	SF# SG42-1-5	Basalt metate Frag.
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Uk	1		
SG42-S1	SG42-1	1	SG42-1-2	Humus and collapse	Ms	1	SF# SG42-1-6	Conch spiral
SG42-S1	SG42-1	2	SG42-1-3	Fill below Patio Floor 1	Ce	2/5		
SG42-S1	SG42-1	2	SG42-1-3	Fill below Patio Floor 1	Ch	2		
SG42-S1	SG42-1	2	SG42-1-3	Fill below Patio Floor 1	Fs	1		
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Ce	67/243		
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Ch	49		
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Fs	48		
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Db	1		
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Ch	1	SF# SG42-1-7	Small biface
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Ca	1	CS# SG42-1-2	
SG42-S1	SG42-1	2	SG42-1-4	Terminal fill	Ca	1	CS# SG42-1-3	

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID#*	*Notes*
SG42-S1	SG42-1	3	SG42-1-5	Possible use surface	Ce	38/160		
SG42-S1	SG42-1	3	SG42-1-5	Possible use surface	Ch	121		
SG42-S1	SG42-1	3	SG42-1-5	Possible use surface	Fs	15		
SG42-S1	SG42-1	3	SG42-1-6	Fill behind Wall 1	Ch	16		
SG42-S1	SG42-1	3	SG42-1-6	Fill behind Wall 1	Fs	17		
SG42-S1	SG42-1	3	SG42-1-6	Fill behind Wall 1	Qz	2		
SG42-S1	SG42-1	3	SG42-1-7	Fill below deposit	Ce	32/264		
SG42-S1	SG42-1	3	SG42-1-7	Fill below deposit	Ce	4/59		
SG42-S1	SG42-1	3	SG42-1-7	Fill below deposit	Ch	55		
SG42-S1	SG42-1	3	SG42-1-7	Fill below deposit	Fs	29		
SG42-S1	SG42-1	4	SG42-1-8	Fill behind Wall 3	Ce	1/4		
SG42-S1	SG42-1	4	SG42-1-9	Fill behind Riser 2, below Floor 2	Ce	2/10		
SG42-S1	SG42-1	4	SG42-1-9	Fill behind Riser 2, below Floor 2	Ch	14		
SG42-S1	SG42-1	4	SG42-1-9	Fill behind Riser 2, below Floor 2	Ca	1	CS# SG42-1-4	
SG42-S1	SG42-1	5	SG42-1-10	Fill behind Wall 2	Ce	13/40		
SG42-S1	SG42-1	5	SG42-1-10	Fill behind Wall 2	Ch	53		
SG42-S1	SG42-1	5	SG42-1-10	Fill behind Wall 2	Fs	N/A		
SG42-S1	SG42-1	5	SG42-1-10	Fill behind Wall 2	Ca	1	CS# SG42-1-5	
SG42-S1	SG42-1	5	SG42-1-10	Fill behind Wall 2	Ca	1	CS# SG42-1-11	
SG42-S1	SG42-1	5	SG42-1-11	Fill beneath Patio Floor 1	Ce	0/3		
SG42-S1	SG42-1	5	SG42-1-11	Fill beneath Patio Floor 1	Fs	1		
SG42-S1	SG42-1	5	SG42-1-11	Fill beneath Patio Floor 1	Ca	1	CS# SG42-1-6	
SG42-S1	SG42-1	6	SG42-1-12	Feature 1 fill	Ce	2/5		
SG42-S1	SG42-1	6	SG42-1-12	Feature 1 fill	Ch	2		
SG42-S1	SG42-1	6	SG42-1-12	Feature 1 fill	Mx	1		
SG42-S1	SG42-1	6	SG42-1-13	Floor 3 fill	Ce	5/24		
SG42-S1	SG42-1	6	SG42-1-13	Floor 3 fill	Ch	21		
SG42-S1	SG42-1	6	SG42-1-13	Floor 3 fill	Ca	1	CS# SG42-1-8	
SG42-S1	SG42-1	6	SG42-1-13	Floor 3 fill	Ca	1	CS# SG42-1-7	
SG42-S1	SG42-1	7	SG42-1-14	Feature 2	Ce	0/2		

Area	*E.U.*	*Level*	*Lot*	*Lot Description*	*Class*	*Freq.*	*ID#*	*Notes*
SG42-S1	SG42-1	6	SG42-1-14	Feature 2	Mx	1		
SG42-S1	SG42-1	7	SG42-1-14	Feature 2	Ch	1		
SG42-S1	SG42-1	6	SG42-1-15	Breccia	Ce	11/84		
SG42-S1	SG42-1	6	SG42-1-15	Breccia	Ch	16		
SG42-S1	SG42-1	6	SG42-1-15	Breccia	Db	6		
SG42-S1	SG42-1	6	SG42-1-15	Breccia	Fs	7		
SG42-S1	SG42-1	7	SG42-1-15	Breccia	Ca	1	CS# SG42-1-9	



SF# SG42-1-1: biface frament.



SF# SG42-1-2: Metate fragment.



SF# SG42-1-5: Basalt metate fragment/

ARCHITECTURE AND ACTIVITY AT THE CEREMONIAL CENTER OF XUNANTUNICH: RESULTS FROM THE 2018 FIELD SEASON

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During the 2018 field season, the Xunantunich Archaeological Conservation (XAC) Project, in collaboration with the Belize Valley Archaeological Reconnaissance (BVAR) Project, continued the investigation of Structure A7 at the Classic Maya center of Xunantunich, in west central Belize (Figures 1 and 2). Structure A7 became a focal point of interest when a well-preserved stair containing a Classic Period cache was discovered during preliminary investigations of the structure in the 2016 field season (Tilden et al. 2017; Zanotto and Awe 2017). Excavations in 2017 continued to explore other areas of the structure, notably a large depression at the summit associated with initial excavations conducted in the early 1900's (Gann 1925). Research during the 2018 field season sought to answer several questions regarding the function of Structure A7 in relation to Plaza A-I, and the tempo of its construction compared to nearby monumental structures and the overall civic-ceremonial center of Xunantunich. Addressing these questions through archaeological investigation clarifies our understanding of large scale activity in the ceremonial core including how the Maya invested in monumental construction over time, and what functions they prioritized when constructing spaces.

BACKGROUND

Xunantunich Background

The Classic Maya ceremonial center of Xunantunich became a prominent political entity within the eastern Maya lowlands during the Samal Phase (~AD 600-670). Xunantunich achieved political sovereignty during the Late-Terminal Classic, associated with the Hat's Chaak phase (AD 750-900), a time when neighboring Maya polities were already in decline (LeCount et al. 2002:41; Yaeger 2005:5). The Classic Maya collapse, a still highly debated topic, saw the disintegration of dynastic rulership, a shift in cosmological worldview, and the demographic abandonment of many political centers (See Culbert 1973; Shaw 2003). Scholars and the general public have long been intrigued by the events leading to the collapse and the various ways which different polities reacted to the mounting socio-political tension (Demarest 1996), ecological degradation (Deevey et al. 1979), and drought (Hoggarth et al. 2017; Kennett et al. 2012). In this regard, Xunantunich provides a rare opportunity to examine a polity that endured longer than many of its peers,

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providing new insight on why the ruling elite of Xunantunich persisted and continued to legitimize their power (Zanotto et al. 2016; Watkins et al. 2018).

Previous Excavations at Structure A7

Structure A7 is a pyramidal structure situated alongside the most prominent structure in the site core, Structure A6 or 'El Castillo', in Plaza A-I. Although dwarfed by El Castillo, Structure A7 reaches approximately 11 m in height from the terminal plaza floor, mirroring many of the other structures situated around Plaza A-1. Structure A7 is one of five structures in Plaza A-I that still has an associated stela erected in its original position, although this stela is not carved. Prior to 2016 Structure A7 had not been systematically investigated using modern archaeological methods (See Gann 1925). Because extensive archaeological work has been conducted on the neighboring structures, the XAC project saw A7 as an opportunity to complete the assessment of the main plaza. Investigations were initiated in 2016 to understand the function and purpose behind Structure A7. Such excavations consisted of an exploratory horizontal unit (EU A7-1) extending from the plaza level stela along the central axis of the eastern facade of the structure. These investigations revealed a penultimate structure below the terminal phase of construction consisting of three well-preserved steps, showing evidence of a complete stair, as well as a cache (Tilden et al. 2017). The documentation of the penultimate structure led researchers to question the temporal development of A7 in relation to other monumental buildings at Xunantunich. Several structures in the site core show evidence of having Preclassic platforms or deposits (LeCount and Yaeger 2010), however, Preclassic complex architectural features had yet been identified at the hilltop center. Additional excavations conducted in 2016 included a 2x2 m unit place around the associated stela in front of the building, though excavations did not yield any cultural material. Further details of the 2016 research at Structure A7 can be found in the 2016 BVAR progress reports (Tilden et al. 2017). In 2017, excavations (EU A7-3) identified a section of a defaced stair (Figure 3) ascending the eastern face of the structure and terminating at 2.8 meters below datum A7-001(see Figure 4 for datum location). Penetration into the defaced stair revealed the earlier summit of a pen-ultimate structure, implying the presence of at least two construction phases of Structure A7. These excavations were continued during the 2018 field season and are described below.

RESEARCH QUESTIONS AND METHODS

Prior to the XAC Project excavations at Xunantunich, Thomas Gann was the first to examine Structure A7 in 1924. These early investigations shaped the 2018 research questions for further exploration of Structure A7, which marked the fourth season of archaeological investigation at the building by the XAC Project. The 2018 research program was designed to answer two research questions, which intended to clarify the development, function, and commissioning of the structure itself as well as its temporal relationship with the broader ceremonial core. Two specific questions which guided the 2018 investigations are:

1) What was the function of Structure A7 and what does this purpose imply about the location of the structure within Plaza A-I and the overall center?

2) What is the chronological sequence of construction for Structure A7 and how does that fit with the dating of Xunantunich?

Archaeological methods used throughout the 2018 field season included the following strategies and protocols. Elevations for each excavation unit was documented using datum A7-001. Soil consistencies were documented for each lot using "Texture by Feel" methods (see Thien 1979). Both natural and cultural changes in stratigraphy were observed and used as indicators for changes in archaeological lots. All artifacts recovered during excavation were analyzed at the on-site laboratory. Subsequently, each bag of artifacts were logged in the artifact inventory, washed according to the BVAR Project laboratory procedures, and placed out to dry. Once dry, total frequencies per bag were recorded and all artifacts were stored for future research and analysis. Ceramic analysis of diagnostic sherds was conducted using the local ceramic typology (Gifford 1967). All carbon samples were exported to The Pennsylvania State University for AMS ^{1}4C analysis.

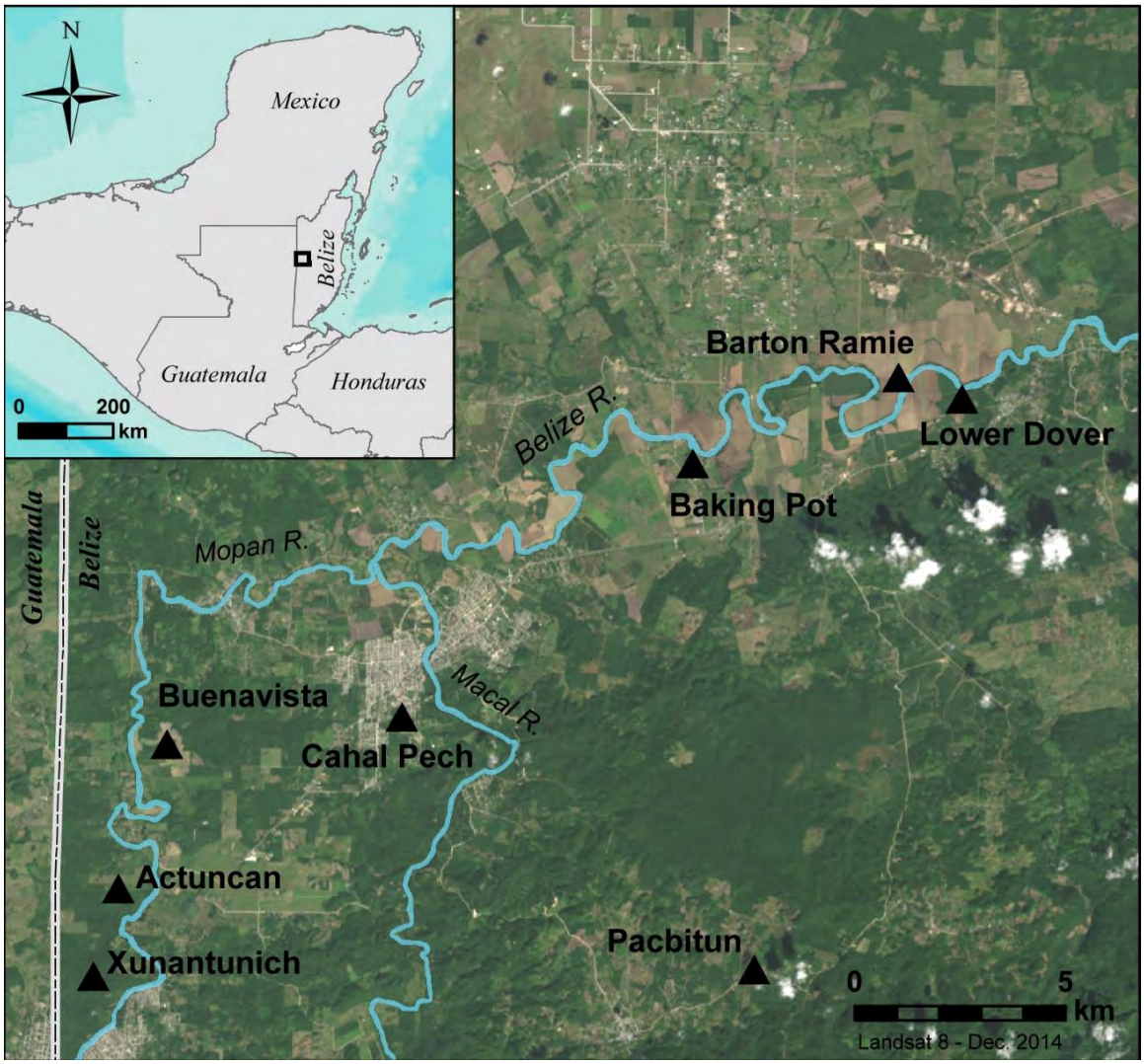


Figure 1: Map of the Belize River Valley (map by Claire Ebert, 2017).

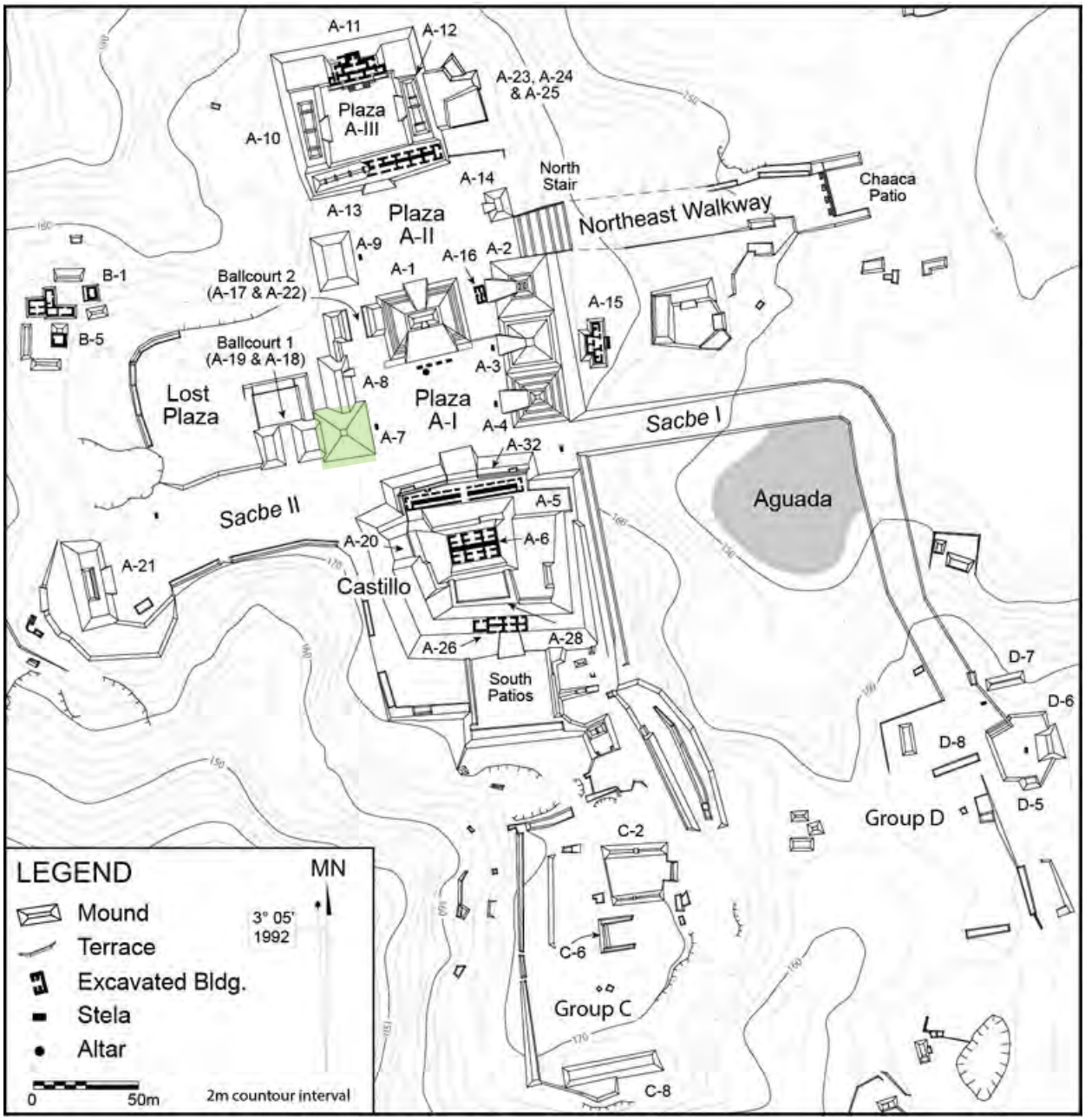


Figure 2: Map of the Xunantunich site core with Structure A7 highlighted (LeCount and Yaeger 2010).

Excavations

Four excavation units were opened on Structure A7 over the past three field seasons (Figure 5). Units A7-1, A7-2, and A7-3 were all oriented along the central axis of Structure A7, measured from the stela. Excavation unit (EU) A7-1 was first opened in 2016 with initial investigations focusing on the central stair of the eastern façade of the building and measured 2 m N/S and extended 10 m in length E/W. Unit A7-1 also included two small tunnels penetrating the terminal architectural fill northward from the central stair. Ascending west, toward the summit and adjacent to EU A7-1 is EU A7-3, opened in the 2017 field season. At the close of the 2018 field season, EU

A7-3 measured 2 meters N/S by 2 meters E/W and also encompassed a small tunnel penetrating the first construction phase southward from the center of the penultimate platform. A unit at the summit of Structure A7, EU A7-2, was opened during the 2017 field season to conduct preliminary investigations of the remnants of Gann's 1920's explorations of the building. EU A7-2 measured 3 meters N/S by 3 meters E/W, having been expanded from the original dimensions (See Tilden et al. 2017) to encompass the geometric center of the structure. Excavation unit A7-4 was implemented as a solidary tunnel used to locate the northeast corner of the penultimate structure, allowing for a clearer picture of the longitudinal extent of the earlier construction phases of Structure A7. Three tunnels were excavated into the heavy mortar construction material between the penultimate construction and the terminal phase of architecture during the 2018 field season. The goal of tunnelling was to locate the penultimate structure to better define its north-south dimensions, while preventing further damage to the architectural integrity of the structure. A fourth tunnel was also implemented within the construction fill of Structure A7-3rd to follow the architecture of the fourth construction phase (see Excavation Results section below).



Figure 3: Portion of terminal phase of architecture, defaced construction stair.

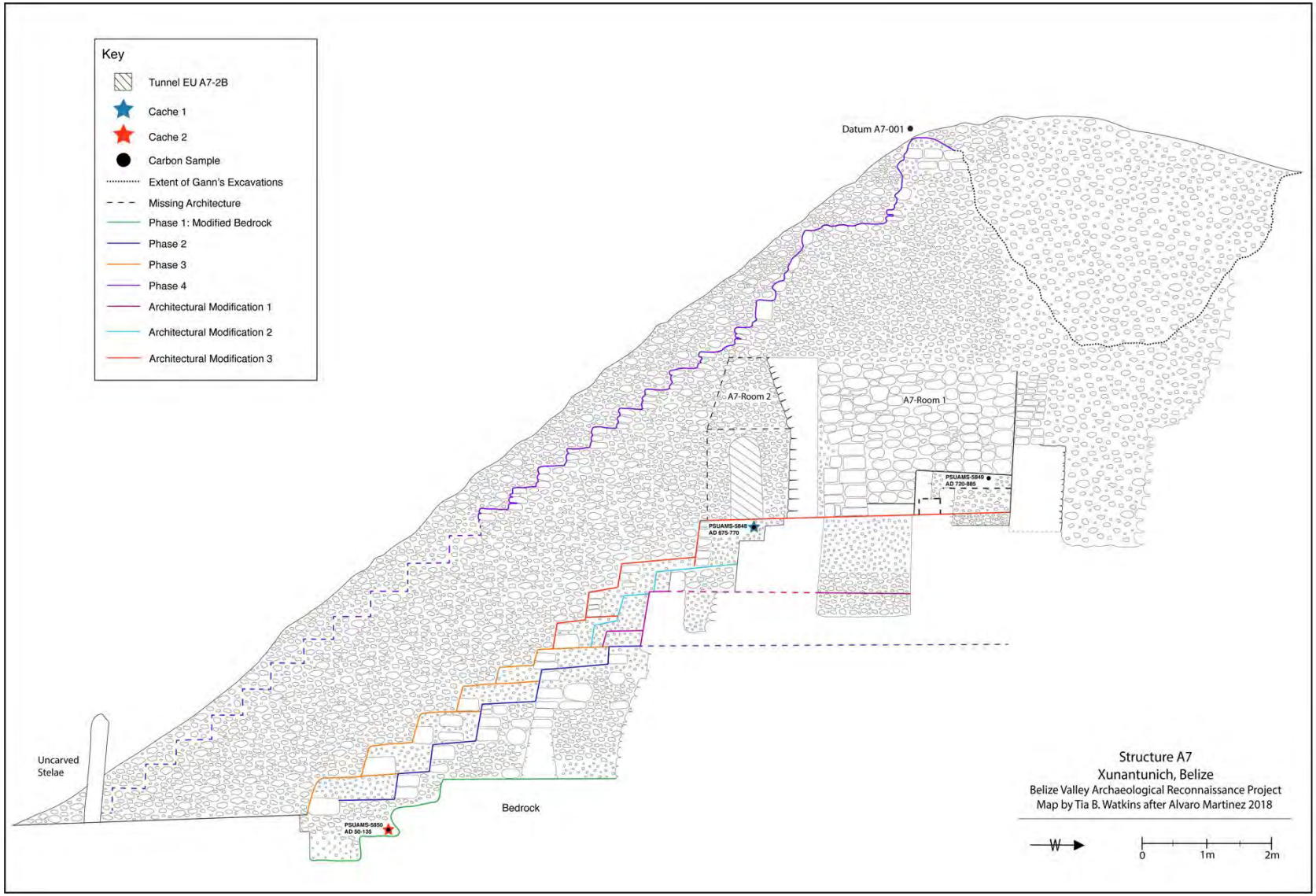


Figure 4: Profile of Structure A7 with delineated construction phases.

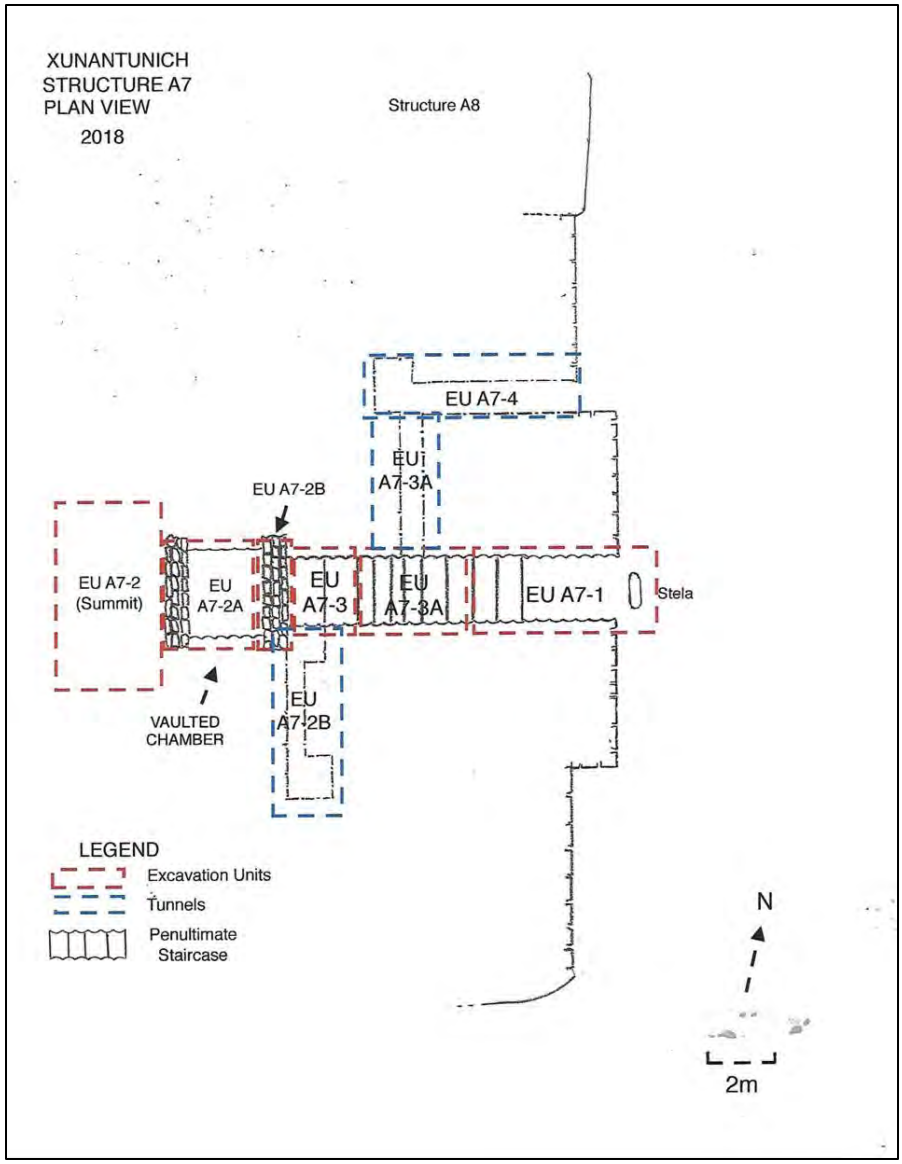


Figure 5: Plan view of Structure A7 showing excavation units and tunnels.

EXCAVATION RESULTS

Results from the 2018 field season revealed Structure A7 to have four construction phases, the earliest being a small masonry structure built atop modified bedrock (See Figure 4), which relatively dates to the Middle to Late Preclassic period according to seriation of associated materials (See Ceramic Analysis section). The construction sequence proved to be more complex than the other structures in the Xunantunich civic-ceremonial center, surpassing the three phases distinguished at El Castillo (see LeCount 2010). Each construction phase was given a title, the terminal or final phase being Structure A7-Fourth, the pen-ultimate being A7-Third, below A7-Second, and the earliest evidence of construction is A7-First. The following paragraphs discuss the details of each architectural phase starting with the terminal construction phase as it was the first to be encountered throughout the investigation of Structure A7.

Construction Phase: A7-4th

The construction core that supports this final architectural phase of Structured A7 has distinguishable variation in the types of fill and the methods used during the process of construction. Noticeable differences in fill material can be seen between the eastern half of the structure and the western half. The eastern half of Structure A7-4th is supported by 3 meters of *sascab*-like, wet-laid mortar core, which covers an area of 11.2 m by 14 m (See McCurdy 2016). The thick construction matrix transitions into a layer of cobble and then to dry-laid fill 4 meters west from the eastern structural façade (Loten and Pendergast 1984). The balance of the structure does display the common construction technique of chamber and fill construction often found throughout within the monumental architecture at Classic Xunantunich. A portion of the A7-4th stair was documented 1 m below the humus surface of Structure A7 end displayed evidence of having been defaced in antiquity (Figure 3). It can be assumed that during its use, the terminal stair would have been dressed with facing stones and a plaster finish.

In 2017, excavations at the summit of A7 exposed two chert eccentrics, situated in dry-laid construction fill. Our excavations of Structure A7-4th during the 2018 field season uncovered four additional eccentrics within the next 1.5 m. The eccentrics call into question Thomas Gann's narrative of his 1924 excavation of A7 in which he claims to have implemented a 3.7x3.7 meter unit at the central summit of the building, excavating to a depth of 7.62 m where he found a wall. However, the presence of the eccentrics, which we found were at a depth starting at 3.24 meters and distributed over a broad area, make it unlikely the area had been previously disturbed. In addition, the change in matrix seen in the baulk stratigraphy clearly defines the bottom of Gann's excavation, ending at 2.4 m from the summit. This implies that the eccentrics were not found in primary context and perhaps were included in Gann's backfill materials.

Construction Phase: A7-3rd

The penultimate architectural phase consisted of a smaller pyramidal platform with masonry superstructure, measuring approximately 7 meters in overall height or 5.6 meters below the summit datum. The base of A7-3rd is rectangular in form and measures 11.2 meters E/W and approximately 15 meters N/S. The superstructure of A7-3rd has two walls oriented north-to-south which provide the support of two vaulted rooms, Room 1 and Room 2. The eastern vault and supporting wall in Room 2 were removed in antiquity to allow for the terminal phase of architecture to be constructed (See Figure 4).

The central stair of this building consists of 10 well-preserved, plastered steps which display a similar architectural style to Preclassic temples, such as well-rounded stair nose and battered risers (Figure 6) (Doyle 2017:39; Loten and Pendergast 1984). Penetration of the stair revealed steps 1 through 6 were constructed primarily of uniformed mortar. Steps 7 through 10 were different in construction and style, with facing stones and a series of plastered risers and treads indicating multiple modifications (See Figure 4). Steps 1-4 and steps 7 and 8 are of similar dimensions, with an average rise of 39 cm and a tread of 52 cm. Notably, steps 5 and 6 are smaller in rise at 22 cm, this could be the result of trying to match the successive modifications made throughout the construction of A7-3rd. Excavations penetrated the northern baulk to follow step 5 by tunnel (EU A7-1 Ext. B) to better understand the northern extent of structure A7-3rd. The

evidence of modifications indicates the first version of A7-Second may have terminated at the level of the stair block (step 6) and implies the additional stair and the summit above step 6 are later expansions or alterations of the structure. The penultimate summit is constructed on top of a platform which runs from the riser of step 10 and extends west 4.7 m, connecting to the western wall of the penultimate architecture.



Figure 6: Cross section of Structure A7-3rd central stair, showing rounded stair nose.

Investigations of the A7-3rd superstructure revealed many more architectural modifications in the form of two vaulted rooms. The western room (Room 1) was documented in Unit A7-2 Ext A, which extended 3.76 m east-to-west. Stratigraphically, Room 1 displayed evidence of intentional decommissioning through the placement of large boulders directly atop a bench inside the room and associated steps. The room was then filled with earth, followed by dry-laid fill. This method of filling resulted in increased architectural preservation, safeguarding several incised graffiti characters on the western wall of the room. Analysis of graffiti effigies including interpretation and decipherment is not yet complete and will be reported on in following reports. However, some images are included to provide visual context (Figure 7 and 8). The bench in Room 1 measured 1.4 meters in width E/W and the associated stair 68 cm in width. We penetrated both the bench and stair to understand the modification sequence of the room. Below the primary bench we were able to locate an earlier bench. In addition, the step associated with the benches was constructed atop the A7-3rd summit platform, appearing to be a later addition.



