The Belize Valley Archaeological Reconnaissance Project

A Report of the 2023 Field Season



Edited by J. Britt Davis, John P. Walden, Tia B. Watkins, Claire E. Ebert, Julie A. Hoggarth, and Jaime J. Awe

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This volume can be found in PDF form online at: www.bvar.org/publications/BVAR2023.pdf

EDITORS' NOTE

Acknowledgements

We would like to thank the Belize Institute of Archaeology and Dr. Melissa Badillo for their continued support of the BVAR project and for permitting us to conduct the research presented in this report. We would also like to thank all the 2023 Graduate Students and Field School students for their dedication and hard work. Finally, we would like to express our gratitude to all the local excavators we work with, for without their experience and hard work we would not be able to answer many of our research questions.

Dedication

We dedicate this report in memory of Cameron Griffith, whose dedication to the archaeology of Belize left an indelible mark on our understanding of its rich history. Your unwavering dedication opened new avenues of exploration, illuminating the hidden history within Belize's caves. Your passion illuminated the past and inspired all who had the privilege of working alongside you.

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INTRODUCTION TO THE 2023 BELIZE VALLEY ARCHAEOLOGICAL RECONNAISSANCE PROJECT (BVAR) FIELD SEASON REPORT

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Summer 2023 marked the 34th year of archaeological investigations by the Belize Valley Archaeological Reconnaissance (BVAR) Project. Like any project that has been around for more than a K'atun and a half, it has gathered a large group of researchers with diverse interests and specialties. This report of the 2023 field season highlights this diversity by showcasing the research of our team at multiple monumental centers including Baking Pot, Ek Tzul, Lower Dover, and Xunantunich, settlement groups, and caves throughout the Belize Valley region (Figure 1). These interests are as vast in time as they are in space with researchers exploring the Middle Preclassic (800-300 BC) through the Terminal Classic (AD 750-900) periods. A range of lab analyses of various artifact types, including ceramic, obsidian, and human burials emphasizes the sweeping nature of the BVAR endeavor.

Chapters 2 and 3 present BVAR's research at the site of Baking Pot. In Chapter 2, Hoggarth and colleagues discuss their excavations into Baking Pot's Plaza B to uncover signs of the earliest occupation, as well as their excavations into Courtyard 4 to better understand the construction sequence of royal spaces. Chapter 3, by Ellis and others, presents the first archaeological investigations at the Orchard Group, a peripheral settlement of Baking Pot on the south side of the Western Highway Chapters 4 and 5 discuss research from the Site of Ek Tzul. Chapter 4, by Meyer, presents the latest results from excavations into Plaza A, Structure B1, Structure C3, and a *chultun* which aimed to document the chronology and development of the minor center. In Chapter 5, Densel and colleagues present the results from an analysis of Ek Tzul ceramics excavated during the 2022 and 2023 field seasons.

Chapters 6, 7, and 8 focus on 2024 excavations in the Lower Dover civic-ceremonial epicenter. Chapter 6, by Biggie and colleagues focuses on excavations of Structure B1, the large eastern pyramidal structure on the east side of Plaza B. Investigations of the substantial looter's



Figure 1: Map of upper Belize River Valley showing location of BVAR Project study sites in 2023. Map by C. Ebert.

trench exposed numerous looted contexts and revealed some elaborate grave goods associated with these interments. Excavations strongly suggest this structure served as a mortuary structure for the royal regime at Lower Dover in the Late Classic period. Chapter 7 overviews Castellanos and colleague's excavations of Structure Str. F2, a small intermediate elite eastern triadic structure situated at Plaza F. Plaza F is one of several large plazuela groups in the Lower Dover core. Investigations seek to understand how core adjacent intermediate elites vary from their counterparts in the hinterlands. Lastly, investigations on SG 111 by Tzib, Walden, and Elliott reveal this mound to likely be a small residential structure situated on an imposing rise on bedrock.

Chapters 9 and 10 present the latest BVAR excavations in Groups A and B at Xunantunich. Chapter 9, by Watkins and colleagues, presents the latest results from excavations in Structures A4, A7, A10, A12, and A21 which sought to capture multiple construction sequences across the group to enhance our understanding of the earliest development and architectural sequences in Group A. In Chapter 10, Davis and others discuss results from Group B excavations in Courtyard 3, the A5 Alleyway, and Structure B1, all of which endeavored to document the construction sequence and final uses of these structures to further elucidate the behaviors of Group B's inhabitants through time.

