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Editors’ Note

The 2016 field season marked the 29th consecutive year (1988-2016) of archaeological investigations in the Upper Belize River Valley by the Belize Valley Archaeological Reconnaissance (BVAR) Project, directed by Dr. Jaime Awe (Northern Arizona University) and Dr. Julie Hoggarth (Baylor University). Archaeological excavations and survey in 2016 continued with BVAR’s regional focus, investigating the development and decline of Belize Valley polities from the Preclassic to Postclassic periods (1200 BC-AD 900/1000) at the sites of Baking Pot, Cahal Pech, Lower Dover, and Xunantunich.

Research in the royal palace complex at Baking Pot resumed in 2016, with a focus on exploring the composition, function, spatial patterns, and timing for the deposition of peri-abandonment materials, also referred to as terminal deposits. Peri-abandonment deposits have been found throughout northern and central Belize at a number of sites in the Belize Valley (e.g., Cahal Pech, Baking Pot, Lower Dover, Xunantunich) and elsewhere in Belize (e.g., Caracol, Blue Creek, Dos Hombres, Chan Chich, and Pook’s Hill), though standardized documentation of such deposits are not well developed. Lonaker and colleagues (Chapter 1) developed systematic methods to excavate, record, and sample peri-abandonment deposits for radiocarbon dating based on previous BVAR project excavations at Baking Pot between 2014 and 2015. They also apply these methods (Chapter 2) to identify peri-abandonment deposits at several locations in Plaza B within the Baking Pot monumental epicenter.

Excavations at the site of Cahal Pech targeted several structures in the monumental epicenter and peripheral settlement. Prichard and colleagues (Chapter 3) excavated the western ballcourt, one of two present at the site, revealing a relatively well-preserved terminal architecture. Beardall’s (Chapter 4) research concentrated on delineating an alleyway separating Structure B4 and B5 in the site core, which was identified by excavations carried out in Plaza G during the 2015 field season. The 2016 excavations revealed a dense ceramic deposit, which also contained high frequencies of chert and faunal remains, in an alleyway between the two buildings. Several phases of architecture dating from the Preclassic through Terminal Classic periods were also identified. Settlement excavations at Cahal Pech by Fox (Chapter 5) continued research at the Zopilote Group, focusing on exposing a Terminal Classic period ceramic deposit associated with Structure 2 at the group. Excavations from the 2016 field season are used to test initial hypotheses that the deposit is associated with re-visitiation to site for the purpose of ancestor veneration. An update on the Plaza H excavations at Cahal Pech is also provided in Chapter 6.

Research at Lower Dover continued to focus on exploring the palace and acropolis area of the site. Guerra (Chapter 7) provides re-designation for Plazas and structures within the monumental epicenter. Guerra and Romih (Chapter 8) report the results of test pit excavations in Plaza B and Plaza F. The Plaza B excavations concentrated on exposing terminal architecture associated with Structure B1 and investigating the function of the building as an eastern shrine. Stratigraphic excavations at Structure F2 in Plaza F revealed two construction phases of construction dating to the Late Classic period, with additional evidence for limited Postclassic use. Watkins and colleagues (Chapter 9) investigated Courtyard 2 in the Lower Dover epicenter to understand its possible use as an elite residence. Excavations exposed terminal architecture of...
the courtyard and uncovered a large ceramic deposit dating to the Late Classic Spanish Lookout phase (AD 700-900) with an associated burial, possibly of an elite individual. Another burial was also documented in Rockshelter #1 in the Lower Dover site core by Romih and colleagues (Chapter 10). Collins and Guerra (Chapter 11) continued their research in Plaza G at Lower Dover to understand the occupational history of this domestic group during the Late and Terminal Classic periods.

Continued research in the Lower Dover settlement focused on both survey and excavations to understand the settlement pattern and developmental trajectory of the Lower Dover polity from the Preclassic through Terminal Classic period (~900 BC-AD 900/1000). Walden and colleagues (Chapter 12) report the results of systematic, full coverage micro-regional settlement survey for a 12km² area south of the Belize River. Survey was aided by spatial analysis of LiDAR (light detection and ranging) remote sensing data that identified the presence of possible house mounds. Excavations undertaken at the intermediate elite compound of Tutu Utz Na (SG 1) and an adjacent commoner patio group Pech Na (SG 9) are reported by Walden and Biggie in Chapter 13.

The 2016 field season investigations at Xunantunich marks the second year of the Xunantunich Archaeology and Conservation Project (XACP). Zanotto and Awe (Chapter 14) provide an overview of this multi-year project, with the goals of preserving several large structures within the Xunantunich epicenter and clarifying the final phases of occupation at this late center during the Late Classic Period (AD 600-900). The 2016 field season focused on excavation and conservation of Structure A7 (Tilden et al., Chapter 15) and A9, within Plaza A of the central precinct, as well as at Structure A28 atop El Castil1lo (Slocum and Awe, Chapter 16). Excavations at Structure A9, reported by Tilden and colleagues (Chapter 17) and Tilden and colleagues (Chapter 18) revealed several spectacular discoveries including a set of hieroglyphic panels, expanding our knowledge of the role of the Belize Valley within the broader political dynamics of the Maya world. Two centerline caches and a royal tomb were also uncovered at Structure A9, and point to elite ritual and mortuary activity within this context. In addition, the 2016 season’s research was expanded to include investigations within Group B by Sullivan and colleagues (Chapter 19) and provided additional evidence for the practice of termination rituals within the Belize Valley.

The final contribution to this year’s volume by Burke and colleagues (Chapter 20) provides a comprehensive analysis of faunal materials excavated from Baking Pot, Cahal Pech, Lower Dover, and Xunantunich from Late Classic and Terminal Classic period contexts. The results of these analyses provide additional data for understanding human-animal relationships and the role of animals in ritual, especially mortuary activities at Cahal Pech (Plaza H Tomb) and Xunantunich (Structure A9 Tomb).

BVAR’s 2016 field season benefitted from the help of many individuals and establishments. We would like to thank Hode’s Restaurant, Mana Kai Cabins, Pacz Inn, Lower Dover Field Station, and Shell Gas station. The owners and employees of these establishments were essential in the housing, transport, and daily lives of the BVAR staff and students. In addition, we would like to acknowledge the 2016 field school students, staff, and local assistants.
We graciously thank Doug Tilden for supporting the Xunantunich excavation and consolidation work, which was funded by the Tilden Family Foundation. Various other funding sources, such as the Alphawood Foundation and the National Science Foundation are noted for individual chapters. BVAR 2016 staff included: Dr. Jaime Awe, Antonio Beardall, Michael Biggie, Dr. Rosie Bongiovanni, Dr. Chrissina Burke, Britt Davis, Dr. Claire Ebert, Steve Fox, Dr. Kirsten Green, Rafael Guerra, Dr. Julie Hoggarth, Victoria Izzo, Sydney Lonaker, Dr. Ashley McKeown, Niyo Moraza-Keeswood, Christy Pritchard, James Pritchard, Sasha Romih, Mat Saunders, Myka Schwanke, Chris Sims, Diane Slocum, Kelsey Sullivan, Norbert Stanchly, Doug Tilden, John Walden, Tia Watkins, and Hannah Zanotto. We offer our thanks for the support of the Belize Institute of Archaeology for permission to excavate all four sites.

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A Report of the 2016 Field Season

Volume 22
Peri-abandonment deposits, also called terminal, problematic/ritual or special deposits, are dense midden-like features that consist of large quantities of broken ceramic sherds and various other artifacts that appear ritual in context. A number of theories have been submitted to explain the function of these deposits, including that they represent de facto refuse, termination rituals, garbage associated with feasting events, primary or transposed middens, and evidence of rapid abandonment. These deposits are important since they represent the final activities that occurred in plazas, courtyards, alleyways, and other areas associated with ceremonial centers in the Maya lowlands (Hoggarth et al. 2016). Peri-abandonment deposits have been found throughout northern and central Belize at an array of sites, including Cahal Pech, Baking Pot, Lower Dover, Xunantunich, Caracol, Blue Creek, Dos Hombres, Chan Chich and Pook’s Hill. The sites have been excavated by a large number of research projects, resulting in a variety of excavation and recording methods (see Hoggarth et al. 2016; Lonaker et al., Chapter 2, for a detailed background on previous and current research).

In order to better understand the composition, function, spatial patterns, and timing for the deposition of terminal deposits, the Belize Valley Archaeological Reconnaissance Project (BVAR) project has developed standardized methods to document and excavate such deposits. By having a standardized method of excavation, more thorough comparative analyses can be conducted on the deposits, with the goal of having a better understanding of the contexts of these features.

BACKGROUND

An extensive focus on understanding the timing and nature of peri-abandonment deposits was initiated by the Belize Valley Archaeological Reconnaissance Project during the 2013 field season following the discovery of deposits at Baking Pot and Lower Dover that year. Earlier BVAR excavations (at Cahal Pech, Pook’s Hill, Xunantunich, and other
locations) had previously documented similar features, so the 2013 discoveries allowed for a regional view of variability across the Belize Valley. Deposits at Lower Dover were found in Courtyard 2 (previously Plaza F, see Guerra, this volume) in the southeast corner and along the base of the northern structure of the courtyard. At Lower Dover, these deposits were originally called ‘sheet deposits’ and described as cultural materials mixed between the collapse architecture with the quantity and horizontal distribution indicating a secondary sheet deposit (Guerra et. al, 2014). The deposits contained numerous ceramics dating to the late facet of the Spanish Lookout phase, associated with the Terminal Classic period in the Belize Valley, along with chert fragments and partial bifaces, ground stone fragments, faunal remains, jute shells, obsidian blade fragments, ocarina fragments and spindle whorls (Guerra et. al, 2013). The artifact assemblages of these “sheet deposits” are typical of peri-abandonment deposits. Excavations in Courtyard 4 of the palatial complex at Baking Pot’s Group B in 2013 also discovered a large deposit in the southwest corner during excavations in 2013 (Hoggarth et. Al. 2014). The feature measured over 1 meter in height and was approximately 1.27 meters in diameter. The deposit consisted of ceramic sherds, faunal remains, over twenty anthropomorphic and zoomorphic ocarinas, ceramic drums, spindle whorls, bone needles, shell beads and ornaments, and chert tools. The middle section of the deposit contained a larger frequency of daub and burnt limestone, possibly suggesting a burning event. Investigation into terminal deposits continued at Baking Pot during the 2014-2016 field season with additional research conducted at Cahal Pech and Lower Dover.

The large number of deposits identified at various sites across the Belize Valley (and other areas of the Maya lowlands) offer important possibilities in terms of comparative analyses. However, lacking standardized excavation and recording methods, as well as quantitative analyses to understand peri-abandonment deposits, comparisons of different deposits within and across sites are limited. Preliminary methods were established at the start of the 2016 field season and implemented during that season, to allow for quantitative analyses of deposits at Baking Pot to be conducted.

**METHODS**

**Research Design and Spatial Patterns**

Based on previous excavations at the sites of Cahal Pech, Xunantunich, Caracol, Altun Ha and Pooks Hills, Awe (2012) noted a spatial pattern of the location of terminal deposits. Throughout his research, Awe noted a spatial pattern in which peri-abandonment deposits were typically found in the corners of plazas or courtyards, flanking staircases, and in palatial alleyways. Based on this spatial patterning, excavators should be aware of any artifact clusters while excavating in these locations and weary of immediately removing artifacts during excavation. Excavators intentionally looking to recover terminal deposits at Maya sites should focus on these areas.
Exposing and labeling the deposits

Once a deposit has been located, excavators should clean and completely expose the deposit to determine its spatial extent. A datum should be established and labeled at this point. The deposit should be excavated in micro-stratigraphic levels, removing only one layer of artifacts (primarily ceramic and stone in addition to smaller artifact classes) at a time, with each level given a corresponding lot number. For example, the top of the terminal deposit would be designated Level 1 and Lot 1 for the individual deposit. Sub-lots should be established in order to keep strict contextual control for artifacts. One method that was implemented at Baking Pot dividing the deposit into 1x1 meter sub-lots, with the number of sub-lots depending on the size of the deposit (smaller sub-lots can also be used). The sub-lots are given new designations including: 1A, 1B, 1C, 1D, etc. (Figure 1). As the deposit is excavated, the sub-lot numbers will correspond to the level. For example, Lot 1A will become Lot 2A in the second level, and 3A in the third level. The division of the terminal deposit into sub-lots is useful for better artifact provenience and spatial representation of density and volume. Five point elevations are taken for each of the sub-lots at the beginning and end of each level.

Drawings and Photographs

Photographs are taken at the opening and closing of each excavation and before the excavation of each level (Figure 2). The deposit is photographed from a variety of angles including top-down if possible. Each photograph will contain a north arrow, a scale and a descriptive boarding listing the site name, operation, feature number and description, lot number, date and name of supervisor. A large number of photographs from multiple angles facilitates the use of photogrammetry for the development of 3D models of individual deposits (including multiple layers within deposits).
A cross-section profile and plan view map is drawn at the beginning of each level, covering the entire terminal deposit. The cross-section profile will help to record the elevation and depth of the deposit. Plan view maps will help to record the spatial distribution of artifacts within the deposit. Faunal remains, human remains, ground stone, charcoal, polychrome ceramic sherds and special finds, such as lithic tools, jade beads or worked shell, are numbered on the plan view map then labeled in the map key with their corresponding elevation. The artifacts are then collected and bagged individually.

Figure 2: Photograph of the peri-abandonment deposit within EU B7-102, Plaza B, Group B, at Baking Pot. Photograph by Sydney Lonaker.

Excavation and Screening

Sub-lots should be excavated individually, with all cultural material removed and bagged according to level, lot, and artifact class. All sub-lots should be excavated across the same level, to aid in the identification of layer boundaries and spatial extent. Charcoal and human remains should be placed in aluminum foil packets and then bagged (to prevent contamination). The soil matrix from each sub-lot should be collected within each separate sub-lot and screened through 1/4 inch screen with a plastic tarp below. Sifted matrix is bagged and labeled for later flotation and paleobotanical analyses. Artifacts recovered from the screening process should be bagged with the corresponding artifacts from excavation per sub-lot.
Deposit excavation levels are based on microstratigraphy, with level depths ranging between 1-3 centimeters. This approach is taken in order to determine whether the deposit is one deposition event or multiple events, and allows for detailed depth and stratigraphic data to be collected and used within Bayesian radiocarbon models. Once all cultural material and matrix has been removed from the level, the newly exposed artifacts make up the next level and the entire process should be repeated including new photographs, cross-section and plan view maps, and the labeling and collection of artifacts. This process is repeated until the end of the deposit at the plaza floor. Any matrix lenses present above the plaza floor and below terminal deposits should be noted, along with their depth and composition. Closing elevations are taken at the plaza floor for each sub-lot.

![Figure 3: Example of a unit profile that shows the location and contextual information for individual samples selected for radiocarbon dating (Ebert et al. 2016:Fig. 6, used with permission from author).](image)

**Sampling and Recording for Radiocarbon Dating**

Dateable materials should be noted and recorded throughout excavations. Contextual information, including material type, depth and location within sub-lot (included on both plan view maps and profiles) are recorded (Figure 3). Samples (which may include charcoal, faunal remains, shell, or human remains) should be given a unique sample ID which includes contextual information and recorded within the radiocarbon sample log. Ebert et al. (2016) includes a good example of a well-documented profile showing the location of samples (and AMS $^{14}$C results) and describes the importance of these data for developing Bayesian chronological models.
**Artifact Inventories**

All artifacts from excavations are counted and inventoried, as the first step within the larger artifact analysis. Quantitative analyses can use general artifact inventory data to break down the artefactual composition of individual deposits to compare distinct features within a single site, or if using the same protocols and analysis methods, between sites and/or regions. More detailed artifact analyses, including ceramic seriation, lithic tool analysis, faunal species identification, and others, will offer more in-depth views to assess what types of activities might have contributed to the formation of the deposits themselves.

**Storage**

Non-degradable artifacts like ceramics and lithics should be gently washed with clean water, counted, and laid out to dry. Degradable artifacts, such as daub or faunal remains, should be counted and returned to their bags. Because of the humid tropical climate of the Maya region, artifacts should not be re-bagged until they are completely dry. After the artifacts are completely dry, they are placed into clean plastic bags with their artifact cards, also placed into plastic bags. The clean artifacts are stored in a secure, clean and dry buckets or containers.

**CONCLUSIONS**

Although many theories have been put forth, including de facto refuse, termination rituals, garbage associated with feasting events, primary or transposed middens and evidence of rapid abandonment, little has been firmly determined on the context of peri-abandonment deposits. The use of this standardized method for the excavation of these deposits across the Maya region will make possible better comparative analysis and create a better understanding of the contexts in which they occur.

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REFERENCES CITED

Awe, Jaime J.

Guerra, Rafael A.

Guerra, Rafael A., Zoe Rawski, Nick Jackson, and Rebecca Pollett

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Hoggarth, Julie A., Christina Zweig, and May Mzayek

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Lonaker, Sydney, Britt Davis, Niyo Moraza-Keeswood, and Julie A. Hoggarth
INTRODUCTION

During the 2016 field season of the Belize Valley Archaeological Reconnaissance Project (BVAR) project, excavations in Group B of the Baking Pot site core (Figure 1) were undertaken to locate peri-abandonment/terminal deposits to document the abandonment of the site during the Terminal Classic Period (AD 750-900). This research project builds upon Hoggarth’s (Hoggarth et al. 2015, 2016) research that is focused on developing high-precision AMS $^{14}$C chronologies to understand the nature and timing of the breakdown of political systems and the depopulation of Belize Valley centers at the end of the Classic period. Excavations in 2016 focused on exposing deposits in Plaza B of Group B at the site, as well as within Courtyard 1 (Figure 2).

BACKGROUND

Small scale excavations in Baking Pot’s Group B began in 1929 with A.H. Anderson’s excavations in Group B, following the discovery that monumental architecture was being stripped and robbed to use as fill for the Western Highway. Formal excavations by William R. Bullard Jr. and Mary Ricketson Bullard focusing on Structure B1, the eastern shrine, were conducted in 1965 (Bullard and Bullard 1965). After a long hiatus of work at the site, excavations at Baking Pot resumed in the 1990s, when the Belize Valley Archaeological Reconnaissance Project (BVAR) began excavating under the direction of Jaime Awe. A variety of excavations in the settlement (e.g., Conlon 1993; Powis 1993) as well as in Group B (Aimers 1997; Conlon 1996) were
Figure 1: Map of Baking Pot site core and settlement, showing locations of Group A and B. Map by Julie Hoggarth.

Figure 2: Map of Group B at Baking Pot with locations of recent excavations where ‘peri-abandonment deposits’ have been located. Note units with an X, which were excavated and no deposits were identified (modified from C. Helmke and A. Bevan 2008).
conducted in BVAR’s earliest excavations at the site. Extensive settlement excavations continued throughout the 1990s and early 2000s (Ehret and Conlon 2000; Piehl 2004). Carolyn Audet excavated in Groups A and B of the ceremonial center for her dissertation research (Audet 2006) contributing to our understanding of Baking Pot’s place in the socio-political organization of the Belize Valley. Hoggarth’s (2012) research focused on mapping and excavating structures in the eastern Settlement Cluster C at the site. Further excavations in Group B on Structure B1 by Christophe Helmke (2008a) sought to identify construction phases of the eastern shrine. Helmke (2008a) also conducted excavations on Structure B7 to uncover the terminal architecture and to assess the function of the structure. In 2013, a new research program, focused on the development of a radiocarbon chronology to understand the timing and nature of the ‘Classic Maya collapse’, was implemented by Julie Hoggarth. That research aims to build “an absolute chronology 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 all ritual activity” (Hoggarth et al. 2015). This chronology will help to establish the timing of political and demographic collapse in the regional area.

Peri-abandonment deposits (also called terminal deposits in other publications) are defined as dense, midden-like concentrations of mostly ceramics and various other artifacts that appear ritual in context. Similar features have been referred to in the archaeological literature of the Maya lowlands and have been of particular interest to BVAR in the past several field seasons. Many hypotheses have been proposed to explain the context of these deposits such as de facto refuse, termination rituals, garbage associated with feasting events, primary or transposed middens or evidence of rapid abandonment. Awe (2012) suggests that due to the nature of the artifacts present and a thin lens of matrix often found between the deposits and the plaza floor that these deposits are the result of post-abandonment populations returning to the ceremonial centers of sites to perform ritual activities. Awe (2012) also notes that these deposits appear to follow a spatial pattern, having been discovered in the corners of plazas and courtyards, flanking staircases and in palatial alleyways at Cahal Pech, Xunantunich, and Pook’s Hill. It was determined in the 2013 and 2015 field season that Baking Pot follows much the same spatial patterns.

During the 2013 excavations at Baking Pot’s Group B, a large deposit was located in Courtyard 4 of the palatial complex (Hoggarth et al. 2014). The deposit was discovered in the southwest corner of the courtyard immediately below the collapse measuring approximately 1 meter in height and 1.27 meters in diameter. The feature contained a dense ceramic concentration along with faunal remains and over 20 anthropomorphic and zoomorphic ocarinas. Towards the middle of the deposit a high concentration of daub was noted along with burnt limestone, suggesting a burning event. Ceramic analysis of this deposit showed elaborate polychrome sherds as well as Terminal Classic diagnostic sherds.

Excavations of the 2015 field season once again focused on locating deposits with excavation units set up in both the northeast and southeast corner of Plaza B, along the
centers of Structures B6 and B2 in order to locate the staircases, in the southwest corner of Courtyard 1, in the northwest corner of Courtyard 4, and throughout Courtyard 5. Of these units, two large extensive deposits containing at total of four burials were located in the northeast and southeast corners of Plaza B.

The deposit that was identified within Excavation Unit (EU) B7-100 in the northeast corner of Plaza B was the focus of 2016 excavations. EU B7-100 contained a large deposit with two primary and one secondary burials. Approximately two-thirds of a polychrome vase with hieroglyphic inscriptions, later named the Komkom vase, was located within this deposit as well. The Komkom Vase appears to be the longest hieroglyphic inscription ever discovered on a ceramic vessel in the Maya region (Helmke et al. 2017). It was apparent during the previous field season that the deposit located here expanded to the west and south but time constraints did not allow for further explorations. This task was resumed during the 2016 field season with a 3m (N/S) by 8m (E/W) excavation unit (EU B6-6) established to the immediate west of the previous unit, and a 3m (N/S) by 5.5m (E/W) excavation unit (EU B7-102) established immediately to the south.

METHODS

Excavation levels used arbitrary stratigraphic levels and all matrices were screened through a 1/4 mesh inch screen. Lots were assigned to these units corresponding to the protocol outlined in the BVAR Supervisors manual, with deposits divided into 1x1 meter sub-lots labeled A, B, C, etc. (see Lonaker et al., Chapter 1). All cultural material was removed and bagged according to level, lot, and artifact class. All matrices within the deposit sub-lots were also collected for flotation.

RESEARCH OBJECTIVES

Research at Baking Pot during the 2016 field season focused on the following research objectives:

1. Continue excavation of the northeast corner of Plaza B to determine the extent of a previously located deposit that was not expanded in 2015 due to time constraints.
2. Locate peri-abandonment deposits at Baking Pot using the previously identified spatial patterning to assess the types of activities at the end of occupation.
3. Recover missing fragments of the Komkom Vase to better understand the hieroglyphic inscription on the vase.

EXCAVATION RESULTS

Structure B6, Plaza B

Excavation Unit B6-6 was a 8m (E/W) x 3m (N/S) unit running along the southern façade of structure B6, supervised by Britt Davis. This unit was established to
connect two previous units, B6-5 to the west and B7-100 to the east (Figure 3). The objectives of this excavation unit were to identify the western extent of the previous peri-abandonment deposit discovered in 2015 in the northeast corner of Plaza B (EU B7-100) and to find the eastern edge of the central staircase of Structure B6 and excavate any deposit present.

**Figure 3:** Location of Unit B6-6, showing opening photo of unit. Map modified from C. Helmke and A. Bevan 2008.

**Figure 4:** The extent of the deposit in Unit B6-6 (Figure by Britt Davis).
Figure 6: A worked marine shell recovered from the deposit in B6-6. A second, almost identical, marine shell was discovered roughly one meter away from this worked shell.

Figure 7: A jade disk recovered from the deposit in B6-6.

Figure 8: A slate disk recovered from the deposit in B6-6.
The humic layer was removed to expose the collapse, with the humic and collapse layers being combined to form Lot B6-6-1 (as all cultural remains appear to date to the same time period). Lot B6-6-1 was disturbed by bioturbation, including fine and medium sized plant roots and thick roots from a large tree that had grown on top of Structure B6. The soil consistency was mostly a 10 YR 5/4 medium grey-brown sandy loam mixed with collapse. Artifact density in the humic layer consisted of roughly 100 ceramic sherds and a handful of chert flakes. Artifacts identified in the collapse layer consisted of many special finds including figurine heads, unfinished chert bifaces, a jade disk, several spindle whorls, a shell ring, two pyrite mirror fragments, flute pieces, and many other ceramic and lithic artifacts. A 0.5x3m unit, Lot B6-6-A, was placed 15cm east of the staircase outset of Structure B6. A peri-abandonment deposit was recognized at the bottom of the humic and collapse layers, or 1.24m below the surface. The deposit extends from the northeastern corner of the staircase outset south 1.5m and east 7m (Figure 4).

After the deposit was identified, the unit was separated into 1x1 m sub-lots, as shown in Figure 4, for better artifact provenience. The matrix in the sub-lots was then removed until a new level of artifacts was exposed based on microstratigraphy. Each new level was documented, photographed, and removed. This process continued until the deposit was fully removed and the plaza floor was reached. Due to time constraints, an exact plan-view map was not possible for each level but a cross-section was drawn. These figures will be available in future publications.

The majority of the artifacts removed from the deposit were ceramic sherds and partial vessels, many of which were polychrome, and a large frequency, compared to surrounding deposits, of faunal remains. The faunal remains are currently under analysis. Many “special find” artifacts were recovered including a slate disk (Figure 5), a slate mace, worked marine shell (Figure 5), worked faunal remains, several ceramic figurines, and jade (Figure 6). The majority of the polychrome ceramics were removed from the western end of the deposit, in the corner between the southern façade of structure B6 and the outset stair. Further analysis of the artifact assemblages in this deposit will take place in the future.

**Structure B7, Plaza B**

Excavation Unit B7-102 was a 3m (N/S) by 5.5m (E/W) unit established south of the southern baulk of 2015’s EU B7-100 and supervised by Sydney Lonaker. The unit served as a southern extension of EU B7-100 and was placed in order to expose the remainder of the deposit located here in 2015 when time constraints did not allow for further excavation. The extent of the deposit was identified, with the feature terminating at the corner of Structure B7 with the stair side outset located about 2.5 meters to the south (Figure 10). The deposit exposed in EU B7-102 measured approximately 2.5m (N/S) by 2.25m (E/W) and was approximately 35 cm high. The deposit was divided into 1x1 meter sub-lots resulting in 9 sub-lots labeled A-I and excavated using microstratigraphy resulting in six levels (sub-lots 2-7) (see Lonaker, Hoggarth, and Awe this volume for more discussion on excavation methods).
Over 2,000 ceramic sherds were located within the peri-abandonment deposit including polychrome sherds, sherds with pseudoglyphs and a few more fragments of the Komkom vase. In addition, faunal remains, daub, ground stone fragments, chert fragments, several obsidian blades, several freshwater shell beads, two anthropomorphic ceramic figurines, one jade bead, a ceramic ink pot, four chert bifaces and one jade pendent with an engraved image of the Maize God were discovered (Christophe Helmke, personal communication 2017). The deposit had the highest elevation in the southeast corner of sub-lot C where Structure B7 and the staircase outset intersect, with artifacts in the western portions of sub-lots D, E, and F as well as all artifacts in sub-lots G, H, and I located on or slightly above plaza floor. This may imply that the deposit was piled highest in the corner during the depositional event with artifacts trickling down towards the plaza floor. A 3-6 cm matrix lens was also apparent in the southeast corner (sub-lot C) between the final level of the deposit and the plaza floor, suggesting the plaza had fallen into disuse at the time of the depositional event. The presence of collapsed limestone facing stones throughout the deposit, as well as on or slightly above the plaza floor, also suggests the plaza may have fallen into disuse.

Figure 9: Top-down view of the polychrome ceramics located in the western end of the deposit, with Structure B6 to the north and the outset stair side to the west (Photograph by Britt Davis).
Non-articulated human remains were recovered throughout the peri-abandonment deposit in addition to a human long bone discovered slightly above the deposit in the collapse near the B7 wall. The base of a human cranium, likely belonging to an adult male, was recovered in the first level of the deposit to the north with a NW/SE orientation. A left middle rib bone and left tarsal was also located in this level as well as two fragments of an ulna, vertebrae and a mandible fragment located in the second level of the deposit. All remains were non-articulated. The skeletal remains may be associated with the three burials found in EU B7-100. Future C-14 dating and skeletal analysis will test this theory.
EU B7-102 deposit was visibly higher in the Southeast corner where the B7 wall meets the staircase outset. As stated, a similar trend was noted in the EU B7-100 deposit with the highest point of the deposit located in the northeast corner where Structures B6 and B7 intersect. This may imply two separate depositional events in each corner trickling down to meet in the middle on the plaza floor. A 50cm gap was located in the northern half of the final level of sub-lot B further suggesting this may be two depositional events. Future C-14 dating will determine if the deposits are contemporaneous or separate events.

Structure B2, Plaza B

One large excavation unit (EU B2-4) was set up in the southeast corner of Plaza B measuring 2.5 meters N/S by 1.5 meters E/W (Figure 11) and supervised by Niyo Moraza-Keeswood. The objective of the unit was to expose the northern facade of Structure B2, connect EU B2-2 and EU B2-3 for conservation, and expose any possible deposits below. EU B2-2 and EU B2-3 were previously excavated during the 2015 field season discovering “an extensive peri-abandonment deposit covering the entirety of the plaza area of Unit B2-2 and extensions” and a primary child burial directly on the terminal plaza floor in the southern portion of EU B2-2 (Hoggarth et. al 2016). EU B2-3 recovered some artifacts initially thought to be a peri-abandonment deposit, but later revealed to be associated with the collapse of the structure.

Figure 12: Eastern portion of Unit B2-4, showing collapse above floor (Photograph by Niyo Moraza-Keeswood).
EU B2-4 excavations revealed two concentrations of artifacts on both the east and western portions of the unit (Figures 12 and 13) that were initially thought to signal the uppermost level of a peri-abandonment deposit. The ceramics found were all utilitarian with few slipped vessels present. In addition to the ceramics, chert (bifaces, debitage, and raw material), sparse faunal and apple snail shell, ground stone, and minor amounts of daub, found predominately in the eastern section of the unit above plaza floor were also discovered. Further excavations revealed that these materials were part of the collapse associated with the structure, not a deposit. Three complete metates were found (Figure 14), two of which were within a meter of each other and the third found atop the wall of Structure B2. Additionally, two mano fragments were found in varying depths but within a 0.75 meter distance of each metate. A broken slate mace, discovered in the eastern portion of the unit was also found in close proximity to a worked piece of ceramic, rectangular with rounded edges measuring 9cm x 6cm. A patch of marl was also found in the western portion of EU B2-4 on the plaza floor, measuring 20cm x 30cm, surrounded by loamy, light grey brown soil containing small rock inclusion. It is likely remnants from a terminal construction phase.

Figure 13: Western portion of unit B2-4, showing collapse above floor. Note the perpendicular alignment of facing stones and break in the wall’s facing stones. Taken facing the south (Photograph by Niyo Moraza-Keeswood).
Figure 14: Granite *metate* found in situ (Photograph by Niyo Moraza-Keeswood).

Figure 15: Alternate angle of western portion of B2-4. Note the fill like characteristics west of the wall break and corresponding facing stone alignment (Photograph by Niyo Moraza-Keeswood).
Nine meters from the eastern baulk of the unit there were facing stones that may have composed part of a wall. Further excavation revealed that the facing stones ended 1.5m west of this break (Figure 13). At the base of the wall, the facing stones were aligned in a row perpendicular to the wall, two course tall (Figures 14 and 15). The face of the western portion of the wall has a fill consistency and little to no collapse is found to the proximate north of this portion. It is possible that the stones are in alignment with an earlier stage of the outset stair of Structure B2, as seen in EU B2-3 (Hoggarth et al. 2016). The lack of collapse suggests that the missing facing stones may have been recycled elsewhere. Structure B2 will undergo conservation efforts in the upcoming field season.

The architecture uncovered in 2015’s EU B7-101 served as a guide for determining the unit placement of EU B9-100. The location of the southeast corner of Courtyard 1 was approximated by following the northern façade of Structure B1. Here another 3m (N/S) by 2m (E/W) unit was placed (EU B9-100). Because we expect to continue excavations in Courtyard 1 in the future, a permanent datum was also established at the base of a large tree in the center of the northern façade of Structure B1 mound and marked with pink flagging tape. This datum, Datum 1, is located 28cm below the previous ‘Datum 1’ used for EU B7-101 excavations, now deemed ‘Datum 2’.

Unfortunately, the estimated location of the southeast corner was incorrect and no architecture was encountered in EU B9-100. The terminal courtyard floor was encountered but we were unable to follow the floor and extend the unit due to time constraints. However, we hope to further investigate this feature in the future, in addition to connecting EU B9-100 with EU B7-101 in order to expose the southern portion of the courtyard for conservation. EU B9-100 contained a humic level and collapse fill to the base of the terminal floor. Artifacts recovered from the collapse fill included: ceramic sherds, chert fragments, daub pieces of varying size, faunal remains, freshwater shells, and 10 obsidian blade fragments.

**Structure B9, Courtyard 1**

Courtyard 1 is located in the royal palace complex of Baking Pot’s Group B. Courtyard 1 is bordered by Structure B8 to the North, Structure B9 to the East, pyramidal Structure B1 to the South and Structure B7 to the West. Our objectives in Courtyard 1 were to find and expose the southeast corner of where the structures come together in the courtyard, to determine the location of any peri-abandonment deposits.

Excavations in Courtyard 1 were first conducted by Carolyn Audet on the eastern portion of Structure B8. A central staircase was exposed as well as a front terrace, two masonry rooms with one bench in the front room and two benches in the back room with a “drain”-like feature encircling them (Audet 2006). An additional 2x2m unit (Unit 1) was placed in the center of Courtyard 1 at this time to understand construction sequences of the palatial complex. Multiple floors were encountered as well as two limestone platforms and two caches, the earliest of which dates to the Middle Preclassic and is believed to be associated with the first construction phase (Audet 2006). After a long
hiatus, excavations were resumed in Courtyard 1 during the 2015 field season in order to find and expose the southwest corner and determine if a deposit was present (Hoggarth et al. 2016). Excavation Unit (EU) B7-101 was set up where we approximated the southwest corner to be and measured 3m (N/S) by 2 m (E/W). A peri-abandonment deposit was not present but a late-addition staircase was discovered (Hoggarth et al. 2016). Excavations during the 2016 field season continued work in Courtyard 1, this time focusing on the southeast corner of the courtyard where Excavation Unit B9-100 was established and supervised by Sydney Lonaker. Excavations in this location did not identify any deposits and only exposed the collapse of the eastern structure down to the courtyard final floor level. The re-opening of Audet’s Unit 1 in the center of the courtyard was supervised by Julie Hoggarth.

Excavation Unit 1, Courtyard 1

Hoggarth re-opened excavation unit 1, which was excavated by Carolyn Audet in 2003 (Audet 2006). The aim of un-backfilling the excavation unit was to collect new charcoal and other dateable samples so as to construct a radiocarbon chronology for the construction of the royal palace complex. These data will be used in tandem with the deposit chronologies, to compare the initiation and cessation of monumental construction episodes (and royal political activity at the site) with the final activities associated with the deposits identified in Group B at Baking Pot.

The excavation unit was un-backfilled to a sterile level, approximately 3 meters below the current surface level, consistent with the depth reached in Audet’s (2004) excavations. Hoggarth, who was junior staff with Audet and had seen the excavations at the time that they were excavated, identified the same floors and construction episodes as detailed in Audet’s excavations. Figure 16 shows the unit profile for this unit, although the results of the radiocarbon dating project are not yet available.

CONCLUSIONS

Excavations in Baking Pot’s Group B during the 2016 field season focused on determining the extent of the 2015 peri-abandonment deposit in the northeast corner of Plaza B, locating missing fragments of the Komkom Vase, and identifying new deposits at the site. Researchers were successful in locating the western extent and southernmost extent of the 2015 peri-abandonment deposit as well as locating more fragments of the Komkom vase. However, exploratory units set up in the southeast corner of Courtyard 1 and along the northern facade of Structure B2 did not reveal any new deposits. The two deposits encountered in EU B6-6 and EU B7-102 will provide useful chronological data on rituals associated with the Terminal Classic period as well as comparative data with the end of elite mortuary rituals in Baking Pot’s site core.
Figure 16: Profile view of E.U. 1 in Courtyard 1, Group B at Baking Pot (Figure by C. Audet). Note that magnetic north actually points towards the left, not towards the right as originally indicated on the profile drawing.
Acknowledgments

We would like to thank the 2016 BVAR field school students for their hard work this summer as well as Antonio Itza who served as foreman at Baking Pot supervising the local assistants including Orvin Martinez, Edgar Peñados, Manuel Itza, and Gerry Magaña. We would like to thank the men and women at Central Farm for their assistance and coordination. We especially want to thank the Belize Institute of Archaeology for permission to conduct research at Baking Pot. The 2016 research was funded by the Belize Valley Archaeological Reconnaissance project and the radiocarbon dating project by the National Science Foundation (BCS-1460369, JAH).

REFERENCES CITED

Aimers, James J.

Audet, Carolyn M.

Bullard, William R., and Mary Ricketson Bullard

Conlon, James

Conlon, James and Jennifer Ehret
2000 Ancient Maya Settlement at Baking Pot, Belize: Results of the Continually Expanding Survey Program in the Search for the End of the Final Frontier. In The Western Belize Regional Cave Project: A Report of the 1999 Field Season, edited

Helmke, Christophe G. B.

Helmke, Christophe and Jaime Awe

Hoggarth, Julie A.

Hoggarth, Julie A., Christina Zweig and May Mzayek

Hoggarth, Julie A., Brendan J. Culleton, Jaime J. Awe, and Douglas J. Kennett.

Hoggarth, Julie A. and Kelsey J. Sullivan

Hoggarth, J.A., Jaime J. Awe, Sarah E. Bednar, Amber Lopez Johnson, Ashely McKeown, Sydney Lonaker, Kirsten Green, Niyolpaqui Moraza-Keeswood, Erin Ray and John Walden
Kennett, Douglas J., Brendan J. Culleton, and Julie A. Hoggarth
2015  *Examining the Disintegration of Maya Polities and Demographic Decline in the Central Maya Lowlands*. Grant proposal funded by the National Science Foundation (BCS-1460369, 2015-2016).

Piehl, Jennifer

Powis, Terry
INTRODUCTION

This report summarizes 2016 excavations conducted by the American Foreign Academic Research (AFAR) field school project that operates in conjunction with the Belize Valley Archaeological Reconnaissance Project at Cahal Pech, Cayo District, Belize. Supervising this excavation was Jaime Awe, Ph.D. with the support of C. Mathew Saunders, the director of AFAR, and Christy W. Pritchard. James C. Pritchard and Christopher Sims also assisted with the excavation oversight. The 2016 season’s work focused on the excavation of the western ballcourt of Cahal Pech, centering on the form and function of the structures. The AFAR excavations were undertaken in a single, two-week session.

BACKGROUND

Although exact origins and dates are unknown, variations of a Ball Game were played by all the major civilizations in Mesoamerica. Most scholars agree that these games had varied rules, participants, and stakes. Iconography provides glimpses into the details of the ball game such as player appearance, equipment, and ball size, though representations vary by region and time period. The architectural remains of ball courts can also be found across Mesoamerica (and as far north as the US Southwest) and their placements within site epicenters 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 ball courts. Two ball courts can be found within the site core of Cahal Pech. One is located in the C Plaza resting in the shadows of Structures B1 and B3, the largest temple buildings at the site. A second ball court is located west of the site core below Plazas A and D. Between 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 the Belize Institute of Archaeology (NICH), however.

Although both ball courts at Cahal Pech were discovered since the original surveys carried out by Awe, only the ball court in the C Plaza had been extensively investigated 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. In 2012, Catharina E. 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 2012).

**METHODS**

The general approach to unit placement and excavation of the western ballcourt was coordinated with Dr. Jaime Awe, the director of BVAR. C. Mathew Saunders, the director of AFAR, and Christy W. Pritchard supervised the excavations with the assistance of James C. Pritchard and Christopher Sims. AFAR students participated in the practical work as well as in note-taking every day to gain knowledge of the field research process and to complete their field school requirements. Research on the western ballcourt of Cahal Pech is centered on understanding the form and function of the structures.

All units were excavated using cultural levels, that is, from construction episode to underlying construction episode until final excavation for each lot was reached. All matrices were screened through ¼-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. Analysis of materials collected is on-going and will, hopefully, be included in future publications. Materials removed and saved for later analysis include ceramics, chert, freshwater shell, marine shell, quartzite, obsidian and one complete mano and metate found together. Documentation includes plan view photos and plan view maps for the base of each level of excavation.

**EXCAVATIONS**

Our 2016 excavations concentrated on structures CHP-WBC-1 and CHP-WBC-2, and the alley of the western ballcourt of Cahal Pech. This ballcourt is situated downslope to the immediate west of Plaza D, one of the smallest courtyards within the Cahal Pech site core (Figure 1).
The 2106 AFAR field school initiated a two-year goal of investigating the form and function of the structures defining the western ballcourt. The 2016 excavations included a total of 13 units netting the ballcourt alley and structures (Figure 2). Five contiguous units were placed south to north through the alleyway, five additional units were placed at the north and south ends of structures CHP-WBC-1 and CHP-WBC-2, and three penetrating units were placed in the alley floor; one at each end and one in the center. The units were positioned based on the possibility of ball court markers, or other offerings, are often found placed at the polar ends, or the epicenter of ballcourts. Some suggest that ballcourts were sacred complexes, and the flat court surface of the ballcourt often has three large circular stone markers set in a line down the length of the court symbolizing connections with the sun and the underworld (Cartwright 2013).

Figure 1: Cahal Pech Site Core Plan View, showing the western ball court due west of D Plaza. (Graphic courtesy of Dr. Jaime Awe [2013])
Ballcourt Alley Excavation

Five contiguous units (Units CHP-WBC-PL-1 through CHP-WBC-3, CHP-WBC-9, and CHP-WBC-10) were placed along the length of the ballcourt alley to remove all overburden and expose the terminal phase of architecture, including the basal molding of Structures WBC-1 and WBC-2 and the plastered alley floor. The penultimate phase of construction was exposed where the terminal phase was poorly preserved in order to assess the form and function of the architectural group.
The five units each measured 2 m north-to-south x 6 m east-to-west and exposed an area encompassing 10x6 m (60m²), draping over the alley and the basal molding of Structures WBC-1 and WBC-2. A single datum was established (Datum 1) for the ballcourt alley units.

The first level of soil matrix was characterized as a mix of humic soil and structural collapse from Structures WBC-1 and WBC-2. Excavation of the terminal architecture extended at the center from 149cm to a maximum of 202cm below unit datum at which point partially intact terminal phase plaza floor of the ballcourt and basal molding of Structures WBC-1 and WBC-2 was uncovered (Figures 3-5). This floor was preserved in varying states, with the most intact sections abutting the basal molding. Bioturbation and previous excavations completed in unit CHP-WBC-PL-2, but not reported by Ball, had compromised the integrity of portions of the ballcourt alley floor. Materials recovered from Level 1 included numerous ceramics, chert debitage, obsidian, fresh water shell and jute, as well as a variety of implements. Implements recovered included a bark beater fragment, a chert biface, two broken manos, and a mano and metate left as an offering at the base of Level 1 on the plaster ballcourt alley floor near the center of unit CHP-WBC-PL-3.

**CHP-WBC-PL-1 to CHP-WBC-PL-3, CHP-WBC-PL-9 & CHP-WBC-PL-10**

Excavations of these five contiguous units revealed penultimate and terminal WBC plaza floors abutting the east façade of structure F2. The terminal course of basil molding was identified congruent with the penultimate plaza floor. The artifact assemblage associated with the floors consisted of primarily ceramic, with the addition of chert, and, comparatively, a small amounts of freshwater shell, obsidian, and quartz (Table 1).

**Figure 3:** Photo of terminal architecture of CHP-WBC-1 and CHP-WBC-2, facing north.
Figure 4: CHP-WBC-1 East Profile.
Figure 5: CHP-WBC-2 West Profile.
Table 1: Artifact counts from Alley Units.

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Ballcourt Alley Penetrating Units

Three penetrating units were placed from south to north on ballcourt alley (see Figure 2). Each unit measured 1x1m in size and were excavated to non-cultural, white marl, soils.

*CHP-WBC-PL-11*

Unit CHP-WBC-PL-11 was placed at the south end of the alley, equidistant from the southeast corner of structure CHP-WBC-1 and the southwest corner of structure CHP-WBC-2. The unit was excavated in three levels (Figures 6 and 7). Level 1 consisted of approximately 45 cm of overburden. Materials collected from this level include ceramics, chert and quartz, and contained the highest artifact count, by far, of the three levels (Table 2). Level 2 was approximately 40 cm thick and demarcated by a soil change, but not a well-preserved floor. Level 2 soils were lighter in color and more compact, and largely void of cultural materials. A small handful of ceramics were collected from level two. Level 3 was identified by marl-like soil. Several small ceramic fragments were recovered from the top of the level. The marl soils were excavated to a depth of approximately 20 cm into sterile soil below level two. No features or special finds were encountered during excavation of unit CHP-WBC-PL-11.

![Photo of CHP-WBC-PL-11](image)

**Figure 6:** Photo of CHP-WBC-PL-11, base of excavation at base of level 3, facing north.
Figure 7: Profile of CHP-WBC-PL-11, base of excavation at base of level 3.

Table 2: Artifacts from CHP-WBC-PL-11.

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Unit CHP-WBC-PL-12 was placed in the very center of the alley, equidistant from the basal molding of structures CHP-WBC-1 and CHP-WBC-2, and equidistant from the north and south penetrating units CHP-WBC-PL-11 and 13. This unit was excavated in four levels from overburden into marl soils (Figures 8 and 9). Level 1 consisted of approximately 40 cm of overburden down to floor one. A small number of ceramics and quartz were collected from this level (Table 3). Level 2 consisted of approximately 15 cm of light brown rocky loam soils on top of a second poorly preserved floor. A small number amount of ceramics and chert were recovered from Level 2. Level 3 was also about 15 cm thick atop a third floor. Level 3 soils were much lighter and contained less rock. This level had the highest artifact count of the three levels, including ceramics, chert and quartz, although not comparable to units abutting or draping the architecture. Level 4 consisted of marl-like soils and was excavated for approximately 20 cm below concluding excavation of the unit. A small number of ceramics, chert, and one marine shell were collected from the top of eth level. No features or special finds were encountered during excavation of unit CHP-WBC-PL-12.

Figure 8: Photo of CHP-WBC-PL-12, base of excavation at base of level 4, facing north.
Figure 9: Profile of CHP-WBC-PL-12, base of excavation at base of level 4.
Table 3: Artifacts from CHP-WBC-PL-12.

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<td>Grand Total</td>
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CHP-WBC-PL-13

Unit CHP-WBC-PL-11 was placed at the north end of the alley, equidistant from the northeast corner of structure CHP-WBC-1 and the northwest corner of structure CHP-WBC-2. This unit was excavated from overburden, through three floors, to the base of the unit in marl soils (Figures 10 and 11). Level 1 was approximately 30 cm thick and consisted of overburden. Material collected from Level 1 included ceramics and chert. Level 1 transitioned to Level 2 at a poorly preserved floor at the base of the overburden. Level 2 consisted of approximately 30 cm of lighter gray brown rocky soil on top of a second floor. Materials collected from Level 2 remained as only ceramic and chert. Level 3 was only 9 cm thick and consisted of compact gray brown clay loam soils. Materials collected from Level 3 included ceramics and quartz. No chert was identified in Level 3. The last intact floor documented in this unit was at the base of Level 3. Excavation of Level 4 extended approximately 66 cm down to solid rock. Chert, quartz, and many ceramics were recovered from the base level, adding up to the highest count of all four levels (Table 4), however no features or special finds were noted. The soils at the base of excavation were marl-like and appeared to be consistent with sterile soils at the base of units CHP-WBC-PL-11 and 12.
Figure 10: Photo of CHP-WBC-PL-13, base of excavation at base of level 4, facing north.
Figure 11: Profile of CHP-WBC-PL-13, base of excavation at base of level 4.
Table 4: Artifacts from CHP-WBC-13.

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Structure CHP-WBC-1 Excavations

*CHP-WBC-1-5*

Units CHP-WBC-1-5 was placed at the south end of the structure CHP-WBC-1 with the goal of defining the terminal phase of architecture on southern façade. Unit 5 measured 2x3 m. The entire excavation was completed within one cultural level, Level 1 (Figures 12 and 13). Approximately 20-24 cm of humic soil and overburden were removed before uncovering intact floor at depths of 161-170 cm below datum on the southern perimeter of the unit. Approximately 80-84 cm of overburden was removed from the structure before reaching intact architecture at approximately 155 cm below datum along the northern perimeter of the unit. Materials recovered from the unit included ceramics, chert, freshwater shell, one Groundstone tool, and one bark beater (Table 5).
Figure 12: Photo of CHP-WBC-1-5 terminal floor and architecture, facing north.

Figure 13: CHP-WBC-1-5 south wall profile sketch.
Table 5: CHP-WBC-1-5 Artifacts.

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<td>GS</td>
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CHP-WBC-1-7 and CHP-WBC-1-8

Units CHP-WBC-7 and CHP-WBC-8 were excavated as two contiguous units at the north end of the structure CHP-WBC-1 with the goal of defining the terminal phase of architecture on northern façade. The total area of unit excavation measures 6x3 m. Unit CHP-WBC-1-7 was laid in and excavated as a 2x3 m unit and CHP-WBC-1-8 measured 3x4 m (Figures 2, 14 and 15). Excavations were completed and documented within one cultural level, Level 1. Approximately 20 cm of humic soil and overburden were removed before uncovering architecture and floor at depths of 63-70 cm below datum on the southern perimeter of the unit, and depths of 169-187 cm below datum along the northern perimeter of the unit. The terminal architecture and floor were poorly preserved, but identifiable nonetheless. Materials recovered from the units included ceramics, chert, freshwater shell, ground stone, and quartz (Table 6). No special finds or diagnostic material of note were recovered.
Figure 14: Photo of CHP-WBC-1-7 and 8, showing terminal floor and architecture, facing south.

Figure 15: CHP-WBC-1-7 and 8 north wall profile sketch.
Table 6: Artifacts from CHP-WBC-1-7 and CHP-WBC-1-8.

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Structure CHP-WBC-2 Excavations

*CHP-WBC-2-4*

Units CHP-WBC-2-4 was placed at the north end of the structure CHP-WBC-2 with the goal of defining the terminal phase of architecture on northern façade. Unit 4 measured a total of 4x3 m. The original unit was laid in and excavated as 2x3 m. Two 1-meter extensions were added to the west to delineate the southwest corner of Structure CHP-WBC-2. The entire excavation was completed within one cultural level, Level 1 (Figures 16 and 17). Approximately 20 cm of humic soil and overburden were removed before uncovering intact floor at 142 cm below datum, and poorly preserved terminal architecture. Materials recovered from the unit included ceramics, chert and quartz. Artifacts counts were slightly higher in Level 2 than Level 1 (Table 6). No special finds and any diagnostic of note were recovered.
Figure 16: Photo of CHP-WBC-2-4, showing terminal architecture and floor, facing north.

Figure 17: CHP-WBC-2-4 south wall profile sketch.
Table 7: Artifacts from CHP-WBC-2-4.

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CHP-WBC-2-6

Units CHP-WBC-2-6 was placed at the north end of the structure CHP-WBC-2 with the goal of defining the terminal phase of architecture on northern façade. Unit 6 measured 2x3 m. The entire excavation was completed within one cultural level, Level 1 (Figures 18 and 19). Approximately 20-40 cm of humic soil and overburden were removed before uncovering intact floor at depths of 105-111 cm below datum on the northern perimeter of the unit. Approximately 40 cm of overburden was removed from the structure before reaching intact architecture at 40-70 cm below datum along the southern perimeter of the unit. Materials recovered from the unit included cobbles, ceramics, chert, freshwater shell, granite, obsidian quartz, and slate (Table 7).

Figure 18: Photo of CHP-WBC-2-6, showing terminal architecture and floor at northwest corner of CHP-WBC-2, facing south.
Table 7: Artifacts from CHP-WBC-2-6.

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CONCLUSIONS

Our 2016 excavations of the western ball court have initiated a two-year program of excavations to assess the form and function of the structural complex. To date, 13 excavation units have been placed within the ball court. Five of these units address the ball court alley. Another five units expose portions of the north and south termini of Structures WBC-1 and WBC-2. The final three units were excavated down the centerline of the ball court alley in hopes of uncovering ball court markers. Excavations reveal a somewhat well-preserved terminal phase of architecture, including plaster floors, intact facing stones, and corners. Bioturbation has negatively impacted sections of the ball court alley, and previously excavated but not reported units completed by Ball have limited the integrity and data recovery in unit CHP-WBC-PL-2. Overall, a wide variety of artifacts have been recovered, most importantly the special find of a mano and metate intentionally placed by the ancient Maya at the northern end of the ball court alley in unit CHP-WBC-PL-3.

Acknowledgments

We would like to thank the 2016 AFAR field school students for their hard work this summer. 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 Belize Institute of Archaeology for permission to conduct research at Cahal Pech.
REFERENCES CITED

Awe, Jaime J.

Awe, Jaime J., Cassandra Bill, and Mark D. Campbell

Cartwright, Mark

Catharina E. Santasilia

Week, John M., Jane A. Hill and Charles Golden (Eds)
INTRODUCTION

Cahal Pech is a medium-sized Maya site located above the modern town of San Ignacio and is situated approximately 2km south of where the Mopan and Macal rivers meet to form the Belize River. The site core, which includes an acropolis, is located on a steep hill and covers approximately one hectare (Healy et al. 2004). The site is made up of seven plazas, with Plaza B being the largest. This plaza is bordered by Structures B1, B2 and B3 on the east, B6 and B7 to the north, A2 (a long range structure) to the west, and in the south by Structures B4 and B5 (Figure 1; Awe 1992).

Figure 1: Map of Cahal Pech Acropolis showing location of Plaza B (courtesy of the BVAR project).
The focus of excavations for the 2016 field season of the Belize Valley Archaeological Reconnaissance (BVAR) project was on Structures B4 and B5 (Figure 2), with an aim to find where the structures separated. This location was selected as it is north of an ‘alleyway’ on the northern edge of Str. G2 that was first uncovered in 2014 and explored further in 2015 (Peniche May and Beardall 2015, 2016). While this alleyway was closed off, explorations were set for the area north of it to see if perhaps it continued and was simply closed off in the past.

![Figure 2: Location of 2016 excavations.](image)

**PREVIOUS EXPLORATIONS**

**Structure B4**

It was long established that Structure B4 had the longest construction sequence at the site of Cahal Pech. It was damaged by looters prior to 1988 at the summit as well as plaza level (Awe 1992), with Stela 5 in front of the building also broken into several fragments. The building was excavated by Jaime Awe and David Cheetham (1999-91), by James Garber in 2008, and most recently by Reiko Ishihara-Brito and colleagues in 2012.
Structure B4 had 13 construction phases (Awe 1992) with the earliest version being built ca. 1200-1000 BC during the Early Preclassic. The last phase, according to Awe (1992), was probably constructed during the early part of the Late Classic, about the same time Stela 5 was erected. The last two phases (B4/11th and B4/12th) were removed in 1991, leaving B4/10th exposed. This construction phase had two balustrades flanking the staircase, with each having a pair of masks that faced Plaza B. Due to a terrible state of preservation it was not possible to identify any iconography on the masks. The version now seen at the site, B4/10th, was constructed sometime in the Late Preclassic between 250 BC and AD 150. Excavations of the structure in 2012 (Ishihara-Brito and Awe 2013) once again confirmed this architectural sequence.

**Structure B5**

Structure B5, as many other buildings in the Cahal Pech site core, was subject to looting during the 1980’s (Awe 1992:143). The building was subsequently explored by Awe in the 1990’s (1992:143-148) who cleared a looter’s trench along with other excavations to understand the construction history. As recent as 2014, Peniche May carried out further investigations into the construction history of Str. B5 following her work in 2012-13 examining Preclassic contexts in Plaza B. Structure B5 represents as much as 15 different phases of construction/modification (Peniche May 2015) that first began during the Late Preclassic, with the terminal phase of the building constructed sometime in the Terminal Classic (~AD 750-850/900). This last phase was poorly preserved, and thus is not well understood.

Peniche May (2015:101) found that penultimate phase of construction at Structure 5 (Str. B5/14th) was “a long, single-roomed building with benches and multiple entrances. Buildings with similar architectural features have been recognized as *popol nah* or council houses, which served as places where elites met to discuss and make decisions on the issue of the polity.” Conversely, Str. B5/14th may have also been a multi-roomed building with several entrances, places of observation for activities occurring in both Plaza B and Plaza G. Whatever the final form was, Peniche May (2015) is certain this penultimate phase of Str. B5 did not hold a domestic function.

**METHODS**

To further explore the construction sequence and formation of Structures B4 and B5, the BVAR team placed a total of seven excavation units between the buildings, using the previously established orientation of Structure G2 as a guide (9º east of magnetic north). Dimensions varied based on the excavation needs, and unit extensions were added as were necessary. Depths for the excavated strata were measured using a datum labelled 2016 C (369cm above the surface level of Plaza G), using previous established datums in Plaza G and Structure G2 as reference, and being

The levels of excavation were established based on both arbitrary and cultural characteristics. Lots were assigned by levels and cultural contexts and could (for ease and swiftness of the excavation process) expand over more than one unit, as was the case for
the ceramic deposit located along the length of four units. This amalgamation was noted. Artifacts were collected and separated based on unit, level, lot and context. All matrices were screened through ¼-inch mesh. Collected artifacts are in the process of being analysed and the results will be discussed in more details in future reports.

The Alleyway

As a result of the excavations the separation of Structures B4 and B5 was discovered by means of an ‘alleyway’ running just north of Structure G2 to Plaza B. This alleyway became the focus of much of the excavations as the eastern wall of B5 and western wall of B4 were found, separating the once joined structures into 2 (Peniche May 2013).

The west wall on Str. B4 was found to be in a well-preserved state. It measured 1.3 meters at its highest from the alleyway floor, and was composed of as many as 12 courses of cut limestone blocks. The stones used were not uniform in size but ranged between two sizes, being (w x h) 17x5cm or 30x11-15cm. Conversely, the east wall of Str. B5 exhibited some disturbance from bioturbation but also likely from the removal of some cut stones in the southern and northern sections along the wall (Figure 3). The apron on the base of this wall was approximately 40cm high with an average of four courses. Stones were uneven in size, from 28x12cm to 50x16 cm. The wall above had an average of five courses of stone blocks, ranging from 40x25cm to 18x10cm. The length of the alleyway is 6.5m with an average width of 90cm.

Figure 3: Eastern wall of Str. B5, sections exhibiting stone removal
After the humic layer and the ‘collapse’ was removed from the excavation units, we encountered a fairly uniform and thick sascab-like matrix that filled the entire second level of the alleyway right down to the floor. What was discovered was a heavy concentration of ceramic sherds that was spread across the units in between the walls of Strs. B4 and B5 that ran along the entire length of the alleyway, tapering slightly in unit B5-12, closer to the access point of Plaza B (Figure 4). The concentration was unevenly spread throughout the alleyway, with some pieces being directly above the floor of the alley and others were above resting directly on the sascab. The density of the sascab added some difficulty in the cleaning and removal of the deposit.

![Figure 4: Ceramic deposit between Structures B4 and B5.](image)

At some point in the Late Classic period this alleyway between the two structures was filled in (Peniche May 2013; Jorge Can, personal communication 2016), which changed the length of penultimate Structure B5, B5-14th. A small portion of Str. B4 was partially obscured in the north by this new phase of activity. It was within this fill that the ceramic deposit was discovered, which consisted of a total of 2,505 sherds, with 60% being diagnostic (Table 1). The ceramic deposit also contained obsidian blade fragments, chert flakes, and some faunal remains. No freshwater shells were found. Two special finds included a marine shell was found that showed evidence of having been perforated (Figure 5A) and fragment of a biface and the fragment of a projectile point (Figure 5B). A total of 9 faunal remains were recovered from the alley (Figure 6). Although these have not yet been subject to formal analysis, the presence of at least two immature white-tailed deer has been noted. Several large bone fragments may also be attributable to white-tailed deer (Figure 7; Norbert Stanchly, personal communication 2016).

<table>
<thead>
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<th>% of total count</th>
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Table 1: Artifacts recovered in B4/B5 Alley Ceramic Deposit.
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Figure 5: (A) Perforated shell fragment, (B) Projectile point fragment.
Figure 6: Faunal remains from B4/B5 Alley.
Post abandonment deposits have been found in Plaza A by Dr. Awe during the 2002/2003 field seasons of the Tourism Development Project (Kollias 2015) as well as flanking Structure G2 (Peniche May et al 2015). In 2014, Kollias excavated a similar deposit in the A1/A2 alley that was not on the floor but above sterile matrix and was deposited concurrently as those from Plaza A excavated by Awe in 2002/2003. These deposits all were found in association with Terminal Classic post abandonment ritual contexts. The 2016 deposit was located partially on the floor while other fragments rested on the fill that was used to close off the alley, so it cannot be classified a post-abandonment ritual deposit. While some deposits have ritual characteristics, others are lack these elements.

The deposits may be related to termination rituals contexts in areas of civic and elite use and not just the refuse of squatters dumping their refuse in these locations (Stanton et al 2008) or desecratory termination ritual deposits as can be seen when places are sacked, such as examples from Caracol (Chase and Chase 2003). The ancient Maya at Cahal Pech often reused treasured items in construction fill, as in the case of many Preclassic figurines fragments found within this context. According to DeLance (2016:225), “the placement of figurine fragments in the construction fill of public and administrative buildings may be understood as an expression of collective identity during a time when formal social and political institutions and inequality was nascent within the burgeoning state was becoming stronger”. This was a practice during the formative period of Cahal Pech and most likely does not reflect the use of the ceramic pieces and other cultural items found within the deposit in the B4/B5 alleyway.

What is most likely is that the concentration was simply a secondary deposit, with pieces reused from a possible feasting event or associated with an elite refuse midden. The lack of whole vessels, except for one almost totally re-constructable polychrome dish (Figure 8), the weathered condition of the fragments, and the separation along the alley of

Figure 7: Polychrome sherds from B4/B5 ceramic deposit.
these pieces indicate that it is a secondary deposit. This type of deposit is similar to a feature found at Blue Creek, which Clayton et al. (2005) argued was secondary in nature and did not exhibit primary feasting refuse. Serving vessels such as dishes, bowls, and plates outnumber utilitarian storage vessels 3-to-1. Further analysis on ceramic types remains ongoing. While the alleyway deposits seems to have formed by reusing refuse in construction fill, I also argue that it may represent the repurposing of discarded elements in a ritual context prior to the new expansion on Structure B5. The presence of faunal remains, with white-tailed deer being a favorite delicacy for Maya elites, supports to this hypothesis.

Figure 8: Polychrome dish fragment.
The Pit

Clearing of the ceramic concentration revealed the floor of the alleyway, or rather the plastered surface of the B5 basal platform. In the southern portion of the alley, in units B5-8/9, a pit was dug to explore the construction history of this portion of the site. It measured 90cm by 90cm using the width of the alley as the limit. The alley floor itself was 5-7cm thick and layered over brief fill, which covered a second floor, Floor 2 that was not as well preserved or as smooth as Floor 1 (Figure 9). The surface of Floor 2 was located approximately 15cm under the surface of Floor 1.

The Pit consisted of a mix of sascab and fill of medium density and was dug to a depth of approximate 260cm under Floor 1. As we dug into the basal platform of Structure B5, we also uncovered the interior section of the basal wall. Two earlier phases of Structure B4 were uncovered, and possibly 2 earlier phases of B5 (Figure 10). Further test pits shall be placed in the alley in 2017 to shed further light on these construction phases. The pit yielded a wider array of artifacts compared to the alleyway excavations, with 79% diagnostic ceramics, daub, and 40% of all freshwater shells found in 2016 (Table 2). The ceramics uncovered included many waxy red pieces indicative of Preclassic times, but though more formal ceramic analysis in ongoing.