Figure 7: Structure A7, Room 1 bench and western wall with preserved graffiti.

Additional evidence that Room 1 was intentionally closed off can be observed with the blocking of the door jamb leading into the room. East of Room 1 is Room 2, which appears to have been constructed after Room 1 was closed off. Room 2 (Unit A7-3) measured 1.32 meters E/W with only the western wall including spring vault and lintel post hole still remaining in tact. The western wall extends approximately 3 meters southward from the central stair and is connected to what appears to be a column like door jamb, no further investigations were completed in this tunnel (unit A7-3 Ext. A). Evidence of extensive burning of the platform floor in Room 1 existed near the center of the room near western wall. Investigations of the burned area revealed a small cache of four lance shaped biface points (see below).



Figure 8: Example of preserved graffiti on the west wall of Room 1.

Construction Phase: A7-2nd

Construction phase A7-2nd was documented through the continuation of trenching the extent of the central stair directly underneath the sixth step of the penultimate building A7-3rd. Structure A7-2nd consisted of a 2.3 meter tall platform with a central stair consisting of four steps leading to the summit of the platform. The base of the structure measured 4.6 meters E/W. It appears that any summit of A7-2nd was removed to accommodate the construction of the first phase of A7-3rd. Again, due to the thick construction matrix hindering our ability to expose architecture, we were not able to determine the longitudinal extent of A7-2nd.

Construction Phase: A7-1st

The earliest construction phase at Structure A7 was documented 8.6 meters below the summit datum and 50 cm below A7-2nd. This building consisted of a single step and platform constructed from modified bedrock. A low-laying masonry wall sits atop the bedrock, measuring 1.10 m in height and extending more than 2.5 meters northward from the center point of the excavation unit. We were unable to follow the wall farther north as the construction fill between A7-1st and A7-2nd, a dry-laid fill, was very unstable and unsuitable for deep tunneling. The wall showed evidence of having been deconstructed to accommodate for the subsequent construction of A7-2nd. The masonry work of the early wall is uniform, using cut stones and placed strategically, however no remnants of plaster were preserved. A single cache (Cache A7-2018-002) was found situated atop the modified bedrock consisting of two half vessels nested within one another (See Notable Artifacts section).

Artifact Analyses

While many distinct artifacts were recovered from Structure A7, the data obtained from the overall collection provides new insight on the development and behaviors of Maya at Xunantunich. Ceramic analysis was conducted by the lead using the type-variety for the Belize Valley (Gifford 1967). Graffiti from the western wall in Room 1 was documented using Reflectance Transformation Imaging (RTI) and Photogrammetry methodology by Leszek Pawlowicz (Northern Arizona University) and is still in the initial phases of analysis and decipherment.

Notable Artifacts

As previously stated, many notable finds were recovered during these investigations. First to be discussed are the eccentric lithics found at the summit of Structure A7 in Units A7-2. Eccentric lithics are defined and understood by many as multifaceted chipped-stone artifacts, which are thought to have no utilitarian function but served as ritual implements (Sullivan 2017; Iannone 1993; Iannone and Conlon 1993; Meadows 2001). In total, six eccentric lithics were recovered from the summit of A7 during the 2017 and 2018 field season varying in morphological shape and size.

Additionally, a high frequency of molded stucco fragments were recovered throughout the excavations, primarily from Units A7-2 and A7-3. The presence of stucco fragments within construction fill is common at Xunantunich and suggests possible defacement of stucco adornments prior to subsequent architectural modification or construction (see Tilden et al. 2017:329; Watkins et al. 2018). All stucco fragments recovered from the 2018 field season have preserved red pigment, with one fragment having blue pigment (Figure 9). The large size of the stucco pieces suggest that they came from a monumental decoration such as a mask, however additional evidence for this type of architectural decoration is presently lacking.

Two caches were encountered during the 2018 excavations of Structure A7. The first cache, (Cache A7-2018-001), was discovered 3 cm below the summit of stair 10 of Structure A7-third (Figure 10). This area was investigated out of interest in the presence of heavy burning on the plaster surface. The cache consisted of four complete laurel leaf bifacial knives. The blades were neatly stacked one on top of the other and oriented north-to-south. Kathrine Reese-Taylor and Rachel Horowitz (personal communication 2018) have suggested that the chert used to produce the blades is local the Xunantunich area.



Figure 9: Three examples of stucco fragments found within the fill above Structure A7-2nd.



Figure 10: Cache A7-2018-001, four laurel-leaf bifacial knives *in situ*.



Figure 11: Contents from Cache A7-2018-001, four laurel-leaf bifacial knives.

The second cache was found positioned *in situ* on the modified bedrock of A7-1st. A small depression was carved below the modified step, where the cache was interred and consisted of two halves of two different ceramic bowls, one Sierra Red and the other Savana Orange, placing this cache during the Late Preclassic period. The two halves were just nested within one another and were placed within the alcove, which protected the cache from damage during the construction of A7-Third (Figure 12). Both halves of the vessels contained a significant amount of charcoal remains, which have been submitted for analysis. The placement of the cache suggested it was interred after A7-1st was decommissioned but before the construction of A7-2nd since its location would have been problematic and too delicate for a public area.

Ceramic Analysis

Ceramic analysis was conducted on all diagnostic sherds recovered from the Structure A7 excavations. For the purpose of this analysis, diagnostic features were indicated by presence of vessel rim, paint, special features such as a spout, figurine fragments, or any other specific decorative element. Presence of vessel rim was the most frequent diagnostic characteristic used for this analysis. A total of 381 ceramic sherds were examined for this analysis (Table 1).



Figure 12: Cache A7-2018-002, showing both halves of the vessels atop the modified bedrock.

Ceramics recovered from the construction fill of structure A7-4th date primarily to the Spanish Lookout phase (AD ~700-900) (Figure 13). This pattern is fairly common for Xunantunich as the center saw tremendous development during the Late Classic period. Analysis of ceramic materials from below Structure A7-3rd indicate higher frequency of ceramic phases dating to the Middle to Late Preclassic period, such as Savana Orange, Jocote Orange Brown, and Reforma Incised. This may suggest that earlier construction phases of Structure A7 can be linked to the Preclassic period through relative dating and material association.

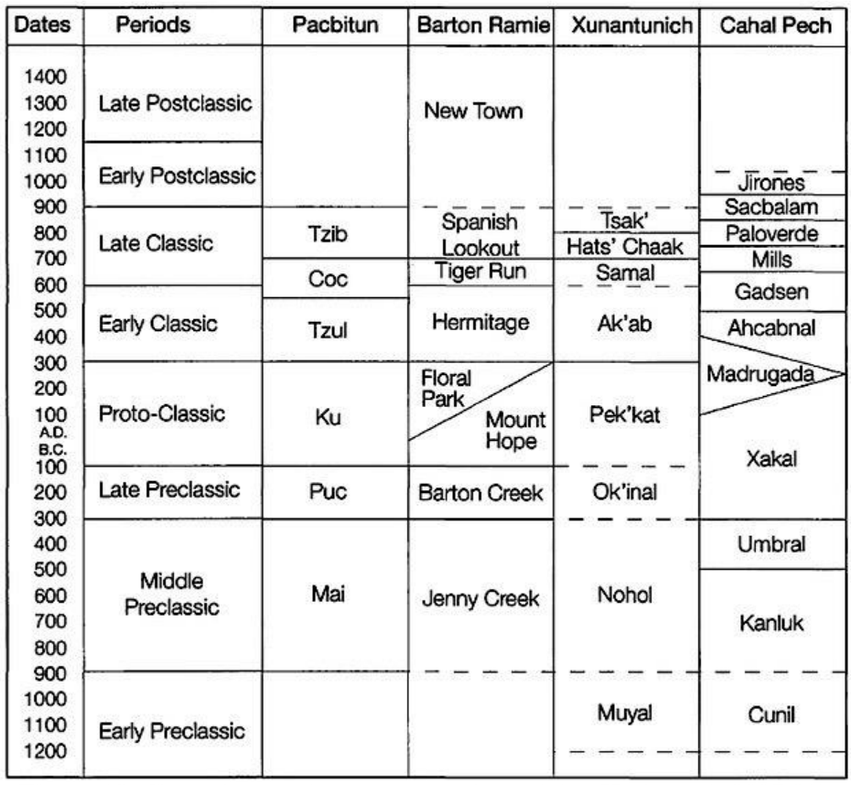


Figure 13: Chronology and ceramic complexes (after Healy et al. 2007:21).

Table 1: Analysis of ceramic complexes present per construction phase, using the Barton Ramie Type-Variety. Data are listed by percent of sherds in ceramic complexes per construction phase. Percentages are rounded to the nearest tenth.

Ceramic Complex	*A7-Fourth*	*A7-Third*	*A7-Second*	*A7-First*
Jenny Creek	1.4%	50.5%	78.6%	50.0%
Barton Creek	2.7%	8.4%	19.6%	50.0%
Mount Hope				
Floral Park				
Hermitage	1.4%	3.2%	1.8%	
Tiger Run	1.0%			
Spanish Lookout	93.9%	37.9%		
Total	**100%**	**100%**	**100%**	**100%**

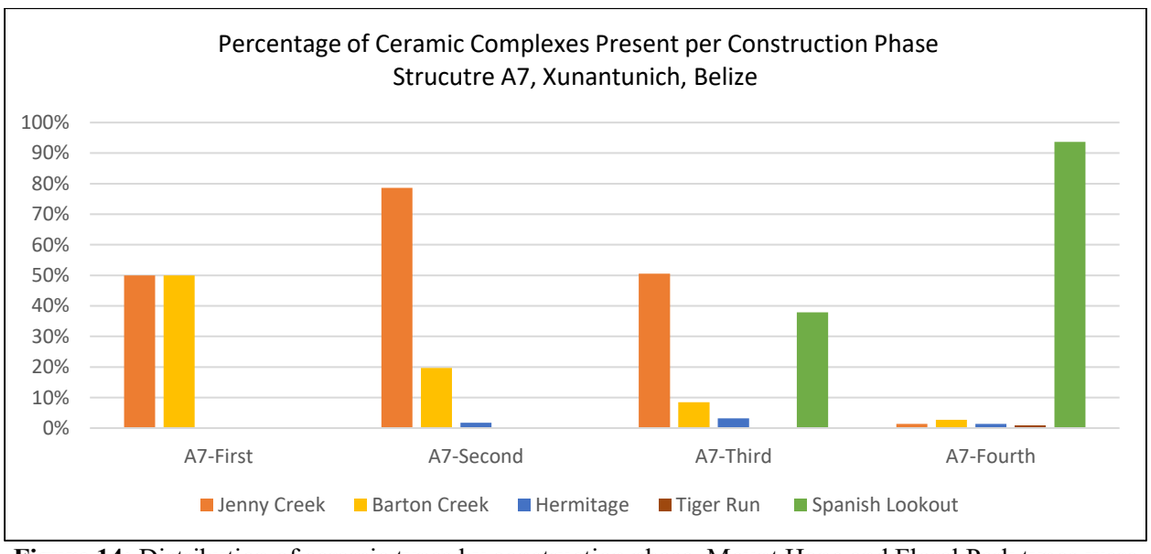


Figure 14: Distribution of ceramic types by construction phase, Mount Hope and Floral Park types were removed from the graph as their values were 0 (See Table 1).

AMS ^{14}C Analyses

Samples of charcoal were analysed by The Pennsylvania State University Energy and Environmental Sustainability Laboratories, Radiocarbon Laboratory. A total of three samples were collected during the 2018 field season. Each sample collected from Structure A7 was documented *in situ* upon discovery to retain contextual data of the carbon itself. All samples were collected from below an architectural surface to ensure a cultural relationship between the AMS ^{14}C results and the structure itself (see Figure 4).

Calibrated date ranges from the A7 radiocarbon dates presented in below in Table 2. Sample XUNR4 is the earliest in date, and is associated with Structure A7-2nd (Figure 13). Sample XUNR2 displays a much later date, being situated roughly around the transition of the Early Classic into the Late Classic period. The latest date in the overall sample comes from XUNR3, which presents a typical Late Classic period for the hilltop center of Xunantunich.

Table 2: AMS ^{14}C Results.

PSUAMS #	***Sample ID***	***Context Description***	***2-σ Calibrated Date Range***
PSUAMS-5848	XUNR2	EU A7-3-2, Cache A7-2018-001	AD 675-770
PSUAMS-5849	XUNR3	EU A7-2-3, Rm 1 Below Bench	AD 720-885
PSUAMS-5850	XUNR4	EU A7-1-3, Cache A7-2018-002	AD 50-135

CONCLUSIONS

The results from the 2018 field season proved to be eye opening and pose new questions for future researchers to explore early activity at the hilltop center of Xunantunich. The most notable information to come from these investigations is the series of construction phases present at A7. To date, this is the only building within the Xunantunich ceremonial center known to consist of four phases of intense rebuilding, in addition to several architectural modifications. This suggests that throughout the occupation of Xunantunich, Structure A7 served a function of importance to the centers inhabitants from its earliest founding. As Structure A7 is comparable to the many other pyramidal temples at Xunantunich in overall size, the expenditure of labor and resources used to maintain, modify and rebuild A7 throughout the years would have been costly in comparison to the erection of a similar temple in one or two phases (See Abrams 1994; McCurdy 2016). It may be considered that the structure's significance within the ceremonial core could have reinforced the maintenance and upkeep of the structure over time. The evidence of several caching events held at A7 further corroborates the structure's importance and cosmological ties (Awe 2008; Garber and Awe 2008).

Additionally, a distinct attribute of the terminal phase of A7 is how it encapsulated and entombed the penultimate structure, A7-3rd, with up to 3 meters of uniform white mortar. This entombment of the earlier structure is consistent with identified Maya termination rituals that span from the Late Preclassic to the Late Classic (Duncan 2014; McNeil 2012; Wagner 2006). The entombment further emphasizes the likely importance of this structure within Xunantunich epicenter (Wagner 2006:61).

The seriation of ceramic materials recovered from each construction phase prior to the terminal phase at Structure A7 support a relative associated chronology dating to the Middle-Late Preclassic. Further, the results from AMS $^{1}4C$ analysis provided evidence of activity at Structure A7 from the Proto-Classic and Late Classic periods. Both the relative and absolute dates for Structure A7 suggest the building may be the first to display continuous usage, rebuilding, and maintenance from the hilltop center's earliest founding (Jameson 2010; LeCount 2010). Further research at the hilltop center is needed to gain a better understanding of other earlier monumental structures and their chronological span in relation to Structure A7.

These results from the 2018 field season proved to answer our initial research questions while simultaneously sparking new inquiries and ideas regarding Maya practice at the hilltop ceremonial core of Xunantunich. The identification of the impressive construction sequence of Structure A7 and possible early activity at Xunantunich implores further investigation of early activity at the hilltop center. Targeting questions of early activity at the hilltop center of

Xunantunich will aid in the understanding of the overall development of this impressive Maya center.

Acknowledgements Immense gratitude is given to the co-directors of the Belize Valley Archaeological Reconnaissance project, Dr. Jaime J. Awe and Dr. Julie Hoggarth, for fostering a healthy and supportive work environment and for encouraging all who participate on this project to peruse their goals wholeheartedly. Research by the Xunantunich Archaeology and Conservation project would not be possible without the support of the Tilden Family Foundation. We thank our project collaborators at The Pennsylvania State University Radiocarbon Laboratory for their skilful expertise. Additionally, the authors would like to thank the Institute of Archaeology and the National Institute of Cultural Heritage, Belize for allowing this research to take place in their beautiful country. We thank the entire local archaeological crew who helped and participated in the 2018 field season, notable mentions go to the Can family, Cunil family, Puc family all of whom play a significant role in making this research possible. Special thanks goes to don Antonio Norales, Alvaro Martinez, and Jairo for bringing their archaeological knowledge and skills attained at Naranjo, Guatemala to Xunantunich, this seasons feats would not have been possible without you. Thank you to all of the BVAR staff and students for creating and maintaining a positive and pleasant atmosphere, with notable thanks to Claire Ebert, John P. Walden, J. Britt Davis, and Tucker Austin for being both wonderful friends and incredible mentors. Finally, we thank all of our fellow archaeologists who visited Xunantunich this summer and provided helpful opinions, new perspectives, and insight on Structure A7 and its complex construction.

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APPENDIX A:
STRUCTURE A7 SPECIAL FINDS INDEX

Eu	*Lvl*	*Lot*	*Lot Description*	*Class*	*Bag*	*Freq*	*Notes*
A7-2A	1	A7-2A-3	Below A7-Fourth	SC	2/3	2/2	Stucco Mask Frags
A7-2A	1	A7-2A-3	Below A7-Fourth	LS	3/3	1/1	Polished Limestone Pebble
A7-2A	1	A7-2A-3	Below A7-Fourth	SC	1/1	3/3	Stucco Mask Frags
A7-2A	3	A7-2A-6	Rm 1 Sm Bench	SC	1/1	4/4	Stucco Mask Frags
A7-3	2	A7-3-2	Rm 2 Bench	CH	3/6	1/1	Cache 1, Laurel Leaf Biface
A7-3	2	A7-3-2	Rm 2 Bench	CH	4/6	1/1	Cache 1, Laurel Leaf Biface
A7-3	2	A7-3-2	Rm 2 Bench	CH	5/6	1/1	Cache 1, Laurel Leaf Biface
A7-3	2	A7-3-2	Rm 2 Bench	CH	6/6	1/1	Cache 1, Laurel Leaf Biface
A7-2	1	A7-2-1	Gann Backfill	CH	1/1	6/6	Chert Eccentrics
A7-1	3	A7-1-3	Below A7-Second	CE	1/1	2/2	Cache 2, Partial Vessels
A7-2A	1	A7-2A-3	Below A7-Fourt	CE	1/1	13/13	Polychrome Frags
A7-1	3	A7-1-3	Below A7-Second	CE	1/1	1/1	Chocolate Pot Spout

INVESTIGATIONS AT BALLCOURT 1 & 2 AT XUNANTUNICH, BELIZE

Cassandra L. Feely
Northern Arizona University

INTRODUCTION

This report details the 2018 excavations conducted at Ballcourt 1 and Ballcourt 2 by the Belize Valley Archaeological Reconnaissance (BVAR) project as part of the Xunantunich Archaeological and Conservation Project (XAC). Xunantunich has two ballcourts, both located in the Xunantunich monumental epicenter. Ballcourt 1 is located adjacent to Sacbe 2, to the west of the Castillo and directly behind Structure A7, and is composed of Structures A18 and A19. Ballcourt 2 is located on the west side of Structure A1, between Plazas A1 and A2, and is composed of Structures A17 and A22 (Figure 1). While this ballcourt was originally situated on the western edge of the large main plaza, the construction of Structure A1 resulted in it becoming a passage between Plazas A1 and A2, with Structure A1 built over Structure A22 (Jamison 1996). The primary goals of excavations at bout ballcourts was to (1) establish a basis for comparison between the two ballcourts and (2) to expose and conserve the architecture of Ballcourt 2.

BACKGROUND

Xunantunich rose to prominence during the Late Classic period (AD 500-750) and persisted through to the Terminal Classic (AD 750-900; LeCount and Yaeger 2010). This rise in power likely due in part to the polity's political connection to the large political power of Naranjo located to the west in the Petén region of Guatemala (Ashmore 2010). The discovery of part of the Caracol hieroglyphic stair at Structure A9 at Xunantunich further strengthen the evidence of these ties (Helmke and Awe 2016). Helmke and Awe (2016) suggest that Naranjo took the hieroglyphic stair when they sacked the site of Caracol, and the presence of the panel at Xunantunich suggests that Naranjo may have bestowed it upon the Xunantunich elite (Helmke and Awe 2016). Political affiliation often manifests in the architecture of important spaces (Ashmore and Sabloff 2002). Thus public architecture, such as ballcourts, is an excellent place to glean insights into the political relationships of Xunantunich during this phase of Belize Valley prehistory. Our investigation was specifically looking for insights into the political relationship between Naranjo and Xunantunich.

The Tourism Development Project (TDP), a project started by Belize's Ministry of Tourism and Culture, undertook previous work at Ballcourt 1. This work included both investigative and conservatory efforts. Horizontal excavations exposed the architecture of Structures A18 and A19, and determined that they were built in a single construction. The conservation of these buildings was completed in 2001 (Jaime Awe, personal communication 2018). Notably, while no ballcourt markers were encountered during excavations, fragments of two ballcourt rings were found. Earlier work done in Ballcourt 1 by the Xunantunich Archaeological Project focused on establishing the chronology for the construction of Structures

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A7 and A18 (Jamison 1996). These investigations were inconclusive. TDP concluded that Ballcourt 1 was constructed at the end of the Classic period.

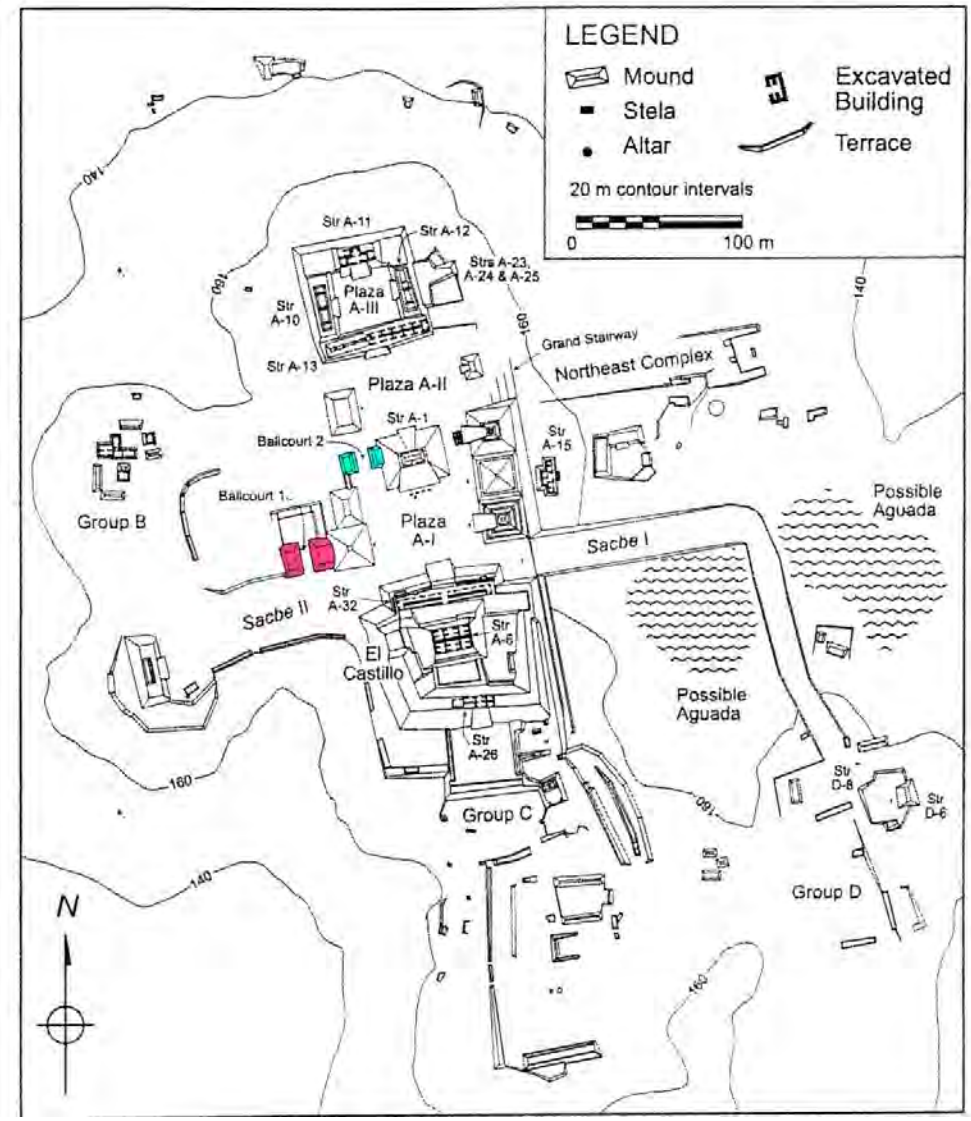


Figure 1: Map of Xunantunich site core with ballcourts highlighted (after Lecount and Yaeger 2010).

Structure A17, the western structure of Ballcourt 2, was previously excavated in the early 19th century, resulting in damage to the building's center (Jamison 1996). Other than this, the majority of previously work done in Ballcourt 2 was carried out by XAP. The relationship between Structures A1 and A22 was investigated by XAP, and information that is more detailed can be found in their 1996 field report. In short, it was determined that Structure A1 was built on top of Structure A22, and Terrace 1 of Structure A1 may have been built in a sloped fashion to merge with the top of A22 (Jamison 1996). Structure A17 connects to Structure A8 on the southern side end. XAP determined that at least the northern end of Structure A8 was built before the construction of A-17, though this could not be determined on the southern end of A8 (Jamison 1996).

In 1994 XAP also excavated in the center of the playing alley of Ballcourt 2, revealing cache consisting of a sub-adult burial, interred in a flexed position (Jamison and Wolff 1994). Excavation produced numerous fragments of unworked slate and a large amount of *jute*. Grave goods found with this burial included mostly marine shells, *jute* (*Pachychilus* sp.), chert flakes and ceramic sherds. The ceramics dated to the Middle Preclassic (900-300 BC) and the Late Classic periods, leading Jamison and Wolff (1994) to conclude that Ballcourt 2 was constructed in the Late Classic.

EXCAVATIONS

Ballcourt 2

Excavations in Ballcourt 2 consisted of total of16 units. Excavations in the playing alley began with one 2x1 m unit located in the southern end, along the centerline. After the discovery of Cache 1, an additional 2x2 m unit was placed in the northern end of the ballcourt. After the discovery of Cache 2 and 3 the first unit was expanded. After the discovery of Cache 4 four more units were placed in the playing alley. Three 2x1 m units were located in the northern end, south of the first, spaced 50cm apart. One additional unit was placed in the southern end of the playing alley, 50cm north of the initial unit where Cache 1 was found (Figure 2).

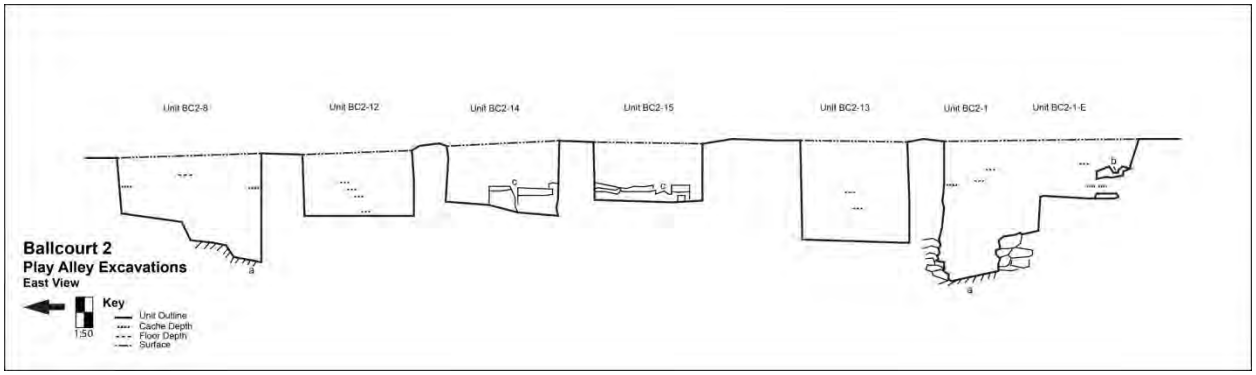


Figure 2: East-facing profile of the units excavated in Ballcourt 2's playing alley, depicting cache and floor levels. A. bedrock B. roots C. earlier structure.

The horizontal excavations on Structures A17 and A22 were initially split into four units on each structure. Two further units were opened on A22, one to expose the point at which A-22 articulated with A-1 and the other to determine the structure's relationship with the playing alley floors. Datums were set at ground level.

Unit BC2-1

The first unit we placed was in the southern end of the playing alley of Ballcourt 2. We measured from the yet unexcavated Structures A22 and A17 to determine the center of the playing alley. Using the intact architectural facades of A22 and A17, we determined the southern edge of the playing alley. We lined the southern end of the unit up with this line. Originally, the unit was 2x1 m, oriented north to south. The discovery of Cache 1 in the northern end of the ballcourt

necessitated expanding it by 5 0cm. The first level consisted of a hard packed humus, brown sediment and small roots, with a small amount of ceramics. Approximately 33 cm below datum we exposed the Floor 1, a degraded, which was true of all floors found in the playing alley. The fill beneath this floor was the same brown sediment but with a noted increase of artifacts found. In addition to ceramics and chert, freshwater and marine shells were present. A second floor was found approximately 17 cm under the first. The fill of Floor 2 was indistinguishable from the fill under Floor 1. All units in the Ballcourt 2 alley had a similar composition. Cache 1 was found in this level at approximately 68.5 cm below datum (the modern groups surface). In total, 41 eccentrics were associated with Cache 1, which consisted of large lip-to-lip vessel. Additionally stingray spines were found in the vessel. It appeared that the cache might have been placed in another floor that had been broken into. This was only determined after the cache had been removed and further excavation had been done. Unit BC2-1 was excavated all the way down to bedrock.

BC2-1-E

This sub-unit was an extension of BC2-1, expanding the southern edge to the south by another meter. BC2-1 and BC2-1-E in total were 3.4 m in length, north to south. The sole purpose of this unit was to determine if Cache 1 was paired, as Cache 2 and 3 had been in the northern end of the play alley. It was determined Cache 1 did indeed have a pair, when Cache 4 was located 71 cm below datum. The 13 eccentrics associated with this cache were placed directly in the fill of the floor.

BC2-8

BC2-8 mirrored BC2-1 in the northern edge of the playing alley. Only one floor was found in this unit. Under Floor 1 were Caches 2 and 3 at 49 and 55 cm below datum, respectively. Both were found located in the fill of the floor. While nine eccentrics were associated with Cache 2, a total of 24 were associated with Cache 3.

BC2-12 and BC2-13

After finding four caches along the centerline of the playing alley, in addition to the cache burial found by XAP, we decided to expand excavations in Ballcourt 2 to span the entirety of the unexcavated portions of the playing alley. BC2-12 and BC2-13 were part of this endeavor. In addition, excavating these provided more insight into the stratigraphy of the playing alley. BC2-12 had four floors, 48, 60, 72, and 97 cm below datum, respectively. BC2-13 had two floors located 84, and 110 cm below datum.



Figure 3: A south facing view of Ballcourt 2 through the stages of excavation and conservation. The photo shows pre-excavation, the middle indicates locations of excavations units, and the bottom shows the ballcourt after conservation.

BC2-14

At approximately 78 cm below datum, evidence of earlier an earlier structure was encountered directly underneath Floor 1. The floor associated with the structure was 35 cm lower than the top of the structure, located at 113 cm below datum. Following this, we decided to put another unit into the center, which had been previously excavated to uncover more of the earlier structure.

BC2-15

BC2-1 was mostly backfill from XAP's excavations in the center of the playing alley, and no floors were encountered. Following the discovery of evidence of an earlier structure under BC2-14, more was uncovered in BC2-15. The top of a series of limestone slabs was 78 cm below datum, with the floor of the structure a further 31cm lower, 109 cm below datum.

A17 and A22

Excavations on both Structures A17 and A22 were initially divided into four units. The purpose of these was to uncover the architecture of the underlying structure (Figure 3). Units BC2-2, BC2-9, BC2-10. and BC2-11 were on Structure A17. Units BC2-3 and BC2-4 were the initial units on Structure A22. These eight units consisted of dark brown soil, roots, rocks, and collapse from neighboring structures. While there were small amounts of ceramics and chert found on both, A22 also produced several special finds. These were two large chert bifaces and a piece of carved limestone.