Chapter 11, by Ratcliffe and colleagues discusses the results from the inaugural season of the Wildlife of Xibalba Project (WOX), a combination of biological and archaeological survey intended to explore and document the role that cave-frequenting animals played in ancient Maya cave use.

Chapters 12 and 13 present the results of obsidian and osteological laboratory analyses, respectively. Chapter 12, by Suarez and others present the latest results form an ongoing Belize River Valley obsidian analysis with the goal of addressing the evolution of political economy in the region. Chapter 13, by Mink and colleagues presents the results of an analysis of three individuals found within Structure B6 at the site of site of Xunantunich during the summer of 2022. Specifically, an inventory, biological profile, taphonomic assessments, and interpretation of each individual was completed during the Summer of 2023. This analysis found a unique burial position for Individual 2 and poses questions for future research. The remainder of this chapter serves to explicate BVAR field and laboratory procedures that were followed at all sites where work was undertaken.

FIELD METHODS

Excavation unit locations and sizes are placed according to the research questions being investigated at each site. Units are typically aligned with architecture where it is available or aligned N/S where it is not. Excavations are conducted using geological picks and trowels, and all soil is screened through ¹/₄ inch mesh screen. If human remains are encountered, a 1/8-inch insert is placed into the screen to ensure the collection of all remains (see Burial Excavation section below). Excavations are documented using a level and lot system, where each cultural context receives a new lot designation. For instance, excavations on either side of a vertical wall will retain the same level number, but to ensure the separation of the contexts on either side of the wall, each new context would receive a new lot number. Once a new cultural stratum is located, the entire unit is brought down to that level, and a new lot is started. Photographs are taken of each excavation

unit before excavations begin and upon the closing of each lot.

As artifacts are encountered in the screening process, they are placed in separate bags by artifact class (e.g., ceramic, chert, faunal remains, etc.). Each bag will contain an artifact card which contains the provenience information including the site, operation, unit designation, level, lot designation, date, context information, and supervisor and excavators.

All excavation units are typically brought down to bedrock unless the research question is answered by horizontal exposure of a specific cultural stratum. Any features (e.g., architectural, bedrock modifications, etc.) or burials that are located during excavations are plan mapped and photographed. When the excavation unit is completed at least one profile map is made, and photographs are taken of all four unit baulks. Finally, all units that are not part of conservation efforts are backfilled for safety and preservation.

LABORATORY METHODS

All artifacts are brought to each site's field lab at the end of each workday where they are sorted into a processing area, finds which require washing are moved to the "To be washed" area. These artifacts are then washed and dried on racks. Ceramics, chert, obsidian, and freshwater and marine shell are washed with water and lightly scrubbed with a toothbrush and wooden dowel when necessary. Human and faunal remains are dry brushed with a toothbrush to remove excess soil. Any groundstone and some ceramics that may be used for residue analysis are not washed. During the washing process, if any artifacts were misidentified in the field they are correctly identified and placed with their class. After all artifacts are dried, they are counted, logged in an inventory, re-bagged, and then placed in storage by artifact class and year.

BURIAL EXCAVATION AND LABORATORY PROCEDURES

Excavation

All burial excavations follow the same general protocol with the understanding that the bioarchaeologist, under certain circumstances, may have to alter the procedure slightly for efficiency and accuracy. The following burial excavation procedure is based on idealized working conditions at any given site. Burials are excavated as a complete feature within the archaeological unit. The bioarchaeologist, collaborating with the archaeologist, will lead the excavation of any human remains and the associated artifacts. Metal tools are used until bone is reached, where at that time the bioarchaeologist will switch to wooden or plastic tools, brushes, scoops, etc. Skeletal elements are pedestaled as independently as possible. At this time photographs of the cleaned, pedestaled remains should be taken. Due to the taphonomic challenges we face in Mesoamerica, most skeletal remains lack integrity once removed from the soil due to their friability, they become fragmented, and this can hinder lab analysis. Therefore, it is the goal of the bioarchaeologist to be able to identify individual elements and take measurements while the bones are still *in situ*.

Mapping of the elements must be done with detail and accuracy; osteological knowledge is key. The preferred graph paper for burials is 10x10 and will be provided by the bioarchaeologist. Smaller scale graph paper can be used if the burial requires it, for example multiple burials,

scattered elements, or large-scale deposit burials. When possible, all elements must be identified and labelled on the map(s). Multiple, layered maps may be necessary depending on the depth of the elements and each layer will be numerically labelled. Detailed notes of the excavation, including an inventory of the remains, taphonomy, measurements taken, a photo log, and any other important information will be taken during this time. All documentation will be digitized at the end of the season and be added into the appropriate burial box folder.