Figure 9: Floor 2, B4/B5 Alley.
Table 2: Artifacts recovered from The Pit.

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Count</th>
<th>% of total count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic</td>
<td>222</td>
<td>73.8</td>
</tr>
<tr>
<td>Chert</td>
<td>41</td>
<td>13.7</td>
</tr>
<tr>
<td>Freshwater Shell</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Marine Shell</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Daub</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Cobble</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Special Finds</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Charcoal</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>301</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Figure 10: East-West Profile of B4/B5 Alley and The Pit.
Structure B4

While excavations in the alley and pit were carried out predominantly on what is the basal platform of Str. B5, two units were placed on Str. B4 just east of the alleyway. These were placed to further expose the southwest corner uncovered. It is likely that in the process we dug into backfilling of a previous unit inside B4-2. This was given a separate lot number in the likelihood this was so. 27% of all ceramics found in 2016 came from the two units set up on B4, as well as 42% of chert and 38% of the freshwater shells (Table 3). The most spectacular find was a miniature projectile point found in the first level of unit B4-1 (Figure 11). The southern wall of Str. B4 was an average of 10 courses high, with stones ranging from 40x16cm to 24x9cm.

Table 3: Total artifact tally of Structures B4/B5 excavations 2016.

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Count</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic</td>
<td>3543</td>
<td>85.4</td>
</tr>
<tr>
<td>Chert</td>
<td>433</td>
<td>10.4</td>
</tr>
<tr>
<td>Freshwater shell</td>
<td>59</td>
<td>1.4</td>
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<tr>
<td>Marine Shell</td>
<td>6</td>
<td>0.15</td>
</tr>
<tr>
<td>Faunal remains</td>
<td>26</td>
<td>0.6</td>
</tr>
<tr>
<td>Obsidian</td>
<td>23</td>
<td>0.6</td>
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<tr>
<td>Granite</td>
<td>13</td>
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</tr>
<tr>
<td>Quartzite</td>
<td>6</td>
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<tr>
<td>Cobble</td>
<td>5</td>
<td>0.1</td>
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<tr>
<td>Daub</td>
<td>9</td>
<td>0.2</td>
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<tr>
<td>Slate</td>
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</tr>
<tr>
<td>Carbon</td>
<td>10</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4150</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Figure 11: Projectile point found on Str. B4.
CONCLUSIONS

At some point in the Terminal Classic, the Maya at Cahal Pech expanded Structure B5 eastward. In doing this, they partially obscured the western portion of Structure B4 as well filling in the space above the Str. B5’s basal platform that abuts Structure B4. In the filling in of this portion, the Maya acquired cultural material from some refuse midden, possibly of feasting or elite nature, and scattered and mixed this in with the fill. While it the alleyway ceramic deposit appears to be secondary in nature, it does not necessarily take away from the ritual significance. I argue that the deposit was associated with a new modification of the existing structure. Instead of depositing something new or whole, they repurposed existing refuse giving it a new meaning.

Acknowledgments

I would like to thank Dr. Jaime Awe (director of the BVAR project) for giving me a proper ‘baptism with fire’ and giving me the chance to do my first solo as field school supervisor. The growth experienced is immeasurable; Dr Julie Hoggarth for her moral support and patience in answering questions; Dr. Nancy Peniche May for her advice and help figuring out the complexity of Cahal Pech architecture; Norbert Stanchly for being awesome about bones; Sylvia Batty for constant support, advice, and friendship; the BVAR and AFAR students who made my job enjoyable; the local rascals Luis C., Luis S, Mili, Cole, Elijah and Michael for working through the rain and sweat, and Manuel Mendez for helping me keep sane.

REFERENCES CITED

Awe, Jaime J.

Chase, Diane Z. and Arlen F. Chase

Clayton, Sarah C., W. David Driver, and Laura J. Kosakowsky

DeLance, Lisa LaVon
Garber, James, Jaime Awe, and Barry Kidder

Ishihara-Brito, Reiko and Jaime Awe

Kollias, G. Van

Peniche May, Nancy

Peniche May, Nancy, Antonio Beardall, Jaime J. Awe and James J. Aimers

Stanton, Travis W., M. Kathryn Brown and Jonathan B. Pagliaro
RITUAL TERMINATION AND ANCESTOR REVERENCE: THE 2016 EXCAVATIONS AT STRUCTURE 2, ZOPILOTE

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Northern Arizona University

Jaime J. Awe
Northern Arizona University

INTRODUCTION

The Zopilote Group is a terminus group located approximately .75 km south of the Cahal Pech site core in the Belize Valley of west-central Belize (Figure 1). Zopilote has been continually excavated since the early 1990’s yielding important artifactual evidence regarding the function of terminus groups in the Maya Lowlands (Cheetham et al. 1993; Cheetham et al. 1994; Cheetham 1994a; Cheetham 1994b; Ferguson et al. 1994; Ebert and Fox 2016). We hypothesize that Zopilote was a site of ancestral reverence continually revisited by the ancient Maya during the Terminal Classic period (ca. AD 750-850/900). The 2016 excavations conducted by the Belize Valley Archaeological Reconnaissance (BVAR) project were aimed at measuring the extent of a Terminal Classic ceramic deposit discovered in the 2015 field season on the west side of Structure 2 (Ebert and Fox 2016). Excavations were also conducted on the east side of Structure 2 to assess the architectural form of the building. Initial hypotheses based on the 2015 test excavations suggested that the building is cruciform in nature. Due to extensive looting on the summit, north side, and south west and northeast corners of the structure, the true architectural form of the structure remains to be determined.

BACKGROUND

Initial survey and excavations conducted at Zopilote by the BVAR project from 1992 through 1994 revealed the presence of five structures, the largest of which is Structure 1 (Figure 2). Structure 1 measures approximately 11.5 m tall. BVAR excavations documented a series of at least 10 discrete construction phases at the building, with the earliest episodes dating to the Middle Preclassic period (900-300 BC). Final construction activity at the Structure 1 was placed during the Late Classic period based on ceramic associations (AD 600-900; Cheetham et al. 1993).

Two burials were discovered interred beneath the western staircase of Structure A-1 at Zopilote. Burial 1 contains the remains of an elite adult male overlaying the
remains of a cedar platform. The individual was oriented north to south, with a decapitated head placed on a dish at the feet of the interred individual (Cheetham 1992). Several types of grave goods were found in association with the burial. These artifacts include a small jade human effigy pendent, two jade beads, a stingray spine, two *Spondylus* shell earflares, a disc shaped shell *adorno*, a large fresh-water shell, two small stone balls, a stone bead, and stucco veneer fragments (Cheetham et al. 1993: 162). Additionally, nine ceramic vessels were also interred with the burial, one of which is Saxche Orange polychrome vase depicting a military procession (Cheetham et al. 1993: 165). The elaborate nature of burial discovered beneath the western staircase of Structure 1 suggests the individual interred was of elite status. Cheetham et al. (1992) further posits that the individual could represent a past ruler or military leader of Cahal Pech during the Late Classic period approximately around 600 AD.

**Figure 1:** Map illustrating the location of the Zopilote Group relation to the Cahal Pech site core and peripheral settlement groups. Inset shows location of Cahal Pech and other major sites located in Belize (Image courtesy of Jaime Awe and Claire Ebert, 2016).
Excavations conducted during the 1993 field season uncovered a second burial located in a vaulted chamber under the Structure 1 staircase. The burial, denoted as the “Stela Chamber”, contained fragments of a carved stelae (Stela 9) along with the remains of two disarticulated infants placed above Stela 9 (Cheetham et al. 1994). Over 200 hemispherical bowls were also placed in front of Stela 9 and were associated with 225 human phalanges with are likely related to a form of sacrifice. Additionally, 45 mandibular incisors and other fragments of human were located at the base of the stela (Awe et al. 2009). Stela 9 is the only example of a carved stone monument from Cahal Pech, and Awe and colleagues (2009) have argued that the monument dates to the Late Preclassic period based on the style of carving and iconography. The imagery on the upper portion of the stela reveals an individual interred in the mouth of a jaguar. This
motif is associated with the way, or animal co-spirit, and reflects shamanistic themes (Stuart 2005). While the association between the Stela Chamber burial and Tomb 1 remains unclear, the continual internment activity at Structure 1, in addition to evidence for burning above the central staircase, suggests that the Zopilote Group was a ritually significant location for the Cahal Pech community.

In 2015 the BVAR project researchers returned to the Zopilote Group with two primary goals. First, stratigraphic excavations were conducted in order to refine the chronological sequence of the Structure 1 through AMS radiocarbon dating. Second, excavations were focused investigating the form and function of Structure 2 at the group (Ebert and Fox 2016). Structure 2 is located on the eastern side of the Martinez Sacbe as the road terminates into a platform constructed by the ancient Maya. The 2015 excavations on the western face of the building identified the presence of an extensive terminal deposit. Architectural features located below the deposit indicated that the structure was cruciform in form (Figure 3).

Figure 3: Photograph of architectural feature found the west side of Structure 2 (after Ebert and Fox 2016).

The Structure 2 terminal deposit contained large amounts ceramics dating to Spanish Lookout phase (AD 600-900). A total of approximately 25,000 sherds were recovered, 2,344 of which were diagnostic (Ebert and Fox 2016). Large concentrations of ceramics, some of which were roughly 50 cm thick, were stacked on top of one another
increasing the probability for refits to study the form of the types of ceramics used in the formation of the deposit. Fragments of a Pedregal Modeled *incensario* vessel depicting the Jaguar God of the Underworld was also recovered from the deposit (Figure 4). The Jaguar God of the Underworld is associated with the male dynastic line and ancestral reverence, perhaps suggesting that the terminal deposit is associated with activities associated with ancestor veneration (Taube 1992).

![Figure 4](image)

**Figure 4**: Photograph of the fragment of a Pedregal Modeled *incensario* vessel discovered at Structure 2 at Zopilote during the 2015 field season (after Ebert and Fox 2016:Fig. 15).

THE 2016 ZOPILOTE EXCAVATIONS

The objectives of the 2016 field season was to measure the extent of the terminal classic deposit discovered in 2015 at Structure 2 at the site of Zopilote. There was clear evidence of large concentrations of ceramic material within the south side baulk of the excavation unit indicating the deposit is larger than first discovered. Another goal of the 2016 was to discover the architectural form of Structure 2 by placing a large excavation unit on the west side of the structure that encompassed the summit of the structure to the base. The present hypothesis regarding the architectural layout of Structure 2 is that it is a cruciform building which correlates to the wall that protrudes in the northwest direction from the center of the building found in 2015. Assuming that walls from the other corners of the build project from the structures core in a similar manner, the cruciform hypothesis seems plausible. The excavation unit placed on the east side of Structure 2 will confirm or negate this preliminary assumption.
Zopilote Structure 2, Unit 2 (ZPL 2-2)

The removal of an extensive amount of looters fill was necessary to expose the humus layer before a formal unit was placed on the east side of Structure 2. Looters had extracted the core material from the summit and debris littered the surface of the east side of the structure. The matrix consisted of light gray material inner mixed with small rocks and cobbles, most likely representing core fill from inside the structure. Small amounts of ceramics were recovered from the looter’s fill and catalogued. A humus layer was encounter roughly 0.5 meters below the looter’s fill, and was composed of dark brown organic material indicating that this is native soil that not been disturbed by looting activities. A 2x3m excavation unit (ZPL 2-2) was place in this area. Some ceramics and chert fragments were exhumed from this level but in relatively small quantities. The provenience of these artifacts are also in question due to the fact that natural forces such as rain and erosion could have removed them from their primary positions over time. The lot was closed when the surface of the terminal deposit was discovered.

After removal of the humus layer from the unit, the matrix changed form a dark brown organic layer to a light grey marl associated with the terminal ceramic deposit (Figure 5). The deposit was composted of large amounts of Spanish Lookout ceramics littered the floor of the excavation unit with little evidence of any other artifactual material. The terminal deposit seemed to be thicker in this excavation compared to left side of the deposit found during the 2015 excavation season. This may suggest that the area covered by ZPL 2-2 may represent the center of the deposit, where the highest concentrations of ceramics were placed. The 2015 excavations were located on the fringe of the deposit. Alternatively, the relatively thinner part of the deposit from the 2015 excavations may be related to environmental forces, such as bioturbation, which resulted in the ceramic sherds being dispersed towards the left hand of the structure. Architectural features associated with the deposit included large cut stones that likely represent collapse from the core of the structure. A second rock alignment was also revealed once the top collapsed stones were removed (Figure 6). This feature most likely represents part of a low lying wall like the one discovered in 2015. This feature may have functioned to delineate a smaller space closer to the corner of the building.

A plaster floor (Floor 1) was encountered directly beneath the terminal deposit (Figure 7). Floor 1 was relatively flat with a slight slope appearing towards the south side of the excavation unit. Besides a few ceramic sherds, few other artifacts were recovered in association with Floor 1. A second plaster floor (Floor 2) was located approximately 24 cm below Floor 1 with littler associated artifacual materials. A total of seven charcoal samples were also taken from ZPL 2-2 for radiocarbon dating. These chronological data may aid in developing a temporal sequence for building phases of Floors 1 and 2, in addition to the placement of the terminal deposit. This data is crucial in assessing if Structure 2 was continually revisited by the ancient Maya to perform ritual offerings to their ancient antecedents.
Figure 5: Photograph illustrating the beginning of the terminal deposit found at Zopilote. Notice the rock alignments and cut stones that may be associated with a small wall discovered during the 2015 field season.

Figure 6: Photo of a rock alignment that may be associated with a low lying wall discovered during the 2015 field season.
The decision was made to extend the unit in order to expose more of the terminal deposit present in the baulk of the unit. A 1x3 meter unit was placed to the east of ZPL-2-2 (Figure 8). After the looters debris had been removed from the unit extension and the top of the terminal deposit was exposed, excavations continued in 15 cm arbitrary levels in order to investigate the micro-stratigraphy of the deposit. Analysis of the stratigraphy is ongoing, and photographs were taken from each section will be used to create a 3D model of the depositional layers. Extensive amounts of ceramic and chert material were taken from the ceramic deposit. Excavations of the unit extension were terminated at Floor 1.
Zopilote Structure 2, Units 6-11 (ZPL 2-6 through ZPL 2-11)

The east side of Structure 2 sustained the least amount of looting compared to the other sides of the structure. The goal of excavations conducted in this area was to delineate the architectural form of the building. Six excavation units were placed extending from the summit to the base of the structure encompassing a total area of 5x6 m (Figure 9). The area was covered with a dark brown humus layer with tree protruding from the surface. Excavations began at the lower units and progressed upward. Four of the six units were completely excavated yet the upper two units were left with humus layer intact due to time restraints (Figure 10). However, the units that were excavated left little inclination to the architectural form of structure 2. Bioturbation had resulted in the displacement of stones on the entire side of the structure with only one alignment visible. The lower two units did indicate the structure was placed directly on bedrock. Previous excavations at Structure 2 also determined that the building was constructed in a single phase (Ebert and Fox 2016).
Figure 9: Elevations of excavation units placed on the east side of structure 2. These elevations are taken from the humus layer.

Figure 10: A) Photograph of Unit 2-6, Level 1, with stone alignment present. B) Photograph of Unit 2-7, Level 1, where stones mostly represent collapse. C) Photograph of Unit 2-8, Level 1 showing bedrock. D) Photograph of Unit 2-9, Level 1, showing mostly bedrock with some cut stones present.
DISCUSSION

Archaeological evidence found at the Zopilote Group indicates that the site has been the locus of ritual activity from the Late Preclassic period. Structure 1 is composed of ten superimposed temple structures and contains two interments. Burial 1 was interred during the Late Classic Period and contained the remains of an individual of elite status. Evidence of extensive burning has been discovered on the staircase above where this individual found, perhaps indicating that ritual activities associated with ancestral worship were taking place at Zopilote. The presence of the Stela 9, located in Burial 2, may also be related to the ritual importance of the site. Awe et al. (2013) suggest that due to the wear on the face of the stela may be related to rituals that occurred at Zopilote through numerous centuries until the stela’s termination in the Late Preclassic period.

The relationship between the ritual significance of Structure 1 and the Structure 2 terminal deposit remain in question. Terminal deposits have been associated with termination rituals, primary middens, squatter refuse, feasting events, descretory/termination rituals, and acts of ancestral worship (Chase and Chase 2007; Sullivan et al. 2013; Stanton et al. 2008). We hypothesize that the formation of the terminal deposit at Zopilote is evidence of ancestral reverence that continued throughout the Terminal Classic Period (AD 600-900), perhaps in a procession from the site core of Cahal Pech. The Terminal Classic Period is associated with a cessation of monumental construction projects, the dissolution of the k’uhul ahau complex, a decrease in population numbers, and a virtual absence of iconographic imagery and writing (Martin and Grube 2008).

The presence of the terminal deposit with high amounts of Terminal Classic ceramics, however, may indicate that the Zopilote Group continued to be regarded as a sacred landscape embedded with social memory with the founding lineage of Cahal Pech. Upon progressing down the Martinez sacbe, the ancient Maya would have placed an offering on the west side of structure 2 and ritually terminated ceramic vessels to release ch’ul, or sacred essences, within them (Stuart 1995). This type of offering would ritually feed the ancient Maya’s ancestors providing benefits to the agents involved in addition to establishing connections with the past. The fact that Zopilote was first established in the Early Preclassic period (Ebert 2017) and continually rebuilt through the Late Classic period fortifies the claim that site played a critical role in performing ritual agency by the Maya that continued long after the site’s collapse. The accumulation of ceramics in the terminal deposit at Structure 2 suggests the continual deposition of artifactual material throughout time, rather than occurring during one episode. This hypothesis will be confirmed depending on results of radiocarbon dates.

CONCLUSIONS

The Zopilote Group played an active role in ritual function in the lives of the ancient Maya inhabiting the area around the site of Cahal Pech. As early as the Late Preclassic (BC 300-100), ritual acts were taking place as evident by the construction of Stela 9 depicting a ruler in the maw of a Jaguar. During the Late Preclassic though Late
Classic periods, two key events occurred. Firstly, Stelae 9 was ritually terminated and placed in vaulted chamber below the northern staircase with ritual sacrifices interred with the stelae between BC 300-100 at the beginning of the Late Preclassic. Secondly, an elite individual was also buried beneath the staircase with elaborate grave foods and a sacrificial head placed between the body’s feet. The association of these two features suggests the ancient Maya are attempting to associate the elite burial with the individual depicted on Stelae 9 which may be related to the founding dynastic line at Cahal Pech.

During the Terminal Classic Period, the Zopilote Group likely still played an important religious role, even after the “abandonment” of the site core at Cahal Pech ~AD 850/900. The presence of the terminal deposit suggests that individuals may have engaged in rituals and made offerings to in this ritually significant location. These rituals may reflect actions based on sacred memory where the former prestige of Cahal Pech was still in the minds of ancient Maya who inhabited the land. Future analysis will concentrate on cataloguing ceramic types, lithic classification, organic residue analysis on a sample of sherds, and radiometric dating that will aid in testing the validity of our assumption that Zopilote was continually revisited by the ancient Maya to perform acts of reverence to pay tribute to their ancestors.

Acknowledgments

The 2016 Zopilote Group excavations were conducted under the auspices of the Belize Valley Archaeological Reconnaissance (BVAR) project co-directed by Drs. Jaime Awe and Julie Hoggarth. Would like to thank the Belize Institute of Archaeology for their assistance and permitting of our fieldwork. We owe gratitude to our field crew and BVAR students who assisted in field work. Financial support for this research was provided by the BVAR project. Additional funding support for the BVAR Project was provided by the Tilden Family Foundation, San Francisco, California.
REFERENCES CITED

Awe, Jaime, Nikolai Grube, and David Cheetham

Chase, Arlen and Diane Chase

Chapman, Rebecca L.

Cheetham, David.

Cheetham, David T., Julian Vinuales, Milena Bisquet and Catherine Holegate

Cheetham, David, Jim Aimers, J. Ferguson, David Lee, L. Delhonde and Al Jenkins

Cheetham, David, Jaime Awe, and David Glassmann

Cheetham, David, Gerald Trainor, James Mower, Esther Pozzani, Suzanne Duggan, Anies Hassan, and Prasun Amin
Ebert, Claire E.

Ebert, Claire E., and Steve Fox

Fox, Steve, Claire E. Ebert, and Jaime J. Awe
2015 Revering the Past: Analysis and Interpretation of a Terminal Classic Deposit at the Cahal Pech Terminus Group. Poster presented at the 81st annual meeting of the Society for American Archaeology, Orlando, FL.

Martin, S. and N. Grube
2008 Chronicle of the Maya kings and queens: deciphering the dynasties of the ancient Maya. Thames and Hudson, London.

Stanton, Travis H., M. Kathryn Brown, and Jonathan B. Pagliaro

Stuart, David
2005 Glyphs on Pots: Decoding Classic Maya Ceramics. In Sourcebook for the 29th Maya Meetings at Texas, The University of Texas at Austin. Department of Art and Art History, University of Texas at Austin, Austin.

Sullivan, Lauren A., Brett A. Houk, Gregory Zaro, and Lindsey R. Moats
2013 Deciphering a Terminal Classic Surface Artifact Deposit at Courtyard 100, La Milpa: The View from the Ceramic Data. Research Reports in Belizean Archaeology 10: 211-218.

Taube, Karl.
INTRODUCTION

This report summarizes the sixth season of research at Plaza H, Cahal Pech, Cayo District, Belize conducted by The University of Montana (UM), Missoula, Montana, U.S.A., under the auspices of the Belize Valley Archaeological Reconnaissance (BVAR) Project and with close collaboration with BVAR director Jaime Awe, Ph.D. On site activities began on January 4, 2016, with excavations taking place between January 6 and 18. Most of the excavators were UM students enrolled in a winter session course offered by UM and taught by John E. Douglas, Ph.D. and Linda J. Brown, M.A. The ten students were: Laura Branson, Keri Brauner, Amanda Cervantes, Sara Giao, Amanda Hughes, Ellie Innis, Kara Johannesen, Karly Law, Erin Tarnoff, and Monte White. In addition, J. Miles Douglas served as a volunteer excavator. Antonio Itza, who has a long history of supervising excavation teams for the BVAR Project, aided by Alex Alvarez, an experienced BVAR Project employee, played key roles in the project. After the students left, Douglas and Brown sorted and processed artifacts for two days. In June and July, Douglas and UM graduate student Kara Johannesen returned for three weeks of lab work with the Plaza H artifacts, which included Johannesen collecting data for her UM master’s thesis; although the thesis is not completed at the time of this writing this report, the work conducted in June and July is summarized in this report.

UM/BVAR PROJECT RESEARCH HISTORY AND QUESTIONS

We chose to explore Plaza H because of an unexpected discovery in 2006, which changed people’s perspective about this unassuming area that lies in the northeast corner of Cahal Pech’s core, to the immediate north of Plaza C and east of the main entrance to Plaza B (Figure 1). The discovery was a tomb constructed of massive limestone blocks, which was encountered while trenching the walls of a modest Terminal Classic platform, Structure H-1. The single older male in the tomb was explicitly marked as high-status, accompanied by 13 ceramic vessels, jade ornaments, and other socially valuable items (Figure 2; Jaime Awe, personal communication, 2011; Awe 2013).
Figure 5: Cahal Pech with Plaza H in the upper right corner. This map does not reflect current knowledge of the Plaza H Terminal Classic structures (Archaeological Institute of America 2016).

Figure 6: Interior of the Tomb H-1-1. Photograph taken June 2006.
The discovery of a Terminal Classic tomb and the remodeling of a Late Classic platform raised questions about how people were using Plaza H at the end of Cahal Pech’s occupational history. Based on conversations with Awe in 2011, along with knowing the constraints placed on us by a short field season, we decided to work on questions involving the Terminal Classic in Plaza H. We felt that our endeavors would contribute to the understanding of the Terminal Classic at Cahal Pech. Other projects have been conducted in Plaza H since 2006 (Pritchard et al. 2011; Santasilla 2012) and these also contribute to our understanding of Plaza H.

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 through the six years of excavation and analysis (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 redrawn to reflect a growing understanding of the architecture. Despite the refinements based on excavation data, the structures shown in Figure 4 remain hypothetical reconstructions of the Terminal Classic structures because the plaza has not been completely stripped, erosion along the hilltop edge on the north and west side has damaged or removed some of the structures, and other formation processes have affected the integrity of these deposits. Topography provided clues to the layout of the structures, and was considered in estimating platform locations wherever excavations were unavailable. It is to our advantage that the Plaza H surface is easily observed, because it is within an area of the Cahal Pech Archaeological Reserve that is routinely maintained for visitors. 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 in Plaza H:

1. What types and densities of artifacts and features are found that date to the Terminal Classic use of Plaza H?
2. What activities took place during the Terminal Classic, 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 (LC) and Terminal Classic? Was the occupation continuous?
5. Can Terminal Classic 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 Terminal Classic in Plaza H?
7. What happened in Plaza H after the Terminal Classic abandonment?
8. Can the Terminal Classic activities in Plaza H be related to the identity of the users?
9. How does Terminal Classic use of Plaza H relate to Terminal Classic materials found elsewhere on the Cahal Pech acropolis?
10. How do the Terminal Classic patterns seen at Cahal Pech relate to other sites in the Valley and, ultimately, to the entire Mayan lowlands?

**Figure 7:** Research questions for Plaza H investigations.
The six-year history of the UM/BVAR project 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 this unit, 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. Two parallel 1m by 3m 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

\[\text{Figure 8: Plaza H Terminal Classic structure walls identified by UM/BVAR (black lines) with speculative structure plans shown by hatched areas. Surface contours from ASTER GDEM (Jet Propulsion Laboratory 2004).}\]
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.
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 was to see if there were walls or masonry that was related to the northeast structure (C-2) in Plaza C. However, the unit located only a section of the western platform wall of H-2 and a series of plaza floors in front of that, making it clear that H-2, like H-3 and C-3, was a stand-alone structure situated on a plaza floor raised well above the floor of Plaza C. 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 of Unit 8 located two thick, surprisingly well-preserved plaster floors and two apparent N-S “walls” (Figure 6). Later work (in June 2013) demonstrated that the stacked limestone blocks along the eastern edge of the unit, initially interpreted as a wall, was in fact the stacked fill used to block the stairway entrance to the tomb. The crude upright stone wall incorporated part of the lower plaza floor in its interior was part of a remodeling event that included the raising the plaza floor, constructing the tomb, and extending the H-1 platform to the south.
The 2013 excavations focused on H-1, starting from Unit 8 excavated in the previous year. 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, 19) to 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 these units were terminated before reaching Late Classic materials.

The 2013 excavations that were 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, expansion to the east of Unit 8 (i.e., units 14, 14B, 17, and 18) removed deposits 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 uncovered during the 2006 tomb excavations. This eastward expansion of units created a trench across H-1, but it failed to reach the east platform wall, even though surface contours indicated its proximity. Third, units were added to Unit 8 to the south and east (Units 11 and 13) to follow the west and south wall 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 NE 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 had 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 unambiguously identifying the south and east walls of Structure H-1. This included excavating units 20 and 21 in the northeastern portion of the structure. The units were placed in order to locate the east wall of the structure; however, the excavators determined that the deposits indicated 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, before the final phase of H-1 covered the plaza floor in that area. Excavators were more successful at defining the 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. Also, they 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 some of the 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, the work in Unit 30 included excavating a series of floors that incorporated dense chert debitage fill. In all, some 19 kg of chert artifacts were removed from this 0.75m by 1.5m unit, consisting of thousands of small flakes. Because these deposits are widespread in the northeast corner of the plaza and poorly understood, a 2kg 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. For 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 the south wall (earlier in units 13, 22, and 29). The excavations demonstrated that the main cultural deposit was about 20 cm thick and located about 10cm below the ground surface. The deposit tapers off about 2.5m from the south wall. A large number of sherds was recovered from these units, but also an unusual amount of chert chipped stone tools, granite ground stone artifacts, obsidian blades, marine shell and other items, including
fragments from at least one, likely two, human skulls. This area remained a focus in 2016 field research. H-2 excavations were placed to add information about the north wall, the southeast corner, and southwest corner through seven different units (33, 38-40, 44, 46, 48). 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. H-3 excavations (units 36 and 37) were positioned to fill gaps in the placement of the structure’s south wall, and units 45 and 46, on the southeast platform corner, aimed at identifying the extent of flint knapping activities on top of H-3.

RESEARCH DIRECTIONS FOR 2016

Building on past UM/BVAR results, our focus in 2016 was continued work at and around H-1. We wanted to continue to inspect the nature and extent of the dense sherd deposit lying at plaza level south of the Terminal Classic southern wall of H-1 to understand the extent and organization of the deposit. Within H-1, we wanted to explore the interior of the platform east of the tomb to determine if there could be a second tomb or other features associated with the tomb. And, we wanted to follow the southeastern corner, which had been uncovered in 2014 to locate the east wall of H-1 platform.

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 10cm. 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 six years of work and is kept in the geographical information system QGIS 2.16.

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 2.5cm. 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 the BVAR Project 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 jpeg 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 (2012b). None of the excavation units reached bedrock or sterile soil.

EXCAVATION UNITS AND FEATURES

Summaries of the 2016 excavation units are found in Appendix 1; here, these units are discussed individually, with the exception of contiguous units 51 and 54. These units can be divided into two groups: units excavated south of H-1’s southern wall, and units excavated to learn more about the H-1 platform (Figure 7).

Units south of H-1’s southern wall

Unit 50, a 1m by 2m unit, was located immediately south of the same-sized Unit 13 dug in summer of 2013, where we first found the large sherds of this special deposit. As documented in the artifact analysis section below, the densities of sherds found in Unit 50, particularly in levels 2 and 3, are far higher than typical for the project, and somewhat higher than Unit 13, but lower than the units farther east. The Unit 50 levels two through four associated with the special deposit included several interesting artifacts,
notably a jade and a shell *adorno*, and a decorated limestone spindle whorl. This unit also had the highest density of obsidian blades that UM/BVAR has found in the six seasons. Level 4 ended with a plastered floor, appearing to match the last plaza floor found west of H-1, making the end of this deposit more clearly marked than the other units along H-1’s southern wall, where the deposit ends on a hard-packed surface. This difference suggests functional differences in the plaza level space south of H-1 before the deposition of the final deposit.

**Figure 11:** Location of 2016 excavation units.

Given the plastered plaza floor at the bottom of Level 4, it is unsurprising that levels 5 through 6 found mainly small ballast stones and low artifact counts (although an *Olivella* shell bead was recovered from Level 5). Digging below the Terminal Classic plaza floor in Unit 50 proved helpful in understanding a feature found at the bottom of Unit 13 (immediately north of Unit 50): a short, crude alignment of small stones (maximum dimension was ~25 cm), crosscutting Unit 13 roughly N-S near the east end, extending partially into Unit 50. Although the alignment appeared to end in Unit 50, the possibility exists that it turned into the sidewall and continued to the east. While the
alignment is clear and composed of stones larger than those surrounding it, its purpose is not immediately obvious. Because excavation to Level 6 showed that the alignment is only a single course deep and appears alongside ballast below the plastered plaza floor, it is almost certainly part of the construction for the raised plaza floor during the Terminal Classic. This matches the interpretation of similar alignments found west of H-1 during the 2013 excavations, about 7 m to the northwest (Douglas and Brown 2014). These alignments appear to be scaled-down versions of the “construction pens” found at more massive Maya projects. A human skull bone fragment was located in Level 6 immediately below a cobble that is part of the alignment; whether the bone fragment is an offering or cache related to the construction of the plaza, or if that location is coincidental and the bone fragment represents secondary deposition, is unknown.

To the east, Units 51 and 54 are adjacent 1m² units excavated into the special deposit outside of the southern wall of H-1. In terms of documenting this deposit, these units proved to be among the densest to date (see discussion of ceramic densities in the artifact analysis section). Recovered in these units were a granite mano fragment, a limestone bark beater, a variety of chert chipped stone tools, obsidian blades, a ceramic ear spool, and marine shell, discussed further in the artifact section.

Figure 12: Platform wall, likely from the early Terminal Classic, found in Units 51 (foreground) and 54.
Unexpectedly, the most important architectural find of the session was made in Units 51 and 54. Crossing the southern part of the units, a segment of a platform wall was found; the wall faced north, with ballast fill to the south (Figure 8). In retrospect, the top of the wall was also visible in Unit 35, excavated in 2015, but the wall was not recognized. It is distinctly lower than the H-1 wall to the north or the H-2 wall to the south, and clearly represents an earlier construction event. The wall is 3 m north of the edge of the final Terminal Classic H-2 platform, and this evidence for a larger early Terminal Classic H-2 platform suggests that H-2 was remodeled as a small platform during the time new construction extended H-1 9m south (an effort that included the tomb). Thus, the wall segment is an additional example of how Plaza H was heavily remodeled twice—once at the start of the Terminal Classic, the second with the construction of the H-1-1 tomb (Douglas et al. 2015). Further research on the early Terminal Classic H-2 platform should be a goal for future research.

Units excavated within H-1

Unit 52 is a 1.5 m² excavation placed to trace the eastern wall of H-1 immediately north of the structure’s southeast corner, which was revealed in Unit 24 during the 2014 session. Architecturally, the excavation of Unit 52 showed that the stone alignment found in Unit 24 ended just a few centimeters into Unit 52. Although the unit had only a small portion of the stone wall, the ballast fill of the H-1 platform could be traced across the unit. Possibly, H-1’s eastern platform wall was dismantled for reuse or eroded away. The east side of the structure is near the edge of the hill, where erosion has occurred; it is also an area with surface and subsurface historic trash spanning over 30 years. Alternatively, perishable wood barricades might have maintained the east edge of the platform, which was largely hidden from view. Regardless, the lack of stone wall remnants along this edge of the platform is reminiscent of the east edge of the H-2 platform to the south, where the 2014-2015 work identified the edge of platform fill without finding a continuous platform rock wall. Unit 52 was excavated in 4 levels, with Level 4 dug only in the platform fill on the west side of the unit (Unit 52A). The artifacts associated with this unit were fairly limited in diversity, but likely representing a mixture of materials from the platform fill and materials eroded from the top of the platform.

Unit 53 is a 1m by 2m excavation immediately east of the tomb and was the deepest (~90cm) excavation of the season. The purpose of the unit was to see if there were features associated with the tomb to the west. The unit confirmed the lack of additional features and determined the exact location and construction of the eastern wall of the tomb. The unit was dug in five levels; as discussed below, after the first level, it was divided into two or three different horizontal areas. The divisions correlate with three distinct features—the tomb wall to the west, the fill above the early Terminal Classic floor underlying the late Terminal Classic expansion of platform H-1, and a pit with a thermal pit feature dug into the early Terminal Classic floor.

After the first level in Unit 53, there were clear matrix differences between the eastern and western part of the excavation. Unit 53A, on the west side next to the tomb,
had light brown matrix and included a large, flat-lying, limestone slab (about 70 by 50 by 20 cm) in Level 2. Unit 53B to the east was the more typical grey platform fill matrix. Unit 53A (levels 2 through 4) documented the east wall of the tomb and the original pit that intruded into the Terminal Classic floor to build the tomb. Unit 53B to the east ended on the same floor found in surrounding units (i.e., Unit 20 to the northeast and Unit 17 to the south) at the bottom of Level 3. Level 4 in Unit 53B documented subfloor/Late Classic materials. Finally, Unit 53C Level 5 represents a pit dug into the Terminal Classic floor that contained charcoal and a limited range of artifacts. The feature was found in an area of about a 20 cm (N-S) by 100 cm (E-W) area in the northeast corner of Unit 53. Part of the same feature was exposed in Unit 20 (Douglas and Brown 2015); the two units combined suggest a rough pit feature with a diameter of about 1.5 m. A variety of artifacts were found in Unit 53, which as discussed in the artifact section, but including Late Classic types below the buried floor at the base of the tomb. The analysis of this excavation supports the interpretation that this unit represents material from Late Classic, followed by an early Terminal Classic Plaza floor, and ending with the late Terminal Classic construction of the tomb and platform in a single building episode.

**RECOVERED ARTIFACTS AND ECOFACTS**

Four distinct analysis projects were conducted in 2016 and are summarized below in different subsections: 1) a summary of the 2016 artifacts recovered; 2) a study of special finds from the south of H-1 deposit from the 2013-2016 excavations; 3) initiation of a ceramic study of Mount Maloney Black through paste and slip studies; and, 4) a study of microdebitage from a soil sample collected in 2015 to consider lithic production evidence on platform H-3. The laboratory efforts were led by Linda Brown during the field season; during June and early July, John Douglas and graduate student Kara Johannesen returned to work on the collection, research made possible by support from BVAR, the College of Humanities and Sciences at the University of Montana, and UM’s Toelle-Bekken Family Memorial Fund. Each topic listed above is discussed in turn.

**Artifacts Recovered**

The recovered artifacts and ecofacts from the 2016 field seasons were washed (when appropriate) and sorted by provenience and material (Table 1). There were 29 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., 29 proveniences, 100%, included ceramics). An artifact count for each category is also provided. Most—64%—of the artifacts were associated with the three units immediately south of H-1; 18% of the artifacts were associated with Unit 52, which sought to define the east wall of H-2; and the remaining 18% with Unit 53 dug into H-1 east of the tomb.

*Artifacts found in units excavated within H-1.*

Although two units included H-1 platform fill, Unit 52 straddled it and the east platform wall while Unit 53 was dug only within the platform fill east of the tomb. The
upper levels of Unit 52 are likely a mixture of fill and materials eroded from the platform; it also had the most historic trash of any 2016 unit, perhaps because people come here to view the edge of the site and left trash or because people found it better to deposit trash towards the edge of the site. Artifacts potentially associated with the use of the platform are fairly limited. Belize Red Group represented about 17% of the sherds, including an incised barrel-shaped vase sherd in Level 2. Several large Mount Maloney Black bowl rim sherds were associated with Level 1. A shell pendant from Level 2 is the only special find from the unit; an obsidian flake, a small bifacially flaked cobble, a few pieces of marine shell, and larger set of jute complete the artifacts from levels 1-3 in Unit 52. Notably, the sherds from the platform-only fill sampled in 52A, Level 4 were much smaller and worn than the pieces from earlier levels, in agreement with these sherds representing inclusions in the fill rather than traces of late Terminal Classic activities.

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

<table>
<thead>
<tr>
<th>Material</th>
<th>Proveniences</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramics</td>
<td>29</td>
<td>2,255</td>
</tr>
<tr>
<td>Chert</td>
<td>26</td>
<td>2,089</td>
</tr>
<tr>
<td>Cobble</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Daub</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Faunal remains</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Granite</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Historic (recent)</td>
<td>8</td>
<td>n.a.</td>
</tr>
<tr>
<td>Human remains</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jade</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Limestone</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Obsidian</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Quartz</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Shell</td>
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<td>104</td>
</tr>
<tr>
<td>Slate</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Special finds</td>
<td>33</td>
<td>46</td>
</tr>
</tbody>
</table>

Unit 53 tended to have, even in the top levels, smaller, more worn ceramics and less Belize Red (which stood at about 7% by count) than Unit 52. Further, more pieces of the easily observed Savanna Orange, a Preclassic type, were found in Unit 53. The early pieces would suggest that the fill used had been moved from elsewhere. Still, some of the sherds and other artifacts from the upper levels may represent activities that took place on the platform, notably a notched and shaped sherd whose shape might be an effigy. In addition, a mano fragment, a hammer stone, an obsidian flake, and marine shell fragments were found in the first two levels, potentially relating to such activities.
Unit 53A (Level 4), near the base of the tomb, looked very different from the rest of the assemblage. One difference is a complete lack of Belize Red. Moreover, the 208 sherds include many pieces of Silver Creek Impressed, Dolphin Head Red Group (identified by Laura Kosakowaski, personal communication, 2016; cf. Gifford 1976:227-230), a type not otherwise recognized from previous work. The Silver Creek Impressed sherds appear to be from the same vessel. Most likely, the tomb construction intruded into a Late Classic deposit. Ceramics, however, proved less useful in dating the pit feature uncovered as 53C (Level 5) from Unit 53; the nine calcite tempered sherds comprising the ceramic total from the feature in 2016 including several red slipped pieces that could not be typed. These ceramics may have been introduced from the deposit the pit was dug into, rather than the fire or roasting activities associated with the feature.

Artifacts found in units south of H-1’s southern wall

The artifacts recovered from Units 50, 51, and 54 were primarily from the special deposit, and those are discussed below, along with the artifacts from previous excavations in this area. Note that Level 1 was not included in the deposit analysis because the artifacts might reflect material eroded from the platform mixed with the special deposit. For units 50 and 54, levels were dug below the rich deposit; these are briefly discussed here but set aside in the next section. Unit 50 from Levels 5 and 6 were below a plaza floor. These levels, especially Level 5, did recover moderate sized collections of artifacts (for example, 222 sherds weighing 1.6 kg in Level 5) and include a range of artifacts: from both levels, five pieces of obsidian, an *Olivella* shell bead, and the fragment of a human frontal bone discussed in the excavation section. It seems likely, based on elevations and comparison with better preserved areas to the west of H-1, that these levels included both the original early Terminal Classic plaza floor and the late Terminal Classic Plaza floor, although the earlier floor was not distinct during the excavation or in the sidewall. The fill between these two plaza floors has produced significant numbers of artifacts in other areas of Plaza H. Similarly, Level 4 of Unit 54, also held moderate artifact quantities (169 sherds weighing 1.5 kg) although, like all the units along the east edge of the H-1 southern wall, lacks a late Terminal Classic plaster floor to demarcate the end of the special deposit. This level is associated with fill in front of the early Terminal Classic H-2 platform wall and ends at the base of the wall with traces of the early Terminal Classic plaster floor. It includes a modest amount of Belize Red Group by weight (5%) and two unifacial tools.

Artifact distributions from directly south of H-1

As discussed in the excavation section, deposits near the southern platform wall of H-1 uncovered unusually large sherds, and a high density of finished chipped stone tools, ground stone tools, and a variety of special finds in a ~30cm thick deposit buried below the surface in a ~2.5m band south of the H-1 southern platform wall. The working hypothesis is that this is a special deposit related to the final abandonment of Plaza H. Rather than report only on the 2016 discoveries this section assesses the characteristics of this deposit using all the units associated with the deposit.
A contextually conservative definition of the deposit was taken to insure a minimum of mixing with other kinds of contexts. The contexts considered here are:

<table>
<thead>
<tr>
<th>Season Excavated</th>
<th>Unit</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2013</td>
<td>13</td>
<td>2,3</td>
</tr>
<tr>
<td>Winter 14</td>
<td>22B &amp; 24B</td>
<td>3</td>
</tr>
<tr>
<td>Winter 14</td>
<td>22B &amp; 24B</td>
<td>3,4</td>
</tr>
<tr>
<td>Winter 15</td>
<td>34</td>
<td>2,3,4</td>
</tr>
<tr>
<td>Winter 15</td>
<td>35</td>
<td>2,3</td>
</tr>
<tr>
<td>Winter 15</td>
<td>49</td>
<td>2,3</td>
</tr>
<tr>
<td>Winter 16</td>
<td>50</td>
<td>2,3,4</td>
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<tr>
<td>Winter 16</td>
<td>51</td>
<td>2,3</td>
</tr>
<tr>
<td>Winter 16</td>
<td>54</td>
<td>2,3</td>
</tr>
</tbody>
</table>

Looking closely at the excavators’ notes and artifact inventories, we believe that there was some variation in how the top and bottom of the high-density deposit was identified. Nevertheless, these levels capture the artifacts most likely belonging with this deposit. In this section, we looked at the distribution of artifacts in these levels, including consideration of the density of sherds and chipped stone fragments, along with a discussion of special finds and other more infrequent artifacts.

The excavations in this deposit separate into two areas: on the western edge of the H-1 south wall, Units 50 and 13, and along the eastern edge, Units 22B & 24B, 29B, 34, 35, 49, 51, and 54 (Figure 9). In all, the western edge excavations cover 4m² and the eastern edge excavations about 6.7m². A tree and its roots intervening between these areas encouraged the separation of the excavations. Ceramic density was decidedly variable, from 12.1 to 85.1kg per m³, with the densest ceramics found among the eastern units (Figure 9). In contrast, chert debitage density was narrow, 1.9 to 3.7kg per m³, with the exception of the southern edge of the deposit (Unit 49), where very little debitage was recovered.

Given the greater amount of ceramics found in the eastern units, it is unsurprising that the most variety of ceramics come from there. For example, most of the Cayo Unslipped large jar fragments, accounting for much of the density by weight, are found along the eastern side of the south wall. In addition, the most socially and ritually significant pottery also comes from these units, including pieces described in previous reports, in particular the Pedregal Modeled effigy vessel fragment found in Unit 34 (Douglas and Brown 2016) and the partial Benque Viejo Polychrome vase found in Unit 22B/24B (Douglas and Brown 2015). A base of a second, smaller diameter, Benque Viejo Polychrome vase was found in the adjacent level, Unit 51, at the same level. In addition, a broken, solid clay “rod,” an artifact category thought to be the support prong of a multipart ceramic brazier (Ball and Tashchek 2007), came from the special deposit in Unit 54 Level 3; a second one in Level 4, although from a lower density level largely classified as below the special deposit, may be related. Finally, in Unit 54, Level 3, a fragment of an effigy vessel was found, consisting of an appliquéd arm with a hole passing...
through the fist. The vessel was covered with regularly spaced elongated incisions, similar to incised-punctated modeled Vaca Falls Red effigy pots (Gifford 1976:235). The eroded, calcite tempered, pottery surface showed no trace of red slip. Although most of the notable ceramics comes from the eastern units, there is a calcite tempered “tube” with a 7.8 mm hole in the center, possibly a spout, but more likely a fragment of musical instrument (whistle, flute, or ocarina), found in 2016 at Unit 50, Level 2.

Figure 13: Unit locations and sherd densities for the south of H-1 deposit.
There are two pottery sherds found from the deposit that were modified into apparent jewelry pieces. The more elaborate of these was found in 2016 in Unit 54 (Level 3); it is a small perforated disk (19.8mm in diameter) with a fine (2 mm) biconical hole and a carefully shaped groove encircling the outside (Figure 10). It may have functioned as a pendant or an ear ornament. At Barton Ramie, Willey et al. (1965:409) found a similar sized, edge-grooved “pendant”—but that example has an elongated shaped and lacked a hole. In addition, a rectangular piece (25mm by 17mm) of Belize Red was found with a biconical drill hole in the center in Unit 34, Level 3 in 2015.
At least four other artifact categories—chert bifaces, obsidian blades, ground stone artifacts, and faunal remains—have distributions that appear to be patterned within the deposit. The 13 bifacial chert tools, including five from 2016 (Figure 11 shows one), were found in five adjacent eastern units: 34, 35, 49, 51, and 54, a strongly patterned distribution. In contrast, at least one unifacial tool was found in every unit, with two units on opposite ends of the deposit excavation (Unit 54 and Unit 13) containing the highest frequency: seven unifacial tools each. The total number of unifacial tools is 27, and the distribution across the deposit indicates that the east-west division is irrelevant for this diverse tool category. A total of 22 obsidian pieces were found, all blade fragments except for two flakes (from units 13 and 34). Twelve blades were from Unit 50, the highest density of obsidian from any UM/BVAR Project excavations in Plaza H, while no other unit from this deposit contained more than two pieces.

Ground stone proved to be even more patterned. The two granite metate fragments, which appear to be from different metates, were both found in Unit 34, Level 4. The four manos are nearby and all from Level 3: two in Unit 51, one each from units 34 and 35 (Figure 12). All the mano fragments are battered on one end, or in one case, both ends, indicating that their last function was as pestles or pounders. Given the
proximity in all the granitic ground stone tools, it is possible that the metate pieces and
the broken manos represent a tool kit, used together to pound or process material(s). The
only other ground stone tool is a limestone bark beater from an adjacent unit to the east
(Unit 54, Level 3). The tool shows the typical 9 ridges on one side, 13 on the other
(Figure 13).

Specialists have not reviewed the 15 faunal pieces and two human bones from the
deposit, but the distribution of them in the deposit also show spatial patterning. All but
one piece of animal bone are from the eastern units—the exception is from Unit 50, Level
3. Of course, because bone is subject to deterioration in a tropical environment, it is
possible that formation processes account for this patterning, but there are no obvious
depositional differences between these units a few meters apart. The faunal material
includes two antler tines from adjacent material and possible bird bone. The human
remains consist of two parietal fragments found in 2015, possibly from different
individuals based on thickness, from adjacent units and overlapping levels (Unit 34,
Level 4 and Unit 35 Level 3).

Figure 18: Shell adorno from Unit 50, Level 2; base width 10.5mm.

A small group of shell, jade, slate, and modified ceramic objects are more difficult
to characterize in distribution, in part because they are rarer than the categories discussed
above. Eight small, broken pieces of marine shell were identified, thought to be primarily
conch, weighing a total of less than 15 grams, found evenly distributed by count between
the eastern and western units. The single identifiable shell ornament is a carved adorno, 10.2 by 9.5 by 1.3 mm, found in Unit 50 in 2016 (Figure 14). Similar adornos are known
from a range of sites, including several Belize cave sites (Stemp et al. 2012). The outline
is suggestive of the “Day Sign cartouches of the Tzolkin calendar” (Stemp et al.
2012:115), along with at least two other signs. Working from contextual information in
stelae depictions, Helmke (2009:228, 230; Helmke, personal comm. 2016; Stemp et al. 2012) concludes that although the meaning is ambiguous, the CH’AB sign, 'wax, hive,' may be the intended central meaning for these *adornos*. As Stemp et al. (2012:118) conclude for an obsidian eccentric version of this same form, although the specific meaning is tentative, the glyph outline is clear and suggests that meaning was conveyed through shared epigraphic knowledge, an important observation given this artifact’s Terminal Classic context.

A small jade *adorno* was found in 2016 from the same unit and level (Unit 50, Level 3) as the shell *adorno*. In shape and size, this 13.8mm by 9.5mm by 5.2mm object is shaped like a kernel of maize (Figure 15). The only other stone ornament in this deposit was a broken slate pendant found in the eastern units (Unit 34, Level 3) during the 2015 excavation. A second piece of slate from this deposit, apparently unworked, was found in Unit 54, Level 3, in 2016.

![Figure 19: Jade adorno from Unit 50, Level 2: length 13.8mm.](image)

A sherd and a limestone spindle whorl were found in the deposit as well; these artifacts were not spatially correlated. The sherd spindle whorl, found in 2015 in Unit 35, Level 2 is small (30mm diameter) and somewhat irregular, made from a calcite, red slipped sherd of unknown type. The limestone spindle whorl, from Unit 50, Level 2 in 2016, features decorative incisions, measures 26mm in diameter, 16 mm tall, with a shaft diameter of 6.5 mm, and is broken in half (Figure 16).
In sum, the special deposit along the south side of the H-1 structure contains one of the densest artifact deposits found in Plaza H (only the interior of the tomb and the monotonous debitage deposits in the plaza meet appear to exceed this deposit’s artifact density). This “special deposit” combines a variety of stone, ceramic, shell, and bone objects—a few complete, but many broken and incomplete. Given the placement of this deposit against the last phase of platform construction and over the last plaza floor, along with ceramic content suggesting a ceramic assemblage that is altered from the typical Terminal Classic materials found elsewhere in Plaza H (discussed below), it is likely that the deposit correlates with the abandonment of the plaza. Further, the evidence for systematic variability in the content of this deposit suggests a single deliberately prepared deposit, rather than series of repetitive smaller events, such as trash disposal or an extended period of offerings. Beyond the spatial patterning in ceramics, ceramic bifaces, obsidian, faunal material, and ground stone, discussed above, Level 2 of the western Unit 50 excavated in the 2016 is particularly intriguing: it included five obsidian blade fragments, the limestone spindle whorl, the jade and the shell adornos, and the possible ceramic musical instrument fragment. The excavation strategy of small units, encouraged by short field seasons and the use of student excavators, makes it easy to quantify some differences over space. Unfortunately, the approach of breaking down the deposit into smaller units and mapping only the largest artifacts is less amenable to finding the details of this structure than a meticulous, large-scale stripping operation with point provenience could provide. Nevertheless, strong patterns in the artifact distributions indicate the deposit was purposeful and a single event.

Mount Maloney Black Paste and Slip Study

Summer research included the start of a study of the Mount Maloney Black sherds from the deposits directly south of H-1; this study is ongoing, so this discussion is preliminary. There is a significant amount of Mount Maloney Black (MMB) pottery from the south of H-1 deposit, a ceramic type that is heavily represented and strongly
associated with Xunantunich (LeCount 2010). Only occasional sherds of MMB are found in other Plaza H deposits, and the type was not included in the H-1 tomb, suggesting that the south of H-1 deposit marks a dramatic, late change in the ceramic assemblage. The significance is currently difficult to assess. One interpretation is that Xunantunich overwhelmed a weak Cahal Pech after the construction of the tomb. If so, Plaza H residents might have been forced to shift economic ties, with MMB functioning as a “calling card” for a new socio-political order centered on the powerful Xunantunich. However, the MMB rim shapes from Plaza H do not closely match Terminal Classic vessels from Xunantunich, which might indicate that the MMB style was less tied to Xunantunich identity than previously suggested.

In June, Kara Johannesen, a graduate student at the University of Montana, initiated a study of MMB sherds for her thesis project. She first sorted the sherds from the south of H-1 deposit into general paste/slip/form categories: MMB, Belize Red Group, and other. She then selected some of the MMB sherds and took microphotographs of the paste using a digital microscope (Dino-lite Pro AM4113T) as well as a comparative set of microphotographs of MMB sherds collected by BVAR at Xunantunich. Using point counting and measuring software, the goal is to quantify the paste/matrix composition of the MMB sherds from the two sites using the set of microphotographs taken in 2016.

In addition, a sample of sherds from the two sites was exported to the University of Montana in October. These sherds can be used to verify the microphotographs and possibly add thin section comparisons. In addition, Douglas wants to evaluate the chemical compositions of the black slip on these sherds, using laser ablation followed by ICP-MS elemental analysis. Both approaches will bring quantitative data to identify whether vessels from these two sites were made at the same workshop.

**Debitage analysis**

An ongoing focus of the UM/BVAR Project work in Plaza H has been evaluating and contextualizing the exceptionally dense deposits of chert debitage found in deposits between plaza floors, near the western end of structure H-1 and the eastern end of H-3. These flakes appear to be reused for fill when the plaza floor was replastered. Hundreds of thousands of small, thin pieces of debitage are located in this area. For example, a 0.75 by 1.5 m excavation unit, Unit 30, recovered 18.9 kg of chert chipped stone between 3 plaster floors in 0.42 m³ of deposit (Douglas and Brown 2014). Based on average weight per flake in a 2 kg sample, that excavation recovered about 12,000 flakes. The analysis of that sample indicated that these flakes were likely produced during a standardized process of finishing bifaces (Douglas and Brown 2016).

More specifically, we are interested in the location of flintknapping that produced these apparent secondary deposits: was stone tool production on a workshop scale an activity that took place in Plaza H? In 2015, two small, shallow, adjacent excavations (Units 45 and 47, each 75 cm² square) were dug into the southeast corner of H-3 to explore if flintknapping might have occurred on the platform adjacent to the dense flake deposits. These tiny units, dug among boulder-sized rocks used for the platform fill,
yielded little matrix, but were sufficient for sampling debitage. We previously reported (Douglas and Brown 2016) that these efforts found numerous small flakes. This is consistent with the conjecture that the flintknapping occurred on the tops of the nearby structures with the waste products incorporated into building projects. Here, we report two more detailed studies that took place in June 2016. The first looked at Unit 45 levels 1 and 2 debitage that was recovered in the field in more detail; the second study looked at a small matrix sample from Unit 45 Level 1. This sample was collected at the time of excavation and had not been screened.

Standard recovery methods were used to collect chipped stone in the field. In all, 396 flakes were found in Unit 45 levels 1 and 2; most were from Level 1 (n = 330) with minimal differences in flake size other characteristics between the levels. The 6 to 1 ratio in the number of flakes recovered from the Level 1 compared with the second partly reflects less matrix in the Level 2, because rock fill took up more volume in the unit, but nevertheless supports the view that these flakes were introduced into the surface of the platform from activities, rather than as inclusions in the fill during the deposition. Because the evidence points to the artifacts as representing a single population, they are considered together here.

The characteristics of these flakes match expectations for a focus on final stages of preparation of bifaces, with many of the flakes closely matching bifacial thinning flake characteristics (Andrefsky 2006). The approach to the analysis was attribute based (cf. Sullivan and Rozen 1985), and the results are consistent with the early general observations. About 38% of the pieces are whole flakes (n=150), 45% either flake terminations or platforms (n=179), with many of the remainder (n=45) appearing to be midsection fragments of flakes; a high ratio of broken flakes is consistent with bifacial thinning. Further, only 10% (n=41) have cortex on the outside of the flake, with only 2.5% (n=10) struck from a cortical platform. Measurements taken with calipers are equally decisive in suggesting final stages of biface production or resharpening events. Average length of complete flakes was 20.5mm (s.d.=8.2), with flakes larger than 40 mm (max. = 53mm) obvious outliers. Maximum thickness of flakes is likewise consist with the thin platforms and near absence of a bulb of percussion found in soft hammer bifacial thinning flakes: the average maximum thickness of pieces with a platform (n=273) is 3.6 mm (s.d. = 2.0), again with a handful of outliers greater than 6 mm (max = 12). We conclude that over 95% of the debitage is consistent with final stage biface production or re-sharpening.

A second study was to process the small (roughly 200ml) matrix sample to examine for “microdebitage,” meaning here debitage too small to be recovered with the standard screening techniques. The sample was screened through 4mm, 2mm, and 0.25mm geological screens. Chipped stone—the only artifact category found in the sample—was picked out of the first two screens; the final screen was washed in water and picked through with a 10x hand lens. Separating out flakes in the finest screen with tweezers proved difficult; after more than an hour, the obvious flakes had been removed. In all, 83 pieces of debitage were recovered from the sample, including seven 10mm in size or larger, a size category falling in the range of debitage recovered with normal
screening. Debitage from the 4mm screen was measured with calipers; the smaller
debitage was photographed and measured (Figure 17). Because tiny flakes could not be
easily manipulated to examine landmarks, maximum size was the sole measurement for
debitage from the soil sample.

Figure 21: Example of microdebitage from Level 1, Unit 45 with maximum size for flakes
determined optically.

The analysis of this small sample shows that at least on the southeast corner of the
H-3 platform, there are many tiny chert flake fragments in the matrix (Figure 18). The
average size for chipped stone material from the matrix sample was 4.5 mm (s.d. = 3.5);
given the effect of the large outliers, the median value of 3.3 mm may be more useful.
The smallest size recovered piece has a maximum size of 1.4 mm. The smaller number of
flakes in the 0-2 mm category visible in Figure 18 likely reflects very small pieces falling
through the 0.25 mm mesh and the difficulties in finding and recovering tiny flakes
among organic material and limestone clasts without special equipment; in reality, the
smallest category would likely be much larger.

Although transport of soil with microdebitage cannot be ruled out, the high
frequency of microdebitage near the surface of H-3 reinforces the earlier interpretation
that intensive flintknapping occurred on top of structure H-3. Background studies of
microdebitage density across the plaza, however, is needed to make the study decisive.
The analyses to date are consistent with flakes on top of the platform representing
primary refuse while the flakes in between the plaster representing secondary refuse.
Thus, the two assemblages could be aspects of the same workshop-scale bifacial
reduction that was taking place in Plaza H. By indicating that economically significant
activities took place on a scale larger than the household in Plaza H during the Terminal
Classic, this work helps define the nature of the plaza.
SUMMARY AND CONCLUSIONS

The work accomplished in 2016 adds to our understanding in several areas and supplements previous ideas (Douglas et al. 2015; Douglas and Brown 2016). The most extensive excavations in 2016 occurred south of H-1’s southern wall. This unusual deposit is rich in a variety of ceramic types, ground stone, faunal remains, chert tools, obsidian blades, and special finds. The additional 4 m² excavated in 2016 not only added more artifacts, it added new categories of artifacts: a bark beater, limestone spindle whorl, a jade adorno that appears to represent a kernel of corn, and a shell adorno representing a sign, most likely CH'AB. Work on a database summarizing special finds over four years from the deposit demonstrated that the artifacts placed in this deposit are structured in a purposeful manner. Those patterns are discussed above; perhaps most vividly, battered mano fragments found near metate fragments suggest a tool kit for processing materials of some sort. The arrangement suggests the artifacts were not simply pushed next to—or spilled over—the south wall: density of artifacts was not simply a function of distance to the wall. Other spatial aspects of the deposit are likely to derive from a more purely symbolic or ceremonial realm, such as the jade and shell adorno found in the same level and unit. Previous work on Mayan abandonment deposits suggests that the cosmological principles can underlie the arrangement of abandonment materials in complex and subtle ways (Lucero 2010), and indicates that further research on the spatial arrangement of this deposit is warranted.

Other laboratory work, largely conducted over the summer, adds to the understanding of Plaza H. The analysis of chipped stone from platform H-3, including examining a soil sample for microdebitage, completed analysis started in 2015 on the dense deposits of small bifacial manufacturing debris found in the northeast corner of the Plaza. The results suggest that at least some of the manufacturing activities occurred on
top of H-3 and reinforces that the material found in the adjacent plaza is in secondary context. Work led by Kara Johannesen, focused on microphotographs of Mount Maloney Black to be compared with similar sherds from Xunantunich, which promises new insights into change and the nature of regional interaction at the very end of Cahal Pech’s occupation.

Finally, the January 2016 excavations continue to refine the understanding of the architecture and features in Plaza H. Within H-1, the eastern wall of the tomb was mapped and the size and layout of the thermal pit dug into the plaza floor of the first Terminal Classic occupation, first found in 2014, more completely assessed. The eastern wall of H-1 was exposed and found to lack a stone wall, most likely through erosion or reuse. And, most importantly, the 2016 excavations led to the discovery of a new platform wall, presumably marking the edge of the early Terminal Classic structure H-2. This discovery is an important clue into the still poorly known architecture of the earliest Terminal Classic occupation, and provides an important starting point for future research.
REFERENCES CITED

Andrefsky, William, Jr.

Archaeological Institute Of America
2016 About Cahal Pech.

Awe, Jaime J.

Ball, Joseph W., and Jennifer T. Tashchek

Douglas, John E., and Linda J. Brown


1985  Debitage Analysis and Archaeological Interpretation.  
## APPENDIX 1: SUMMARY OF EXCAVATIONS

<table>
<thead>
<tr>
<th>Unit</th>
<th>Location</th>
<th>Size</th>
<th>Horizontal divisions</th>
<th>Average depth (cm)</th>
<th>Levels</th>
<th>Comments</th>
<th>Excavators (see their notebooks and level forms for more details)</th>
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<tr>
<td>50</td>
<td>H-1 exterior outside south wall, west side</td>
<td>1 m by 2 m</td>
<td>None</td>
<td>65.2</td>
<td>6</td>
<td>Includes part of special deposit along south wall of H-1 as well as the final Terminal Classic plaza floor and subfloor, the last including a single course alignment</td>
<td>Cervantes, White, Law, Brauner</td>
</tr>
<tr>
<td>51</td>
<td>H-1 exterior outside south wall, east side</td>
<td>1 by 1 m</td>
<td>None</td>
<td>59.2</td>
<td>5</td>
<td>Includes part of special deposit south of H-1 and a buried Terminal Classic platform, likely the first Terminal Classic version of H-2</td>
<td>Johannesen, Branson, Innis</td>
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<tr>
<td>52</td>
<td>H-1 exterior and interior of the eastern boundary, north of H-1’s SE corner</td>
<td>1.5 by 1.5 m</td>
<td>Separated west/east into an interior and exterior area; in Level 4, only the interior (west) was excavated as 52A</td>
<td>28.6</td>
<td>4</td>
<td>The H-1 platform boundary on east side north of the boulder-wall defined SE corner was clear, but the stone wall ended on the southern end of this unit</td>
<td>Hughes, Tarnoff, J.M. Douglas, Giao</td>
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<tr>
<td>Unit</td>
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<td>Size</td>
<td>Horizontal divisions</td>
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<td>53</td>
<td>H-1 interior east of tomb</td>
<td>1 m by 2 m</td>
<td>After Level 1, split into a west, 53A, with distinct matrix and building materials, and east, 53B; 53C is part of a pit feature</td>
<td>92.5</td>
<td>5</td>
<td>Located the east wall of the tomb and the south edge of the charcoal-filled pit first located in Unit 20, which is dug into a buried Terminal Classic plaza floor</td>
<td>Law, Innis, Brauner</td>
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<tr>
<td>54</td>
<td>H-1 exterior outside south wall, east side</td>
<td>1 by 1 m</td>
<td>None</td>
<td>64.8</td>
<td>4</td>
<td>Includes part of special deposit H-1 and evidence (not fully exposed) of a Terminal Classic platform, probably H-2</td>
<td>Tarnoff, J.M. Douglas, Giao, Brauner, Branson</td>
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NEW SITE DESCRIPTION AND STRUCTURE DESIGNATIONS FOR LOWER DOVER, BELIZE

Rafael A. Guerra
University of New Mexico

INTRODUCTION

The purpose of this report is to provide a description of the location and setting of the site of Lower Dover, in addition to providing structure designation. In 2010, the completed site core map was labeled using consecutive numbers across the various plazas and courtyards (Guerra and Morton 2011). In 2016, the Belize Valley Archaeological Reconnaissance (BVAR) project re-designated structure numbers in order to conform to standard nomenclature for in the Maya Lowlands. Below, I present descriptions, tables and maps of the new site designations.