A further two units were focused on Structure A22. BC2-7 penetrated into the structure on the southern end. This determined that there was possibly a plaza floor that had been cut through to build the ballcourt and its play alley at some point. The other unit was BC2-16, located on the northern end of A22, with the purpose of exposing the connection between A-1 and A-22 (Figure 4). Excavations on A22 uncovered a portion of the bench with several layers of plaster exposed (Figure 5). After excavations exposed the ballcourt architecture, the structures were then conserved (Figure 6).



Figure 4: The architectural articulation of Structures A22 and A1 before (top) and after (bottom) conservation.



Figure 5: Plastering on Structure A22's bench.



Figure 6: Structure A22 before (top) and after (bottom) conservation**.**

Earlier Structure

In BC2-14 and BC2-15, we uncovered evidence of an earlier structure. Roughly 109 cm below the surface in both units was flat limestone blocks (Figure 7). XAP identified these as the remains of a platform, but did not have time to excavate further (Jamison and Wolff 1994). Our excavations extended further and we were able to determine that the platform extends 290cm north/south, with the southern edge just north of the center of the ballcourt. The platform also appears to continue to the east, though the extent of this was not determined due to time constraints. A plan view map was made of the platform that was excavated (Figure 8).



Figure 7: Units BC2-14 and BC2-15 with earlier structure under the ballcourt exposed.

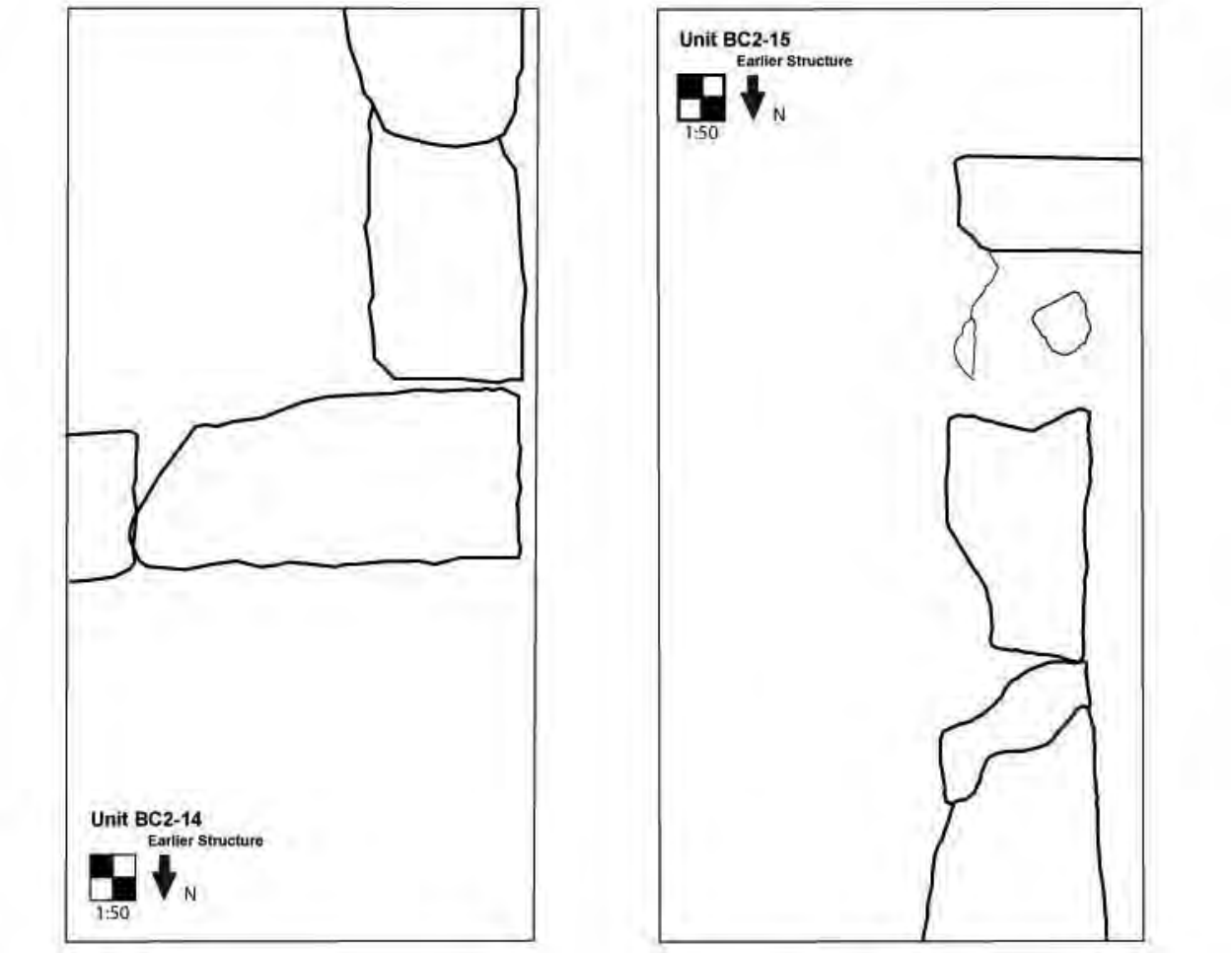


Figure 8: Plans of the earlier structure found under Ballcourt 2.

Ballcourt 1

Excavations in Ballcourt 1 were far more limited than those in Ballcourt 2 because Structures A18 and A19 had previously been excavated and conserved. Four units were placed in Ballcourt 1, three in the playing alley and one on a step on the southern end of A-19. The three units in the playing alley were 1x2 m units, placed in similar positions as the units in which caches were found in Ballcourt 2 (the southern and northern edge, and the center; Figure 9). The goal was to compare caching practices in each ballcourt. No caches were found in Ballcourt 1, but all four units contained small flakes of obsidian not present in Ballcourt 2. All three units in the playing alley hit bedrock (Figure 10).

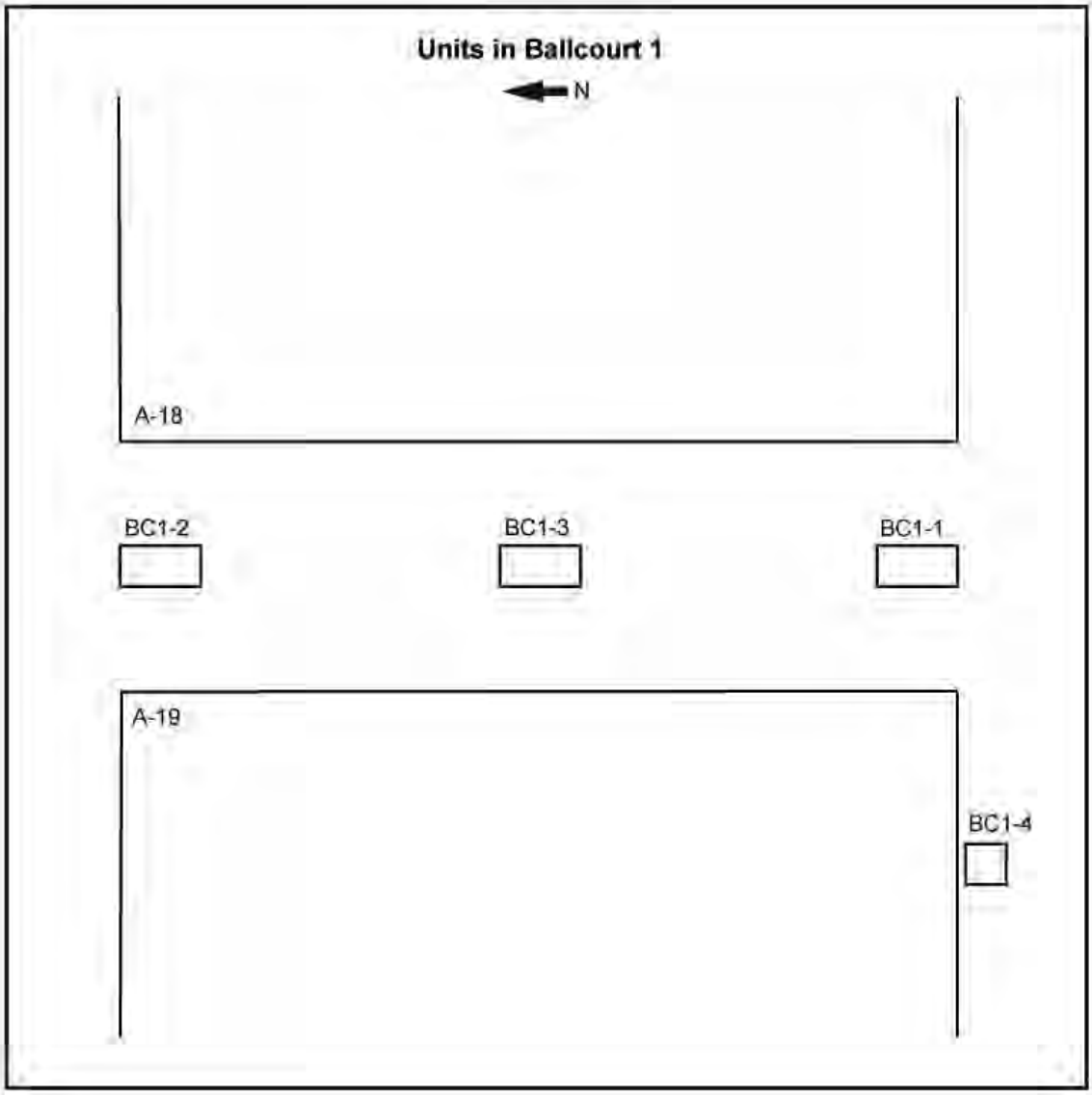


Figure 9: Plan of units placed in Ballcourt 1.

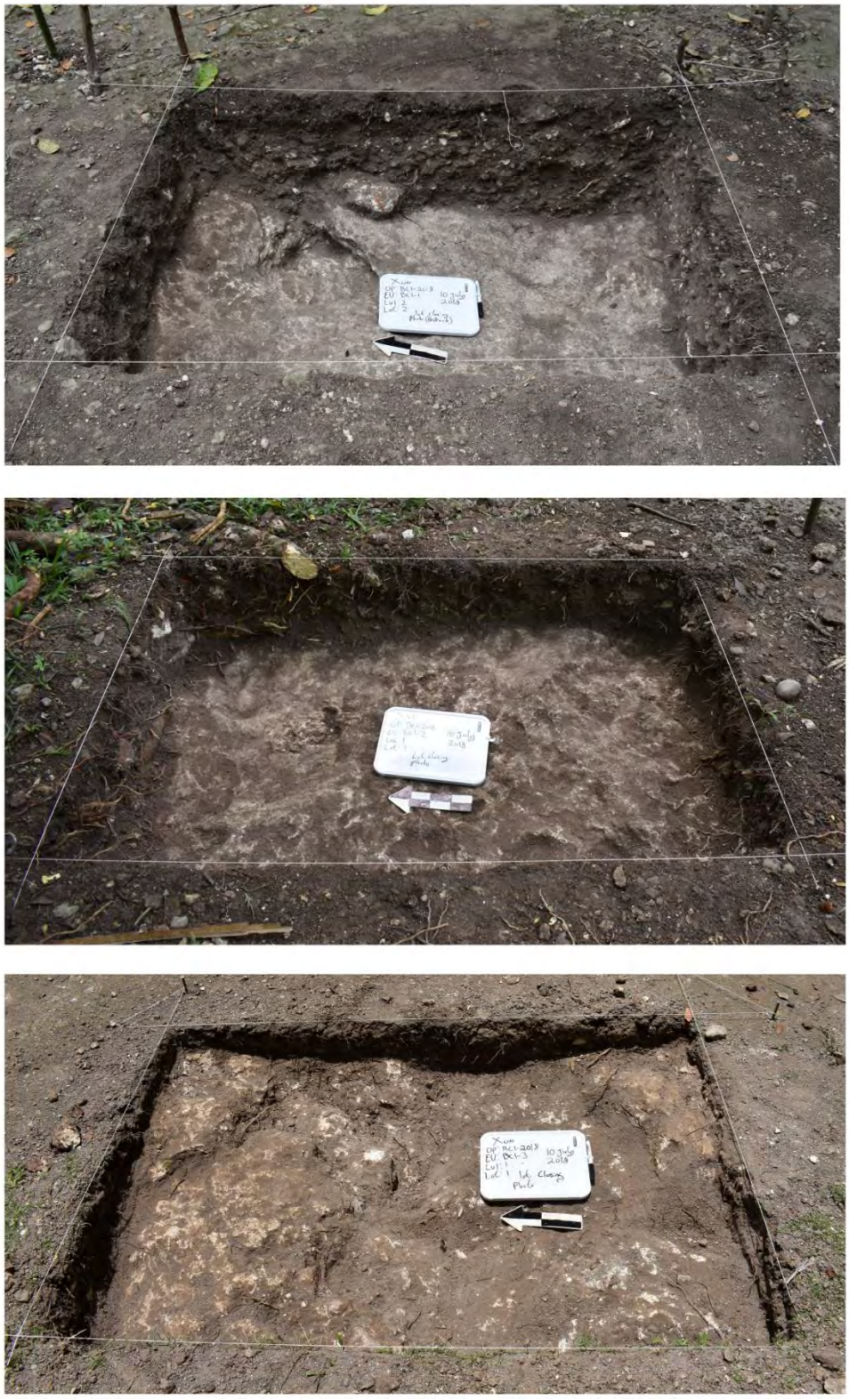


Figure 10: The three units placed in Ballcourt 1's playing alley with exposed bedrock: BC1-1 (top), BC1-2 (middle), and BC1-3 (bottom).

BC1-1

BC1-1 was in the southern end of the playing alley along the centerline. There was one floor approximately 3 cm down, and bedrock was located approximately 27 cm below that. Above Floor 1 was humic soil with medium brown sediment, similar to Ballcourt 2. The fill under Floor 1 was composted of loose brown sediment that contained chert artifacts and ceramics. In this floor fill there freshwater and marine shell, along with small flakes of obsidian, was also present. No cache was found in this unit.

BC1-2 and BC1-3

BC1-1 was located along the center line of the playing alley in the northern end. BC1-3 was located in the center of the play alley. BC1-2 hit bedrock 26 cm below datum, and BC1-3 hit bedrock 55 cm below datum. The sediment in both was medium brown, and had small amounts of chert and ceramics, as well as small flakes of obsidian.

BC1-4

BC1-4 was a 1x1 meter unit placed on a stair on the southern edge of the western structure of Ballcourt 1 (Figure 11). This unit was placed because ballcourts occasionally have caches in the structures themselves (Fox 1996). A floor was found 58 cm down into the stair. Above the floor was loose light brown sediment. Another floor was located 7 cm under that one, probably representing a re-plastering event. Bedrock was hit 72 centimeters under that. While the first three levels produced small amounts of ceramics and chert, the fill beneath the final floor produced more, as well as more flakes of obsidian.



Figure 11: A view of the stair BC2-4 was placed in, and the closing picture of the unit.

ARTIFACTS

Ballcourt 2

Artifacts found in Ballcourt 2 included chert, ceramics, slate, and freshwater and marine shell. The fill under the various floors consisted of chert debitage and small fragments of ceramics.

The ceramics poorly preserved. Notably, there was a strong presence of Preclassic types, predominantly Savana Orange (Jenny Creek ceramic complex, 900-300 BC), though no contexts were determined to be purely Preclassic. A very small amount of slate was also found. Across all units in the playing alley, *jute* was present in the fill of the floors, along with a few fragments of marine shell.

Ballcourt 1

Ballcourt 1 produced chert, ceramics, freshwater shell, and obsidian. The chert was all debitage, and the ceramics were poorly preserved. The ceramics that could identified were predominantly Late Classic types (Spanish Lookout ceramic complex, AD 750-900). Each unit also produced tiny obsidian flakes, all smaller than a centimeter in diameter.

Caches

Excavations in Ballcourt 2 uncovered four separate caches, two in each end of the playing alley, containing a total of 86 eccentrics. Cache 1 and 4 were found in the southern end of the playing alley, while Cache 2 and 3 were found in the southern end. Caches 2, 3, and 4 were found deposited directly in the fill of the floor. Cache 1 was more elaborate. The forms of the eccentrics ranged from ancestor profiles, to scorpions, birds, rings, cave mouths, and a quatrefoil. Some were flakes with no discernible shape. All eccentrics can be found in the appendix.

Cache 1 was in the southern end of the playing alley and consisted of 14 eccentrics surrounding a large lip-to-lip cache, 31cm in height (Figure 12). Inside of the lip-to-lip cache, a further 28 eccentrics were found, along with one fully intact stingray spine and the broken pieces of at least two more. While roots had grown up through the vessel we were able to pull both sides of the vessel out of the unit complete (Figure 13). We pedestaled the inside of the vessel, to preserve the layout of the eccentrics (Figure 14). Of the 42 eccentrics, ten were obsidian. All of the obsidian eccentrics found in all four caches were exhausted cores, modified or unmodified (Figure 15). The chert eccentrics came in a number of colors, ranging from red to white (Figures 16 and 17).



Figure 12: The vessel of Cache 1 in Situ. The hole in the top vessel was modern.



Figure 13: Top and bottom halves of the lip-to-lip cache.



Figure 14: Pedestaled inside of Cache 1's lower vessel.



Figure 15: Two of the obsidian eccentrics from Cache 1 with the modified and unmodified sides. All obsidian eccentrics in all four caches were exhausted cores.



Figure 16: A Selection of the eccentrics found surrounding the lip to lip vessel of the first cache



Figure 17: A selection of the eccentrics found inside cache 1

Cache 4 was the last cache found, located to the south of the first cache, slightly beyond the edge of the ballcourt structures. This cache consisted of 14 total eccentrics, six of which were obsidian (Figure 18). This cache was found sitting in the floor fill, though a large root had disturbed it.

Cache 2 was the northern most cache and consisted of nine eccentrics, three of which were obsidian (Figure 19). Cache 3 was the second cache found in the northern end of the playing alley and consisted of 24 eccentrics, seven of which were obsidian (Figure 20). Both caches were found in the fill of the floor they were under.



Figure 18: A selection of eccentrics from Cache 4.

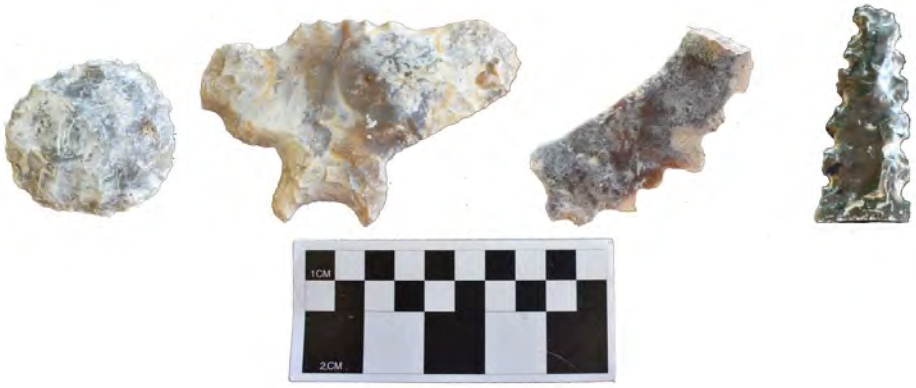


Figure 19: A selection of eccentrics from Cache 2.



Figure 20: A selection of eccentrics from Cache 3.

CONCLUSIONS

The purpose of these investigations was to create a comprehensive comparison between Ballcourt 1 and Ballcourt 2. This turned out to be a much more extensive process than originally expected, due to the discovery of such extensive caching in Ballcourt 2. Still the result of the excavations provides a stark contrast between the two ballcourts.

Through our horizontal excavations of Structures A17 and 22 we were able to create a profile of Ballcourt 2, which we could then use to compare to the profile of Ballcourt 1 created by TDP (Figure 21). When juxtaposed the differences in style became apparent (Figure 22). Ballcourt 1 has a profile more in line with the style of ballcourts found further north in the Yucatan peninsula, including ballcourt rings on upright playing walls. In comparison, Ballcourt 2 has a local profile. While Ballcourt 1 and Ballcourt 2 date roughly to the Late Classic (~AD 600-700), they show remarkably different stylistic connotations and possible political associations.

The architecture of Ballcourt 1, being more northern in style, suggests that there was an effort by the elites of Xunantunich to create a connection between themselves and an outside influence. Also important to note is that in the central Maya lowlands only four ballcourt rings have been identified. These include Ballcourt 1 at Xunantunich, and ballcourts at Naranjo, Tonina and Xultun to the west of Xunantunich. While ballcourt rings are generally Yucatecan, the ballcourt ring measurements of the ring found at Xunantunich are closer to measurements taken from a ballcourt ring found at Naranjo compared to those found in the Yucatan peninsula (Jaime Awe, personal communication 2018)

The extensive caching in Ballcourt 2 may indicate wealth and influence. Dedication rituals are important public ceremonies and events that elites can use to display their affluence. The large lip-to-lip cache, 86 total eccentrics, and the burial cache found by XAP may be a sign of the elite flaunting their wealth. Conversely, neither our investigations nor those of TDP found caches in Ballcourt 1. This may be indicative of the elites making a more hollow show of wealth and power.

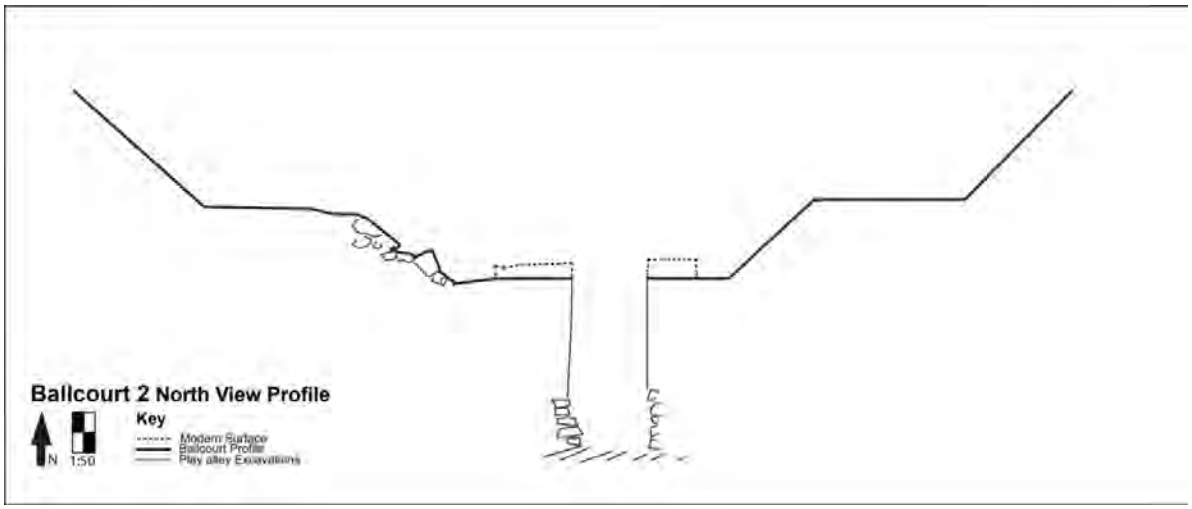


Figure 21: North facing profile of ballcourt 2.

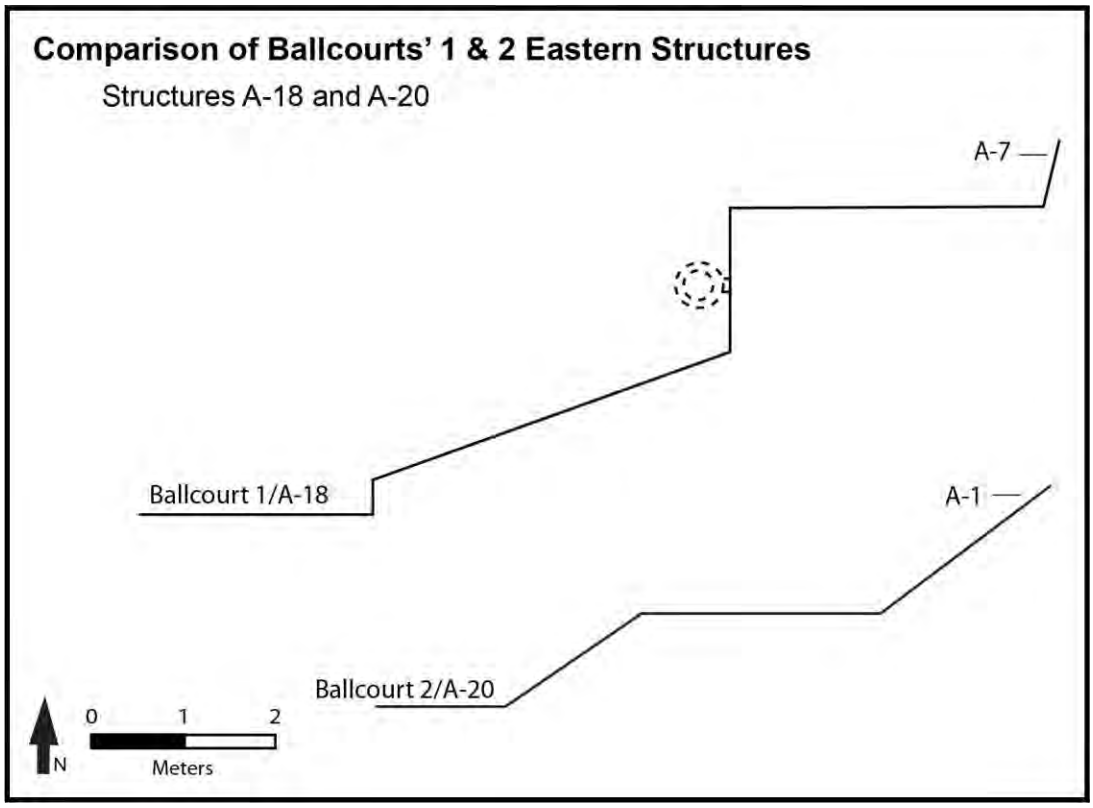


Figure 22: Comparison of the profiles of Ballcourt 1 and 2. Ballcourt 1 profile provided by Jaime Awe.

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INVESTIGATIONS OF NON-MONUMENTAL FEATURES AT PLAZA AI, XUNANTUNICH

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Northern Arizona University

INTRODUCTION

This report presents the findings from the 2018 Belize Valley Archaeological Reconnaissance (BVAR) Project excavations within Plaza A-I at the site of Xunantunich. These excavations focused on understanding the construction and function of several non-monumental features located around the plaza. In this report, the term "non-monumental features" includes platform and walls present in the site core of Xunantunich. The presence of non-monumental features within monumental centers are common place amongst several Late and Terminal Classic sites within the Belize River Valley. The goal of this research is to provide a detailed analysis of the non-monumental features at Xunantunich and, in conjunction with previous research of similar features at nearby sites, provide a regional explanation for these phenomena. This report focuses on the initial findings from excavation and analysis of cultural materials recovered.

BACKGROUND

Xunantunich is located in western Belize along the Mopan branch of the Belize River (Figure 1). Xunantunich (Figure 2) began its development between AD 600-670 (LeCount et al. 2002), reaching its apogee during the Late-Terminal Classic period (AD 750-900). The Classic Maya collapse, which occurred during this time, culminated with the end of dynastic rulership and the abandonment of major political centers, including Xunantunich (Shaw 2003). Although it is not completely understood, suggested causes of the collapse include ecological degradation, social tension, and drought (Deevey et al. 1979; Demarest 1996; Hoggarth 2017). It is believed that Xunantunich was not abandoned in a brief, catastrophic event but gradually over the course of several generations. The gradual abandonment and dwindling population of the site constricted the use of the monumental center to the use of potentially two, if not one, of the three main plazas, with Plaza A-I functioning as the primary public space for the site (Leventhal 1996).

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2018 Field Season, edited by Claire E. Ebert, John P. Walden, Julie A. Hoggarth & Jaime J. Awe, Volume 24, pp. 294-315. Department of Anthropology, Northern Arizona University, Flagstaff; Institute of Archaeology, Baylor University, Waco. © 2019

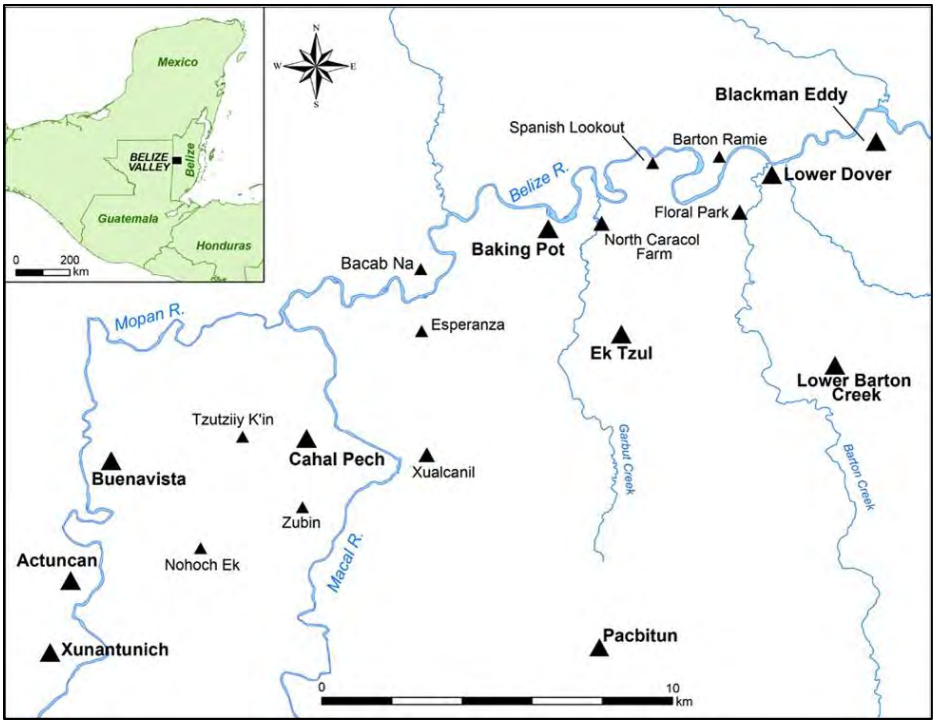


Figure 1: Map of Belize River Valley showing several of the major and minor centers (map by Claire Ebert, 2018).

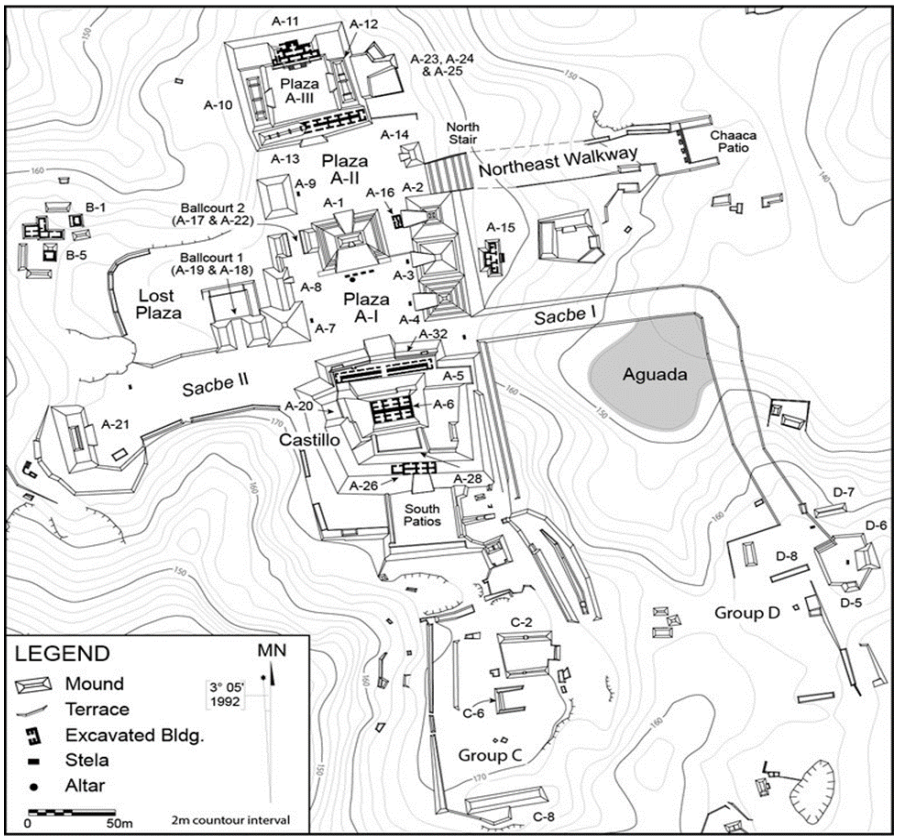


Figure 2: Plan of Xunantunich's monumental center (LeCount and Yaeger 2010).