Once mapped, individual elements will be removed and placed in foil baggies. Foil baggies will have all pertinent site and burial information written on each bag. This includes, but is not limited to: site, structure, unit, level, burial number, date, initials of excavators, map information. Foil baggies will be placed in a Rubbermaid bin with artifact cards for transport to the Cahal Pech lab (CHP bodega). The Rubbermaid bin will also have all the pertinent information clearly written on the side. The burial will be kept in the CHP bodega till lab analysis can take place. All co-directors and research faculty will be notified when a new burial is placed in the lab.

Lab Analysis

Lab analysis of burials will take place at the Cahal Pech bodega. As stated above, the lab analysis procedure is based on ideal working conditions and may be altered by the bioarchaeologists when necessary. One of the main goals of the bioarchaeologists in the lab is to aid in preservation of the remains for future research, export, and curation. This means that bone material should not stay in foil for an extended period of time. Lab analysis will start with laying out all the foil bags and cleaning the individual elements and fragments within each bag. Making sure to keep the fragments with their original bag so provenience information does not get lost. At this point several things happen: elements and fragments are cleaned, elements 2cm or larger should be identified by bone and side, foil bag information will be transferred to plastic bags, elements and fragments that are identified are placed in anatomical order, and an initial minimum number of individuals (MNI) will be estimated.

Detailed notes, inventory, photographs, and any other supporting documentation will take place in the lab. Lab analysis notes and documentation will be digitized at the end of the field season and loaded into the appropriate burial box folder. Official report photos will be taken using the black velvet or taken to Dr. Awe's house and then returned to the Cahal Pech bodega. Research specific lab analyses may also take place in the Cahal Pech bodega at any point. If the remains are moved, sampled, or repackaged, all co-directors and research faculty will be made aware of this change.

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A Report of the 2024 Field Season

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ASSESSING MONUMENTAL CONSTRUCTION IN GROUP B AT BAKING POT, BELIZE

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INTRODUCTION

During the 2022 and 2023 summer field seasons of the Belize Valley Archaeological Reconnaissance (BVAR) project, work at Baking Pot has consisted of a series of vertical excavations in Plaza B and in the royal palace complex to assess the timing and extent of monumental construction phases in Group B. In 2022, unit PLB-100 was placed in the center of the plaza to gain insights into the chronology and tempo of occupation and construction at the site. In 2023, we expanded this unit to extend six additional meters to encompass a larger area, and designated this new unit PLB-101. In addition, 2023 excavations in Courtyard 4 of the royal palace complex similarly focused on understanding the timing and extent of construction associated with the palace. These excavations allow us to better identify the stratigraphic sequence and to gain additional insights into the nature of monumental construction through time.

BACKGROUND AND RESEARCH QUESTIONS

Excavations in Plaza B in Group B at Baking Pot have been conducted since the mid-2000s, although it was not until 2022 when BVAR went back to the center of Plaza B to investigate the entire construction sequence. In 2022, we re-opened and extended unit PLB-100, identifying a small platform as well as earlier features (Davis et al. 2023). In 2023, to gain a more in-depth view of Preclassic features, we extended the unit by six additional meters, allowing us to better understand the nature of construction through time. This excavation project is being conducted in tandem with an extensive radiocarbon dating project that seeks to identify the timing and extent of monumental construction at Baking Pot. The plaza excavations focus on the nature of monumental construction activities, specifically the energetics of construction efforts for expanding the size and height of the plaza through time. Excavations in Courtyard 4 expand on previous investigation in the royal palace complex (Davis et al. 2019, 2023; Lonaker et al. 2017; Watkins et al. 2019), with an excavation unit strategically placed in alignment with the central excavation unit on Str. B1 (Bullard and Bullard 1965; Helmke 2008). Both the Courtyard 4 unit and previous Str. B1 excavations align with the Plaza B excavation units from 2022 and 2023. Together, these three units will help to reconstruct the monumental construction of both the plaza and palace through time.

Together, the 2022 and 2023 research is part of a National Science Foundation grant (to Hoggarth and Awe) that seeks to identify changing land use and political decision-making at Belize Valley sites. We are exploring a variety of questions in tandem with our paleoecologist colleagues, who are doing palaeobotanical research in the nearby region. On-going questions for the Group B excavations include:

- 1) How did political decision-making of rulers change during climatically good and bad times?
- 2) How many people participated in the construction of monumental architecture during each construction episode?
- 3) How do changes in land-use associate with changes in political decision making?