SITE LOCATION & SETTING

The major center of Lower Dover is situated on the southern bank the Belize River, approximately 15.4 km downriver from the modern town of San Ignacio. The Lower Dover monumental ceremonial core is located on the property of William and Madeline Reynolds at the southwestern edge of Unitedville Village, Cayo District. 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 monumental architecture is located on a 50 acre parcel covered with taller trees and Cohune palm (Attalea cohune) and secondary growth shrub (wamil). At its nearest, the Belize River, runs a mere 20m from the ancient Maya site. Average elevations of the site fluctuate between 14-20 m above the mean elevation of the river.

In relation to other ancient Maya sites located in the Belize Valley, Lower Dover lies approximately 6.6 km east of Baking Pot and 3 km west of Blackman Eddy, the two nearest major centers (Fig. 1). To the south is the small major center of Lower Barton Creek, which is roughly 5.9km distant. Intermediate minor centers include Floral Park. 1.6 km to the southwest and directly across the river to the north, 1.2 km is the Barton Ramie settlement area (see Garber and Driver 2004). The site’s settlement area extends to the south into the foothills of the Maya Mountains. Several small formal plaza groups have been recorded (Guerra 2010, Petrozza 2015, Walden this volume), mainly within the southern foothills. No archaeological features have been recorded in the flatter plain between the foothills and the site core. It is possible that this area served as farm land to the ancient community, or was unsuitable for settlement due to periodic flooding.

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2016 Field Season, edited by Claire E. Ebert, Chrisina C. Burke, Jaime J. Awe, and Julie A. Hoggarh, Volume 22, pp. 113-120. Institute of Archaeology, Baylor University, Waco, TX; Department of Anthropology, Northern Arizona University, Flagstaff, AZ. © 2017
Figure 1: Map showing the location of Lower Dover (shown in red) in the Belize River Valley (after Helmke et al. n.d: Fig. 10)

SITE DESCRIPTION

The monumental architecture of the site covers approximately 3.0 hectares (Helmke et al. n.d.). 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; Helmke et al. n.d.).

The site is composed of two primary large plazas (Fig. 2). Plaza A is located on
the east side of the site and contains 12 structures with an attached ballcourt to the west and a single low lying range structure to the northwest. Plaza B, on the west side of the site, contains 17 structures, most of which are on the west side of the plaza. These building form form four restricted access courtyards that may have functioned as an elite residential place complex. Plazas A and B are connected by a small, low-lying wall composed of four courses of cut limestone blocks (Guerra and Arksey 2012). Three formal patio groups (Plaza F, G and H) are located to the north and three informal groups (i.e., not spatially bounded by structures, Plaza C, D and E) are located to the south. A total of 52 structures have been identified within the Lower Dover site core thus far.

Figure 2: Lower Dover site core plan with updated structure designations.
**Table 1**: New structure designations for the Lower Dover site core.

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<tr>
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<th>Old Str. Designation</th>
<th>New Str. Designation</th>
<th>Description of Architecture</th>
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<td>Str. A2</td>
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<td>Str. A5</td>
<td>Low Platform</td>
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**Plaza A**

Plaza A is one of the two largest groups at the site with an area of approximately 3200 m². The main plaza is framed by four long range structures with the eastern structure, and is the tallest building at the site. Two small low-lying structures were also recorded, one at the southeast corner and another one to the northwest of the plaza. Just to the west of the main plaza, attached to the back of Str. A6, are two structures of similar dimensions that are the site's ballcourt.

**Plaza B**

Plaza B is the second largest group of structures at the site. Unlike Plaza A, it contains more structures and is more compact. The layout of the structures, especially those to the west of Structure B3, suggest that this area was likely reserved for elite activities. The main plaza is framed by a large pyramidal structure to the east, likely the ancestral shrine; two long range structures on the north and south and a large range structure to the west, similar to the *audencia* structure at Cahal Pech. To the west of Str. B3 is a series of four enclosed courtyards that were likely the elite residential area.
Plaza C

Plaza C is a small informal plaza located to the south of Plaza B, and consists of two low structures built on top of a 0.75m high platform that separates the site core from the seasonal bajo (natural depression that hold shallow lakes and perennial wetlands) to the south. These small platforms are no higher than 20 cm in height.

Plaza D

Plaza D is a small plaza group located to the east of Plaza C, and is on the same platform that forms the site core boundary to the south. This plaza consists of one larger structure to the south and four low structures to the west, north and east. Similar to Plaza C, these low structures are no more than 25 cm in height.

Plaza E

Plaza E is a small plazuela group attached to the back (north) of Str. A4 and Str. A5. This small group consists of three low structures on the east south and west. These structures are approximately 40-50 cm in height.

Plaza F

Plaza F lies to the north at 100 m of Plaza A and 70 m from the river. This northern group is the largest plaza apart from Plaza A and B. The main plaza is framed by six structures, three to the east, and one on the south, west and north. A ramp is located at the south east entrance. This group overlooks the Belize River and Barton Ramie to the north, perhaps functioning as a lookout area.

Plaza G

Plaza G is located 45 m to the northwest of Plaza A. This small plazuela group consists of four main structures (Str. G1-G4) and one low platform to the southwest.

Plaza H

Plaza H is a small group located to the north of Plaza B. This informal plaza is framed by two small low structures to the south and two range structures, in an L shape, to the west and north.
Acknowledgements

I would like to thank the Belize Institute of Archaeology for their support of the Belize Valley Archaeological Reconnaissance Project. I would also like to thank Dr. Jaime Awe, Dr. Julie Hoggarth, and Myka Schwanke for their guidance and support. Dr. Christophe Helmke is also acknowledged for assistance with structure re-designation at Lower Dover. Lastly, my gratitude goes out to the Reynolds family and Friends of Lower Dover (FOLD) for allowing the continued research and preservation at Lower Dover during our field sessions.

REFERENCES CITED

Driver, W. David and James F. Garber

Guerra, Rafael A., Michael Petrozza and Rebecca Pollet

Guerra, Rafael A. and Marieka Arksey

Guerra, Rafael A. and Shawn Morton

Helmke, Christophe, and Jaime Awe.
Helmke, Christophe, G.B., Claire E. Ebert, Jaime J. Awe and Julie A. Hoggarh
n.d. The Lay of the Land. A Political Geography of an Ancient May Kingdom in West-
Central Belize. Contributions in New World Archaeology, Under Review.

Petrozza, Michael Louis.
2015 Archaeological Investigations of the Lower Dover Periphery, Cayo District,
Belize, Central America. Unpublished Master’s Thesis, Department of
Anthropology, Texas State University.
INTRODUCTION

In the summer of 2016, the Belize Valley Archaeological Reconnaissance (BVAR) project continued archeological investigations at the site of Lower Dover, Belize (Figure 1). These excavations included test pits in Plaza B and Plaza F (formally Plaza H; see Guerra this volume) of the site core (Figure 2). Lower Dover is located on the property of William and Madeline Reynolds in the Village of Unitedville, approximately 11 km east of San Ignacio. It is situated on the southern bank of the Belize River directly across from the site of Barton Ramie, approximately 6 km east of Baking Pot and 3 km west of Blackman Eddy. 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 2011; Guerra 2011). The ceremonial center consists of 55 structures arranged in various formal and informal plaza groups and courtyards, including one ballcourt, and a possible *aguada* just north of Plaza A.

PREVIOUS RESEARCH

Archaeological investigations have been conducted at surrounding sites as far back as the 1920’s (Ricketson 1929), including Floral Park (Willey et al. 1956), Blackman Eddy (Driver and Garber 2004), and Barton Ramie (Willey et al. 1956, Gifford et al. 1976). The relationships between these sites Lower Dover, however, remains unclear. In 2010, the Belize Valley Archaeological Reconnaissance (BVAR) Project initiated archaeological research at Lower Dover. The preliminary research focused on site mapping and developing a site chronology. Previous research at Lower Dover identified two distinct phases of occupation. The first phase of occupation dated to the early part of the Late Classic period through the terminal classic (AD 600-1050), with evidence for construction at various plazas within the site core (Guerra and Arksey 2012). Recent AMS radiocarbon dating of elite burials within the Plaza G in the Lower Dover site core suggests the first phase of monumental construction, including the placement of tombs within temple structures, may have occurred slightly earlier, between cal AD 470-
Wolfel et al. (2009) identified a second phase of occupation at Lower Dover based on the presence of one scroll foot sherd diagnostic of the Early Postclassic (AD 1000-1200) on the surface of Courtyard 2 (previously Plaza F). The 2012 and 2013 excavations at Courtyard 2 (previously Plaza F) also indicated that the area was built and used in the Late Classic Period, with an abandonment in the Terminal Classic and a partial reoccupation in the Postclassic Period (Guerra et al. 2013, 2014). The 2014 excavations were focused on determining the chronological sequence of the structures in Courtyard 1 and 3 (Previously Plazas C and E) of the site core. These excavations indicated that these plazas and associated structures were built in the Late Classic period Spanish Lookout phase (AD 750-900) in one or two construction phases.

**Figure 1:** Map showing the location of Lower Dover in the Belize River Valley (after Ebert et al. 2016: Fig. 2)
METHODS

The 2016 field season focused on excavations within two of the main plazas in the site core, Plaza B and Plaza F (formerly Plaza H). These two plazas have experienced minimal testing through excavations (Barillas 2014). The aim for the season was to test the pyramidal eastern structures within both plazas, which may represent ancestral shrines. A second goal of excavations was the recovered of materials from contexts that had experienced heavy looting over the last 20 years.

Plaza B is one of the two largest Plaza groups within the Lower Dover site core, with an area of approximately 3500m². The plaza is bounded by two long range structures on the north and south, a large *audencia* structure to the east, and a single pyramidal structure to the east. The large pyramidal structure to the east, Structure B1, is 9.2m tall by 30m wide at the western base. The structure has a 2m wide looter’s pit leading from the western base to the top of the structure and down the eastern end of the
structure to the eastern base. Based on preliminary observations, the majority of the construction fill is large dry laid boulder fill. Given the structure’s dimensions, form, location it is likely that it may have served as the main ancestral shrine for the elite individuals at the site core (Awe et al. 2017).

Plaza F is the northernmost plaza at Lower Dover and is situated on the edge of a limestone bluff overlooking the Belize River. A sharp but jagged decline at the northern edge of the plaza suggests there may be terracing which defines the northern extent of the site core or provided easier access to the river. Excavations conducted during the 2016 BVAR project field season were focused exclusively on Structure F2, the eastern pyramidal structure, interpreted here as the ancestral shrine for Plaza F.

Given the dimensions of the looter’s pit in Plaza B, it would be impossible to investigate the entire length of the trench in one season. As such, a 2x6m unit (Unit B1-1) was placed from the plaza level at the west base and extended east onto the structure along the looter’s trench. This unit would serve to clear the looter’s pit in order to identify possible construction episodes that were damaged in the looting activities. Once the back dirt was cleared, the unit was excavated in cultural stratum to sterile matrix or bedrock, in order to obtain additional information regarding undisturbed construction and cultural sequences in the building.

Structure F2 is a small structure on the eastern side of plaza F measuring 3m in height by 3m wide at the base. This structure is flanked on the north and south by two low platforms that may have eventually grown to the typical eastern triadic structures typical to most of the Belize Valley sites. Structure F2 was looted in the last 20 years, with most of its top missing, and heavy collapse on its western side presumably looter back dirt. Unit F2-1 was set up on western side of the structure to investigate the chronology sequence of construction and occupation for the structure and collect data for radiometric dating, where possible. Unit F2-1 was a 5x1.5m stratigraphic unit aligned to the along the central axis and the structural components. It covered the entire slope of the western side of the structure, from the top most architecture visible, to the present-day plaza surface below.

Each unit was excavated in cultural levels exposing the entire sequence along the unit before proceeding to the next sequence. All features were mapped and photographed and these materials were collected as a separate lot than the rest of that cultural layer. All matrix was sifted through 1/4 inch screens, unless there was burial present for which we used finer 1/8 inch screens.

EXCAVATION RESULTS

In Plaza F the entire top of the building had been disturbed by looting activity, while in Plaza B, the structure had been trenched from the western base all the way to the eastern base. Complications arose in Plaza B from the discovery of a room (see below), that the looters missed, along the western edge the primary unit. Additional units (B1-2 and B1-3) were initiated to investigate the room and subsequent cultural levels below.
Additional complications resulted from the poor drainage of the plaza and the infilling of unit B1-3 with water before it could be completed.

**Plaza B**

The excavations at Plaza B were initiated with a single 2x6m unit in order to investigate the existing looter trench. However, four other units were opened once a fairly intact room was discovered along the western edge of the looter pit. Unit B1-2 was placed inside the room and extended into the plaza, Unit B1-3 was placed in a bench feature within the room, Unit B1-4 placed north of the room and Unit B1-5 was placed directly south of the room (Figure 3). Units B1-3 and B1-5 were utilized to conduct horizontal exposure to uncover the staircase along the western face of the building. Unit B1-2 and B1-3 were both utilized to determine the construction sequence of the structure.

![Figure 3: Locations of Plaza B Units.](image)

**Unit B1-1**

Unit B1-1 was a single 2x6m unit designed to investigate the looter’s trench and the undisturbed cultural sequence below the structure. This unit was cleared of all back dirt in preparation for vertical excavations. Along the western end of the unit a low wall
consisting of two courses of cut stones were uncovered. These cut stones were approximately 45cm long and 15cm high. It was initially thought that these were the remains of a wall. At the northwest corner of the unit an undisturbed area was found consisting of compact limestone marl and small pebbles, similar to the ballast found beneath a floor. Upon closer inspection, it was noted that several cut stones were present with the facings to the north. This area was cleared some more and it was realized that the looters had a feature to the north. At this point unit B1-2 was opened to the north of Unit B1-1 to investigate the feature.

**Unit B1-2, B1-3**

Unit B1-2 was a 4x5m unit extending from the plaza floor to the top of the room feature to the east. In combination with Unit B1-3, this unit served to identify the stratigraphy of the building. These units were excavated bedrock at 165cm and 190cm, respectively, below the present ground level (Figure 4). These units exposed 5 floors and two distinct architectural sequences. Structure B1 first consists of a small terrace, of two columns of cut stones at the level of Floor 2. This structure is also at the same level of the base of the small room to the east, suggesting that these are the early form of structure B1. The B1-1st construction phase included a room approximately 4m long (north-to-south) and 2m wide with a corbel vault. This room was flanked by two staircases each 2.8m long. Inside the room at the east end was a small bench feature 50cm wide, 4m long and 48cm high (Figure 5).

At the base of the small bench there were two caches under Floor 3. Cache 1 was located on the outside of the bench to the west and included to thin bifaces and burned organic material (Figure 6). Both bifaces were made from brown chert and appear to be none local origin, possibly from the Northern Belize Chert Bearing Zone (Colha Chert). The larger biface measures 15cm long by 6.8cm at the widest point, and the smaller biface measures 10cm long by 3.9cm at the widest. The second cache was found at the same level within the bench at the base of floor 3. This cache included two small bowl placed lip-to-lip, a single distal phalanx inside the vessels and a small obsidian blade at the base of the cache (Figure 7). Given the distal phalanx inside these bowl, it may be considered a finger bowl cache similar to those found at Caracol, Baking Pot, and Cahal Pech. The B1-1st construction phase was dated to the Late Classic period, with most diagnostic sherds from the early Spanish lookout complex (including Cayo Unslipped and Roaring Creek Red types).
Figure 4: Profile of Units B1-2 and B1-3.

Figure 5: Plan view of B1-2\textsuperscript{nd}.
Figure 6: Chert stemmed bifaces from Cache 1.

Figure 7: Lip-to-Lip Miseria Appliquéd bowl from Cache 2.
The second phase of this building B1-2nd. This phase included the partial destruction of the room, with the dismantling of the west wall, heavy burning on the bench surface, and subsequent infilling of the room (Figure 4). The room was cleared initially to the level of Floor 5, with compacted marl, and then with large boulders up to the roof. Mixed in these boulders were several human teeth, including two molars and a drilled incisor, as well as several fragments of forearm long bones. However, there was no formal human interment and these remains may have been scattered among the boulder fill. The initial construction of the front of the building was covered with 40cm of marl and Floor 5 then was laid down. A small wall, Step 1, was placed in front of the room to block access. Given that it does not seem that the room was completely blocked, the final construction phase may have been halted at the time of abandonment. The final construction phase would not have varied much from the B1-1st, except that the room, once filled in, may have served a function similar to a stair block in the middle of the north and south stair cases. B1-2nd dates to the Late to Terminal Classic period based on the presence of diagnostic ceramics including Daylight Orange, Miseria Applique and Pie Crust rim Cayo Unslipped ceramic sherds. However, a single vessel hat has surface treatment (slip and decoration, Figure 8) similar to vessels found in Late Preclassic and Early Classic contexts elsewhere in the Belize Valley was also present in the assemblage (Laure Kosakowsky, personal communication 2016).

Figure 8: Photo of the small bowl (variety unspecified) found at the base of the steps of B1-2nd.

Plaza F

The stratigraphic unit of Structure F2 in Plaza F (formerly Plaza H) revealed two construction phases confined to the Late Classic period with additional evidence for Postclassic use. This pattern is similar to other plaza in the site core (see Guerra et al. 2013). We began our excavations by revealing all of the collapse within the unit area working our way from the top of the structure, and at the western end of the unit by
locating the plaza floor and then excavating to the east to find the architecture of structure F2. The collapse showed no clear pattern and may have been largely cut stones which were thrown over the side by the looters. It is also likely it was the looters due to the material remains found among the collapse such as a limestone bark beater, and a few scattered instances of small pieces of human remains.

After removing the collapse, the underlying architecture was exposed and revealed seven-step staircase. Only six steps were clearly visible, however, and the spacing between steps four and five was exaggerated, suggesting that collapse may have pushed forward and destroyed part of the staircase. Among the common artifacts for the structure were ceramics, chert, daub, fresh water shell, faunal remains, and some marine shell.

Beneath the staircase, we encountered a marl fill, and then a series of three poorly preserved floors mainly visible in the baulk of the unit. In the fill beneath Floor 3, Feature #1 was revealed as an oblong arrangement of cut stones (Figure 9) that extended beyond the limits of the unit to the south.

Figure 9: A map of Feature #1 in Plaza F.
Unit F2-1 Extension A was added directly to the south of Feature #1 where we discovered the fifth or sixth step of the staircase in continuum with that seen in the original unit. In this same extension behind the step facing stones we found a cache of items: two fragmented pieces of a metate with a modified mano and a ceramic spout piece. We assume this cache may have been a part of an animation ritual for the structure due to its central position.

Burial F2-001 was encountered beneath Feature #1. It is assumed that this was once an entire skeleton, however the fill beneath Floor 4, in which the burial was interred, is a clayey loam. Given the matrix and obvious water retention, the remains in this burial were poorly preserved and the remaining pieces were mostly long bones. There were very few artifactual materials associated with this Burial F2-001, through a few chert flakes, some unslipped ceramic sherds, and a single piece of carved marine shell worked into the shape of a flower were present. Based on the lack of associated grave goods and the burial’s position in wet fill, we suggest the individual may not have been an elite. The alignment of cut stones is similar to the burial found in Plaza H at Cahal Pech in 2006. This burial may have been an intrusive burial, however, the disturbances from looters made it difficult to access. Directly beneath the burial, we found a fourth very poorly preserved floor.

We observed five total floors in the stratigraphy of the unit, with the bottom most 5th floor signifying the initial construction phase and the top four floors being part of the second construction phase. Floor 5 was extremely well preserved and polished to a smooth sheen. However, an oblong area approximately 180cm long and 50cm wide had been cut out of the floor, what was labeled as Feature #2 (Figure 10).
Figure 10: Photograph of Feature #2 showing exposed cut in Floor 5.

Feature #2 was excavated and confirmed the presence of a crypt beneath floor five. An alignment of cut stones from north to south was beneath floor five. Large facing stones were slanted and leaned against this alignment to the lip of the cut in the floor. We removed the stones and discovered Burial F2-002 laid to rest on top of the bedrock beneath Str. F2 in a prone position, head the south, and well preserved in a dry silty loam. One whole Dolphin Head Red ceramic plate (Vessel 1) was found on top of the individual and another smaller fragmented but complete Sotero Red-Brown vase (Vessel 2) on the side (Figure 11). Over 300 shell beads were found around the head and neck of the individual, which likely formed a necklace at the time of internment (Figure 12). These shells included *Olivella* shells, In comparison with the burial a few levels above, this person may have have held a more prestigious role due to the wealth of the associated grave goods.

![Figure 11: Vessels 1 and 2 from Burial F2-002. Figure 12A is a Sotero Red Brown type bowl. Figure 12B is Mountain Pine Red dish.](image)
CONCLUSIONS

Both Plaza B and Plaza F structures were built in two distinctive construction sequences in the Late to Terminal Classic period. The function of the small room at Structure B1 remains unclear, though it may have served as a modified sweat bath. Structure F2, most likely served as an ancestral shrine given the human remains found within the structure.

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REFERENCES CITED

Awe, Jaime, Julie A. Hoggart and James J. Aimers
2017 Of Apples and Oranges: The Case of E Groups and Eastern Triadic Architectural
Assemblages in the Belize River Valley. In Maya E Groups: Calendars,
Astronomy, and Urbanism in the Early Lowlands, edited by D. A. Freidel, A. F.
Gainesville.

Barillas, Derek
2015 Lower Dover Excavation of Plaza B: Unit B14. In The Belize Valley
Archaeological Reconnaissance Project: A Report of the 2010 Field Season,
edited by Julie A. Hoggart and Jaime J. Awe, pp.22-24. Belize Institute of
Archaeology, Belmopan.

Driver, David W. and James F. Garber
2004 The Emergence of Minor Centers in the Zones between Seats of Power. In The
Ancient Maya of the Belize Valley: Half a century of Archaeological Research

Ebert, Claire E., Julie A. Hoggart and Jaime J. Awe
2016 Integrating Quantitative Lidar Analysis and Settlement Survey in the Belize River

Gifford, James C.
Harvard University, Cambridge.

Guerra, Rafael A.
2011 Preliminary Survey of the Lower Dover Maya Site, Unitedville Village, Cayo
District, Belize, Central America. In The Belize Valley Archaeological

Guerra, Rafael A. and Shawn Morton
2012 2011 Settlement Survey at Lower Dover. In The Belize Valley Archaeological
Reconnaissance Project: A Report of the 2011 Field Season, edited by Julie A.
Hoggart, Rafael A. Guerra, and Jaime J. Awe, pp. 105-107. Belize Institute of
Archaeology, Belmopan.

Guerra, Rafael A. and Marieka Arksey
2012 Excavations at the Major Center of Lower Dover. In The Belize Valley
Archaeological Reconnaissance Project: A Report of the 2011 Field Season,
edited by Julie A. Hoggart, Rafael A. Guerra, and Jaime J. Awe, pp. 111-123.
Belize Institute of Archaeology, Belmopan.
Guerra, Rafael A., Claire E. Ebert, and Jaime J. Awe  

Guerra Rafael A. Michael Petrozza, and Rebecca Pollett  

Guerra, Rafael A., Zoe Rawski, Nick Jackson, and Rebecca Pollett  

Ricketson, Oliver G.  

Willey, Gordon R., William R. Bullard Jr., John B. Glass & James C. Gifford  

Wölfel Ulrich, Christian Bruckner, Phillip Reeder and William Raynolds  
INTRODUCTION

Lower Dover is in a private reserve owned by William and Madeline Reynolds, in the northwestern periphery of the modern Village of Unitedville, Belize. The site core sits on a small hill overlooking the southern bank of the Belize River directly across from the ancient Maya settlement of Barton Ramie, approximately 6km east of Baking Pot and 3km west of the site of Blackman Eddy (Figure 1). 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 2011; Guerra 2011).

The civic-ceremonial center of Lower Dover consists of nine formal and two informal plaza groups with 56 total structures, including one ball court, and a possible reservoir just north of Plaza A (Figure 2). Research has been conducted at Lower Dover since the summer of 2009 (Wölfel 2010) and the major center continues to be investigated by the Belize Valley Archaeological Reconnaissance (BVAR) project. The primary focus of the research at Lower Dover has been to determine the role of the ceremonial center within the Late Classic (AD 700-900) political landscape of the Upper Belize River Valley, and to ascertain the factors that led to the late apogee of this western Belize polity (Guerra et al. 2013).

BACKGROUND

Archaeological research has been conducted at sites surrounding Lower Dover in the Belize River Valley as far back as the 1920’s (Ricketson 1929). In the past, these investigations focused on the sites of Floral Park (Willey et al. 1956), Blackman Eddy
For Lower Dover, the socio-political relationships between with the Belize Valley is still unclear.

Excavations at Lower Dover began during BVAR project’s 2010 field season under the supervision of Dr. Jaime Awe. During the first field season, Rafael Guerra and members of the BVAR project field school surveyed the site core and surrounding settlement of Lower Dover (Guerra 2011). The purpose of the 2010 survey was to verify and enhance the preliminary plan of the site core that was previously done by Ulrich Wölfel and Christian Bruckner in 2009 (Wölfel et al. 2010). Additional goals involved recording residential groups around the site core and within the periphery of the site’s epicenter (Guerra 2011). The 2011 field season continued mapping monumental architecture in the site core. In addition, excavations were initiated with a focus on Plaza G to the north of the ball court and on a wall feature (W45) to the south of the ball court (Guerra and Arksey 2012).

Figure 1: Map of the Belize River Valley (map courtesy of the BVAR project, after Ebert et al. 2014:Fig. 1).
During the 2012 field season, excavations focused in Courtyard 4 (previously Plaza 4). These excavations sought to determine site function, chronology, and sociopolitical relationships in the Belize Valley (Guerra et al. 2013). BVAR project continued archaeological investigations in Courtyard 4 in 2013. Research during this season concentrated on the function of the buildings in within the courtyard. Additional excavations were dedicated to the continuation of the 2012 field season research goals as well. During the 2014 field season, the test pits in Courtyard 1 (previously Plaza C) and Courtyard 3 (previously Plaza E) of the Palace complex, located on the west side of the site core, assisted with identifying the terminal architectural component and determining chronological sequence of occupation within the Courtyard 1 (Guerra and Collins 2015). During the 2015 field season, preliminary excavations were conducted by the lead author in Courtyard 2 (previously Plaza D). These excavations sought to locate the walls connected with the entrance doorway and any associated terminal deposits. Results from the 2015 field season in Courtyard 2 revealed well preserved terminal architecture.
displaying basal molding and plaster floors. Many artifacts were recovered from these excavations including ceramic sherds, obsidian, speleothem, chert lithics, freshwater shell, shell beads, and faunal remains. No terminal deposits were found during the 2015 excavations due to time constraints and the close of the field season. This is not to say that a terminal deposit was not present, just not uncovered.

In the 2016 field season at Lower Dover, it was decided that the structures within center would be given new designations for a more comprehensive layout. The new designations compliment and abide by the layout of other civic centers in the Belize Valley (see Guerra 2017, Chapter 7).

RESEARCH QUESTIONS

Research beginning in the 2016 field season at Lower Dover addressed several questions related to the development, function, and regional role of Courtyard 2 at Lower Dover. These questions include:

1. What role did Courtyard 2 play within the site of Lower Dover and the Belize Valley during the Late Classic period? Was this structure the residence of the elite rulers of Lower Dover?
2. How was economic interaction influenced by the elite residents at Lower Dover? Was there control over the import of resources such as obsidian, salt, and ground stone?
3. What were the reasons for Lower Dover’s late and rapid development?

Courtyard 2, located within the palatial complex of the Lower Dover site core, is suspected to be the residence of the elite (Figure 2). The location, access, and artifacts collected from limited excavations are like those found at elite localities at Cahal Pech and other Belize Valley sites. This suggests the structure or group of structures may have served a similar purpose at Lower Dover (Awe 2016). To determine the specific function of these structures, horizontal excavations were carried out to clear the terminal phase architecture. This investigation also allowed us to define the construction phases of the building, and to recover artifactual remains that will be useful as a comparative assemblage with other collections from similar contexts at other sites.

The data collected by these investigations help ascertain the reasons for the late and rapid development of the site core during the Late to Terminal Classic period. Current research indicates the site core was constructed over a period of 150-200 years, presumably in the Late Classic period. Given its proximity to the Belize River, a major trade route into the Petén heartland, Lower Dover was likely driven by a trade economy. The relative lack of major trade items, such as jade and fine polychrome ceramics at Belize Valley sites during the Late Classic period suggests a reduction of long distance trade to the region. It is possible, though, that the economy at Lower Dover would have been driven by the import of trade commodities like obsidian, salt, and ground stone compared to the Belize Valley.
Geochemical sourcing of the obsidian recovered shows that the people of Lower Dover were utilizing the same dominant sources of obsidian as the surrounding sites. Recent finds, however, reveal an unknown source that does not show up at other Belize Valley sites (Ebert et al. 2015). This indicates the individuals at Lower Dover were involved in a much more diverse interaction and trade network than other sites in the Belize River Valley. Due to the restricted access structure height, and fine quality artifacts found in the summit Courtyard 2 at Lower Dover, it is hypothesized that Courtyard 2 served as the residence of an elite ruler of the site, and that this may explain the reason for the presence of exotic materials in this area of the center.

METHODS

Excavations from 2016 yielded important information about the palatial complex of Lower Dover. To describe Courtyard 2, criteria classifying elite residences and palaces by Guderjan and colleagues (2003:19-20) are used. The criteria are a combination of spatial access and location, architectural design, and material assemblage. Spatial access of location associated with elite status include restriction of access to, location of in relation to resources, and viewsheds of private spaces. Architectural design components include structural complexity and form (Pendergast 1992:63). The last criterion is material assemblage, which includes the possession of luxury goods, trade wares, exotic materials, and material representations of elite ideology (Iannone and Conlon 1993).

Approximately one third of Courtyard 2 was exposed through horizontal excavations. The primarily focus of these excavations were to expose much of the eastern portion of the courtyard, as it was the tallest point of the structure within the entire site, as well as to expose and locate a portion of the western structure. A total of seven excavation units were opened and spanned sixteen meters in length at the longest point and four meters in width at the widest point. All excavation units aligned to architecture and, therefore, all connected to one another. Excavation depth measurements for eastern and western excavations were taken from datum point CT2-002, which is 140 centimeters above the terminal plaster floor of the courtyard.

All artifacts were recorded after removal. After each bag of artifacts were logged into the artifact inventory, they were washed according to 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 or analysis. All diagnostic ceramics from the 2016 excavations in Courtyard 2 were seriated prior to storing. Matrix samples were processed using a five-gallon flotation drum. Light fraction was separated from the heavy fraction through filtration processes using very fine chiffon material. After the filtering process, both light and heavy fraction were placed on the screens to dry. Once dry each fraction was bagged separately and stored for future analysis.

EXCAVATION RESULTS

The exposed architecture proved to have excellent preservation with most floors and walls remaining intact with preserved plaster. Five architectural features were
identified through exposure – basal molding, a bench, a collapsed corbelled vault ceiling, an outset stairway, and one two-tiered wall (Figures 4, 5, 6, 7, and 8). I define these architectural features using the architectural descriptions by H. Stanley Loten and David M. Pendergast. Basal molding is the outward projecting embellishment at the foot of a feature such as a wall, an outset, a bench, or a terrace. A bench is a relatively small platform associated with a building or within a room, and is commonly a later addition. Corbelled vaults are a stone masonry vaulted ceiling for which the stepped arch construction is essential to the stability of the vault. An outset stair projects entirely beyond the lines of the structure of which it forms a part (Loten and Pendergast 1984).

The basal molding in Courtyard 2 is present on the interior of the courtyard on the north and west facing walls. The west facing walls are two tiered with basal molding that conjoins to the eastern outset stairway. The outset stair is two steps tall and leads into a hallway that is three meters wide and extends east/west. The hallway was not excavated in its entirety but excavations revealed the presence of two parallel rooms. The rooms from the western entrance of the hallway, are opposite one another – one room on the northern side and one on the southern side. The first room on the northern side of the hallway is titled Room One for this report.

Figure 3: Plan view of Courtyard 2.

A total of 5575 artifacts were recovered from Courtyard 2. Human remains, faunal remains, and radiocarbon samples were not included in this total count as human remains are fragile and subject to breaking. All carbon collected will be sampled for dating processes, and faunal remains are in the process of being analyzed and will be discussed later in the report. Artifacts types found in Courtyard 2 include ceramic, chert, freshwater shell, marine shell, worked shell, obsidian, granite, limestone, faunal remains, human remains, carbon samples, modified cobbles, basalt, daub, quartz, and matrix samples. Flotation was conducted on matrix samples to identify micro-artifacts and ecofacts present in the deposit. The presence of these micro-artifacts could help to clarify
the events occurring during the accumulation of deposit materials. In addition, 20 artifacts were collected as special finds due to cultural importance. Special finds from Courtyard 2 include materials such as complete projectile points, or those in late stages of production, decorated ceramic sherds, obsidian blades and blade fragments, shell beads, Olivella tinklers, musical instruments, and ceramic spindle whorls (see Appendix A).

Figure 4: Excavation Unit (EU) CT2-4-8. Basal moulding can be seen on the interior of the northern wall and the two-tiered west-facing wall.
Figure 5: EU CT2-5-6 and EU CT2-6-7. Courtyard floor and entryway (north), basal moulding extends the length of the northern wall and entrance until abutting with the western structure.
**Figure 6:** EU CT2-8-19. The outset stair entering from the hallway into Courtyard 2.

**Figure 7:** EU CT2-9-21. View of the stairs leading into the hallway and the entrance into the northern room.
**Figure 8:** Bench in Room One measuring 3m x 2m. Burned area can be seen on the lower center area of the bench.

**Figure 9:** EU CT2-10-23, 2mx1m trench through the bench revealing chert cobble fill and minor artifacts such as granite and ceramic.
Room 1

Room 1 is the first room on the northern side of the eastern hallway and was excavated entirely. Excavations in Room 1 revealed a single rectangular bench measuring three meters in length and two meters in width, which filled the room leaving 30 centimeters of open floor space at the room entrance. The two enclosing walls abut the bench on either side and are ordinary as they do not have any decorative features. Hendon (1991) defines a bench as a built-in piece of furniture which is usually constructed of a dirt and cobble fill retained by one or more stone walls and covered with a thick plaster.

A small circular burn mark was present towards the lower center of the bench, leading to the insertion of a small excavation trench (Figure 8). Burials and dedication caches are commonly found within Maya benches, therefore trench EU CT2-10-23 was opened to observe the interior contents of the bench. The excavation revealed the bench to be a later addition to the room. The headrest of bench appeared to have previously been the northern wall of the room, which was later converted when the bench was constructed (Figure 9). Beneath the smooth plastered surface, the bench was filled with riverine cobbles and chert nodules. Very few artifacts were recovered from inside the fill of the bench, except broken utilitarian tools made from basalt and granite, ceramic sherds, and modified limestone. Following excavation, the bench was backfilled to help preserve the structural stability of the bench.

Terminal Deposit CT2-2016-1

Throughout time, the Maya practiced termination rituals, which involved the dismantling or desecration of material goods and architecture (Mock 1998:5). These assemblages of destroyed materials are frequently referred to as terminal deposits. Freidel (1998:60) defines these termination rituals as “acts of killing, sacrificing, or capturing spiritual force from such places or things” that are found on or within structures (Pagliaro et al. 2003:78). While the discovery of terminal deposits is common, archaeologists are still unsure of the meaning behind these demolishing events. Assemblages within these deposits have been said to be associated with different intentions of the ritual but many archaeologists think that the splitting of these deposit categories is unnecessary until more knowledge about their meaning is understood (Navarro-Farr 2009).

Deposit CT2-2016-1 is classified as a terminal ritual deposit based on the assemblage of materials present and as being primarily composed of sherd refits from different levels and areas of a deposit, which can suggest pot smashing and scattering (Pagliaro et al. 2003:80). While the deposit consisted of many refit sherds, only one large serving dish was identified due to its good preservation (Figure 11).
Figure 10: More condensed section of terminal deposit CT2-2016-1 prior to the application of grid recording and matrix sampling.

Figure 11: Refit of Belize Red serving dish from deposit CT2-2016-1.
Deposit CT2-2016 was uncovered during the excavation of EU CT2-4-8. The deposit extended 3 meters in length, east to west, and continued into the baulk of the unit leaving the entirety of the deposit unexcavated. Deposit CT2-2016-1 was within Courtyard 2 on the courtyard floor and along the interior side of the northern wall. The exposed portion of the deposit was documented and removed for analysis. The deposit consisted of a variety of cultural materials including – ceramic sherds, whole and fragmented lithics, obsidian blade fragments, faunal remains, freshwater shell, marine shell, worked shell, daub, and some special finds (see Appendix B for additional photos of these artifacts). Table 1 provides an overview of the cultural material present in the deposit and their frequency. Faunal remains, human remains, carbon samples, and matrix samples are not included in the deposit overview.

Ceramics Analysis

The ceramic sherds from the deposit were analyzed using a sample consisting of diagnostic rim sherds only. This analysis was implemented to provide a seriation of ceramic types to aid in the composition of an occupational timeframe. The ceramic analysis involved 546 rim sherds that were analyzed using James C. Gifford’s Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley typology. Figure 12 displays the ceramic complexes recovered from Courtyard 2 excavation, organized in chronological order. Many of the analyzed ceramics were assigned to the Spanish Lookout complex, dating between CE 700 and CE 900. Although the Tiger Run complex is very close to Spanish Lookout chronologically, the complex is underrepresented within the deposit, which is common as the Tiger Run complex appears to be short lived. The second most abundant complex within the deposit is the Jenney Creek complex dating to the Middle Preclassic from approximately 900 to 300 BC. One of the earliest ceramic complexes in the Belize Valley is the Jenney Creek, and is also the earliest complex present in the terminal deposit. Although the presence of Jenney Creek ceramic in the deposit is small, compared to the Spanish Lookout ceramics, the existence of these very early ceramics at Lower Dover is significant and sheds light on a possible earlier occupation date than previously thought. Other earlier ceramic complexes present in the deposit include the Barton Creek and Hermitage complexes. These additional two complexes help support the idea of an earlier occupation date or the possibility of migration to Lower Dover from earlier occupation periods.
Table 1: Deposit CT2-2016-1 cultural material overview count (n) and frequency (%).

<table>
<thead>
<tr>
<th>Artifact Class</th>
<th>Count (n)</th>
<th>Frequency (% of all artifacts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic Materials</td>
<td>3395</td>
<td>95</td>
</tr>
<tr>
<td>Chert</td>
<td>171</td>
<td>4</td>
</tr>
<tr>
<td>Other Lithics</td>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>Freshwater Shell</td>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>Obsidian</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>Granite</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>Modified Shell</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>Daub</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>Marine Shell</td>
<td>2</td>
<td>0.08</td>
</tr>
<tr>
<td>Quartz</td>
<td>1</td>
<td>0.065</td>
</tr>
<tr>
<td>Modified Cobble</td>
<td>1</td>
<td>0.065</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4195</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Faunal Analysis

Faunal remains recovered during excavations were limited. Many of the remains could not be identified to a specific taxonomic category; however, skeletal element identification was often successful. These remains are fragmentary, but overall relatively well-preserved with a lack of taphonomic damage other than breakage. The number of identified specimens (NISP), where identified indicates to skeletal element, is 141 (Table 2). The majority were appendicular elements (NISP = 94), typically long-bones from the limbs. Axial elements (NISP = 5) and cranial elements (NISP 6) are rare in the assemblage. Of these faunal remains, one tooth can be confidently identified as white-tailed deer (*Odocoileus virginianus*). A very small antler fragment can also be identified as closely following (cf.) the taxonomic Order: Artiodactyla, or even-toed ungulates. Given the size of the fragment; however, identification to a more specific category is not possible. The remaining faunal elements are either closely following (cf.) white-tailed deer or are indeterminate to species, but identified to animal size class. Besides mammal remains one claw, identified to Order: Decapoda, crustaceans (Table 2) was recovered.

Figure 12: Bar graph of ceramic complexes present in the terminal deposit CT2-2016-1.
Table 2: Faunal Remains Recovered from Lower Dover Courtyard 2.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>1</td>
</tr>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>33</td>
</tr>
<tr>
<td>Order: Decapoda</td>
<td>1</td>
</tr>
<tr>
<td>Indeterminate: small size class</td>
<td>2</td>
</tr>
<tr>
<td>Indeterminate: small-medium size class</td>
<td>1</td>
</tr>
<tr>
<td>Indeterminate: medium size class</td>
<td>6</td>
</tr>
<tr>
<td>Indeterminate: medium-large size class</td>
<td>63</td>
</tr>
<tr>
<td>Indeterminate: large size class</td>
<td>30</td>
</tr>
<tr>
<td>Indeterminate: unknown size</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>141</strong></td>
</tr>
</tbody>
</table>

*Small animal examples include: bat, mouse, rat, squirrel
**Medium animal examples include: opossum, rabbit, anteater, armadillo, paca, agouti, skunk, coati, peccary
***Large animal examples include: white-tailed deer, brocket, tapir, jaguar, cougar

One worked bone artifact was recovered from Courtyard 2. This element is not identified to any taxonomic category or skeletal element, but falls within the size class, medium-large. The specimen is part of a long-bone, 25.96 mm in length with 10.79 mm as its greatest width. According to Emery (2008:212) the creation of bone tools or adornments involved a five-stage process. To work these elements, the use of friction was often employed. The worked element from Courtyard 2 falls within Stage 4, blank finishing, of Emery’s classification system (Figure 13).

Figure 13: Long bone fragment, unidentified to taxon or specific element. Cut-worked on one side, suggesting Stage 4 blank finishing as discussed by Emery (2008).
Burial CT2-001

In addition to the numerous ceramics recovered from deposit CT2-2016-1, the burial of an adult individual was identified. The following sections provide a detailed osteological and excavation review as well as a discussion on the significance of the burial regarding Maya cosmology. This burial was excavated during the first session of the BVAR project field school in June 2016. Kirsten Green and Rosanne Bongiovanni excavated the burial. The burial was associated with a terminal deposit in the elite Courtyard 2 (Figure 14).

The burial was oriented north-south with the head to the south in the prone position. The head was face down and the arms were at the sides. The individual was against the western exterior wall of the eastern structure, directly on the courtyard floor (Figure 15). The bones were poorly preserved especially the left arm, especially from root disturbance. There were no foot remains present and only limited hand fragments. The thorax was poorly preserved and resulted in the recovery of highly fragmentary ribs and three possible cervical vertebrae (see Osteological Analysis and Inventory below). No thoracic or lumbar vertebrae, or pelvis were present.

Figure 14: Burial CT2-001 in association with the terminal deposit. Note the large amount of collapse present.
Figure 15: Burial CT2-001 upon first discovery. Note the placement of the individual in the corner of the courtyard and in front of the eastern structure and the bent lower limbs.

Osteological Inventory

Elements present include an occipital fragment with cruciform eminence, right temporal fragment with arch, mostly complete left zygomatic, left frontal with supraorbital margin, and miscellaneous fragments (parietal, occipital, sphenoid). The maxilla was mostly complete and had some dentition still in sockets. It was broken at the midline during cleaning. The mandible was also mostly complete with the right ascending ramus and body and the left had a large body fragment and separate coronoid process.

- Dentition still in the alveolar: Maxillary LC, LI2, LI1, RC, RPM1.
- Loose dentition: Maxillary LM1, LPM2, LPM1, RI1, RI2, RM2
- Mandibular LC, LI2, LI1, RI1, RI2, RPM, unsided molar

Postcranial remains include cervical vertebrae (C3-C7) neural arch frags, a mostly complete right clavicle, right scapular fragments including the fragment of scapular notch, and left scapula fragments including a scapular neck fragment. Rib fragments include one right neck, one left neck, and unsided body fragments.
Since the right side was better preserved a mostly complete right humerus diaphysis was recovered, although missing both epiphyses. The right radius and ulna was recovered in three large pieces but were missing both their proximal and distal ends. The left humerus was highly fragmentary as was the left radius and ulna.

The right femur consisted of one large distal diaphysis fragment that includes the supracondylar line and part of the linea aspera, there are also femoral body fragments. The left femur also consisted of one large distal diaphysis fragment that includes the supracondylar line and part of the linea aspera, there are also femoral body fragments. The right tibia and fibula were highly fragmentary with no discernable features. The left tibia consisted of fragments, one of which had the popliteal line and nutrient foramen, while the left fibula had two large body fragments.

Osteological Analysis

Dental modification on the maxillary central incisors in the “T” shape when put together (Figure 16). Caries and calculus is present on most teeth. The most extreme carious lesions appear on the molars with significant calculus in left M1. Significant wear on occlusal surface of all teeth. Mandibular right molar sockets have complete resorption while the left has partial resorption indicating older adult. The mental symphysis appears to be a 2 or 3 on the standards scale and the gonial is relaxed both indicating probable female. The supraorbital margin is rounded indicating probable male. The glabella is small but incomplete and the linea aspera is gracile.

Figure 16: Dental modification showing “T” shaped incisors.
Burial CT2-001 Discussion

Burial CT2-001 is the first burial to be uncovered in Courtyard 2. As previously stated, the individual was oriented north-south with head to the south. The upper body and cranium were prone (faced down) and cranial remains were fused to the plaster floor. The preservation of lower extremities of the individual suggests the legs were bent behind the individual with knees pointing north (Figure 15). This positioning is suggestive of a possible binding of the lower extremities prior to death. The positioning of the individual is uncommon to the Belize Valley (Novotny 2015) and, therefore, could be an indicator for sacrifice according to the scholarly community (Tiesler 2007:21). Maya iconography commonly depicts scenes of individuals being bound prior to sacrificial events; however, due to the poor preservation of the individual this hypothesis cannot be conclusive for this burial.

Interpretations of this burial draws on common themes present within Maya cosmology. The most direct representation is the “T” shaped dental modification. Often the Maya sun god or “God G” is depicted as having the upper incisors filed into the form of a “T”. Through epigraphic text, GIII of the Palenque Triad, the sun god bears important filed incisors which he shares with Maya kings, this title is kinich (Miller and Taube 1993). This modification is a representation of how the Maya idolized their gods and can be interpreted as a symbol of being godly.

The location of the burial within the courtyard has significance as well. In association with the sun, the cardinal directions are also a dominant theme in Maya Cosmology. Ashmore (1991) explained how site planning was influenced by the cardinal directions, stating that often sites or structures were oriented on an east-west axis, due to the path of the sun’s movement. Ashmore specifically notes that east was of great importance to the Maya and was “associated with strength and potency (Ashmore 1991:200).” Burial CT2-001 was positioned on the eastern side of the structure and was placed directly in front of the eastern structure (Structure 8). Because of the directional importance associated with the east it is not a coincidence that Burial CT2-001 was located where it was.

Finally, Burial CT2-001 was uncovered in direct association with terminal deposit CT2-2016-1 (Figure 17). It is important to note this association for a better understanding of the ritual events that resulted in the deposit. As previously stated, these deposits are often thought of as an aspect of dedicatory or termination rituals. Because the deposit and burial were located directly on the floor, I am interpreting this event to be coeval with one another and therefore a ritual act. Based on previous knowledge and interpretations involving the releasing of animistic spirits through ritual killing, I also interpret the burial to be a ritual act due to its association. Further evidence is needed to confirm these hypothesis as well as a better understanding of these terminal deposits.
Figure 17: Plan view of deposit CT2-2016-1 and burial CT2-001.
CONCLUSIONS

Excavations in Courtyard 2 at Lower Dover during the 2016 field season focused on determining the development, function, and regional role of Courtyard 2. Through the implementation of horizontal excavations, the terminal phases of architecture were exposed and revealed the courtyard to be an extension of the elite residential palace. The exposure of a series of rooms supports the idea of Courtyard 2 being residential space.

The discovery of terminal deposit CT2-2016-1 in association with Burial CT2-001 provides a perspective of the significance of Courtyard 2 and its surrounding structures. As Hoggarth et al. (2015:264) have suggested, these deposits represent the final activities occurring in ceremonial areas throughout the Belize Valley and the broader Maya Lowlands. Understanding the chronology of these contexts are essential towards building a chronology to understand the timing of the Classic Maya collapse in the region. In addition to chronological understanding, these deposits also allow archaeologists to observe ritual behavior through the lens of the materials present in the deposit. The analysis of the material remains in terminal deposits can provide an understanding of the intentions of the ritual or event.

Artifact analysis also helps determine Lower Dover’s economic involvement. The frequency of local, regional, and exotic goods is limited in Courtyard 2 but is still present. A lack of exotic trade goods has been noted throughout Lower Dover and further helps to explain the center’s lack of involvement in exotic trade. Finally, the data collected during the 2016 excavations in Courtyard 2 at Lower Dover will help to elucidate the functions of palatial complexes within Maya civic centers.

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REFERENCES CITED

Ashmore, Wendy

Driver, W. David and James F. Garber.

Ebert, Claire E., Richard J. George, Julie A. Hoggarth, Rafael A. Guerra, and Jaime J. Awe

Freidel, David

Gifford, James C.

Guderjan, Thomas H., Robert J. Lichtenstein, and C. Colleen Hanratty

Guerra, Rafael A.

Guerra, Rafael A. and Marieka Arksey
Guerra, Rafael and Shawn Morton

Guerra, Rafael A., Michael Petrozza, and Rebecca Pollett.

Guerra, Rafael, Zoe Rawski, Nick Jackson, and Rebecca Pollett.

Guerra, Rafael A. and Renee Collins

Hendon, Julia A.

Hoggart, Julie A., Jaime J. Awe, Sarah E. Bednar, Amber Lopez Johnson, Ashley McKeown, Sydney Lonaker, Kirsten Green, Niyolpaqui Moraza-Keeswood, Erin Ray, and John Walden

Iannone, Gyles and James M. Conlon

Koenig, Emma Nicole
2014 *Terminal Ritual Deposits And Abandonment Processes At Aguacate Uno, Belize*. Unpublished Master’s Thesis, Department of Anthropology, University of Alabama, Tuscaloosa.

Loten, H. Stanley and David M. Pendergast
Miller, Mary and Karl Taube

Mock, Shirley Boteler

Navarro-Farr, Olivia

Nonotny, Anna

Pagliaro, Jonathan B., James F. Garber, and Travis W. Stanton

Pendergast, David M.

Ricketson, Oliver G.

Tiesler, Vera

1965 *Prehistoric Maya Settlements in the Belize Valley*. Papers of the Peabody Museum of Archaeology and Ethnology, No. 54. Harvard University, Cambridge
Wölfel, Ulrich, Christian Brückner, Philip Reeder, and William Reynolds
## APPENDIX A: 2016 COURTYARD 2 ARTIFACT INVENTORY

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- **Deposit Code:** CT2-276-1 to CT2-276-12
- **Deposit Types:** Collaps, Hunt, and Other Deposits
- **Deposit Locations:** LC6
- **Deposit Dates:** 20-Jan-16
- **Deposit Descriptions:** Implanted by the deposit

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*163*
APPENDIX B: ADDITIONAL ARTIFACT PHOTOS

Figures 18 and 19: Ahk’utu’ Molded Carve sherd from deposit (left), Reforma Incised sherd (right).

Figure 20: Whistle fragment, Musical Instrument ID: LWDMI30.
Figures 21: *Olivella* tinkler from deposit (Left), Three marine shell beads from deposit (Right).

Figures 23 and 24: Chert biface from deposit (Left), Projectile point base fragment from deposit showing straight stem hafting element (Right).
Figures 25 and 26: Medial fragments of bifacially worked projectile points from Terminal Deposit CT2-2016-1.

Figures 27 and 28: Uniface projectile point (Left), bifacially worked tip fragment of a projectile point (Right), both from Terminal Deposit CT2-2016-1.
EXCAVATIONS OF ROCKSHELTER #1 IN THE LOWER DOVER SITE CORE

Stanislava Romih
Montclair State University

Victoria S. R. Izzo
University of Central Florida

Jeffrey M. Burns
Northern Arizona University

INTRODUCTION

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 site core is situated on a limestone bluff just south of the Belize River, and bounded by Lower Barton Creek to the east and Upper Barton Creek to the west (Guerra 2011). The site of Barton Ramie lies just north of Lower Dover across the Belize River, with the sites of Baking Pot 5 km to the west and Blackman Eddy 2.5 km to the east (Figure 1).

Figure 1: Map of Lower Dover and other archaeological sites in Upper Belize Valley, Cayo District, Belize (map courtesy of the BVAR project, after Ebert et al. 2014:Fig. 1).
BACKGROUND

Archaeological investigations at Lower Dover have been conducted by the Belize Valley Archaeological Reconnaissance (BVAR) Project since 2010, with primary research goals being to establish a chronology for the site, survey the surrounding settlement area, and ultimately determine Lower Dover’s role among the Late Classic Maya polities of the Belize River Valley (Guerra 2011). In a continuing effort to determine the chronology of occupation and function of individual plazas, Rockshelter #1 (RS#1) was excavated during the 2016 field season to determine the significance of its spatial relationship with Plaza G, which is known to be an elite residential plaza (Guerra and Morton 2012).

Figure 2: Map of the site core of Lower Dover with Rockshelter #1 highlighted in red.
Rockshelter #1

The entrance to the rockshelter faces southwest away from Plaza G (Figure 3), and is located approximately 10 m southwest of Plaza G (Figure 2). The modern exposed entrance of the rockshelter is 3.5 meters long (NW-SE) and a maximum of 60 cm high. The roof is 70 cm thick at the opening, and curves evenly down towards the back of the shelter, which is approximately 3 m deep in the middle.

Figure 3: Rockshelter #1 after vegetation clearing and prior to excavation, facing northeast.

Previous Excavations

Rockshelter #1 was previously excavated in 2013, however the excavation was rapidly abandoned due to toxic conditions inside the rockshelter caused by bat habitation (Rafael Guerra, personal communication 2016). During the 2013 excavations, a roughly 1x2m unit was placed in the northern back end of the rockshelter oriented north-south (Figure 4). The unit appears to have been excavated only about 10 cm in most areas, however it is possible some sediment has washed in and filled the excavation unit. At the northern end of the unit, the excavators dug a pit down approximately 30cm wide and 1 m across. It extends down approximately 30cm. The excavation did not apparently result in conclusive evidence to suggest use of the rockshelter by the inhabitants of Plaza G (Rafael Guerra 2016, personal communication), and unfortunately, no further information is available regarding the results of that excavation.
METHODS

After inspecting RS#1 in 2016 we found it to be too narrow in depth to allow for safe and effective continued excavation of the old unit. Therefore, we placed a new excavation unit at the present mouth of the rockshelter, partially extending outside. The elevation datum was placed on the tree in front of the rockshelter, 5 cm above the highest modern ground surface in the rockshelter. All dirt from E.U. RS-1 was screened for artifacts, as well as the sediment surrounding the burial. The excavation was regularly photographed and sketch mapped.

Excavation

A 2x2 m unit was placed at the current entrance to RS#1, aligned not north-south, but to the entrance of the rock shelter itself for expediency and to allow excavators to move around more readily inside. As a result, the new unit (RS-1) bisects the old unit from 2013 at an odd angle (Figure 4). An additional unit was opened (RS-2) adjacent to RS-1, on the outside of the rock shelter as a result of a possible feature being located on the edge of southwestern end of unit RS-1. Unit RS-2 was a 1 x 2 m extension attached to unit RS-1 at its southwestern edge (Figure 4).
EXCAVATION RESULTS

Excavation Unit RS-1

The unit was excavated in two arbitrary levels. The first level consisted of the top 30-50 cm, and was marked by abundant roof collapse, decomposing limestone, and mixed soil. Artifacts were present throughout the level, and consisted of 48 non-diagnostic ceramic sherds, 118 chert flakes, 61 jute shells, 2 obsidian flakes, and fairly abundant but uncounted and unanalyzed small faunal bones. The level was terminated arbitrarily at 60 cm below datum after large chunks of roof collapsed were removed, and a possible feature was observed.

Level 2 continued down another 40 cm. The possible feature observed at the end of Level 1 was revealed as a cluster of slightly burned limestone rocks with a slightly higher concentration of artifacts surrounding it. It was unclear whether it was of cultural origin, but it was mapped and photographed prior to removal. An alignment of 17 cut stones oriented roughly east-west was uncovered in the southwestern portion of the unit (Figure 5), as well as a possible rough floor surface or stratum change at 102 cm below datum.

Figure 5: End of excavations in EU RS-1, showing possible structural rubble in southern corner, facing northeast.
Excavation of this level and unit were subsequently halted in order to open up E.U. RS-2 to find the extent of the rock alignment. Artifacts found in this level included 66 non-diagnostic ceramic sherds, 35 chert flakes, 52 jute shells, 5 pieces of daub, an armadillo scute, and 1 piece of obsidian. Also recovered were a number of small faunal bones which were not counted or analyzed for species identification. A charcoal sample was taken near the possible feature.

**Excavation Unit RS-2**

E.U. RS-2 was opened up by Jose Puc, Sr., under the direction of Rafael Guerra, in order to investigate the possible feature represented by the cut stones exposed at the southwestern edge of E.U. RS-1. The unit measured approximately 1 × 2.5 m, oriented northwest-southeast (Figure 4). Level 1 was excavated expediently using pick and shovel down to the level of the top of the stones. The dirt was not screened but artifacts that were observed were collected. The artifacts from this level were consistent with the rest of the excavation, with 113 non-diagnostic ceramic sherds, 13 chert flakes, 2 jute shells, 2 pieces of daub, and a piece of ground stone. The level was terminated due to the identification of human remains in the southern half of the unit. Ending elevations vary from 45-70 cm below datum.

Level 2 consisted of Burial RS-1-001. Only the area immediately around the burial was excavated as part of this level. The burial was removed as a team effort involving several excavators, led by interim BVAR project osteologist Victoria Izzo-Medlock. The burial was found to be in very good condition, completely articulated with almost all of the bones present (most of the feet were missing). It was in a tightly flexed position with the right arm intertwined with the legs, and the head was located toward the east and facing south (Figure 6). The burial appears to have been cut into a crude floor or surface corresponding with the top of the cut stone alignment. There were no apparent grave goods accompanying the burial, only a few larger non-diagnostic ceramic sherds in the immediate area, 15 chert flakes, and 23 jute shells.

Burial RS-1-001 was oriented with the head to the east, the face toward the north, and the feet (plantar surface) oriented toward the west. The individual was placed in a tight flexed position with the right forearm placed under the right and left knees, although the left arm positioning was unobservable due to the high degree of fragmentation that occurred once the remains were excavated. An in situ assessment of the age and sex of the individual was conducted as the remains were continuously exposed. Due to the poor preservation of the pelvic region, estimations of sex were made using the mandible. Specifically, the degree of gonial flaring and robusticity of the mandible is consistent with this individual being of male sex (Byers 2001). Additionally, the gonial angle is relatively vertical, which is also indicative of male sex (Byers 2001). Due to the orientation and subsequent fragmentation of the anterior aspect of the cranium, no other non-metric characteristics were observable to further estimate the sex of this individual. This individual was of adult age indicated by the absence of unfused proximal and distal epiphyses of the long bones. It is important to highlight that the cranium was fairly intact prior to excavation. However, the cranial vault bones did appear to fracture along the
cranial sutures (especially superiorly), so the degree of cranial vault sutures was not observable. This burial was incredibly well preserved, although the remains were fragmented when exhumed. Cut marks were identified during dry cleaning on the posterior surface of the left and right fibula mid-shaft.

Figure 6: Burial RS-1-001, located 1m outside dripline of rockshelter in E.U. RS-2.
CONCLUSIONS

Prior to excavation, Rockshelter #1 appeared to be a quite small and potentially insignificant landform. However, the 2016 excavations revealed that there is considerable depth within the rockshelter (the full extent of which is still unknown), as well as cultural activity. The entire area excavated contained a variety of artifacts, and a possible structure and burial were located at the entrance. The location of the rockshelter just outside of Plaza G suggests that it may have played a significant role in the lives of its inhabitants.

Since the 2016 excavations stopped at the top of a possible structure and just after removal of a burial (Figure 7), it is very likely that there are significant cultural deposits within and around RS-1 that have yet to be uncovered. Further investigation of the area is suggested in order to determine the nature of the possible feature, investigate the potential for additional burials, and determine the full spatial extent of the rockshelter as well as its physical and temporal depth.

Figure 7: Rockshelter #1 extent of 2016 excavations before removal of burial, facing north.
Acknowledgements

We would like to thank the Reynolds family for their continued cooperation with and support of the BVAR Project at Lower Dover. Additionally, we are thankful for the assistance and guidance of the BVAR Project, and its staff in our investigations of Rockshelter #1. For his daily advice and support we would like to extend a special thank you to the site supervisor, Rafael A. Guerra. We would also like to express our gratitude to Jose Puc, Sr., Leevan Ramirez, and Genesis Grijalva, whose efforts made it possible to complete the excavation in a timely manner. Finally we would like to acknowledge the Belize Institute of Archaeology for their support of the BVAR project.

REFERENCES CITED

Byers, Steven N.

Guerra, Rafael A.

Guerra, Rafael A., and Marieka Arksey
INTRODUCTION

In the summer of 2016 the Belize Valley Archaeological Reconnaissance (BVAR) project continued archaeological investigations at the site of Lower Dover, Belize. Located approximately 11km east of San Ignacio Lower Dover is on the property of William and Madeline Reynolds in the Village of Unitedville. Lower Dover is located on the southern bank of the Belize River directly across from Barton Ramie, approximately 6 km east of Baking Pot and 3 km west of Blackman Eddy. 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 2011; Guerra 2011). The ceremonial center consists of four courtyards and two informal plaza groups with 56 structures, including one ballcourt, and a possible aguada or depression that may have functioned as one just north of Plaza A (Guerra and Collins 2015).

PREVIOUS RESEARCH

In the summer of 2010 and 2011, formal excavations were conducted in Plaza G. Excavations focused on a small low-lying square structure to the east of the main plazuela Structure G1 (previously G28). The excavation was initially set up as a 2x6 meter unit along the east-west axis. The unit was divided into three 2x2 meter units labeled G1-1, G1-2, and G1-3, from the west to the east. The units were used to determine the construction sequence of both the plaza area and structure G1 (Guerra 2010). The 2011 field season excavations were focused on completing Units G1-2 and 3 and the opening a new unit on the western structure, G3 (previously G30). Units G3-1 and 2 were laid out along the east west axis of the structure; a 2x2 meter unit was placed to uncover terminal phase architecture. In Unit G3-2 a vertical test unit was placed to determine the chronological sequence of construction (Guerra and Arskey 2011).
PLAZA G

Plaza G is a small plaza located to the north of the ballcourt (Figure 1). The structures are labeled G1-G5, with G5 being a low-lying platform to the south and west of Group G. Structures G1 through G4 form a formal plazuela group and a chultun is in front of the northern structure. Plaza G occupies an area of approximately 507 square meters this number excludes structure G5 (Guerra 2010).

METHODS

In the 2016 field season excavations focused on the northern structure of Plaza G, structure G4. Excavation unit G4-1 was established the unit was oriented north to south. The vertical unit was placed on top of the structure to determine the chronological sequence of construction. The unit measured 3 meters north to south and 1.5 meters east to west.