Plaza A-I is the southernmost of two large public plazas located within the monumental center of Xunantunich. Several structures encompass the plaza. Structures A2 and A3 comprise the eastern side of the plaza. The western side of the plaza consists of Structure A7. Structure A1 forms the northern boundary of the plaza, separating it from Plaza A-II. Structure A6 (El Castillo) dominates the southern boundary of the plaza. There are four access points to Plaza A-I located at each corner. The northern entrances provide access to Plaza A-II via an alley to the east of Structure A1 and through Ballcourt 2 to the west of Structure A1. The southeastern and southwestern accesses to the plaza are possible from Sacbe 1 and Sacbe 2 respectfully. Plaza A-I's central location, accessibility, and spatial relationship to El Castillo provide evidence that the plaza was an important locale for public ritual (Leventhal et al. 1994).

The non-monumental features that are the focus of this research occupy the northern, southern and eastern portions of the plaza. Two platforms abutting Structure A1's southern face on either side of the central stair extend into the plaza. A similar set of platforms flanking El Castillo's northern face make up the extent of the southern non-monumental features. To the east of Plaza A-I, several walls are visible extending into the plaza from Structure A3 and A4's western faces. Additionally, the remains of a wall extending from the central stair of Structure A3 to the southeastern corner of Structure A1 can be seen.

While extensive research has been conducted on the monumental structures surrounding Plaza A-I, little research has targeted the plaza level and non-monumental features within the plaza (Santasilia and Tilden 2016; Watkins and Tilden 2019, see chapter in this report; Zeleznik 1993). In 1992, during the exposure and excavation of Structure A1 by the Xunantunich Archaeological Project, the two small platforms abutting Structure A1 were discovered (Jamison 1992). These platforms were noted and measured, but no units were placed to investigate these features. Additionally, the low wall extending across Plaza A-I's northeastern access was discovered, but no solid explanation for the wall could be determined based on the limited excavations employed to investigate the feature. In 1995, XAP excavated the eastern edge of Plaza A-I directly in front of Structures A3 and A4 (Lewis 1995). The excavations targeted several linear features that extended from the structures at the plaza level, physically and conceptually joining the two structures, according to Lewis. It was determined that the linear features were sequential construction phases of platforms bridging Structures A3 and A4. The platforms were all constructed during the Late Classic. Audet (2006) returned to this area, penetrating the platforms and plaza floor to bedrock. Audet determined that the plaza had been constructed in three phases all dating to the Late Classic, but did not report on findings from the fill materials of the actual platforms.

EXCAVATION METHODS

Three operations were undertaken during the 2018 field season. All excavation units (EU) were assigned to one of these operations (Figure 3). Although the majority of excavations targeted the plaza level, each operation was defined by the monumental structure associated with the excavation. We targeted non-monumental features and access points to Plaza A-I as the focus of our excavations. The excavations were placed primarily within the plaza, with the exception of a single operation located along the alley that provided access to the plaza from the northeast. Within the plaza, excavations penetrated three platforms located around the plaza. Two of the platforms

are located along the northern face of Structure A1, at the north of the plaza. One of the platforms is located along the northern face of Structure A6, to the south of the Plaza. Two additional excavation units were placed along the western faces of Structures A3 and A4. These two units penetrated the plaza floor. Unless otherwise noted, all excavations terminated after exposing bedrock. Measurements for all excavation unit dimensions, depths, and illustrations were produced using a metric scale. Unit sizes and depths will be discussed on an individual basis later in this report.

For all excavation units, a lot and level system was employed. Levels were defined as cultural or stratigraphic. Cultural levels are typically defined by the presence of a formal floor of plaster or packed earth. Stratigraphic levels were defined by a change in soil composition or color. No arbitrary levels were used. Lots were used to group collections of artifacts for later analysis. Lots could change depending on the contents of an excavation. Changes in lots can result from the presence of concentrations of artifacts, soil stains, presence of archaeological features, etc. Lots could change independently of levels but were always changed if a new level was opened.

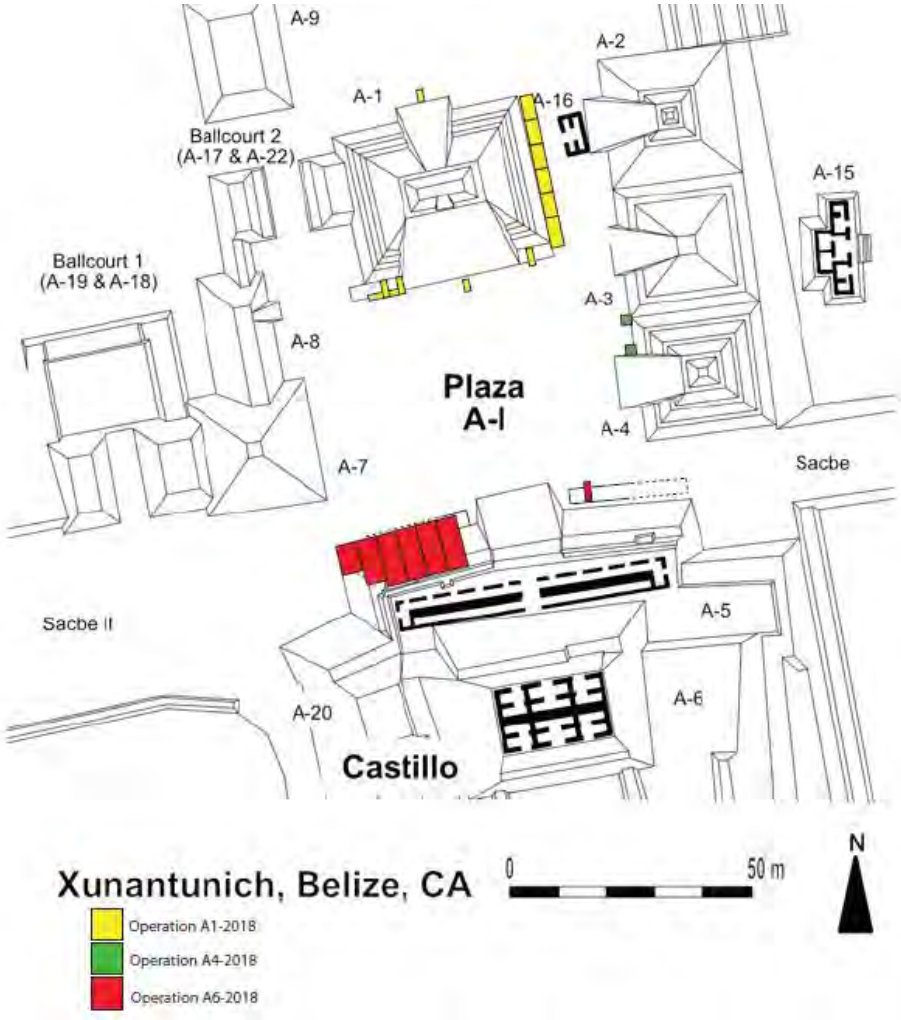


Figure 3: Map of Plaza A1 showing excavation unit locations, color coded by operation. Map by Jaime Awe, modified by author.

OPERATION A1-2018

Operation A1-2018 focused on two objectives: penetrate the platforms abutting the southern face of Structure A1 and clear the eastern face of Structure A1. Excavation of the two platforms provides information on construction sequences, chronology, and potential function. The purpose of excavating the collapse on the eastern face of Structure A1 was to provide information on the potential restriction of access between Plaza A-I and A-II as a result of the wall extending from Structure A1 and A3. Additionally, the excavation of the eastern face of Structure A1 opened access for modern tourists moving around the site. Operation A1-2018 will be discussed by unit. Artifact types will be mentioned, but detailed counts and analysis will be discussed in a following section.

EU A1-1 through A1-6

Excavation units A1-1 through A1-6 were located along the eastern face of Structure A1. The entire face was excavated as a single action (Figure 4). EU A1-1 through A1-6 were created to delineate any artifact concentrations or features that were discovered. EU A1-1 is 6x3 m along a north/south axis. A1-1 was extended by one meter to the south to include the wall extending from the southeast corner of Structure A1. EU A1-2 through A1-5 are all 5 x 3 m along a north/south axis. All units were excavated with a single lot and level. The units terminated after exposing the plaza floor. Artifact types recovered from these units include ceramics, chert, marine shell, slate, and ground stone. Special finds from these units include a Miseria Appliqued censer, two chert bifaces, an anthropomorphic figurine arm, an olivella shell tinkler, and a slate eccentric (Figures 5 and 6). The excavations exposed the intact basal facing stones along the east face of Structure A1. The intact facing stone were consolidated after the excavations were complete.



Figure 4: EU A1-1 (left) at the southern end of Structure A1's eastern face and EU A1-6 (right) at the northern end. Note the wall extending from the southwest corner of Structure A1 (left).



Figure 5: Miseria Applique sherds recovered from multiple units along the east face of Structure A1.



Figure 6: Images of a ceramic, anthropomorphic figurine arm (left) and a slate eccentric (right).

EU A1-7

EU A1-7 was a 1x1 m unit placed at the centerline of Structure A1's eastern face. The eastern edge of the unit abutted the structure. The purpose of the unit was to provide chronological and spatial information about Structure A1 in relation to the plaza floor. The unit penetrated down approximately 30 cm before exposing bedrock. Two additional floors were located below Floor 1. Few artifacts were recovered from each level. Non-diagnostic ceramics were the only artifacts recovered below Floor 1 and Floor 2. Below Floor 3 several non-diagnostic ceramics and a single chert flake were recovered. This test unit provided little additional data for the greater understanding of Structure A1.

EU A1-8

EU A1-8 was a 1.5x4 m unit along an east/west axis. The unit extended westward from Structure A1's central stair. The purpose of this unit was to expose the southern face and corners of the platform (referred to as Platform 1) to the southwest of Structure A1. The excavation was conducted as a single lot and level, ending after exposing the platform and plaza floor. Unfortunately, the southwestern corner of the platform was not found. The facing stones ended after approximately three meters (Figure 7). Another unit, A1-9, was opened to test for the southwest corner of the platform. The exposed platform extended 50 cm past Structure A1's stair, into the plaza. Ceramics were the only artifact type found during the excavation.

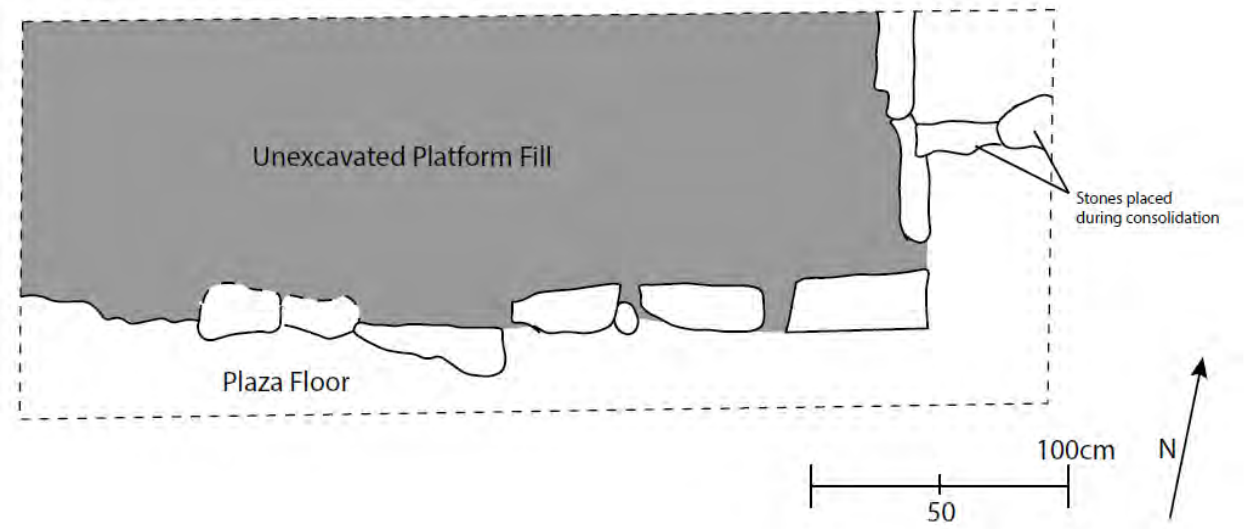


Figure 7: Plan map of Platform 1 exposed by unit A1-8. Note how the facing stones cease towards the western end of the unit.

EU A1-9

EU A1-9 was a 1x2 m unit opened to locate the southwestern corner of Platform 1. The purpose of finding the corner was to establish the center line of the platform for later testing. The excavation consisted of a single lot and level that terminated after exposing an alignment of cobbles and a heavily deteriorated plaza floor. No facing stones, nor corner was found. The alignment of cobbles may have been fill for Platform 1, but further excavations found no similar alignment present within Platform 1. Ceramics and chert flakes were recovered from the excavation.

EU A1-10

EU A1-10 was a 1x2.5 m along a north/south axis located at the inset corner of Structure A1's stair and southern face (Figure 8). The purpose of the unit was to expose the eastern face of Platform 1. The unit consist of a single lot and level. The eastern face of the platform was well preserved and demonstrated a slight slope to the south from the abutment of Platform 1 and

Structure A1 to the plaza level. The eastern face of Platform 1 was offset from Structure A1's stair by approximately 60 cm. The space between Platform 1 and the stair was excavated revealing a complete chert biface, an obsidian blade, and several chert flakes.

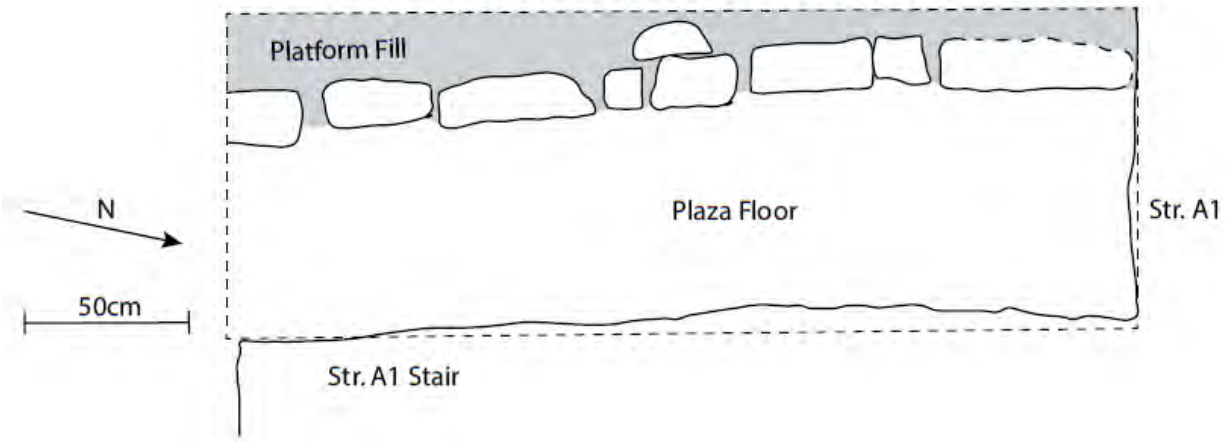


Figure 8: Plan showing the extent of EU A1-10. The chert biface was located to the north of the unit near the inset corner of Structure A1's stair.

EU A1-11

EU A1-11 was a meter wide trench placed at an arbitrary point on Platform 1. The trench was placed at an arbitrary point because no centerline of the platform could be determined without the presence of the southwest corner. The excavation consisted of six lots and six levels. Level 1 of EU A1-11 consisted of the humic layer and accumulated deposition on the top of the platform. Artifacts types included ceramic, chert, and obsidian. The level was terminated after exposing the floor of Platform 1. The floor may have once been plastered, but the floor was so deteriorated that no preserved floor remained.

Level 2 of EU A1-11 continued the trench until reaching what was initially believed to be a second floor to the structure. Lots and levels were changed. Upon further excavation and examination, what was believed to have been a floor was just a change in soil composition. Artifact types recovered from this level include ceramic and chert. Level 3 continued the trench and terminated after exposing a layer of cobble fill. Ceramics and chert were recovered from this phase of excavation. Level 4 continued until reaching the plaza floor below the structure (Figure 9). The plaza floor is well preserved throughout the entire excavation unit. Artifact types from Level 4 include ceramic and chert.

Level 5 continued below Plaza Floor1 and quickly exposed another floor directly below the first. The presence of the floor directly below the first suggests that Plaza Floor 1 was a replastering of the floor below. Several ceramics were recovered from below Plaza Floor 1. Level 6 continued to bedrock revealing ceramic, chert, and freshwater shell artifacts (Figure 10).

EU A1-11 provided the spatial relationships that were the goal of the unit. The relationship of Platform 1 with the plaza floor and Structure A1 revealed that the platform was a late addition to the plaza. Unfortunately, no carbon samples were recovered from the platform fill allowing for more precise dating. The platform also appears to maintain the slope noted during EU A1-10 excavations.



Figure 9: Photo of EU A1-11's exposure of the plaza floor continuing underneath the platform construction.

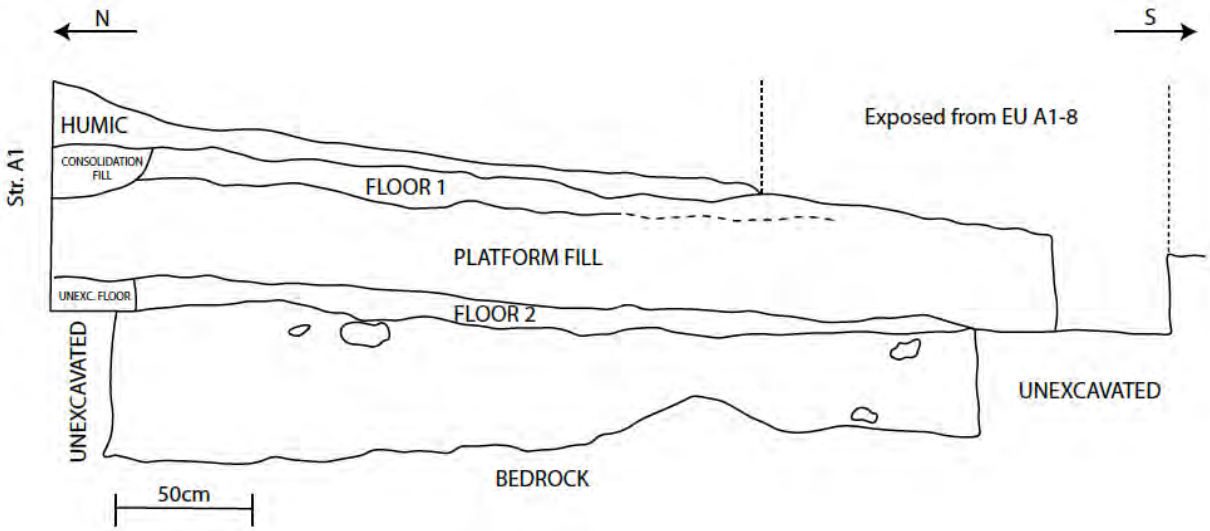


Figure 10: Profile of EU A1-11. Note the slope of the platform from Structure A1 towards the plaza level.

EU A1-12

EU A1-12 was a one meter wide trench placed at an arbitrary point on Platform 2. The purpose of the unit was to determine the construction sequence of the platform and to recover dateable materials in the form of diagnostic ceramics and carbon samples. Platform 3 was constructed in a single construction phase with no formally prepared floor. Platform 3 was constructed directly on top of the plaza floor abutting Structure A1's terrace. The platform had been previously disturbed by conservation efforts to the east of the unit. EU A1-12 continued below the platform to bedrock, revealing a two plaza floors. Plaza Floor 1 is a re-plastering of Floor 2 directly below. Artifacts recovered from EU A1-12 include ceramic, chert, and freshwater shell. No special finds or carbon samples were recovered from the excavation.



Figure 11: Photo of EU A1-12's exposure of the plaza floor continuing underneath the platform construction.

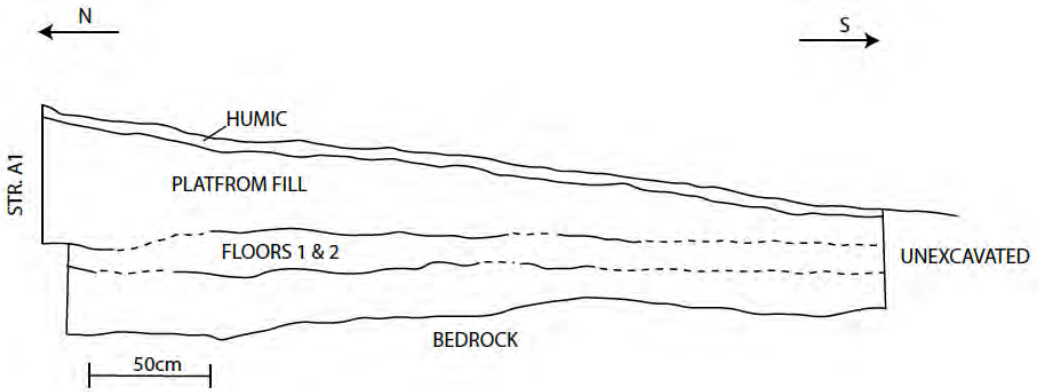


Figure 12: Profile of EU A1-12**.** Note the slope of the platform from Structure A1 towards the plaza level.

EU A1-13

EU A1-13 was placed at the centerline of the southern staircase of Structure A1. The goal of this unit was to locate any dedicatory cache associated with the construction of the structure. The unit was a 1x2 m unit along a north/south axis abutting the stair. The unit was excavated as a single lot and level as no floors or stratigraphic changes necessitated a change in lot or level. No artifacts were recovered from the excavation. It is likely that an early excavation was placed here by XAP.

EU A1-14

EU A1-14 was placed at the centerline of the northern staircase of Structure A1. The goal of this unit was to locate any dedicatory caches associated with the construction of the structure. The unit was a 1x2 m unit along a north/south axis abutting the stair. The unit was excavated as a single lot and level as no floors or stratigraphic changes necessitated a change in lot or level. No artifacts were recovered from the excavation. A modern boot heel was found directly above bedrock indicating that previous excavation had taken place at this location.

OPERATION A4-2018

Operation A4-2018 focused on excavating two areas near Structure A4. The purpose of the operation was to investigate below the later platform additions to Structure A3 and A4 in an attempt to look for earlier evidence of the joint relationship suggested by the later addition of the platforms (Lewis 1995). Excavations began at plaza level and terminated after reaching bedrock. Aside from the primary goal, the units would provide a construction sequence for the plaza itself, which, based on the excavations below the platforms around the plaza, varied significantly.

EU A4-1

EU A4-1 was a 1.5 x 1.5 m unit placed at the northern inset corner of Structure A4's stair. The unit consisted of six lots and six levels. The excavation revealed a total of five plaza floors and a dense layer of limestone cobbles and boulders. The lowest floor, Floor 5 was approximately 50cm below the current plaza level. Limestone boulders were placed directly above Floor 5, potentially as expedient fill, but the uniform layer of boulders may indicate another possibility (Figure 13). Above the boulder layer, Floor 3 and Floor 4 were joined with no fill between, suggesting a re-plastering event. 10cm above Floor 3 is Floor 2 and Floor 1. The floors have no fill between them suggesting another re-plastering event. Floor 1 is located directly below a thin humic layer (Figure 14). Artifact types recovered from this excavation include ceramic, chert, freshwater shell, and marine shell.



Figure 13: Photos of EU A4-1 showing the continuous cobble fill that covered Floor 5.

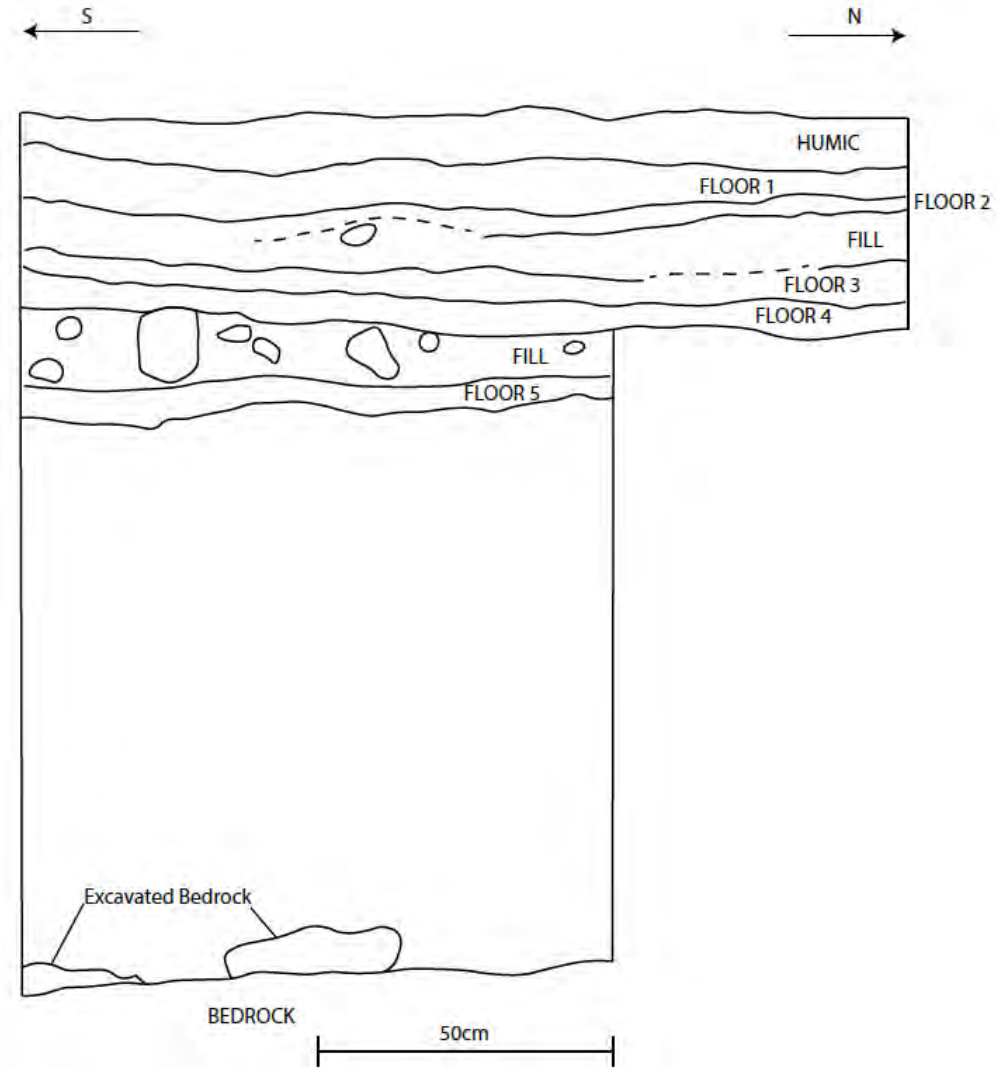


Figure 14: West facing profile of EU A4-1.

EU A4-2

EU A4-2 was a 2x2 m unit placed at the plaza level at the junction of Structure A3 and A4. The unit was excavated in five levels. The excavation revealed a total of three plaza floors with no features present. Bedrock was 140 cm below the surface. The lowest floor, Floor 3, was approximately 40 cm below the surface. Floor 3 was placed above a layer of cobble ballasts. It was noted at this level that Strs. A3 and A4's terraces had basal molding that was covered by later floors (Figure 15). Floor 2 was place directly above Floor 3 likely indicating a re-plastering event. At Floor 2 the unit was reduced to a 1 2 m unit. Floor 1 was approximately 5 cm below the surface. As the unit was being cleared of grass for excavation, Floor 1 was revealed. The unit's first level and lot began at Floor 1. EU A4-2 revealed that Structure A3 and A4 both rested on Floor 2 and both had a basal molding that was later covered by Floor 1 (Figure 16). Artifact types recovered from the unit include ceramics and chert.



Figure 15: Photos showing the basal molding resting on Floor 3 that was subsequently covered by later floors. Also, note the restriction of the unit at this level.

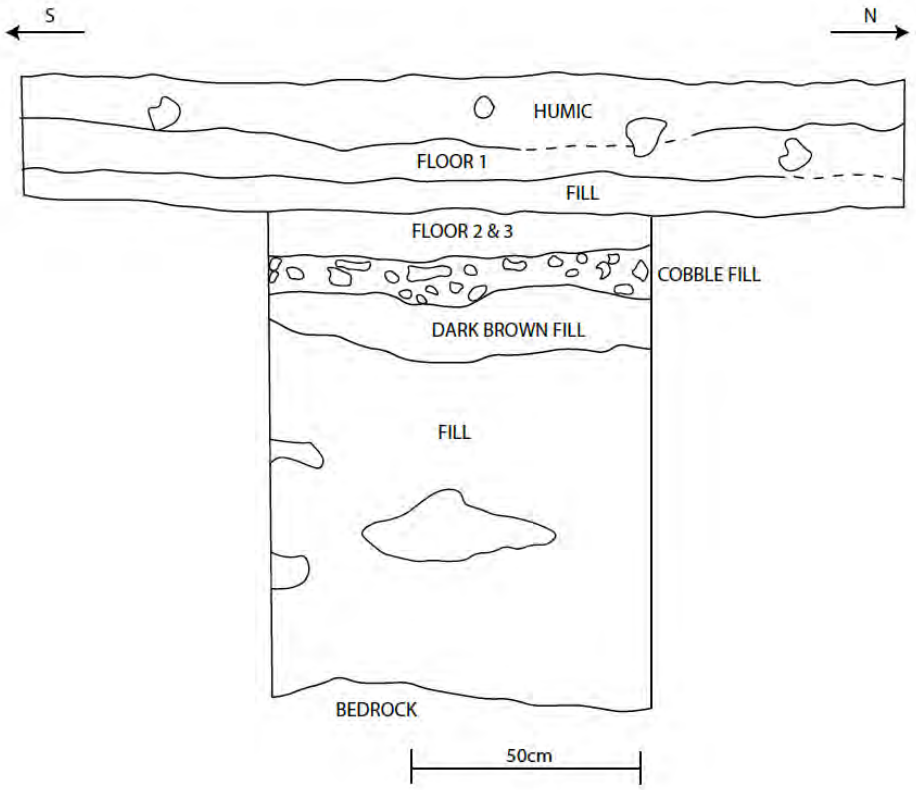


Figure 16: West facing profile of EU A4-2.

OPERATION A6-2018

Operation A6-2018 focused on three main objectives: expose the western side of El Castillo's northern face, test the platforms that flank either side of the central stair, and test for a similar wall that may restrict access to Plaza A-I from the southwest. Testing the platforms would continue the analysis of the non-monumental features. Exposing El Castillo's northern face and northwestern corner would test previously unexcavated areas for similar non-monumental features to those found in the northern and eastern portions of Plaza A-I.

EU A6-1 through A6-5

EU A6-1 through A6-5 exposed the previously unexcavated portion of El Castillo's northern face west of the central stair. The units were 4 meters wide and were intended to delineate any features present and to provide an idea of the distribution of artifacts. Each unit was excavated as a single level that terminated after exposing intact architecture of El Castillo's terraces and the plaza floor. These units exposed portions of the terminal phase architecture of the lowest two terraces. The bottom terrace was well preserved near the base on the plaza floor. The second terrace had a maximum of four courses preserved and a section of plaster floor. The remaining terraces of terminal architecture were poorly preserved and not evident during excavation (Figure 17). The penultimate phase of architecture was in much better shape than the terminal architecture. All units

ended after exposing the penultimate phase of architecture. Artifact types recovered from these excavations include ceramic, chert, freshwater shell, marine shell, obsidian, limestone, and ground stone.