RESULTS OF EXCAVATIONS

E.U. G4-1 (Lot G4-1, level 1): was initiated to remove the top layer of the humus and to clear other debris. Opening elevations were 50 cm in the northeast corner, 52 cm in the northwest corner, 46 cm in the southeast corner, and 54 cm in the southwest corner. This lot consisted of roots that were spread throughout the unit. The consistency of the
matrix is loose and dark brown. The focus of the excavation was in the southern portion of the unit. Two architectural terraces were exposed and a floor was reached in the southern portion of the unit. A plan-view map (Figure 2) was made and the removal of the stones were taken and numbered to be inserted after excavations are finished. The elevations for the end of the level 1 were 62 cm northeast, 56 cm northwest, 95 cm southeast, and 96 cm southwest. The artifacts recovered from this level were ceramics, chert, daub, fresh water shell, obsidian, 2 net sinkers, ocarina fragment, and *Olivella* tinklers.

**Figure 2**: Plan view map of Plaza G.

**E.U. G4-1, Extension 1A** (Lot G4-2, level 2): This lot was begun after exposure of the first floor and terrace. An extension was inserted on the northern portion of the
unit, which measured an extra meter. Overall the unit measured 4 meters north and south and 1.5 meters east and west. The extension was necessary to expose more of the architecture in the cultural level. The beginning elevations were taken and the top humic layer was cleared. The northeast corner 17 cm, northwest 27 cm, southeast 28 cm, and southwest 18 cm. Many large and small pebbles were scattered throughout the unit. A boulder fill was reached not far from the initial level. The boulder’s average size was about 30 to 40 centimeters. The boulder fill was spread throughout the unit in the cardinal direction west to east (Figure 3 and 4). The first level was closed and a new lot was initiated. Artifacts recovered included ceramics, chert, including one chert biface, daub, marine shell, obsidian, quartz, and wood.

Figure 3: Excavation unit: G4-1 and Extension 1A.
E.U. G4-1 Extension 1A (Lot G4-3, level 2): Level two was initiated to remove the large boulder fill throughout the unit. The goal for this extension was to identify if the floor extended past the terrace. Floor 1 was reached and became level throughout the entire unit of G4-1, Lot G4-1 (Figure 5). The floor was reached after approximately 20 centimeters. Artifacts recovered included ceramics, chert, and fresh water shell (jute).

Figure 4: Boulder fill of extension 1A.

Figure 5: Excavation unit G4-3 extension 1A, floor level with unit G4-1.
E.U. G4-1 (Lot G4-4, level 2): Excavations focused in the original unit of G4-1 and the excavation of level 2 began. Excavation focused on the center of the unit in front of the second terrace and vertical unit helped identify the extent of the terrace wall. Elevations were taken northeast at 57 cm, northwest at 61 cm, southeast at 60 cm, and southwest at 65 cm. The sediment matrix changed from a dark brown to a light brown. Floor 2 was uncovered at approximately 20-30 cm from the original measurements. All the materials collected ceramics, chert, fresh water shell (jute), daub, and wood.

E.U. G4-1 (Lot G4-5, level 3): After the second floor was uncovered a new lot was established. As excavation continued the matrix complexion began to change from a dark color to a lighter color. The depth of the terrace wall is approximately about 30-40 cms from the datum. This could determine that the structure was built in one initial phase of construction. The matrix changed again from a light brown to a rich orange color, an indication that clay was in the context. Large cobbles were intertwined with the clay. The sediments next changed to a marl context and were sterile. Bedrock was successfully reached at a depth of 165 cm below datum. Materials recovered from this lot included ceramics, fresh water shells (jute), and daub.

E.U. G4-1 (Lot G4-6, level 4): In level 4 the focus shifted to the southern portion of Unit G4-1, in front of the first terrace. The geological materials scattered throughout this level included pebbles and roots and the sediment matrix was consistently compact and hard. First the sterile layers were reached, then the sediment became an orange clay-loam consistency. Bedrock was finally identified and measured about 202 centimeters below the datum. Artifacts removed from the unit included ceramics, chert, freshwater shells, and daub.

E.U. G4-1, Extension 1A (Lot G4-7, level 3): Continued excavation of extension 1A took demonstrated a matrix not compacted but rather loose and light to medium brown. Little rocks were throughout the unit, it was not long after that pieces of plaster emerged and a badly degraded floor was uncovered. It was about 4 to 5 centimeters from the original elevations taken from the unit. Artifacts recovered from the unit included ceramics, chert, daub, freshwater shells, and obsidian.

E.U. G4-1, Extension 1A (Lot G4-8, level 4): This lot led to the exposure of a badly degraded floor. Throughout this lot were many scattered roots and the matrix changed from a medium brown until another floor was reached, approximately 20 cm later. Artifacts recovered were minimal with ceramics, chert, and daub.

E.U. G4-1, Extension 1A (Lot G4-9, level 5): Opening elevations in this extension were northeast 83 cm, northwest 75 cm, southeast 76 cm, and southwest 89 cm. Going through the third floor produced minimal artifacts such as ceramics, chert, and daub. The matrix was consistency a sandy-clay. Due to time constraints from the closing of the field season this lot was not finished. The lot was stopped and measured at 130 cm. After the closing of the unit a baseline map was created (Figure 6 and 7).
CONCLUSION

Excavation data from this structure suggest that it was built in three architectural phases. The Plaza G was directly built on bedrock that was modified due to the slopping of the bedrock. River cobbles and orange clay was brought in from the Belize River to level out the plaza prior to construction. Although artifact analysis (examples of artifacts recovered in Figure 8) is currently ongoing, previous excavations in the plaza can conclude that most likely the building was constructed in the Late Classic phase and into the Terminal Classic period.
Figure 7: Profile view of unit G4-1.

Figure 8: Selected special find artifacts from Plaza G. A-B: Olivella Tinklers; C: Ceramic Net Sinkers; D-F: Petrified Wood; G: Chert Projectile Point; H: Ceramic Ocarina Fragment; I: Chert Biface.
Acknowledgements

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REFERENCES CITED

Guerra, Rafael A.  

Guerra, Rafael A. and Marieka Arksey  

Guerra, Rafael A. and Shawn Morton  

Guerra, Rafael A. and Renee L. Collins  
INTRODUCTION

The Late/Terminal Classic (AD 600-1000) Maya polity of Lower Dover is located on the southern bank of the Belize River near the modern village of Unitedville in the Cayo District of western Belize. Lower Dover is one of many similarly sized Classic Maya peer polities in the Belize Valley, and is located 3km west of the major center of Blackman Eddy, and 7km east of the major center of Baking Pot (Figure 1; Helmke and Awe 2012). Archaeological investigations in the Lower Dover hinterlands have been sporadic over the past 80 years. Barton Ramie, which constitutes the northern half of the Lower Dover polity, was intensively examined by Gordon Willey and colleagues (Willey et al. 1965). The minor center of Floral Park located to the southwest of Lower Dover, was also initially surveyed by Willey (Willey et al. 1965) and later underwent excavation by the Belize Valley Archaeological Project (BVAP; Brown et al. 1996; Driver et al. 1997; Driver and Garber 2004; Glassman et al. 1995).

The relatively recent discovery of Lower Dover in 2009 necessitates reconsideration of the relationships between these purportedly independent centers and Lower Dover and also illustrates the need for full coverage systematic survey in the region (Wölfel et al. 2010). Driver and Garber (2004) have pointed out a general spatial pattern where major centers in the Belize Valley are typically located approximately 10km apart, with minor centers sometimes located between the larger political centers. Following the discovery of Lower Dover several surveys were conducted in the southern and western settlement (Guerra 2011; Petrozza 2014, 2015; Petrozza and Biggie 2015). Past studies revealed several secondary civic-ceremonial compounds around Lower Dover which pre-dated construction of the monumental core during the Late Classic period (Petrozza 2015:74; Driver and Garber 2004:294). This dynamic made the Lower Dover polity an ideal context for the first author’s Ph.D. dissertation research, which
seeks to understand the changing roles of local elites as they transition into intermediate elites under the hegemony of a higher order political center.

The 2016 investigations in the Lower Dover hinterland encompassed two elements: survey and excavation. Systematic, full coverage micro-regional settlement survey was conducted for a 12km² area south of the Belize River. Excavation undertaken at the intermediate elite compound of Tutu Uitz Na (SG 1) and an adjacent commoner patio group, Pech Na (SG 9), will be reported in the subsequent chapter in this volume (see Walden and Biggie, Chapter 13). This report outlines the goals, methods, and preliminary results of settlement survey at Lower Dover. We also discuss our results in relation to several themes and pertinent questions in Maya settlement archaeology.

![Figure 1: Map of Maya Centers in the Upper Belize River Valley.](image)

**PREVIOUS SURVEY RESEARCH IN THE LOWER DOVER POLITY**

Despite considerable survey and excavation, we are only beginning to arrive at a comprehensive understanding of the settlement pattern and developmental trajectory of the Lower Dover polity (Driver and Garber 2004; Glassman et al. 1995; Guerra 2011;
Collectively, survey and excavation across the polity (i.e., independent political unit) indicate the settlement pattern in this area of the Belize Valley to be a complex temporal palimpsest of activity. The civic ceremonial center rose and fell in the Late/Terminal Classic but the immediate hinterland was settled over a thousand years earlier in the Middle Preclassic period (900-300 BC), roughly contemporaneous with the rise of the nearby Blackman Eddy polity (Garber et al. 2004; Guerra 2011; Guerra and Collins 2015; Petrozza 2015; See Table 1).

Table 1: Temporal occupation of different areas of the Lower Dover polity.

<table>
<thead>
<tr>
<th>Temporal Phase</th>
<th>Date Range</th>
<th>Lower Dover</th>
<th>Tutu Uitz Na</th>
<th>BR-180/168</th>
<th>Floral Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Classic</td>
<td>AD 750-900/1000</td>
<td>Inactive</td>
<td>Active</td>
<td>Active</td>
<td>Active</td>
</tr>
<tr>
<td>Late Classic</td>
<td>AD 500-750</td>
<td>Inactive</td>
<td>Active</td>
<td>Active</td>
<td>Active</td>
</tr>
<tr>
<td>Early Classic</td>
<td>AD 300-500</td>
<td>Inactive</td>
<td>Active</td>
<td>Active</td>
<td>Inactive?</td>
</tr>
<tr>
<td>Late Preclassic</td>
<td>300 BC-AD 300</td>
<td>Active</td>
<td>Active</td>
<td>Active</td>
<td>Active</td>
</tr>
<tr>
<td>Middle Preclassic</td>
<td>900-300 BC</td>
<td>Inactive</td>
<td>Inactive</td>
<td>Inactive</td>
<td>Inactive</td>
</tr>
</tbody>
</table>

**Barton Ramie**

Barton Ramie was intensively investigated by Gordon Willey and his colleagues between 1954 and 1956 (Willey et al. 1965). The area Willey investigated was located on a ramie plantation which covered 2km² immediately north of the Belize River Valley (Figure 6). The survey boundary at Barton Ramie was the edge of this plantation and therefore does not represent an ancient settlement boundary (Willey et al. 1965:34). The site is composed of a settlement area with a minor center on its western flank (Willey 2004:22). Nevertheless, airborne LiDAR (light detection and ranging) analysis and geophysical survey shows a reduction in settlement density to the north of Barton Ramie (Weller 2009: Fig. 5.34).

Barton Ramie was occupied as early as the Middle Preclassic, grew substantially in the Late Preclassic (300 BC-AD 300) and persisted through the Late Classic ‘collapse’ and into the Postclassic period (AD 900-1500; Gifford 1976:23). A total of 262 ‘mounds’ were documented, some of which are individual house platforms while others form patio groups of two or more houses which modern plowing reduced to single amorphous mounds (Willey et al. 1965:34; Yaeger 2003:49). BR-180, 181, and 182 form a civic ceremonial compound possessing a 12m high pyramid and plaza of 1700m² (Figure 2). Adjacent to BR-180 is BR-168, which likely was an elite residence. These structures collectively served as the administrative and ceremonial focus of the settlement (Willey et al. 1965:34).
House mounds were organized into nine supposedly arbitrary clusters (Willey et al. 1965:31), although some of these clusters probably corresponded with legitimate corporate units (Hammond 1981:171; Weller 2009:309-310). Five horizontal excavations were conducted on BR-1, BR-123, BR-144, BR-194, and BR-147, with another 60 mounds undergoing smaller test excavations. The investigations were settlement focused and less attention was paid to situating Barton Ramie within its regional political context (Chase and Garber 2004:10; Coe 1966:309), leading to speculation that it was an outlying fringe of the Baking Pot polity (Weller 2009:3) or part of the Blackman Eddy polity (Yaeger 2003:52). The civic ceremonial center of Lower Dover remained shrouded in the dense vegetation just south of the Belize River for another 60 years hence the mystery was only recently solved (Petrozza 2015:19). Even then, the revelation that Lower Dover only functioned as a primate center in the Late/Terminal Classic (Guerra and Collins 2015), validated Yaeger’s (2003:52) belief that Barton Ramie formed an outlying settlement of Blackman Eddy in the Preclassic (Chase and Garber 2004:10; See Table 1).
Floral Park

The minor center of Floral Park is located on a limestone outcrop 25m above the surrounding alluvial plain south of the Belize River and southwest of Lower Dover. The site was first surveyed by Gordon Willey et al. (1965), and consists of three groups; a civic ceremonial plaza covering 1400m² (Plaza A) with two pyramidal structures, the easternmost being 7m high (Figure 3). Immediately to the northwest of Plaza A are three aguadas (Glassman et al. 1995:58). A short sacbe adjoins Plaza A to a small double mound group (Group 1). Group 2 is an elite residential group located 50m to the northeast (Driver and Garber 2004: 292-4). Kirke (1980:282-285) noted the presence of a possible ditched field system on the banks of Upper Barton Creek near Floral Park, similar to that documented near the Bedran Group outside Baking Pot (Conlon 1995:40; Ebert et al. 2016a:112; Kirke 1980:285).

Floral Park saw renewed attention in the 1990s when BVAP excavated at Plaza A and Group 2 (Brown et al. 1996; Glassman et al. 1995). They also carried out excavations at Structure 3A, a commoner house mound located to the northeast of the minor center (possibly SG 102). Excavations revealed that the large civic ceremonial architecture was predominantly Late Classic but the presence of Kanocha ceramics indicate that the area was occupied by the Early Preclassic (1200-900 BC; Driver and Garber 2004:294; Garber et al. 2004:28). A petrographic analysis on contemporaneous Floral Park ceramics from
domestic contexts suggested that that site had limited economic interaction with other centers in the Belize Valley (Sunahara 2003:137). To date no settlement survey had been conducted on the area surrounding Floral Park.

**Lower Dover**

Survey of the Lower Dover civic-ceremonial center was initially carried out by Wölfel et al. (2010), followed by settlement survey and test pitting (Guerra 2011; Guerra and Morton 2012; Petrozza 2014, 2015; Petrozza and Biggie 2015). The civic ceremonial center contains 56 structures arranged around two monumental plazas (A and B) and several large elite plazuela groups (Figure 4). Plaza A is the easternmost and largest plaza, and is surrounded by 10 structures, including an eastern triadic shrine and a large temple pyramid on the western side. To the north of Plaza A is a possible aguada (Guerra and Collins 2016:223). Off the backside of the western structure is the ballcourt. Plaza B is on the western side of the civic ceremonial center and is ringed by eight structures including the westernmost palace acropolis (Guerra 2011). The epicenter has been subjected to intensive excavations, which focused on the Eastern Triadic Shrine in Plaza A (A-1, A-2 and A-3; Wilkinson and Hude 2011), Plaza B (Barillas 2015), Plaza G (Guerra et al. 2013; Guerra and Arksey 2012), Plaza F (Guerra et al. 2013; Guerra et al. 2014; Perkins 2013), the ballcourt (Wilkinson and Hude 2011), the palace (Guerra and Collins 2015; Watkins et al., Chapter 9), and SG 2 (formerly Plaza M; Rawski 2015). A program of test pitting was also carried out across the epicenter in 2015 (Guerra and Collins 2016).

Initial excavations have indicated a paucity of Early Classic (AD 300-500) material in the Lower Dover epicenter, with most of the monumental architecture constructed in a single phase in the Late Classic (Guerra and Collins 2015:12, 2016:224). More recent research carried out in Plaza H during the 2016 field season recovered Late Preclassic ceramics, suggesting that was occupied much earlier during the Late Preclassic (Guerra and Romih, Chapter 8). Additionally, placement of Middle Preclassic ceramics in Terminal Classic deposits in the palace shows these items were accessible during Lower Dover’s apogee, probably retrieved from architectural fill or residential middens (Watkins et al., Chapter 9). The monumental architecture in the epicenter is comparable in scale to other nearby major centers like Cahal Pech, Baking Pot, and Xunantunich, which indicates Lower Dover functioned as a primate political center in the Late Classic (Helmke and Awe 2012:61-65). Consequently, Lower Dover likely controlled the peripheral settlements at Floral Park and Barton Ramie during this period, perhaps relying on labor from these areas for monumental construction projects.

**Tutu Uitz Na (SG 1)**

First discovered and mapped by Wölfel et al. (2010), this large elite residential and ceremonial group was recorded as Plaza F, and was later rediscovered and renamed Group 1 by Petrozza (2015; Figure 5). The group was renamed “Tutu Uitz Na” (roughly translating to Jute Sacred Mountain House) by the authors due to the sizeable Middle Preclassic jute deposit underlying the plaza. Tutu Uitz Na has a ceremonial function
indicated by the large plaza (700$m^2$) and a small eastern triadic shrine (Graham 1967:45-46). The northern and eastern structures are both ~3m high. The northern structure (N1) has two later offsets on its east and west ends and a sizeable looters trench running through the center which was profiled by Christian Brückner (Wölfel et al. 2010:Fig. 13). Backdirt from looters trenches is piled against the front of E2 making it appear apsidal in form. A Late Classic burial was removed from the southern baulk of one of the looters trenches in E2 which contained a pair of antlers, worked shell, ceramics and contained jute in its clenched fist and mouth (Petrozza and Biggie 2015:33-34). While the presence of jute in burials in the Belize Valley is relatively common (Powis 1996), the associated jute deposit under the plaza in this group suggests greater significance. The presence of human remains in an eastern structure implies a ceremonial function common across the Maya lowlands (Becker 2004:128; Chase and Chase 2004:139; Welsh 1988:25-26). The center of the eastern structure is slightly higher than its northern and southern wings, which suggests it was modified into an eastern triadic shrine at some point. This interpretation is bolstered by the dogleg in the western structure and the offset southern structure, which indicates that the plaza was extended to accommodate the eastern triadic shrine and possibly larger crowds. Located to the north of Tutu Uitz Na is a small rockshelter and an aguada (15m in diameter) which probably began life as a borrow pit. Tutu Uitz Na is comparable in size to large plazuelas (Ashmore 1981:49; Thompson
1931), Plaza Plan 2 groups at Tikal (Becker 1983), East Structure-Focus Groups at Caracol (Chase and Chase 1987:55) or a ‘lesser order minor centers’ like the Bedran Group (Conlon and Moore 2003; Conlon and Powis 2004; Willey et al. 1965:572). Architecturally, Tutu Uitz Na is about 10 times larger than any of the surrounding ‘high status commoner groups’.

![Figure 5: Map of Tutu Uitz Na and surrounding settlement groups in the Lower Dover periphery.](image)

**The Lower Dover Southern and Western Settlement Clusters**

The southern and western areas around Lower Dover were first surveyed by Petrozza (2013, 2015) as part of his Master’s thesis research (Petrozza and Biggie 2015). The southern settlement forms a cluster around the Tutu Uitz Na compound which extends south, comprising 47 settlement groups (Figure 5). A chultun (CH 2) in this cluster was excavated (Perkins 2014). Petrozza also identified a cluster of 22 settlement groups to the west of Lower Dover in a cornfield (Petrozza 2015:Fig.7). The patio groups
are composed of large, ill-defined, heavily plowed mounds much like those at Barton Ramie. Petrozza (2015:Fig.37) also identified two settlement groups surrounding the Lower Dover epicenter. Most of the mounds were of varying heights, suggestive of mixed status clusters, a common pattern in the Maya lowlands (Hutson 2016:164).

**Aims of the 2016 Survey**

The goal of the 2016 Lower Dover settlement survey was to integrate the existing survey data into a single micro-regional settlement dataset, comparable to those created for the nearby polities of Baking Pot and Cahal Pech (Conlon and Ehret 2000; Hoggarth et al. 2010). The survey data needed to be systematic and full-coverage.

Four overall goals lay behind the 2016 survey:

1. The compilation of pre-existing survey data into a single comprehensive dataset.
2. Checking and assembling previous survey data from the southern settlement.
3. Surveying the gaps in between these surveys.
4. Creating a high resolution settlement map of the polity showing each residential group, the orientations of house structures, chultunes, monumental architecture, caves, sacbes, and aguadas in relation to the surrounding topography and natural features.

**The 2016 Survey Methods**

The 2016 survey was designed to provide systematic full coverage micro-regional settlement data for a 12km² area south of the Belize River. We shall outline the scope of the survey, the terminology used and how we incorporated pre-existing data, the units of analysis, the instruments and techniques used and lastly the degree of temporal control achieved in the survey.

*Terminology and the Incorporation of Pre-existing Survey Data*

This survey built upon several earlier surveys conducted by Guerra (2011) and Petrozza (2014; 2015) and a TPI analysis carried out by Claire Ebert. Data was also incorporated from the BVAP work at Floral Park and Willey’s (et al. 1965) Barton Ramie survey. With these goals in mind standardization had to occur. Settlement groups were recorded numerically in the order they were found, SG 1, SG 2 and so on. The designation SG, (Settlement Group) was employed for three reasons. First, we used SG and not Group to avoid confusion with Groups in the civic ceremonial center. Secondly, we did not wish to use the Lower Dover prefix because we did not know which patio groups were part of the polity prior to the settlement analysis. Thirdly, while it became clear that all of the settlement could be considered part of Lower Dover in the Late Classic this was certainly not the case earlier on, when some were probably independent or on the fringes of the Blackman Eddy polity (Garber et al. 2004; Yaeger 2003:52). We
still do not possess satisfactory temporal data to understand this dynamic hence the SG prefix remains.

Past surveys recorded individual mounds as oppose to patio groups, all pre-recorded mounds which were part of a group were renumbered. The SG designation was applied to all ‘groups’ found in the hinterland whether they are single dwelling commoner houses or elite ceremonial/residential compounds. The central precincts within commoner house groups are referred to as patios and their larger intermediate elite ceremonial counterparts are recorded as plazas (Ashmore 1981:51). Group M, which is located 15m southeast of the Lower Dover epicenter was renamed SG 2 (as it is not directly attached to the civic ceremonial center by a *sacbe*). The other plazas situated in the civic ceremonial epicenter are located on a constructed plateau (Rafael Guerra, personal communication 2016). House designations began with the tallest structure and ran clockwise. For example, if the northern structure was the largest on a group of four structures then designations would run: N1, E2, S3, W4. Conversely, if the southern structure was the largest then the structures would be designated S1, W2, N3, E4. Previously discovered *chultunes*, rockshelters, and *aguadas* retained their original numerical designations while newly discovered ones ran sequentially in the order they were found (Perkins 2013, 2014; Petrozza 2015).

The Barton Ramie settlement data was also modified in order to integrate this data into the Lower Dover settlement dataset. The most prominent issue inherent in this process was the differential resolutions of the two datasets. While the southern settlement mapped at Lower Dover included individual house platforms around each patio group, the Barton Ramie mounds contain multiple house platforms (Ashmore 1981:63; Willey 1965:34). The coarser grain approach taken at Barton Ramie can be forgiven considering it was these excavations which revealed the Maya lived in patio groups to begin with. Revised population estimates for Barton Ramie were calculated using mound volume. The original settlement map did not show a BR-201, although BR-200 was a double mound group with a distant northern mound. We made the decision to split BR-200 into BR-200 and BR-201 as we believe this was the original intention of the excavators.

**Units of Analysis**

Past survey in the Lower Dover hinterland recorded individual mounds. We decided to use the patio group as our primary survey unit. This approach is consistent with the notion that a Maya patio group functioned as a single ‘household’ (Ashmore 1981:49; Eaton 1975; Haviland 1988; Hayden and Cannon 1982; Hoggarth 2012; Tourtellot 1988). The patio area served both as a locale for gatherings, ceremonies and an area for craft production and domestic activity (Killion 1992; Rapoport 1969). Methodologically this approach made more sense as it divided the settlement into clearer units and reduced clutter on the settlement map.

**Survey Instruments and Procedures**

All archaeological features were recorded on a Garmin GPS Map 64S handheld GPS. The basic survey Methods involved checking all of the previously points recorded.
We walked transects roughly 5-10m apart to ensure full coverage in forested areas. All the house platforms around a patio group were mapped using tape and compass. Information was collected about the number of structures, the orientations of the structures, the height of structures, the geographical location of the group and the presence of diagnostic ceramics on the ground surface and the temporal phase indicated by these sherds. These individual patio group maps were then imported into CAD software, geo-referenced and digitized to create Figure 6.

Temporal Control

Petrozza (2015:36) placed shovel test pits in the center of 11 mounds to a depth of 40cm. Only one of which provided temporally diagnostic ceramic material, indicating that larger horizontal units were necessary if we wished to remove the dense dry laid rubble fill in the house platforms (Anabel Ford, personal communication 2016). Instead of revising the test pit strategy, we prioritized mapping because the resultant settlement data would allow the creation of a more informed test pitting strategy. Consequently, the decision was made to undertake a quick ceramic analysis of any surface ceramics present. This unsurprisingly yielded mainly Late Classic sherds, a finding which might accurately reflect occupation but is likely biased by successive phases of residential overbuilding (Ford 1990:171).

2016 SETTLEMENT SURVEY RESULTS

A total of 224 house platforms organized into 141 groups were identified in the Lower Dover southern hinterland. Some of the mounds identified in previous surveys were discounted because they consisted of natural bedrock formations, were modern disturbances (bulldozer cuts), or simply could not be located.

Assigning Temporal Phases to the Settlement

Due to temporal constraints, test pitting was not undertaken although the opportunistic analysis of surface ceramics did allow the preliminary dating of 75% of the patio groups, of these 100% were occupied in the Late Classic period. A similar temporal pattern was documented at Barton Ramie (Willey et al. 1965:Fig.171) and elsewhere in the Belize Valley (Ford 1990:171). Early Classic materials were rare, although Aguila Orange sherds were present on SG 36. Opportunistic ceramic analysis of plowed surface deposits in the Western Cluster revealed a pattern of Preclassic and Early Classic occupation at SG 68, 72, 76, and 77. SG 67, 68, 76 in the Western Cluster were the only settlement groups which revealed a Postclassic component, although New Town ceramics have been found at the Lower Dover civic-ceremonial center (Wölfel et al. 2010:30-31). While our initial thoughts on these findings are presented in more detail in the discussion below, we suggest that all the Lower Dover settlement was occupied by at least the Late Classic.
Figure 6: Map of the Lower Dover polity
The Identification of Settlement

Several issues pose problems for identifying ancient settlement, some of these relate to the size and visibility of ancient structures while others involve taphonomic processes which damage structures or render them invisible. An overview of these issues in the Lower Dover hinterland is now provided along with an overview of the provisions made to cater for these concerns.

Hidden and Invisible Features

Like most of the Maya lowlands, there is reason to believe that hidden and invisible structures present a problem in the Lower Dover settlement (Ashmore 1981: 61; Johnston 2004:167; Kurjack 1974:80-81). Most problematic are the non-mounded structures which are presumed to represent the lowest status commoner dwellings (Pyburn et al. 1998; Wilk and Wilhite 1991). Cause for concern comes from the existence of non-mounded structures like scatters of architectural fill and ceramics in cleared areas because these structures are rendered invisible in adjacent wooded areas. Only 35% of the settlement groups identified were in wooded areas showing that a higher number of households might remain hidden in foliage. In other instances, such non-mounded platforms were only discernible because of their association with other house platforms around a patio (D. Chase 1981:30; Johnston 2004:167). To remedy the effects of such issues we have calculated the number of non-mounded structures evident on the surface of cleared areas and applied this to surrounding wooded areas. These invisible structures will be taken into account in terms of population estimates but not settlement pattern analyses as we have no concrete way of knowing specifically where to place these extra households on the landscape.

Chultunes probably functioned as storage pits in the southern lowlands (Puleston 1971), and present an obvious problem to survey archaeologists in terms of visibility. Subsequently our sample of chultunes is haphazardly biased by an array of factors preventing their detection. In forested areas they are often filled with leaf litter and humus while in open areas they tend to be more visible but are often filled with trash. Chultunes in pastures often get covered over by vigilant farmers who do not want to risk cows falling into them (Olivier de Montmollin, personal communication 2016).

Taphonomic Issues and the Identification of Settlement

The Lower Dover settlement has been subject to an array of post depositional processes which collectively present several problems for survey. Human disturbances introduce biases into the preservation of settlement. Much like Barton Ramie, the western settlement cluster has been vigorously plowed, and was actually being plowed as we attempted to survey it. While plowed mounds were littered with dateable material like diagnostic ceramics, most of the architecture was destroyed and they appeared amorphous, much like those at Barton Ramie (Yaeger 2003:49; Willey et al. 1965). When surveying the western cluster we employed a similar methods to Golden and Conlon (1996) and looked for linear scatters of artifacts and mapped the areal extent of these to identify house platforms which had been smeared along by plowing. The general shape of
the artifact scatters corresponded well to ancient patio groups, often the scatters would be oriented in the cardinal directions (Hawkins 1998). Hypothetically some house mounds might have been completely eradicated, although this is unlikely considering the mounds at Barton Ramie have been plowed for 60 years but are still evident on satellite imagery and LiDAR. The southern settlement cluster was apparently used for artillery target practice by the British army in the 1980s, while this left structures pock marked with craters it did not greatly affect the identification of these structures. The presence of the modern village of Unitedville presents problems, although some mounds in residential areas were identified and mapped. This area would have been a poor choice for settlement in the past as it is distant to the river and located on the poorest soils in the region, this might explain why settlement density seems to reduce dramatically in the woods to the west of the village. The movement of Upper Barton Creek and the Belize River over the last 1000 years also probably affected the preservation of settlement to some degree although this was likely minimal because people were opposed to living to close to watercourses due to the risk of flooding (Willey et al. 1965:31).

One solution to several of these problems was the Topographic Position Index analysis which Claire Ebert ran on the LiDAR for the region. TPI analysis creates a raster layer of equal sized cells. The values of these cells reflect the difference between the height of one cell and the average height of surrounding cells (Ebert et al. 2016b). In total the TPI analysis highlighted 171 points which were suspected house platforms, of these, 98 were accurate, showing that the TPI was correct 57% of the time. A total of 142 settlement groups were found meaning that the TPI identified 69% of settlement in the region. Some TPI points were features which resembled mounds, an example being a rectangular pile of wood chippings which were being generated by a group of bemused carpenters behind the Orange Gallery.

ANALYSIS AND DISCUSSION OF THE LOWER DOVER SETTLEMENT DATASET

This chapter combines a discussion of noteworthy aspects of the Lower Dover settlement pattern with some basic analyses of the settlement data to further elucidate these topics. The discussion is limited to a few pertinent topics in settlement archaeology: the delineation of polity boundaries, population estimates, the presence of neighborhoods, ecology and settlement, household dynamics, the distribution of wealth and status throughout the settlement and the implications of the study for regional settlement and political dynamics in the Belize Valley.

Delineating the Boundaries of the Lower Dover Polity

On a theoretical level it remains unclear whether the concept of a ‘boundary’ is emically meaningful or heuristically useful when discussing less centralized or segmentary ancient political systems like the Classic Maya (Giddens 1981; Inomata and Aoyama 1996:307; McAnany 2013:86; Scherer and Golden 2009). Early on Maya archaeologists believed that settlement densities did not reduce between polities; many posited Barton Ramie as an example, which has a settlement density of 100 mounds per square kilometer, despite being distant from a political center (Willey et al. 1965:573).
We now know this to be untrue. Scholars have employed an array of procedures to define political boundaries (Flannery 1972; Hammond 1974). While defining frontiers and boundaries in low density or dispersed settlement patterns is more difficult (Awe et al. 2014; Feinman and Nicholas 2012; Fletcher 2012; Freidel 1981), the best approach is full coverage survey and the definition of demographic patterns (Drennan et al. 2015). On a practical level such boundaries and buffer zones exist around Maya polities in the same way they do around settlements anywhere else in the world, and likely reflect some type of political fringe (Drennan et al. 2015; Smith 2003; Stoner 2012).

At Lower Dover a fluid survey boundary was implemented to identify where this ‘drop off’ in settlement density occurred. This technique was aided by the existence of LiDAR data which substantiated this. We are aware of the inherent issues with a ‘site centric’ survey approach (Puleston 1974), however such a strategy was implemented due to time constraints. The northern boundary of the Lower Dover polity does not represent an actual demographic ‘drop off’, it simply represents the edge of the ramie cutting (Willey et al. 1965:34). Although the LiDAR data and remote sensing around Barton Ramie shows that settlement did not continue much farther north of this boundary (Weller 1999:Fig. 5.34). A clear decline in settlement density is observable to the south-east, south west and south of Lower Dover (Figure 6). This suggests Lower Dover had direct control over a hinterland of about 10-16km² which renders the polity comparable in size to Baking Pot and Cahal Pech (Helmke and Awe 2012). This is a logical conclusion given the comparable scale of civic ceremonial architecture between these political centers (Guerra and Collins 2015). Outside this area, settlement does continue although the density reduces up to the Spanish Lookout minor center to the east and Blackman Eddy to the west. This ‘drop off’ contradicts Willey’s (et al. 1965:561) notion of a ribbon strip of continuous settlement along the banks of the valley (Hammond 1981:173), and shows that the mound density at Barton Ramie was a product of its position in the hinterlands of a major center. The eastern polity boundary is somewhat problematized by the presence of Unitedville which could be masking settlement. The western boundary area has seen heavy plowing but, as mentioned before we do not think this affected the visibility of settlement dramatically.

**Population and Demography**

The assignation of population estimates to ancient settlement is less controversial in Mesoamerica than in many regions of the world (Rice and Culbert 1990; Drennan et al. 2015; Sanders et al. 1979). Estimating ancient population figures using archaeological materials is a precarious but worthwhile endeavor because much of our understanding of the past rests on solid demographic reconstruction (Drennan et al. 2015). Maya archaeologists have regularly relied on counts of house platforms or patio groups to arrive at a population estimate (Ashmore 1990; Carr and Hazard 1961; Ricketson and Ricketson 1937; Ford 1990; Fry 1990). Our estimate is based on house counts. The report only provides a population estimate for the Late Classic period as we do not currently possess reliable data for other periods.
Today, the average Mesoamerican household contains between 4-5.5 people (Nutini 1967:387). The most common population estimation figures range from 4 people per house (Sanders and Price 1968:163), to 5 (Bullard 1960; Haviland 1972; Ricketson and Ricketson 1937:20-23), to 5.6 (Haviland 1965; Wauchope 1938:145), to 6.07 (Puleston 1973:173-75; Villa-Rojas 1969) up to 7.5 (Willey et al. 1965:576). Ricketson and Ricketson’s (1937) and Wauchope’s (1938) figures are derived from ethnographic data from the Yucatan (Redfield and Villa-Rojas 1934). Willey et al.’s (1965) figure is derived from the large size of the mounds at Barton Ramie. While use of contemporary figures does present some issues primarily related to the ways colonial regimes affected Maya family sizes (Haviland 1972:137), the sizes of mid-twentieth century Maya residences in the Yucatan were not too dissimilar in size to their ancient counterparts (A.L. Smith 1962:211-212).

**Hidden and Invisible Structures**

As previously explained visibility influenced settlement detection in the Lower Dover hinterland, only 35% of the settlement groups identified were in wooded areas showing that a number of households might remain hidden. We decided to take this into account when thinking about our reduction factor for the population estimate.

**Non-Residential Structures**

Non-residential structures are hard to identify without excavation (Bermann 1994:29-32; Tourtellot 1983; Wilk and Rathje 1982). The presence of uninhabited kitchens, storage structures, shrines and field houses is a concern when making population estimates as it can skew estimates upwards (Pyburn 1998; Rice and Culbert 1990:14; Tourtellot 1988). Haviland (1970:193) reports that only 16% of small structures at Tikal were non-residential. Several possible candidates are evident in the Lower Dover settlement. Some settlement groups have small structures which likely could not contain a family of five, while surface deposits on other structures hinted at a specialist function such as SG 28 N2 which was covered in dense chert debitage. Rather than attempt to selectively remove certain structures based on their individual characteristics we simply took their existence into account when calculating the population estimate.

**Platform Disuse**

Platform disuse poses a problem which requires consideration. A house platform might become abandoned following the death of the occupants (Thompson 1971:214), or because of structural issues (Rice and Culbert 1990:17). Rarely have scholars taken platform disuse into account (Culbert et al. 1990; Webster and Freter 1990), and perhaps rightly so; only 13% of the ethnohistorically documented platforms at Komchen were disused at any one time (Ringle and Andrews 1988). We have downplayed the effect of platform disuse in our Late Classic population estimate reduction as it is unlikely that usable platforms would have lain unoccupied during a period of demographic growth (Ford and Fedick 1992).
Arriving at a Population Estimate for Late Classic Lower Dover

Weller (2009:17) argues that Willey’s usage of 7.5 people per mound at Barton Ramie is too high, although we believe this figure to be less worrisome because many of his mounds actually contained multiple structures (Willey et al. 1965:576). Regardless, the re-estimation of the population of Barton Ramie is necessary so that it is comparable with the rest of the Lower Dover settlement. For the purposes of this dissertation I have chosen to work with Ricketson and Ricketson’s (1937) figure of 5 people per house platform because it has been employed widely and is partly corroborated by Puleston (1973) who applied Naroll’s (1962) formula to the commoner households at Tikal to reach a figure of 5.4 people. This involved a re-analysis of the Barton Ramie settlement data, which involved some guesswork as the vast majority of the mound groups have been plowed to oblivion. For larger mounds at Barton Ramie, which probably contained multiple houses around a central patio I applied estimates of 10-20 people depending on the size of the mound which introduces some possible error but makes the most sense. Petrozza (2015) also applied Ricketson and Ricketson’s (1937) estimate of 5 persons per mound along with their excessive correction formula of 75% to the southern and western settlement clusters at Lower Dover, resulting in an estimated population of 76 people for the Late Classic. Following Rice and Culbert (1990:19), we applied a lower correction of 20% to account for the fact some platforms were non-residential. We would have applied a correction of 30% but lowered it to 20% to take into account the structures which may have been undetectable due to foliage. This led to a Late Classic population of 1000 for the Lower Dover civic ceremonial center and the southern settlement and 1300 for Barton Ramie; an overall rounded population of 2300 people for the Lower Dover polity during the Late Classic (excluding its northern unsurveyed fringe) and a population density of 233 people per km². Such estimates are still relatively low but seem logical for a small Maya polity (Drennan 1988:275). Future test pitting will provide similar demographic data for the Early Classic, Late Preclassic and Middle Preclassic periods.

Identifying Neighborhoods

Traditionally Mayanists have visually ‘eyeballed’ residential clusters on the landscape based on the distance between patio groups, often utilizing topography, vacant spaces, distance measures, walls and boundaries and transportation routes (Bullard 1960:367; Hutson 2016:73; Kintz 1983:181; Kurjack 1974:80-81; Lemonnier 2012). Clear settlement clustering is observable in the settlement pattern (Figure 6). Particularly noteworthy is the fact that settlement does not seem to cluster around the civic ceremonial center of Lower Dover, but around secondary, or intermediate elite residential and ceremonial centers (Petrozza 2014:199). In order to explore this possible residential clustering in a more concrete way, several analyses commonly used in regional settlement pattern analysis to delineate polities were run on the Lower Dover settlement data to discern neighborhoods. Following this, several factors which might have influenced settlement patterns are discussed in relation to whether the neighborhoods were meaningful social units (Hutson 2016:73; Smith 2011).

K-means Clusters

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K-means clusters was originally introduced as an exploratory statistical tool for examining patterns in cluster analysis results. The utility of K-means for identifying patterning of archaeological materials was first proposed by Kintigh and Ammerman (1982). We applied K-means statistics to the Lower Dover southern settlement data to attempt to delineate clusters in the settlement patterns. We tried this method for 3, 4, 5, 6, 7 and 8 clusters and found three clusters to work well. The only issue with this was that it did not separate the settlement associated with the civic ceremonial center and Tutu Uitz Na effectively (Figure 7). K-means solely assesses patterns between points based on their spatial distribution. We decided therefore to conduct other analyses which would take other variables into account like population and plaza/patio size.

**The Interaction Model**

We also employed Alden’s (1979) interaction model to aid in the definition of clusters. Alden used this model to reconstruct Toltec political systems in the Basin of Mexico. Theoretically, the Interaction model relies on two assumptions:

- **ASSUMPTION I.** There is a "cost" involved in the transfer of information that is a function of the distance over which the information is transferred, and political hierarchies try to minimize these costs.

---

**Figure 7:** K-means clusters in the Lower Dover Southern Settlement
• ASSUMPTION 2. The number of administrators at each level of a political hierarchy is directly proportional to the amount of information being processed, and the amount of information generated at a place is proportional to that place’s population (Alden 1979:170)

\[ I = \frac{C(P_iP_j)}{f(d_{ij})} \]

The basic formula used by Alden (1979) to calculate interaction is displayed above. Where \( I \) is political interaction, \( C \) is a constant, \( P_i \) is the population of location \( i \), and \( d_{ij} \) is the distance between \( i \) and \( j \) (Alden 1979:171). To assess distance, Alden used a gravitational model (1979:172):

\[ I = \frac{C(M_iM_j)}{(di_j)^n} \]

![Interaction Model for the Lower Dover southern settlement.](image)

**Figure 8:** Interaction Model for the Lower Dover southern settlement.
The interaction model was then modified for use in ArcGIS by John Walden and Ran Weiyu. To operationalize the interaction model we decided to use plaza/patio size instead of population estimates as the size of the plaza/patio relates to the ability of residents of varying statuses to host events which could function as an indicator of ‘interaction’ (Gonlin 2007:89; Inomata 2006; Lohse 2007:19). Attempting to calculate the patio sizes for small single mound groups was problematic due to the general ambiguity related to designating a patio area. Subsequently, we used the average patio size of 155m² for double mound groups to calculate the area of the patios of single mound groups. While this might overestimate the size of the patio because single households might have required less space than a group with two households, the inverse could hold true and people might have had more space as they were not constrained by other structures. The average was first calculated using patio areas from single mound groups but this actually skewed the mean upwards because many of the single mounds with discernible patios were special purpose structures like SG 95 and SG 14. In order to successfully apply the Interaction model to the Lower Dover settlement there were several things which needed to be taken into account. Alden’s (1979) use of an exponent of 1.9 was theoretically justified because it allowed the most realistic reconstruction of the Late Postclassic Aztec political networks of the Basin of Mexico as confirmed through ethnohistorical evidence. Such an approach is not possible for the Lower Dover hinterlands. Therefore we simply experimented with exponents of 2 and 3, and settled on an exponent of 2 because it produced the most intelligible neighborhoods. Following Alden (1979), we employed the strength of the links between households to delineate clusters. The nearest neighbor links were used to define neighborhood membership while the second nearest neighbor links could essentially be cut by neighborhood boundaries. This allowed the rough approximation of the limits of ancient neighborhoods in the Lower Dover hinterland during the Late Classic period.

Population Contours

This method was developed by Drennan and Peterson (2006) to look at the spatial distribute of demography on a landscape. Population contours involve inputting the population of different areas as elevations to create a topographic surface which reflects the density of settlement in an area. In order to discern social units, or in this case neighborhoods, a mathematical smoothing of the surface was applied and a cut off is defined at a uniform contour across the surface. Unlike the other approaches we generated population contours for the entire Lower Dover polity (the southern settlement and Barton Ramie).

Delineating Neighborhoods

Finally all these different approaches were overlain upon a single map and they were all used to inform the delineation of neighborhoods (Figure 10). None of these techniques perfectly encapsulated the clusters we believed existed, but the combination of all the analyses allowed a clearer definition of the boundaries of different neighborhoods at Lower Dover. Four clear clusters are outlined and these will be described in greater detail below.
Figure 9: Population surface for the Lower Dover Polity, including Barton Ramie.
The Lower Dover Cluster

This cluster comprises the civic ceremonial center of Lower Dover, the adjacent intermediate elite plaza groups and some small commoner dwellings further afield. The population density in this area is 93 people per km², the majority of these people lived in the higher status groups surrounding the civic ceremonial center. The Lower Dover Cluster represents the smallest cluster and is surrounded by a clear uninhabited buffer zone of 500m. This is surprising as even in low density urban contexts there is generally some degree of nucleation around the political center. Traditionally, such a pattern might suggest the Lower Dover regime was politically decentralized (de Montmollin 1987). In this context, the unoccupied buffer zone might be a product of peripheral settlement developing prior to the civic ceremonial epicenter, or the arrangement might represent the civic ceremonial center exerting a centrifugal force on demography. Future test pitting in the hinterland should provide clarification to this quandary.

The Tutu Uitz Na Cluster

A sizeable cluster of settlement is focused around Tutu Uitz Na and extends to the south. This cluster has a high density of occupation of 108 people per km². This cluster might have been more densely occupied, as the eastern portion is covered in dense vegetation which may have obscured any non-mounded residences.

The Floral Park Cluster

A large dispersed neighborhood exists around Floral Park. Both the Interaction model and the K-Means included many patio groups to the east although we were hesitant to include these in the neighborhood as they seemed too distant and went completely against the population surface cut-off which was very small for Floral Park, due to the low settlement density of 55 people per km².

The Western Cluster

This majority of the settlement in this cluster is located in a large cornfield west of Lower Dover. Generally the mounds in this cluster are larger and some had Preclassic and Postclassic ceramics present. There are no obvious intermediate elite groups in this cluster however the general standard of household wealth seems much higher. The settlement in this cluster resembles Barton Ramie in many aspects, the houses were located on the upper alluvial river terraces and the lower terraces were devoid of occupation, the patio groups also show a preference for the ends of the terraces (Willey 1965:31). Temporally, several of the patio groups also show a similar developmental trajectory to Barton Ramie. The western cluster has a population density of 90 people per km².
Table 2: Size and Number of Settlement Groups in Each neighborhood (Note ‘Texas Cluster’ is Included for Comparison).

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Size</th>
<th>Number of Settlement Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutu Witz Na</td>
<td>3.5km²</td>
<td>46</td>
</tr>
<tr>
<td>Floral Park</td>
<td>3.8km²</td>
<td>25</td>
</tr>
<tr>
<td>Lower Dover (Epicenter)</td>
<td>2.0km²</td>
<td>16</td>
</tr>
<tr>
<td>Western Cluster</td>
<td>2.1km²</td>
<td>20</td>
</tr>
<tr>
<td>Texas (Barton Ramie)</td>
<td>2.9 km²</td>
<td>41</td>
</tr>
</tbody>
</table>

The Outlying Settlement (The Eastern and Southern Settlement)

All of the settlement which is does not part of the above clusters is described here. Some of the outlying settlement forms small clusters of around 4-6 groups, but these are not part of larger neighborhoods like the clusters outlined above. Hypothetically, these clusters represent corporate groups which operated above the extended kin group level but below the neighborhood level (Hayden and Cannon 1982; Hageman and Lohse 2003). In time, these might have developed into larger aggregates like the neighborhoods nearby (McAnany 2013:125). Settlement density is very low in the eastern and southern areas (15-20 people per km²). A single high mound (SG 95) sits alone atop the hill to the east of Lower Dover, at a height of 3m above plaza. This might have functioned as a boundary marker demarcating the eastern periphery of the Lower Dover hinterland, this makes sense as settlement drops off completely to the east of this and it is roughly equidistant between Lower Dover and Blackman Eddy (Fitzsimmons 2015:226; Helmke and Awe 2012). SG 92 and 98 might represent a similar phenomenon, these are also sizeable peripheral platforms located in a small cluster to the south.

The various analyses employed have allowed the better definition of residential clustering in the settlement pattern at Lower Dover. The question remains as to whether clustering reflects the effects of social propinquity acting as a centripetal force on demography, or if these clusters resulted from other factors like ecological variables (Douglass 2002:17). This question shall now be addressed.

Ecology and Settlement Choice

The nucleation of people on the landscape can result from a desire for social propinquity, economic or political factors, or it can result from a preference for more fertile land (Dunning 2004; Green 1973). Residential clustering might result from higher degrees of social interaction, alternatively household clustering may be determined by the distribution of good soils, access to water or a preference for elevated positions. I therefore ran a logistic regression analysis with the settlement dataset and a set of randomly generated points to investigate the effect that ecological variables had on the settlement location. This analysis revealed that slope was the most important variable in dictating settlement location (odds ratio: 1.086 estimate: 0.083, SE: 0.021, Z: 4.039, \( p <0.05 \)), followed by elevation (odds ratio: 1.025 estimate: 0.021, SE: 0.006, Z: 3.285, \( p \)
Figure 10: Map Showing the Combination of the Interaction Model, Population Contour Cut Offs, K-means Clusters and the Neighborhoods Inferred from these Analyses.
0.001), followed by distance to river (odds ratio: 1.001 estimate: 0.001, SE: 0.001, Z: 2.709, p 0.007) and finally soil quality (odds ratio: 0.6901 estimate: -0.369, SE: 0.197, Z: -1.874, p 0.061). The importance of slope was expected as people have to live on flat ground. The preference for higher elevations common in the Belize Valley (Chase and Garber 2004:3), and is logical as some of the lowland areas are susceptible to flooding, the first author was surveying in the wake of Hurricane Earl in August 2016 and noticed much of the lower lying areas were inundated. Floods of this magnitude (and worse) appear every 5-10 years meaning that their regularity would have influenced ancient settlement decisions (Willey et al. 1965:23). Soil fertility surprisingly has an inverse relationship with settlement location. This might be because people were situating themselves on poor quality soils to avoid reducing the amount for quality arable land by settling directly upon it (Douglass 2002:31). In conclusion the preference for clustering seems not to result purely from soil fertility meaning that the ‘neighborhood’ designation might be appropriate, people were commoners to aggregate into clusters and live relatively close to other commoners and intermediate elites.

**Commoner Household Dynamics**

This section provides a preliminary discussion of commoner dynamics and the development of commoner households. We offer several hypotheses to explain the various stages of the developmental cycle which different households attained and present two possible hypotheses to explain this, which relate to agricultural practices and the founder effect (McAnany 2013:96). While both of these hypotheses currently seem logical, better temporal information about the settlement is required to differentiate between them.

**Table 3:** Percentage of commoner groups at various stages of the developmental cycle.

<table>
<thead>
<tr>
<th>Percentage of Commoner Groups</th>
<th>1 Structure</th>
<th>2 Structures</th>
<th>3 Structures</th>
<th>4 Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>64%</td>
<td>23%</td>
<td>9%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>

**The Household Developmental Cycle, Topography and Agriculture**

Ford (1990:173) noted that the four sided Maya patio group which is common in the Petén is rare in the Belize Valley (Tourtellot 1988). This observation is also true at Lower Dover (See Table 3). Multiple scholars have posited that the number of structures around the group reflects the stage of development the group reached upon abandonment (de Montmollin 1989:184-188; Goody 1962; Haviland 1988; Tourtellot 1988). Two alternatives might explain why commoner groups at the incipient stages of the developmental cycle proliferate in the Belize Valley, conventional logic suggests that these reflect the homes of families who only established themselves several generations before abandonment (presumably during the Late Classic collapse). Our preliminary analysis of surface ceramics revealed some of the groups at the earlier stages of the
domestic cycle at Lower Dover were occupied throughout the entire trajectory; this indicates that many households were fissioning prematurely, something which occurs when households become too large or encounter social problems (Chase and Chase 2004; Wilk 1988). At Lower Dover 71% of the groups which reached the final stage of the developmental cycle (4 structures) are located in upland zones, a pattern also noted by Ford (1990: Table 8.4) in the BRASS transects. Farriss (1984:133-134) argues that swidden agriculture, which would likely have been practiced in the upland areas, required larger amounts of labor. We argue that cultivation of the fertile Belize Valley floodplain reduced the labor costs of fissioning because floodplain cultivation requires less pooled labor, which in turn explains why the groups which did not fission are located in upland zones where a larger labor force might be required to work the land.

*The Household Development Cycle and Rules of First Occupancy*

An alternative interpretation of the prevalence of well-developed groups in upland areas relates to a possible founder effects (McAnany 2013:96). The hilltops adjacent to the Belize Valley have a pleasant breeze, good visibility and are less susceptible to flooding which makes them prime real estate today. These factors likely played a role in settlement decisions in the past also, and the well-developed patio groups on hilltops might reflect founding families who first ventured to the area. We know this to be the case for Tutu Uitz Na and Floral Park (Garber et al. 2004:28; Petrozza 2015:74), so it might also apply to the surrounding commoner patio groups. Hypothetically, the descendants of founders fissioned and set up households on the flanks and bases of these hills. The relatively strong correlation between groups which reached the latter stages of the developmental cycle and house mound height (Pearson's $r=0.609 \ p < .001 \ Y=1.186X + 0.714$), suggests that the groups where more people were resident had larger structures. The correlation would be stronger still but it is biased by the presence of several single mounds which are high, like SG 92 and 95. We believe these were not residential in nature but functioned as boundary markers or shrine structures for the small residential clusters on the edges of the Lower Dover polity (Fitzsimmons 2015:226). Equifinality looms large in this instance due to poor temporal control. The larger platforms, traditionally seen as a correlate of status or wealth (Wilk 1983), might result from more populous groups simply being able to draw on more labor or it might reflect occupation duration and the gradual accretion of multiple construction phases over time. A test pitting strategy might provide some answers here although ceramic chronology might be too coarse grain to investigate family dynamics. Excavation of house platforms will provide a better idea of construction history and potentially provide C14 dates to fine tune chronology.

**Table 4:** Architectural Group and inferred level of social organization.

<table>
<thead>
<tr>
<th>Architectural Arrangement</th>
<th>Social Group</th>
<th>Example on the Ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>House platform</td>
<td>Nuclear Family</td>
<td>Any commoner mound</td>
</tr>
<tr>
<td>Patio Group</td>
<td>Extended Family</td>
<td>Commoner patio groups</td>
</tr>
<tr>
<td>Patio Group Cluster</td>
<td>Corporate Group</td>
<td>SG 42 and nearby groups</td>
</tr>
<tr>
<td>Extended Cluster</td>
<td>Extended Corporate Group, Lineage, Neighborhood</td>
<td>The Floral Park Cluster</td>
</tr>
</tbody>
</table>
The Distribution of Wealth and Status in the Lower Dover Hinterland

Several issues emerge when attempting to designate wealth and status based on settlement pattern data alone, especially in this context where the aforementioned lack of a temporal lens means we are purely dealing with synchronic snapshots. Still some preliminary observations can be made about the status and distribution of the population of the Lower Dover polity in the Late Classic. One status marker is architectural size (Abrams 1994; Arnold and Ford 1980; Smith 1987; Wilk 1983). In this instance mound height is used to roughly calculate status, which basically breaks into a 4 tier histogram consisting of small households (low status commoners) and large households (high status commoners), intermediate elites (Floral Park and Tutu Uitz Na) and apical elites (Lower Dover). This approach provides a tentative idea of the status breakdown, eventually we shall employ structural volume to refine this (Turner et al. 1981:73).

The Social Organization of the Polity

Our settlement analysis has revealed three intermediate scales between the house and the polity (Table 4). Based on fairly watertight arguments the individual house platforms represents a nuclear family of five people, while the patio group represents the abode of an extended kin group and probably represented the household as such. Above this there seems to be a corporate level of social organization which involved a single large household surrounded by several smaller households. These arrangements exist in the outlying settlement where there are no neighborhoods present and within neighborhoods themselves, several of these seem to be apparent in the Tutu Uitz Na cluster for instance. Corporate groups may represent commoner households whose descendants fissioned to surrounding areas or commoner households which did particularly well over time and formed the center of a corporate unit through clientelistic relationships (Wilk and Rathje 1982). Above the corporate group is the neighborhood (Hendon 2012; Smith 2011) these contain multiple corporate groups and are evident in the form of a larger settlement cluster around an intermediate elite compound. Above these is the polity, which is made up of several of these entities.

Possibly the most noticeable feature of the Lower Dover settlement pattern are the presence of several large elite residential and ceremonial groups dispersed across the hinterland. Similar groups have been referred to as ‘alpha groups’ (McAnany 2013:104), ‘plazuelas’ (Thompson 1931), minor centers and ‘lesser minor centers’ (Willey et al. 1965), Plaza Plan 2 (Becker 2004), monumental architectural complexes (Maca 2015:168). The inhabitants of these complexes have been referred to as hinterland elites (Lucero 1994), community leaders (Robin et al. 2010), neighborhood leaders (Hutson 2016), lineage heads (McAnany 2013), factions (Pohl and Pohl 1994), provincial elites (LeCount and Yaeger 2010) outlying elites (Tsukamoto et al. 2015:200), ‘middle men’ (Chase and Chase 1992), middle level elites (Connell 2010:293), minor leaders (Willey et al. 1965:580) and elite personages (Ford 1981:158). The middle level of the settlement hierarchy has seen ample attention in the Belize Valley (Bullard 1960:359–360; Coe and Coe 1956; Connell 2003; Driver and Garber 2004; Willey et al. 1965: 561,572–573; Yaeger 2003), yet little consensus has been reached regarding the range of variability
these centers exhibit (Haviland 1981; Iannone and Connell 2003; Iannone 2004). These locations served as more than just residences and almost certainly fulfilled a ceremonial and economic function and thus represent important political loci (Bullard 1960:368; Conlon and Powis 2004:72) The application of the intermediate elite label is used in this context because it is heuristically useful for conceptually separating apical elites (the rulers located within palaces in the major centers) and intermediate elites which could consist of ‘aulic’ or courtly elites located in major centers and rural or outlying elites like those resident in the minor centers (Elson and Covey 2006; Houston and Inomata 2006; Marcus 1989, 2006; Murakami 2015)

Figure 11: Histogram Showing the Number of Patio Groups and the Structure Height.

Intermediate Elites

The clustering of some intermediate elites around the political center of Lower Dover and dispersal of others across the hinterland seems to conform to traditional notions of the diffusion of power across Maya polities (Arnold and Ford 1980; Folan et al. 2009:63). Interestingly, the five intermediate elite plaza groups surrounding the civic ceremonial center (Plazas G-L) seem overtly residential in function, although several do possess shrines (Rawski 2015). There is little commoner settlement in the vicinity of the civic ceremonial center. Conversely the intermediate elite groups dispersed across the hinterland are surrounded by commoner patio groups indicating that they exerted a centripetal force on local demography, effectively promoting aggregation. This is evident architecturally because BR-180, Floral Park and Tutu Uitz Na possess larger ceremonial
structures and plazas than their peers surrounding the Lower Dover civic ceremonial center. We believe that the hinterland intermediate elite groups fulfilled a range of central place functions (Drennan 1988:284). Different settlement levels possessed different central place functions in the Lower Dover polity, large ceremonies were the shared prerogative of the intermediate elites at Tutu Uitz Na, Floral Park and BR-180 and the apical elite at Lower Dover. Conversely, the ballgame was solely the prerogative of the apical elite. Similarly, the demographic aggregation around the Tutu Uitz Na and Floral Park speaks to a closer everyday relationship than existed between the commoners and aulic elites and apical elites at Lower Dover (Hayden and Cannon 1982). The lack of aggregation might indicate that the intermediate elite plazas in the civic ceremonial center represent ‘aulic’ elites who were involved in the royal court whereas the intermediate elites in the hinterland represent the heads of large corporate entities like lineages or factions (Fash 2005:75; Houston and Inomata 2009; Jackson 2013; McAnany 2013; Pohl and Pohl 1994). Hutson (2016:80) applies the concept of ‘focal nodes’ to intermediate elite compounds to assist in the demarcation of neighborhoods. Based on this logic, the presence of a single intermediate elite ‘focal node’ within three neighborhoods at Lower Dover further corroborates the fact we are dealing with meaningful social units (Ashmore 1981:51; Peuramaki-Brown 2013).

**Water Control and Quarries**

The location of large *aguadas* in the vicinity of intermediate elite compounds and the Lower Dover civic ceremonial center itself is noteworthy (Glassman et al.; Guerra 2011; Petrozza 2015). This supports the notion that water management was organized at a higher scale than the household (Ashmore 1981:44). Whether or not the scale of these features suggest centralized control of water is debatable (Scarborough and Lucero 2010). It is possible that the *aguadas* originally functioned as borrow pits to source limestone for the adjacent monumental structures and then simply came to fulfill a water storage role later. Possible quarrying is evident on the western flanks of the hills 500m to the east of Lower Dover in the form of large linear obtrusions in the exposed bedrock. It would make logical sense if this was where the stone for Lower Dover was quarried from as it is the nearest obvious source of limestone.

**Integration and Plaza Size**

Inomata (2006) has looked extensively at the importance of theatricality in Maya politics, one rough metric of this is plaza capacity. Like the central plazas at Lower Dover, the ceremonial plazas at Tutu Uitz Na, BR-180 and Floral Park likely hosted celebrations which involved the surrounding neighborhoods (Gonlin 2007:89). Table 5 provides an idea of how well the retaining population in each neighborhood fitted into the intermediate elite ceremonial plazas in comparison to the central civic ceremonial plazas at Lower Dover which catered for the entire polity. Table 5 shows that at maximum crush depth (0.46 m² per person capacity) the intermediate elite plazas could have held far more than their retaining local population, meaning that they could hypothetically have functioned as stopping off points on a ritual circuit around the polity (Gossen 1974; Reese-Taylor 2002), only Tutu Uitz Na fell short of the mark (with a capacity of 1528). At a more leisurely crowd density of 1m² per person all of the plazas could comfortably
fit their retaining populations and possibly more people. Finally, at the spacious crowd density of 3.6m per person only Floral Park and BR-180 could fit their neighborhood populations. Hypothetically, this last figure might be most appropriate for considering the space available for market activities which would have involved people and stalls (Cap 2011). Next summer’s test pits will offer a picture of how demography accumulated on the landscape, while excavation units within plazas will allow a reconstruction of how they developed in relation to the surrounding population.

**Table 5:** Plaza capacities and populations of the Lower Dover polity and its constituent neighborhoods.

<table>
<thead>
<tr>
<th>Plaza</th>
<th>Retaining Population</th>
<th>Plaza Area m²</th>
<th>0.46m²/person capacity</th>
<th>1m²/person capacity</th>
<th>3.6m²/person capacity</th>
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<td>Tutu Uitz Na</td>
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<td>1528</td>
<td>703</td>
<td>195</td>
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<td>235</td>
<td>1400</td>
<td>3043</td>
<td>1400</td>
<td>389</td>
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<td>300</td>
<td>1750</td>
<td>3804</td>
<td>1750</td>
<td>486</td>
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<tr>
<td>Lower Dover</td>
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<td>10878</td>
<td>5004</td>
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**Concentric Zonation of Wealth**

The concentric zonation of wealth has long been a topic of interest in the study of ancient Maya cities (Arnold and Ford 1980; Folan et al. 2009; Sjoberg 1960). This concept refers to the distribution of wealth through a city or polity. Hypothetically, wealth can vary as one moves away from the center in concentric rings as predicted by the Burgess model (1925) or wealth can be distributed in a more dispersed fashion. In this instance we have used mound height as a proxy for household wealth (Smith 1987). There does not seem to be any correlation between wealth and distance from the Lower Dover civic ceremonial center in the southern and western settlement (Pearson’s \( r = 0.000083 \) \( p<.001 \) \( Y = 0.0000X + 0.849 \)). This pattern is consistent to that noted in other areas of the Maya lowlands (Hutson et al. 2006; Hutson 2016).

**Table 6:** Proportional demographic breakdown of neighborhoods at Lower Dover.

<table>
<thead>
<tr>
<th></th>
<th>Floral Park</th>
<th>Western Cluster</th>
<th>Tutu Uitz Na</th>
<th>Texas</th>
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<td>Large Commoners Groups</td>
<td>17%</td>
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<td>15%</td>
</tr>
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<td>Small Commoner Groups</td>
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<td>73%</td>
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<td>Intermediate Elites</td>
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<td>2%</td>
<td>2%</td>
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</table>
Wealth Based Neighborhoods

In many ancient cities like Teotihuacan, neighborhoods were status oriented this is generally not the case in the Maya lowlands where neighborhoods are usually made up of mixed status households and frequently involve an elite compound surrounded by lower status dwellings (Gómez-Chávez 2012; Kurjack and Garza 1981: 298-300; Kintz 1983: 179-190). Neighborhoods at Lower Dover are no different and comprise a mixture of different status commoners and intermediate elites. When status is compared between neighborhoods an interesting pattern emerges, demographically, Floral Park was home to a wealthier intermediate elite with larger ceremonial architecture compared to Tutu Uitz Na however the general population clustering around this group was smaller in number and generally of lower status (Table 6). Potentially this might indicate that the Floral Park intermediate elite placed higher labor burdens on their retaining population.

CONCLUSIONS

The 2016 survey provided the high resolution data needed to investigate socio-political dynamics at the household, corporate group, neighborhood and polity levels. Incorporation of the Barton Ramie settlement data into the Lower Dover dataset has presented some issues. The survey allowed some initial analysis of the settlement patterns (at least for the Late Classic period). Much like the political situation in the Upper Belize Valley, where Actuncan, Buena Vista del Cayo and Xunantunich lie in relative proximity, a diachronic perspective is vital to understand intra-polity and regional dynamics at Lower Dover (Helmke and Awe 2012:73; Leventhal and Ashmore 2004; Marcus 1993, 1998). Lower Dover and Blackman Eddy may have temporally overlapped but probably did not co-exist in a politically meaningful way. Blackman Eddy was likely descending or fully collapsed when Lower Dover emerged (Helmke and Awe 2012:73). Tutu Uitz Na and Floral Park may have fallen under Blackman Eddy during the Preclassic although Blackman Eddy represents a smaller major center in the Belize Valley (Helmke and Awe 2012) and as such is not considerably larger than some large minor centers like Floral Park, meaning we should be careful not to overemphasize the hegemony which Blackman Eddy possessed over these plausible satellites. Many of the issues discussed in this report are left somewhat unresolved due to a lack of solid temporal information, subsequently test pitting and shovel probes will be top priority during the 2017 field season (Ford 1990:170; Fry 1972). This data will allow the replication of the analyses conducted here on all phases of the developmental trajectory and the reconstruction of demographic growth and decline in respect to the foundation of the Lower Dover polity.
Acknowledgements

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REFERENCES CITED


Barillas, Derek 2015 Lower Dover Excavation of Plaza B: Unit B14-1. In The Belize Valley Archaeological Reconnaissance Project a Report of the 2014 Field Season, edited by Julie A. Hoggart and Jaime J. Awe, pp. 22-24. Institute of Archaeology Baylor University Waco, Texas, United States


Carr, Robert F., and James E. Hazard

Chase, Diane Z.

Chase, Arlen F., and Chase Diane Z.

Chase Diane Z. and Arlen F. Chase

Chase, Arlen F. and James F. Garber

Coe, William R.

Coe, William R., and Michael D. Coe

Conlon, James M.
1995 Incorporation, Integration and Irrigation at the Ancient Maya Site of Baking Pot, Belize. Papers from the Institute of Archaeology 6:31-46.

Conlon, James M., and Jennifer J. Ehret

Conlon James M. and Allan F. Moore
2003 Identifying Urban and Rural Settlement Components: An Examination of Classic Period Plazuela Group Function at the Ancient Maya Site of Baking Pot, Belize.

Conlon James M. and Terry G. Powis

Connell, Samuel V.


Culbert, T. Patrick, Laura J. Kosakowsky, Robert E. Fry and William A. Haviland

de Montmollin, Olivier

Douglass, John G.

Drennan, Robert D.

Drennan, Robert D., and Christian E. Peterson
Drennan, Robert D., C. Adam Berrey and Christian E. Peterson

Driver, W. David, James F. Garber and Jennifer K. McWilliams

Driver, W. David and James F. Garber

Dunning, Nicholas pp.

Eaton, Jack

Ebert, Claire E., Julie A. Hoggarth, and Jaime J. Awe

Elson, Christina M., and R. Alan Covey, (editors)

Farriss, Nancy M.

Fash, William L.

Feinman, Gary M., and Linda M. Nicholas
Fitzsimmons, James L.

Fletcher, Roland

Flannery, Kent V.

Folan, William J., Armando Anaya Hernandez, Ellen R. Kintz, Laraine A. Fletcher, Raymundo Gonzalez Heredia, Jacinto May Hau, and Nicolas Caamal Canche

Ford, Anabel

Ford, Anabel, and Scott Fedick

Freidel, David

Fry, Robert E.

Garber, James F., M. Kathryn Brown, Jaime J. Awe, and Christopher J. Hartman

Giddens, Anthony

Gifford, James C.

Glassman, David M., James M. Conlon, and James F. Garber

Golden, Charles W. and James M. Conlon

Gonlin, Nancy

Goody, Jack

Gómez-Chávez, Sergio
2012 Structure and Organization of Neighborhoods in the Ancient City of Teotihuacan. In *The Neighborhood as an Intermediate Social Unit in Mesoamerican Cities*,


Graham, Ian 1967 *Archaeological Explorations in El Peten, Guatemala.* Middle American Research Institute, Tulane University.


Guerra, Rafael A., and Renee Collins

Hageman, Jon B., and Jon C. Lohse

Hammond, Norman

Haviland, William A.

Hawkins, Rebecca A.

Hayden, Brian and Aubrey Cannon
Helmke, Christophe, and Jaime J. Awe

Hendon, Julia A.

Hoggarth, Julie A.

Hoggarth, Julie A., Jaime J. Awe, Eva Jobbová, and Christopher Sims

Houston, Stephen D., and Takeshi Inomata

Hutson, Scott R.

Hutson, Scott R., Aline Magnoni, Daniel E. Mazeau, and Travis W. Stanton

Iannone, Gyles

Iannone, Gyles and Samuel V. Connell
Inomata, Takeshi

Inomata, Takeshi, and Kazuo Aoyama

Jackson, Sarah E.
2013 *Politics of the Maya Court: Hierarchy and Change in the Late Classic Period*. University of Oklahoma Press, Norman.

Johnston, Kevin J.

Killion, Thomas W.

Kintigh, Keith W., and Albert J. Ammerman

Kintz, Ellen

Kirke, C. M.

Kurjack, Edward B.
1974 Prehistoric Lowland Maya Community and Social Organization: A Case Study at Dzibilchaltun, Yucatan, Mexico. Middle American Research Institute, Publication 38. Tulane University, New Orleans.

Kurjack, Edward B., and Silvia Garza
LeCount, Lisa J., and Jason Yaeger, (editors)

Lemonnier, Eva

Leventhal, Richard M., and Wendy Ashmore

Lohse, Jon C.

Lucero, Lisa J.

Maca, Allan L.

Marcus, Joyce


McAnany, Patricia A.
2013 *Living with the Ancestors, Kinship and Kingship in Ancient Maya Society*, University of Texas Press, Austin.

Murakami, Tatsuya

Naroll, Raoul

Nutini, Hugo

Perkins, Carrie A.


Petrozza, Michael Louis


Petrozza, Michael Louis, and Michael Biggie
Peuramaki-Brown, Meaghan M.

Pohl, Mary E. D. and John M. D. Pohl

Powis, Terry G.

Puleston, Dennis E.

Pyburn, K. Anne, Boyd Dixon, Patricia Cook, and Anna McNair

Rapoport, Amos

Rawski, Zoe

Redfield, Robert and Alfonso Villa-Rojas

Reese-Taylor, Kathryn
Rice, Don S., and T. Patrick Culbert

Ricketson, O. G., and E. B. Ricketson

Ringle, William M. and E. Wyllys Andrews V.

Robin, Cynthia, Jason Yaeger and Wendy Ashmore

Sanders, William T. and Barbara J. Price

Sanders, William T., Jeffrey R. Parsons, and Robert S. Santley.

Scarborough, Vernon L., and Lisa J. Lucero

Scherer, Andrew K., and Charles Golden

Sjoberg, Gideon

Smith, A. Ledyard
Smith, Adam T.

Smith, Michael E.

Stoner, Wesley D.

Sunahara, Sachiko Kay

Thompson, J. Eric S.
1931 *Archaeological Investigations in Southern Cayo District, British Honduras.* Field Museum of Natural History Anthropological Series, vol. 17, no. 3 Chicago.

Tourtellot, Gair

Tsukamoto, Kenichiro, Javier López Camacho, Luz Evelia Campaña Valenzuela, Hirokazu Kotegawa, and Octavio Q. Esparza Olguín

Turner, Ellen Sue, Norman I. Turner, and Richard EW Adams
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Yaeger, Jason
## APPENDIX A: SETTLEMENT DATABASE FOR LOWER DOVER

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SETTLEMENT EXCAVATIONS AT TUTU UITZ NA AND PECH NA IN THE LOWER DOVER HINTERLAND: RESULTS OF THE 2016 FIELD SEASON

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INTRODUCTION

The 2016 field season saw settlement survey and excavation in the Lower Dover hinterland. This report reviews the settlement excavations and discusses the developmental trajectory of one settlement cluster, the Tutu Uitz Na cluster. Excavations at Tutu Uitz Na focused on the intermediate elite compound (SG 1) at the site and Pech Na (SG 9), a small commoner patio group associated with the settlement cluster. The goals of the excavations at Tutu Uitz Na were to provide preliminary information about structural assemblages and temporal occupation of Tutu Uitz Na, and the political role of the settlement’s occupants within the Lower Dover polity. This report provides a description of the cultural sequences documented in four excavation units placed within plazas and on two structures. Temporal information about the construction phases was derived from relative ceramic dating. Future research will report the results of ongoing lithic and faunal analysis and provide AMS radiocarbon dates for the carbon and faunal material.

PREVIOUS SETTLEMENT EXCAVATION AT TUTU UITZ NA

Tutu Uitz Na was first recorded by Wölfel et al. (2010:20-21) as Plaza F. It was later re-recorded by Petrozza and Biggie (2015:29) as Group 1. It was then renamed SG 1 in the 2016 survey for consistency with other settlement groups (See Walden, Biggie and Ebert this volume). The moniker Tutu Uitz Na (snail sacred mountain house) originated from the sizeable deposit of jute or tutu, in Mayan (Pachilyus glaphyrus/Pachilyus indiorum), beneath the plaza and the compound’s hilltop location (Petrozza 2015:44). Tutu Uitz Na is a large intermediate elite plaza group located 500m southeast of the Lower Dover civic ceremonial center. Tutu Uitz Na functioned as an elite residence and small ceremonial center. The group fits into regional settlement typologies as a large plazuela or ‘smaller minor center’ and is slightly larger than Bedran (Conlon and Moore 2003) but smaller than Nohoch Ek and Zubin (Coe and Coe 1956:171; Iannone 2003).
The group has four structures, the highest being the northern range structure (Str. N1) which is just above 3m high, the eastern structure (Str. E2) is just below 3m in height and appears to have been modified into a small eastern triadic shrine at some point (Figure 1; See Walden, Biggie and Ebert this volume). Structures S3 and W4 are both around 80cm high. Wölfel et al. (2010:23-26) mapped the group and profiled a looters trench on Str. N1, revealing 4 exposed floors. Following this, Petrozza and Biggie (2015) placed two units on the group; E.U. 1-1 was a 2x2m unit which was later reduced to a 1x2m located in the north-west corner of the plaza. E.U. 1-2 was a 2x1.5m unit positioned perpendicular to the southern looters trench in Str. E2 to remove a skeleton which was present in the baulk of the looters trench. These preliminary excavations revealed that Tutu Uitz Na, like Barton Ramie and Floral Park was occupied at least as early as the Middle Preclassic (900-300 BC) or Late Preclassic (300 BC-AD 300; Garber et al. 2004:28; Gifford 1976:23) and pre-dated the rise of Lower Dover by over 1000 years (Guerra and Collins 2016; Petrozza and Biggie 2015:36). 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. Aside from the intermediate elite Tutu Uitz Na compound, the surrounding commoner settlement had seen no excavation to date.

Figure 1: Map showing 2014 and 2016 excavation units on Tutu Uitz Na and Pech Na.
THE AIMS OF THE 2016 EXCAVATIONS

The 2016 excavations were aimed at answering four primary research questions:

1. How did the political power of Tutu Uitz Na wax and wane through the developmental trajectory? The area was settled in the Middle Preclassic and a clear Late Classic component was obvious, however the nature of Early Classic (AD 300-500) occupation of Tutu Uitz Na remains unclear.

2. What was the nature of intermediate elite and commoner assemblages at Lower Dover and could smaller vertical excavations provide sufficient proportions of material to evaluate wealth, status and behavior?

3. Was a circular Middle Preclassic (900-300 BC) platform present below the plaza floor? Circular platform structures appear in the Preclassic in the Belize Valley and are often found below later Classic Period constructions (Aimers et al. 2000:71 Hendon 2000; Powis 1996). Petrozza and Biggie (2015) potentially exposed the northern side of a circular platform during their 2014 excavations, suggesting the site may have been occupied much earlier than previously documented.

4. How extensive is the jute deposit uncovered beneath the plaza? Petrozza and Biggie (2015) identified a dense jute deposit beneath the plaza, although questions remained about its size, date, and function of the deposit.

METHODS

Four units were excavated to answer the questions outlined above. Two of these (E.U. 1-3 and E.U. 1-5) were located in the Tutu Uitz Na plaza. The other two units were axial trenches running north/south through Tutu Uitz Na Str. N1 (E.U. 1-4) and Str. S1 (E.U. 9-1) at Pech Na. 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, 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. We included Petrozza and Biggie’s (2015) formal units as E.U. 1-1 (E.U. PL1-1) and E.U. 1-2 (E.U. PL1-2) but not the informal units in the looters trenches (Petrozza 2015: Fig. 12; Wölfel et al. 2010: Fig.7). Artifact recovered from units excavated in 2016 are listed in Appendix A.
2016 SETTLEMENT EXCAVATION RESULTS

Excavation Unit 1-3

E.U. 1-3 was placed immediately adjacent to E.U.1-1 (Petrozza and Biggie 2015). It began as a 3x3m unit but was downscaled to a 1.5x3m unit. Petrozza’s (2015:Fig.16) excavation in the Tutu Uitz Na plaza appeared to show a single layer of construction ballast running across the plaza floor. Our unit was positioned to clarify the plaza construction sequence, the presence of a circular altar and the horizontal extents of the jute deposit. Elevations were taken from the unit datum established in 2014 (Datum #SG1-1).

Northeast plaza construction phase 1

The first construction episode at Tutu Uitz Na involved the removal of the topsoil to expose bedrock across the hilltop (Figure 2 and Figure 3). The presence of Jocote Orange Brown and Savana Orange ceramics suggest that clearing likely occurred during the Middle Preclassic period. The jute deposit, which consisted of a dense matrix composed of sandy, loamy soil (7.5YR6/3), pebbles and a mixture of marine and riverine shell, was then laid upon the exposed breccia (Figure 4). The shell deposit predominantly contained jute but also included river clams (Nephronaias sp.), apple snails (Pomacea flagellata) and marine shell. Other artifacts uncovered in this context included ceramics, chert debitage, an obsidian blade fragment, worked marine shell beads (SF #11,15 and 18), a broken biface (SF #17), and a crude Savana Orange paste figurine (SF #10; Lots 1-3-4, 1-3-5). Stylistically, this figurine is similar to Kanocha figurines from Blackman Eddy (Garber et al. 2004:32), which date between ~1000-900 BC. The jute was probably used to level the area because higher densities were evident in fissures and depressions in the bedrock. A total of 0.069m³ of jute existed beneath the plaza floor in E.U.1-3. There was no sign of a circular altar. The circular arrangement noted in adjacent E.U.1-1 was probably a natural semicircular contour in the soft limestone bedrock that had been lined with larger stones. All the jute were mixed together to normalize the selection, and a 20% subsample was collected for future faunal analysis.
**Figure 2:** Bedrock exposed across E.U. 1-3.

**Figure 3:** Profile of E.U. 1-3.
Following the deposition of the jute deposit, Plaza Floor 1 was constructed (Figure 5). A 30cm deep layer of cobble ballast (10-20cm in diameter) was laid directly on top of the jute deposit (Lots 1-3-3, 1-3-4). This ballast would have underlain the original plaster floor (which was present in E.U. 1-4). Any remnants of plaster were absent because of bioturbation. The interface between the shell deposit and the ballast, and the ballast itself contained Middle and Late Preclassic ceramics (e.g., Jocote Orange Brown, Sierra Red), chert debitage, freshwater shell, a small fragment of obsidian. Who carbon samples (CS #1 and #2) were also collected from this context for future radiocarbon analyses. The ballast was probably laid directly on top of the jute deposit following its deposition because there was little in the way of matrix between the two contexts and, aside from shell the deposit is surprisingly culturally sterile which would be implausible had the deposit remained exposed for any duration. The plaza floor was recorded as Plaza Floor 1 although the thickness of the ballast layer implies that it might represent the amalgamation of several layers of ballast from multiple floors which became mixed together after the respective floors eroded away.
Later there were several Late Classic renovations to the plaza floor (Lot 1-3-2). Individual renovation episodes are unclear since the plaster was completely eroded. Late Classic material proliferates on the upper portion of the ballast suggesting that the original Preclassic plaza was subsequently altered or re-laid during the Late Classic period. The unstructured jumble of ballast makes it difficult to detect whether multiple construction phases existed on the plaza although it seems at least two construction phases are present at the plaza edge in E.U.1-4. The lack of Early Classic ceramics in E.U. 1-3 may suggest that no major construction occurred in the plaza during this period.

Northeast plaza phase 4 (terminal occupation)

Greater densities of Late Classic ceramics such as Belize Red, Vaca Falls, and Cayo Unslipped types were found on top of the ballast and in the loose brown organic humic layer. Some of these were probably redeposited from later construction events on the plaza floor, while others may have lain directly on the surface during its terminal occupation (Lot 1-3-2). Other artifacts collected from this context include chert, marine shell, ground stone, quartz, faunal remains, an incensario prong, and a large quantity of Preclassic shell beads (SF #7, 8 and 9), which were probably lifted to the surface by root action.
Summary of northeast plaza excavations

Excavation Unit 1-3 revealed that the possible circular altar beneath the plaza floor was actually a natural formation in the bedrock and that the jute deposit uncovered in E.U. 1-1 did extend horizontally. The unit was bisected at the top of the jute deposit because of temporal constraints. The unit revealed a single layer of ballast in the plaza which was originally laid on top of the jute deposit in the Middle Preclassic or Late Preclassic. Although this layer was thick enough to infer multiple constructed surfaces, a finding corroborated at the plaza edge in E.U.1-4. Plaza Floor 1 was probably re-plastered multiple times until the Terminal Classic, when the group was abandoned. The significance of the jute deposit is considered in greater depth in the discussion below.

Excavation Unit 1-4

E.U. 1-4 was a 7m (north/south) x 2m (east/west) trench running halfway through Str. N1, the northern range structure. The unit was positioned slightly west of the centerline of the structure. This was because of the presence of an eastern wing, which was originally presumed to be a separate structure. Elevations were taken from Datum #SG1-2.

Str. N1 construction phase 1

Prior to the construction of the building, the area beneath Str. N1 was cleared to bedrock (Figure 6 and Figure 7) and a mix of jute and other types of riverine and marine shell, including large perforated marine shell beads, were laid directly upon bedrock (SF #22 and #27; see Appendix A). The matrix mixed in with the shell deposit under Str. N1 (Figures 8 and 11) and at its front (Figure 9) was different from that found elsewhere in the plaza (E.U.1-3 and 1-5), as it was composed of a dark reddish brown clay (10YR3/4). The deposition of the jute matrix beneath Str. N1 was probably contemporaneous with the laying of the jute deposit in the plaza because diagnostic Middle Preclassic ceramics are common in this context (Lots 1-4-8, 1-4-20).
Figure 6: The surface of E.U. 1-3.

Figure 7: Bedrock under Str. N1.
Figure 8: *Jute* deposit exposed under Str.1.

Figure 9: *Jute* deposit exposed in front of Str. N1.
Following the deposition of the jute matrix, a small structure was built on the northern side of the plaza. First a 40cm layer of large boulder fill was laid. The boulders were then covered with a thin layer of ballast (Lot 1-4-19). The architectural fill contained numerous sherds and chert debitage. The majority of the diagnostic ceramics dated to the Jenney Creek ceramic phase (Middle Preclassic) and included Savana Orange and Reforma Incised types. Some later Barton Creek (Late Preclassic) types, such as Sierra Red, were present although these probably came from fill placed on the floor of this platform (Floor 1). The plaster floor, which ran on the top of this first structure, is only present immediately adjacent to the northern edge of the unit, but the cobble ballast (5-10cm in diameter) that supported Floor 1 extends 1m from the northern unit wall to the south. It is likely that Floor 1 originally extended to Retaining Wall 1, which is located 2m south of the northern edge of the unit (Figures 10 and 11). If this early structure extended the same distance to the north, then it would have been roughly 4m wide (north/south) and 50cm high. A carbon sample was collected from the ballast beneath this floor (CS #9), which should date this initial construction, which we expect was built soon after the jute deposit was laid.

Figure 10: Dense grey matrix laid over Floor 1.
Figure 11: Tutu Uitz Na Str. N1 East Profile (E.U. 1-4).
**Str. N1 construction phase 3**

The second construction phase saw the deposition of a compact dark grey matrix (10YR 3/1) on top of the earlier structure. The majority of the sherds from this grey matrix date to the Late Preclassic period, although these were collected in the same Lot as Phase 2 (Lot 1-4-19) as problems arose distinguishing between contexts in the southern portion of the structure where the cobble ballast dissipates. The dark grey matrix is similar to the wet-laid matrix found in Preclassic contexts at Blackman Eddy and Cahal Pech (Garber et al. 2004:37; Sunahara and Awe 1994:201). Like the grey matrix at Cahal Pech, it contained substantial amounts of freshwater shell including jute, apple snails and river clams and some chert debitage. It is possible that the deposit was merely fill dumped in the structure as part of the initial construction of phase 4. Initially the material was considered to be thermally affected although this seems unlikely.

**Str. N1 construction phase 4**

Phase 4 saw the construction of a Late Preclassic structure. Hypothetically the grey matrix may have been laid during the initial phases of this construction. On top of the grey matrix was a 30cm layer of dense cobble/small boulder (5-20cm in diameter) dry laid fill, typical of Preclassic/Early Classic construction. This architectural fill (Lot 1-4-18) contained a mixture of Mount Hope, Barton Creek and Jenney Creek types such as Hillbank Red, Chicago Orange, Sierra Red, and a Savana Orange spout, possibly from a chocolate pot (Healy et al. 2004a:121; Powis et al. 2002). The top of the structure was plastered (Floor 2). Between the floor and the fill was a 10cm layer of cobble ballast (Figure 12). This structure probably extended to the same large retaining wall as the earlier Middle Preclassic structure, meaning that the structure was probably 4m wide (north/south) like its predecessor, but rose to a height of 1m. The immediate area surrounding this retaining wall is architecturally complicated because it was disturbed and modified in the Late Classic when a stair-side outset was added to the structure. The presence of a fine yellow-brown matrix (7.5YR3/4) containing eroded plaster on the front of this retaining wall suggests it was heavily plastered in the style of larger Preclassic structures (Freidel 1977; Garber et al. 2004:42; Valdés 1986). The possible plaster façade was then disturbed/removed when Wall 4 was constructed it the Late Classic. Aside from ceramics, the construction fill was surprisingly sterile (Figure 13). Wall 1 was constructed on top of Floor 2 and could have been contemporaneous with this structure, forming a foundation wall for a pole and thatch superstructure. However, the fact the wall was not set into the plaster floor implies it was associated with a later construction episode (See below).

**Str. N1 construction phase 5**

This phase saw an Early Classic offering/pit (Feature 1) cut into the floor (Floor 2) of the Late Preclassic structure (Figures 14 and 15). The pit was a circular cut of approximately 30x30cm, containing a light yellow matrix (7.5YR 6/3). The Maya dug the pit, placed the remnants of a Dos Arroyos Polychrome bowl at its base, and burned an offering of incense or other organic material (CS #6, 7 and 8). Next a large boulder...
Figure 12: Floor 2 and Wall 1 (with Late Classic Wall 4 in the foreground)

Figure 13: Floor 2 with Wall 4 and plaster deposit removed to show fill.
(20cm in diameter) was positioned on top of the burned remnants (Lot 1-4-17). Next, an offering of organic materials was likely placed on top of the boulder in the pit, evident by a patch of darker matrix (10YR2/1). Alongside this second offering were numerous Early Classic sherds including an Aguila Orange basal flange and some chert debitage and freshwater shell (recorded as Lot 1-4-16).

Figure 14: Feature 1 with Wall 1 in foreground.
**Str. N1 construction phase 6**

Phase 6 involved the construction of an Early Classic platform on top of Floor 2 that extended 1.8m south to Wall 1. The area immediately outside Floor 3 probably formed an exterior step. This construction phase seems to have been all but obliterated by subsequent construction and the placement of Wall 2 atop Floor 3 on the outside of the structure (phase 7). Materials from this context included Hermitage ceramics and chertdebitage (Lots 1-4-10, 1-4-15 and 1-4-13).

**Str. N1 construction phase 7**

This phase saw the construction of another large Early Classic platform upon Floor 2. A new front wall (Wall 2) was constructed so the platform encased Wall 1 completely (Figures 16 and 17). The newly constructed Wall 2 was located above Retaining Wall 1. This new structure was 1.50m high and approximately 4m in width (north/south). Floor 5 formed the top of this structure. Construction episode 7 involved the deposition of 40-50cm of cobble fill on top of Floor 2 (which probably began as part of phase 6). Materials were collected in Lots 1-4-10, 1-4-15, 1-4-13 and Lot 1-4-12. In between Walls 1 and 2 was a carbon fragment (CS #5), which should date the extension of the structure beyond Wall 1. The ceramics from the architectural fill include Early Classic types such as Balanza Black, Dos Arroyos, and Dos Hermanos, although Late Preclassic types are also present in fewer quantities. An Urita Gouged incised bowl sherd containing an incomplete glyphic inscription was also present in this context, potentially
Figure 16: Floor 3 at the base of Wall 2. The top floor is Floor 5.

Figure 17: Floor 5 with step.
Figure 18: Removal of Wall 6 showing Plaza Floor 2 extending back to Wall 5.

Figure 19: Floor 6 on the top of the structure.
identifying the bowl as a y-uk'-ib or 'drinking-implement' (Christophe Helmke, personal communication 2016). The presence of this vessel indicates the high status of the Early Classic residents (Reents-Budet 1998:73). Also present was freshwater shell, chert debitage and daub (probably from a pole and thatch superstructure). A chert biface was also found in the architectural fill, which may have functioned as an offering (SF# 24; see Appendix A).

Str. N1 construction phase 8

Construction phase 8 was the first of many Late Classic period additions to the structure. Some subsequent construction phases may have been coeval with one another but are explained separately for clarity’s sake. This phase saw the structure increase in size to a height of 2m. These Late Classic phases are clearly evident on the profile because the construction style changes, reflecting a growing predilection for thinner plaster floors and looser dry core fill consisting of larger boulders. These traits are common in Late Classic architecture. This episode saw the construction of Wall 3 on top of Floor 5 and the infilling of this construction with large boulder fill. This was leveled off at Floor 6 (Figure 19). Cultural materials from the construction fill included Spanish Lookout ceramics like Rubber Camp Brown, Belize Red, and Vaca Falls but there was also chert debitage present (Lot 1-4-7).

Str. N1 construction phase 9

Construction phase 9 saw the most substantial remodeling of the structure. This involved the addition of a large apron and stair-side outset. Because of a miscalculation when placing the unit, we missed the central staircase, though the return face of the stair-side outset was present in the center of the unit (Figures 22 and 23). In the Late Classic three additional terraces were added to the outside of the structure in addition to the top one (Construction Phase 8). This construction event involved the erection of Walls 4 and 7, although at this time only Wall 4 extended horizontally across the unit to the western edge forming a terrace (Figure 20 and 22). Walls 5 and 6 formed a stair-side outset, which was part of an apron protruding 2.80m from the front of the Early Classic structure. Wall 4 was constructed immediately in front of the earlier rough-hewn plastered retaining wall (Retaining Wall 1). This construction event is dateable through the presence of Late Classic sherds, such as Belize Red types. Although these were mixed with earlier Mount Hope sherds, which presumably came from the nearby ballast of Floor 3 (Lot 1-4-14). Wall 4 was built to a height of 1.60m above the plaza. This stepped up onto Floor 7 and Floor 8 (which probably represents a reconstruction dating to roughly the same phase). These floors ran 1.20m to the north and abutted Wall 3, which would have constituted another step up onto Floor 6 which formed the top of the structure at this time. This newly constructed terrace running along the front of the structure contained dry laid boulder fill intermixed with Spanish Lookout ceramics and chert debitage (Lots 1-4-9 and 1-4-11).
Figure 20: Plan of terminal architecture.

Figure 21: Exposure of Plaza Floor 1 in front of the structure.
**Figure 22:** Exposure of terminal architecture in E.U. 1-4.

**Figure 23:** Closing photo of E.U. 1-4.
The large rectangular blocks placed at the foot of Wall 4 (which could not be excavated because of their size) provide a terminus post quem for the construction of this wall. The placement of these blocks simultaneously provides a terminus ante quem for the construction of the apron on the front of the structure (Wall 7) as this had to be put in prior to the laying of these blocks. Alternatively, these blocks might have been placed much earlier in the Preclassic and may once have formed the edge of the platform like those at Blackman Eddy (Garber et al. 2004:33). Late Classic construction on the front of Structure N1 saw the reopening of the Middle Preclassic plaza, indicated by the mixing of Middle Preclassic types with Late Classic types in this context (Lots 1-4-22 and 1-4-6). Alongside ceramics, these contexts contained chert and a broken sandstone burnisher (SF #28). Plaza Floor 1, originally dating to the Middle Preclassic, was re-plastered and resurfaced at this period (Figures 20 and 21). The re-plastering of Floor 6 running from the northern edge of the unit to Wall 3 might have occurred during this phase or the next. Floor 6 was badly burnt in a small area, potentially from a ritual offering.

*Str. N1 construction phase 10*

This phase saw the construction of the tiered stair-side outset on top of the apron. This construction episode may have been coeval with construction phase 9. Walls 5 and 6 were constructed on top of the apron and formed a stair-side outset, the return face of which ran along the center of the unit. This was built on top of the western wall of the apron beneath (the stones which formed the return face were later removed in Phase 10). The upper tier of the stair-side outset was 1.20m above the plaza floor (Floor 9/top of Wall 5) and the lower tier was about 60cm above the plaza floor (top of Wall 6). It seems likely this lower tier originally had a plaster floor running over it at this stage, which was removed during construction phase 13. The construction technique evident in both tiers of the stair-side outset involved dry laid boulder fill. In terms of materials, the two tiers were recorded as Lot 1-4-4 (although this lot was mixed with material from later re-entry). Materials included Late Classic ceramics, chert debitage, worked slate (SF# 23) and a large piece of red painted plaster, which indicates the structure was once painted red. At the completion of this phase the structure consisted of two upper terraces running east/west across the entire unit. Wall 3 and Floor 6 comprised the uppermost terrace, and Wall 4 and Floor 8 comprised the second terrace. Beneath this was a two tier stair-side outset, the upper tier was Wall 5 and Floor 9 and the lower tier was the missing floor behind Wall 6, the walls of which ran east/west into the center of the unit and then changed direction to run north/south. At the base of these lay an apron which rose 20cm above plaza, and followed the same direction as the stair-side outset.

*Str. N1 construction phase 11 (penultimate)*

Phase 11 and Phase 12 could have transpired contemporaneously, or one could have predated the other. This episode saw the construction of Floor 10, which involved the placement of roughly 30cm of fill on top of Floor 8 and the re-plastering and extension of Floor 6 over the top of Wall 3. This extended the uppermost terrace of the structure from 1m-2m. The structural fill (Lot 1-4-5) from this episode contained little
ceramic material except for some unknown diagnostics (possibly Late Classic) and the remains of a Cayo Unslipped jar.

Str. N1 construction phase 12 (final)

Phase 12 saw the major remodeling of the front face of the structure. Wall 6 was extended across the front, running east/west like the top two terraces. Materials from these contexts were included in Lot 1-4-4 (which problematically contained possible materials deposited during later re-entry). Wall 7 and the low apron in the front of the structure were then plastered over and a new plaza floor was added (Plaza Floor 2) (Figure 21). This involved the placement of roughly 20cm of ballast on top of Plaza Floor 1 and 5cm on top of the lowest tier of the stair-side outset. This ballast was then plastered. Plaza Floor 2 abutted the newly modified Wall 6. These construction episodes were removed as Lots 1-4-21 and 1-4-3. Several large pieces of carbon were found on top of this terminal plaza floor, which may date the final activities occurring on the group prior to abandonment (CS #3 and 4). It is speculated that Wall 5 was modified in a similar fashion to run east/west during this phase, however this is not completely clear because of later re-entry and stone robbing in Phase 13.

Str. N1 construction phase 13 (terminal occupation/modification)

This phase saw extensive re-entry/stone robbing from the western portion of the structure. This activity may have been responsible for the disruption of the large boulder located on top of Wall 6 (Figure 23). This boulder probably does not represent tumble from external architecture because it is not cut, but rather was part of internal structure fill which was removed during this period. Structural re-entry clearly occurred after the previous construction stages likely during the Terminal Classic to Postclassic periods (AD 750-1000). Re-entry was prehistoric, since unlike the surrounding looters pits, there was no evidence of disturbance on the ground surface. The re-entered portion of the unit contained a variety of ceramics from different time periods, chert debitage, daub, freshwater shell and a piece of worked shell (SF #23; collected as Lot 1-4-4). In terms of terminal occupation, a fair amount of material was found in the humic layer and around the terminal architecture. Some of this material may have been dumped on living floors upon abandonment, some might have come from earlier architecture fill (either through bioturbation or later re-entry), or may have originated from post-abandonment re-visititation to the group. This material included an assortment of ceramics dating from the Jenney Creek phase to Spanish Lookout II (Jocote Orange Brown, Society Hall Red, Aguila Orange, Dolphin Head Red, and Alexander’s Unslipped). Also present were large amounts of chert debitage, several stone tools including two broken chert bifaces (SF #14, SF #21), a broken mano (SF #16), a granite burnisher (SF #31), faunal remains, freshwater shell and obsidian. These artifacts were collected as Lot 1-4-2. The absence of New Town ceramics from the assemblage suggests that Tutu Uitz Na was likely abandoned in the Terminal Classic and may not have been revisited. This is a surprising observation given the size of Tutu Uitz Na and its large eastern ancestral shrine which might make it a target for later ancestor based veneration and re-visititation (Barnhart 2002; Lamoureux-St-Hilaire et al. 2015).
Summary of Str. N1 excavations

The ceramics uncovered in the Tutu Uitz Na plaza indicate a long occupational sequence at the group. While the trench provided less horizontal exposure of the structure, and thus little idea of what it looked like throughout the trajectory, it did provide considerable information about the timing of architectural modifications and sizeable structural assemblages. The earlier platforms on Str. N1 might have been long and narrow like their Late Classic descendants or apsidal like Preclassic structures elsewhere in the Maya lowlands (Garber et al. 2004:33; Hansen 1998:55; Potter et al. 1984). Architecturally, Str. N1 mirrors many temporal trends noted throughout the Maya lowlands. The Middle Preclassic construction technique involves sizeable boulders with thin plaster floors (Garber et al. 2004:35). The Late Preclassic to Early Classic plaster floors on Str. N1 are much thicker than their Late Classic counterparts. Likewise, the construction fill for the early part of the sequence consists of dry laid large cobbles and small boulders, before shifting to a preference for large dry laid boulders in the Late Classic (Coe and Coe 1956; Hansen 1998:60). The form of this early structure appears to be similar to contemporaneous structures found at Cuello (Gerhardt 1988: 9–22), Cahal Pech (Awe 1992; Healy et al. 2004a:107; Powis 1996), Pacbitun (Hohmann et al. 1999; Hohmann and Powis 1999), Blackman Eddy (Garber et al. 2004:25), and Barton Ramie (Willey et al. 1965:562). The Late Classic addition of an apron and stair-side outset to the front of the structures reflects considerable labor investment, indicating that the intermediate elite at Tutu Uitz Na could command a sizeable labor force during this period.

The Late Classic alterations to Str. N1 were probably coeval with the conversion of Str. E2 into an eastern triadic shrine. These Late Classic alterations at Tutu Uitz Na shows the adoption of architectural traits common in civic ceremonial centers and suggests that the resident intermediate elites were imitating architectural techniques employed by their social superiors at the newly formed Lower Dover political center. The timing of the major remodeling in the Late Classic also shows that the emergence of a primate center at Lower Dover did not curtail the labor available to the intermediate elite at Tutu Uitz Na; conversely, the presence of Lower Dover seems to have bolstered the amount of labor intermediate elites could draw upon. This conclusion is speculative until test pitting is conducted in the surrounding settlement cluster as population probably grew dramatically in the Late Classic, possibly as a direct result of the formation of a higher order center at Lower Dover.

Excavation Unit 1-5

E.U. 1-5 was a 1m (east/west) x 2m (north/south) unit located in the southeast corner of the plaza at the base of the offset between Str. S3 and Str. W4. This unit was placed for two main purposes; firstly, the presence of jute in E.U. 1-1, E.U. 1-3 and E.U. 1-4 (under Str. N1) indicated that the shell deposit was not only large but potentially underlay the entire plaza. The placement of E.U. 1-5 on the opposite side of the plaza would provide a clear idea of the horizontal extent of the jute deposit. Secondly, the unit was located adjacent to Str. S3 and W4 to investigate a hypothesis concerning the
construction history of Tutu Uitz Na. The curious offset on the southern side of Str. W4 in relation to Str. S3 is an uncommon architectural arrangement and seems to imply that the original plaza had been extended to accommodate more people or facilitate the possible extension of Str. E2 into an eastern triadic shrine. Elevations for this unit were taken from Datum#: SG 1-3.

Southwest plaza construction phase 1

Like in other areas of the plaza, the first construction event involved the clearing of the bedrock (Figure 24). Daub was discovered directly on top of the bedrock, seeming to indicate that the hilltop was scraped clean of all soil before the jute was laid down, the daub being a possible remnant of prior construction (Figures 25 and 26). On top of the cleared bedrock was a layer of jute ranging from 15-20cm deep, which matches the depositional pattern in the other units. The jute again appears to have been used as a leveling agent like in E.U. 1-3, and is found in greater densities in depressions and lesser numbers in rises in the bedrock. As in other units the jute deposit contained limited numbers of other artifacts, with the exception of Preclassic perforated marine shell. A total of 0.009m³ of jute were pulled from beneath the plaza floor in E.U.1-4.

Figure 24: Bedrock exposed throughout the E.U. 1-5.
Figure 25: Jute deposit exposed throughout unit.

Figure 26: West profile of the southwestern plaza (E.U.1-5).
The southwest plaza construction phase 2

Roughly 20cm above bedrock was 10-15cm layer of ballast, which was comprised of medium sized cobbles (5-10cm in diameter) and once supported Plaza Floor 1. The ballast in this unit was similar to the ballast in E.U.1-3. However, unlike the northeast plaza, the southwestern corner of the plaza had seen multiple construction events. While it is likely that the original plaza floor and jute deposit beneath had been laid in the Middle Preclassic, this area saw significant modification in the Late Classic, which is evident in the presence of both Middle Preclassic ceramics mixed with Late Classic ceramics in the jute deposit (Lot 1-5-4). Unlike E.U. 1-3, the jute in E.U. 1-4 were not sealed beneath the plaza floor and spread into the humic layer, which was probably because the jute deposit was disturbed in the Late Classic.

The southwest plaza construction phase 3

Construction phase 3 represents this later re-entry into the earlier jute deposit (as evidenced by the mixed sherds). This later modification shows that the southern plaza was expanded in the Late Classic period, to increase plaza capacity alongside an increase in local population and to accommodate the southern wing of the newly modified eastern triadic shrine. Excavation of the eastern triadic shrine will test this hypothesis.

The southwest plaza phase 4 (terminal occupation)

Late Classic ceramics were uncovered, these were either left when Tutu Uitz Na was abandoned, or had been part of later fill episodes when the plaza was resurfaced. While no plaster floor was evident (much like the situation in E.U. 1-3), there were almost certainly many re-plastering events on this plaza over time. Several obsidian blade fragments, a biface (SF #25) and a granite celt (SF #26) were found in this context.

Summary of southwest plaza excavations

Excavation Unit 1-5 has revealed that the jute deposit definitely extends into the south-western portion of the plaza and likely across the entire group. Understanding the construction sequence in this unit was more complex because of Late Classic re-entry of the Preclassic jute deposit and ballast, although it seems clear that this re-entry occurred and probably reflects an extension of the original plaza. Whether an earlier southern structure originally ran east/west over this portion of the plaza, in line with the offset in Str. W4 remains unclear. These units were specifically designed to answer questions 1, 2 and 4, but provided answers to question 3. The sizeable ceramic assemblages present in the plaza construction fill will inform next season’s test pitting strategy, which will involve placing 1x1m test units in commoner patios.

Excavation Unit 9-1

A 1m (east/west) x 3m (north/south) trench was placed perpendicular to Str. S1 on Pech Na (SG 9). SG 9 was named Pech Na (House of Ticks) because everyone who set
foot on the group encountered them en masse. This southern mound was the largest on the double mound group, which could certainly be considered small or lower status from the outset. The group is located 80m due west of Tutu Uitz Na on a rise on the limestone ridge. This house group was chosen for several reasons. Firstly, its small size suggested that it would be radically different to SG 1 and would provide a comparative idea of what commoner assemblages and architecture looked like in this settlement cluster. Secondly, because of its presence near Tutu Uitz Na (which had a sizeable Preclassic component) it was thought that SG 9 also might be early and would allow comparison of the settlement before and after the rise of Lower Dover, although this turned out not to be the case. Elevations for this unit were from taken Datum #SG 9-1.

**Str. S1 construction phase 1**

The first construction phase on the group saw the erection of a low platform rising to about 20cm above the patio floor. This was plastered (Floor 1) and fronted with 1-2 courses of cut stone blocks (Wall 1) (Figures 28 and 29). A 30cm layer of sterile dark earthy (10YR6/3) matrix lay upon bedrock, which probably represented the ancient humic layer. The presence of this humic soil indicates that the area was not cleared to bedrock prior to construction. This dark earthy matrix was then covered by a thin 10-15cm layer of cobble (5cm in diameter) ballast which underlay the plastered platform floor. This floor was remarkably well preserved given the circumstances, but showed some damage which seemed ancient (Figure 23). Chert debitage, freshwater shell, a broken obsidian blade fragment and numerous ceramics were present among the ballast, although no diagnostic pieces were present.

This first construction phase appears coeval with the laying of Patio Floor 1. All remnants of plaster were gone, which was expected given the nature of bioturbation elsewhere on the group and the shallow depth of the hill flank soils. Despite this, at 25cm above bedrock a thin layer of cobble ballast was present along with a distinct coarse yellow matrix indicative of an eroded plaster floor. The presence of a plastered patio floor in a lower status commoner house group was somewhat surprising. The floor abuts the front platform wall of S1 but does not run beneath the platform. It is therefore possible that the constructed patio was a later addition which replaced an earlier tamped earth floor. Ceramics from the ballast and construction fill included Cayo Unslipped and a Vaca Falls Bowl Rim both dating to the Late Classic (Spanish Lookout). A ‘molded-carved’ vase body sherd was found in the patio floor ballast; based on the paste and the floral designs this was typed as Ahk’utu’ Molded-carved (Helmke and Reents-Budet 2008; Kosakowsky pers. Comm.). These vessels date to the Terminal Classic and have been interpreted as an elite feasting item and prestige gift which played an important role in the changing socio-political interactions present during this liminal phase (Helmke 2001; LeCount 1999; Ting et al. 2014:54). The presence of this sherd in the first construction episode at the group is important for two reasons. It provides tentative dating for the group, suggesting that it might not have been founded until the Terminal Classic (Spanish Lookout II), this remains speculative as the constructed patio floor may have been a later addition, as mentioned earlier. Additionally, the presence of the sherd may
Figure 27: Bedrock exposed across E.U. 9-1.

Figure 28: Floor 1.
Figure 29: Floor 2.

Figure 30: Terminal architecture exposed across Str. S1.
suggest that the commoners living here were tied into a patron-client relationship with nearby elites, presumably those living 80m to the east at Tutu Uitz Na (LeCount 1999:253-254), though this hypothesis will be tested with additional archaeological data.

*Str. S1 construction phase 2 (penultimate)*

Located roughly 5cm above the original platform floor was a second well preserved plaster floor (Floor 2) (Figure 29). The ballast for this second plaster floor was laid directly on top of Floor 1 (Figure 28). This rebuilding episode only saw a minimal increase in structural height and thus is probably not reflective of a desire to express status but more a dissatisfaction with the original poorly laid plaster floor. Because it was laid on the ancient humic layer with only a thin layer of ballast, a simple re-plastering episode was likely not enough to re-stabilize the platform floor. Chert debitage, several daub fragments and some Cayo Unslipped jar sherds were present in the ballast dating the construction event to the Late Classic period. The daub was probably from the pole and thatch superstructure which once stood atop the platform.

*Str. S1 construction phase 3 (final)*

This final construction phase involved the layering of more cobble fill onto the pre-existing Floor 2. This construction phase was heavily disturbed by tree roots. Bioturbation had presumably blown out the upper course of the front wall (Wall 1), although this remained intact enough to profile. The sizeable cobbles and small boulders (10-20cm in diameter) present are fairly typical of Late Classic construction. The final floor and ballast which rested on top of these was completely missing (Figures 30 and 31). The possible height of the final floor can be speculated based on the height of the platform wall, which suggests the terminal platform may have stood around 60cm high. The architectural fill contained a substantial amount of ceramics including Vaca Falls and Rubber Camp Brown bowl rims, indicating a Late Classic date.

*Str. S1 phase 4 (terminal occupation)*

Terminal occupation on the mound is evident in the large number of broken ceramic vessels lying at the foot of the platform, one of which was a relatively complete albeit smashed Cayo jar. The ceramics present were all Late and Terminal Classic types and might reflect some form of termination event upon the abandonment of the house group, a re-visitation event shortly after abandonment or possibly the household refuse which was dumped at abandonment. Other noteworthy artifacts included a substantial amount of chert debitage, daub, marine shell and freshwater shell, a slate disc (SF #19) and a sizeable piece of petrified wood (SF #20), which is relatively common at the Lower Dover civic ceremonial center (Rafael Guerra 2016, personal communication 2016). Because of the poor state of preservation it is probable that some of these items came from inside the mixed fill of the final construction episode, while others represent items dropped or left in the vicinity of the platform upon abandonment.

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Summary of Str. S1 excavations

The excavations on Str. S1 reveal that the group was constructed in the Late Classic period, possibly as late as the Terminal Classic (if the Terminal Classic patio floor was contemporaneous with the initial platform construction). Despite this late construction date the location was occupied long enough to see at least one more major construction phase. The initial construction episode seems somewhat hurried, although later, effort was expended to re-consolidate the foundations of the platform. The proximity of Pech Na to Tutu Uitz Na and the presence of Ahk’utu’ Molded-carved are suggestive of a close patron-client type relationship. While some of the lower status commoner house groups in the settlement located proximally to larger higher status commoner groups probably indicate domestic fissioning (Chase and Chase 2004:142; Goody 1962: 53-91; Wilk and Rathje 1982:625), we are certain this is not the case in this instance as the intermediate elite Tutu Uitz Na group represented a long-lived elite lineage and it is unlikely that family members would fission into such a poorly built and insubstantial domicile.
DISCUSSION

The Developmental Trajectory of Tutu Uitz Na

The 2016 excavations at Tutu Uitz Na confirmed Petrozza’s (2015) conclusion that Tutu Uitz Na was settled in the Middle Preclassic, when the sizeable jute deposit was laid beneath the initial plaza floor, and inhabited until the Late/Terminal Classic period with no Early Classic hiatus. The presence of jute in a Late Classic interment (Julie Hoggarth, personal communication 2016) in Str. E2 shows that jute was of continual symbolic importance to the residents of the Tutu Uitz Na compound throughout the group’s occupation, suggesting that a single lineage occupied the group throughout this trajectory. Ethnographically the perpetuation of lineages over long time periods is well documented (Freedman 1966:4; McAnany 2013:16; Smith 1959:191). Excavations thus far have not revealed an Early Middle Preclassic occupation like at Blackman Eddy (Garber et al. 2004), Cahal Pech (Awe 1992), Pacbitun (Garber et al. 2004:28), Xunantunich (LeCount et al. 2002:42) or Floral Park (Garber et al. 2004:28), nor have we uncovered New Town ceramics like those evident at Barton Ramie (Gifford 1976:23). Excavations at Pech Na revealed a low status commoner patio group which developed in the Terminal Classic. The presence of Ahk’utu’ Molded-carved suggests that it was involved in hierarchical corporate or patron client relations with the intermediate elite lineage based at Tutu Uitz Na (Helmke and Reents-Budet 2008). The comparatively late date for the founding of this small group suggests that other small groups located proximally to Tutu Uitz Na probably developed during this time period also.

The Jute Deposit

The large jute deposit present beneath the plaza of Tutu Uitz Na requires discussion. Collectively, the 2014 and 2016 excavations have shown that shell deposit likely extends across the entire plaza and under the structures on its four sides. While jute deposits of this size are unheard of, smaller ones do exist. At Pacbitun over 150,000 jute were uncovered in multiple Middle Preclassic deposits mixed with river clams and apple snails (Healy et al. 2004b:225). At nearby Blackman Eddy a sizeable deposit of freshwater shells was associated with the initial construction of Structure B1-7th. This deposit was apparently dug into bedrock and layered with 10,000 shells including jute and marine shell. Garber et al. (2004:37) attribute the deposit to a feasting event which may have been associated with the dedication of the structure. Interestingly, both of these examples date to the Preclassic. A similarly large deposit found at Chan (Keller 2012) was also considered to show evidence of feasting.

We hypothesize that the jute might have resulted from feasting practices although we believe the situation to be more complex. The jute was almost certainly used as a leveling agent to lay the ballast upon, and may also have simultaneously fulfilled a cosmological function. The shell deposit might represent the contents of a midden although this is dubious because it contains very little else other than jute and marine shell. The shell may have been taken from a shell workers midden, although the presence of the jute, apple snails and river clams is not consistent with this scenario, as these small
river snails were eaten, not fashioned into jewelry. Likewise, if it was a feasting deposit then more ceramic vessels and faunal remains might be expected instead of marine shell jewelry. Many of the jute are very small, and probably could not be consumed by clipping and sucking, but these could have been boiled into a stew, as practiced by contemporary Maya populations in Belize (Healy et al. 1990). So the size of the jute does not necessarily rule out the feasting hypothesis. The most coherent explanation is that the jute deposit had a ritual function and that the shell were collectively placed in the deposit as they were emically considered to represented the ‘watery underworld’ and functioned as a consecrational or dedicatory deposit (Halperin et al. 2003:216). Elsewhere in Mesoamerica ‘aquatic’ items are placed in such contexts because of their association with the ‘watery underworld’ (Reilly 1994:7). The shell deposit may have been placed to imbue the group with sacred energy as some kind of ‘primordial sea’, out of which rose the structures which symbolized sacred mountains (uitz) (Wagner et al. 2013:5). This argument is bolstered by the presence of ritual items like the crude Savana Orange figurine inside the deposit (SF#10). Like the deposit at Blackman Eddy, the Tutu Uitz Na deposit did not show extensive evidence of trampling (Garber et al. 2004:37), probably because the ballast was laid directly on top of the jute soon after its deposition, which is congruent with the idea that it was an intentionally placed ritual offering. The presence of the jute in the hands and mouth of the deceased in the Late Classic burial in Str. E2 at Tutu Uitz Na suggests a long association between the group’s occupants and jute (Hoggarth pers. Comm.). This relationship could have been symbolic or may have reflected some form of ontological association between the lineage residing at Tutu Uitz Na and jute (Descola 2013).

The presence of worked marine shell in the deposit shows that shell working was common at Tutu Uitz Na in the Preclassic. This is an established pattern evident at Cahal Pech, Pacbitun and Blackman Eddy in the Middle Preclassic (Garber et al. 2004:39; Hohmann 2002; Lee 1996; Lee and Awe 1995). The presence of marine shell also shows that trade and exchange networks were well established by this period, and that these networks were accessible to the elite at Tutu Uitz Na (Awe and Healy 1994). The size and density of the deposit buttresses claims that the consumption of freshwater snails and clams offered a protein supplement to the Maya (Healy et al. 1990), and that this dietary supplement was more important in the Middle Preclassic (Moholy-Nagy 1978). A sub-sample of jute was taken for analysis and shall be reported on in greater depth next year.

**The Political Implications of Tutu Uitz Na**

The size of the Middle Preclassic plaza suggests that the compound had a ceremonial function early on, although this is somewhat speculative. There is no ceremonial architecture dating to this period at Barton Ramie and Floral Park (Driver and Garber 2004; Garber et al. 2004; Willey et al. 1965:279). Potentially, Tutu Uitz Na functioned as a western satellite of Blackman Eddy during the Preclassic, like the Manbatty Site to the east (Garber et al. 1992:Fig. 10). Despite falling under the aegis of Blackman Eddy during this time Tutu Uitz Na probably possessed some degree of autonomy owing to its distance from the center and the relatively small size of the Blackman Eddy political center (Helmke and Awe 2012:3). The group appears to have
been occupied through the Early Classic and into the Late Classic, when the Lower Dover political center emerged. We argue that Tutu Uitz Na served as the residence of the lineage head or leader of a large corporate entity or neighborhood which encompassed most of the southern settlement during this trajectory (Hayden and Cannon 1982; McAnany 2013; Marcus 2006). Proposed test pitting will provide temporal information about the development of demography around Tutu Uitz Na, although we tentatively propose that the surrounding cluster grew substantially during the Early to Late Classic transition. The emergence of Lower Dover does not seem to have stunted the development of Tutu Uitz Na or the fortunes of its occupants, contrarily; the Late Classic saw the highest degree of architectural investment since the deposition of the jute deposit in the Middle Preclassic. This investment illustrates that local elite power was probably not curtailed to a significant extent by the presence of an apical elite regime at Lower Dover. Large intermediate groups are usually found further from major centers (Driver and Garber 2004). We posit that the longer developmental trajectory at Tutu Uitz Na explains its size during the Late Classic. Its proximity to Lower Dover is more difficult to explain, but we postulate that Lower Dover emerged in the midst of Floral Park, BR-180 and Tutu Uitz Na as a disembedded capital, and the location was chosen because it was simultaneously neutral and afforded dominion over these satellites. A similar argument has been made for Monte Alban (Blanton 1976:258). Potentially, the apical regime at Lower Dover reflected some type of oligarchy which involved these intermediate elites (Cowgill 1997:152).

**CONCLUSION**

The sizeable assemblages excavated from the vertical units assuaged our sampling fears and should easily be sufficient to investigate changing wealth, status and activities throughout the time periods in question. In addition to alleviating concerns about sample sizes, the vertical excavation units provided fine grain data on temporal change and the developmental trajectory at Tutu Uitz Na, such an approach should work well in other areas of the settlement to provide a diachronic perspective on the changing fortunes of the intermediate elite lineage located at Tutu Uitz Na. The excavation of courtyard space has revealed sufficient diagnostic material to date occupations, this was to be expected at Tutu Uitz Na where a large constructed plaza is present. The presence of substantial diagnostic material in the small Pech Na patio indicates that such a technique could be employed to test pit commoner patio groups without excavating on the structures themselves. Further excavation is forecast for next summer and should target the Eastern mortuary structure, Str. E2 and a sample of commoner dwellings from the Tutu Uitz Na neighborhood.
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REFERENCES CITED

Aimers, James J., Terry G. Powis, and Jaime J. Awe

Awe, Jaime J.

Awe, Jaime J. and Paul F. Healy

Barnhart, Edwin

Blanton, Richard E.
Chase, Diane Z., and Arlen F. Chase

Coe, William R., and Michael D. Coe

Conlon James M. and Allan F. Moore

Cowgill, George L.

Descola, Philippe

Driver, W. David and James F. Garber

Freedman, Maurice

Freidel, David A.

Garber, James F., W. David Driver, Lauren A. Sullivan and Sean Goldsmith (editors)
1992  *The Blackman Eddy Archaeological Project: Results of the 1991 Field Season*. Department of Anthropology, Southwest Texas State University, San Marcos.

Garber, James F., M. Kathryn Brown, Jaime J. Awe, and Christopher J. Hartman
Gerhardt, Juliette Cartwright  

Gifford, James C.  

Goody, Jack  

Guerra, Rafael A. and Renee Collins  

Halperin, Christina T., Sergio Garza, Keith M. Prufer, and James E. Brady  

Hansen, Richard D.  

Hayden, Brian and Aubrey Cannon  

Healy, Paul F., Kitty Emery, and Lori E. Wright  

Healy, Paul F., David Cheetham, Terry G. Powis, and Jaime J. Awe  

Healy, Paul F., Bobbi Hohmann, and Terry G. Powis  
Helmke, Christophe

Helmke, Christophe, and Jaime J. Awe

Helmke, Christophe, and Dorie Reents-Budet

Hendon, Julia A.

Hohmann, Bobbi, M.

Hohmann, Bobbi, M., and Terry G. Powis

Hohmann, Bobbi, M., Terry G. Powis, and Carmen Arendt

Iannone, Gyles

Keller, Angela
Lamoureux-St-Hilaire, Maxime, Scott Macrae, Carmen A. McCane, Evan A. Parker, and Gyles Iannone

LeCount, Lisa J.

LeCount, Lisa J., Jason Yaeger, Richard M. Leventhal, and Wendy Ashmore

Lee, David F.H.

Lee, David F.H. and Jaime J. Awe

Marcus, Joyce

McAnany, Patricia A.
2013 *Living with the Ancestors, Kinship and Kingship in Ancient Maya Society.* University of Texas Press, Austin.

Moholy-Nagy, Hattula

Petrozza, Michael Louis
Petrozza, Michael Louis, and Michael Biggie


Powis, Terry G.


Reents-Budet, Dorie

Reilly III, F. Kent

Smith, Thomas C.

Sunahara, Kay and Jaime J. Awe

Ting Carmen, Elizabeth Graham and Marcos Martinón-Torres
Valdés, Juan Antonio

Wagner, Logan, Hal Box, and Susan Kline Morehead
2013  *Ancient Origins of the Mexican Plaza: From Primordial Sea to Public Space.*
       University of Texas Press, Austin.

Wilk, Richard R., and William L. Rathje

Willey, Gordon R., William R. Bullard Jr., John B. Glass, and James C. Gifford
1965  *Prehistoric Maya Settlements in the Belize Valley.* Papers of the Peabody Museum
       of Archaeology and Ethnology 54. Harvard University, Cambridge.

Wölfel, Ulrich, Christian Brückner, Phillip Reeder and William Reynolds
2010  *Report on the Exploration and Mapping of the Lower Dover Archaeological Site, Belize River Valley, Belize, Central America.* Report on File, Institute of
       Archaeology, Belmopan, Belize, Central America.
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Special Finds from Tutu Uitz Na (E.U. 1-3, E.U. 1-4, E.U. 1-5)

SF#7 Worked shell bead.  SF#8 Worked shell bead.  SF#9 Worked shell bead.

SF#10 Savana Orange figurine  SF#11 Worked shell beads  SF#14 Broken biface

SF#15 Worked shell beads.  SF#16 Broken mano.  SF#17 Broken biface.

SF#18 Worked shell beads.  SF#21 Broken biface.  SF#22 Worked shell beads.  SF#23 Slate.
Special Finds from Tutu Uitz Na (E.U. 1-3, E.U. 1-4, E.U. 1-5)

Figure 28: Special Finds from Tutu Uitz Na (E.U. 1-3, E.U. 1-4, E.U. 1-5).

SF#24 Biface.  SF#25 Biface.  SF#26 Granite celt.

SF#27 Worked shell beads.  SF#28 Broken burnisher.  SF#29 Worked shell beads.

SF#30 Worked shell beads.  SF#31 Granite burnisher.  SF#32 Worked shell beads.
Special finds from Str. S1

Figure 30: Special finds from Str. S1. a slate disc (left) and SF#20 petrified wood (right).
The 2016 field season investigations at Xunantunich marks the second year of the Xunantunich Archaeological and Conversation Project (Table 1). This multi-year project was started in the summer of 2015 with the goals of 1) preserving several large structures within the central precinct for the purposes of enhancing the tourism potential of the park 2) shedding light onto the final phases of occupation at this late center (AD 600-900), and 3) determining the factors that led to the rapid, but short-lived, development of this major Belize Valley site. This project is collaborative in nature and involves the participation of the Belize Institute of Archaeology, the Belize Valley Archaeological Reconnaissance Project (BVAR), and Drs. Jason Yaegar and Kat Brown (UTSA). Excavations and conservation efforts are funded through the generous support of the Tilden Family Foundation and the Belize Valley Archaeological Reconnaissance Project.

The 2015 field season focused on excavation and conservation within Plaza A at structures A2 and A3, of the eastern triadic shrine (Santasilia and Tilden 2015) as well on Structure A8 on the western side of the plaza (Santasilia and Tilden 2015; Zanotto et al. 2015). Archaeological investigations and conservation were also carried out at Structure A20, a small shrine on the western flank of El Castillo (Zanotto et al. 2016). All investigations exposed the last phases of architecture of these buildings and contributed to our understanding of the final activities that took place during the Terminal Classic period at Xunantunich (AD 700-900).

The 2016 field season continued the project’s original research goals and focused on excavation and conservation of Structure A7 and A9, within Plaza A of the central precinct (Chapter 15) as well as at Structure A28 atop El Castillo (Chapter 16). This season’s excavations at Structure A9 revealed a number of spectacular discoveries including a set of hieroglyphic panels (Helmke and Awe 2016a; Helmke and Awe 2016b) as well as two centerline caches and a royal tomb (Chapters 17 and 18). In addition, the 2016 season’s research was expanded to include investigations within Group B (Chapter...
19) and provided additional evidence for the practice of termination rituals within the Belize Valley (Hoggarth et al. 2015). Future seasons of the Xunantunich Archaeological and Conservation Project will focus on excavation and conservation within Group B, Ballcourt 2, and Structure A7.

**Figure 1:** Map showing the locations of the structures investigated by the Xunantunich Archaeological Conservation Project. (Adapted from Yaeger 2005).
Table 1: Archaeological Investigations and Conservation by Xunantunich Archaeological and Conservation Project (2015-2016).

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<td>A2</td>
<td>Horizontal excavations on north and west side of structure to expose terminal phase façade. Trench placed in west side to determine relationship of construction sequence between A2 and A3.</td>
<td>2015</td>
<td>Complete</td>
<td>Report filed by J. Yaeger at Belize Institute of Archaeology.</td>
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<tr>
<td>A3</td>
<td>Horizontal excavations on western side to expose terminal phase façade. Trench placed in west side to determine relationship of construction sequence between A2 and A3. Vertical trench excavations at summit. Excavation units placed in front of stairway (behind stela) and on lower terrace.</td>
<td>2015</td>
<td>Complete</td>
<td>Santasilia and Tilden 2016</td>
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<td>A8</td>
<td>Horizontal excavations on eastern side to expose terminal façade. Vertical trench excavations at summit. Small excavation unit (2 x 1 m) placed in plaza in front of stairway.</td>
<td>2015</td>
<td>Structure too poorly preserved</td>
<td>Santasilia and Tilden 2016; Zanotto et al. 2016</td>
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<td>A9</td>
<td>Horizontal excavations to expose terminal façade. Axial trench.</td>
<td>2016</td>
<td>In progress</td>
<td>Tilden et al. 2017; Slocum et al. 2017</td>
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<td>A20</td>
<td>Removed backfill from XAP excavations. Placed three small excavations units (1 x 1 m) in rooms and one (1 x 2m) in courtyard.</td>
<td>2015</td>
<td>Complete</td>
<td>Zanotto et al. 2016</td>
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<td>A28</td>
<td>Horizontal excavations to expose terminal façade.</td>
<td>2016</td>
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<td>Slocum and Awe 2017</td>
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Acknowledgements

The accomplishments of the 2016 field season would not have been possible without the collective efforts of its many staff, crew, and students. The project is particularly grateful to IOA Conservator Jorge Can, to project draftsman Merle Alfaro, and to all our field crew. Special thanks also goes to the Tilden Family Foundation for its continued support of the project, to Dr. John Morris and the entire staff of the Belize Institute of Archaeology for allowing us the privilege to work at Xunantunich, as well as BVAR co-director Dr. Julie Hoggarth of Baylor University, and the entire BVAR staff, students, and archaeologists for their continued contribution to the success or our project.