Figure 17: Photo showing the exposure of the lowest terrace of El Castillo and the poor condition of preservation of higher terraces. Photo is facing SW along El Castillo's northern face.

EU A6-6

EU A6-6, a 4x4 m unit, was opened to expose the northwest corner of El Castillo. The purpose of the unit was to find evidence of a similar wall that might restrict access to the plaza from Sacbe II. The unit was excavated as a single lot and level to bedrock. Bedrock, in this unit was higher than in other units encountered. Bedrock was at the level of the plaza floor. No plaster floor could be noted, likely a result of degradation and similar characteristics between the plaster floor and limestone bedrock. The northwest corner of El Castillo was located, but no adjoining wall was noted.

EU A6-7

EU A6-7, a 1x4 m unit along a north/south axis, was placed along an arbitrary point of the platform (Platform 3) to the east of El Castillo's northern stair. The unit trenched Platform 3 to determine construction phases and its relationship with the El Castillo and Plaza A-I. After trenching the entire platform, the unit was reduced in size to 1x2 m to expedite the excavation.

The platform consisted of a single construction phase with an informal packed earth floor. Platform 3 differed from Platforms 1 and 2 in that it was offset from El Castillo's northern face. The platform had cut facing stones on its north and south face. Platform 3 sits directly ontop of the

plaza floor (Figure 18). Spatial relationships point towards Platform 3 being a late addition to Plaza A-I. Ceramic and chert artifacts were recovered from the platform fill.

Below the platform, four plaza floors were encountered. Plaza Floor 1 was set beneath Platform 3. Plaza Floor 2 was set directly beneath Floor 1, indicating that Floor 1 was a re-plastering event. A layer of cobble ballast supported Floor 2. Plaza Floors 3 and 4 were placed below the ballast layer, with Floor 3 being a re-plastering of Floor 4. Bedrock was approximately one meter below Floor 4 (Figure 19). Ceramic, chert, and freshwater shell artifacts were found in the levels below platform 3.



Figure 18: Photos showing the footprint of Platform 3 being offset from El Castillo's terrace and the plaza floor extending beneath the platform's construction.

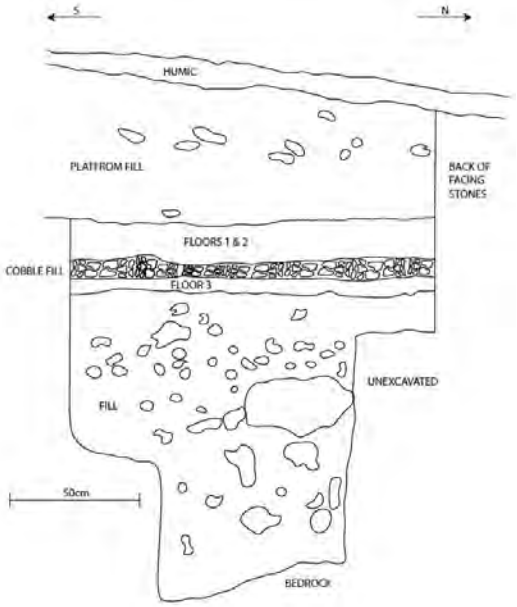


Figure 19: West facing profile of EU A6-7.

ARTIFACT ANALYSES

Ceramic analysis was conducted Ceramic sherds recovered from within the fill of Platforms 1, 2, and 3 were minimal, with only 90 sherds being recovered from the platforms. The majority of these came from Platforms 1 and 2. Platform 1 had a total of 47 ceramics, of which seven were diagnostic. The diagnostics from Platform 1 consist of at least one Cayo Unslipped jar and two Mount Maloney Black bowls. Platform 2 contained a total of 36 ceramic sherds, of which two were diagnostic. The diagnostic ceramics represent one Mount Maloney Black bowl and one Belize Red dish. Platform 3 contained a total of seven ceramic sherds, none of which were diagnostic.

All levels of plaza floors contained Spanish Lookout phase ceramics. The ceramic types present beneath the most recent plaza floor included Mount Maloney Black, Belize Red McRae Impressed, Cayo Unslipped, Alexanders Unslipped, Dolphin Head Red, Garbutt Creek Red, and Yaha Creek Cream. Below the lowest plaza floors of Plaza A-I, examples of Middle Preclassic (Jenney Creek phase) ceramic types were present in a mixed context with Spanish Lookout ceramics. Jenney Creek ceramic types represented in the artifact assemblages below the lowest plaza floors are represented by Savana Orange, Reforma Incised, and Jocote Orange-Brown.

DISCUSSION AND CONCLUSIONS

The three platforms excavated were all expedient constructions built in a single phase. The function of the platforms based only on their construction and related artifact assemblage could not be determined. The platforms within Plaza A-I date firmly to the Late Classic. The spatial relationship of the platforms to the surrounding architecture indicates that the platforms were some of the last additions made to Plaza A-I. It cannot be definitively stated that the platforms were constructed during or just prior to the abandonment of the site without some form of absolute dating method. Further excavation of the platforms may yield carbon samples for AMS ^{14}C dating.

The attempt to examine the restriction of access to Plaza A-I proved that there was no restrictive wall at the southwestern entrance to plaza. The wall at the northeastern access point to the plaza appears to be the only restriction of access to date. Further excavation at the southeastern and northwestern entrance could provide additional evidence to support the argument of access restriction. The southeastern entrance has a substantial amount back dirt deposited in the area from previous excavation and the consolidation of El Castillo and Structure A4, making excavation here not viable because of the amount of time and resources this would require.

The excavations of the platforms provided new details about the construction of Plaza A-I. The northern portion of the plaza, near Structure A1, consisted of a single floor layer with a later re-plastering. The eastern portion, near Structure A3 and A4 comprised at least three different floor constructions with several re-plastering events. The southeastern portion of the plaza, near El Castillo's northern face consisted of two major floor constructions, each with re-plastering. This means that Plaza A-I did not undergo uniform growth. All plaza floor levels, containing diagnostic ceramics, date to the Late Classic. The discrete portions of the plaza excavated for this research demonstrate a need for further testing of the plaza level to clarify the construction phases of the plaza.

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APPENDIX A:
Plaza A-1 Special Finds

Table 1: Special Finds Catalog for 2018 Field Season

Operation	*Str/Area*	*EU*	*LVL*	*Lot*	*SF#*	*Description*
A1-2018	A1	A1-0	1	A1-0-0	1	Miseria Applique Censor frags
A1-2018	A1	A1-0	1	A1-0-0	2	Censor Prong
A1-2018	A1	A1-0	1	A1-0-0	3	Chert Biface
A1-2018	A1	A1-0	1	A1-0-0	4	Ceramic Figurine Arm
A1-2018	A1	A1-2	1	A1-2-2	5	Marine Shell Tinkler
A1-2018	A1	A1-3	1	A1-3-3	6	Chert Biface
A1-2018	A1	A1-3	1	A1-3-3	7	Slate Eccentric
A6-2018	A6	A6-1	1	A6-1-1	8	Limestone Hoe/Axe
A1-2018	A1	A1-10	1	A1-10-12	9	Chert Biface
A6-2018	A6	A6-3	1	A6-3-3	10	Limestone Biface
A4-2018	A4	A4-1	6	A4-1-6	11	Marine Shell Bead
A1-2018	A1	A1-13	1	A1-13-24	12	Chert Biface



Chert Bifaces recovered from A1-0-0 (left) and A1-3-3 (right).



Limestone Bifaces recovered from A6-3-3 (left) and A6-1-1 (right).



Marine Shell Bead recovered from A4-1-6.

APPENDIX B:
Plaza A-1 Carbon Samples

Table 2: Carbon samples for 2018 field season. All samples are charcoal.

Op	*Structure*	*EU*	*Lvl*	*Lot*	*Sample*	*Provenience*
A1-2018	A1	A1-3	1	A1-3-3	XUN-A1-3-1	115cm below D A1-2
A1-2018	A1	A1-3	1	A1-3-3	XUN-A1-3-2	144cm below D A1-2
A1-2018	A1	A1-3	1	A1-3-3	XUN-A1-3-3	146cm below D A1-2
A1-2018	A1	A1-1	1	A1-1-1	XUN-A1-1-4	167cm below D A1-2
A1-2018	A1	A1-1	1	A1-1-1	XUN-A1-1-5	168cm below D A1-2
A1-2018	A1	A1-12	4	A1-12-22	XUN-A1-22-6	154cm below D A1-4
A1-2018	A6	A6-6	1	A6-6-6	XUN-A6-6-7	117cm below D A6-1
A1-2018	A1	A1-10	1	A1-10-12	XUN-A6-12-8	93cm below D A1-3
A1-2018	A1	A1-10	1	A1-10-12	XUN-A1-12-9	128cm below D A1-3
A1-2018	A1	A1-10	1	A1-10-12	XUN-A1-12-10	138cm below D A1-3
A1-2018	A1	A1-10	1	A1-10-12	XUN-A1--12-11	141cm below D A1-3
A1-2018	A1	A1-11	3	A1-11-15	XUN-A1-15-12	122cm below D A1-3

EXCAVATIONS OF A TERMINAL CLASSIC ELITE *PLAZUELA* AT XUNANTUNICH, BELIZE: RESULTS FROM THE 2018 FIELD SEASON

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INTRODUCTION AND RESEARCH QUESTIONS

The 2018 field season marked the third and final year of excavations at Group B by the Xunantunich Archaeological Conservation Project (XACP) and Belize Valley Archaeological Reconnaissance (BVAR) Project, with the continued goal of exposing the terminal architectural layout of Group B. Located approximately 150 m to the west of Xunantunich's central plazas, Group B, a Terminal Classic (AD 750-900) elite residential group, has been the subject of research for over 80 years. Excavation began at Group B under J. Eric S. Thompson in the 1940s, who produced a preliminary ceramic chronology of the site (Thompson 1942). David Pendergast and Elizabeth Graham later joined forces for a salvage operation in this part of the Xunantunich site core during the 1970s, after the discovery of several looters' trenches through the southwestern structures (Pendergast 1981). The Xunantunich Archaeological Project (XAP), directed by Richard Leventhal and Wendy Ashmore, also carried out excavations at Group B in the 1990s (Etheridge 1995) with similar conservation goals and results. XAP investigations revealed ceramic deposits and modified bedrock to the north of Structure B1.

More recently, Group B has been the subject focus of collaborative excavation and conservation efforts by both the Mopan Valley Archaeological Project (MVAP) and the Xunantunich Archaeological Conservation Project (XACP; see Zanotto and Awe 2017). Excavations beginning in 2016 have documented domestic masonry structures focused around a central patio and exposed several previously unknown enclosing structures, extending earlier perceptions of the Group's size and layout. Initial efforts to expose and conserve the terminal architecture of the group were also protracted by the exposure of extensive peri-abandonment deposits along the perimeter of the courtyard represented by multiple, dense artifact concentrations composed of ceramics, lithics, and shell material (Alvarado et al. 2018). Peri-abandonment deposits mark the final activity at Group B, and are likely associated with ancestor veneration behavior (Awe 2012). Similar deposits are present in Terminal Classic contexts at other major centers across the region, including Cahal Pech (Audet 2006; Awe 2008; Sullivan et al. 2017), Baking Pot (Hoggarth et al 2014; Hoggarth et al. 2016, 2018), and Lower Dover (Watkins et al. 2017), among others. A quantitative comparative analysis of assemblages between these sites is currently ongoing (e.g., Davis 2018; Fox 2018; Hoggarth et al 2016; Lonaker et al. 2017; see also Rovito, Romih, this volume).

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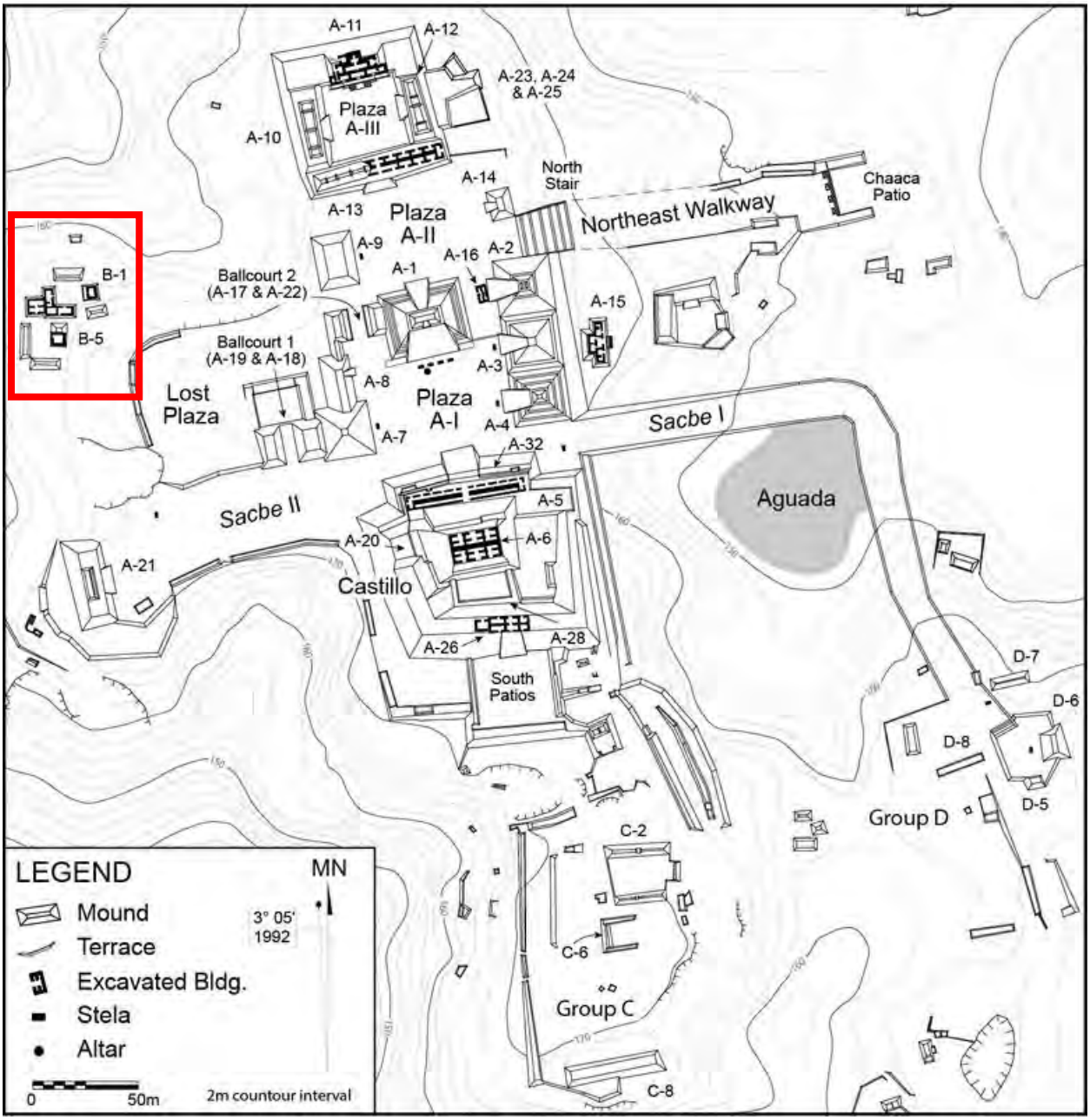


Figure 1: Map of the site core of Xunantunich, with Group B identified in red (after LeCount and Yaeger 2010:Fig. 1.3).

Previous investigations at Xunantunich documented at least three peri-abandonment deposits in other areas of the site core: along the face of El Castillo (Structure A6), within Structure A15, and in the alley between Structures A3 and A4 (Audet 2006; Awe 2008). As a regional pattern, most deposits appear to be in distinct layers with a thin stratum of soil build-up above terminal architecture prior to the placement of deposits. Excavations at Group B have revealed a similar depositional sequence (Figure 2). In previous years, peri-abandonment deposits were found and removed in association with Group B Structures B2, B3, B4, and Courtyard 1 (Alvarado et al. 2018; Sullivan et al. 2017; Zanotto et al. 2017). Moving forward into 2018, excavations continued

to investigate the prevalence of these patterns, and artifact analysis began on deposit materials excavated during the 2016 and 2017 field seasons from Structure B1 and associated units (Alvarado et al. 2018; Sullivan et al. 2017). In June and July of 2018, lab analysis was conducted by Aimee Alvarado and Emma Messinger. Materials were analyzed according to the local Belize Valley ceramic typology produced by Gifford (1976) and with the BVAR quantitative artifact analysis protocol for peri-abandonment deposits defined by Lonaker (2017). Analyses were aimed at identifying temporal associations between Group B's architecture and the assemblages within peri-abandonment deposits. These dates will be used to develop a chronology for the group's occupation and identify site-wide trends in construction during the Terminal Classic.

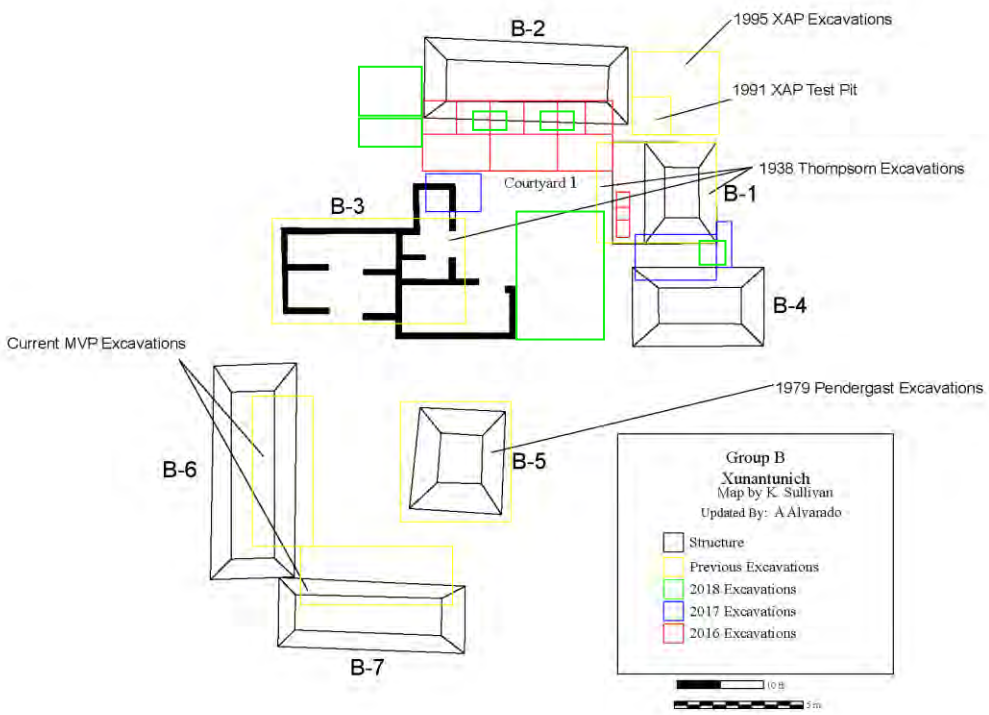


Figure 2: Map of Group B excavation units and structures exposed from BVAR excavations (adapted and updated from Sullivan et al. 2017:383).

The 2018 Group B excavations continued to focus on documenting the complete form and function of the *plazuela* group, as well as the peri-abandonment deposits associated with the Group's architecture. This research is an extension of the 2017 field season when eleven deposit lots were identified across five units in association with Structures B1, B4, and Courtyard 1. While previous excavations documented at least eight structures forming multiple *plazuela* groups, additional structures and previously unknown entryways were encountered during the 2017 excavations (Alvarado et al. 2018). In 2018, excavators continued to expose these areas and look for additional buildings. Units were placed to examine the extent of Structures B3 and B4, as well

defining the extent of newly discovered Structure B8. Two doorways inside the range Structure B2 were defined, and the exposure of Courtyard 1 was completed (Figure 2). Understanding this terminal layout and construction chronology at Group B is a primary avenue for defining the events leading up to the rapid construction and subsequent abandonment of Xunantunich in the Late to Terminal Classic (AD 750-900).

This chapter chronologically describes progress in major units over June and July 2018, and their contributions to structural knowledge of Group B's layout. Initial data on the three additional deposits associated with Courtyard 1, and Structures B2 and B4, will be discussed. Finally, it will present an overview of the ceramic analysis associated with B1.

EXCAVATION METHODS

The 2018 Group B excavations continued to reveal the terminal layout and extent of structures surrounding Courtyard 1 (Table 1). Excavation followed cultural levels, and units were strategically placed to define architecture and determine the location of entrances into the courtyard. Previous excavations at Group B have documented undulating bedrock located directly beneath architecture. It is not unusual for initial construction to utilize modified bedrock as a foundation for walls or the Courtyard floor itself (Alvarado et al. 2018; Etheridge 1995).

In deposit units, excavations were conducted using BVAR protocol on the removal and documentation of peri-abandonment deposits (Lonaker et al. 2017). In each level, excavators would pedestal to reveal the spatial extent of the deposit through horizontal micro-stratigraphic exposure evenly across the unit. Once exposed, photographs were taken and a cross-section and plan view map were drawn, in addition to the typical five point elevations for each lot. This careful pedestaling adds excavators' ability to identify lenses between terminal architecture and deposit layers, which lends to the theory of multiple phases of abandonment and reoccupation at the site.

Table 1: 2018 Xunantunich Group B excavation unit information.

Excavation Unit	*Unit Size (N-S x E-W)*	*Lvl*	*Lot*	*Lot Description*
B2-E	1m x 2m	1	B2-E-1-1	Eastern entry/step of B2
B2-W	1m x 2m	1	B2-W-1-1	Western entry/step of B2
B2-W	1m x 1m	2	B2-W-2-2	Architectural feature/step
B2-1	2.5m x 2m	1	B2-1-1-1	Humus and Feature 2/bench
B2-1	2.5m x 2m	2	B2-1-2-2	Below Floor 1
B2-1	2.5m x 2m	3	B2-1-3-3	Below Floor 1
B3-1	3m x 1m	1	B3-1-1-1	Western area of CY1 near B3
B3-2	3m x 2m	1	B3-2-1-1	Exposing edge of step/wall
B3-2	3m x 2m	2	B3-2-2-2	Below plaster floor
B3-3	1m x 1m	1	B3-3-1-1	West of patio/platform
B3-4	1m x 1m	1	B3-4-1-1	Looking for B3 corner
B3-5	--	1	B3-5-1-1	Finding B3 and alley
B4-5	1.77m x 1.37m	1	B4-5-1-2	Entry area into B4 plaza
B4-7	--	1	B4-7-1-1	South side of Str. B4
B4-7	0.6m x 1.21m	1	B4-7-1-2	Deposit 1 above lens

Table 1: 2018 Xunantunich Group B excavation unit information, continued.

Excavation Unit	*Unit Size (N-S x E-W)*	*Lvl*	*Lot*	*Lot Description*
B4-7	--	1	B4-7-1-3	Deposit 1 below lens
B4-8	4.43m x 2.82m	1	B4-8-1-1	B8 collapse
B4-8	6.63m x 1.72m	2	B4-8-2-2	Below Floor 1/bench
B8-bench-1	1.3m x 1.17m	1	B8-bench-1-1	Feature 1/bench (addition 2)
B8-bench-2	1m x 1m	1	B8-bench-2-1	Feature 2/bench (addition 1)
B8-bench-2	1m x 1m	1	B8-bench-2-2	Feature 2/bench (addition 1)
B8-bench-3	1m x 1m	1	B8-bench-3-1	Feature 3/bench (original)
B8-bench-3	1m x 1m	1	B8-bench-3-2	Feature 3/bench (original)
B8-bench-3	1m x 1m	1	B8-bench-3-3	Feature 3/bench (original)
B8-1	1.18m x 1m	1	B8-1-1-1	Below Floor 1
B8-1	1.18m x 1m	2	B8-1-2-2	Below Floor 1
GB-C1-8	3.35m x 5m	1	GB-C1-8-1	Humus and collapse
GB-C1-8	1.13m x 5m	2	GB-C1-8-2	Humus and collapse
GB-C1-8	6.35m x 5m	3	GB-C1-8-3	Humus and collapse
GB-C1-8	1.1m x 1m	3	GB-C1-8-4	Burial GB2018C101
GB-C1-9	3m x 4.7m	1	GB-C1-9-1	Humus and collapse
GB-C1-10	3m x 3.5m	1	GB-C1-10-1	Humus (above sterile)

EXCAVATION RESULTS

Structure B2 Units

As one of the goals for the 2018 field season was to explore the doorways or entries of Structure B2, two 1x2 m units were placed on both the eastern and western doorways (Figures 3 and 4). Lot B2-E-1-1 included the exposure of a bench that measured 1.25 m from east to west and 0.4 m from north to south. The matrix above the bench was primarily collapsed cut stones and humus. Some smaller-than-fist-sized rocks were included in the matrix with a few ceramic sherds, a chert core, and a bark beater. The lot was ended once a bench was identified (Figure 5).



Figure 3: Western doorway of Structure B2.



Figure 4: Eastern Doorway of Structure B2.



Figure 5: Unit B2-E, lot B2-E-1-1 collapsed bench exposed.



Figure 6: Unit B2-W, lot B2-W-1-1 stratigraphy and lot closing photograph.

Unit B2-W, a 1x2 m unit, had two lots. The first lot B2-W-1-1 was opened with the goal of exposing the internal architecture of B2, expecting a floor or bench feature. The lot was primarily cut stone collapse. The collapse matrix was a mix of plaster and smaller than-fist-sized rocks. Given this lot lacked consistency, the students moved quickly and did not realize they had gone through a poorly preserved and partially collapsed bench. Only after reviewing the stratigraphy was it obvious a bench had been present (Figure 6). Cultural materials included ceramic sherds, freshwater shells, chert, and obsidian. Lot B2-W-2-2 was placed at the base of the entryway, below the expected location of the bench (Figure 7). This lot was reduced in size to 1x1m. A few ceramic sherds and chert flakes were recovered but nothing notable.



Figure 7: Unit B2-W, lot B2-W-2-2 closing photograph.

Unit B2-1-1 was opened to encompass units B3-3-1, B3-4-1, and B3-5-1 (Figure 8). These units adjacent to the alley revealed a room off Structure B2, so the structure association was changed to reflect this new room discovery. The alley previously encountered in units B3-3, B3-4, and B3-5 was obscured by tree growth at its western extent. Unit B2-1 measured 2.5 x 2 m and was aligned with a low wall separating the room from the alley. The unit contained what is believed to be a doorway into the room (Figure 9). The objective of excavation was to expose architecture and determine if this was a room added onto Structure B2, or merely its outer western wall. Excavations here also defined the northern side of the alley.

Initial lot B2-1-1-1 proceeded rapidly, consisting of humus, small limestone inclusions, and larger collapse from B2. The lot concluded with the exposure of large limestone collapse and

Deposit 1, first revealed to contain clustered ceramics, chert, and fragment of granite tools. Special finds removed before the lot closed included a chert biface, and a ceramic pendant and rattler.

Deposit 1 (Lot B2-1-2-2) was located in the southern half of the unit, and the northern half consisted of architectural Feature 2, a possible bench or step. Deposit 1 was composed of continuous strata of ceramics, chert, freshwater shell, fauna, and obsidian, measuring almost 50cm deep. Special finds from this context included 3 chert bifaces and a point, a ceramic disc, censer prong, 3 molded carved sherds, 2 figurine fragment, a ceramic whistle, and a possible pipe. A large turtle carapace, possibly a drum, was also removed from this lot. The lot concluded when a plaster Floor 1 was reached. Because of the complex stratigraphy and frequency of artifacts, it was unclear if there were lenses, indicating multiple phases of deposition contained within Deposit 1.



Figure 8: Unit B2-1-1, lot B2-1-1-1 closing photo, Deposit 1 and bench (Feature 2) exposed (opening of lot B2-1-2-2).



Figure 9: Unit B2-1-2, lot B2-1-2-2 closing photo, Deposit 1 removed, bench (Feature 2) exposed, portal defined.

Floor 1 was partially destroyed, possibly indicating a flooding episode or bioturbation. Lot B2-1-3-3 was opened beneath Floor 1 to bring the B2 units down to the level of the adjacent alley units (B3-1). Floor 1 consisted of compact plaster, followed by an extensive layer of large ballast, continuing beneath the base of Feature 2 (bench). This lot concluded above the anticipated level, when the unit reached dry core fill on the final day of excavations during the 2018 field season. Cultural elements were scarce, consisting of typical fill-related artifacts, including ceramics and chert in low frequencies throughout.

Structure B3 Units

During initial excavations in this area, an alley between B3 and B2 was discovered in unit B3-1, which was placed to expose the western perimeter of Courtyard 1. Units in this location were set up to explore the alley initially, but also allowed for the identification of the room off of Structure B2 (subsequent units' structure designation was changed from B3 to units B2-1-1 and B2-1-2; see above). The first unit B3-1 (Lot B3-1-1-1), measured 3x1 m and was composed of a humus and collapse matrix with few cultural materials (ceramics, chert, and obsidian).

The second unit, B3-2 (Lots B3-2-1-1, B3-2-2-2), measured 3x2 m and allowed for the identification of the northern wall of Structure B3 and exposed the uppermost portion of the alley on the northern side of the north wall (Figure 10). The second lot, B3-2-2-2, was established to move beyond exposed Floor 1 to further explore the alley, but instead the lot was ended as the floor was poorly preserved and few artifacts were recovered, only infrequent ceramic sherds and chert flakes.

Three additional units were strategically placed near the northern wall and the alley (Lots B3-3-1-1, B3-4-1-1, and B3-5-1-1), each of these units was 1x1 m and used to explore and gain an understanding of the alley (Figures 11 and 12). The cultural materials recovered from these units are ceramic sherds, chert and obsidian flakes, and freshwater *jute* shells. Each unit explored the alley in more detail, but none reached the floor.



Figure 10: Unit B3-2, showing exposed wall.



Figure 11: Unit B2-1, Lot B3-3-1-1 closing photograph. Exposed northern wall shows edge of room encompassed.



Figure 12: Unit B2-1 with Lot B3-3-1-1, B3-4-1-1, B3-5-1-1 exposed. Photograph taken facing alley and room extension.

Structure B4 Units

Unit B4-5 (Lot B4-5-1-2) was opened to continue exploring the alley which entered into a smaller courtyard between Structure B1 and Structure B4 from previous excavations in July 2017. The unit was 1.77x1.37 m and reached a floor relatively quickly. This floor was later identified as a step from the area to the south of Structure B in the small courtyard. Limited ceramic sherds and chert flakes were in the southernmost portion of the unit.

Excavations of the southern outside wall of Structure B4 began in the summer of 2017 and concluded in June 2018. One unit, B4-7, was placed directly adjacent (to the west) of units B4-3, and B4-4 from the 2017 field season. This allowed excavators to explore the western extent of the peri-abandonment deposits previously located. Additionally, two more deposits were uncovered.

Lot B4-7-1-1 is the final unit corresponding with the two B-4 peri-abandonment deposits initially revealed in 2017, concluding deposit excavation begun during this previous field season. The entire unit is 3.45m from east to west, 2.56 m from north to south on the western edge, and 2.9m from north to south on the eastern edge. Its contents consisted of roots, rocks, limestone pieces, and a mixture of ceramic sherds, chert and obsidian flakes, marine shell, and slate. These cultural materials were not concentrated in any way in the upper portions of the lot, but as concentrations were exposed new lots were begun to continue revealing their spatial extent.