REFERENCES CITED

Helmke, Christophe, and Jaime J. Awe

Hoggarth, Julie A., Jaime J. Awe, Sarah E. Bednar, Amber Lopez Johnson, Ashley Mckeown, Sydney Lonaker, Kirsten Green, Niyolpaqui Moraza-Keeswood, Erin Ray, and John Walden

Santasilia, Catharina E., Douglas Tilden

Zanotto, Hannah, Dagmar Galvan and Jaime Awe
INTRODUCTION

Structure A7 is located in the southwest corner of Plaza A1 in the Xunantunich site core (Figure 1). The structure stands adjacent to the most prominent building at Xunantunich, the Castillo. It is also located at the entry point of Sacbe II into Plaza A1, is directly in front, or east of Ballcourt 1, just south of Structure A8, and directly west from Structure A4. Structure A4 is part of the Eastern Triadic Group at Xunantunich and was excavated by Jaime Awe in 2002 as part of the Tourism Development Project (Audet 2006; Awe 2009). The latter investigations noted that A4 has two phases of construction, the earlier dating between AD 600-670 during the Samal ceramic phase (Jamison 2010). One of the major purposes for excavating Structure A7 was to determine whether, like Structure A4, it too was erected during two construction episodes. The second reason for excavating the structure was to assess whether the building was preserved well enough to conserve.

Structure A7 is 23m at the base and has a height of approximately 10.7m. Gann (1925), who first excavated Structure A7 reported that the mound had an oval summit measuring 13.8m by 9.1m. The structure also has a small limestone stela on its eastern base, roughly in alignment with the central axis of the mound.

STRUCTURE A7 BACKGROUND AND PREVIOUS EXCAVATIONS

Structure A7 was first excavated in 1924 by Thomas Gann. Despite the structure’s prominent location, and its monumentality, there were no other significant excavations of A7 between Gann’s 1920s work and the XAC Project’s preliminary investigation in 2016. The only other investigations near to A7 were those conducted by XAP on Ballcourt 1, which explored its connection to the west side of Structure A7 (Jamison 1996), and that of the Tourism Development Project which horizontally excavated and
During our Xunantunich Archaeology and Conservation Project (XACP) excavations of A7 in 2016, we also identified a 1m by 50cm cut in the terminal plaza floor, directly in front of the A7 stela. We have no information concerning who is responsible for the latter excavation.

Due to the highly destructive nature of Gann’s excavation, or possibly for other reasons, researchers working at Xunantunich over the last century essentially ignored Structure A7. Gann’s excavation, concentrated on the summit of A7, was 3.64m by 3.64m, and descended some 7.62m into the structure. The excavation unit was not backfilled, leaving an enormous circular hole at the top of the structure. Immediately below the humus level, Gann encountered a large cache. Within this cache, fragmented human remains were accompanied by a diverse range of prestigious items including chert and obsidian eccentrics, marine shells, and potential remains of a game piece. Gann (1925:53-54) provided a detailed inventory of cached items, which included:

**Figure 1**: Xunantunich Site Core.
• Over 200 cores of flint, varying in weight from three to thirty pounds, all roughly trimmed.
• Thirty-five beautifully chipped bifaces, with five, all eccentric shape, as crescents, crosses, rings, stars, etc.
• Two small polished blocks of jade, not perforated.
• Two large *Anadara grandis* shells, the valves still hinged together, from which the ancient Maya obtained the material to make their red beads and other ornaments.
• A white stone bead whose flattened sides were marked by dots, suggesting that it has been used either in some game, or for a tally.
• Two large bivalve mollusk shells.
• A group of five shells, from which the Maya obtained mother-of-pearl for earrings, inlays, etc.
• A rough block of obsidian.
• Hammer-stones of chert in various sizes.
• Two small stone chisels.

Based on the elaborate and varied artifacts discovered, Gann concluded the structure was the burial place of the royal jeweler. He builds on this assumption, frequently comparing other caches to the workmanship of this cache. He also recounts excavating 22ft vertically through the structure, stating that the construction fill “was solidly built of layers of large blocks of limestone alternating with layers of rubble, both held together by a somewhat friable mortar, but forming an extremely refractory material to dig in, almost like solid masonry” (Gann 1925:54).

At 22ft below the surface, Gann encountered a “well-built wall of squared stones” (Gann 1925:54). The excavation followed the wall down another 5ft and then stopped, concluding his excavation season. Based on our excavation at the base of A7, we believe that at that point Gann was approximately 3.5m from bedrock. Gann’s intention was to return in 1926 and resume the excavation; however, he never returned to Xunantunich.

Our decision to investigate Structure A7 was to find “Gann’s wall” to determine whether like Structure A4, there was a penultimate construction phase of the building. In addition, we planned to excavate at the base of the stela in front Structure A7 to explore if any ritual offering was placed in association with the erection of the monument.

**INVESTIGATIONS**

To address the research questions described above, the authors placed several excavation units in A7 (Figure 2). Our investigations included both horizontal excavations across the eastern face of the structure, as well as axial excavation of the central stairway. In addition, a small 2m by 2m excavation unit was placed directly in front of the stela to explore beneath the monument and in front of the stairs for potential offerings.
EXCAVATION RESULTS

Structure A7 Stela Excavations

Excavations on Structure A7 began with a unit measuring 2m by 2m, which encircled the uncarved stela. The unit was placed to explore for any potential offerings placed during the erection of the monument. These types of offerings have been recovered beneath the base of nearly every stela in the center of Xunantunich, suggesting a cache would likely be recovered from below the Structure A7 monument.

During the excavation of the stela unit, excavators discovered a one meter cut in the terminal plaza floor, located directly in front of the stela. This is presumably the results of a previous excavation. It is unknown whether Gann excavated in this location. Jamison (2010) describes a cache of eccentrics recovered from the base. The reference, however, does not lead the authors here to conclude the eccentrics were from beneath the Structure A7 stela.

Excavation continued past the cut in the floor, revealing a thick layer of packed marl. This type of feature has been located within structures at Xunantunich (Jason Yaeger, personal communication 2016). The marl lens did not appear to be disturbed by previous archaeological exploration. The excavation descended another 77cm through this artifactually sterile compact marl. Bedrock was encountered 140cm below the level of the terminal plaza floor (Figure 3).
Structure A7 Base Excavations

Our 2016 XACP excavations on Structure A7 also focused on the base of the structure. These excavations aimed to expose the terminal phase of architecture, to investigate the construction sequence of the architecture, and to assess its condition for conservation. Large excavation units were placed on either side of the structure to locate the northeastern and southeastern corners of the structure’s base. After a series of extensions, placed to follow architectural alignments on either side of the structure, the northern unit measured nine meters by 5m and the southern unit measured 10.5m by 3m. Within each unit, the level of the terminal plaza was first identified and used to guide excavations towards the architecture. Both units (Figures 4, 5, and 6) revealed one to two course alignments of crude cut stones, and degraded architectural features.

In the northern unit, a one to two course alignment of cut-stones ran north/south through the unit. The cut-stone alignment subsequently turned 90 degrees west toward the structure then turned another 90 degrees to the north (see Figure 4). The architecture was poorly preserved, and many of the cut-stones appeared to be missing. Despite the poor preservation, the alignment of cut-stones is consistent with the pattern of stairways and stair side outsets observed on the monumental architecture at Xunantunich. We should also note that despite repeated expansion of the excavation to the north, the northeastern corner of the structure was not located. Here again, it is evident that the cut-stones were scavenged or removed from their original location on the building.
Figure 4: Excavation unit on north side of Structure A7.

Figure 5: Southeastern corner of Structure A7, prior to excavation.
Within the southern unit, once we identified the level of the terminal plaza floor, we also exposed a one to two course alignment of cut stones. This architectural feature is similar in position and dimensions to the architecture in the northern unit, suggesting the features are two parts of the same construction episode. Through the expansion of the unit, it became evident that the facing stones were elevated nearly 10cm above the level of the terminal plaza floor. This may be a result of the poor preservation of the floor or rather the feature represents construction in front of Structure A7 following the decline of Xunantunich.

Throughout the course of exposing the terminal architecture, neither the northeastern corner nor southeastern corner were identified. In addition, it appears that most of the facing stones were stripped from the structure in antiquity. This is a common practice identified across the center of Xunantunich in the Terminal Classic period.

Very few artifacts were recovered within these excavations as well. Artifacts recovered include ceramic sherds, chert flakes and cores, freshwater shells, and the remains of one faunal bone. In fact, many the artifacts are historic, including batteries, tin cans, and glass bottles, potentially left from Gann’s excavations of the structure.

**EAST FACE EXCAVATION**

After stabilizing the bottom of the stairway (see above), we began trenching operation along the central axis of the structure. Our 2m by 5m trench ascended from the western base of the stela toward the summit of A7 and revealed that the facing stones of
the terminal stairway and adjacent stair side outsets were missing, likely scavenged in prehistory. Indeed, most of the major structures in the site core display evidence for the removal of facing stones.

As our excavation cleared the surface of the mound, it was quickly apparent that we were dealing with a very different type of construction in Structure A7. The matrix of the fill material was mostly mortar with the occasional cut or rough stones imbedded in the mortar. As documented in the chapter on Structure A9 in this volume, the normal construction technique for Xunantunich combines construction pens filled with dry-laid fill. The latter has been noted in excavations of most monumental architecture, including the Castillo (Miller 1996).

It was very difficult to excavate through the compact mortared fill in A7, a situation noted by Gann (1925) in his comments on the excavation of the summit of the structure. At 2.4m behind the stela, we encountered a void in the fill. Within the void, we found 12 large Mount Maloney Black ceramic sherds. Further excavation revealed the plaza floor, which was extended below the terminal phase architecture and beyond the limits of the 2m excavation unit. Since the floor was located below the fill of the terminal stairs, this strongly indicated that a penultimate structure was buried beneath the terminal phase architecture of A7.

Figure 7: Photo of the penultimate architectural phase of Structure A7.
At 279cm west of the edge of the terminal stairs a well-made stair was encountered. The preserved plaza floor lipped up to the stair, confirming the presence of a penultimate structure underneath the terminal phase of A7. The dimensions of the stair were larger compared to other structural stairways at Xunantunich. The rise was 44cm with a tread of 62cm and face slope of 18cm.

At the base of the stair there was a large burnt area on the plaza floor. The exact dimensions of the burn remain to be determined, as the burnt surface extended under the unexcavated area to the north of the stairway. Further excavation uncovered a second and third stair with similar dimensions (Figures 7 and 9). The matrix surrounding these stairs continued to be heavily mortared and difficult to excavate. On the second step of the penultimate structure, Eduardo Cunil, our chief excavator, discovered a shallow depression cut into the step containing a dedicatory cache consisting of two lip to lip ceramic vessels (Figures 8 and 9). Within the lower bowl, we found a mixture of dirt and burnt carbon. The carbon has been sent for possible dating.

Because our season had come to an end, we partially exposed the third stair and then closed the excavation until work resumes in 2017.

Figure 8: Photo of Lip to Lip ceramic vessel cache in the second stair of the penultimate stairway.
CONCLUSIONS FUTURE RESEARCH DIRECTIONS

As we previously indicated, our investigations in 2016 were driven in part by Gann’s indication that in his excavation of Structure A7 a “well made” wall was located within the summit of the structure. This feature, and the fact that Structure A4 on the east side of Plaza A1 had a penultimate construction phase, were strong impetus to test whether Structure A7 also contained two construction phases. We can now confirm that this is indeed the situation, and that, like A4, A7 was also erected in at least two construction episodes. The second significant discovery is that, in comparison with other buildings at Xunantunich, very different construction methods and materials were used to construct Structure A7.

In the 2017 field season of XACP, we plan to continue excavations on Structure A7 to investigate the size, morphology and potential functions of the penultimate structure, and to determine if the atypical construction materials continue further into the structure. We will also be looking to see if we can locate “Gann’s wall” below the summit of the structure, and whether this feature is associated with the penultimate structure. Gann’s (1925) description of the wall is different from any architectural feature we have encountered so far, unless, of course, his wall was a construction pen. To confirm this, we may have to excavate the remnants of Gann’s large summit excavation. We will also be following up on the dedicatory cache and burning at the base of the penultimate stairs.
Research in 2017 will also search for any additional evidence of ritual behavior. Ultimately, these data will help to determine the temporal sequence of the two construction phases and their association with the development of the Late Classic civic-ceremonial center of Xunantunich.

Acknowledgements

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REFERENCES CITED

Audet, Carolyn M.

Gann, Thomas
1924  *Mystery Cities of the Maya*. Duckworth, London.

Jamison, Thomas R.

Miller, J.C.
INTRODUCTION

In this report, we describe the excavations conducted at Structure A28 by the Belize Valley Archaeological Reconnaissance (BVAR) project as part of the Xunantunich Archaeological and Conservation Project (XAC) during the 2016 field season. Fondly referred to as the “Piscina,” A28 at Xunantunich is a depressed area located on the Upper Terrace of El Castillo immediately south of Structure A6 and above and to the north of Structure A26 (Figure 1). Prior to excavation, A28 appeared to be composed of a stepped construction that surrounded a sunken plaza area. The primary goals of the excavations of Structure A28 were to (1) identify architectural details that would add to and clarify previously identified architectural features and interpretations, and (2) expose the architecture so that it could be conserved for purposes of tourism development.

BACKGROUND

Prior to the work conducted by XAC, the Xunantunich Archaeological Project (XAP) conducted excavations of Structure A28 in the early- to mid-1990s. Robin (1994) placed three test units (Op. 125) on the southeast corner of A28 (then designated the upper south terrace of A6). Hays (1997) placed a 2m wide trench that ran N-S along the centerline of A28 and a deep excavation unit (Op. 266M) into the plaza floor of the “Piscina” that ultimately went 8m deep (see Figure 1). Based on these excavations, Hays (1997) interpreted A28 as a sunken plaza surrounded by stepped platforms and concluded that the structure functioned as a feasting or gathering area. McCurdy (2016:353) created computer reconstructions of El Castillo and followed Hays’ (1997) architectural interpretation. McCurdy concluded that A28 may have functioned as water retention area for practical and possibly ritual purposes. Previous research (Leventhal 2010; McCurdy 2016) dates A28 to the late Hats’ Chaak ceramic phase (AD 670-780) and subsequent Tsak’ (AD 780-890) ceramic phase.
Figure 1: Plan view of El Castillo showing previous excavation units of Structures A28 and the 2016 BVAR project Structure A28 excavations.
EXCAVATIONS

We completed our excavations of Structure A28 by placing three main perpendicular trenches (see Figure 1), each approximately 4m wide, to expose the terminal phase architecture. The trenches ran along the south, east, and west edges of A28 and were placed to expose the structure’s inward-facing walls. Much of the matrix encountered during the excavations was backfill from previous excavations on Structure A28 and Structure A6. Therefore, we did not screen or collect artifacts from the backfill except for obsidian. Below the backfill we encountered unexcavated matrix that undulated about 20-30 cm above the plaza floor level (Figure 2). We screened only the matrix that was 10cm above the plaza floor level, but collected all visible artifacts from the unexcavated matrix.

Figure 2: Excavation progress on eastern end of Structure A28 (EU A28-2, facing north). Backfill has been removed, and the unexcavated layer is exposed.

South Trench (EU A28-1)

To begin, we placed the first excavation unit designated EU A28-1 at the central point of the southernmost edge of Structure A28. The original unit was 6m E-W by 4m N-S. The purpose of the unit was to locate an E-W running wall that appeared to run along the south end of the structure. We first located and removed a modern retaining wall that had been constructed after a PVC pipe was put in place during the excavations in the 1990s to help drain water from A28. The PVC pipe is still present and runs N-S at the approximate center point of Structure A28. Just behind the retaining wall we located
an original wall of A28. This wall is north-facing and approximately 1m high. The stones of the wall are not faced. About 70cm in front of this north-facing wall is a lower wall (about 40cm high) made of 2 courses of stacked stone. At the approximate level of the PVC pipe, between the two walls, we located a plaza floor in good condition. The plaza floor extends underneath and to the north of the two walls, but was generally in poor condition as we extended our excavations northward. We extended EU A28-1 to both the east and west to follow the 1m tall north-facing wall and the 40cm tall wall. The original unit was extended to about 27m E-W by 4m N-S. Both the 1m tall wall and the lower 40m tall wall extend the entire length of the unit (Figure 3). Also of note, the matrix between the two walls had not previously been excavated. In the eastern portion of Structure A28 between the two walls we located a deposit of ceramic sherds approximately 10cm above floor level (Figure 4). At the east of EU A28-1, we located a corner in which the lower 40cm tall wall adjoins a wall that extends to the north. We located a similar corner at the western end of EU A28-1, where another wall extends to the north.

Figure 3: Exposed southern parallel walls of Structure A28, facing east.
Figure 4: Ceramic deposit in fill between the two parallel southern walls of Structure A28.

**East Trench (EU A28-2)**

To follow the N-S running wall on the eastern edge of the structure, we started EU A28-2 at the eastern end of the structure. EU A28-2 was originally 4m E-W by 4m N-S. We continued to extend EU A28-2 to the north until we reached and exposed the south face of Structure A6 (Figure 5, right). The N-S running wall consists of two to three courses of faced stones and is about 60cm high. At the northeastern corner of the unit on the south facing wall of A6 we uncovered a 0.5m wide portion of plastic-covered architecture from a previous excavation. The remaining portion of the south face of the A6 wall exposed within our 4m wide unit is covered with material that had collapsed in antiquity. We left this collapsed material in place to protect the architecture of A6. About 1.5 m south of the Castillo wall within EU A28-2 is a low wall (about 60cm tall and three courses high) that forms a corner with the N-S running wall of similar height that comprises the eastern side of Structure A28. The E-W running wall is composed of eight courses of smaller (10-15cm in length) stones that are not faced. About midway along and abutting the N-S running wall are two facing stones and a few collapsed stones (Figure 6) that are likely the remains of a stairway that, in antiquity, was like the stairway exposed in the west trench excavation described below.

**West Trench (EU A28-3)**

To follow the west wall of Structure A28 to the north, we placed a unit designated EU A28-3 on the western edge of A28. The west wall of the structure is approximately 70cm tall and six to nine courses high. The original measurements of EU A28-3 were 4m E-W by 4m N-S. Like EU A28-2, this unit was also extended to the north to reach and expose the south face of Structure A6 (Figure 5, left). A stairway that is approximately 4.5m in length is present against the west wall of A28. The stairway begins 2.5m from
the southwest corner of A28. Three steps are visible at the south end of the stairway and
two steps are still intact on the north end (Figure 7). We left much of this stairway
unexcavated to preserve the architecture. Of note here, there may have been a similar
stairway on the south wall of A28, although we found no evidence of it. A south stairway
may have been removed in previous excavations or in antiquity.

Also within EU A28-3, the south face of Structure A6 is covered with ancient
collapse material which we left in place to protect the architecture as we did in the east
trench. Similar to what is present at the north end of the east trench, there is a low wall
(50 cm tall and two to three courses high) approximately 1.5m south of the south facing
wall of A6 that forms a corner with the N-S running wall on the west side of Structure
A28 (see Figure 5, left).

Artifacts

There were few artifacts recovered during excavations of Structure A28. Artifacts
recovered include ceramics, chert, obsidian, faunal bones, slate, freshwater shell, granite,
and limestone. We did not process artifacts during the 2016 field season. Two exceptions
to this include the obsidian, which consisted of nine flakes that were exported for analysis
and one limestone bead (Figure 8).
Figure 5: Western end of Structure A28 showing partially exposed western stairway in the foreground (left). Eastern wall of Structure A28 and portion of eastern stairway along the eastern wall (right). The south face of El Castillo (Structure A6) is exposed in the background in both photos.
Figure 6: Remains of eastern stairway. The dashed line indicates the extent of the stairway. The stairway was probably like the stairway on the western side of Structure A28 (see Figure 7).

Figure 7: Partially exposed stairway on western wall of Structure A28. The stairway was not fully excavated during the 2016 field season to preserve the stairway for later conservation.
CONCLUSIONS

Our excavations confirmed the architectural form of Structure A28 observed in previous research. Platforms surround a sunken plaza area (Figure 9). We concur that the platforms may have contained thatch structures as there is no evidence for stone architecture on top of the platforms. Stairways on the east and west served as entry and exit points to the plaza. Access on the south side of the structure remains unconfirmed. We did not locate any other points of entry or exit around the Structure A28 plaza.

During the field season of 2016, we did not complete conservation work on Structure A28. To preserve architecture for later conservation, we left the west stairway, portions of the south wall of A28, and portions of the south wall of Structure A6 unexcavated. Conservation work will begin during the 2017 field season to remove the remaining backfill within the sunken plaza and restore the east and west stairways so that the stairways and plaza that comprise A28 may serve as an alternate pathway for tourists to access the surrounding areas of the Upper Terrace of El Castillo.
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Figure 9: Overview of Structure A28 post-excavation, facing south.
REFERENCES CITED

Hays, Rebecca L.

Leventhal, Richard M.

McCurdy, Leah

Robin, Cynthia
INTRODUCTION

The 2016 field season of investigations at Xunantunich marked the second year of the Xunantunich Archaeology and Conservation (XAC) Project. The latter operates under the auspices of the Belize Institute of Archaeology (IA) and executed by the Belize Valley Archaeological Reconnaissance (BVAR) project under the direction of Dr. Jaime Awe. For a more thorough explanation of the objectives and trajectory of the overall project please refer to Zanotto and colleagues (2016) and Leventhal and colleagues (2010).

RATIONALE FOR CONSERVING STRUCTURE A9 BY THE XAC PROJECT

As indicated by Zanotto and colleagues (2016), the improvements made to visitor’s experiences at Xunantunich was a primary consideration in the selection of monumental architecture for excavation and conservation by the XAC Project. Xunantunich is one of the most visited archaeological sites in Belize, and a major destination for tourists visiting the Cayo District. According to World Bank statistics, Tourism also accounts for twenty one percent of Belize’s Gross Domestic Product and employs twenty eight percent of all workers in the country.

Currently, visitors enter the epicenter of Xunantunich via the North Stair (Figure 1). As they ascend the summit of the staircase and enter Plaza AII, they face directly towards Structure A9 on the west side of the Plaza. Until our work in 2016, overgrowth and trees covered Structure A9 (Figure 2). During the planning stage of our project, we
concluded that, once excavated and conserved, the exposed architecture of this pyramidal building would significantly enhance Plaza A2 and contribute to the overall tourist experience at the site.

In this report, we describe the operations conducted on Structure A9 during the 2016 field season, and address the discovery of two hieroglyphic panels, plus a burial in a large tomb located beneath the central stairway of Structure A9. We can certainly verify that none of the latter discoveries were anticipated when we developed the multi-year plan for the XAC Project. Since their surprising discovery, however, we are now evaluating the possibility of providing visitors to the site with visual access to the impressive tomb. We are also evaluating the possibility of using three-dimensional printing technology to recreate the contents of the tomb, and replicating the hieroglyphic panels in fiber glass. If we are successful in these endeavors, these features will provide visitors to the site with a unique experience.

STRUCTURE A9 BACKGROUND

The investigation of Structure A9 is helping us define the development and role of Xunantunich in the region. The oldest Classic Period buildings in the site core date to the Samal Phase (AD 600-670) and it is believed that all construction was accomplished in a period of 150 years (LeCount and Yeager 2010). The rather late and rapid development of Xunantunich stands in contrast to nearby sites, such as Actuncan, Buena Vista, Cahal Pech and Baking Pot, which contain evidence for development extending over millennia. Several archaeologists (Freiwald et al. 2014; LeCount and Yaeger 2010) have argued that the site’s late rise may have been the result of Xunantunich’s close relation with the eastern Petén site of Naranjo, and possibly under the control of overlords from that site. We are presently awaiting the results of strontium isotope analyses on the remains of the individual found in the Structure A9 tomb to see if he is of non-local origin, thus potentially lending support to this hypothesis.

PREVIOUS EXCAVATIONS ON STRUCTURE A9

Thomas Gann: 1924 and 1925

As related in his book, Mystery Cities of the Maya, Gann (1925) spent a season at Xunantunich, then referred to as Benque Viejo. His primary work was the excavation of Structure A7; however, he conducted excavations on many other structures, including Structure A9. Gann excavated a large unit at the summit of Structure A9 that descended 6 feet below surface. His excavation also measured 6.05m east/west and 2m north/south. Gann’s description of his investigation is neither detailed nor precise and he does not mention penetrating any structural floors or architectural features. Also, his report lacks information as to the exact summit height of Structure A9 at the time of his excavation since it was clear during our work in 2016 that the summit had been disturbed significantly.
In his report, Gann (1925) describes the discovery of fragmented human remains 2ft below the then summit of Structure A9. His description of this burial suggests the remains were not in a tomb and the skull was located at the north end of the grave. Additionally, the burial was accompanied by a variety of grave goods including personal adornments made from jadeite. These attributes indicate the individual may have enjoyed a relatively high status and reflects some similarities with intrusive Terminal Classic period burials at Cahal Pech (Awe 2013).

Gann (1925) further notes that he planned to return to Xunantunich and Structure A9 in 1926 but this did not take place, and his un-backfilled excavation was still identifiable when we began our operations in 2016 (Figure 2).

**Xunantunich Archaeological Project (XAP) Investigations in 1996**

In 1996, Tom R. Jamison, under the auspices of the Xunantunich Archaeological Project, excavated two small units (Sub-operations 235A and 235B) into the south flank of Structure A9 (Jamison 1996). His objective was to explore whether the southern facade of Structure A9 had been modified when Ballcourt 2 was constructed and to determine if the south side of Structure A9 “had served as a northern end for the ballcourt” (Jamison 1996:64). He concluded that although Structure A9 appeared to predate the construction of the ballcourt, “it seemed likely to have been incorporated into the ball court design” (Jamison 1996:64).
Figure 1: Map of Xunantunich Site Core (after Keller and Yaeger 2010).
STRUCTURE A9 INVESTIGATIONS IN 2016

We conducted the XAC project operations on Structure A9 exactly 20 years after Jamison’s limited excavations in 1996. A primary purpose of the 2016 investigations was to determine whether, like so many other epicentral buildings at Xunantunich, A9 was built in one or two construction episodes dating to either the Samal (AD 600-670) and/or Hats’ Chaak (AD 670-780) ceramic phases. Another important purpose of our investigation was to search for evidence supporting the close relationship with the site of Naranjo, particularly during the rapid Late Classic rise of Xunantunich.

METHODS

To address the research questions described above, we conducted a series of excavations on Structure A9. These excavations included an axial trench, a large unit at the summit of the structure, and several units designed to expose architectural features at the base of the mound.
On the eastern face of the structure, we placed a 2m wide trench extending from the base of the mound to its summit. On either side of the trench, we placed horizontal excavations extending to the north and south of the central stairway, along the entire eastern base of the mound. The goal of the trench was to define the central stairway and stair-side outsets. The horizontal excavations were designed to expose the base of the structure and the terraces flanking the stair-side outsets. Additional units were subsequently excavated at the base of Stela A4, within the lowermost stairs, and midway up the stairway to search for dedicatory caches (See Figure 3 for locations of excavation units).

Our excavation at the summit of Structure A9 was designed to penetrate the mound from its summit downward. We began by clearing the overgrowth and debris that had accumulated within Gann’s 1920s excavation, and then descended below the base of his excavation into the core of the structure. The major purpose of this unit was to determine whether Structure A9 was built in a single construction phase, or if there was evidence for earlier construction phases.

**EXCAVATIONS AT BASE OF STRUCTURE**

The first excavation unit (EU A9-1) was placed to horizontally expose the terminal phase architecture at the base of the structure. We placed this unit on the east side of Structure A9, just south of the axial stairway. The architecture we hoped to expose included the south stair-side, the adjoining terrace wall, and the plaza floor. We also hoped to locate any cultural deposits at the base of the south flank of the structure. The original unit was 5m (N/S) X 3m (E/W). This unit was later extended to the north to expose the base of the stairs, and to the south to expose the southeast corner of the structure.

**Panel 3**

Prior to exposing any architecture within the unit, we came across a limestone panel carved with hieroglyphic inscriptions. The panel was designated Panel 3. Panels 1 and 2 were discovered in previous excavations at Xunantunich. Yaeger (1997) located Panel 1 on the front terrace of Structure A11 and, the Belize Tourism Development Project (directed by Jaime Awe) located Panel 2 just south of Structure A32 on the north side of the Castillo.

After removing the collapsed architecture covering Panel 3, it was determined the monument had been resting against the southern stair-side outset and placed on its side (Helmke and Awe 2016a). The panel is 141cm long by 87cm wide by 22cm thick and contains two medallions, each with four glyphs. The upper medallion measures 40 cm by 33cm, and the lower medallion measures 40cm by 38cm. The upper medallion is slightly shorter in width than the lower one because the superior frame is broken off. Also, the top left glyph of the upper medallion is broken off.
Panel 4

To search identify if another panel existed, a second excavation unit (EU A9-2), with initial dimensions of 1.5m (N/S) by 4.5m (E/W), was placed just to the north of the stairway. The other purpose of EU A9-2 was to expose the northern stair-side outset and basal terrace of Structure A9. During the initial clearing of the stair-side outset, we located no matching panel. EU A9-2 was therefore extended an additional 3m to the north to continue exposing the terminal phase architecture and search for another possible inscribed panel.

At the base of the first terrace, just to the north of the stair-side outset, we located two fragments of Panel 4 (Helmke and Awe 2016b). Both fragments were lying face down directly on the plaza floor and approximately 40cm apart. The first fragment of Panel 4 (Fragment A) measures 106cm long by 75cm wide by 28cm thick and contains one medallion (39.5cm by 36cm) with four glyphs and a small portion of a second medallion including parts of two glyphs. The second fragment of Panel 4 (Fragment B) measures 106 cm long by 86cm wide by 24cm thick. Fragment B contains the rest of the medallion identified on the first panel fragment. Once pieced together, the second medallion measures 39.5cm by 35cm and contains four glyphs. We hypothesize that the monument was knocked over due to tree fall or architectural collapse though recognize the possibility the ancient Maya may have moved or terminated the monument, thus explaining the context of their discovery.

Architectural Elements at Base of Structure A9

After exposing Panel 3, and removing the collapsed debris in front of the monument, we noted that the basal architecture of Structure A9 was in good condition. We then decided to proceed with the conservation of the lower levels of the structure prior to the rainy season. Further excavation south of the southern stair-side outset continued to expose the lowest terrace wall at the base of the structure. This lowest terrace wall has basal molding and a rounded southeast corner. During excavation along the eastern face of the structure, we also uncovered a terminated ceramic vessel on top of collapsed debris 26 cm above the plaza floor level. We also exposed two plazas floors as we cleared debris within several meters east of the structure. The first and uppermost floor (Floor 1) represents a re-plastering of Floor 2 and lips up to the base of the stairs of the structure and to the portion of Panel 3 that was resting on Floor 2. This feature serves to confirm that Structure A9 sits upon Floor 2, and that Floor 1 represents a re-plastering of Floor 2. The context of the ceramic vessel above the collapsed debris and 26cm above the last plaza floor, indicates that this vessel was deposited in front of Structure A9 sometime after the building had fallen into disrepair and possibly after the site had been abandoned.

South Face Excavations

Our excavations rounded the southeast corner of Structure A1 and subsequently exposed the southern base of the structure (see Figure 3). The basal molding observed in
the exposure of the east face continued along the south face of the structure. At the approximate midpoint of the structure’s southern flank, we encountered the backfilled 2m (N/S) by 1m (E/W) unit excavated by Jamison and the XAP in 1996. Within Jamison’s old unit was a construction (retaining) wall and an outer-facing wall. On the west edge of Jamison’s unit, visible through a gap between two rows of E/W running stones that make up a buttress, was a large facing stone that faces east and likely formed the eastern edge of the original buttress to the building. Also, visible in this gap was a plaster floor that lips up onto the inner row of stones. Both the facing stone and the lipped plaster suggest that the buttress had been extended farther to the east in antiquity. Jamison (2010) also noted the buttress modification and concluded the buttress was modified during the later Hats’ Chaak or early Tsak’ phase when modifications were made to A-1, A-17, and A-8 located around Ballcourt 2 to the south of Structure A9. During excavations on the south side of the structure, one of our excavators discovered a jadeite bead.

Excavations at the base of Stela A4

At Xunantunich, caches are typically composed of local material, which Jamison (2010:143) argues may have served an “integrative function,” reserving elite items for gift exchange during the Hats’ Chaak and Tsak’ phases. Caches at Xunantunich were also deliberately placed in specific architectural contexts. Previous excavations at the site (Audet 2006; Jamison 2010; Santasilia and Tilden 2015) have identified caches along the central axis of monumental architecture, either at their summit, beneath their axial stairways, at the base of the axial stairway, or, if a centrally placed stela is present in front of the structure, at the stela’s base. Our excavations at the base of Structure A9 thus focused on locations along the central axis of the structure, as we expected any possible caches to fit previous patterns of caching practices at Xunantunich.

The collapsed and broken Stela A4 is located within two meters to the east of the structure’s axial stairway (see Figures 3 and 4). Prior to exploring below the stela, an initial excavation unit (EU A9-Stela) measuring 1.5m by 1.5m was placed just to the north of Stela A4 to expose fragments of the broken monument. We exposed a total of seven fragments which were used to roughly reconstruct part of the upright face of the fragmented monument. The remaining excavation units were placed to search for dedicatory caches.

EU A9-Stela-Base

At the base of Stela A4, we placed a 1.5m (N/S) by 1.5m (E/W) unit designated EU A9-Stela-Base. As we noted above, the purpose of this unit was to explore for caches underneath the base of the stela. A second purpose was to record the stratigraphy below modern ground surface. Our excavations revealed two primary plaza floors that appear to have been resurfaced (or re-plastered) at least twice. Just above bedrock, we also located a cache (Cache 1) containing 28 chert eccentrics (see Appendix 1 for details). After initially discovering the cache, we decided to extend the unit approximately 1m to the east (EU A9-Stela-Base-E) towards the plaza, so that we could move part of the fragmented stela to allow us to expose the cache in situ. During the exposure of the
cache, we also noted a possible stone enclosure or rock alignment that likely served as the supporting base for the stela.

**EU A9-3: in front of the base of the axial stairway**

We placed a second, 1m (N/S) by 0.85m (E/W), excavation unit (EU A9-3) at the exact center point of the base of the central stairway of Structure A9. The purpose of this unit was to record architectural features and to search for dedicatory caches. This excavation provided the most detailed information on the plaza floor sequence associated with Structure A9. The excavation confirmed that there were four plastered floor surfaces. The uppermost floor (Floor 1) is a resurfacing of an earlier plaza floor and lipped up to the basal step of Structure A9. The next floor encountered (Floor 2) is about 5cm below Floor 1 and the floor actually extends below the lower stairs of Structure A9. The third floor (Floor 3) was only visible in the south baulk of the unit, approximately 10cm below Floor 2, and appeared to have been cut through in antiquity. The lowest floor (Floor 4) is about 35cm below Floor 3 and was also broken through in antiquity.

At the approximate level of Floor 4, we located a second cache (Cache 2) containing 9 obsidian eccentrics, marine and freshwater shells, and fragments of hematite and jadeite (see Appendix 1 for details). Cache 2 was located slightly south of the original southern edge of our excavation unit. Thus, it seems it was not located in the exact center of the east stairway. One possibility for Cache 2’s slightly off-center location is that it was placed more in line with the stela, which may have been located originally just slightly south of the central axis of Structure A9. Cache 1 and Cache 2 also appear to have been deposited in alignment with one another.

**EU A9-4: under the base of the axial stairway**

Finally, to search for other possible dedicatory caches, we placed a 1.5m (N/S) by 1.5m (E/W) unit at the base of the construction steps that had been exposed in the axial trench (EU A9-4) described in the East Face Excavations above. We exposed Floors 2 and 3 in the unit. A possible lower floor was noted, but it appeared to be insubstantial and may not have been a true floor. Once deeper in the unit the fill material became compact, and we encountered a relatively large quantity of jute (*Pachychilus indiorum*), which may be evidence for Preclassic occupation or represents another cache. We found one jade fragment. The excavation stopped at bedrock and no other deposits were found.
Figure 3: Plan View of Structure A9 showing location of excavation units.
SUMMIT EXCAVATION

Our initial excavation at the summit of Structure A9 focused on clarifying some of the information provided by Thomas Gann (1925). Our clearing of the areas adjacent to the south side of his excavation revealed a large section of tamped floor, approximately 6m by 2.2m to the south of Gann’s excavation. The tamped floor immediately adjacent to Gann’s excavation had several areas that were plastered and include a construction wall. The wall was poorly preserved and approximately 77cm in height and appears to have been constructed on top of the tamped/plastered floor. Figure 4 shows a sectional drawing facing west of the south side of Gann’s excavation. Notation 6 on Figure 5 shows the location of the plastered floor, which appears to continue under the construction wall. Notation 5 shows the construction wall. This drawing was made after we had cleared the humus and collapse from the top sides of Gann’s excavation. Although slightly more degraded, the north side of the excavation shows similar characteristics. We therefore concluded that the floor likely extended the width of Gann’s excavation and connected the south and north side.

The existence of a construction wall on top of the tamped/plastered floor suggests two possible scenarios. First, if the tamped/plastered floor represents the surface of an earlier summit platform, it would lead us to conclude that Structure A9 may not have been erected in a single construction episode. If this is the case, it is possible that a small addition was made to the summit of Structure A9 after the initial construction. This addition could have included the construction of a small platform at the summit of
Structure A9, perhaps added when Floor 2 was resurfaced and covered with Floor 1. Since Floor 1 lipped up to Panel 3, it could also suggest the construction event took place after Panel 3 had been placed against the stair-side outset of Structure A9.

The second alternative is that the construction wall that we recorded above the tamped/plastered floor at the summit of the structure simply represents the last of several construction pens that kept being added to the structure as the builders raised the building to its desired height. Often, tamped floors have sections that look plastered because of considerable treading upon them. This may explain why sections of the floor look plastered while other sections just looked tamped. If this is the case, and it likely is, the architectural evidence indicates that Structure A9 was erected in a single construction episode.

Gann indicates he found human remains 2ft below the point where he started his excavation. Since the height of the construction wall is a little more than 2ft, it is reasonable to conclude the burial was within the summit platform of Structure A9, or in the possible small structure, which was subsequently added to the main structure of A9. There is, however, insufficient evidence to draw any conclusions about the relationship of the burial and this potential platform/structure.

Once we broke through the bottom of Gann’s excavation, we encountered a construction matrix consisting of dry-laid fill, construction walls fabricated of large stones but without any binding agent (mortar) and five irregularly spaced construction floors. Dry-laid fill is a common construction method at Xunantunich. It consists of small and medium stones or other dry material held in place by construction pens (Figure 6). Only lower portions of the Castillo (Miller 1996:30-31) and the terminal phase of Structure A7 provide evidence for the use of dense fill or limestone-based construction mortar.

The main advantages for using dry-laid fill are speed and cost. Without the need to obtain and produce mortar, a large structure can be erected in less time and without the costs involved with producing lime mortar. The disadvantages are that the structure itself is less stable and for archaeologists it requires a much wider excavation with tapering walls to reach a specific depth in the structure.

In the first 2.43m below Gann’s excavation, our operations continued to find dry-laid fill. The large construction wall on the south side of Gann’s excavation (2 on Figure 5) terminated at 2.37m from datum. Below that level was more dry-laid fill. From our experience excavating monumental architecture at Xunantunich, there are generally few well-built construction pens in most buildings. This lends further support to the observation that the monumental site core at Xunantunich was rapidly constructed in the Late Classic period.
Figure 5: Section Plan of South Side of Gann’s Excavation after Clearing Humus and Collapse from Excavation.
Throughout the excavation, we found an abundant chert flakes spread uniformly (Figure 7) and ceramic sherds. It appears these cultural remains were purposely deposited throughout the upper portion of the structure, a pattern we have also noted in the eastern triadic buildings at Cahal Pech. At approximately 4m below datum, we also discovered 18 pieces of painted stucco. The stucco fragments clearly came from a much larger piece, but we were unable to fit any pieces of the 18 fragments together. While it is possible that the stucco fragments may have been purposely deposited within the fill of Structure A9, it is also possible that the fragments were collected from another structure that was being demolished as part of the architectural modification of the building.

At 5.5m below datum, there was a dramatic change in the fill matrix. This fill consisted of very large stones. We also noted that there were no small stones or artifacts mixed with the fill of large stones, and whatever dirt was in the void spaces between the large rocks seemed to have sifted down from above. We were unable to excavate any further because removing the large rocks would have destabilized the dry-laid fill above.
EAST FACE EXCAVATION

After stabilization of the bottom of the staircase, the trenching operation along the axis of the stairway commenced. It was quickly determined that many of the cut stones of the terminal staircase had been scavenged or removed. This appears to have been a fairly common practice in the Belize Valley during Terminal Classic times (Awe 2008, 2013) and at Xunantunich it is quite evident on structures on the northern sector (Plaza AII) of the site core. Almost all the major structures in this sector of the epicenter had facing stones missing and removed.

The destination of the scavenged stones appears to be low platforms and walls on the southern sector (Plaza AI) of the site center. This activity appears to have been particularly common at the end of the Terminal Classic period. As the sites were being reoccupied, structures and walls were built particularly in front of the Eastern Triadic Shrine and at the base of the Castillo (LeCount and Yeager 2010:77; Santasilia and Tilden 2016:122-124).

After removing the humus and collapse architecture on the east face of Structure A9, our excavations revealed a well-preserved construction staircase (Figures 4 and 8).
The staircase was excavated and connected to the summit excavation. During this process, we noted that midway up the stairs, the construction staircase appeared to have slumped downward, a feature that is commonly present if there is a cavity below the stairway. Our excavations later confirmed this assumption when we discovered a large vaulted tomb below the stairway (Figure 9).

Figure 8: Photograph of trench along central stairway of Structure A9. Note collapsed Construction stairway above where the A9 tomb was discovered.
Figure 9: View of upper vault of the Structure A9 tomb.

The excavation of the tomb (Figure 9) and its contents are reported in a separate paper in this volume. It should be noted that this tomb was of very sizeable dimensions: 444cm long by 214cm wide by 262cm high and oriented in a north/south direction. Given the size of the tomb, its placement in Structure A9, and the latter’s location in the site core, we can certainly assume that the individual buried in this tomb was of elite status and that they held a position of importance in the polity. The burial is also the only large Classic period elite tomb yet found in the site core.

Our examination of the architectural features and dimensions of Structure A9 lead us to believe that the structure was erected primarily for the purpose of containing the tomb. It is also possible that the tomb may have been constructed in unison with the rest
of the structure rather than sometime after the structure had been erected. We have yet to
determine if the large rock fill constitutes the base of the entire structure. However, if it
does, the construction method applied in the building of Structure A9 was clearly
designed for speed, and is typical of the rapidly constructed architecture in Xunantunich’s
site core.

ARTIFACTS

Artifacts recovered in the collapsed architecture of Structure A9, and from below
the plaza floor, include ceramics, chert, obsidian, freshwater shell, granite, and limestone.
We will complete the analysis of these cultural remains in 2017, and the results will be
presented in Diane Slocum’s M.A. thesis in 2018. For preliminary results on analysis of
the ceramics from the tomb, the reader can refer to the Structure A9 tomb report in this
volume.

SPECIAL FINDS

Special finds recovered in the excavation of Structure A9 include an adze, a piece
of worked animal bone, a jadeite bead, an unworked jade fragment, a perforated piece of
slate, and two ceramic incensario fragments (Figure 10). The adze is made of an igneous
material, likely andesite, and was found wedged between Panel 3 and the abutting stair-
side outset. The modified animal bone was found just north of the axial stairway. The
jadeite bead was found 1m to the southeast of the southeast corner of the structure. The
unworked jade fragment was found behind the base of the axial construction steps. The
perforated slate and two incensario fragments were recovered in the summit excavations.
Table 1 summarizes the special finds and the respective excavation units in which we
recovered the artifacts.

Also of note, while exposing the southern portion of the eastern face of the structure
south of Panel 3 and near the base of the terrace wall, we discovered a single ceramic
vessel placed face down (Figure 11). The vessel was broken in numerous fragments, but it
is impossible to determine if its condition was the result of ritual deposition/termination
or caused by the collapse of Structure A9. The vessel was also located on top of collapsed
architecture and 26cm above the plaza floor level. This context clearly indicates that the
vessel was placed in front of Structure A9 after the initial collapse of the structure. The
vessel, which we identified as a Mount Maloney Black bowl, lacks surface decoration,
and is missing several fragments.
Table 1: Special finds recovered from Structure A9 excavations.

<table>
<thead>
<tr>
<th>Excavation Unit</th>
<th>Material Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A9-1</td>
<td>Other</td>
<td>Groundstone adze, likely andesite</td>
</tr>
<tr>
<td>A9-1</td>
<td>Jade</td>
<td>Jadeite bead</td>
</tr>
<tr>
<td>A9-1</td>
<td>Ceramic</td>
<td>Terminated ceramic vessel</td>
</tr>
<tr>
<td>A9-2</td>
<td>Faunal</td>
<td>Worked animal bone</td>
</tr>
<tr>
<td>A9-4</td>
<td>Jade</td>
<td>Unworked jade fragment</td>
</tr>
<tr>
<td>A9-summit</td>
<td>Slate</td>
<td>Perforated slate</td>
</tr>
<tr>
<td>A9-summit</td>
<td>Ceramic</td>
<td>Two <em>incensario</em> fragments</td>
</tr>
</tbody>
</table>

Figure 10: Special finds from structure A9. Top: Two *incensario* fragments (left); perforated slate (right). Bottom (from left to right): Adze, jadeite bead, unworked jadeite fragment, modified animal bone.
Figure 11: Terminated vessel located near the southeast corner of Structure A9. The vessel was placed on collapsed debris, not directly on the plaza floor, and was deposited after collapse of the structure.

DISCUSSION AND CONCLUSION

The investigation of Structure A9 reinforces the point in archaeology that persistence pays off. In the almost 100 years since Thomas Gann did his partial excavation of the summit of Structure A9, the structure has been largely ignored except to determine if it also functioned as the north end of Ball Court 2. In the meantime, the structure faded from prominence as Structure A1, Ball Court 2 and the forest overwhelmed it.

The determination that Gann’s burial find was most likely an intrusive and very late burial, along with a desire to highlight this structure for purposes of balancing the tourist experience at Xunantunich, lead to the decision to do both a comprehensive investigation and to determine if conservation was possible. We could not have anticipated the finding of the hieroglyphic panels or the large tomb burial, but, if you don’t excavate, you never know.

The structure itself appears to be straightforward. In the center summit excavation, we found nothing that we would not have expected to find in a Xunantunich excavation: large boulders and rocks, some dirt as dry-laid fill and mortar-less
construction pens. These characteristics, and the fact that we only found evidence of a single major construction phase, suggests that Structure A9 was constructed rapidly, very much like many of the other monumental buildings in the site core at Xunantunich. The location of the tomb in Structure A9, and the two hieroglyphic panels flanking the central stairway also indicate that the structure was a prominent feature of the site’s epicenter. Later, during the Terminal Classic period, and sometime after the site was falling into disrepair, the structure was scavenged for its facing stones, and an offering of a plain ceramic bowl was left in front of it, reflecting, perhaps, the continued significance of the small pyramidal structure.

Our investigations of Structure A9 certainly raises some very interesting research questions. For example, what factors lead to the placement of the two hieroglyphic panels in front of Structure A9? Helmke and Awe (2016a,b) note that the panels could not have been brought to Xunantunich until sometime after Naranjo had defeated Caracol in 680 AD. What is the date of the tomb and was the individual interred within involved with any of the events that pitted Naranjo against Caracol? Continued excavation of Structure A9 will also focus on evidence to support or negate whether the structure was specifically erected to house the tomb, and whether it was indeed built as a single construction episode.

Acknowledgements

We would like to thank our colleagues at the Belize Institute of Archaeology for their collaborative efforts on the Xunantunich Archaeology and Conservation Project. Gratitude is extended to Jorge “Tilico” Can, Merlen Alfaro, Eduardo Cunil, Jim Puc Jr., Jaime Iglesias, Mario Cunil and all the crew for their patience and professionalism. We also extend our gratitude to Drs. Chrissina Burke, Ashley McKeown, Lee Medows, as well as students Shane Devorak, Katie Tappan, Dylan Wilson, and Gavin Wisner, Hannah Zanotto for their assistance on the Structure A9 operations.
APPENDIX 1: ECCENTRIC CACHES

Cache 1 (Xun-16-A9-CA1)

Type: Dedicatory Cache

Context: Sub-stela

Date: Late Classic period (AD 600-800)

Contents: 28 chert eccentrics: 14 bifacially-chipped eccentrics and 14 unifacially modified flakes

Eccentric Forms: Scorpion (1), Bifurcate (1), Circle (1), Notched or serrate biface (3), Crescentic notch (6), Annulet (1), Other (1), denticulate flakes (12), potential anthropomorphic profiles (2)

Comments: Cache 1 was encountered in excavations around the base of the large, uncarved stela, located in front of the eastern face of Structure A9 (Figure 12). The cache was located 78 centimeters below the terminal plaza floor and three subsequent plaster floors, very close to the hard limestone bedrock. The location of the cache is approximately 1.5 meters east of the axial stairway towards Plaza A-II. The cache was plastered together with a limestone mortar and placed right near the butt of the stela. Because the stela fell on its face, it is impossible to determine the exact location of the butt of the stela when it was originally placed. It appears that the cache of eccentrics was deposited immediately in front of the stela. The cache deposition is presumed to be coeval with the erection of the stela, placed as a dedicatory offering to the stone monument, the structure, or the individuals buried within the structure.

The cache contained a large number of eccentric lithics (n=28), crafted from white and brown, medium-quality local cherts (Figure 13). Several of the eccentrics are heavily patinated, which may be a result of surficial accumulation from the matrix. The bifacially-chipped eccentric forms (Figure 14) are fairly typical notched crescentic and denticulate laurel leaf forms, in addition to one scorpion eccentric. The craftsmanship of the denticulate flakes (Figure 15), however, is unusual for Xunantunich. While eccentrics from Xunantunich range of quality and forms, this cache represented the sole example of a cache containing modified flakes from the site. This practice of caching chert flakes has also been observed at Blackman Eddy (Matthews and Garber 2004). The overall craftsmanship of the eccentrics recovered within Cache 1 is lower quality than most from Xunantunich.

Sub-stela eccentric caches are commonly found throughout the site of Xunantunich, as well as throughout the Maya Lowlands. At Xunantunich, sub-stela caches have been recovered from stelae in front of Structures A-1, A-3, A9, D-8, and possible Structure A-7 as well. While the number of eccentrics recovered from a sub-stela
context vary considerably at Xunantunich, it is common for sub-stela caches to contain nine eccentrics.

**Figure 12:** Cache 1 (Xun-16-A9-CA1) location beneath stela.

**Figure 13:** Sub-stela cache, Cache 1 (Xun-16-A9-CA1) *in situ.*
**Figure 14:** Bifacially-modified chert eccentric from Cache 1 (Xun-16-A9-CA1), Structure A9, Xunantunich.

**Figure 15:** Unifacially-modified eccentric chert flakes from Cache 1 (Xun-16-A9-CA1), Structure A9, Xunantunich.
Cache 2 (Xun-16-A9-CA2)

**Type:** Dedicatory Cache

**Context:** Sub-plaza floor (below Floor 4), in front of axial stairway (Figure 16)

**Date:** Late Classic period (AD 600-800)

**Contents:** 9 obsidian eccentrics—1 bifacially-chipped eccentric and 9 unifacially modified macroflakes—large marine shells (Conch, Cockle, and Turkey Wing Ark Clam—*Arca zebra* (3), small marine shells (2), modified *Spondylus* (2), jute, all *Pachychilus glaphyrus* (3), branch coral (1), polished flat jadeite (14), raw chunks of jadeite (21), polished pyrite (20), unidentified red mineral (5)

**Eccentric Forms:** Zoomorphic forms—possibly centipede, scorpion, or crocodile—(8) and Spiked crescent (1)

**Comments:** Cache 2 was encountered in a small excavation unit, placed at the base of the eastern axial stairway of Structure A9. The cache was located 55 centimeters below the terminal plaza floor. It was placed within a cut through the terminal plaza floor and three subsequent plaster floors. Cache 2 was located approximately 40 centimeters east of the base of the axial stairway of Structure A9 into Plaza A-II.

The nine obsidian eccentrics were whole with the exception of one implement (Figure 17, top). The eccentric forms are fairly typical zoomorphic forms and one spiked crescent. The craftsmanship, however, varies from the usual notched eccentrics, made from exhausted obsidian blade cores. Most of the eccentrics are unifacially-chipped macroblades, likely struck off in the process of producing a blade core. The other materials within the cache are common within ritual contexts.

Portable X-ray fluorescence (pXRF) analyses were conducted by L. Martindale Johnson on the nine obsidian eccentrics from Cache 2. The pXRF analysis established that each piece of obsidian in the cache was consistent with raw material from the El Chayal source in Guatemala (Sullivan 2017). These data are consistent with other obsidian sourcing studies in the Belize Valley, which demonstrated that in the Late Classic Period, El Chayal obsidian comprised the majority of the valley assemblages (Ebert et al. 2015).

The cache is interpreted to have been placed as a dedicatory offering, possibly to the structure or the individuals interred within the structure. Similar caches were located directly across the plaza from Structure A9, beneath the terminal plaza floor in front of Structure A-14. Both of these caches contained only 9 objects, while the cache from Structure A9 contained nine eccentrics and a range of other marine and terrestrial remains and lithic materials. Nine is a number commonly tied to the underworld, referencing the nine levels of the underworld, or *Xibalba*, with its corresponding nine Lords of the Night. Freidel et al. (1993:234) propose that caches with a combination of jade, *Spondylus* sp.,
red pigments, mercury, obsidian and chert eccentrics “remade the primordial sea under the floors of buildings.” Although the absolute function or meaning of Cache 2 may not be interpreted, it is clear that many significant elements of the ancient Maya cosmology are integrated into the cache.

Figure 16: Cache 2 (Xun-16-A9-CA2) in situ.

Figure 17: Cache 2 (Xun-16-A9-CA2) in situ.
Figure 18: Cache 2 (Xun-16-A9-CA2) *in situ*.

Figure 19: Cache 2 (Xun-16-A9-CA2) *in situ*. 
Figure 20: Cache 2 (Xun-16-A9-CA2) small lithic artifacts including polished jadeite (top left), polished pyrite (top right), raw jadeite (bottom left), and an unidentified mineral, which possibly could be hematite or cinnabar (bottom right).
REFERENCES CITED

Awe, Jaime J.

Ebert, Claire E., Richard J. George, July A. Hoggarth, Rafael A. Guerra, and Jaime J. Awe

Freidel, David, Linda Schele, and Joy Parker

Freiwald, Carolyn, Jason Yaeger, Jaime Awe, and Jennifer Piehl

Gann, Thomas W. F.

Helmke, Christophe and Jaime J. Awe

Jamison, Thomas R.

LeCount, Lisa J., and Jason Yaeger
Matthews, Jennifer P. and James F. Garber

Santasilia, Catharina E. and Douglas Tilden

Sullivan, Kelsey J.

Yaeger, Jason

Zanotto, Hannah, Dagmar Galvan, and Jaime J. Awe
INTRODUCTION

Recent archaeological investigations at the major Belize Valley Maya site of Xunantunich uncovered a Late Classic elite tomb within Structure A9, a 10m high pyramid on the west side of Plaza AII. Prior to the discovery of the A9 tomb, only one other elite burial had been found in the site core of Xunantunich. The latter was discovered in a cist within Structure A4-2nd during the 2002 field season of the Tourism Development Project under the direction of Jaime Awe (see Audet 2006:144-147). A possible second elite burial was discovered by Thomas Gann (1925) at the summit of Structure A9, but the latter appears to have been an intrusive Terminal Classic burial with
atypical Belize Valley orientation. Given the paucity of elite burials in the site core, this latest find provides valuable information regarding the ruling elite at Xunantunich. In this report, we provide a detailed description of the tomb, human remains, faunal remains, and artifacts recovered in the tomb, and we discuss the implications of this elite burial.

EXCAVATION OF VALUATED TOMB: STRUCTURE A9, BURIAL 2

While clearing the eastern staircase of Structure A9 (Figure 1), we came across a series of capstones (Figure 2) below collapsed construction stairs approximately midway up the structure. Overlaying the capstones was a thin layer of chert flakes. The practice of covering elite tombs with chert flakes is a common practice in western Belize and has been noted at Baking Pot (Audet 2006), Cahal Pech (Awe 2013; Santasilia 2013) and Caledonia (Awe 1985). Upon clearing the remaining collapse, we uncovered a stone-lined tomb (see Welsh 1988 for definition of tomb) oriented on a north/south axis. As we noted above, previous excavations by Thomas Gann (1925) revealed a shallow intrusive burial at the summit of Structure A9. For this reason, we decided to designate Gann’s burial as XUN-BU-A9-1, and the tomb as XUN-BU-A9-2.

It is not clear whether natural or cultural processes predominantly contributed to the collapse of the tomb. Over time it is possible that the roof collapsed because of natural post-depositional processes; however, the extensive amount of fill recovered within the tomb could possibly be the result of infilling by the Maya.

Removal of the collapsed capstones and fill in the tomb yielded numerous artifacts including high densities of chert and ceramic sherds, as well as small amounts of slate, obsidian and freshwater shell. We also recovered a painted stucco fragment like the pieces found during summit excavations on A9 (Tilden et al. this volume).

Approximately 8 cm above the tomb floor, we uncovered a spindle whorl and jade inset tooth in the collapsed matrix. The team’s osteologists later confirmed that the tooth was from the maxilla of the individual within the tomb. This pattern of deposition was repeated with other bone fragments and ceramic sherds. The positioning of these artifacts lend support to the hypothesis that the roof/capstones collapsed into the tomb, scattering and repositioning some of the grave goods. As we reached the level of the tomb floor, it also became apparent that there was a single individual interred within the tomb along with numerous grave goods.
Figure 1: Clearing the Construction Staircase of Structure A9.

Figure 2: Capstone in preserved section of the A9 Tomb.
ARCHITECTURAL MORPHOLOGY OF THE TOMB

At its base, the tomb measured 3.53 m north/south and 2.1 m east/west. Its height was 2.62 m from the level of the floor to the bottom of the remaining capstones (Table 1). In total, the volume of the tomb was approximately 20 cubic meters, making this tomb one of the largest uncovered to date in Belize.

The floor of the tomb had been cut into bedrock and then plastered. All four sides of the tomb had walls that provided support for the vaulted ceiling of the tomb. The wall heights ranged from 95 cm to 104 cm in height and ascended from bedrock to the summit of the chamber. The walls were not made of uniform material with the north and west walls containing small stones mortared together, the east wall made of large boulders, and the south wall of large cut stones. Interestingly, the south wall appeared to be loosely stacked and sloping inward (Figures 3 & 4). The slope was significant, measuring 91 cm from the vertical plane under the bottom of the vaulting (Figure 3). Despite the looseness and the slope of the south wall, it did not appear to interfere with the function of supporting the vaulting above. Given this morphological difference, we believe that the south wall was the last section of the tomb to be constructed, likely because the individual was placed within the tomb from the south side of the chamber at the time of his interment.

Table 1: Tomb Measurements.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length at Base/floor (north/south)</td>
<td>353 cm</td>
</tr>
<tr>
<td>Extreme Length (north/south)</td>
<td>444 cm</td>
</tr>
<tr>
<td>Width at Base (east/west)</td>
<td>214 cm</td>
</tr>
<tr>
<td>Height from base to underside of remaining capstone</td>
<td>262 cm</td>
</tr>
</tbody>
</table>
Figure 3: Dimensions of tomb. Profile view north/south. Not to scale
Figure 4: View of north end of tomb with faunal remains *in situ*. Note support wall for vaulting.
Our analysis of the Structure A9 architecture (Figure 5) suggests that the tomb may have been built simultaneously with the structure, and possibly sometime prior to the death of the individual interred within the tomb. Our reason for this interpretation stems from the fact that the core of Structure A9 is mainly dry-laid fill with very large stones as a base for the structure (see Tilden et al., Chapter 17). This construction matrix would have posed considerable challenges for the builders if they had attempted to construct such a large tomb after the construction of the building. Despite this architectural feature, we do recognize that the simultaneous construction of a large tomb and the structure enclosing it is a somewhat unusual construction style, particularly because Maya burials are generally excavated into existing structures at the time of death of an individual. Furthermore, most of elite burials in western Belize are generally contained in graves whose dimensions are just large enough to accommodate the elite burial and associated grave goods. That is not the case with the A9 tomb, which is considerably larger and more spacious than other burial chambers reported in the region.

Our investigation also indicates that the walls of the tomb were plastered. Much of the wall plaster, however, had fallen off the walls with the passage of time. This plaster in turn got wet and spread out over the floor of the tomb or aggregated in clumps, especially in the southwest corner of the tomb. This hardened plaster made the removal of tomb artifacts very difficult in some areas.

The vault of the tomb extended an average 1.61m from the top of the support walls to the central capstone. The vaulted stones were a mix of mortared sections and
sections where the stones were laid dry. The vault was also in a very good state of preservation, especially considering the irregularity of the south support wall, the fact that some of the capstones had fallen in, and the fact that the building had been abandoned for more than a thousand years. Both the east and west walls of the tomb each had four holes for vault beams. The vault beam holes, however, were irregularly spaced and did not evenly line up across from each other.

DESCRIPTION OF OSTEEOLOGICAL REMAINS FROM BURIAL A9-2

Burial A9-2 (Figures 6 and 7) contained the remains of an adult male in a supine, extended position. The body is oriented (Table 2) along a north-south axis with the head to the south. The arms were extended parallel to the thorax with the hands below the os coxae (hip bones) and the legs were extended to the north. At the time of inhumation, the body was likely placed upon a rigid surface, possibly a wooden platform, which stood above many of the ceramic vessels. Due to post-dispositional events, including the decomposition of the underlying platform and soft tissue, as well as the collapse of various tomb construction materials, many skeletal elements had been displaced from their original position. Overall, skeletal preservation is relatively poor.

The cranium had rolled to the south such that it was resting on the superior surface with the foramen magnum (base of cranium) up and the fragmentary facial bones oriented to the southeast. The mandible was resting on lower cervical vertebrae. This indicates that originally the head was likely resting on its posterior surface with the face up, and the mandible fell onto the neck vertebrae after it detached from the cranium during the postmortem period.

Large ceramic sherds were present among the bones of the shoulders, thorax (vertebrae and ribs) and hips. The left scapula and ribs as well as numerous thoracic vertebrae had been displaced due to the settling of the skeleton across the ceramic vessels in the postmortem period. At the time of excavation, cylindrical vessels were alongside the thorax close to the elbows. On the left side, the vessel is lateral to (outside of) the bones of the left arm, while on the right side the vessel is between the bones of the right arm and the right ribs. This suggests that the body was originally placed above these cylindrical vessels and that postmortem events shifted the torso to the right. Likely due to the collapse of the platform and roof of the tomb, the tibiae, especially the right tibia, were displaced to the north and west. No ankle or foot bones were recovered.

Five pieces of jade were arrayed across the neck. A drilled jade bead was present on the right (east) side of the mandible and cervical vertebrae (JD1 on map). A second piece of very clear jade was present on the left (west) side of the neck (JD2 on map). A dark green jade bead was discovered within the mandible and to the right of the second cervical vertebra (JD3); given that the mandible shifted during decomposition, it is not likely that this bead was originally in the mouth, but was resting on the anterior neck. Another dark green jade bead was located below the first cervical vertebra (JD4), and a fifth jade bead was located to the right of the cervical vertebrae, just medial to the acromion of the right scapula (JD5).
Half of a shell ring was found below the phalanges (finger bones) of the left hand. Four east-west oriented obsidian blades were present on the left (west) side of the pelvic region. The northern most blade was just lateral to the proximal femur. Two blades were located further to the west with the southernmost blade located below the shaft of the distal radius.

A preliminary biological profile was developed while excavating the skeleton. Sex is estimated to be male based on morphology of the mandible, which includes a gonial angle that approximates 90° and a square chin. Age is estimated to be 30 to 39 years. No degenerative changes were observed on the vertebrae or joint surfaces present and the teeth recovered exhibit moderate attrition (wear). Nevertheless, all mandibular molars had been lost antemortem with significant alveolar remodeling, indicating that these teeth had been lost well before death. The left distal humerus is wide and the gluteal line of the right proximal femur is quite pronounced. This is consistent with overall skeletal size and robusticity suggesting an individual who engaged in strenuous physical activity on a regular basis.

Despite the extremely fragmentary condition of the facial bones, the following maxillary teeth were recovered from the fill above the cranium: both lateral incisors, both canines, both first premolars, right first molar, and left second and third molars. The following mandibular teeth were recovered with the complete mandible: three incisors, both canines and both first premolars.

The right maxillary canine and first premolar each have a circular jade inlay on the facial surface of the tooth (Figure 8). The jade inlays measure 5.2 mm by 5.0 mm on the canine and 4.5 mm by 4.5 mm on the first premolar.

A fragment of the human remains that we submitted for AMS radiocarbon dating to the Pennsylvania State University AMS Facility, and produced a date of cal AD 660-775 (2σ calibrated range), suggesting that the individual was alive during the Hats’ Chaak phase (AD 670-780) at Xunantunich.
Figure 6: Xunantunich, Structure A9, Burial 2 exposed. View facing south.
Figure 7: Plan View of Structure A9, Burial A9-2.
Table 2: Burial description.

<table>
<thead>
<tr>
<th>Grave Type</th>
<th>Sex</th>
<th>Age</th>
<th>Position</th>
<th>Head Placement</th>
<th>Head Orientation</th>
<th>Condition</th>
<th>Approximate Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaulted Tomb</td>
<td>Male</td>
<td>Adult-20-30</td>
<td>Supine</td>
<td>South</td>
<td>East</td>
<td>Poor</td>
<td>Late Classic**</td>
</tr>
<tr>
<td>(Stone lined)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Grave type defined by Welsh 1988 Typology.
** This date is based on affiliated ceramics (Table 2). Human remains and charcoal samples are being processed for AMS radiocarbon dating.

Figure 8: Right maxillary first premolar (left) and canine (right) with jade inlays on facial surface.
Faunal remains recovered during excavations of the A9 Tomb at Xunantunich were poorly preserved likely due to the destructive nature of the limestone deposits. All skeletal elements recovered were eroded and exfoliated. Cutmarks or other culturally identifiable features on the bones were unidentifiable due to the taphonomic conditions within the tomb. The faunal remains can be spatially separated into two locales within the tomb, those associated directly with the human skeletal remains, and a cache of long-bones near the feet of the individual in the northeast corner of the tomb.

The number of identified specimens (NISP), where identified refers to skeletal element or body portion (appendicular, axial, cranial) and taxon, associated directly with the human skeletal remains is 15 (Table 3). Of these, 12 of the elements are mammal and three are mollusk. Five of the elements are the third phalanx, or the claw bone of a felid. The size of the third phalanx suggests either jaguar (*Panthera onca*) or cougar (*Puma concolor*), but identification, even with comparative materials from the Museum of Northern Arizona (MNA) in Flagstaff and Arizona State Museum (ASM) in Tucson, is not possible. The claw bones were found near the hands of the human burial. One of the elements associated directly with the burial is a rodent right dentary from the family Muridae (mice and rats), although unidentifiable to species. This rodent is likely intrusive and taphonomic, not cultural. The remaining six mammalian skeletal elements are unidentifiable to skeletal element or taxon. Three of these include shell, including two that are worked pieces. The latter are nearly identical in size, the first one has a length of 28.5 mm, a width of 7.25 mm, and breadth of 2.00 mm and the second one, which is missing a very small piece, is 28.1 mm in length, 7.00 mm in width, and has a breadth of 2.00 mm. Both have been altered in the same manner and appear to be inlaid shell pendants. Both worked shell pieces were found near the head of the individual.

The NISP of skeletal elements cached near the feet of the burial is 2249 (Table 3). Given preservation is poor; many elements did not retain anatomical features useful for taxon identification, although a few more specific identifications were possible with the comparative collections at the MNA and the ASM. Elements splintered and fractured during removal, therefore, NISP counts reflect the high degree of fragmentation. Individual complete element counts are not possible given this extreme fragmentation. Of these skeletal elements, 251 have been identified to genus and species (Table 3).

In the fall of 2016, we submitted a fragment of the deer remains for AMS dating to the Pennsylvania State University facility for dating. The sample (PSU AMS-1735) produced a date of AD 690-890 in the 2-sigma range.
Table 3. Faunal Remains Recovered from A9 Tomb.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>Location within Tomb</th>
<th>NISP</th>
<th>% of Faunal Remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>Cache</td>
<td>1853</td>
<td>82%</td>
</tr>
<tr>
<td>Order: Artiodactyla</td>
<td>Cache</td>
<td>46</td>
<td>0.02%</td>
</tr>
<tr>
<td>Order: CF Artiodactyla</td>
<td>Cache</td>
<td>99</td>
<td>0.04%</td>
</tr>
<tr>
<td>Panthera onca</td>
<td>Cache</td>
<td>47</td>
<td>0.02%</td>
</tr>
<tr>
<td>Puma concolor</td>
<td>Cache</td>
<td>13</td>
<td>&gt;0.01%</td>
</tr>
<tr>
<td>Odocoileus virginianus</td>
<td>Cache</td>
<td>191</td>
<td>0.08%</td>
</tr>
<tr>
<td>Class: Mammalia</td>
<td>Human Associated</td>
<td>6</td>
<td>&gt;0.01%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>Human Associated</td>
<td>3</td>
<td>&gt;0.01%</td>
</tr>
<tr>
<td>Order: Felidae</td>
<td>Human Associated</td>
<td>5</td>
<td>&gt;0.01%</td>
</tr>
<tr>
<td>Order: Rodentia</td>
<td>Human Associated</td>
<td>1</td>
<td>&gt;0.01%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td>2264</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Location within Tomb = directly associated with the human skeletal remains (human associated) or recovered from the cache of long bones in the northeast corner of the tomb (cache).

DESCRIPTION OF ASSOCIATED ARTIFACTS FROM BURIAL A9-2

The individual placed within the A9 tomb contained a diverse range of artifacts (Figures 9 - 13) including 36 ceramics vessels, six jade beads, 13 obsidian blades, two bone hair pins, a shell ring, and a spindle whorl. The overall quantity, quality and diversity of the grave goods strongly suggest that this person was of elite status. While many of the elite tombs that have been found in the Maya Lowlands contained sumptuous and exotic grave goods, this tomb did not. In contrast, it contained an exceptionally high concentration of ceramic vessels, some of which were decorated with iconographic and epigraphic elements. Unfortunately, many of the vessels recovered were either broken by the collapse of the tomb roof, or were covered with plaster that fell off the roof and sides of the chamber. After expending considerable effort to clean them, we noted that the vessels from the A9 tomb ranged from the Tiger Run to the Spanish Lookout phases, indicating a date between AD 675 and AD 750 (Table 4).
Figure 9: Plan view of Burial A9-2 and associated artifacts.
Figure 10: Ceramic Cluster West of Cranium (Vessels 1-16, 28-29).

Figure 11: Jade bead (JD 3) found in between mandible.
Figure 12: Jade below vertebrae (JD 4).

Figure 13: Obsidian located to the left of the distal radius (OB 4).
Table 4: Ceramic Vessels from A9-Tomb.

<table>
<thead>
<tr>
<th>Vessel No.</th>
<th>Group/Type</th>
<th>Form</th>
<th>Base Diam. (cm)</th>
<th>Rim Diam. (cm)</th>
<th>Height (cm)</th>
<th>Wall Thick. (cm)</th>
<th>Temper</th>
<th>Slip Color</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saturday Creek Polychrome</td>
<td>Dish</td>
<td>N/A</td>
<td>24.5</td>
<td>5</td>
<td>1</td>
<td>ash</td>
<td>red-and-black-on-orange</td>
<td>rounded base</td>
</tr>
<tr>
<td>2</td>
<td>Palmar Group Polychrome or Bichrome</td>
<td>Bowl</td>
<td>21</td>
<td>27</td>
<td>8.5</td>
<td>0.5</td>
<td>calcite</td>
<td>red-on-orange</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>Palmar Group Polychrome</td>
<td>Dish</td>
<td>12.5</td>
<td>17.5</td>
<td>5</td>
<td>0.5</td>
<td>ash/calcite</td>
<td>red-and-black-on-cream</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>Gallenero Fluted</td>
<td>Vase</td>
<td>9.5</td>
<td>9.5</td>
<td>N/A</td>
<td>0.5</td>
<td>ash</td>
<td>red</td>
<td>Vertical flutes on exterior wall</td>
</tr>
<tr>
<td>5</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>N/A</td>
<td>28</td>
<td>5</td>
<td>1.1</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>Saturday Creek Polychrome</td>
<td>Dish</td>
<td>8</td>
<td>20</td>
<td>5</td>
<td>1.1</td>
<td>ash</td>
<td>red-and-black-on-orange</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>4.5</td>
<td>20.5</td>
<td>4</td>
<td>0.9</td>
<td>ash</td>
<td>red</td>
<td>vessel type after Gifford (1976:257-264), annular base</td>
</tr>
<tr>
<td>8</td>
<td>Saturday Creek Polychrome</td>
<td>Dish</td>
<td>6.5</td>
<td>22</td>
<td>4.5</td>
<td>0.8</td>
<td>ash/calcite</td>
<td>red-and-black-on-orange</td>
<td>ring base, quadripartite design at interior center</td>
</tr>
<tr>
<td>9</td>
<td>Saturday Creek Polychrome</td>
<td>Dish</td>
<td>7</td>
<td>24</td>
<td>4.5</td>
<td>0.7</td>
<td>ash</td>
<td>red-and-black-on-orange</td>
<td>—</td>
</tr>
<tr>
<td>10</td>
<td>Benque Viejo Polychrome System</td>
<td>Dish</td>
<td>14</td>
<td>18.5</td>
<td>6</td>
<td>0.6</td>
<td>ash</td>
<td>red-and-black-on-cream</td>
<td>only partial vessel present</td>
</tr>
<tr>
<td>11</td>
<td>Palmar Group Polychrome</td>
<td>Bowl</td>
<td>12</td>
<td>15.5</td>
<td>5</td>
<td>0.5</td>
<td>ash/calcite</td>
<td>red-and-black-on-orange</td>
<td>—</td>
</tr>
<tr>
<td>Vessel No.</td>
<td>Group/Type</td>
<td>Form</td>
<td>Base Diam. (cm)</td>
<td>Rim Diam. (cm)</td>
<td>Height (cm)</td>
<td>Wall Thick. (cm)</td>
<td>Temper</td>
<td>Slip Color</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>----------</td>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Chunhuitz Ceramic Group</td>
<td>Bowl</td>
<td>14</td>
<td>18.5</td>
<td>6</td>
<td>1</td>
<td>ash/calcite</td>
<td>red-on-orange</td>
<td>nubbin feet</td>
</tr>
<tr>
<td>13</td>
<td>Cayo Group</td>
<td>Bowl</td>
<td>N/A</td>
<td>21</td>
<td>9.5</td>
<td>0.8</td>
<td>calcite</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>14</td>
<td>Palmar Group</td>
<td>Bowl</td>
<td>19.5</td>
<td>25</td>
<td>8.9</td>
<td>0.8</td>
<td>ash</td>
<td>red-and-black-on-cream</td>
<td>decorated on base exterior with number 3 glyph and possible pseudoglyph</td>
</tr>
<tr>
<td>15</td>
<td>Tunich Red-on-orange</td>
<td>Dish</td>
<td>N/A</td>
<td>28.5</td>
<td>6</td>
<td>1</td>
<td>calcite/ash</td>
<td>red-on-orange</td>
<td>8 Ajaw glyph on interior center, rounded base</td>
</tr>
<tr>
<td>16</td>
<td>Benque Viejo Polychrome System</td>
<td>Dish</td>
<td>23</td>
<td>32</td>
<td>9.5</td>
<td>0.8</td>
<td>ash</td>
<td>red-and-black-on-cream</td>
<td>tau-shaped feet; although on cream, form, temper, and paste are similar to Benque Viejo Polychrome</td>
</tr>
<tr>
<td>17</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>7.5</td>
<td>33</td>
<td>4.6</td>
<td>1.2</td>
<td>ash</td>
<td>red</td>
<td>annular base, tripod tau-shaped feet</td>
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<tr>
<td>18</td>
<td>Belize Red</td>
<td>Bowl</td>
<td>N/A</td>
<td>20</td>
<td>8.5</td>
<td>0.7</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>19</td>
<td>Belize Group</td>
<td>Bowl</td>
<td>15</td>
<td>22</td>
<td>6</td>
<td>0.8</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>20</td>
<td>Belize Red</td>
<td>Dish</td>
<td>N/A</td>
<td>21.5</td>
<td>4.5</td>
<td>0.8</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>21</td>
<td>Platon Punctated-incised</td>
<td>Bowl</td>
<td>*</td>
<td>32.5</td>
<td>10</td>
<td>0.8</td>
<td>ash</td>
<td>red</td>
<td>ring base</td>
</tr>
<tr>
<td>22</td>
<td>Saturday Creek Polychrome</td>
<td>Vase</td>
<td>N/A</td>
<td>15</td>
<td>17</td>
<td>0.7</td>
<td>ash</td>
<td>red-and-black-on-orange</td>
<td>—</td>
</tr>
<tr>
<td>Vessel No.</td>
<td>Group/Type</td>
<td>Form</td>
<td>Base Diam. (cm)</td>
<td>Rim Diam. (cm)</td>
<td>Height (cm)</td>
<td>Wall Thick. (cm)</td>
<td>Temper</td>
<td>Slip Color</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>--------</td>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>22a</td>
<td>Palmar Group</td>
<td>Bowl</td>
<td>16</td>
<td>20</td>
<td>5.5</td>
<td>0.9</td>
<td>ash</td>
<td>red-and-black-on-orange</td>
<td>band of pseudoglyphs on exterior wall, interior decorated at base and wall, only partial vessel present</td>
</tr>
<tr>
<td>23</td>
<td>Belize Red</td>
<td>Dish</td>
<td>5.5</td>
<td>25</td>
<td>5</td>
<td>0.9</td>
<td>ash</td>
<td>red</td>
<td>ring base</td>
</tr>
<tr>
<td>23a</td>
<td>Palmar Group</td>
<td>Dish</td>
<td>15.5</td>
<td>21</td>
<td>6.5</td>
<td>0.9</td>
<td>ash/calcite</td>
<td>red-and-black-on-orange</td>
<td>rounded base, 5 Ajaw glyph on exterior wall, interior is orange and has black band at rim, exterior has red bands at rim and base that enclose decorations</td>
</tr>
<tr>
<td>24</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>0.7</td>
<td>ash</td>
<td>red</td>
<td>tau-shaped feet, only partial vessel present</td>
</tr>
<tr>
<td>25</td>
<td>Cayo Unslipped</td>
<td>Jar</td>
<td>*</td>
<td>13</td>
<td>*</td>
<td>0.6</td>
<td>calcite</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>26</td>
<td>Belize Red</td>
<td>Dish</td>
<td>N/A</td>
<td>27</td>
<td>6</td>
<td>1</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>27</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>29</td>
<td>35.5</td>
<td>9</td>
<td>1</td>
<td>ash</td>
<td>red</td>
<td>annular base, three tau-shaped feet</td>
</tr>
<tr>
<td>28</td>
<td>Saturday Creek Polychrome</td>
<td>Bowl</td>
<td>6.8</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>calcite/ash</td>
<td>red-and-black-on-orange</td>
<td>ring base, only partial vessel present</td>
</tr>
<tr>
<td>29</td>
<td>Gallenero Fluted</td>
<td>Vase</td>
<td>8</td>
<td>8</td>
<td>17</td>
<td>0.5</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>30</td>
<td>Macal Orange-red</td>
<td>Bowl</td>
<td>17.5</td>
<td>23</td>
<td>8</td>
<td>0.8</td>
<td>calcite</td>
<td>orange</td>
<td>nubbin feet, alternatively Chunhuitz Orange, even though Gifford (1976) indicates no bowl forms are Macal Orange-red, the paste and slip of this vessel fits best in Macal Orange-red</td>
</tr>
</tbody>
</table>

365
<table>
<thead>
<tr>
<th>Vessel No.</th>
<th>Group/Type</th>
<th>Form</th>
<th>Base Diam. (cm)</th>
<th>Rim Diam. (cm)</th>
<th>Height (cm)</th>
<th>Wall Thick. (cm)</th>
<th>Temper</th>
<th>Slip Color</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Silk Grass Fluted</td>
<td>Vase</td>
<td>7.5</td>
<td>8.5</td>
<td>11</td>
<td>0.7</td>
<td>calcite</td>
<td>brown</td>
<td>—</td>
</tr>
<tr>
<td>32</td>
<td>Unknown</td>
<td>Mini-Bowl</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>0.5</td>
<td>calcite</td>
<td>brown</td>
<td>—</td>
</tr>
<tr>
<td>33</td>
<td>Platon Punctated-incised</td>
<td>Dish</td>
<td>N/A</td>
<td>19</td>
<td>*</td>
<td>1</td>
<td>ash</td>
<td>red</td>
<td>tau-shaped foot, only partial vessel present</td>
</tr>
<tr>
<td>34</td>
<td>Belize Red</td>
<td>Vase</td>
<td>10</td>
<td>10</td>
<td>24.5</td>
<td>0.6</td>
<td>ash</td>
<td>red</td>
<td>—</td>
</tr>
<tr>
<td>35</td>
<td>Gallenero Fluted</td>
<td>Vase</td>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>0.6</td>
<td>ash</td>
<td>red</td>
<td>Vertical flutes on vessel wall</td>
</tr>
<tr>
<td>36</td>
<td>Xunantunich Black-on-orange System</td>
<td>Bowl</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>0.9</td>
<td>ash/calcite</td>
<td>black-on-orange</td>
<td>—</td>
</tr>
</tbody>
</table>

*Analysis ongoing.*
COMMENTS ON THE EPIGRAPHY OF CERAMIC VESSELS FROM TOMB

The tomb within Structure A9 contained many ceramic vessels. Among these, three are noteworthy for the glyphic elements that adorn them. These are Vessels 15, 22a and 23a. Vessel 15 was found to the west of the individual’s cranium, whereas Vessels 22a and 23a had been placed to the east of the skeletal remains. Below we described each of these vessels and compare them to analogous specimens from other sites.

**Vessel 15**

Vessel 15 (Figure 14) is a shallow dish with a rounded base and curved sides. It has a diameter of 28.5 cm and a height of 6 cm. We identified the vessel as a Tunich Red-on-orange (see Gifford 1976:252), based on its form, unslipped exterior, slipped orange interior, and the large red bands and parallel line applied to the rim. At its center, a glyph block was painted in the same red slip as the lines embellishing the rim. Despite some of the idiosyncratic features of the glyphic notation (Figure 14), it clearly is a calendrical record since it can be transliterated as **AJAW-8**, with the coefficient unusually set to the right, rather than the left or atop, as is more usual. Nevertheless, this can be read as **waxak ajaw**, or ‘Eight Ajaw’, commemorating an important Period Ending during the Classic period, or Baktun 9 (see Satterthwaite 1951; Beetz and Satterthwaite 1981). Assuming that this date provides a record of a k’atun Period-Ending, the only two possible matches are:

<table>
<thead>
<tr>
<th>Calendar</th>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0.0.0.0</td>
<td>8 Ajaw 13 Kej</td>
<td>12th of Dec., AD 4351</td>
</tr>
<tr>
<td>9.13.0.0.0</td>
<td>8 Ajaw 8 Woj</td>
<td>19th of Mar., AD 692</td>
</tr>
</tbody>
</table>

Since the first of the two dates is considerably too early for a vessel that typologically belongs to the Tiger Run/Spanish Lookout ceramic complexes the second of the two dates is a good match. As such, the date recorded on Vessel 15 probably indicates that this dish was made to commemorate this important Period Ending and may have been specifically produced for the observances connected to the festivities. The inclusion of this dish in the tomb provides a solid **post quem** date for the chamber, assuming that this dish was used in life by the individual interred and subsequently deposited within, as part of the funerary rites.

Similar to the specimen found in the Structure A9 tomb is a set of three red bowls found in a tomb within Structure A3 at Caracol (Figure 15). These bowls have been identified as Benque Viejo Polychrome (see Gifford 1976:269; Chase and Chase 1987:17, Fig. 11b, d & g). These are bowls with flat bases and everted sides, which are slipped orange and decorated with red lines along the rim, as well as square fields on the exterior. In addition, lines and fields are divided by black lines and outline the calendrical records decorating the centers of these bowls. In the base of each bowl the calendrical

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1 Using the GMT+1 correlation coefficient.
2 Although Gifford placed Tunich Red-on-orange in the Spanish Lookout complex he describes forms that are typical of the Tiger Run including shallow bowls and dishes with basal breaks (Gifford 1976:252), which in large measure are diagnostic of Late Classic 1, not so much of the ensuing Late Classic 2.
glyphs have been identified as 6-AJAW, for wak ajaw, or ‘Six Ajaw’ (Chase and Chase 1987:15). If this is a record of a prominent k’atun Period Ending, we once again only obtain two possible matches for this date:

- 9.1.0.0.0 6 Ajaw 13 Yaxk’in  29th of Aug., AD 455
- 9.14.0.0.0 6 Ajaw 13 Muwan  06th of Dec., AD 711

Once more the earlier of the two dates is too early and the later one is a plausible match since the ceramics found within the Structure A3 tomb are clearly Late Classic (see Chase and Chase 1987: Fig.11). In addition, the 9.14.0.0.0 date at Caracol is also very close to the 9.13.0.0.0 date at Xunantunich, indicating that these vessels are part and parcel of the same tradition.

Interestingly, the central capstone of the tomb was embellished with a short hieroglyphic text, recording the death date of the individual interred, one bearing the Emblem Glyph of Caracol and who appears to have been named Yajawte’ in part. This name is part of the nominal segment adopted by several kings of Caracol upon their accession, which in full was Yajawte’ K’inich, used by earlier namesakes in sixth century (i.e. Yajawte’ K’inich I and II; see Martin and Grube 2008:86-90). The death date recorded on the capstone is partially effaced, but appears to read 13-K’ib 10-K’ayab. The coefficient of the Haab, or month, is incompatible with the Calendar Round since K’ib can only be paired with Haab dates bearing the coefficients 4, 9, 14, and 19. As such we can assume that the intended date was 13-K’ib 9-K’ayab. The closest matches for this Calendar Round date to the anchor provided by the 9.14.0.0.0 Period Ending recorded on the bowl are:

- 9.13.3.15.16 13 K’ib 9 K’ayab  14th of Jan., AD 696
- 9.15.16.10.16 13 K’ib 9 K’ayab  02nd of Jan., AD 748

The earlier of the two dates is that which has been favored (Chase and Chase 1987:15; Chase 1994:163) although this is a little problematic in that the 6-Ajaw bowls would have to have been prospective celebratory implements of the upcoming Period Ending, 15 years thence. This seems improbable to us without any established precedent for this assumed practice, and as such we deem the later date to be more probable. This would result in the closing of the tomb in AD 748, or a half-century later than has previously been assumed. Between AD 680 and 799 Caracol experienced a hiatus, a reversal of fortunes occasioned by martial setbacks and as such we are not entirely clear as to the names of rulers during this period. In the texts of Naj Tunich we see a mention to a Tz’ayaj K’ahk’ in AD 692 (possibly Ruler VII of earlier designations; see Martin and Grube 2008:95; Helmke 2009:111-112), whereas the Structure A3 tomb seems to name the occupant Yajawte’ K’inich (III?) and to record his passing in AD 748. These two records suggest that these may have been two consecutive rulers and thereby help us to fill in the gaps in the hiatus period, although the latter half of the eighth century remains uncertain.
Figure 14: Vessel 15 from Xunantunich Burial A9-2.

Figure 15: Vessels with Ajaw Period Ending dates from Caracol.
Vessel 23a (Figure 16) is a flat-bottomed bowl with out-sloping sides. The bowl measures 21 cm in diameter and 6.5 cm high. The bowl has been identified as either a Palmar Orange-polychrome or Zacatel Cream-polychrome and exhibits a cream base, decorated with red, orange and black. Together the decorations provide another calendrical record, this time rendered with red outlines and orange fill, framed on either side by a rectangular field representing simplified k’in signs. Here the use of these signs as decorative elements is undoubtedly on account of their meaning, since k’in literally means ‘sun’ and also ‘day’, but by extension can also mean ‘celebration, fiesta’ since in several Mesoamerican languages we can note an equivalence between “day” and “feast”, wherein the latter is conceived of as a ‘big day’ or ‘important day’ (see Smith-Stark 1994:19, 20, 34; Helmke 2013: Table 1). Other ceramics bearing these types of simplified sun signs as part of a decorative pattern are known from Rio Azul (see Tokovinine 2012: Fig. 185), and an unprovenanced vase now in the collection of Dumbarton Oaks (K9152). Significantly, a sherd with the same motif has also been found at Xunantunich as part of the tunneling operations below the Castillo (Lisa LeCount, pers. comm. 2016). On Vessel 23a the calendrical date is written AJAW-5 and oddly this follows the same format as that seen on Vessel 15, with the numerical coefficient once more set to the right. Assuming that this is a k’atun Period Ending, the only anchor in the Classic period is:

\[ 9.8.0.0.0 \quad 5 \text{ Ajaw 3 Ch’en} \quad 25^{\text{th}} \text{ of Aug., AD 593} \]

If this is the correct anchor for the date recorded on the bowl, it would evidently have to have been an heirloom since the date on Vessel 15 is almost precisely a century later. Also, the form of the bowl is more in keeping with later ceramics, as is the style of the glyphs and the use of the simplified k’in signs that are found on Late Classic ceramics. As a result, this date appears to be too early to serve as a plausible anchor. To this we should also comment on the nearly identical specimen found by Oliver Ricketson in Structure A17 (originally Mound G) in Group I at Baking Pot (Ricketson 1931:25, Plate 17a). This bowl is clearly a precursor to Vessel 23a and bears the same type of Ajaw date and a clear pattern of k’in signs on either side. The date on the Baking Pot dish is 3-AJAW, for ux ajaw or ‘three Ajaw’, which can be anchored without difficulty to the following Long Count date:

\[ 9.9.0.0.0 \quad 3 \text{ Ajaw 3 Sotz’} \quad 13^{\text{th}} \text{ of May, AD 613} \]

The style of the Baking Pot dish makes it clear that it is earlier than Vessel 23a, which confirms that the 9.8.0.0.0 date cannot be a plausible anchor for the Xunantunich bowl. At times, such Ajaw dates do not just commemorate k’atun Period Endings, but also lahuntun, or half-k’atun Period Endings wherein the final three coefficients of the Long Count are 10.0.0. This practice is demonstrated by a series of altars at Tonina (Stuart 1996:160), wherein these bear central Ajaw dates, but the text along the circumference makes it clear that these commemorate a lahuntun. As such we can wonder if the 5-Ajaw date on Vessel 23a does not likewise celebrate such a date. If so, the two possible matches are as follows:

370
9.1.10.0.0 5 Ajaw 3 Sek 07th of Jul., AD 465
9.14.10.0.0 5 Ajaw 3 Mak 14th of Oct., AD 721

The first of these is unfeasibly early and should therefore be discarded, whereas the second is reasonably close to the date provided on Vessel 15, being 29 years later. Seeing as Vessel 23a does appear to be later in terms of form and style, the lahun of the 5-Ajaw date seems to be the best possible solution that we can provide at present. This would naturally entail shunting the *post quem* date of the tomb to this anchor.

If this anchor is correct, this would mean that we have examples of ceramic vessels commemorating Ajaw Period Ending dates in this part of the Maya area between at least AD 692 and 721. This compares well, with other specimens known, including a Codex-style dish bearing the date 12-Ajaw (interestingly with the coefficient also written to the right) and another bearing the date 13-Ajaw (see Robicsek and Hales 1981: Table 2A-B). While the 12-Ajaw date is probably anchored to 9.11.0.0.0 (15th of Oct., AD 652), the 13-Ajaw date can be anchored to 9.17.0.0.0 (25th of Jan., AD 771). This demonstrates that these tradition of producing ceramics commemorating important Period Endings was a well-established practice in the Late Classic period, with some of the earliest examples found in the eastern lowlands, and duplicating, in more diminutive form, the Giant Ajaw altars that commemorated these important turning points as sites such as Caracol, Tikal and Tonina.

![Figure 16: Vessel 23a.](image)

**Vessel 22a**

This specimen is a fragmentary flat-bottomed bowl, with orange base, red rim, and variegated brown wash along the base, the sides of which are decorated with a glyphic text rendered with black and brown wash for shading (Figure 17). The bowl has a
diameter of 20 cm and is 5.5 cm high. What is preserved of the glyphic text are the better parts of three main glyph blocks (pC-pF), whereas two preceding glyph blocks are mostly weathered away in their entirety (pA-pB). Although the glyphs were painted in a confident hand, the elements that can be identified, coupled with their combination with other signs and the unusual grouping of elements together suggests that this was a pseudoglyphic text. For instance, the main sign of pC, pD and pE all resemble head-variants, and both glyph blocks pC and pD are initiated by the vocalic sign u, but this is at odds with texts found on ceramics and in either case does not provide a coherent result. In the middle of pD, preceding the main head-variant, we may see part of the logogram AK’AB. At the end of pD we may see a wing sign that may function as a syllabogram k’i, but this precedes a sign that usually has the value AT, an unattested sign combination. The first sign of pE resembles the syllabogram si, but nothing of what follows would seem to dovetail with this initial sign. The final staked signs of pE are also unidentified, but that at the top does duplicate the outline of the putative k’i sign of pD, suggesting that this is pseudoglyphic iteration. The last preserved glyph block pF may be initiated by an early ya sign and followed by the syllabogram la. Together this may yield y-al, a relationship expression connecting the name of an offspring to that of its mother (Stuart 1997:2-3). If this does provide a viable section of text, then we can surmise that this portion of the glyphs was copied from a parentage statement or pedigree recorded elsewhere.

All in all, there is nothing definite in the preserved sections of the vessel to provide a coherent reading of these glyphs. What is significant is the style of these glyphs since these resemble, in part, sherds found at Xunantunich as part of tunneling operations beneath the Castillo (Lisa LeCount, pers. comm. 2016). In addition, the glyphs of Vessel 22a bear a stylistic resemblance to the similarly-shaped bowls produced during the reign of Naranjo’s ruler K’ahk’ Xiiw Chan Chaahk (r. AD <644-680+) (see Krempel and Davletshin 2011, Figure 10). This connection is important to remark upon since it was K’ahk’ Xiiw Chan Chaahk who attacked and defeated Caracol in AD 680 (Martin and Grube 2008:73). This decisive defeat was recorded on the retrospective stucco texts of Structure B16 at Caracol and it is as part of this martial action that reprisals were made. Stela 3 bearing the likeness of K’an II was shattered and its pieces displaced through the site and the lengthy hieroglyphic stair that recorded the deeds and destiny of his overlords was dismantled and scattered between a series of different sites, including Ucanal, Naranjo and Xunantunich (Helmke and Awe 2016a, 2016b). It is perhaps no coincidence then that the panels of this hieroglyphic stair which were hauled from Caracol were set along the stair sides of Structure A9 at Xunantunich. Whereas we cannot at present confirm that this bowl was indeed produced in the court of K’ahk’ Xiiw Chan Chaahk, it does provide a tantalizing link and may embody in tangible form a link between this Naranjo ruler and the individual buried in the A9 tomb. If this link could be verified then this may confirm the involvement of Xunantunich in the attack on Caracol in AD 680. On the basis of skeletal features, we know that the individual in Xunantunich Burial A9-2 is estimated to have been between 30 and 39 years at death. AMS radiocarbon dating of his remains further indicate that he died between cal AD 670-770. We also know that the latest date provided by Vessel 23a corresponds to AD 721. Clearly then, the individual in the tomb could have been alive during the events that unfolded between Naranjo and
Caracol in the latter part of the 7th century, and there are obviously some interesting links here which the materials at hand serve to emphasize.

![Figure 17: Vessel 22a.](image)

**DISCUSSION AND CONCLUSIONS**

Over the past century, excavations at Xunantunich have provided archaeologists with a rich source of epigraphic data, derived from stela and hieroglyphic panels, which depict Maya rulers and provide insight into the polity’s political relationships (Helmke et al. 2010; Helmke and Awe 2012, 2016a, 2016b). Until the recent discovery of Burial A9-2, however, the relative absence of elite burials at the site was not only conspicuously obvious, but also left a void in our knowledge of the actual individuals who ruled the site during its apogee at the end of the Late Classic period. Given the paucity of elite burials at the site, the discovery of Burial A9-2 is of considerable significance and provides us with a rare opportunity to compare the elite from Xunantunich with their contemporaries at other regional sites.

As we noted above, the vaulted tomb represents one of the largest burial chambers discovered to date in western Belize. The grave also contained a diverse assemblage of artifacts, including 38 ceramics vessels, six jade beads, 13 obsidian blades, two bone hair
pins, a shell ring and a concentration of faunal remains. The abundance of these artifacts, paired with the impressive size and location of the tomb, lead us to conclude that the interred individual represents an important Maya elite who enjoyed a very high status within the Late Classic Xunantunich polity. The individual's high status is further supported by the fact that Structure A9 appears to have been primarily constructed for the purpose of containing the large tomb. The latter architectural pattern is atypical of Belize Valley sites where crypts and tombs are generally constructed intrusively within structures that have been in use for some time, and which predate the death of the individual interred in those graves.

Recent Radiocarbon dating of the human remains from the tomb produced a date of AD 670-775, confirming that the individual interred in the chamber was alive during that century. The two vessels from the tomb with Period Ending dates that fall within the 7th century further corroborate this observation. The overlap of these dates is of major significance for this temporal range indicates that the male individual in the A9 tomb could have participated in the military encounter and defeat of Caracol by Naranjo in AD 680. It also provides a plausible explanation for why Panels 3 and 4, sections of the hieroglyphic stair removed from Caracol, were placed in front of the structure that contained his tomb. We previously hypothesized that the panels likely made their way to Xunantunich as war booty or trophies that were rewarded to the Xunantunich ruler who participated in the military action against Caracol. The dates on the two polychrome vessels, and particularly the date of the human remains, provide strong support for this argument.

Since their inception in the 1890’s, investigations at Xunantunich have been rather sporadic with large scale operations not started until the Xunantunich Archaeological Project (XAP) and the Xunantunich Settlement Survey (XSS) in the 1990’s. These projects were succeeded by the Tourism Development Project (TDP) in 2000-2004, and by the current and ongoing Mopan Valley Preclassic Project, and the Xunantunich Archaeology and Conservation Project (XACP). The knowledge gained through these and earlier investigations has provided us with a significant amount of information pertaining to the cultural, political, and economical history of Xunantunich (see Audet 2006; Awe 2008, and LeCount and Yaeger 2010). In spite of the many contributions made by these projects, however, there remain a number of research questions that remain to be addressed, or that require further attention. For example:

1. What was the catalyst for Xunantunich’s sudden rise in the Samal period after 900 years of stasis?

2. Although our recent investigation of Structure A9 has contributed to our understanding of the relationship between Xunantunich and Naranjo, the details of that relationship remain opaque and demand further attention.

3. What is the nature of the Late Classic demographics of Xunantunich? Isotopic analyses conducted by Carolyn Friewald on a limited number of human remains from Xunantunich indicate that approximately 50% of the remains sampled were...
not of local origin. Why is this the case, and what factors contributed to this situation?

4. As we previously noted, only two, possibly three, elite burials have been found in the site core of Xunantunich. This sample size stands in stark contrast with other Belize River Valley sites. Why is this the case? Is it possible that burial practices and traditions at Xunantunich differed from that noted at other Belize Valley centers?

We hope that our future investigations at the site will shed light on these questions, and that they will continue to contribute to our understanding of this major Late Classic Belize Valley center.

Acknowledgements

The 2015-2018 Xunantunich Archaeology and Conservation Project is collaborative and nature and would not have been possible without the support of the Belize Institute of Archaeology and participation the Belize Valley Archaeological Reconnaissance project. Funding for this multiyear project is generously provided by the Tilden Family Foundation, of San Francisco, California whose contributions continue to aid in the development of archaeological parks in the Belize Valley. This project is also sincerely grateful for the support of the Co-director of the BVAR, Dr. Julie Hoggarth. Conservation of this scale was possible due to the hard work and dedication of the onsite supervisor- Jorge Can, and many workers from the nearby village of San Jose Succotz. Thanks go to Merle Alfaro, whose meticulous drawings are such an important part of our investigations. Additional thanks go to the students of Northern Arizona University who aided in the analysis of the faunal remains including Katie Tappan, Dylan Wilson, and Gavin Wisner.
REFERENCES CITED

Awe, Jaime J.
1985 *Archaeological Investigations at Caledonia, Caoy District, Belize.* Unpublished Master’s thesis, Department of Anthropology, Trent University, Peterborough, Ontario, Canada.


Audet, Carolyn M.

Beetz, Carl P. and Linton Satterthwaite

Chase, Arlen F.

Chase, Arlen F. & Diane Z. Chase

Friewald, Carolyn, Jason Yeager, Jaime Awe, and Jennifer Piehl

Gann, Thomas

Graham, Ian
Helmke, Christophe G.B.  

Helmke, Christophe and Jaime J. Awe  

Helmke, Christophe, Jaime J. Awe, and Nikolai Grube  

Krempel, Guido and Albert Davletshin  

LeCount, Lisa J. and Jason Yeager  

Martin, Simon and Nikolai Grube  
2008 *Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*. Thames and Hudson, London.  

Ricketson, Oliver G.  

Robicsek, Francis and Donald M. Hales  
Santasilia, Catharina

Satterthwaite, Linton Jr.

Smith-Stark, Thomas C.

Stuart, David
1997 Kinship Terms in Maya Inscriptions. The Language of Maya Hieroglyphs, edited by Martha Macri and Anabel Ford, pp. 77-88. Pre-Columbian Art Research Institute, San Francisco.

Tilden, Douglas, Diane L. Slocum, Jaime J. Awe and Kelsey Sullivan

Tokovinine, Alexandre

Zeleznik, Scott
INTRODUCTION

In the summer of 2016, excavations were carried out across the site of Xunantunich, located in the Upper Belize Valley, as part of an ongoing, multi-year collaborative archaeological and conservation effort by the Belize Institute of Archaeology, the Xunantunich Archaeology and Conservation Project (XACP), in cooperation with the Belize Valley Archaeological (BVAR) project, and Drs. Jason Yaeger and M. Kathryn Brown of the University of Texas, San Antonio (UTSA) (Figure 1). This archaeological endeavor seeks to understand the development of the Late Classic civic-ceremonial center of Xunantunich, as well as conserve additional structures to expand the tourism potential of this important ancient Maya center in Western Belize.

This report provides preliminary results of the excavations conducted at Group B in the 2016 field season. Group B is a medium-sized residential group of seven structures, located approximately 150 meters west of the main Plazas—A-I and A-II—of the Late Classic Xunantunich site core (Figures 1-3). Excavation focused in the small courtyard, Courtyard 1, and on the adjacent structures – Structures B-1 and B-2 – located in the northwestern corner of the group. The platform of Structure B-1, the group’s small eastern shrine, was tested in an area unexplored by previous archaeological investigations of the structure. This excavation unit was placed on the East/West axis of the structure, centered between the stairway and the superstructure to explore the potential for any
Figure 1: Map of the Upper Belize Valley.
offerings placed within the structure’s platform. In addition, excavations sought to expose the terminal architecture on the southern face of Structure B-2, to explore the architecture of the building facing south into Courtyard 1.

**PREVIOUS RESEARCH**

The site of Xunantunich has been extensively excavated since the 1890s. Three previous excavations were conducted in Group B—Thompson (1942), Pendergast and Graham (1981), and XAP (Etheridge 1995). While these excavations are limited compared to the extensive research conducted within the civic-ceremonial center, excavations of Group B have yielded essential information pertaining to the history of this important ancient Maya center.

The first excavations in Group B were conducted in 1938 by Sir J. Eric S. Thompson on Structures B-1 and B-3 (Thompson 1942). These early excavations at
Group B are best known for providing a substantial amount of ceramics from stratified contexts, allowing Thompson to develop the Benque Viejo Ceramic Chronology. This chronology is particularly noteworthy since Thompson delineated ceramics from the Late Classic and Terminal Classic into multiple phases including the Benque Viejo IIIa (Tiger Run), IIIb (Early facet Spanish Lookout), and IV (Terminal Classic) phases. In addition, his excavations provided evidence for occupation at Xunantunich well into the Terminal Classic period. Excavations revealed that Structure B-1 underwent at least four construction phases during the Late Classic period. The terminal construction episode resulted in a small vaulted room atop a platform, along with a small room located at its base (Thompson 1942:2). Excavations of Structure B-1 also exposed three burials within the structure (See Table 1). In addition, Thompson's excavations at Structure B-3 revealed six rooms, many of which contained red stuccoed benches (Thompson 1942:3).

When combined, Thompson’s excavations provided 3,979 diagnostics sherds suggesting that the total number of sherds collected may have been as high as 30,000-35,000 (Thompson 1942:4-6). In addition to the extensive number of ceramics, excavations produced a range of artifacts including limestone axes, *metate* fragments, obsidian flakes, perforated shells, one exhausted obsidian blade-core eccentric, and seven speleothems (Thompson 1942:27-28). The appearance of speleothems in Group B is significant as they would have required transportation from a cave. Cave materials, such as speleothems and cave pearls, act as symbolic ties to the watery underworld central to Mesoamerican cosmology and ideology and have been documented at other surface sites in the Belize Valley such as Baking Pot and Lower Dover (Ferguson 1999; Watkins et al. this volume).

Following Thompson’s initial investigations at Group B, nearly three decades passed before archaeologists returned to Group B. In 1979, reports of extensive looting initiated the Department of Archaeology to send archaeologists David Pendergast and Elizabeth Graham to conduct salvage operations on Structure B-5 (Pendergast and Graham 1981). Despite the destruction caused by the looting activity, Pendergast and Graham (1981) could determine that Structure B-5 was occupied from approximately AD 700 until its abandonment around AD 950-1050. Similar to Thompson’s report, “staggering” amounts of pottery were recovered including over 200,000 sherds and several refit censors and polychrome vessels. Numerous fragments of human bones were mixed with the architectural fill of Structure B-5. The most interesting discovery from these salvage operations, however, was an intrusive burial cut into the terminal phase of the structure (Table 1). Pendergast and Graham (1981) noted this burial was interred above post-abandonment material, which had already accumulated on the surface of the structure. The stratigraphic position indicated this burial was likely interred after the primary occupation, likely around AD 1050.

In 1991, the Xunantunich Archaeological Project (XAP) initiated work as part of a multi-year project at Xunantunich under the direction of Richard Leventhal and Wendy Ashmore (Leventhal et al. 2010). Preliminary excavations were conducted at Group B in the hopes of continuing to develop a strong site chronology. In 1991, J. Yaeger placed a one by two meter test unit between Structures B-1 and B-2 of Group B as a part of the
initial XAP test pitting program (Etheridge 1995:72). In this area, he discovered a large sherd concentration and two whole vessels. Yaeger’s work led XAP to continue excavations at Group B in 1995 under the supervision of B. Etheridge (1995). Etheridge’s excavations placed a seven meter by four meter grid across the area between Structures B-1 and B-2, as well as four units, which measured one meter by one meter, to the west, east, north and south to determine the extent of the ceramic deposit (Etheridge 1995:72). Results of this excavation revealed a platform extending the full length between Structures B-1 and B-2. In addition, a capped burial was uncovered beneath the platform floor covered by a deposit containing 1,650 sherds, 75 bones fragments, a carved shell ear flair, obsidian, chert, and censors (Table 1). In addition, below the plaza floor a stone lined cut was revealed containing two crania (Table 1). However, excavations ceased before the removal of these individuals. Artifacts recovered from these deposits again suggest at Late-Terminal Classic date range for Group B.

In addition to the excavation carried out by XACP and BVAR project in the 2016 field season, Michael Petrozza and Jason Jaeger, both of UTSA, led excavations of Structures B-6 and B-7 (Figure 3). Excavations revealed similar deposits to those reported from earlier excavations and those recovered by the XACP/BVAR project excavations (M. Petrozza personal communication 2016).

**Figure 3:** Excavation units from the 2016 BVAR project excavations in Courtyard 1, Group B, Xunantunich, in addition to approximate locations of previously excavated units (illustration by K. Sullivan after Pendergast and Graham 1981).
## Table 1: Burials Recovered from Previous Investigations in Group B.

<table>
<thead>
<tr>
<th>Burial</th>
<th>Structure</th>
<th>Grave Type*</th>
<th>Sex</th>
<th>Age</th>
<th>Position</th>
<th>Head Placement</th>
<th>Head Orientation</th>
<th>Extension</th>
<th>Grave Goods</th>
<th>Date</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B-1, Below Floor 2</td>
<td>Simple</td>
<td>Adult?</td>
<td>Supine</td>
<td>South</td>
<td>East</td>
<td>Extended</td>
<td>None</td>
<td>LC Thompson</td>
<td>1942:27</td>
<td>Thompson 1942:27</td>
</tr>
<tr>
<td>2</td>
<td>B-1, Below Floor 2</td>
<td>Capped Cist</td>
<td>Adult?</td>
<td>South</td>
<td>Extended</td>
<td>None</td>
<td>LC Thompson</td>
<td>1942:27</td>
<td>Thompson 1942:27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>B-1, Below Floor 3</td>
<td>Simple</td>
<td>Child</td>
<td>Laying on right side</td>
<td>Flexed</td>
<td>Several unslipped dishes near head; 2 lip to lip vessels touching spine.</td>
<td>LC Thompson</td>
<td>1942:27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5</td>
<td>Cut into B5 Platform</td>
<td>Capped Cist</td>
<td>F? Adult</td>
<td>South</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LC- Early Post Classic (~1050 AD)</td>
<td>Pendergast and Graham 1981:17-19</td>
</tr>
</tbody>
</table>
METHODS

Excavation

The 2016 excavations in Group B aimed at addressing general research questions of XACP and BVAR project including gaining a deeper understanding of the chronological development of the civic-ceremonial center of Xunantunich and the activity occurring at the site in the Late Classic Period, as well as investigating the deposition and nature of terminal deposits.

Following a review of past excavations of Group B, the northeastern courtyard, Courtyard 1, was selected for investigation. A small excavation unit was placed to investigate the platform of the small eastern shrine, Structure B-1, in addition to a grid of six units, two meters (E/W) and six meters (N/S), was placed along the southern face of the low range structure, Structure B-2, facing into Courtyard 1 (Figure 3). Students worked in pairs to excavate units, with the assistance of supervisors and local workman. As excavation progressed, an additional grid was placed parallel to the first row, just south of the first row, within the center of Courtyard 1 (Figure 4).

Units were excavated using cultural stratigraphy to establish excavation levels. Within the Structure B-1 excavation, two cultural levels were established—Level 1 was the humic level to architectural ballast and Level 2 was a small cist containing a commingled burial. Human remains were mapped and analyzed in situ and then removed in three sub-levels. Two cultural levels were established for the Structure B2/Courtyard 1 excavation grid—Level 1 was the humic layer and Level 2 was established upon the discovery of several terminal deposits on the plaza floor.

Figure 4: Labeled excavation units from the 2016 BVAR project excavations in Courtyard 1, Group B, Xunantunich (illustration by K. Sullivan).
Artifact Analysis

The excavations at Group B yielded substantial deposits featuring primarily ceramic sherds, in addition to lesser amounts of ceramic figurines and spindle whorls, lithic tools and debitage, as well as faunal and human remains. The number of artifacts collected in the last few days of the season prevented all the artifacts from being processed. This report will present photos of special finds and basic ceramics types present at the group and recovered within terminal deposits, based on Gifford’s (1976) ceramic typology.

Faunal remains recovered in the excavations from Group B were exported to Northern Arizona University and analyzed by C. Burke and students at the Department of Anthropology, Faunal Analysis Laboratory. Results of the analysis of materials recovered from the group will be discussed in detail later in this report.

This report remains preliminary in nature until a time when a complete artifact analysis can be conducted. Human remains are stored and will be exported to Baylor University in a subsequent field season for further analysis and radiometric dating. Additional information pertaining to the results of the artifact analysis, in addition to a more in-depth archaeological interpretation of the activity at the group will be presented in subsequent publications.

RESULTS

Structure B-1

A one by one meter unit was placed in front of the superstructure of Structure B1, the small eastern shrine, to explore for any potential offerings. A small cist containing a comingled burial (MNI 3) was discovered within the platform of Structure B1 (Table 2, Figures 5-8). In accordance with the numbering of burials recovered by Thompson (1942) in Structure B1, which were Burials 1 through 3, this new comingled burial will be referred to as Bu-B1-4 or Burial 4. Within the humic layer, above the burial, 159 small pieces of slate were located. The slate was concentrated in the northeast corner of the unit. Below the humic layer, structural ballast was also uncovered. Finally, immediately below the construction material, human remains were encountered.

The cist was rock lined completely on the western baulk, and on the southeastern edge. The first level of Burial 4 (Bu-B1-4) was located just below the terminal layer of ballast of the structure’s low platform. The first remains encountered comprised of poorly preserved bone fragments (Misc. human remains). This layer of bone fragments did not appear to be articulated. When this layer was first assessed, it was thought to be a part of a fill layer due to the chalky nature of the surrounding matrix. As bone fragments from the upper most layer was removed, larger and better-preserved elements were uncovered in a pattern of relative articulation.
Burial B1-4

Table 2: Burial Description.

<table>
<thead>
<tr>
<th>Individual</th>
<th>Grave Type</th>
<th>Sex</th>
<th>Age</th>
<th>Position</th>
<th>Head Placement</th>
<th>Head Orientation</th>
<th>Condition</th>
<th>Approximate Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Partial Cist*</td>
<td>X</td>
<td>Adult</td>
<td>Prone</td>
<td>South</td>
<td>X</td>
<td>Poor-Mediocre</td>
<td>Late Classic**</td>
</tr>
<tr>
<td>2</td>
<td>Partial Cist*</td>
<td>X</td>
<td>Juvenile</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Poor</td>
<td>Late Classic**</td>
</tr>
<tr>
<td>***</td>
<td>Partial Cist*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Poor</td>
<td>Late Classic**</td>
</tr>
</tbody>
</table>

* Grave type based on Welsh 1988 typology.
** This date is based on affiliated ceramics. Human remains and charcoal samples are being processed for AMS radiocarbon dating.
*** Non-articulated, poorly preserved, miscellaneous human remains recovered from first level of Burial 4. It is unknown if these represent a third individual.

The second concentration of human remains encountered was the primary individual (Individual 1). This individual was placed in an extended, prone position with their head to the south. The individual’s prone position was indicated by the posterior surface of the right femur being exposed, distal end to the North. A highly-fragmented cranium was recovered in the northwest corner of the unit, with dentition and maxillary fragments recovered out of the western baulk on the unit. A highly fragmented left os coxae was recovered with the posterior-lateral aspect exposed in relative articulation with the right femur. The distal right femur was in relative articulation with a right patella, and with a tibia and fibula that were both heavily fragmented due to bioturbation from roots, but were also positioned with the posterior aspect exposed. An additional fragmented tibial shaft was recovered on top of the articulated tibia and fibula with the posterior surface exposed. The unit was extended approximately 50 centimeters to the north of the cist to expose articulated tibial and fibular shafts extending into the northern baulk. Rib fragments were recovered to the east side of the distal end of the right femur. After extending the unit, both right and left feet were exposed in articulation with the tibial and fibular fragments. The individual’s feet were and were crossed with the left foot resting on top of the right on the north end of the cist.

A second extension was opened, expanding the unit approximately 75 centimeters to the south end of the cist, with the goal of exposing more skeletal elements in situ (Figure 6). Immediately beneath the humic and ballast layers, a nearly complete mandible was recovered with the occlusal surface of the dentition exposed. The mandibular ramus was intact, but the coronoid and condyle was absent. An intact frontal bone with possible cultural cranial modification was recovered below the mandible with the anterior surface exposed (Figure 7). Near the frontal bone, in the western baulk, deciduous teeth and four shell pendants were recovered (Figure 8). The remains of vertebrae, scapulae, and humeri were recovered just north of the frontal bone where the southern extension began and were subsequently highly fragmented due to excavation. It is important to highlight
that three individual dens from the second cervical vertebrae were recovered from this extension to the north.

As the bones were systematically removed using a cluster system, smaller, juvenile long bones (Individual 2) were recovered in Cluster 3 beneath the right femur near the center of the cist (Figure 5). These long bones appeared to be possible tibiae and femora, but were obviously from a much smaller individual than the primary individual. On the last day of the field season, additional bones were recovered lower in the cist, concentrated on the eastern side of the cist. The bones were recorded, marked, and reburied to be re-exposed next field season.

The matrix surrounding the primary individual was a consistent chalky-grey marl throughout the cist. It is important to highlight that, in situ, the bones were articulated and relatively complete, but once removed they fragmented very easily. There was a large tree on the north-eastern edge of the unit, which caused substantial damage to the bones. In addition, previous excavations on the super-structure of B1 by Thompson (1942) may have led to further degradation of the cist and enclosed individuals. Few artifactual remains were recovered within this burial aside from the four small carved shell pendants and rodent tooth, found in the southwestern baulk, near the intact frontal bone (Figure 8).

![Figure 5: Burial plan map.](image)

Of the six previous burials documented from Group B, four have data recorded for head placement. While body positions varied, all four of these burials were interred with their heads to the south, in a similar manner to the primary individual from Burial 4 (Bu-B1-4). In addition, of these six burials only three had their body positions recorded for comparison. However, none of these burials were placed in a prone position like the primary individual from Burial 4 (Bu-B1-4). While this sample is very small the practice of interring individuals with their head to the south does remain consistent with general burial patterns from the Belize Valley (Novotny 2015) whereas the burial positions...
appear varied. Furthermore, while the nature of the association between the individuals interred within Burial 4 is unclear, there are two predominate trends seen within multiple burials in the Maya Lowlands. The first burial practice consists of mother-child or parent-child interments. The second predominate multiple burial practice typically consists of a primary burial interred with sacrificed, or human offerings (Welsh 1988:37).

Figure 6: Third level of Burial 4 (B1-Bu-4) in situ.
**Figure 7:** An intact frontal bone from Burial 4 (B1-Bu-4) with possible cultural cranial modification.

**Figure 8:** Modified shell and rodent tooth (top right), which were recovered within Burial 4 (B1-Bu-4).
Structure B-2 Architecture

The architecture of Structure B-2 was quite different than it initially appeared, prior to excavations (Figure 9). To begin, the building was set back much farther from the plaza than assumed. It is most likely that a large portion of the original structure has slumped off the north side of the plaza. Researchers initially assumed the presence of a central stairway, due to a bulge in the structure. This turned out to be a large amount of collapse and large root systems of two gumbolimbo trees.

The structure has 2-3 courses of cut stones still preserved on the southern face. The wall is adorned with a basal molding. The structure featured two purposely-filled in doorways (Figure 9). Below the terminal floor, it appears that a penultimate phase of construction exists. Due to time constraints, these excavations were not able to be completed in the 2016 field season.

Figure 9: Before and after horizontal excavations on Structure B2, Group B, Xunantunich.
Terminal Deposits

Throughout Court 1 and in areas up against Structures B1, B2, and B3, artifactual concentrations were encountered and suspected to be terminal deposits. These deposits were encountered on and above the terminal plaza surface, as well as placed at the corners of the structures. In addition, it appears that additional deposits may exist below the terminal floor. This section will provide an individual discussion of location, placement, and contents of each deposit.

These deposits, known as Terminal Deposits, may represent abandonment or post-abandonment activity at the group. Terminal Ritual Deposits are a special kind of deposit associated with ritual practices around the time of site abandonment, distinct from everyday practices such as trash deposition. Archaeologists are challenged to identify what specific activities are represented with terminal deposits due to the similarities in their contents, in addition to high contextual variability (Navarro Farr 2009).

Terminal deposit assemblages comprise of high ceramic sherd frequencies in comparison to other artifact classes such as lithics and bones. Contextually speaking, deposits are found in a range of localities, including on floors, in rooms, over stairs, and under dismantled structures (Koenig 2014:2). Archaeologists distinguish three types of terminal ritual deposits: dedication rituals, termination rituals, and revisitation rituals (Pagliario et al. 2003; Stanton et al. 2008; Clayton et al. 2005). Within termination rituals, Pagliaro et al. (2003) identified Unspecified termination deposits, a term which is useful for describing the deposits identified at Group B.

Termination rituals or deposits are the performative act of releasing the spirit of material (Koenig 2014:3). These rituals often involve the breaking or terminating the life cycle of material objects. Most commonly the deposits feature a large concentration of fragmented ceramic vessels. The best indicator of termination rituals is sherd refits from different levels and areas of a deposit, which suggest the breaking of vessels and the subsequent scattering of the pieces (Pagliaro et al. 2003:80).

Unspecified termination deposits, defined by Pagliaro et al., (2003:82-83), include a range of artifacts including partial ceramic vessels, which do not refit, as well as obsidian blades, metates, and figurine fragments. These unspecified termination deposits may have been site-wide ritual acts, demonstrated by fragments of the same vessels recovered within multiple deposit localities. This term is the best descriptor for the Group B deposits, as much of the ceramic sherds do not appear to refit. Additionally, limited amounts of other artifact classes, including ceramic figurines, faunal and human remains were present.

In total, eight deposits were encountered in the XACP and BVAR project excavations. In addition, the 2016 excavations in the southwestern corner of Group B, conducted by Mike Petrozza and Jason Yaeger of UTSA, also yielded evidence of a large terminal deposit, consisting of broken ceramic vessels, chert bifaces, slate, and other implements (Figure 10) (Mike Petrozza Personal Comm. 2016).
Central Plaza Deposit, or Deposit 1

The first deposit encountered was located within the central area of Court 1, approximately 2 centimeters above the terminal plaza floor. The deposit laid beneath a pile of back dirt, presumable from Thompson’s (1942) excavations of Structure B-1. The back dirt contained limited amounts of ceramic body sherds. Below the deposit, however, a dense carpet deposit of a wide variety of artifacts was encountered (Figure 13). The layer of artifacts was thin and appears to be the result of one depositional event. Based on the semi disturbed context, it is impossible to make any inference about the materials or verify the event or act that led to its deposition.

The deposit contained a diverse assemblage including a concentration of unarticulated ceramics sherds and fragmented figurines, human and faunal remains, chert flakes and cores, obsidian blades and one exhausted core, as well as modified marine and freshwater shells (Figure 11-13). Special finds include several anthropomorphic and zoomorphic figurine fragments, a slate spindle whorl, and four drilled *Olivella* shells (Figures 11 and 12).

![Central Deposit](image)

**Figure 11:** Central Deposit.

![Drilled Olivella Shells](image)

**Figure 12:** Drilled *Olivella* Shells (left), and an anthropomorphic ceramic figurine head (right), recovered in the Central Plaza Deposit, located in the center of Courtyard 1.
Figure 10: Plan of Group B, with the extent of individual terminal deposits highlighted.
Figure 13: Special finds, including the front of a large hollow anthropomorphic figurine (left), as well as a foot, shown from two perspectives (center), and a bird effigy, likely of a Toucan (right), recovered from the Central Deposit in Courtyard 1, Group B, Xunantunich.

Northeast Deposit, or Deposit 2

Near the corner on Structures B-1 and B-2, in the northeast corner of Courtyard 1, the largest of the terminal deposits was unearthed (Figure 14). The thick and densely packed deposit comprised of primarily ceramic body sherds, with limited other artifacts present. The remains were mainly utilitarian in nature, with few ceremonial artifacts including an incensario fragment, polished pieces of pyrite, and a small slab of slate which had begun to fragment (Figures 14-16). Additional artifacts recovered within the deposit include a limestone bark beater and mano and metate fragments, as well as chert flakes and core (Figure 17, left). This deposit has likely been disturbed by previous research, including the test pitting down near the corner of the two structures by XAP.
Figure 14: Northeast Deposit.

Figure 15: Artifacts from the Northeast Deposit, including a limestone bark beater (left) and a large piece of fragmented slate (right).
West Deposit, or Deposit 3

A small deposit was encountered at the west end of Courtyard 1, against the wall of Structure B-3 (Figure 17). The deposit was located adjacent to a blocked doorway, with some of the deposit materials leading into the doorway. Due to time limitations, we were unable to complete the excavation of the doorway. The deposit was a small but dense deposit of large ceramic rim and body sherds, which did not appear to refit. An adorned anthropomorphic spout was located within the deposit (See deposit discussion). It did not appear, however, to refit with any other sherds within the deposit.

Figure 17: West Deposit in situ.
East Central Deposit, or Deposit 4

This small deposit featured a small quantity of large ceramic rim and body sherds, as well as one large *metate* fragment. The deposit intersected with the terminal architecture and extended directly south into the courtyard (Figure 18). This deposit is one of several small ceramic features, which contained limited materials and lacked refitting vessels.

![Figure 18: East Central Deposit in situ.](image-url)

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Deposit 5

Deposit 5, another small concentration of ceramics, was encountered between several of the deposits in front of Structure B-2 (Figure 21, left). The deposit was a small discrete grouping of ceramic body sherds. In addition, one medium sized chert biface was recovered within the deposit (Figure 19, right). The biface was made from a local brown-grey chert and was approximately 12 centimeters in length and is quite thin. This is the sole example of a chert biface recovered within the Group B terminal deposits recovered in the 2016 excavations.

![Deposit 5 in situ](image)

**Figure 19:** Deposit 5 *in situ* (left), with a closeup of the single chert biface recovered in the deposits (right).

West Central Deposit, or Deposit 6

Yet another discrete deposit, Deposit 6, was identified within Courtyard 1. This deposit was immediately west of Deposit 5 (Figure 20). While most the deposit is small, unarticulated body sherds, and additional artifacts were recovered from within the deposit including a ceramic spindle whorl and a ceramic figurine head (Figure 21).
Below Terminal Floor Deposit, or Deposit 7

A small section of preserved terminal plaster floor was revealed on the western side, in front of Structure B-2. Immediately next to this feature and at a slightly lower level, was a very small concentration of artifacts. As with all the other deposits in the group, Deposit 7 is primarily ceramics, in addition to faunal remains and chert debitage. This artifact concentration was the smallest recovered at Group B, though it had a more proportionate assemblage.

Northwest Deposit, or Deposit 8

Near the intersection of Structures B2 and B3, in the northwest corner of Courtyard 2, a medium-sized deposit of ceramic rim and body sherds was encountered (Figure 22). No additional artifact classes were present within the deposit. The deposit
was significantly thicker than the other deposits at the group, with matrix present between some of the ceramic vessels. It is unclear why the composition of the deposits varies. The stacked nature of Deposit 8, within the corner of two structures, is quite different than other instances where the deposit is a thin layer.

![Northwest Deposit 8 in situ.](image)

**Figure 22:** Northwest Deposit 8 *in situ.*

**Discussion of Deposits**

Ceramic types were limited within the deposits, with consistent types reoccurring in various deposits (Figure 23). The most common ceramic types present were Platon Punctated Incised or McRae Impressed dishes and large jar rims, typically utilitarian wares, from the Belize Group, in the Tiger Run and Spanish Lookout phases (Gifford 1976:259-261). Minimal evidence of non-utilitarian ceramics was recovered from within the deposits and include an *incensario* fragment and an anthropomorphic spout (Figure 26).
Faunal Remains

Faunal remains recovered in the excavations from Group B were exported to Northern Arizona University to be analyzed by C. Burke and undergraduate students G. Wisner and K. Tappan at the Faunal Analysis Lab. Faunal remains recovered during excavations from Courtyard 1 of Group B at Xunantunich were limited. Many of the remains could not be identified to a specific taxonomic category. Skeletal element identification, however, was often successful. These remains are fragmentary, but overall relatively well-preserved with a lack of taphonomic damage other than breakage.
Table 3. Faunal Remains Recovered from Group B.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>% of Faunal Remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>57</td>
<td>91%</td>
</tr>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>3</td>
<td>0.05%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>1</td>
<td>0.02%</td>
</tr>
<tr>
<td><em>Pachychilus indiorum</em></td>
<td>2</td>
<td>0.03%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The number of identified specimens (NISP), where identified indicates to skeletal element or body portion (appendicular, axial, cranial), is 63 (Table 3). The majority were appendicular elements, typically long-bone fragments, although several cranial fragments were also recovered. Of these, three skeletal elements, two molars and a premolar, were identified as white-tailed deer (*Odocoileus virginianus*). In addition, three gastropods were recovered, one unidentifiable marine shell and two jute (*Pachychilus indiorum*) (Tables 3 and 4). The excavation units with the most faunal material are B2-6 and GB-C1-1, as these remains came from the Northeast Deposit, the large terminal deposit which spanned both excavation units (Table 4).