Lot B4-7-1-2 is Deposit 1 a feature that was first discovered in July 2017 (Figure 13). This lot and subsequent deposit continued from B4-3 and B4-4. The lot is 0.6m N-S by 1.21m E-W. The cultural material recovered included ceramic sherds, chert, granite, and slate pieces. Additionally, animal and human remains were identified, though no formal burial was present. The faunal materials will be discussed in more detail in a forthcoming faunal report. All these materials were sitting atop plaster Floor 1. Lot B4-7-1-3 is a lens of somewhat sterile matrix below Floor 1 upon which Deposit 1 is resting. The matrix is at most 5 cm in thickness, with some areas near the edges of the deposit at a thickness of only 1 cm.

Lot B4-7-1-4 contains Deposit 2, which was initially exposed in units B4-3 and B4-4 in July 2017. This deposit is directly below the lens of matrix in Lot B4-7-1-3. This peri-abandonment deposit contains ceramic sherds, chert and slate flakes, and faunal and human remains. All the materials are resting approximately 1 cm above the bedrock (Figure 14).

The final lot, B4-7-1-5 is a separate deposit in the overall B4-7 unit. Identified as Deposit 3, this feature is an isolated peri-abandonment deposit in the southwestern corner of the unit (Figure 15). The full extent of the deposit outside of this unit is not known, but artifacts in the baulk of the southern and western walls of the unit suggest it continues further in both directions. Cultural materials included ceramic sherds, chert and slate flakes, faunal and human remains with no burial association. Artifacts were placed directly atop bedrock with little to no indication of a lens between them.



Figure 13: Structure B4: Deposit 1 exposed.



Figure 14: Structure B4: Deposit 2 exposed.



Figure 15: Structure B4: Deposit 3 exposed.

Structure B8 Units

Excavation on Unit B4-6 in 2017 exposed a previously unknown building at Group B, Structure B8 (Alvarado et al. 2018). The eastern wall of Structure B8 faces the small courtyard between Structures B1 and B4, and has an entryway measuring 1.24m across. A goal of the 2018 excavations was to document the extent of this building, through an extension of Unit B4-6 and opening of Unit B4-8. Unit B4-8 (Lots B4-8-1-1 and B4-8-2-2) was covered in a rocky, root and plant-ridden matrix with some cut stone elements. The unit was 6.63 m from north to south and 1.72 m from east to west. Lot B4-8-1-1 was closed upon reaching Floor 1, which was later identified as Bench 1 (Figure 16). Atop this bench were ceramic sherds, chert and obsidian flakes, mano and metate fragment, and freshwater *jute* shells in small concentrations.

Lot B4-8-2-2 was opened below Floor 1, revealing limited artifacts at a shallow depth. These two units were later expanded to reveal three phases of construction associated with multiple additions to the bench feature (Units B8-Bench-1, B8-Bench-2, B8-Bench-3 below).

Lot B8-Bench-1-1, approximately 1.3m N-S by 1.17m E-W, exposed the first addition on the bench's construction phases. This lot is plaster with a few ceramic sherds and chert flakes. It was concluded when ballast and core beneath Floor 1 was revealed.



Figure 16: Unit B8-1, lot B8-Bench-1-1 closing photo.

Unit B8-Bench-2 was the bench feature's second addition and consisted of two lots: Lot B8-Bench-2-1 and Lot B8-Bench-2-2 (Figure 17). Lot B8-Bench-2-1 was approximately 1x1 m and was comprised of mostly small to medium limestone rocks. There were no artifacts recovered within this lot and it was ended when a smaller fill layer was reached. Lot B8-Bench-2-2 was started when the fill changed from limestone rocks to small rubble and ceramic and chert fill. After removing this fill layer, the floor of Structure B8 was revealed. Lot B8-Bench-2-2 was approximately 1.18m N-S by 1m E-W, which is notably smaller than the previous lot. This lot was contained in order to retain the integrity of the side walls of the unit. Within the fill there were small ceramic and chert pieces scattered throughout. The lot was closed once bedrock was reached and the unit was backfilled.

Unit B8-Bench-3 was the bench feature's original phase of construction, and the unit consisted of 3 lots: B8-Bench-3-1, B8-Bench-3-2, and B8-Bench-3-3. Lot B8-Bench-3-1

contained no artifacts and the architecture consisted of large limestone boulders. Lot B8-Bench-3-2 also yielded no artifacts, and was composed of limestone fill and facing stones. Once the collapse was removed, a second plaster floor was revealed, and the lot was ended. Finally, lot B8-Bench-3-3 was opened to investigate the contents of the second plaster floor. This lot, like the previous B8-Bench-3 lots, did not yield any artifacts. It was comprised of a thin plaster layer atop bedrock. Once all the bedrock was exposed, the lot was ended and the unit was backfilled.



Figure 17: B8-2 structure exposed, bench (Feature 2) exposed.

Courtyard 1

Unit GB-C1-8 was opened to define architecture along the southern perimeter of Courtyard 1, with the goal of eventually completing exposure of the Courtyard and joining the previous year's southwestern corner excavations with the work done at B4. The primary lot, GB-C1-8-1, consisted of humus and collapse, measuring 3.35 m by 5 m. Walls and architectural collapse surrounded the unit on the south, west, and eastern sides, and intrusive tree roots were present throughout the humic matrix, due to trees on the northwest, northeast, and southeast sides. Investigation of the architecture could indicate whether there was an entrance to Group B in this southern central wall. Lot GB-C1-8-1 was opened first, and architecture was encountered 20 cm below the opening

elevation. It became clear there was a kind of stairway or platform feature beneath the humic layer, subsequently this was trenched E/W approximately 1.13 meters from the northern border of the unit to determine the architectural perimeter. The architecture descended again 2.22 m from the southern unit baulk, forming a step or platform off the southern perimeter wall. This lot was concluded when rapid trenching defined the change in architectural level.

Artifact classes for GB-C1-8-1 included ceramics, chert, daub, faunal remains, marine shell, a matrix sample of ash, obsidian, and slate. Special finds included an intact small Belize Red jar, a ceramic disc, rattler, and censer prong fragment, and a chert point and burnishing stone.

Lot GB-C1-8-2 measured 1.13 m by 5 m. The matrix was humus and collapse, intermixed with roots and fist-sized limestone inclusions. Excavation proceeded from the delineated step or platform, uncovering ceramics, chert, faunal remains, cobble, and obsidian. Special finds included two obsidian eccentrics, and a censer fragment. The lot was concluded when it was combined with concurrent excavations of unit GB-C1-9, on the northern side, where excavators had worked to remove trees and collapse to level out the courtyard. These two units were combined into GB-C1-8-3.

Unit GB-C1-9 was a single lot, consisting of humus and collapse. The unit was aligned arbitrarily to encompass two trees in the area, and measured 3 m N-S by 4.7 m E-W. The southern baulk was reached, and excavators hit bedrock to the north, ending this lot. GB-C1-9 was combined with GB-C1-8 into a new lot (GB-C1-8-3), to continue bringing this single contiguous level down to the courtyard floor (Figure 18). Artifacts recovered from this unit included a high frequency of ceramics along the ground to the south, resembling deposit patterns along the Courtyard 1 periphery. Chert, freshwater shell, faunal remains, limestone, and slate were also included. The special finds consisted of a biface and a figurine fragment.

Subsequent lot GB-C1-8-3's northern half was at sterile, while excavators worked to remove humus and fill in the architectural levels continuing from GB-C1-8-2. The combined unit was 6.35x5 m. Excavation revealed another stair or platform feature, Feature 1, flanked on either side with extensive deposits, which were consolidated and bagged as Feature 2 (Figure 19). Clusters of comingled human and faunal remains were mapped and photographed *in situ*. A fragmented human cranium and additional bones (GB-2018-C1-01) were located at the front center of the stair, and exhumed under Rosie Bongiovanni's supervision as a separate lot. Osteological analyses are ongoing and will be reports in future site reports.

In addition to ceramics, chert, and faunal and human remains, there was also an abundance of granite tool fragment and cores, a single piece of jade, marine and worked shell, limestone, obsidian, quartz, and slate. Special finds were mostly ceramic: an effigy foot, a small complete jar body of a ceramic vessel, and a spindle whorl. At this same level and without indicators of bioturbation, a Winchester 20-gauge shell rim was also recovered. The lot was closed along with the burial sub-lot, GB-C1-8-4, spanning 10 cm (210-220 cmbd). The burial and deposit were located directly above a layer of uneven bedrock, which was apparently modified, almost to resemble a drain or ditch, perpendicular to and ending in front of the burial and stair (Figure 20).



Figures 18 & 19: Unit GB-C1-8, Feature 2: Deposit exposed east of bench (top) and west of bench (bottom).



Figure 20: Unit GB-C1-8, lots GB-C1-8-3/GB-C1-8-4 closing photo. Surface level in background, modified bedrock and Feature 1 in foreground.

The final Courtyard 1 unit and lot, GB-C1-10-1, was opened to ensure the deposit level did not continue into the center of the Courtyard. It was designated a humus layer above sterile. The unit was excavated several centimeters deep before reaching bedrock here. Although artifacts were recovered, their frequencies were much fewer than the other GB-C1 units. Ceramics, chert, freshwater shell, obsidian, and slate were found, in addition to glass beer and soda bottle fragment, indicating previous excavation in this area (possibly pertaining to Pendergast 1981).

CERAMIC ANALYSIS: PRELIMINARY RESULTS FROM GROUP B

The analysis of ceramics from Group B was undertaken by Aimee Alvarado and Emma Messinger. The ceramic sherds were identified using J. C. Gifford's 1976 volume, *Prehistoric pottery analysis and the ceramics of Barton Ramie in the Belize Valley.* In addition to extensive documentation of deposit removal in the field, all diagnostic ceramics were typed by identifying vessel form, ceramic type, temporal complex, ceramic group and ware type, along with any additional relevant description (decorative elements, variations, etc.). These data are summarized in Table 1 and presented in Appendix B by unit at the end of the report. Initially, ceramic reconstruction was attempted, but due to lack of notable refits within the ceramic assemblage, efforts were redirected to classification from ceramics obtained in B1 excavations from 2016 (units B1-Doorway, Structure B1, B1-1, B1-4, B1-Clearing, and B1-Northwest) and 2017 (units B1-South-1, B1-South-2, B1-South-3, B1-South-4).

Table 2: Typed diagnostic sherds associated with Structure B1.

Ceramic Complex	*Relative Date*	*Frequency*	*Type/Variety*
New Town	AD 1000-1400	1	More Force Unslipped
Spanish Lookout	AD 700-900	162	Mount Maloney Black
		125	Belize Red
		106	Cayo Unslipped
		89	Garbutt Creek
		76	Platon Punctate-Incised
		28	Alexanders Unslipped
		11	Tutu Camp Striated
		8	Benque Viejo Polychrome
		6	Roaring Creek Red
		4	Rubber Camp Brown
		2	Achote Black
		2	Gallinero Fluted
		2	Palizada Black-on-Orange
		2	Uaxactun Unslipped
		2	Vinaceous Tawny
		1	Cubeta Incised
		1	Kaway Impressed (possible San Pedro)
		1	Martins Incised
		1	Meditation Black
		1	Silver Creek Impressed
Tiger Run	AD 600-700	14	Macal Orange-red
		1	Mountain Pine Red
		1	Rosario Incised

DISCUSSION AND CONCLUSIONS

XACP research will take a hiatus in the summer of 2019, but the progress between the 2016-2018 field seasons at Group B could enable conservation efforts and provide material for future peri-abandonment analyses at the site. As in previous years, Courtyard 1 and surrounding structures continue to yield deposits illustrating the prestige and material wealth of the residents at Group B. Excavators continue to uncover terminal architecture at the site, and evidence this year from the B8-Bench units indicates at least three phases of construction. Future research would require radiocarbon dating to aid in a fuller reconstruction of the occupation chronology. Future researchers might also focus on how the site would have functioned as a family-oriented space; it is important to note despite efforts to identify entryways, there is no single interpretation of how restricted this area of the site would have been.

While finalizing the exposure of Courtyard 1, unit GB-C1-8 appeared to be the most disturbed throughout of any Group B excavations by XACP to date. It is possible the shotgun shell, bottle fragment, and other modern refuse found in this unit could connect these structures with the looting activity documented by Pendergast et al. in 1975, which was thought to have been restricted to the area directly between Structures B3 and B5. Beginning elevations of GB-C1-8 started at an

average below datum depth of 99 centimeters and ended approximately 210 centimeters below datum. This meter consisted predominantly of humus and fill, but also revealed limestone architecture resembling a staircase, or platform, with a "stairside" deposit in its final lot (GB-C1-8-3). This deposit was closely associated with human remains (Burial GB-2018-C1-01), resting directly above sterile, atop modified bedrock. Previous excavations identified modified bedrock as a preliminary construction phase at Group B (Alvarado et al 2018; Etheridge 1995). With additional research support, analysis of modified bedrock sections at Group B could lend in interpreting the function and activities associated with the intended structural integrity of this residence.

The frequencies of diagnostic ceramic types associated with B1 units are typical of regional trends for Terminal Classic sites, with all but a few sherd types corresponding with the Spanish Lookout complex (AD 700-900). Only a few diagnostic sherds were recovered from the Tiger Run complex (AD 600-700), and only a single More Force Unslipped from the New Town complex would indicate any correspondence with the Post-Terminal Classic (AD 1000-1400). This is consistent with expectations based on preliminary analysis and quantitative data at Xunantunich and in past field seasons at Group B; this residential *plazuela* group represents a rapid and short-lived Terminal Classic occupation. At this time, despite the existence of lenses between deposit layers and terminal architecture, relative dating with ceramic typologies does not indicate an occupation or ritual activity dating to the Post-Terminal Classic at Group B. Based on the analysis characteristic of the Spanish Lookout complex, it appears occupation and peri-abandonment rituals dated to the Terminal Classic, between AD 700-900.

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APPENDIX A:
2017-2018 XUNANTUNICH GROUP B SPECIAL FINDS INVENTORY

Structure	*E.U.*	*Lvl*	*Lot Number*	*Lot Description*	*Class*	*Freq.*	*Artifact Description*
B1	B1-Clearing	1	B1-Clearing-1-1	humus + collapse	Ch	1	Biface
B1	B1-South-3	1	B1-South-3-2	humus + collapse	Ce	1	Censer prong
B1	B1-South-3	1	B1-South-3-2	humus + collapse	Ce	1	Censer prong
B1	B1-South-3	1	B1-South-3-2	humus + collapse	Ch	1	Biface
B1	B1-South-3	1	B1-South-3-2	feature 1 deposit	Ce	1	Applique foot w/ face
B1	B1-South-3	1	B1-South-3-2	humus + collapse	Ch	1	Worked flake knife
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ce	1	Possible censer
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ce	1	--
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ce	2	Censer prongs
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ce	1	Ceramic applique
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ce	1	Animal figurine
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ch	1	Biface
B1	B1-South-3	1	B1-South-3-2	Feature 1: Deposit	Ch	1	Biface
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ch	1	Biface
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ch	1	--
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ch	1	Biface
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ce	1	Figurine fragment
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ch	1	Biface
B1	B1-South-3	2	B1-South-3-3	below Floor 1	Ce	1	Figurine fragment
B1	B1-South-3	3	B1-South-3-4	humus	Ce	1	Censer prong
B1	B1-South-3	3	B1-South-3-4	humus	Ce	2	Rattlers
B1	B1-South-3	3	B1-South-3-4	humus	Ce	1	Figurine fragment
B1	B1-South-3	3	B1-South-3-4	humus	Ch	1	Biface
B1	B1-South-3	3	B1-South-3-4	humus	Ce	1	Tiny vessel
B1	B1-South-3	4	B1-South-3-5	Feature 2: Deposit	St	1	Pendant
B1	B1-South-3	3	B1-South-3-4	Humus	Jd	1	Jade bead
B1	B1-South-3	4	B1-South-3-5	Feature 2: Deposit	Gr	1	Metate
B1-South	B1-South-3	1	B1-South-3-2	humus + collapse	Ce	5	Spout
B2	B2-E	1	B2-E-1-1				
B2	B2-E	1	B2-E-1-1				
B2	B2-1	1	B2-2-1	collapse + deposit	Ch	1	Biface
B2	B2-1	1	B2-2-1	collapse + deposit	Ch	1	Biface

Structure	*E.U.*	*Lvl*	*Lot Number*	*Lot Description*	*Class*	*Freq.*	*Artifact Description*
B2	B2-5/B2-6	2	B2-6-2	NE Deposit	Ls	1	Bark beater
B2	B2-1	1	B2-1-1	humus + Feature 2/bench	Ch	1	Biface
B2	B2-1	1	B2-1-1	humus + Feature 2/bench	Ce	1	Rattler
B2	B2-1	1	B2-1-1	humus + Feature 2/bench	Ce	1	Pendant
B2	B2-1	2	B2-1-2-2	below Floor 1	Ch	1	Point
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Pipe
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Figurine fragment
B2	B2-1	2	B2-1-2-2	below Floor 1	Ch	1	Biface
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Whistle
B2	B2-1	2	B2-1-2-2	below Floor 1	Ch	1	Biface
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Figurine fragment
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Disc
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Molded carved sherd
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Molded carved sherd
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Molded carved sherd
B2	B2-1	2	B2-1-2-2	below Floor 1	Ch	1	Biface
B2	B2-1	2	B2-1-2-2	below Floor 1	Ce	1	Censer prong
B2	B2-1	2	B2-1-2-2	below Floor 1	Ch	1	Point
B3	B3-1	1	B3-1-1-1	western area of CT1 near B3	Ce	1	Inset handle
B3	B3-1	1	B3-1-1-1	western area of CT1 near B3	Ce	1	Carved figurine?
B3	B3-4	1	B3-4-1-1	Looking for B3 corner	Ce	1	Censer prong or figurine leg?
B3	B3-4	1	B3-4-1-1	Looking for B3 corner	Ce	1	Molded carved sherd
B3	B3-4	1	B3-4-1-1	Looking for B3 corner	Ce	1	Figurine fragment
B4	B4-3	1	B4-3-1	humus	Ce	1	Foot rattler
B4	B4-3	1	B4-3-1	humus	Ce	1	Applique
B4	B4-4	1	B4-4-1	humus + collapse	Ch	1	Biface
B4	B4-5	1	B4-5-1	humus + collapse	Ce	1	Figurine
B4	B4-3	1	B4-3-2	feature 1 deposit	Ce	2	Censer prong
B4	B4-3	2	B4-3-3	Humus below Feature 1	Ch	1	Biface
B4	B4-3	2	B4-3-4	feature 2 deposit	Ce	1	Chocolate spout
B4	B4-3	3	B4-3-5	humus below Feature 2	Gr	1	Granite carved stone
B4	B4-1	1	B4-1-2	collapse + doorway	Ce	1	Foot applique
B4	B4-3	1	B4-3-1	humus	Ce	2	Censer prongs

Structure	*E.U.*	*Lvl*	*Lot Number*	*Lot Description*	*Class*	*Freq.*	*Artifact Description*
B4	B4-1	1	B4-1-2	collapse	Ce	2	Censer fragments
B4	B4-1	1	B4-1-2	humus + collapse	Ce	1	Applique foot w/ face
B4	B4-4	2	B4-4-5	Floor 1	Ce	1	--
B4	B4-1	1	B4-1-2	collapse + doorway	Ch	1	Biface
B4	B4-1	1	B4-1-2	collapse + doorway	Ce	1	Spindle whorl?
B4	B4-2a	2	B4-2a-3	Feature 1 addition	Ch	1	Biface
B4	B4-3	1	B4-3-2	Feature 1: Deposit	Ce	1	Censer prong
B4	B4-3	2	B4-3-4	--	Ce	1	Censer prong
B4	B4-3	2	B4-3-4	--	Ce	1	Rattler foot
B4	B4-7	1	B4-7-1-4	--	Ce	1	Applique
B4	B4-7	1	B4-7-1-4	--	Ce	1	Spout
B4	B4-7	1	B4-7-1-4	--	Ce	1	Carved?
B4	B4-3	1	B4-3-2	--	Ce	1	Incensario fragment
GB-Courtyard 1	GB-C1-7	2	GB-C1-7-3	Feature 1: Deposit	Ch	1	Worked biface fragment
GB-Courtyard 1	GB-C1-4	2	GB-C1-4-1	collapse	Cb	1	Drill practice
GB-Courtyard 1	GB-C1-4	2	GB-C1-4-1	collapse	Ch	1	Burnishing stone
GB-Courtyard 1	GB-C1-4	2	GB-C1-4-1	--	Ce	1	Figurine fragment
GB-Courtyard 1	GB-C1-4	2	GB-C1-4-1	humus + collapse	Gr	1	Donut stone fragment
GB-Courtyard 1	GB-C1-7	1	GB-C1-7-1	humus + collapse	Ce	1	Rattler
GB-Courtyard 1	GB-C1-7	2	GB-C1-7-3	feature 2 deposit	Gr	1	Hammerstone
GB-Courtyard 1	GB-C1-7	2	GB-C1-7-3	feature 1 deposit	Ce	1	Rattler foot
GB-Courtyard 1	GB-C1-7	2	GB-C1-7-3	feature 2 deposit	Ce	1	Figurine face
GB-Courtyard 1	GB-C1-5	2	GB-C1-5-2	humus + collapse	Gr	1	Possible burnishing stone
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ce	1	Disc
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ce	1	Whole Belize Red vessel
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ch	1	Point
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ce	1	--
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ce	1	Censer prong fragment
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ce	1	Rattler
GB-Courtyard 1	GB-C1-8	1	GB-C1-8-1	humus + collapse	Ch	1	Burnishing stone
GB-Courtyard 1	GB-C1-8	2	GB-C1-8-2	humus + collapse	Ce	1	Censer fragment
GB-Courtyard 1	GB-C1-8	2	GB-C1-8-2	humus + collapse	Ob	1	Eccentric
GB-Courtyard 1	GB-C1-8	2	GB-C1-8-2	humus + collapse	Ob	1	Eccentric
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Ce	1	Effigy foot
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Ce	1	Complete jar body

Structure	*E.U.*	*Lvl*	*Lot Number*	*Lot Description*	*Class*	*Freq.*	*Artifact Description*
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Mt	1	Winchester 20 gauge shell rim
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Ce	1	Spindle whorl
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Ce	2	Unknown
GB-Courtyard 1	GB-C1-8	3	GB-C1-8-3	humus + collapse	Jd	1	--
GB-Courtyard 1	GB-C1-9	1	GB-C1-9	humus + collapse	Ch	1	Biface
GB-Courtyard 1	GB-C1-9	1	GB-C1-9	humus + collapse	Ce	1	--
GB-Courtyard 1	GB-C1-9	1	GB-C1-9	humus + collapse	Ce	1	Figurine fragment
B8	B8-1	1	B8-1-1-1	below Floor 1	Ch	1	Dibble stick
B8-1	B8-1	1	B8-1-1-1	below Floor 1	Ch	1	Adze
B8	B8-bench-2	1	B8-bench-2-2	Feature 2/bench (addition 1)	Ce	1	Censer prong

APPENDIX B:
2018 GROUP B CERAMIC ANALYSIS BY UNIT

B1-Doorway

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	9
	Belize Red	5
	Garbutt Creek	4
	Alexanders Unslipped	2
	Cayo Unslipped	1
	Benque Viejo Polychrome	1
	Achote Black	1

Structure B1

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Belize Red	2
	Benque Viejo Polychrome	2
	Cayo Unslipped	2
	Mount Maloney Black	2
	Palizada Black-on-Orange	2
	Meditation Black	1
	Platon Punctated-Incised	1
	Silver Creek Impressed	1

B1-1

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	15
	Belize Red	9
	Garbutt Creek	6
	Platon Punctate-Incised	1

Lot B1-1-7

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	3
	Belize Red	1

B1-4

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	1

B1-Clearing

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Garbutt Creek	4
	Mount Maloney Black	4
	Belize Red	2

B1-NW-1

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	8
	Cayo Unslipped	2
	Garbutt Creek	2
	Belize Red	1
	Alexanders Unslipped	1
	Rubber Camp Brown	1

B1-South-1

Ceramic Complex	*Type/Variety*	*Frequency*
New Town	More Force Unslipped	1
Spanish Lookout	Garbutt Creek	16
	Mount Maloney Black	11
	Belize Red	8
	Platon Punctated-Incised	4
	Achote Black	2
	Roaring Creek Red	2
Tiger Run	Rosario Incised	1

B1-South-2

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Mount Maloney Black	34
	Garbutt Creek	16
	Belize Red	10
	Platon Punctated-Incised	5
	Roaring Creek Red	3
	Rubber Camp Brown	3
	Cayo Unslipped	2
	Alexanders Unslipped	1
	Gallinero Fluted	1
	Silver Creek Impressed	1

B1-South-3

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Cayo Unslipped	99
	Belize Red	88
	Mount Maloney Black	77
	Platon Punctated-Incised	63
	Garbutt Creek	41
	Alexanders Unslipped	24
	Tutu Camp Striated	11
	Benque Viejo Polychrome	5
	Uaxactun Unslipped	2
	Vinaceous Tawny	2
	Cubeta Incised	1
	Gallinero Fluted	1
	Kaway Impressed	1
	Martins Incised	1
	Silver Creek Impressed	1
Tiger Run	Macal Orange-red	14
	Mountain Pine Red	1

B1-South-4

Ceramic Complex	*Type/Variety*	*Frequency*
Spanish Lookout	Belize Red	1
	Garbutt Creek	1
	Mount Maloney Black	1
	Platon Punctated-Incised	1

THE BELIZE VALLEY ARCHAEOLOGICAL RECONNAISSANCE DIGITAL ARCHIVE PROJECT: A REPORT OF THE 2018 FIELD SEASON

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INTRODUCTION

In the thirty years since its inception, The Belize Valley Archaeological Reconnaissance (BVAR) Project has conducted excavations at nearly every major archaeological site in the upper Belize River Valley, spanning nearly 3,000 years of human occupation. While this has provided archaeologists with a wealth of data, it is difficult to isolate artifactual patterns across sites and time periods because of the sheer quantity of research that has been conducted in the region.

The BVAR Digital Archive Project was established during the 2017 field season with five goals:

1) To identify and standardize artifactual data across multiple sites.
2) To centralize all data within a searchable database that will provide easy access to artifacts for subsequent analysis.
3) To streamline BVAR's artifact procedures so that they are consistent with established museum procedures and protocols such as data entry, photographing, and assigning accession numbers.
4) To enable archaeologists to explore artifactual patterns across multiple sites and time periods.
5) To centralize and streamline artifact storage for easy access.

Field curation methods include: assigning site specific accession numbers and object identification numbers to each special find, photographing, and entering provenience information for each artifact into a centralized database using the PastPerfect® Museum Software platform. This approach allows researchers to examine regional trends in the creation and usage of artifacts while also making the information readily accessible to researchers. Already in its infancy, the BVAR Digital Archive Project has elucidated artifactual connections between sites and time periods within the Belize River Valley, providing researchers with a more holistic, regional picture of Ancient Maya lifeways in the Belize River Valley.

FIELD CURATION METHODS

Special Finds

Special Find artifacts are considered to be artifacts with either unusual features or that are found in unusual contexts. Because the designation of an artifact as a special find is context dependent, there is not a single, all-encompassing definition of the term. Each archaeologist is responsible for designating which artifacts should be considered a special find. During the 2018 field season, BVAR field school students assisted in examining stored artifacts from multiple

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excavations in order to isolate those artifacts that could be determined to be a special find. Additional special finds were removed from pre-existing storage in order to be processed.

Artifact Numbering

All special find artifacts were assigned a single catalog number intended to be a referent for future research. Artifacts were assigned an accession code using a three letter site code (Table 1) followed by a 5 digit artifact number (Figure 1). The numbers assigned to the artifacts were arbitrary and sequential.

Artifact numbers consisted of printed strips of paper and were standardized with the Calibri font style at a 6 point size. The numbers were cut from the paper individually and bonded to the artifact using an 80% concentration of Paraloid B-72. Additionally, a top coat of a 15% concentration of Paraloid B-72 was added to the paper in order to preserve and waterproof the paper in which the numbers were printed on.

In order to streamline the artifact numbering process, new procedures were developed that will allow each archaeologist to number special finds in accordance with the established numbering system. This will ensure consistent artifact numbering throughout multiple theses and dissertations. These procedures will be implemented starting in the 2019 field season.

Table 1: Accession Site Codes.

Site Name	*Site Code/Accession Code*
Cahal Pech	CHP
Xunantunich	XUN
Baking Pot	BKP
Lower Dover	LWD
Blackman Eddy	BME



Figure 1: Special Find numbering example.

Artifact Identification

Because of the wide variety of artifacts that can be determined to be special finds, each artifact was identified using a combination of the excavator's notes and perceptions and further laboratory analysis. In the event that the excavator's notes did not concur with laboratory analysis, the artifact identification was made using the opinions of multiple archaeologists working on the project.

Artifact Photography

Each artifact was photographed from both the front and back sides. An additional photograph was taken showing the front of the artifact with the provenience context card (see figure 1). The photographs were taken in high resolution with a scale and each photograph was cropped and recolored to clearly show specific features. The reference photographs were then added to the PastPerfect database.

Database Set-Up

Using PastPerfect computer software, the BVAR Digital Archive Project created a custom artifact identification lexicon encompassing all of the artifact types and styles the project will use. A total of 15 artifact classes were created, and within those artifact classes, subclass and tertiary identification categories were developed to further refine the lexicon. The BVAR Digital Archive Project has created a total of 331 artifact identification terms (see Appendix A). The PastPerfect database interface was modified to be more applicable to the BVAR Project, and the fields of entry were standardized in an effort to maintain database consistency (Figure 2).

Once each artifact was numbered and photographed, a database record was creating using all available information for the artifact found on the context card and further analysis if available. Using the appropriate fields, custom artifact reports were designed that will allow future researchers to access all appropriate information needed for their analysis.

Artifact Storage

After processing each artifact, they were sealed in a clean artifact bag with the original context card and placed within one of 9 plastic bins for storage. The bins themselves were numbered, and the corresponding bin number was noted and entered into the database so they may be easily located for future research.

FIELD CURATION RESULTS

During the 2018 field season, a total of 780 special find artifacts (Tables 2 and 3) were processed (numbered, photographed, entered into the database, and stored). The vast majority of artifact that were entered into the database during the field season came from the site of Cahal Pech. These artifacts were found during various excavations at Cahal Pech and the periphery settlements over the duration of the BVAR project. An additional 59 special find artifacts from the site of Lower Dover were processed.

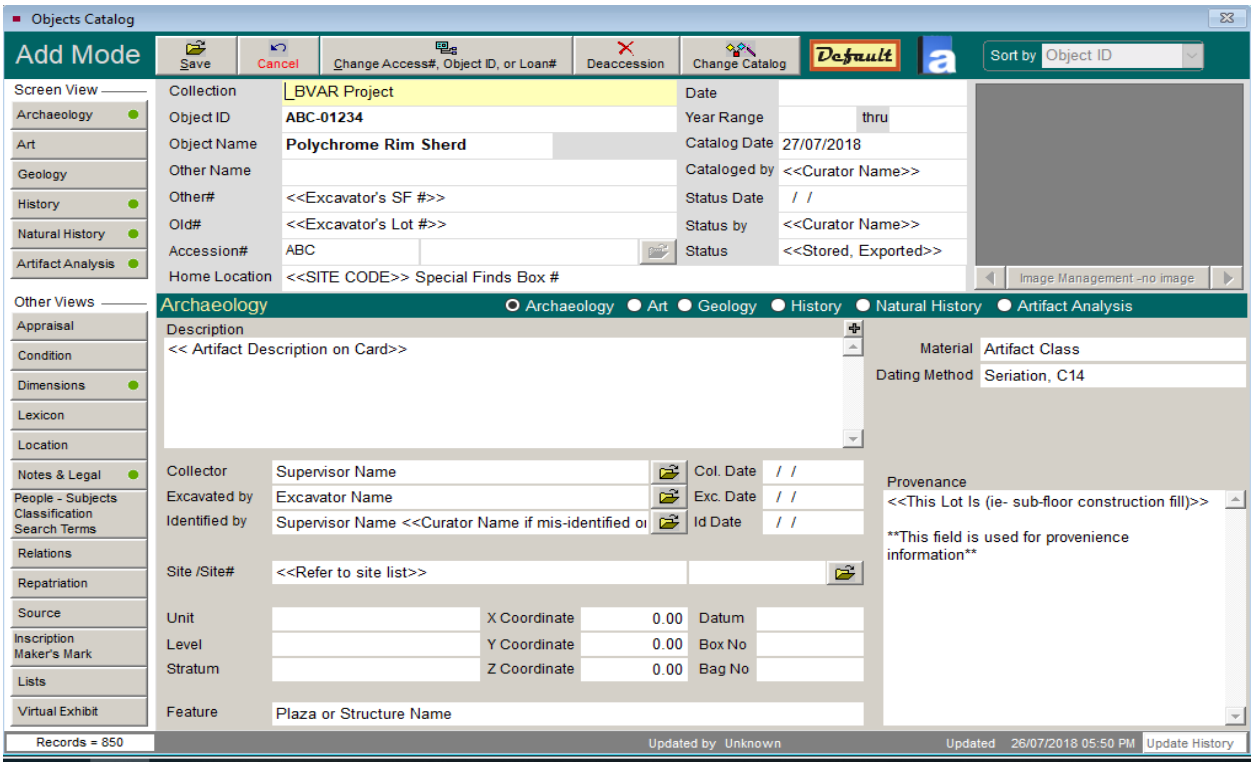


Figure 2: Database interface template.

Table 2: Artifact Counts by site cataloged in 2018.

Site	*Count*
Cahal Pech	721
Baking Pot	0
Lower Dover	59
Xunantunich	0
Blackman Eddy	0

FUTURE RESEARCH

The BVAR Digital Archive Project will continue throughout subsequent field seasons and will consist of processing special find artifacts currently in storage (estimated at approximately 5,000) along with processing special finds from current excavations. In addition to continuing multi-sited and culturally mindful curation (Dallas 2016; Flynn and Hull-Walski 2001; Janes 2010), the consolidation of meta-data will enable BVAR to expand into the digital world by allowing the relatively easy creation of virtual museum exhibits and tutorial videos (Ray 2017), allowing for wider public education programs and digital heritage outreach (Din and Wu 2014; Ray 2017).

Table 3: Artifact totals by type cataloged in 2018.

Type	*Count*	*Type*	*Count*
Biface Chipped Stone Lithic	86	Ground Stone Metate Fragment	13
Burnishing Stone	7	Ground Stone Spheroid	6
Ceramic (misc.)	13	Hematite Rock	1
Ceramic Colander Fragment	3	Incised/Decorated Body Sherd	23
Ceramic Pipe	1	Incised/Decorated Complete Vessel	2
Ceramic Rolling Stamp Fragment	1	Incised/Decorated Fragmented Spindle Whorl	1
Ceramic Rolling Stamp Whole	1	Incised/Decorated Partial Vessel	2
Ceramic Spheroid	4	Incised/Decorated Rim Sherd	10
Ceramic Vessel Adorno	7	Incised/Decorated Spindle Whorl Whole	2
Ceramic Vessel Foot	2	Jade Fragment	13
Ceramic Vessel Spout	3	Jade Mosaic Tile	1
Chipped Stone (misc.)	4	Jade (Whole)	5
Chipped Stone Awl	1	Limestone (General)	5
Chipped Stone Axe	2	Limestone Architecture	1
Chipped Stone Bark Beater	3	Limestone Bark Beater	2
Chipped Stone Blade	2	Limestone Mano Fragment	1
Chipped Stone Debitage	19	Limestone Spheroid	2
Chipped Stone Drill	13	Metal Coin	2
Chipped Stone Hammerstone	2	Notched Chipped Stone Projectile Point	8
Chipped Stone Lithic Core	11	Notched Chipped Stone Spear Point	1
Chipped Stone Projectile Point	1	Notched Slate Projectile Point	1
Chipped Stone Scraper	7	Painted (non-polychrome) body sherd	1
Chipped Stone Spear Point	1	Painted (non-polychrome) partial vessel	7
Chipped Stone Spheroid	35	Painted (non-polychrome) Rim Sherd	3
Complete Vessel	1	Painted/Decorated Fragmented Ocarina	2
Daub Painted	1	Painted/Decorated Whole Ocarina	1
Decorated Ceramic Ring Fragment	2	Painted/Incised Ceramic Bead Fragment	1
Decorated Jade Pendant Fragment	1	Painted/Incised Ceramic Pendant Fragment	1
Decorated Limestone Architecture	1	Painted/Incised Ceramic Pendant Whole	1
Decorated Limestone Spindle Whorl Whole	3	Partial Vessel	1
Eccentric Chipped Stone	1	Polychrome Body Sherd	31
Fossilized Fauna	1	Polychrome Rim Sherd	13
Fragmented Figurine	149	Quartz (misc.)	1
Fragmented Spindle Whorl	12	Sandstone Mace Fragment	1
Ground Stone Cobble	5	Slate Pendant Fragment	1
Ground Stone (misc)	21	Slate Pendant Whole	1
Ground Stone Adze	2	Undecorated Ceramic Bead Fragment	5
Ground Stone Bark Beater	2	Undecorated Ceramic Bead Whole	2
Ground Stone Celt	2	Undecorated Ceramic Drum Fragment	1
Ground Stone Hammerstone	10	Undecorated Ceramic Pendant Fragment	4
Ground Stone Mano Fragment	22	Undecorated Ceramic Pendant Whole	2
Ground Stone Mano Whole	2	Undecorated Fragmented Ocarina	3
		Undecorated Jade Bead Fragment	3

Type	*Count*	*Type*	*Count*
Undecorated Jade Bead Whole	6	Unworked Serpentine	24
Undecorated Jade Pendant Fragment	1	Unworked Slate (general)	26
Undecorated Limestone Architecture	1	Unworked Speleothem	1
Undecorated Slate Bead Whole	1	Vessel Body Sherd	1
Undecorated Slate Pendant Fragment	4	Vessel Rim Sherd	1
Undecorated Slate Pendant Whole	2	Whole Spindle Whorl	8
Uniface Chipped Stone Lithic	23	Worked Sandstone	1
Unnotched Chipped Stone Projectile Point	5	Worked Serpentine	3
Unnotched Chipped Stone Spear Point	2	Worked Slate (General)	12
Unworked Petrified Wood	3		

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APPENDIX A:
ARTIFACT IDENTIFICATION LEXICON

Class	*Subclass*	*Term*
Bone	Bone Jewelry	Bone Bead
Bone	Bone Jewelry	Bone Bead Fragment
Bone	Bone Jewelry	Bone Bead Whole
Bone	Bone Musical Instrument	Bone Drum
Bone	Bone Musical Instrument	Bone Drum Fragment
Bone	Bone Musical Instrument	Bone Drum Whole
Bone	Bone Musical Instrument	Bone Flute
Bone	Bone Musical Instrument	Bone Flute Fragment
Bone	Bone Musical Instrument	Bone Flute Whole
Bone	Bone Musical Instrument	Bone Ocarina
Bone	Bone Musical Instrument	Bone Ocarina Fragment
Bone	Bone Musical Instrument	Bone Ocarina Whole
Bone	Bone Jewelry	Bone Pendant
Bone	Bone Jewelry	Bone Pendant Fragment
Bone	Bone Jewelry	Bone Pendant Whole
Bone	Bone Jewelry	Bone Ring
Bone	Bone Jewelry	Bone Ring Fragment
Bone	Bone Jewelry	Bone Ring Whole
Bone	Bone- Faunal	Bone- Faunal Unworked
Bone	Bone- Faunal	Bone- Faunal Worked
Bone	Bone- Human	Bone- Human Unworked
Bone	Bone- Human	Bone- Human Worked
Bone	Bone Jewelry	Decorated Bone Bead Fragment
Bone	Bone Jewelry	Decorated Bone Bead Whole
Bone	Bone Musical Instrument	Decorated Bone Drum Fragment
Bone	Bone Musical Instrument	Decorated Bone Drum Whole
Bone	Bone Musical Instrument	Decorated Bone Flute Fragment
Bone	Bone Musical Instrument	Decorated Bone Flute Whole
Bone	Bone Musical Instrument	Decorated Bone Ocarina Fragment
Bone	Bone Musical Instrument	Decorated Bone Ocarina Whole
Bone	Bone Jewelry	Decorated Bone Pendant Fragment
Bone	Bone Jewelry	Decorated Bone Pendant Whole
Bone	Bone Jewelry	Decorated Bone Ring Fragment
Bone	Bone Jewelry	Decorated Bone Ring Whole
Bone	Bone Jewelry	Undecorated Bone Pendant Whole
Bone	Bone Jewelry	Undecorated Bone Bead Fragment
Bone	Bone Jewelry	Undecorated Bone Bead Whole

Class	*Subclass*	*Term*
Bone	Bone Musical Instrument	Undecorated Bone Drum Fragment
Bone	Bone Musical Instrument	Undecorated Bone Drum Whole
Bone	Bone Musical Instrument	Undecorated Bone Flute Fragment
Bone	Bone Musical Instrument	Undecorated Bone Flute Whole
Bone	Bone Musical Instrument	Undecorated Bone Ocarina Fragment
Bone	Bone Musical Instrument	Undecorated Bone Ocarina Whole
Bone	Bone Jewelry	Undecorated Bone Pendant Fragment
Bone	Bone Jewelry	Undecorated Bone Ring Fragment
Bone	Bone Jewelry	Undecorated Bone Ring Whole
Bone	Bone General (unknown source)	Unworked Bone
Bone	Bone General (unknown source)	Worked Bone
Ceramics	Ceramic (General)	Ceramic (Misc.)
Ceramics	Ceramic Jewelry	Ceramic Bead Fragment
Ceramics	Ceramic Jewelry	Ceramic Bead Whole
Ceramics	Ceramic Vessel	Ceramic Colander Fragment
Ceramics	Ceramic Vessel	Ceramic Colander Whole
Ceramics	Ceramic Musical Instruments	Ceramic Drum Fragment
Ceramics	Ceramic Musical Instruments	Ceramic Drum Whole
Ceramics	Ceramic Ear Spool	Ceramic Ear Spool Fragment
Ceramics	Ceramic Ear Spool	Ceramic Ear Spool Whole
Ceramics	Ceramic Incensario	Ceramic Incensario Fragment
Ceramics	Ceramic Incensario	Ceramic Incensario Whole
Ceramics	Ceramic Jewelry	Ceramic Pendant Fragment
Ceramics	Ceramic Jewelry	Ceramic Pendant Whole
Ceramics	Ceramic (General)	Ceramic Pipe
Ceramics	Ceramic Jewelry	Ceramic Ring Fragment
Ceramics	Ceramic Jewelry	Ceramic Ring Whole
Ceramics	Ceramic Rolling Stamp	Ceramic Rolling Stamp Fragment
Ceramics	Ceramic Rolling Stamp	Ceramic Rolling Stamp Whole
Ceramics	Ceramic Spheroid	Ceramic Spheroid
Ceramics	Ceramic Vessel	Ceramic Vessel Adorno
Ceramics	Ceramic Vessel	Ceramic Vessel Foot
Ceramics	Ceramic Vessel	Ceramic Vessel Spout
Ceramics	Ceramic Vessel	Complete Vessel
Ceramics	Ceramic Ear Spool	Decorated Ceramic Ear Spool Fragment
Ceramics	Ceramic Ear Spool	Decorated Ceramic Ear Spool Whole
Ceramics	Ceramic Incensario	Decorated Ceramic Incensario Fragment
Ceramics	Ceramic Incensario	Decorated Ceramic Incensario Whole
Ceramics	Ceramic Jewelry	Decorated Ceramic Ring Fragment

Class	*Subclass*	*Term*
Ceramics	Ceramic Jewelry	Decorated Ceramic Ring Whole
Ceramics	Ceramic Figurine	Fragmented Figurine
Ceramics	Ceramic Musical Instruments	Fragmented Flute
Ceramics	Ceramic Musical Instruments	Fragmented Ocarina
Ceramics	Spindle Whorls	Fragmented Spindle Whorl
Ceramics	Ceramic Vessel	Incised/Decorated Body Sherd
Ceramics	Ceramic Vessel	Incised/Decorated Complete Vessel
Ceramics	Spindle Whorls	Incised/Decorated Fragmented Spindle Who
Ceramics	Ceramic Vessel	Incised/Decorated Partial Vessel
Ceramics	Ceramic Vessel	Incised/Decorated Rim Sherd
Ceramics	Spindle Whorls	Incised/Decorated Whole Spindle Whorl
Ceramics	Ceramic Vessel	Painted (non-polychrome) Body Sherd
Ceramics	Ceramic Vessel	Painted (non-polychrome) Complete Vessel
Ceramics	Ceramic Vessel	Painted (non-polychrome) Partial Vessel
Ceramics	Ceramic Vessel	Painted (non-polychrome) Rim Sherd
Ceramics	Spindle Whorls	Painted Fragmented Spindle Whorl
Ceramics	Spindle Whorls	Painted Whole Spindle Whorl
Ceramics	Ceramic Musical Instruments	Painted/Decorated Fragmented Flute
Ceramics	Ceramic Musical Instruments	Painted/Decorated Fragmented Ocarina
Ceramics	Ceramic Musical Instruments	Painted/Decorated Whole Flute
Ceramics	Ceramic Musical Instruments	Painted/Decorated Whole Ocarina
Ceramics	Ceramic Jewelry	Painted/Incised Ceramic Bead Fragment
Ceramics	Ceramic Jewelry	Painted/Incised Ceramic Bead Whole
Ceramics	Ceramic Musical Instruments	Painted/Incised Ceramic Drum Fragment
Ceramics	Ceramic Musical Instruments	Painted/Incised Ceramic Drum Whole
Ceramics	Ceramic Jewelry	Painted/Incised Ceramic Pendant Fragment
Ceramics	Ceramic Jewelry	Painted/Incised Ceramic Pendant Whole
Ceramics	Ceramic Vessel	Partial Vessel
Ceramics	Ceramic Vessel	Polychrome Body Sherd
Ceramics	Ceramic Vessel	Polychrome Complete Vessel
Ceramics	Ceramic Vessel	Polychrome Partial Vessel
Ceramics	Ceramic Vessel	Polychrome Rim Sherd
Ceramics	Ceramic Jewelry	Undecorated Ceramic Bead Fragment
Ceramics	Ceramic Jewelry	Undecorated Ceramic Bead Whole
Ceramics	Ceramic Musical Instruments	Undecorated Ceramic Drum Fragment
Ceramics	Ceramic Musical Instruments	Undecorated Ceramic Drum Whole
Ceramics	Ceramic Ear Spool	Undecorated Ceramic Ear Spool Fragment
Ceramics	Ceramic Ear Spool	Undecorated Ceramic Ear Spool Whole
Ceramics	Ceramic Incensario	Undecorated Ceramic Incensario Fragment

Class	*Subclass*	*Term*
Ceramics	Ceramic Incensario	Undecorated Ceramic Incensario Whole
Ceramics	Ceramic Jewelry	Undecorated Ceramic Pendant Fragment
Ceramics	Ceramic Jewelry	Undecorated Ceramic Pendant Whole
Ceramics	Ceramic Jewelry	Undecorated Ceramic Ring Fragment
Ceramics	Ceramic Jewelry	Undecorated Ceramic Ring Whole
Ceramics	Ceramic Musical Instruments	Undecorated Fragmented Flute
Ceramics	Ceramic Musical Instruments	Undecorated Fragmented Ocarina
Ceramics	Ceramic Musical Instruments	Undecorated Whole Flute
Ceramics	Ceramic Musical Instruments	Undecorated Whole Ocarina
Ceramics	Ceramic Vessel	Vessel Body Sherd
Ceramics	Ceramic Vessel	Vessel Rim Sherd
Ceramics	Ceramic Figurine	Whole Figurine
Ceramics	Ceramic Musical Instruments	Whole Flute
Ceramics	Ceramic Musical Instruments	Whole Ocarina
Ceramics	Spindle Whorls	Whole Spindle Whorl
Daub	Daub	Daub General
Daub	Daub	Daub Impressed
Daub	Daub	Daub Painted
Fossil	Fossil (General)	Fossilized Fauna
Fossil	Fossil (General)	Fossilized Flora
Hematite	Hematite (General)	Hematite Pigment
Hematite	Hematite (General)	Hematite Rock
Jade	Jade Celt	Decorated Jade Celt Fragment
Jade	Jade Jewelry	Decorated Jade Bead Fragment
Jade	Jade Jewelry	Decorated Jade Bead Whole
Jade	Jade Celt	Decorated Jade Celt Whole
Jade	Jade Ear Spool	Decorated Jade Ear Spool Fragment
Jade	Jade Ear Spool	Decorated Jade Ear Spool Whole
Jade	Jade Mask	Decorated Jade Mask Fragment
Jade	Jade Mask	Decorated Jade Mask Whole
Jade	Jade Pectoral	Decorated Jade Pectoral Fragment
Jade	Jade Pectoral	Decorated Jade Pectoral Whole
Jade	Jade Jewelry	Decorated Jade Pendant Fragment
Jade	Jade Jewelry	Decorated Jade Pendant Whole
Jade	Jade Jewelry	Decorated Jade Ring Fragment
Jade	Jade Jewelry	Decorated Jade Ring Whole
Jade	Jade Jewelry	Jade Bead Fragment
Jade	Jade Jewelry	Jade Bead Whole
Jade	Jade Celt	Jade Celt Fragment

Class	*Subclass*	*Term*
Jade	Jade Celt	Jade Celt Whole
Jade	Jade Ear Spool	Jade Ear Spool Fragment
Jade	Jade Ear Spool	Jade Ear Spool Whole
Jade	Jade Figurine	Jade Figurine Fragment
Jade	Jade Figurine	Jade Figurine Whole
Jade	Jade General	Jade Fragment
Jade	Jade Mask	Jade Mask Fragment
Jade	Jade Mask	Jade Mask Whole
Jade	Jade General	Jade Mosaic Tile
Jade	Jade Pectoral	Jade Pectoral Fragment
Jade	Jade Pectoral	Jade Pectoral Whole
Jade	Jade Jewelry	Jade Pendant Fragment
Jade	Jade Jewelry	Jade Pendant Whole
Jade	Jade Jewelry	Jade Ring Fragment
Jade	Jade Jewelry	Jade Ring Whole
Jade	Jade General	Jade Whole
Jade	Jade Jewelry	Undecorated Jade Bead Fragment
Jade	Jade Jewelry	Undecorated Jade Bead Whole
Jade	Jade Celt	Undecorated Jade Celt Fragment
Jade	Jade Celt	Undecorated Jade Celt Whole
Jade	Jade Ear Spool	Undecorated Jade Ear Spool Fragment
Jade	Jade Ear Spool	Undecorated Jade Ear Spool Whole
Jade	Jade Mask	Undecorated Jade Mask Fragment
Jade	Jade Mask	Undecorated Jade Mask Whole
Jade	Jade Pectoral	Undecorated Jade Pectoral Fragment
Jade	Jade Pectoral	Undecorated Jade Pectoral Whole
Jade	Jade Jewelry	Undecorated Jade Pendant Fragment
Jade	Jade Jewelry	Undecorated Jade Pendant Whole
Jade	Jade Jewelry	Undecorated Jade Ring Fragment
Jade	Jade Jewelry	Undecorated Jade Ring Whole
Limestone	Limestone General	Decorated Limestone Architecture
Limestone	Limestone General	Decorated Limestone Spindle Whorl Whole
Limestone	Limestone General	Decorated Limestone Stela Fragment
Limestone	Limestone General	Decorated Limestone Stela Whole
Limestone	Limestone General	Limestone (General)
Limestone	Limestone General	Limestone Architecture
Limestone	Limestone General	Limestone Bark Beater
Limestone	Limestone General	Limestone Mano Fragment
Limestone	Limestone General	Limestone Mano Whole

Class	*Subclass*	*Term*
Limestone	Limestone General	Limestone Spheroid
Limestone	Limestone General	Limestone Stelae Fragment
Limestone	Limestone General	Limestone Stelae Whole
Limestone	Limestone General	Spindle Whorl Fragment
Limestone	Limestone General	Spindle Whorl Whole
Limestone	Limestone General	Undecorated Limestone Architecture
Limestone	Limestone General	Undecorated Limestone Spindle Whorl
Limestone	Limestone General	Undecorated Limestone Stela Fragment
Limestone	Limestone General	Undecorated Limestone Stela Whole
Lithics	Chipped Stone Lithics	Biface Chipped Stone Lithic
Lithics	Ground Stone Lithics	Burnishing Stone
Lithics	Chipped Stone Lithics	Chipped Stone Scraper
Lithics	Chipped Stone Lithics	Chipped Stone (Misc.)
Lithics	Chipped Stone Lithics	Chipped Stone Awl
Lithics	Chipped Stone Lithics	Chipped Stone Axe
Lithics	Chipped Stone Lithics	Chipped Stone Bark Beater
Lithics	Chipped Stone Lithics	Chipped Stone Blade
Lithics	Chipped Stone Lithics	Chipped Stone Debitage
Lithics	Chipped Stone Lithics	Chipped Stone Drill
Lithics	Chipped Stone Lithics	Chipped Stone Hammerstone
Lithics	Chipped Stone Lithics	Chipped Stone Knife
Lithics	Chipped Stone Lithics	Chipped Stone Lithic Core
Lithics	Chipped Stone Lithics	Chipped Stone Projectile Point
Lithics	Chipped Stone Lithics	Chipped Stone Spear Point
Lithics	Chipped Stone Lithics	Chipped Stone Spheroid
Lithics	Ground Stone Lithics	Decorated Ground Stone Bead Fragment
Lithics	Ground Stone Lithics	Decorated Ground Stone Bead Whole
Lithics	Ground Stone Lithics	Decorated Ground Stone Ear Spool Fragment
Lithics	Ground Stone Lithics	Decorated Ground Stone Ear Spool Whole
Lithics	Ground Stone Lithics	Decorated Ground Stone Pendant Fragment
Lithics	Ground Stone Lithics	Decorated Ground Stone Pendant Whole
Lithics	Ground Stone Lithics	Decorated Ground Stone Ring Fragment
Lithics	Ground Stone Lithics	Decorated Ground Stone Ring Whole
Lithics	Chipped Stone Lithics	Eccentric Chipped Stone
Lithics	Ground Stone Lithics	Ground Stone (Misc.)
Lithics	Ground Stone Lithics	Ground Stone Adze
Lithics	Ground Stone Lithics	Ground Stone Axe
Lithics	Ground Stone Lithics	Ground Stone Bark Beater
Lithics	Ground Stone Lithics	Ground Stone Bead

Class	*Subclass*	*Term*
Lithics	Ground Stone Lithics	Ground Stone Bead Fragment
Lithics	Ground Stone Lithics	Ground Stone Bead Whole
Lithics	Ground Stone Lithics	Ground Stone Celt
Lithics	Ground Stone Lithics	Ground Stone Cobble
Lithics	Ground Stone Lithics	Ground Stone Ear Spool Fragment
Lithics	Ground Stone Lithics	Ground Stone Ear Spool Whole
Lithics	Ground Stone Lithics	Ground Stone Figurine
Lithics	Ground Stone Lithics	Ground Stone Figurine Fragment
Lithics	Ground Stone Lithics	Ground Stone Figurine Whole
Lithics	Ground Stone Lithics	Ground Stone Grooved
Lithics	Ground Stone Lithics	Ground Stone Hammerstone
Lithics	Ground Stone Lithics	Ground Stone Mano Fragment
Lithics	Ground Stone Lithics	Ground Stone Mano Whole
Lithics	Ground Stone Lithics	Ground Stone Metate Fragment
Lithics	Ground Stone Lithics	Ground Stone Metate Whole
Lithics	Ground Stone Lithics	Ground Stone Pendant
Lithics	Ground Stone Lithics	Ground Stone Pendant Fragment
Lithics	Ground Stone Lithics	Ground Stone Pendant Whole
Lithics	Ground Stone Lithics	Ground Stone Ring
Lithics	Ground Stone Lithics	Ground Stone Ring Fragmented
Lithics	Ground Stone Lithics	Ground Stone Ring Whole
Lithics	Ground Stone Lithics	Ground stone spheroid
Lithics	Chipped Stone Lithics	Notched Chipped Stone Projectile Point
Lithics	Chipped Stone Lithics	Notched Chipped Stone Spear Point
Lithics	Quartz	Quartz (misc.)
Lithics	Ground Stone Lithics	Undecorated Ground Stone Bead
Lithics	Ground Stone Lithics	Undecorated Ground Stone Bead Fragment
Lithics	Ground Stone Lithics	Undecorated Ground Stone Ear Spool Fragment
Lithics	Ground Stone Lithics	Undecorated Ground Stone Ear Spool Whole
Lithics	Ground Stone Lithics	Undecorated Ground Stone Pendant Fragment
Lithics	Ground Stone Lithics	Undecorated Ground Stone Pendant Whole
Lithics	Ground Stone Lithics	Undecorated Ground Stone Ring Fragment
Lithics	Ground Stone Lithics	Undecorated Ground Stone Ring Whole
Lithics	Chipped Stone Lithics	Uniface Chipped Stone Lithic
Lithics	Chipped Stone Lithics	Unnotched Chipped Stone Projectile Point
Lithics	Chipped Stone Lithics	Unnotched Chipped Stone Spear Point
Metal	Metal Ring Fragment	Decorated Metal Ring Fragment
Metal	Metal Ring Whole	Decorated Metal Ring Whole
Metal	Metal Ammunition (Historical)	Metal Ammunition

Class	*Subclass*	*Term*
Metal	Metal Bell	Metal Bell
Metal	Metal	Metal Coin
Metal	Metal Ring Fragment	Undecorated Metal Ring Fragment
Metal	Metal Ring Whole	Undecorated Metal Ring Whole
Petrified Wood	Petrified Wood	Unworked Petrified Wood
Petrified Wood	Petrified Wood	Worked Petrified Wood
Sandstone	Sandstone Tools	Sandstone Mace Fragment
Sandstone	Sandstone Tools	Sandstone Mace Whole
Sandstone	Sandstone (General)	Unworked Sandstone
Sandstone	Sandstone (General)	Worked Sandstone
Serpentine	Serpentine (General)	Unworked Serpentine
Serpentine	Serpentine (General)	Worked Serpentine
Shell	Shell Jewelry	Decorated Shell Bead Fragment
Shell	Shell Jewelry	Decorated Shell Bead Whole
Shell	Shell Jewelry	Decorated Shell Pendant Fragment
Shell	Shell Jewelry	Decorated Shell Pendant Whole
Shell	Shell Jewelry	Decorated Shell Ring Fragment
Shell	Shell Jewelry	Decorated Shell Ring Whole
Shell	Shell Jewelry	Shell Bead
Shell	Shell Jewelry	Shell Bead Fragment
Shell	Shell Jewelry	Shell Bead Whole
Shell	Shell Jewelry	Shell Pendant
Shell	Shell Jewelry	Shell Pendant Fragment
Shell	Shell Jewelry	Shell Pendant Whole
Shell	Shell Jewelry	Shell Ring
Shell	Shell Jewelry	Shell Ring Fragment
Shell	Shell Jewelry	Shell Ring Whole
Shell	Shell Jewelry	Undecorated Shell Bead Fragment
Shell	Shell Jewelry	Undecorated Shell Bead Whole
Shell	Shell Jewelry	Undecorated Shell Pendant Fragment
Shell	Shell Jewelry	Undecorated Shell Pendant Whole
Shell	Shell Jewelry	Undecorated Shell Ring Fragment
Shell	Shell Jewelry	Undecorated Shell Ring Whole
Slate	Slate Jewelry	Decorated Slate Bead Fragment
Slate	Slate Jewelry	Decorated Slate Bead Whole
Slate	Slate Jewelry	Decorated Slate Pendant Fragment
Slate	Slate Jewelry	Decorated Slate Pendant Whole
Slate	Slate Jewelry	Decorated Slate Ring Fragment
Slate	Slate Jewelry	Decorated Slate Ring Whole

Class	*Subclass*	*Term*
Slate	Slate Weapons	Notched Slate Projectile Point
Slate	Slate Jewelry	Slate Bead
Slate	Slate Jewelry	Slate Bead Fragment
Slate	Slate Jewelry	Slate Bead Whole
Slate	Slate Jewelry	Slate Pendant
Slate	Slate Jewelry	Slate Pendant Fragment
Slate	Slate Jewelry	Slate Pendant Whole
Slate	Slate Jewelry	Slate Ring
Slate	Slate Jewelry	Slate Ring Fragment
Slate	Slate Jewelry	Slate Ring Whole
Slate	Slate Jewelry	Undecorated Slate Bead Fragment
Slate	Slate Jewelry	Undecorated Slate Bead Whole
Slate	Slate Jewelry	Undecorated Slate Pendant Fragment
Slate	Slate Jewelry	Undecorated Slate Pendant Whole
Slate	Slate Jewelry	Undecorated Slate Ring Fragment
Slate	Slate Jewelry	Undecorated Slate Ring Whole
Slate	Slate Weapons	Unnotched Slate Projectile Point
Slate	Slate (General)	Unworked Slate (General)
Slate	Slate (General)	Worked Slate (General)
Speleothem	Speleothem (General)	Unworked Speleothem
Speleothem	Speleothem (General)	Worked Speleothem

REPORTE DEL ESTUDIO HISTOMORFOLÓGICO DE LOS RESTOS HUMANOS DE LOS SITIOS ARQUEOLÓGICOS DE BAKING POT, BELICE

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PRESENTACIÓN

Este reporte describe los procedimientos y resultados obtenidos en la evaluación microscópica y de TA de la edad a la muerte de los individuos de la Tumba 2 del Grupo E, del Entierro 1 de la Estructura B y del Entierro 3 de la Estructura 209 (comunicación personal, Jennifer Piehl 2009; Audet 2006). Este estudio se llevó a cabo durante los meses de octubre a noviembre de 2009 en el Laboratorio de Histomorfología de la Universidad Autónoma de Yucatán, en Mérida, Yucatán.

Los estudios, cuyos resultados se presentan seguidamente, forman parte de un proyecto de cooperación internacional Wenner Gren, titulado *Age and Dynasty in Ancient Maya Society* ("Edad y dinastía en la sociedad maya antigua") que está a cargo de la Dra. Jane Buikstra (Arizona State University, EEUU) y la que suscribe. El estudio tiene como objetivo coadyuvar las estimaciones de edad a la muerte de dinastas mayas, en apoyo a las investigaciones bioarqueológicos pasados en el mundo maya y aquellas en curso.

El estudio que constituye el objeto de este reporte también forma parte de un proyecto de investigación básica CONACYT (No. 49982), titulado *Nuevas referencias histomorfométricas sobre edad a la muerte, morbilidad y condiciones de vida entre los antiguos mayas*. Entre otros motivos, dicho Proyecto tiene como objetivo coadyuvar las estimaciones de edad a la muerte de poblaciones mayas, en apoyo a las investigaciones bioarqueológicas en el mundo maya. Para realizar su objetivo central, se contemplan, previo diagnóstico diagenético, tres estudios especiales: la evaluación histomorfológica de la densidad poblacional de osteones secundarios, el tamaño promedio de osteón y la proporción entre el área cortical y el total, en pequeños segmentos de costilla y de clavícula. Los estudios son parcialmente destructivos y requieren, respectivamente, de un fragmento de costilla o clavícula (obtenido de la mitad de la diáfisis).

Cabe agregar que este estudio no hubiera sido posible en la presente forma sin la estrecha comunicación y el apoyo logístico que recibimos del las autoridades competentes, especialmente del Dr. Jaime Awe, Director del *Institute of Archaeology* de Belice, así como los integrantes del Proyecto Arqueológico en cuestión, en particular del Dra. Jennifer Piehl. Con ella fueron discutidos las condiciones y datos contextuales de las osamentas y consensadas metas para el

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presente estudio, cuyo objetivo central es aportar información cronovital puntual sobre los individuos analizados.