Table 4. Faunal Remains by Excavation Unit from Group B

<table>
<thead>
<tr>
<th>Excavation Unit</th>
<th>Taxonomic Category</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1-5</td>
<td>Class: Mammalia</td>
<td>1</td>
</tr>
<tr>
<td>B1-5</td>
<td>Class: Gastropoda</td>
<td>1</td>
</tr>
<tr>
<td>B1-6</td>
<td>Class: Mammalia</td>
<td>1</td>
</tr>
<tr>
<td>B2-1</td>
<td>Class: Mammalia</td>
<td>3</td>
</tr>
<tr>
<td>B2-2</td>
<td>Class: Mammalia</td>
<td>1</td>
</tr>
<tr>
<td>B2-2</td>
<td><em>Pachychilus indiorum</em></td>
<td>1</td>
</tr>
<tr>
<td>B2-3</td>
<td>Class: Mammalia</td>
<td>1</td>
</tr>
<tr>
<td>B2-5</td>
<td>Class: Mammalia</td>
<td>4</td>
</tr>
<tr>
<td>B2-5</td>
<td><em>Pachychilus indiorum</em></td>
<td>1</td>
</tr>
<tr>
<td>B2-6</td>
<td>Class: Mammalia</td>
<td>24</td>
</tr>
<tr>
<td>B2-6</td>
<td><em>Odocoileus virginianus</em></td>
<td>3</td>
</tr>
<tr>
<td>GB-C1-1</td>
<td>Class: Mammalia</td>
<td>13</td>
</tr>
<tr>
<td>GB-C1-2</td>
<td>Class: Mammalia</td>
<td>2</td>
</tr>
<tr>
<td>GB-C1-3</td>
<td>Class: Mammalia</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

DISCUSSION AND CONCLUSIONS

The 2016 XACP and BVAR project excavations of Group B yielded essential information regarding the Terminal Classic Period occupation at the site of Xunantunich. This research compliments earlier studies by Thompson (1942), Pendergast and Graham
These excavations revealed the presence of multiple ceramic deposits, both small and large. Small percentages of additional artifact classes were also recovered within the deposits. Ceramic fragments – sherds and figurines – do not represent refitted items, suggesting these deposits would be classified as *unspecified termination deposits* (Koenig 2014).

Archaeological data from Group B has been important since early periods of research at the center, serving to shape the interpretation and ceramic chronology of Xunantunich. The numerous terminal deposits recovered at the site add to the growth of the corpus of known Terminal Deposits. Additional terminal deposits have been identified throughout Xunantunich. Deposit localities include within Structure A-15, in the front face of Structure A-6 (El Castillo), and a large deposit found in the alley way between Structure A-3 and A-4 (Audet 2006; J. Awe personal communication 2016).

Currently research by BVAR project at the sites of Baking Pot and Lower Dover also strive to elucidate subtle features of this prehistoric behavior. Terminal deposits remain problematic for archaeologists, who offer a range of interpretations of behavior associated with these deposits, including a ritual act, a result of feasting, site abandonment behavior, or trash deposits. These data, recovered from Group B, will be further analyzed to work towards a better understanding of these problematic deposits.

**Acknowledgements**

We would first like to thank Dr. John Morris and the entire staff of the National Institute of Culture and History and the Belize Institute of Archaeology for permission to conduct archaeological research and conservation at the site of Xunantunich. Thank you to the Belize Valley Archaeological Reconnaissance project, Co-directions Dr. Jaime Awe and Dr. Julie Hoggarth, and all the staff and students for their support. Thank you to Gavin Wisner and Katie Tappen for assisting with the faunal analysis discussed in this report. We would also like to thank Jorge Can and our entire excavation team from San Jose Succotz, Benque Viejo, and other nearby villages in Belize. Thank you to Merle Alfaro for his impeccable drawing and mapping skills, which are essential to our research. We would like to acknowledge the security guards from the Belize Defense Force and the employees of Xunantunich, who make the site operations flow smoothly. In addition, the passion of the local tour guide community continues to inspire our work through their continued interest the history of the Maya and their commitment to sharing the most accurate and current information to all the tourists of Belize.
REFERENCES CITED

Audet, Carolyn M.

Clayton, S., D. Driver, and L. Kosakowsky

Etheridge, B.

Ferguson, Josalyn

Gifford, J.C., Robert Sharer, Joseph Ball, Arlen F. Chase, Carol Gifford, Muriel Kirkpatrick, and George H. Myer

Hoggarth, Julie A., Jaime J. Awe, Sarah E. Bednar, Amber Lopez Johnson, Ashley Mckeown, Sydney Lonaker, Kirsten Green, Niyolpaqui Morazu-Keeswood, Erin Ray, and John Walden

Koenig, Emma Nicole
Leventhal, Richard M., Wendy Ashmore, Lisa J. LeCount, and Jason Yaeger

Navarro-Farr, Olivia

Novotny, Anna

Pagliaro, Jonathan B., James F. Garber, ad Travis W. Stanton

Pendergast, David M. and Elizabeth Graham

Stanton, Travis W. and Aline Magnoni (editors)

Thompson, J. Eric S.

Welsh, William B.M.
INTRODUCTION

This report provides a preliminary analysis and summary of the faunal materials recovered from the Baking Pot (Table 1), Cahal Pech, Lower Dover (Table 2), and Xunantunich (Table 3) archaeological sites in the Upper Belize River Valley. Much of the animal skeletal elements were collected during the summer 2016 season; however, a reanalysis and summary of the Lower Dover materials from 2011, 2012, 2013, and 2014 are included.

METHODS AND MATERIALS

Faunal materials from Baking Pot and Xunantunich were examined by Burke, Wisner, Tappan, and Wilson during the summer and fall of 2016 and spring of 2017. Lower Dover faunal materials were examined by Burke, Wisner, Tappan, and Wilson during the same time, but materials from various structures had initially been analyzed by Stanchly in the past. All materials, except for those from Cahal Pech, were initially dry-brushed in San Ignacio, Belize and prepared for export to the Northern Arizona University, Department of Anthropology, Faunal Analysis Laboratory (NAUDAFAL). Those faunal materials examined from Cahal Pech were analyzed exclusively by Stanchly in July 2016 in San Ignacio, Belize.
Table 1: Baking Pot Distribution of NISP by Taxonomic Class.

<table>
<thead>
<tr>
<th>Taxonomic Class</th>
<th>NISP</th>
<th>%NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>56</td>
<td>94.92%</td>
</tr>
<tr>
<td>Class: Reptilia</td>
<td>1</td>
<td>1.69%</td>
</tr>
<tr>
<td>Class: Aves</td>
<td>1</td>
<td>1.69%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>1</td>
<td>1.69%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Lower Dover Distribution of NISP by Taxonomic Class.

<table>
<thead>
<tr>
<th>Taxonomic Class</th>
<th>NISP</th>
<th>%NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>1110</td>
<td>88.45%</td>
</tr>
<tr>
<td>Class: Aves</td>
<td>68</td>
<td>5.42%</td>
</tr>
<tr>
<td>Class: Reptilia</td>
<td>46</td>
<td>3.67%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>27</td>
<td>2.15%</td>
</tr>
<tr>
<td>Class: Osteichthyes</td>
<td>2</td>
<td>0.16%</td>
</tr>
<tr>
<td>Class: Actinopterygii</td>
<td>1</td>
<td>0.08%</td>
</tr>
<tr>
<td>Class: Malacostra</td>
<td>1</td>
<td>0.08%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1255</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3: Xunantunich Distribution of NISP by Taxonomic Class.

<table>
<thead>
<tr>
<th>Taxonomic Class</th>
<th>NISP</th>
<th>%NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>2323</td>
<td>99.74%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>6</td>
<td>0.26%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2329</td>
<td>100%</td>
</tr>
</tbody>
</table>

All faunal specimens were dry-brushed in both Belize before export and again at NAUDAFAL. Dry-brushing minimizes damage to remains, as opposed to wet or water-washing, and exposes natural and cultural taphonomic effects. All faunal materials were also re-bagged and organized according to structure and site. Bag numbers were assigned by the authors to assist with relocating materials during and after analysis. Bag numbers begin with the initials of the supervising zooarchaeologist for the faunal analysis, followed by the year of analysis and bag number in sequence, e.g. CCB2016-01. Each identified specimen was also assigned a catalog number, beginning with the letter F and followed by a number in sequence, e.g. F001.
Following cleaning, all faunal remains were identified to skeletal element, portion of said element, body portion – such as exoskeleton, cranial, appendicular, axial, side, age – generally subadult or adult, sex, and modifications – either natural or cultural. As for taxonomic classification were remained as conservative as possible even considering our access to comparative collections. In additional to taxonomic categories, skeletal materials were classified to size class – small, medium, or large following Pendergast (1971:78). Below is a semi-exhaustive discussion of the skeletal element, portion, and side for each site and taxon. In the interest of brevity, some less diagnostic descriptions were excluded.

Comparative collections used for analysis include the Stanley J. Olsen Laboratory of Zooarchaeology at the Arizona State Museum in Tucson, the Charles L. Douglas Vertebrate Zoology Collection at the Museum of Northern Arizona in Flagstaff, and the NAUDAFAL comparative materials. Besides comparative collections, osteological guides were used as well (including: Andrews 1969; Gilbert 1985 and 1990; McKusick 2001; Olsen 1964, 1968, 1979, and 1982; Sobolik and Steele 1996). Using diagnostic anatomical features, measurements, and comparative collections allowed for many accurate identifications; however, these designations were made conservatively to avoid data inflation. If confidence in taxonomic identification was not absolute, but the authors could identify some minor diagnostic features or measurements, specimens may be listed as “closely following” a taxon.

The most fundamental unit of quantitative analysis, number of identified specimens (NISP), is defined as the total count of individual specimens (Lyman 2008). For this report number of identified species, where identified indicates to skeletal element or body portion (appendicular, axial, cranial) and taxon is presented for each site’s structure/area below. Future faunal analyses will include quantification of minimum number of elements (MNE) to assist with minimum number of individuals (MNI) and analysis of the patterns observed in taxa present, natural or cultural modifications, and the importance of animals to the ancient Maya.

OVERALL PRESERVATION AND TAPHONOMY OF FAUNAL REMAINS

Taphonomy is defined as the transition of animal remains from the biosphere to the lithosphere (Efremov 1940). Fundamentally taphonomy is the dynamic and complex events leading to the decay and burial of organisms. Taphonomic agents cause taphonomic effects to skeletal elements. When collecting and analyzing faunal data, a comprehensive identification of taphonomic effects is useful to identify preservation bias, separate that bias from interpretations of human behaviors, and evaluate site formation processes.

Taphonomic Descriptions of Modified Faunal Remains: Human Effects

Human created modifications to bone include stages of bone working, bone or shell personal adornments, worked bone tools, and animal processing such as cut marks and burning. Identification of these modifications assists with interpreting subsistence
and non-dietary animal use in the past. Cut marks are common modifications to bone made during the process of butchery. Potts and Shipman (1981:577) defined the general term “cut marks” as the marks produced by stone tools – that are elongated grooves with v-shaped to u-shaped cross-sections. Several researchers have further described the shape of cut marks as having multiple, fine parallel striae on the vertical walls of the marks (Eickhoff and Herrmann 1985; Fisher 1995; Potts and Shipman 1981; Shipman 1981).

Burned bone passes through a continuum of appearances while being burned, specifically unburnt, non-incinerated or smoked with blackening along the edges, incompletely incinerated with blackened or dark brown color throughout, and, last, completely incinerated or calcined with bluish-white or grey color throughout (Buikstra and Goldstein 1973; Stewart 1979; Ubelaker 1978). These stages are generally referred to as browned, carbonized, and calcined, respectively. Bone can be burned through the cooking process or by other means such as wildfires.

Bone working in the Maya region has been extensively discussed by Emery (2008 and 2009) and summarized by Stanchly (2013). Evaluating the production of bone and antler tools, personal adornments, musical instruments, and other specialized artifacts was an essential step in identification of remains during this analysis. The majority of artifacts identified consisted of awls, pins, needles, beads, tubes, and one rasp. Debitage removal identification was based on the generalized sequence of perforator production by Emery (2008 and 2009).

**Taphonomic Descriptions of Modified Faunal Remains: Natural Effects**

The primary natural taphonomic effects observed in the below sites include carnivore modification, rodent gnawing, insect burrowing, diagenic exfoliation and erosion, and bone breakage. Carnivore modification refers to the tooth marks left behind by carnivores actively gnawing on animal remains for subsistence, all the while leaving marks on the skeletal materials either accidentally or intentionally (Fisher 1995; Lyman 1994). Carnivores are taphonomic agents that leave identifiable effects including chipping back, crenellations, furrowing, pitting, punctures, and tooth scoring (Fisher 1995; Lyman 1994). Rodent gnawing occurs for one of two reasons, one is pica or osteophagia, eating bone to acquire minerals (Fisher 1995; Lyman 1994). The second reason is tied to the rodent’s hypselodont incisors, which are ever-growing, leading to behavioral adaptations where rodents gnaw on bones to wear down their teeth.

Several of the specimens analyzed possessed evidence of insect burrowing. Insects as a taphonomic agent are not often considered, but the effect is small circular holes that can be mistaken as carnivore punctures, but is differentiated by the larger size, and the fact that carnivore punctures exhibit crushed bone at the bottom while insect burrowing does not (Lyman 1994). It can also be difficult to identify whether small bores into bone are cultural modifications, pathologies, or insect burrowing. Various insects will burrow into bone for different reasons, some for nutrition, some seemingly just to burrow.
Finally, diagenesis is the chemical alterations that occur due to the moisture and the limestone rich deposit (Lyman 1994). Hydrated lime, or Calcium hydroxide, was often combined with other admixtures and aggregates in order to make cement for floors, stuccos, and other constructions. When Calcium Hydroxide becomes saturated, it becomes limewater, which further cements the remains within the tomb. This was an important part of the poor preservation of bones.

**Taphonomy of Baking Pot, Lower Dover, and Xunantunich**

Fauna recovered in the Baking Pot deposits are very well preserved. Taphonomic issues or occurrences are rare with exception of human modifications and natural taphonomic effects, such as tools and elements within the bone working process, some cut marked bones, and limited evidence of carnivore or rodent gnawing. As for Lower Dover, generally the faunal remains are well preserved, although most of the elements are highly processed exhibiting cut marks, varying stages of bone working, and breakage leading to high NISP values. Rodent gnawing and carnivore gnawing were present in different assemblages, but not in significant quantities.

Preservation at Xunantunich is variable depending on the context in specific structures and areas. For example, preservation is generally good at Group B, but faunal specimens recovered from the tomb in Structure A9 are poorly preserved. Damage to the faunal remains in the tomb are due to the destructive nature of the limestone deposits, causing diagenetic erosion and exfoliation of the bone surface, leading to difficulties in identifying culturally produced modification, such as cut marks (Lyman 1994). When calcium hydroxide, a mixture created by the ancient Maya to make cement floors and stucco, was saturated from the moisture and humidity within the tomb it became limewater. This limewater caused the cementation of the bones, the difficulty in their recovery, and the high NISP values described below. Several of the long-bone elements recovered from A9 are carnivore gnawed though, indicating the elements were collected discarded materials and refused for ritual deposition in the tomb.

**TAXONOMIC, QUANTITATIVE, AND MODIFIED DISTRIBUTIONS OF FAUNA**

**Baking Pot Results of Analysis**

Faunal remains identified from Baking Pot were recovered from Structures B2, B6, B7, B9, and B17 (Lonaker et al., Chapter 2). Given the proximity of Structures B6 and B7, the faunal materials recovered from the overlap of these deposits is discussed below.

**Structure B2**

This structure did not yield many faunal remains, with a total NISP of 78, consisting of mostly mammalian remains (Table 4). Making up the assemblage is one specimen identified to white-tailed deer (*Odocoileus virginianus*), 22 specimens
identified to lowland paca (*Agouti paca*), also known as the gibnut in Belize, one specimen closely following *Meleagris* sp. or turkey, and 45 indeterminate mammalian specimens of various size classes. The fauna recovered also included one indeterminate bird specimen, and eight specimens identified to Order: Testudines, turtles.

**Table 4:** Faunal Remains Recovered from Structure B2.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>1</td>
<td>1.28%</td>
</tr>
<tr>
<td><em>Agouti paca</em></td>
<td>22</td>
<td>28.21%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>29</td>
<td>37.18%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>5</td>
<td>6.41%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>7</td>
<td>8.97%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>4</td>
<td>5.13%</td>
</tr>
<tr>
<td><em>Meleagris</em> sp.</td>
<td>1</td>
<td>1.28%</td>
</tr>
<tr>
<td>Medium Class: Aves</td>
<td>1</td>
<td>1.28%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>8</td>
<td>10.26%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>78</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Structure B6**

This structure exhibited the largest faunal assemblage at the site, with a total NISP of 1,677, including a diverse array of taxa (Table 5). Fishes account for a small portion of the assemblage, with two pectoral fin specimens identified to *Rhamdia laticuada laticuada*, one indeterminate ray-finned fish (Class: Actinopterygii) specimen, and four indeterminate bony fish (Superclass: Osteichthyes) specimens. Amphibians also made up a minor portion of the total assemblage, with 16 specimens identified as frogs (Order: Anura), one specimen closely following Anura, and one closely following Order: Accipitriformes, or the birds of prey. Birds make up a slightly larger proportion of the collection, with 62 indeterminate specimens of various size classes.

By far, Class Mammalia makes up the largest portion of the assemblage, with 1,307 specimens. More specifically, 11 specimens were identified to even-toed ungulates (Order: Artiodactyla) and five closely following Artiodactyla. Thirty-seven specimens were identified to white-tailed deer, with 19 closely following the same taxon, five closely following white-lipped peccary (*Tayassu pecari*), and two closely following red brocket (*Mazama americana*). Seven specimens, two cranial fragments, one molar, two premolars, and two incisors were identified as domesticated dog (*Canis lupus familiaris*), one specimen was identified to Family: Felidae, with one closely following ocelot (*Leopardus pardalis*).

White-tailed deer was by far the most identified taxa in the structure, with 56 specimens. One complete left astragalus was identified, and one complete right calcaneus. Five indeterminate phalanges were identified, eight first phalanges were
identified, seven of which were complete. Four complete second phalanges, and two
complete third phalanges were identified as well. One femoral shaft fragments, four tibia
portions were identified. One right, and one left, humerus were identified, both having
only the distal epiphysis. Three radii were also identified, two rights, and one left. One
right acetabulum was identified, and five lumbar vertebrae, including two centra and a
spinous process. Four ribs, three left and one right, were identified. Five mandibular
fragments, and two molars, and two incisors, were also identified.

Sixteen total specimens were identified as the nine-banded armadillo (*Dasypus
novemcinctus*), including two dermal scutes and four ribs. Three specimens were
identified as femora, one complete, one femoral shaft, and one fragment. Two radii were
identified, one of which was complete. Two tibiae were identified, both distal ends.
Finally, three complete calcanei were identified, two lefts and one right.

One left dentary was identified as the Virginia opossum (*Didelphis virginiana*),
one to *Philander opossum*, or the gray four-eyed opossum, and one closely following
*Philander opossum*. Ten specimens were identified as rodents, with one identified to
*Sciurus* sp. one specimen closely following lowland paca, and one closely following
*Lionys salvini*, the spiny pocket mouse. Additionally, one specimen was identified to be
closely following Order: Primates.

Reptiles were the second largest contingent of faunal remains, including one
specimen identified from Order: Crocodilia, with two closely following the same taxon,
and one specimen identified to Morelet’s crocodile (*Crocodylus moreletti*). Additionally,
21 specimens were identified Order: Squamata, the scaled reptiles, and 13 closely
following the same taxa. Eighty-eight specimens were identified as turtles, with one
closely following the same taxa, and one left proximal femur closely following *Claudius
angustatus*, or the narrow-bridged musk turtle. Finally, a couple of crustacean (Phylum:
Arthropoda) specimens, one of which was identified to Order: Decapoda, the ten-footed
crustaceans such as the crabs and shrimp, was identified.

Table 5: Faunal Remains Recovered from Structure B6.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Rhamdia laticuada laticuada</em></td>
<td>2</td>
<td>0.12%</td>
</tr>
<tr>
<td>Small-medium Class: Actinopterygii</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: Anura</td>
<td>16</td>
<td>0.95%</td>
</tr>
<tr>
<td>Order: cf. Anura</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: cf. Accipitriformes</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Small Class: Aves</td>
<td>21</td>
<td>1.25%</td>
</tr>
<tr>
<td>Small-medium Class: Aves</td>
<td>27</td>
<td>1.61%</td>
</tr>
<tr>
<td>Medium Class: Aves</td>
<td>14</td>
<td>0.83%</td>
</tr>
<tr>
<td>Order: Artiodactyla</td>
<td>11</td>
<td>0.66%</td>
</tr>
<tr>
<td><em>Odocoilues virginianus</em></td>
<td>37</td>
<td>2.21%</td>
</tr>
</tbody>
</table>

413
<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>19</td>
<td>1.13%</td>
</tr>
<tr>
<td>cf. <em>Mazama americana</em></td>
<td>2</td>
<td>0.12%</td>
</tr>
<tr>
<td>cf. <em>Tayassu pecari</em></td>
<td>5</td>
<td>0.30%</td>
</tr>
<tr>
<td>cf. Order: Artiodactyla</td>
<td>5</td>
<td>0.30%</td>
</tr>
<tr>
<td><em>Canis lupus familiaris</em></td>
<td>7</td>
<td>0.42%</td>
</tr>
<tr>
<td><em>Dasypus novemcinctus</em></td>
<td>16</td>
<td>0.95%</td>
</tr>
<tr>
<td><em>Didelphis virginiana</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td><em>Philander opposum</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>cf. <em>Philander opposum</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: Felidae</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>cf. <em>Leopardus pardalis</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: Rodentia</td>
<td>10</td>
<td>0.60%</td>
</tr>
<tr>
<td><em>Sciurus</em> sp.</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>cf. <em>Agouti paca</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>cf. <em>Liomyis salvini</em></td>
<td>2</td>
<td>0.12%</td>
</tr>
<tr>
<td>cf. <em>Primate</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>51</td>
<td>3.04%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>244</td>
<td>14.55%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>443</td>
<td>26.42%</td>
</tr>
<tr>
<td>Medium-Large Class Mammalia</td>
<td>382</td>
<td>22.78%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>187</td>
<td>11.15%</td>
</tr>
<tr>
<td>Small Superclass: Osteichthyes</td>
<td>4</td>
<td>0.24%</td>
</tr>
<tr>
<td>Order: Crocodilia</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>cf. <em>Crocodylus moreletii</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: cf. Crocodilia</td>
<td>2</td>
<td>0.12%</td>
</tr>
<tr>
<td>Order: Squamata</td>
<td>21</td>
<td>1.25%</td>
</tr>
<tr>
<td>Order: cf. Squamata</td>
<td>13</td>
<td>0.78%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>88</td>
<td>5.25%</td>
</tr>
<tr>
<td>cf. <em>Claudius Angustatus</em></td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Order: cf. Testudines</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Small Class: Reptilia</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Small-Medium Class: Reptilia</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Medium Class: Reptilia</td>
<td>9</td>
<td>0.54%</td>
</tr>
<tr>
<td>Phylum: Chordata</td>
<td>20</td>
<td>1.19%</td>
</tr>
<tr>
<td>Order: Decapoda</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Phylum: Mollusca</td>
<td>1</td>
<td>0.06%</td>
</tr>
<tr>
<td>Total</td>
<td>1677</td>
<td>100%</td>
</tr>
</tbody>
</table>
Structure B7

This structure included (Table 6), like the others, primarily mammalian remains; however, one indeterminate ray-finned bony fish specimen, one specimen closely following Order: Accipitriformes, and 63 indeterminate Class: Aves specimens of various sizes were identified. The structure included two specimens, one incisor and two other teeth identified to *Odocoileus virginianus*, and 142 indeterminate mammalian specimens. Twenty-four specimens were identified as turtles, including one indeterminate reptilian specimen.

Fauna Associated with Structures B6 and B7

Some faunal materials were labelled as part of structures B6 and B7, so instead of sorting them into one of the two structures, these remains were kept in their own grouping (Table 7). This group includes one specimen identified to Order: Anura, four identified to Order: Testudines, one indeterminate Class: Reptilia specimen, and six indeterminate Class: Aves specimens. One specimen was identified to Order: Artiodactyla and one specimen was found to be closely following ocelot (*Leopardus pardalis*). Additionally, one specimen was identified to Order: Decapoda. The total NISP for this group is 27 specimens.

In structures B6/B7 (Figure 1), we found many different complete bone tools, with 10 needles found, 11 awls, eight pendants, and 10 bone beads. One shell ring was found as well.

Table 6: Faunal Remains Recovered from Structure B7.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>% NISP Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small-Medium Class: Actinopterygii</td>
<td>1</td>
<td>0.43%</td>
</tr>
<tr>
<td>Order cf. Accipitriformes</td>
<td>1</td>
<td>0.43%</td>
</tr>
<tr>
<td>Small Class: Aves</td>
<td>39</td>
<td>16.6%</td>
</tr>
<tr>
<td>Small-Medium Class: Aves</td>
<td>22</td>
<td>9.36%</td>
</tr>
<tr>
<td>Medium Class: Aves</td>
<td>2</td>
<td>0.85%</td>
</tr>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>2</td>
<td>0.85%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>16</td>
<td>6.81%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>44</td>
<td>18.72%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>40</td>
<td>17.02%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>30</td>
<td>12.77%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>12</td>
<td>5.11%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>24</td>
<td>10.21%</td>
</tr>
<tr>
<td>Medium Class: Reptilia</td>
<td>1</td>
<td>0.43%</td>
</tr>
<tr>
<td>Phylum: Chordata</td>
<td>1</td>
<td>0.43%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>235</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Table 7: Faunal Remains Recovered from Structure B6/B7.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order: Anura</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>Small Class: Aves</td>
<td>6</td>
<td>22.22%</td>
</tr>
<tr>
<td>Order: Artiodactyla</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>cf. Leopardus pardalis</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>10</td>
<td>37.04%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>4</td>
<td>14.81%</td>
</tr>
<tr>
<td>Medium Class: Reptilia</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td>Order: Decapoda</td>
<td>1</td>
<td>3.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 1. Bone Artifacts from Structure B6 and B7 at Baking Pot.

Structure B9

This structure included 18 indeterminate Class: Mammalia remains of various size classes, one indeterminate Class: Aves specimen, and one specimen identified to Order: Testudines. The total NISP for this structure is 20 specimens.

Structure B17

This structure included four indeterminate Class: Mammalia remains of various size classes, and one specimen identified to *Odocoileus virginianus*. Two indeterminate Aves specimens of different size classes were identified, and one specimen identified to Order Testudines, and one closely following the same Order. The total NISP for this structure is nine specimens.
Cahal Pech Results of Analysis

The analysis of the assemblage indicates that the teeth are predominantly from white-tailed deer and domestic dog. Other taxa identified include jaguar and peccary. A few teeth are those from an unidentified carnivore and at least one rodent incisor was also noted. Except for a single rodent incisor, all the teeth had been perforated within the root portion of the tooth. An NISP of 4,612 represents both complete perforated teeth and fragments thereof.

Structure B1, Burial 7

Structure B1 is the central building that makes up the Eastern Triadic structure within Plaza B at Cahal Pech. Burial 7 is an elite tomb and was discovered and excavated in 2011. The tomb is dated to the transition period between the Early Classic and Late Classic period. The tomb contained the remains of three or four elite individuals and several grave goods including: one shell inkpot, four conch shell inlaid pendants, eight shell styluses, eight ceramic vessels, three jade pendants, six jade earflares, six jade beads, three antler finger rings, three green stone celts, 1 hand-shaped bone spatula, seven stone spindle whorls, and several other offerings including Spondylus sp. shell, and other objects of worked shell and bone. Among the worked faunal materials were approximately 3,290 perforated animal teeth. At the time of the excavation these were thought to all be “drilled jaguar teeth” (Santasilia 2012:43).

A very preliminary analysis of a sample of the perforated teeth was undertaken by Stanchly in 2013, however, this was not reported. During the analysis, it became clear there were several hundred animals represented by the >3,000 teeth, including dog and deer. A more comprehensive examination of the material was begun in 2016 and is ongoing.

The perforated teeth are very fragile and the total NISP is now 4,612 complete and fragmentary teeth (Table 8). Fragmentation has occurred during the excavation of the material as well as from post-excavation transport and the analysis of the teeth. Due to the fragile nature of the teeth no attempt has been made to wash them as even simple cleaning with a dry toothbrush had led to further breakage of the many of the teeth.

The analysis of the perforated teeth indicates that the majority are biconically drilled incisors and canines. Perforations are exclusively within the root portion of the teeth. Of the 4,612 analyzed teeth, to date a total of 2,724 can be assigned to white-tailed deer, dog, or jaguar.

White-tailed deer are represented by 1,701 perforated incisors. A preliminary sorting of the incisors to specific incisor, indicates that there are 519 right first incisors and 469 first left incisors. The minimum number of white-tailed deer represented by the 1,701 teeth is 519. This is potentially the largest single collection of perforated deer teeth recovered from a Lowland Maya burial. Further examination of the remaining 713
incisors will likely result in an increase in the minimum number of deer present. Age estimates based on tooth growth and attrition have not been conducted to date.

**Table 8:** Perforated Animal Teeth Recovered from Structure B1 - Burial 7.

<table>
<thead>
<tr>
<th>Tooth</th>
<th>Deer</th>
<th>Dog</th>
<th>Jaguar</th>
<th>Other</th>
<th>Unidentified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incisor, 1 (R)</td>
<td>519</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>519</td>
</tr>
<tr>
<td>Incisor, 1 (L)</td>
<td>469</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>469</td>
</tr>
<tr>
<td>Incisor, (R)</td>
<td>232</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>232</td>
</tr>
<tr>
<td>Incisor, (L)</td>
<td>150</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>150</td>
</tr>
<tr>
<td>Incisor</td>
<td>331</td>
<td>71</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>406</td>
</tr>
<tr>
<td>Canine</td>
<td>-</td>
<td>920</td>
<td>6</td>
<td>2</td>
<td>176</td>
<td>1104</td>
</tr>
<tr>
<td>Premolar</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Molar</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>-</td>
<td>11</td>
<td>10</td>
<td>-</td>
<td>1706</td>
<td>1727</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1701</td>
<td>1003</td>
<td>20</td>
<td>3</td>
<td>1885</td>
<td>4612</td>
</tr>
</tbody>
</table>

Domesticated dog are represented by 1,003 perforated teeth. Most of these are perforated canines. The 920 canines have yet to be sorted by specific upper or lower canine, but they represent a minimum of 230 dogs. Age estimates based on tooth growth and attrition have not been conducted to date.

Jaguar is represented by a total of 20 teeth or fragments thereof. These include six unsorted canines representing at least two different jaguars. These are very worn and suggest an older individual. There are 10 additional fragments of tooth that are likely the remains of another canine. Attempts will be made to refit this during the upcoming field season. In addition to the perforated jaguar canines, there is a single perforated upper left fourth premolar, a lower left fourth premolar, a lower left first molar and a lower right first molar. Three of the teeth are listed as ‘Other’ in Table 1 above. These include a lower left and lower right peccary canine and a large rodent incisor (cf. *Agouti paca*). None of these are perforated.

**Lower Dover Results of Analysis**

Faunal remains identified from Lower Dover were recovered from several seasons and include Courtyards 1, 2, 3 and 4; Plazas A, B, C, D, E, F, and G; Rockshelter 1; the Settlement; and the Settlement Group outside the site core (Collins and Guerra, Chapter 10; Guerra and Romih, Chapter 8; Walden and Biggie, Chapter 13; Watkins et al., Chapter 9).

**Courtyard 1**

Courtyard 1 had an NISP of 69 with faunal materials represented from Classes: Mammalia and Aves (Table 9). The bird specimens present included six heavily
fragmented unidentified long bones and six unidentified elements all from medium size class. All 57 mammal specimens were identified only to size class. Three rib fragments with no taphonomic markers were the only large size class identified. Medium-Large size class specimens consisted of one sub-adult distal tibia, a distal humerus with rodent gnawing, two metapodials with plaster and limestone damage, one right rib fragment, and an unidentified long bone fragment. Medium size class specimens identified include a scapula with four refitted fragments containing less than half of the proximal shaft and 15 unidentified long bone fragments that were heavily exfoliated. 20 unidentified long bone fragments from a small-medium sized appendicular element were also present.

**Table 9:** Faunal Remains Recovered from Courtyard 1.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Class: Aves</td>
<td>12</td>
<td>17.39%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>20</td>
<td>28.99%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>19</td>
<td>27.54%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>15</td>
<td>21.74%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>3</td>
<td>4.35%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Courtyard 2**

Excavations at Courtyard 2 had an NISP of 141 with Classes: Mammalia and Malacostraca present (Table 10). The crustacean specimen came from order decapoda and only consisted of one claw fragment that will be identified to taxon with better comparative collections. One complete white-tailed deer (*Odocoileus virginianus*) molar was present. Thirteen specimens closely following white-tailed deer were identified and included an unmodified antler fragment, an antler fragment with cut marks, a complete selenodont premolar, a left femur shaft with cut marks, five vertebra fragments, and four long bone fragments. Axial specimens identified to closely following Order: Artiodactyla included three right rib fragments, one rib shaft fragment, and two sacrum fragments. Appendicular specimens identified to closely following Order: Artiodactyla include seven tibia fragments, a complete phalanx with cut marks, two long bone fragments, and a fragment of a metatarsal.

Mammals identified to only size class made up most the assemblage. Size class small, small-medium, and medium were long bone fragments, and one complete medium phalanx. Appendicular specimens identified to size class medium-large include two worked bone long bone fragments (Stage 4 from Emery 2008), 44 long bone fragments with no taphonomic markers, the proximal shaft an adult right ulna, one pelvis fragment, a left radius fragment, a tibia fragment, and a metacarpal fragment. Axial specimens identified to size class medium-large include rib fragments, a couple vertebra fragments, one cranial fragment, and an alveolar fragment. Large mammals include 18 long bone
fragments, three petrous portion fragments, two rib fragments, the shaft of a radius, four tibia fragments, and 3 fragments of a glenoid fossa.

Table 10: Faunal Remains Recovered from Courtyard 2.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malacostraca decapoda</td>
<td>1</td>
<td>0.71%</td>
</tr>
<tr>
<td>Unknown Class: Mammalia</td>
<td>4</td>
<td>2.84%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>2</td>
<td>1.42%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>1</td>
<td>0.71%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>6</td>
<td>4.26%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>63</td>
<td>44.68%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>30</td>
<td>21.28%</td>
</tr>
<tr>
<td>Order: cf. Artiodactyla</td>
<td>20</td>
<td>14.18%</td>
</tr>
<tr>
<td>cf. Odocoileus virginianus</td>
<td>13</td>
<td>9.22%</td>
</tr>
<tr>
<td>Odocoileus virginianus</td>
<td>1</td>
<td>0.71%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>141</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Courtyard 2 - Structure B8

Faunal remains identified from Structure B8 of Courtyard 2 consisted of fragments from Class: Mammalia. Medium fragments identified include one ulna, one tibia, and the proximal epiphysis of a cut-worked femoral fragment. Medium-large specimens consisted of the shaft of an ulna with rodent gnawing present.

Courtyard 3

Faunal remains identified from Courtyard 3 include Classes: Reptilia and Mammalia (Table 11). Reptiles present included several turtle carapace fragments. Several nine-banded armadillos are present (*Dasypus novemcinctus*), represented by a left femur and eight dermal scutes, one of which was carbonized. Three complete molars were present and identified as closely following white-tailed deer. One small rodent right dentary fragment was present with molars still attached. Small-medium mammals present include seven long bone fragments and a browned mandible fragment. Medium mammals recovered include the body of a vertebra, three innominate fragments, a right ulna, five long bone fragments without modifications, two browned long bone fragments, and a worked long bone fragment with rodent gnawing. Medium-large mammals consist of seventeen long bone fragments, one tibia fragment, two cranial fragments, and two vertebra fragments.
Courtyard 4

Faunal remains excavated at Courtyard 4 include Classes: Actinopterygii, Amphibia, Aves, Gastropoda, Mammalia, Osteichthyes, and Reptilia with an NISP of 439 (Table 12). Of these, 61% of the assemblage were appendicular specimens, 17% were cranial specimens, 9% were exoskeleton specimens, and 6% were axial specimens. This courtyard had the largest number of faunal remains excavated at Lower Dover in this analysis. Courtyard 4, which used to be designated Plaza F, was analyzed in the past by Stanchly (2013). The results presented here is an independent reanalysis and inclusion of recently excavated materials.

Table 11: Faunal Remains Recovered from Courtyard 3.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order: Testudines</td>
<td>1</td>
<td>1.69%</td>
</tr>
<tr>
<td><em>Dasypus novemcinctus</em></td>
<td>9</td>
<td>15.25%</td>
</tr>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>3</td>
<td>5.08%</td>
</tr>
<tr>
<td>Order: Rodentia</td>
<td>1</td>
<td>1.69%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>8</td>
<td>13.56%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>13</td>
<td>22.03%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>22</td>
<td>37.29%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>2</td>
<td>3.39%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Courtyard 4 - Structure B14

Excavations at Structure B14 contained an NISP of 130 (Table 13) with 88 specimens identified to Class: Mammalia, 38 identified to Class: Aves, and four Order: Testudines carapace fragments. Long bone fragments from medium to large birds were represented by the 30 specimens recovered. Fourteen other specimens were identified as closely following *Odocoileus virginianus*. Two of these specimens were calcined antler, another antler fragment was worked, one humeral shaft was present with cut marks, and nine were tibia fragments with rodent gnawing. Nine-banded armadillos (*Dasypus novemcinctus*) were present with 28 complete dermal scutes, some of which were carbonized and browned.

Courtyard 4 - Structure B15

Faunal remains excavated at Structure B15 of Courtyard 4 contained an NISP of 22 with specimens from Classes: Mammalia, Aves, and Reptilia. Turtle remains made up the largest percentage of this assemblage with eight carapace fragments lacking any taphonomic modifications. Two dermal scutes from the nine-banded armadillo were
identified from a terminal deposit context. Three white-tailed deer elements were present including the distal portion of a left humerus with cut marks, a left dentary with scoring, and a first phalanx.

Besides the taxonomically identified worked elements there were also four instances of bone working, including two long bone fragments that had polishing, smoothing, and cut-worked marks on large and medium-large specimens in Structure B15. Two of these specimens were completed products - one bone bead present in the humus/collapse layer of excavations from a small sized mammal and one hair pin. Finally, one ulna fragment was identified as a medium-large bird, and with a comparative collection may be identifiable more specifically.

Plaza A

Faunal remains identified in Plaza A were limited to six unidentified Class: Mammalia specimens. Five long bone fragments from a medium sized animal were identified, with rodent gnawing present on one fragment. A metapodial shaft from a medium-large sized animal was present without taphonomic effects.

Plaza B

Faunal remains identified from Plaza B include Class: Mammalia from medium and medium-large size classes. In the humus layer of Plaza B excavations, one medium femur fragment and two fragments of a medium-large vertebra were identified. A tibia fragment was located on the floor. All specimens identified lacked taphonomic modifications.

Structure B1 - Plaza B

Faunal remains identified from Structure B1 of Plaza B contained Classes: Aves and Mammalia. One medium sized bird, represented by a right humerus shaft was recorded. A large long bone fragment was identified as closely following *Tapirus bairdii*. One loose fourth molar was identified as closely following *Philander* sp. Order: Rodentia present include one complete right maxilla, two maxilla fragments, and a complete hypselodont incisor. Small sized mammals included 14 long bone fragments. Small-medium sized mammals included one cranial fragment. Medium sized mammals included 12 cranial fragments. Finally, large sized mammals included nine long bone fragments, one of which had cut marks.

Plaza D

Faunal remains identified from Plaza D were limited to three medium-large sized mammal glenoid fragments from a scapula. All three fragments refit and taphonomic modifications were not present.
**Structure F2 - Plaza F**

Faunal remains identified from Structure F2 included mammals from small, medium, medium-large, and large size classes. Small specimens included a worked shaft fragment of a tibia and an ilium fragment. Medium specimens included two fragments of a fused tibial distal epiphyses. Medium-large specimens included one rib fragment and nine long bone fragments. Large specimens consisted of one long bone shaft fragment.

**Table 12:** Faunal Remains Recovered from Courtyard 4.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family: Scaridae</td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Small Class: Amphibia</td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Small-Medium Class: Aves</td>
<td>4</td>
<td>0.91%</td>
</tr>
<tr>
<td>Medium Class: Aves</td>
<td>6</td>
<td>1.37%</td>
</tr>
<tr>
<td>Medium-Large Class: Aves</td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td><em>Strombus</em> sp.</td>
<td>2</td>
<td>0.46%</td>
</tr>
<tr>
<td>cf. <em>Oliva reticularis</em></td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Small Superclass: Osteichthyes</td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>4</td>
<td>0.91%</td>
</tr>
<tr>
<td>cf. Family: Kinosternidae/Emydidae</td>
<td>24</td>
<td>5.47%</td>
</tr>
<tr>
<td>Family: Kinosternidae</td>
<td>4</td>
<td>0.91%</td>
</tr>
<tr>
<td>Order: cf. Artiodactyla</td>
<td>6</td>
<td>1.37%</td>
</tr>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>2</td>
<td>0.46%</td>
</tr>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>2</td>
<td>0.46%</td>
</tr>
<tr>
<td><em>Canis lupus familiaris</em></td>
<td>2</td>
<td>0.46%</td>
</tr>
<tr>
<td><em>Dasypus novemcintus</em></td>
<td>8</td>
<td>1.82%</td>
</tr>
<tr>
<td>cf. <em>Cuniculus paca</em></td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Small Order: Rodentia</td>
<td>6</td>
<td>1.37%</td>
</tr>
<tr>
<td>Small-Medium Order: Rodentia</td>
<td>1</td>
<td>0.23%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>9</td>
<td>2.05%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>30</td>
<td>6.83%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>129</td>
<td>29.38%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>38</td>
<td>8.66%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>142</td>
<td>32.35%</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>14</td>
<td>3.19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>439</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Table 13: Faunal Remains Recovered from Courtyard 4 - Structure B14.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Class: Aves</td>
<td>32</td>
<td>24.62%</td>
</tr>
<tr>
<td>Large Class: Aves</td>
<td>6</td>
<td>4.62%</td>
</tr>
<tr>
<td>Order: Testudines</td>
<td>4</td>
<td>3.08%</td>
</tr>
<tr>
<td>cf. <em>Odocoileus virginianus</em></td>
<td>14</td>
<td>10.77%</td>
</tr>
<tr>
<td><em>Dasypus novemcinctus</em></td>
<td>29</td>
<td>22.31%</td>
</tr>
<tr>
<td>Order: cf. Rodentia</td>
<td>2</td>
<td>1.54%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>1</td>
<td>0.77%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>9</td>
<td>6.92%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>23</td>
<td>17.69%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>9</td>
<td>6.92%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>1</td>
<td>0.77%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>130</td>
<td>100%</td>
</tr>
</tbody>
</table>

Plaza G

Faunal remains identified in Plaza G include Classes: Mammalia and Gastropoda (Table 14). Snails and slugs were represented by six fragments from varying portions of the exoskeleton. One other gastropod included a fragment that had been calcined and carbonized. Two fragments were identified to *Strombus* sp., one of which was heavily carbonized and calcined as well. One element was identified as a netted olive (*Oliva reticularis*) and had been modified into a tinkler.

Class: Mammalia species identified include red brocket (*Mazama americana*), white-tailed deer (*Odocoileus virginianus*), nine-banded armadillo (*Dasypus novemcinctus*), and an element from Family: Felidae. One scapula fragment from red brocket was identified with cut marks and the white-tailed deer specimens included one lumbar vertebra and a complete phalanx with no taphonomic modifications. Specimens closely following Order: Artiodactyla include five cut-worked fragments, one complete metapodial, three unmodified long bone fragments, one browned long bone fragment, two cranial petrous portion fragments, and a thoracic vertebra.

Mammalia identified to size class made up more than half of the assemblage and include small, medium, medium-large, and large size classes. Most appendicular elements identified were long bone fragments with an NISP of 33, half of which were calcined or browned. Medium appendicular elements include one complete metapodial, two distal shaft fragments of a tibia, the shaft of a femur, two browned scapula fragments, and two ilium fragments. The proximal shaft of a medium-large sized scapula was identified. One scapula fragment that had been carbonized was identified to a large size class. Axial specimens identified were three rib fragments from a large size class and one rib shaft fragment from a small size class.
Table 14: Faunal Remains Recovered from Plaza G.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Gastropoda</td>
<td>7</td>
<td>8.05%</td>
</tr>
<tr>
<td><em>Strombus</em> sp.</td>
<td>2</td>
<td>2.3%</td>
</tr>
<tr>
<td><em>Oliva reticularis</em></td>
<td>1</td>
<td>1.15%</td>
</tr>
<tr>
<td><em>Mazama americana</em></td>
<td>1</td>
<td>1.15%</td>
</tr>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>2</td>
<td>2.3%</td>
</tr>
<tr>
<td>Order: cf. Artiodactyla</td>
<td>13</td>
<td>14.94%</td>
</tr>
<tr>
<td>Family: Felidae</td>
<td>1</td>
<td>1.15%</td>
</tr>
<tr>
<td><em>Dasypus novemcinctus</em></td>
<td>8</td>
<td>9.2%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>6</td>
<td>6.90%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>21</td>
<td>24.14%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>16</td>
<td>18.39%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>9</td>
<td>10.34%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>87</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Structure G1 - Plaza G**

Excavations at Structure G1 recovered one opossum right maxilla with four molars present. This element was identified to Family: Didelphidae, however, further reference collections are needed to assign a more specific taxon determination.

**Structure G3 - Plaza G**

Faunal remains identified from Structure G3 include Classes: Aves, Gastropoda, Osteichthyes, and Mammalia. One bird long bone fragment with cut marks and insect damage was recovered. Five complete jute (*Pachychilus indiorum*) shells and one Family: Pachychilus shell were identified. Bony fishes were represented by a small sized complete vertebra. Mammals were represented by dermal scute from a nine-banded armadillo.

**Structure G4 - Plaza G**

Faunal remains identified from Structure G4 include nine mammal medium size class long bone fragments. Five of these fragments were browned and carbonized.

**Rockshelter 1**

Faunal remains identified from Rockshelter 1 had an NISP of 159 (Table 15) with Classes: Aves and Mammalia present. Class: Aves consisted of a long bone shaft from a medium sized bird. Class: Mammalia made up 99.37% of the assemblage. Nine-banded armadillos, lowland paca, Central American agouti (*Dasyprocta punctata*), hispid pocket
gopher (*Orthogeomys hispidus*), and Baird’s tapir (*Tapirus bairdii*) were all identified in this assemblage.

**Table 15:** Faunal Remains Recovered from Rockshelter 1.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Class: Aves</td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td>cf. <em>Pecari tajacu</em></td>
<td>2</td>
<td>1.26%</td>
</tr>
<tr>
<td>cf. <em>Myrmecophaga tridactyla</em></td>
<td>2</td>
<td>1.26%</td>
</tr>
<tr>
<td>Dasypus novemcintus</td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td>Small Order: Rodentia</td>
<td>4</td>
<td>2.52%</td>
</tr>
<tr>
<td>Medium Order: Rodentia</td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td><em>Cuniculus paca</em></td>
<td>11</td>
<td>6.92%</td>
</tr>
<tr>
<td>cf. <em>Cuniculus paca</em></td>
<td>5</td>
<td>3.15%</td>
</tr>
<tr>
<td><em>Dasypracta punctata</em></td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td><em>Orthogeomys hispidus</em></td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td>cf. <em>Orthogeomys hispidus</em></td>
<td>1</td>
<td>0.63%</td>
</tr>
<tr>
<td><em>Tapirus bairdii</em></td>
<td>2</td>
<td>1.26%</td>
</tr>
<tr>
<td>Small Class: Mammalia</td>
<td>14</td>
<td>8.81%</td>
</tr>
<tr>
<td>Small-Medium Class: Mammalia</td>
<td>10</td>
<td>6.29%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>80</td>
<td>50.31%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>15</td>
<td>9.43%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>8</td>
<td>5.03%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>159</td>
<td>100%</td>
</tr>
</tbody>
</table>

One specimen, a canine cut vertically in half, was identified as closely following collared peccary (*Pecari tajacu*). One complete left tibia and a fragment of a right tibia were also closely following collared peccary. *Tapirus bairdii* contained two occlusal molar fragments from an immature individual.

Lowland paca were identified through appendicular and cranial portions. Appendicular elements included left and right refitted innominates from an adult animal and a femur fragment. Specimens closely following lowland paca included a complete caudal vertebra and a right shaft fragment of an ilium. Several cranial fragments, including an identifiable jugal portion, and a complete hypselodont incisor were also recovered. The hispid pocket gopher and Central American agouti were identified through several teeth recovered. Other rodents were identified to small size class and included maxilla, dentition, and rib fragments. One left scapula from a medium rodent was also recovered.


Settlement Group 1

Faunal remains identified in Settlement Group 1 include one proximal femoral shaft of an adult small mammal, and two medium appendicular fragments from a medium mammal. No taphonomic effects, natural or human created are present.

Settlement Group 1 - N1

Faunal remains identified from North Structure 1 in Settlement Group 1 included two medium-sized Mammalia appendicular fragments. No taphonomic effects, natural or human created are present.

Settlement Group 1 - Patio

Faunal remains identified from the Patio at Settlement Group 1 include two pelvis fragments from a small mammal. There was one unidentified marine shell fragment as well. No taphonomic modifications were present.

Structure B13

Faunal remains identified at Structure B13 include an NISP of 23 from Classes: Mammalia and Aves. Birds were represented by three refitting long bone fragments of a medium size, with cut marks present. Medium mammal specimens included nine unidentifiable long bone fragments with no taphonomic effects present. Medium-large mammal specimens included four cranial fragments, three mandibular fragments with teeth present, and three distal scapula fragments. Large mammals included one distal portion of a femur.

Settlement

Faunal remains identified from the Settlement included a jute deposit consisting of three Pachychilus indiorum and four Pachychilus galphyrus. All elements were complete and had no indicators of human or natural modifications.

Xunantunich Results of Excavation

Faunal remains identified from Xunantunich were recovered from Structures A7 and A9 (Slocum and Awe, Chapter 17; Tilden et al., Chapter 18), and the residential structures at Group B (Sullivan et al., Chapter 19). Group B fauna were further divided into three locales, Structure B-1, a human burial, Structure B-2, and Courtyard 1 directly in front of Structure B2.
Structure A7

Excavations at A7 recovered only one unidentified long bone shaft fragment. This element falls within the size class medium-large. No taphonomic effects, natural or human created are present.

Structure A9

Faunal remains excavated from the tomb in structure A9 have been discussed in detail elsewhere in this volume (Slocum et al. 2017). The NISP, associated directly with the human skeletal remains is 15 (Table 16). Of these 12 of the elements are mammal and three are mollusk. Five of the elements are the third phalanx, or the claw bone of a felid. The size of the third phalanx suggests either Panthera onca or Puma concolor, but identification, even with comparative materials is not possible. The claw bones were found near the hands of the human burial. One of the elements associated directly with the burial is a rodent right dentary from the Family: Muridae, although unidentifiable to species. The remaining six mammalian skeletal elements are unidentifiable to skeletal element or taxon. Three of these are shell, two of which are worked pieces. These pieces are nearly identical in size, the first one has a length of 28.5 mm, a width of 7.25 mm, and breadth of 2.00 mm and the second one, which is missing a very small piece is 28.1 mm in length, 7.00 mm in width, and has a breadth of 2.00 mm (Figure 1).

The NISP of skeletal elements cached near the feet of the burial is 2249 (Table 16). Elements splintered and fractured during removal, therefore, NISP counts indicate the high degree of fragmentation. Individual complete element counts are not possible given this extreme fragmentation. Of these skeletal elements 251 have been identified to genus and species.

Table 16: Faunal Remains Recovered from A9 Tomb.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>Location within Tomb</th>
<th>NISP</th>
<th>% NISP for Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Mammalia</td>
<td>Cache</td>
<td>1853</td>
<td>82%</td>
</tr>
<tr>
<td>Order: Artiodactyla</td>
<td>Cache</td>
<td>46</td>
<td>2.03%</td>
</tr>
<tr>
<td>Order: cf. Artiodactyla</td>
<td>Cache</td>
<td>99</td>
<td>4.37%</td>
</tr>
<tr>
<td><em>Panthera onca</em></td>
<td>Cache</td>
<td>47</td>
<td>2.08%</td>
</tr>
<tr>
<td><em>Puma concolor</em></td>
<td>Cache</td>
<td>13</td>
<td>0.57%</td>
</tr>
<tr>
<td><em>Odocoileus virginianus</em></td>
<td>Cache</td>
<td>191</td>
<td>8.44%</td>
</tr>
<tr>
<td>Class: Mammalia</td>
<td>Human Associated</td>
<td>6</td>
<td>0.27%</td>
</tr>
<tr>
<td>Class: Gastropoda</td>
<td>Human Associated</td>
<td>3</td>
<td>0.13%</td>
</tr>
<tr>
<td>Order: Felidae</td>
<td>Human Associated</td>
<td>5</td>
<td>0.22%</td>
</tr>
<tr>
<td>Order: Rodentia</td>
<td>Human Associated</td>
<td>1</td>
<td>0.04%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td><strong>2264</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Location within Tomb = directly associated with the human skeletal remains (human associated) or recovered from the cache of long bones in the northeast corner of the tomb (cache).
The remains from *Odocoileus virginianus* consisted of 61 right proximal femora fragments, three left radii, which included five refitted proximal fragments, 12 distal fragments, and two refitted distal fragments, 33 right proximal radius fragments, and three left tibiae, which included 11 distal fragments, three refitted distal fragments, and 64 refitted shaft fragments.

The remains from *Panthera onca* consisted of 47 fragments of a left femur shaft identifiable with the third trochanter. The remains of *Puma concolor* consisted of 13 fragments of a distal right femur.

**Group B - Structure B1 - Burial 1**

Excavations recovered one marine shell exoskeleton fragment, one Class Mammalia phalanx fragment of small to medium size class, and two mammalian long bone fragments of small to medium size class.

**Group B - Structure B2**

Excavations recovered Class: Mammalia remains of medium, medium to large, and large size class, and remains identified to *Odocoileus virginianus* and *Pachychilus indiorum* (Table 17). The mammal remains of medium size class include two fragments of a left tibia, two fragments of a metatarsal, one browned burn stage left calcaneus fragment, one calcined burn stage long bone fragment, one right mandible fragment, and one cranium fragment. Mammalia remains of medium to large size class include 20 long bone fragments, two are calcined burn stage. The indeterminant Mammalia remains of large size class include one long bone fragment, and three left tibia fragments.
Table 17: Faunal Remains Recovered from Structure B2.

<table>
<thead>
<tr>
<th>Taxonomic Category</th>
<th>NISP</th>
<th>%NISP for Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odocoileus virginianus</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>Medium Class: Mammalia</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Medium-Large Class: Mammalia</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>Large Class: Mammalia</td>
<td>7</td>
<td>17.5%</td>
</tr>
<tr>
<td>Pachychilus indiorum</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Group B - Courtyard 1**

Excavations recovered only Mammalia remains. This assemblage consisted mainly of appendicular elements ranging from small to large size classes with an NISP of 20, and two cranial fragments of medium size class with a NISP of two. The appendicular elements included two refitted fragments of large size class unidentified to element, a complete astragalus of medium to large size class - sided to left, a mostly complete calcaneus of large size class - sided to right, four scapula fragments of small size class, two proximal femur fragments of small size class, two long bone fragments of medium to large size class, and three browned burning stage long bone fragments of medium size class.

**DISCUSSION AND CONCLUSIONS**

Faunal remains recovered from the Belize Valley include a diversity of taxa, skeletal elements, and both natural and cultural taphonomic modifications. Given continued research efforts on faunal remains from the Belize Valley, this report does not detail every natural or cultural taphonomic effect. That said, below are some brief descriptions and discussions of the notable finds within the sites. Future research will elaborate on these interesting artifacts and connect their production and use to ancient Maya ideology.

**Baking Pot Terminal Deposits**

In this report, terminal deposits are defined as materials indicative of ritual activities by returning populations, above a thin lense of matrix, over terminal floors, and located in front of stairs and in the corner of courtyards or plazas (Awe 2012, Hoggarth et al 2016). At Baking Pot (Figure 2), many faunal remains indicative of ritual significance were found, including catfish, bird, and snake. Frogs and toads, both found, are associated with the Maya rain gods and often accompanied rituals for those gods. Exoskeleton fragments from both Armadillos and Turtles were found, both of which are often associated with ritual context, turtles often being closely associated to the earth and were used as drums in ceremonial contexts.
Many remains of white-tailed deer were found as well, which is often found in domestic contexts, however, in this case, most of the elements found were non-dietary elements, or portions that would have yielded little to know meat and would have been unlikely to be used in domestic settings. The elements that would represent dietary significance did not exhibit any evidence of cut marking, which one would expect in a domestic context.

The prevalence of faunal remains known to be associated Maya ideology and ritual, and the lack of evidence for dietary modification, such as cut marks, on said elements, suggests that these deposits were ritual in nature (Wisner et al. 2017).

**Figure 2:** Terminal Deposit from Baking Pot Structure B6. Photo taken by J.B. Davis.

**Cahal Pech Perforated Animal Teeth**

The approximately 4,000 perforated teeth recovered from within the elite tomb within Structure B1 is one of the largest single assemblages of drilled animal teeth recovered from a single primary context at a Lowland Maya site. They represent teeth from at least 749 individual animals.
It is not uncommon to find drilled dog and deer teeth used as personal adornments; however, they are usually found in small numbers. The high frequency of drilled teeth found within Burial BU7 is an extremely unusual occurrence. Similar large quantities of perforated dog teeth were also found in a Terminal Classic tomb at Cahal Pech. Tomb H1, located within Structure H1, included 481 perforated dog teeth from at least 52 individuals. Interestingly, in contrast to the predominance of dog canines and incisors within the B1 tomb, all the drilled dog teeth from Structure H1 consisted of premolars and molars (Stanchly and Awe 2015).

A large assemblage of dog tooth beads was recovered at Actun Polbilche (Pendergast 1974). Excavations yielded a total of “641 drilled whole and fragmentary dog teeth plus 217 fragments presumably from drilled teeth” (Pendergast 1974:63). It was estimated that at least 120 or more small and medium sized dogs were represented. The presence of permanent dentition and tooth wear patterns suggested that the teeth are from adult dogs. In contrast to the Cahal Pech data, the Actun Polbilche dog tooth assemblage is dominated by perforated incisors. The Actun Polbilche assemblage was recovered from surface and stratigraphic contexts within the cave. The 34 ceramic vessels from the cave date the deposit to “the period between about A.D. 850 and the mid to late 10th Century” (Pendergast 1974:47).

Other sites known to have yielded dog tooth beads and/or pendants include Caracol (Giddens-Teeter 2001:259), Uaxactun (Ricketson and Ricketson 1937:206), Altar de Sacrificios (Willey 1972:239), Kaminaljuyu (Kidder, Jennings and Shook 1946:155), Copan (Longyear 1952:112), Mayapan (Pollock et al. 1962:377), and Altun Ha (Pendergast 1979:166), to name but just a few.

At Caracol, anklets and bracelets made from modified dog premolars were recovered from a Late Preclassic cist burial (Giddens-Teeter 2001:259). A total of 299 teeth, representing at least 99 dogs were noted. These were modified differently than the Cahal Pech dog beads. The premolars were cut horizontally along the crown and root tips. The roots were then “hollowed through to allow stringing” (Giddens-Teeter 2001:259).

The large amount of deer and dog teeth, representing at least 749 individual animals raises several intriguing questions regarding their use and placement within the tomb. A simple interpretation would be to assume that the teeth all represent the existing personal adornment or jewelry of the individuals interred within the tomb. Santasilia (2013) noted that many of the teeth were found in specific locations within the tomb to suggest they were necklaces. Several other questions regarding the teeth warrant further investigation. Do they represent the intentional procurement of drilled teeth at the time of the death of the inhabitants of the tomb for the sole purpose of interment as offering or gifts? Do the teeth represent personal adornments that were collected over time? Do they represent heirloomed adornments? Are all of the teeth from local dogs and deer? Future analysis of the teeth will also include strontium isotope analysis and hopefully we can begin to answer some of these questions.
**Lower Dover Rasp**

Musical instruments created using bone or shell are often recovered from archaeological contexts within the Maya region. Excavations at Structure 3 contained a terminal deposit with the remains of a rasp. The rasp (Figure 3) was identified as a left distal shaft of a femur based on the presence and location of a supracondyloid fossa. The presence of deep horizontal striations on the cranial-medial side led to the identification of the femur as a rasp (Emery 2009). Two thin holes less than 1 mm in diameter were present on the side opposite the striations, possibly from human modification or insect gnawing. The greatest length of the shaft present was 55.15 mm and greatest width from cranial to caudal was 20.44 mm. Other unique faunal remains associated with the same lot as the rasp include a parrotfish (Family: Scaridae) maxilla, multiple fragments from medium size class turtles, including Family: Kinosternidae (mud and musk turtles), multiple cut worked debitage including a distal dog humerus, and hairpin fragments made from a large size class mammals.

![Figure 3: Rasp recovered from Structure 3, Plaza F at Lower Dover.](image)

**Xunantunich Structure A9 Tomb**

The presence of carnivore gnawing on long-bones from the cache indicates they were previously exposed to the village environment prior to deposition in the tomb (Figure 4). Carnivore gnawing was present only on white-tailed deer (*Odocoileus virginianus*) and unidentified taxa appendicular elements consisting of heavily fragmented radii, tibiae, femora, a metatarsal, and unidentified long bone. The presence of the patella in association with the other hindlimb elements, suggests that it was placed in the tomb while still covered in flesh. The patella does not directly articulate with any other bones, and as a result, is usually only found in context with the other hind limb bones, unless they have not been moved since losing gross tissue.
In addition to the white-tailed deer, remains of big cats, either jaguar or puma, were also found in association with the individual within the tomb. This likely indicates a predator-prey dichotomy which represented the relationship between the elites and the commoners within Maya society. One of the elements identified to a big cat is a third phalanx, directly associated with the individual; this suggests that the individual was covered in a pelt as the claws, or third phalanges, would have been left in the fur to maintain the integrity of the paws, an important part of the value of a big cat pelt. Due to the significance of the fauna identified, the value of the grave goods, and the prevalent predator-prey dichotomy in Maya society, this individual was likely a person of the elite class, most likely a warrior.

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REFERENCES CITED

Andrews, E. Wyllys IV
1969 The archaeological use distribution of Mollusca in the Maya lowlands. *Middle American Research Institute Series* No. 34. Middle American Research Institute, Tulane University of Louisiana, New Orleans.

Buikstra, Jane E. and L. Goldstein

Burke, Chrissina C., Katie K. Tappan, Gavin B. Wisner and Dylan M. Wilson

Efremov, J. A.

Eickhoff, S. and B. Herrmann

Emery, Kitty


Fisher, John W. Jr.

Giddens-Teeter, W.

Gilbert, B. Miles, Larry D. Martin and Howard G. Savage

Kidder, A.V., J.D. Jennings, and E.M. Shook

Longyear, J.M. III

Lyman, R. Lee


McKusick, Charmion R.
2001 *Southwest Birds of Sacrifice*. The Arizona Archaeological Society, Globe, AZ.

Olsen, Stanley J.
1964 *Mammal Remains from Archaeological Sites: No. 1 Southeastern and Southwestern United States*. Harvard University, Papers of the Peabody Museum of Archaeology and Ethnology, Cambridge.
1968 *Fish, Amphibian and Reptile Remains from Archaeological Sites: No. 2 Southeastern and Southwestern United States*. Harvard University, Papers of the Peabody Museum of Archaeology and Ethnology, Cambridge.

Pendergast, David M.

Potts, Richard, and Pat Shipman

Shipman, Patricia
Sobolik, Kristin D., and Steele D. Gentry
1996  *A Turtle Atlas to Facilitate Archaeological Identifications.* Fenske Companies, Rapid City, SD.

Stanchly, Norbert

Stanchly, Norbert and Jaime J. Awe

Wisner, Gavin B., Katie K. Tappan, Dylan M. Wilson, Chrissina C. Burke and Norbert Stanchly
2017  “Animal use In Ancient Maya Terminal Deposits: Examining Faunal Remains from the Lower Dover and Baking Pot sites in the Belize Valley to Determine the Potential for Ritualized Activities.” Poster presented at the 82nd Annual Meeting of the Society for American Archaeology, Vancouver.

Stewart, Thomas Dale

Ubelaker, Douglas H.

Pollock, H.E.D., R.L. Roys, T. Proskouriakoff, and A.L. Smith

Ricketson, O.G. and E.B., Ricketson

Santasilia, Catharina E.
Willey, Gordon R.