PROCEDIMIENTOS

Procedimientos macroscópicos previos

El análisis osteológico convencional se llevó a cabo por la Dra. Jennifer Piehl, la que también envió los resultados obtenidos en el registro de TA (Transition Analysis) del Individuo Del Entierro 1 de la Estructura B (comunicación personal, Jennifer Piehl, 2009; véase también Audet 2006). Este método fue desarrollado por Jesper Boldsen y George Milner (véase por ejemplo Boldsen et al. 2002), el cual evalúa el grado de cierre de las suturas craneanas, la morfología de la sínfisis púbica y de la superficie auricular. Para este reporte se procesaron los valores enviados por la Dra. Piehl.

Procedimientos microscópicos

Previa autorización de las autoridades competentes y traslado a las instalaciones del Taller de Bioarqueología de la Facultad de Ciencias Antropológicas, Universidad Autónoma de Yucatán, fueron elaboradas secciones delgadas en el Laboratorio de Histomorfología de las muestras que se nombran a continuación:

- Tumba 2 del Grupo E, un fragmento de la costilla izquierda (0.8 gramos).
- Entierro 1 de la Estructura B, un fragmento diafisiario de una costilla no identificada (0.9 gramos).
- Entierro 3 de la Estructura 209, un fragmento diafisiario de una costilla no identificada (0.9 gramos).

La evaluación histomorfológica estaba dirigido a la obtención de información sobre el estado de conservación histológica y la edad cronológica de cada persona, así mismo acertar posibles cambios degenerativos asociados con la pérdida de hueso en vida. La técnica de preparación siguió básicamente lo indicado por Tiesler et al. (2006); los pasos de selección de muestra ósea, registro previo (macro/microscópico), empotrado en medio de inmersión (Biodur*: Standard Epoxide for Sheet Plastination*, una marca registrada que distribuye el Centro de Plastinación de Heidelberg, Alemania), obtención de secciones delgadas por Cortadora ISOMET equipada con sierra de diamante y montado a laminillas microscópicas por la misma resina de Biodur. Luego utilizamos el Microtomo, marca Leica, equipado con filo de Tuxteno, para adelgazar las muestras mecánicamente hasta alcanzar un grosor de 500 micras aproximadas; posteriormente se desgastaron con lijas de 400U – 2000U hasta llegar a un grosor específico del 50 – 60 micras. Este procedimiento se repitió hasta alcanzar por lo menos dos slides que exhibieran condiciones de inspección y cuantificación óptimas.

La evaluación microscópica de las muestras así preparadas se realizó en dichas dos secciones, cada sección fue leida por lo menos dos veces (Microscopio Leica DM-EP y Leica LM 2500) (Tiesler et al. 2006). En los procedimientos de preparación y lectura seguimos los criterios descritos por Recker (1983) y Schultz (1988). Para valorar los cambios diagenéticos en cada sección identificamos los agentes de congestión, sustitución y contaminación (Schultz 1988,

1997). Asignamos un rango de diagénesis (0-4) acorde con la escala de Streeter (Streeter 2005; Tiesler et al. 2006).

En las secciones bien preservadas se determinó el área de sección, el tamaño de osteón y la densidad de osteones por área (OPD). Se aplicaron las fórmulas de regresión pertinentes, para traducir las características morfológicas de la sección en edades cronológicas esperadas (Stout y Paine 1992; Valencia 2007; Valencia et al. 2009). Este método, que se fundamenta en el hecho que la densidad osteónica incrementa en forma gradual y constante conforme avanza la edad del individuo, ya ha sido llevado a la práctica con provecho en poblaciones de diferentes partes del mundo, incluyendo la yucateca.

Cabe señalar que se empleó el *Software Image J 1.42* (*National Institute of Health, USA*), para registrar digitalmente la proporción entre el área cortical y el total. Para ello se escanearon las laminillas procesadas y se midieron las áreas correspondientes en las imágenes digitalizadas (Figura 1).

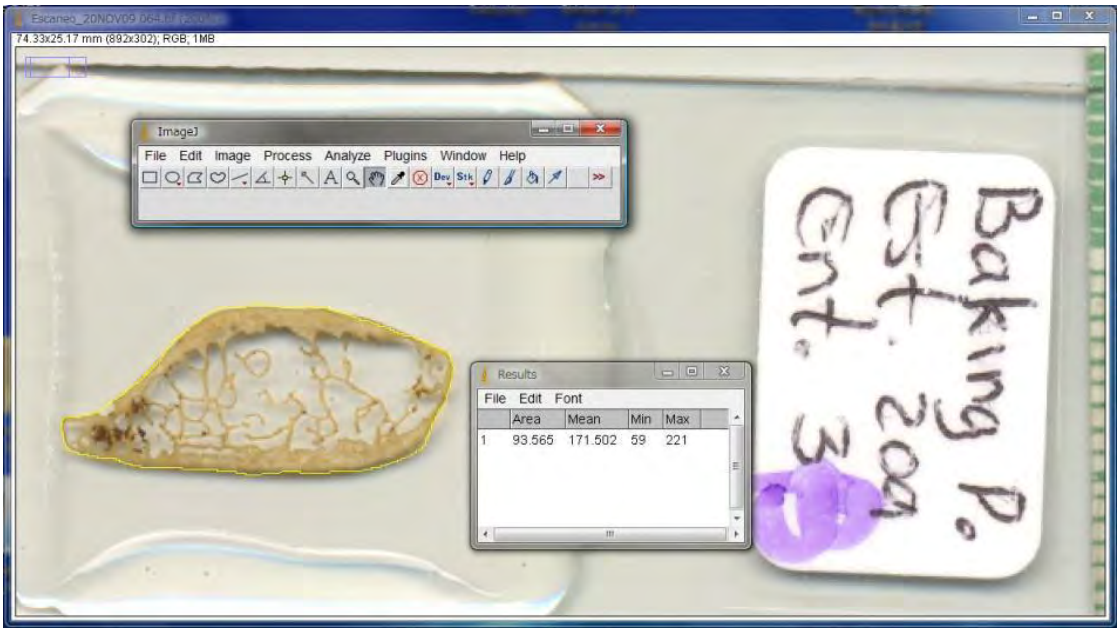


Figura 1: Imagen digitalizada durante la medición con *Software Image J 1.42*.

RESULTADOS

Entierro de la Tumba 2 del Grupo E

Se describe como entierro de tumba con ofrenda, excavado en el área monumental del sitio arqueológico, que fue temporalizado para el Clásico Medio/Tardío. El personaje se identificó como adulto masculino de edad avanzada. La muestra remitida al laboratorio corresponde a un fragmento la costilla izquierda sin especificar el número. El segmento aparece con una superficie ósea previamente despejada de adherencias exógenas (Figura 2).



Figura 2: Muestra inicial del Entierro de la Tumba 2 del Grupo E, costilla izq.

Estado de preservación histológica

Bajo el microscopio la muestra se encontró parcialmente sustituida del sustrato mineralizado, representado por unas partes blanquecinas opacas donde no se podían observar los osteones (Figura 3). Se asignó el grado 3 en la escala de diagénesis de Streeter (2005) a las dos laminillas que obtuvieron mejores resultados (A, C) al no permitir el registro sistemático de OPD ni del tamaño promedio de osteones.

Estimación histológica de la edad a la muerte

Aún así, hay indicios que abogan por una edad avanzada del personaje. De un modo general se aprecia una densidad notablemente elevada de los osteones en las porciones de las secciones menos alteradas (Figura 4). Asimismo, se nota un avanzado grado de trabecularización del hueso cortical, el cual se aprecia porótica en su porción endosteal (Figura 5), ambos siendo indicios de osteoporosis degenerativa crónica. Aún no hay aposición de láminas externas a la observación. Las lagunas de resorción se aprecian con una concentración aumentada general que se acentúa en los extremos anatómicos inferior y superior en las laminillas (Figura 5). Las observaciones encuentran sustento en las mediciones de área, las que exponemos a continuación.

Las únicas mediciones que se pudieron efectuar sistemáticamente corresponden a las áreas (cortical, medular y total) en las laminillas denominadas como A y C, y del cálculo del porcentaje del cortical en el total (Tabla 1).

Tabla 1: Resultados de medición digital de áreas en laminillas de corte de una costilla izquierda.

		Área Total (mm^2)	***Área Medular (mm^2)***	***Área Cortical (mm^2)***	***Porcentaje del Área Cort.***
Baking Pot Tumba 2 Groupo E	Cost. A	95.484	80.055	15.429	16.16%
	Cost. B	95.177	80.204	14.973	15.73%

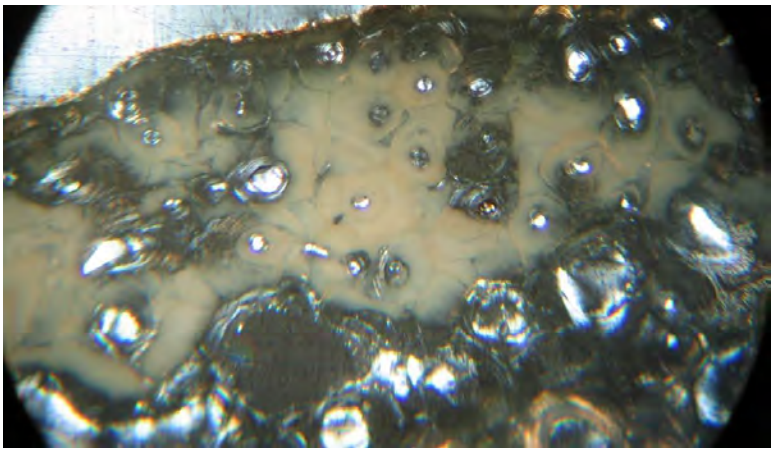


Figura 3: Sección de la costilla izquierda del Individuo de la Tumba 2 del Grupo E, con áreas opacas, sustituidas. Laminilla C (Objetivo X10)

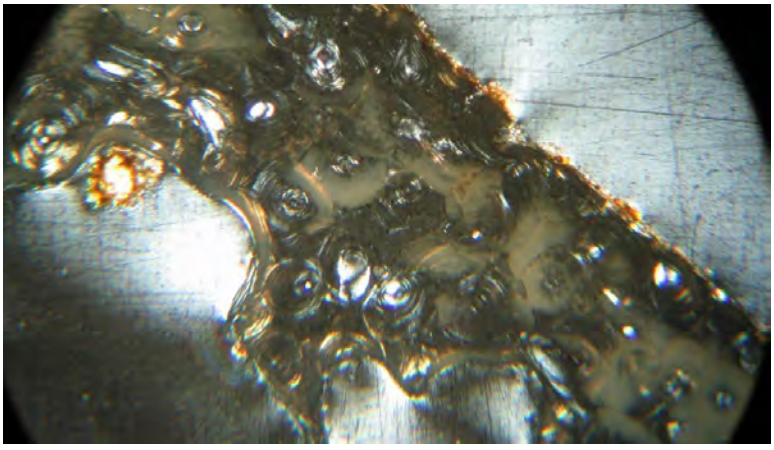


Figura 4: Sección de la costilla izquierda del Individuo de la Tumba 2 del Grupo E, Laminilla C (Objetivo X10).

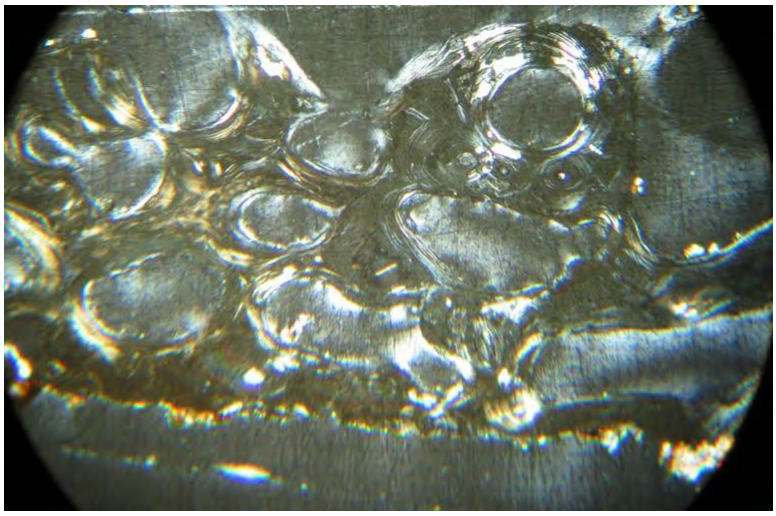


Figura 5: Sección de la costilla izquierda del Individuo de la Tumba 2 del Grupo E, con lagunas de resorción. Laminilla C (Objetivo X10).

Aplicamos una fórmula de regresión que ha sido desarrollada en la población yucateca moderna, para traducir el valor histológico del porcentaje del área cortical a una edad estimada (Valencia 2007; Valencia et al. 2009).

Edad= 87.28-1.20* % del Área Cortical en el promedio aritmético de todas las mediciones en las laminillas (15.95)

La edad estimada corresponde a 68.14 años con una desviación estándar de 12.41. Esto coincide razonablemente con las observaciones microscópicas, como la densidad elevada de osteones y los indicios de osteoporosis avanzada. Por todo lo anterior es probable que la edad a la muerte corresponda a un rango por encima de 55 años, clasificándose como adulto senil (Tiesler 1999:140).

Entierro 1 de la Estructura B

Se identificó por el Proyecto como entierro de cista ricamente ataviada, excavado en el área monumental del sitio arqueológico y data del Clásico Terminal. El personaje se describe como adulto masculino. La muestra remitida al laboratorio concierne a un fragmento de costilla no lateralizada ni numerada de un individuo adulto. La superficie se encontraba previamente despejada de sustrato exógeno (Figura 6).



Figura 6: Muestra inicial del Entierro 1 de la Estructura B, costilla NID.

Estado de preservación histológica

La sección microscópica ostentó un aspecto general claro, conservando algunas porciones de su morfología en su forma original sin agrietamiento notable; sin embargo predominan las placas negruzcas, en este caso señal de sustitución por sustrato exógeno y una masiva afectación pretérita por microorganismos. Las alteraciones diagenéticas limitaron las perspectivas para un reconocimiento sistemático de los osteones. La muestra se clasificó como el grado 2.5 – 3 de la escala de diagénesis de Streeter (Figura 7). Por el grado de deterioro se inspeccionó únicamente el avance general de remodelación y se registraron las áreas correspondientes. De este modo se obtuvo el porcentaje del área cortical con respecto al total en las laminillas denominadas A y B, empleando el *Software Image J* (Tabla 2).

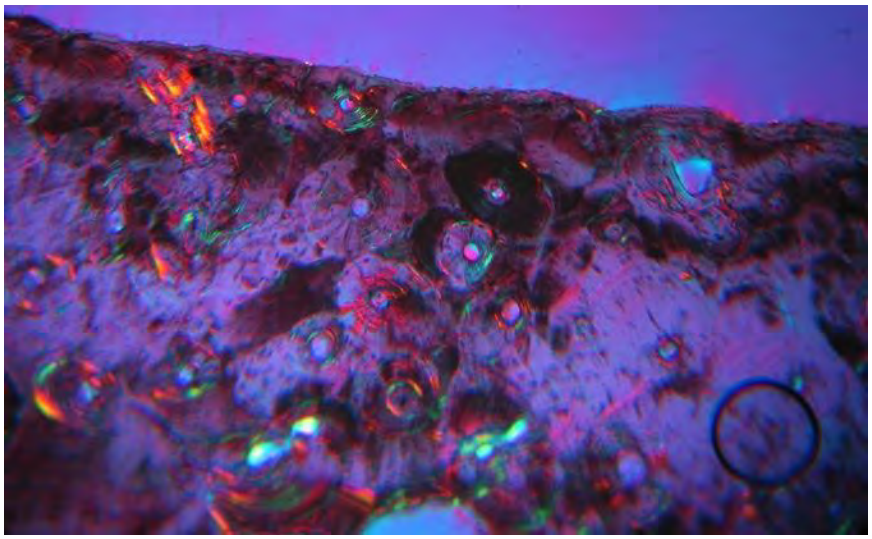


Figura 7: Sección de la costilla NID del Entierro 1 de la Estructura B, Laminilla B (Objetivo X10 con color).

Tabla 2: Resultado de medición de áreas de la costilla NID del Entierro 1 de la Estructura B.

		Área Total (mm^2)	*Área Medular (mm^2)*	*Área Cortical (mm^2)*	*Porcentaje del Área Cort.*
Baking Pot Ent. 1 Est. B	Cost. A	56.783	44.116	12.667	22.31%
	Cost. B	57.847	44.51	13.337	23.06%

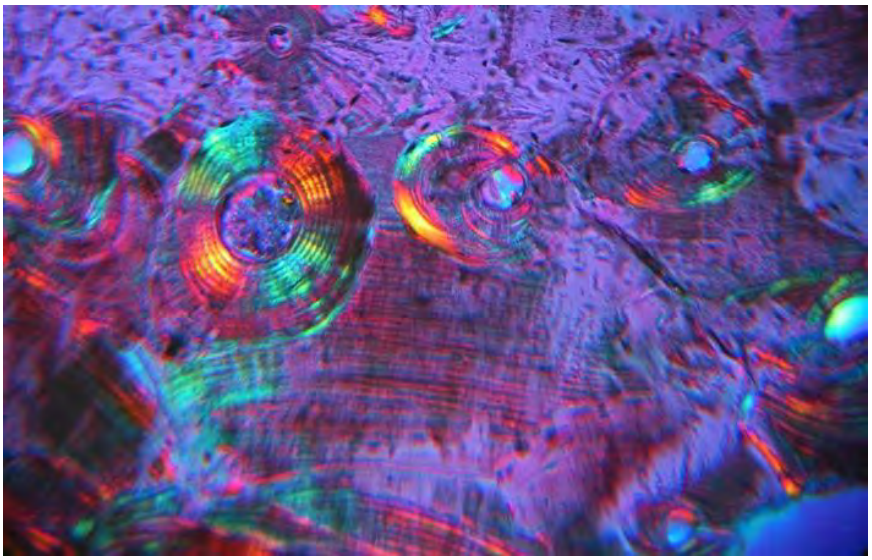


Figura 8: Sección de la costilla NID del Entierro 1 de la Estructura B, Laminilla B (Objetivo X20 con color).

Estimación histológica de la edad a la muerte

Al igual que el individuo anterior, aplicamos la fórmula de regresión al porcentaje promediado de las laminillas A y B (22.68), y la edad calculada correspondía a 60.06 años con la desviación estándar de 12.41. Este resultado es consistente con la observación de una serie de indicios de osteoporosis insipiente, como son las lagunas de resorción que predominan en el tejido cortical. Algunas áreas de resorción aparentemente se encontraban en estado activo al no reconocer aposición de láminas tangenciales en sus márgenes.

Una perspectiva diferente la brinda la inspección general de las laminillas y la distribución y densidad osteónica. Láminas intersticiales externas franjean gran parte del hueso cortical. También se nota la presencia del hueso laminar primario en el interior del hueso compacto (Figuras 7 y 8). Aunque no es cuantificable por el grado de diagénesis, se aprecia una relativamente baja densidad de osteones secundarios y probablemente de fragmentos, lo cual sugiere una edad a la muerte joven. Ya que la presencia del hueso laminar primario en los bordes y en el interior del sustrato óseo son indicios de una edad juvenil (al menos por debajo de 35 años; véase también Streeter 2005), el resultado numérico que se obtuvo de áreas y los vestigios de osteopenia parecen contradecirse. Esta discrepancia pudiera encontrar su explicación en posibles patologías que el personaje haya padecido antes de su muerte. Más que patrones de actividad, el estado de remodelación en costilla refleja condiciones sistémicas generales del organismo. Conocemos algunas enfermedades que surten efecto a nivel esquelético, tales como la diabetes, la cirrosis hepática, las enfermedades crónicas de riñón (Ericksen 1991:173) y la pelagra por carencia de niacina (Paine y Brenton 2006: 489), que modifican significativamente la tasa de remodelación hacia arriba o abajo. Así, las discrepancias entre el grado de remodelación del sustrato óseo y el adelgazamiento de la capa cortical (Parfitt 2003; Cho et al. 2006), podría indicar que el individuo de procesos degenerativos o de osteopenia prematuros por condiciones patológicas específicas, y que tenga en realidad una edad más joven.

Análisis de Transición

El método de Transición (Figura 9) estaba basado en los indicadores de ambas sínfisis púbicas, proporcionados por la Dra. Piehl. Con los valores ingresados, el programa calculó una edad a la muerte global de 32.59 años como la mayor probabilidad con un valor de error estándar 5.48. El cálculo "corregido" marca una edad de mayor probabilidad (*maximum likelihood*) para muestra arqueológica masculina y filiación racial desconocida de 32.37 años a la muerte (con una d.e. de 5.48 años). Esta estimación discrepa importantemente del rango estimado con medición de área pero es consistente con la observación de láminas intersticiales periosteales.

Observaciones generales

Aunque no conozcamos los indicadores macroscópicos convencionales, el resultado del análisis de TA parece brindar elementos para esclarecer las asignaciones contradictorios anteriores. Aunque el resultado de TA solo se basa en pocos criterios y si bien, el método de TA tiende a subestimar las edades adultas medias, al menos tendencialmente confirma una edad a la muerte adulta joven o media del personaje, que por ahora podríamos demarcar tentativamente entre 25 y 40 años.

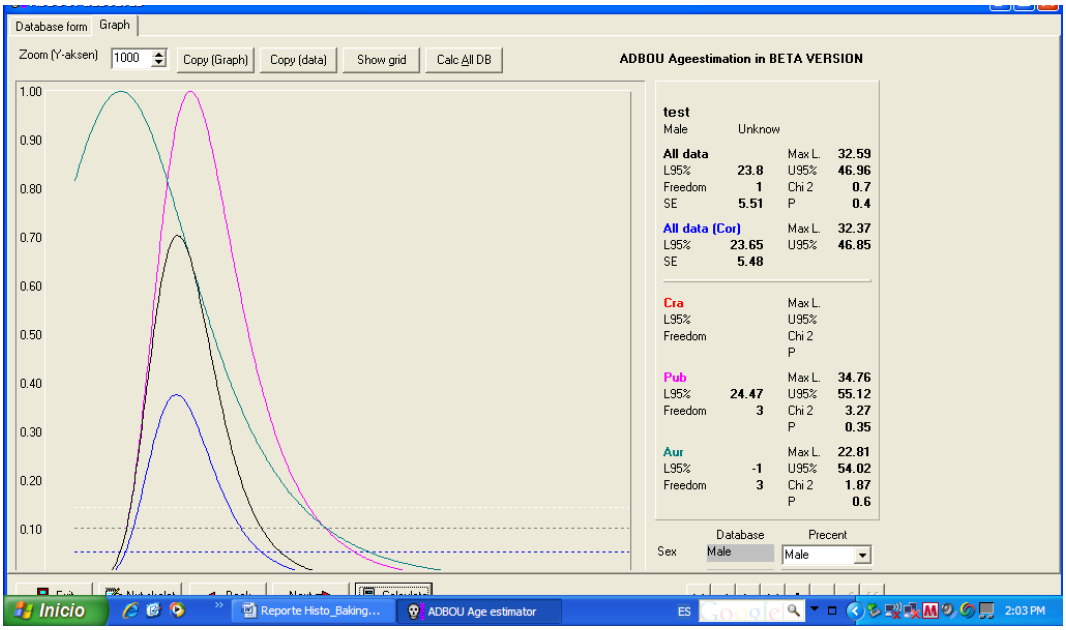


Figura 9. Resultados graficados de análisis de TA en valores remitidos por el Proyecto.

Entierro 3 de la Estructura 209

El tercer caso corresponde a una tumba con ofrenda, excavada en el área terminal de *sacbe* del sitio arqueológico y fechado para el Clásico Medio/Tardío. El personaje se identificó como adulto de sexo probablemente masculino. El segmento enviado al laboratorio corresponde a un fragmento de costilla no lateralizada o numerada. La pieza se encontraba con una superficie previamente despejada de materiales exógenos adheridos (Figura 10).



Figura 10: Muestra inicial del Entierro 3 de la Estructura 209, costilla.

Estado de preservación histológica

Bajo el microscopio, la muestra se observó con un mayor grado de la alteración diagenética que los individuos anteriores, clasificándose como el grado 3.5 en la escala diagenética de Streeter. La mayoría del tejido óseo se encontraba sustituido con sustrato exógenos que aparecían como superficie moteada e islas lechosas y negruzcas (Figuras 10, 11),

lo cual indica que el tejido óseo fue sustituido casi por completo de sustrato mineralizado en el transcurso del tiempo de su sepultura. Importa recalcar sin embargo que se podían observar unos restos de osteones altamente acumulados en algunas áreas circunscritas donde se observaba relativamente bien la matriz orgánica original (Figura 12).

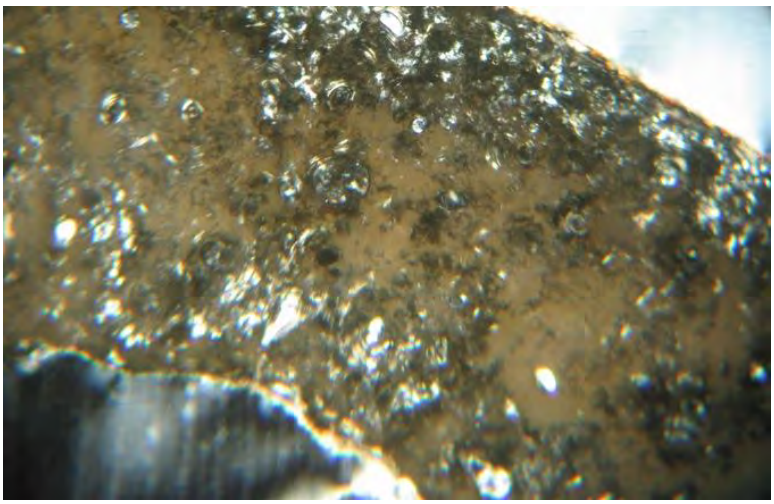


Figura 11: Sección de la costilla del Entierro 3 de la Estructura 209, Laminilla C (Objetivo X10).

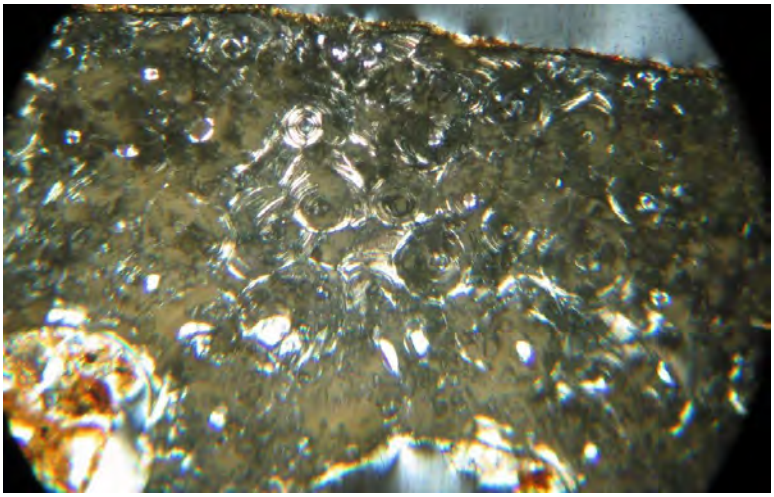


Figura 12: Sección de la costilla NID del Entierro 3 de la Estructura 209, Laminilla D (Objetivo X10).

Tabla 3: Resultado de medición de áreas de la costilla NID del Entierro 3 de la Estructura 209.

		Área Total (mm^2)	***Área Medular (mm_2)***	***Área Cortical (mm^2)***	***Porcentaje del Área Cort.***
Baking Pot Ent. 3 Est. 209	Cost. A	93.927	68.027	25.9	27.57%
	Cost. B	89.163	65.04	24.123	27.05%

Estimación histológica de la edad a la muerte

Se realizó la medición digital de las áreas en las laminillas denominadas como A y B y se calculó el porcentaje del hueso cortical en relación con el total (Tabla 3). De la misma manera que en los anteriores casos se aplicó la fórmula de regresión al porcentaje promediado (ø 27.31), y se resultó en una edad de 54.50 años con la desviación estándar de 12.41. Esto coincide con la elevada densidad que ostentan los osteones (OPD) en las porciones observables de las laminillas, que parecen haber llegado a su capacidad máxima de ocupación. No hay vestigios de láminas intersticiales en los bordes externos de las secciones. Por otra parte, no se observó la condición de osteoporosis en el mismo estado de avance que en el caso del individuo de la Tumba 2.

Por tanto, fundamentándonos en el resultado numérico de área y la observación de los osteones acumulados, le asignamos al individuo un rango de edad encima de 45 años, clasificándose como adulto maduro – viejo (Tiesler 1999:140).

OBSERVACIONES GENERALES

Consecutivamente se presenta una gráfica con el rango de edad de cada uno de los tres individuos del sitio arqueológico de Baking Pot, Belice (Figura 13), estimado por la fórmula de regresión para visualizar posición de los rangos en la regresión linear junto con el margen de desviación estándar.

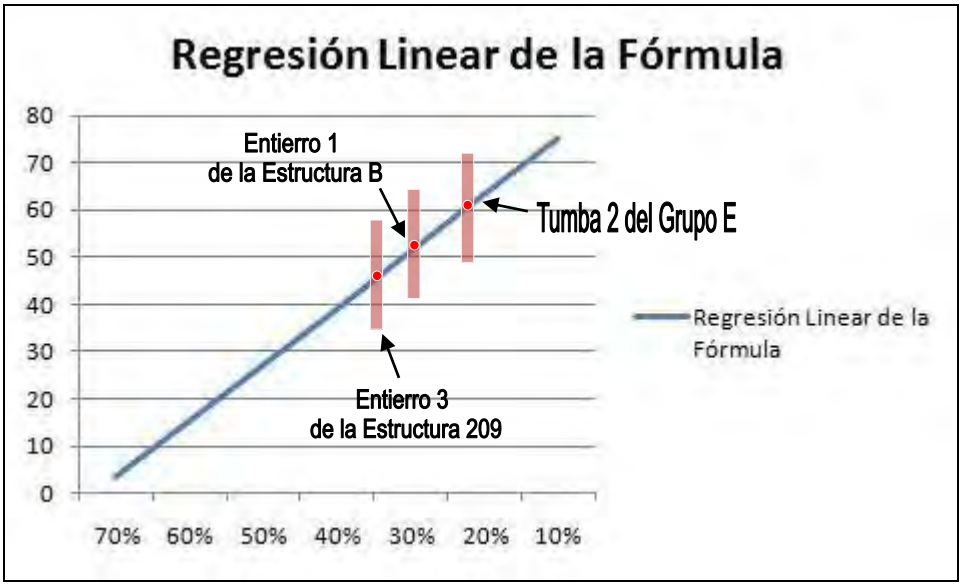


Figura 13: Posición de los entierros correspondientes en la regresión linear de la fórmula: Edad (Y)= 87.28-1.20*porcentaje del Área Cortical(X). Las barras rojas indican el rango de error por el valor de desviación estándar de la fórmula.

Conjuntamente con los otros indicadores, se asignan los rangos de edad combinados de adulto senil (encima de 55 años) al individuo de la Tumba 2 del Grupo E; de adulto joven – medio (entre 25 – 40 años) al Entierro 1 de la Estructura B, y de adulto medio – maduro (encima

de 45 años) al Entierro 3 de la Estructura 209, con lo cual se pudieron verificar y en su caso corregir y cerrar los rangos asignados macroscópicamente.

Cabe agregar que en todas las secciones microscópicas se observó un grado avanzado y generalizado de alteración diagenética. La mayoría del tejido óseo original se encuentra sustituido con sustrato exógeno. Por tanto parece difícil que otros tipos de estudios especiales, tales como el de ADN antiguo, elementos trazas o isotópicos, permitan generar resultados satisfactorios. Sugerimos por tanto como estrategia de futuros muestreos, seleccionar únicamente hueso compacto, más que costillas o clavículas, ya que el primero tiende a conservarse mejor histológicamente.

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