In this report, we primarily focus on understanding Question 2, although we highlight some of the potential dynamics of other questions.

EXCAVATION RESULTS

Plaza B, E.U. PLB-101

The 2023 excavations were set up to align with the 2022 excavations, with the extension of the previous unit (PLB-101), the 2023 unit (PLB-101) measured 2 m (N-S) by 6 m (E-W) on the west end of unit PLB-100. Excavations revealed a total of nine distinct layers, identifying the same floors as in the 2022 excavation (Figure 1), although we made some additional distinctions with the information from the larger unit.

The first floor, evidenced by limestone pieces and ballast lined up well with the first floor identified in 2022. The second floor was located directly below the first, as in the 2022 excavations, which suggests that those floors may have been built in rapid succession. Only further ceramic and radiocarbon analysis will be able to identify the timing of these constructions. However, Late to Terminal Classic ceramics were frequent throughout the first couple of construction episodes. The third floor matched up with the floor in unit PLB-100, which overlies a small platform. No additional platforms were identified in unit PLB-101, suggesting that the 2022 platform was specifically built to be in the center of the plaza. Floor 4 was the platform in PLB-100 and that was missing in the PLB-101 excavation unit. However, approximately 25cm below an additional floor (Floor 5) was identified in PLB-101, matching up with the floors in PLB-100.



Figure 1: Profile of southern baulk of units PLB-100 and PLB-101, excavated in 2022 and 2023. Floors and charcoal samples are designated on the profile.

Floor 6 was the final floor identified formally in PLB-101, consisting of the best-preserved floor in the sequence and the thickest of the bunch. In the lower levels, Preclassic ceramics were identified, including a mix of both Late Preclassic and Middle Preclassic ceramics, with Middle Preclassic ceramics noted in the lower levels. Unlike 2022, no Cunil ceramics were identified in the PLB-101 excavations. This suggests that, perhaps, the lowest feature in the 2022 excavations represents some limited early activity in Group B. It is particularly notable that this may be the case, in the exact center of Plaza B, which suggests that the overall layout of Group B had already been established at an early time. Unfortunately, fewer charcoal samples were identified in the lowest layers of the 2023 excavation. However, we will be able to rely upon those collected in 2022 to date the earliest occupation of Plaza B.

Courtyard 4, Royal Palace Complex, E.U. CT4-200

Unit CT4-200 was placed in alignment with the central excavation unit on Str. B1, which was originally excavated by Bullard and Bullard (1965) and reopened and excavated by Helmke (2008). Unit CT4-200 aligns with the southern baulk of the Str. B1 unit, given that the Courtyard 4 unit is smaller in size than the B1 unit. Excavations identified burned roots in the upper layer, and quickly revealed a series of floors in succession in different parts of the unit (Figure 2). Floor 1 was identified in the eastern section of the unit, while Floors 2 and 3 were in the western section. Floor 4 was identified in the southwestern section (Figure 3). The succession of floors appears to suggest that they may have been part of a re-plastering event, given the lack of ballast between individual floors.

As excavations progressed, we removed Floors 1 and 2 (which only partially covered the unit) to expose Floor 3, which extended across nearly all the unit. Floor 3 was a well-preserved plaster floor, which was constructed directly below Floor 2. Floor 3, in contrast, was well-preserved in the eastern section of the unit and disturbed in the western portion. This is likely due to a tree root system that may have burned at some point. A large layer of ballast is noted below Floor 3 (Figure 2). Below this ballast layer, we identified a section in the western portion that was plastered, with the section in the eastern section not plastered. As we excavated downward, it became apparent that this was a very uneven floor, sloping downward to the east (Figure 2). An additional uneven floor was found below this level as well, sloping relatively upward from west to east. Below this level, the matrix changed in color as well, from a light brown color above Floor 4 to a dark brown color below Floor 5. Excavations below this level found relatively little cultural material, although it was not sterile. Excavations were terminated due to time constraints at approximately 250cm below datum and will be resumed in the 2024 field season.

DISCUSSION

Overall, the archaeological excavations at Baking Pot in 2022 and 2023 reveal some interesting findings that are relevant for the primary research questions that we have presented here. First, for our first research question, whether monumental construction correlates with climatic trends, we must wait for the ceramic analysis and radiocarbon dating to be completed. However, we can set up a set of expectations that we might expect to see. For example, if climate is one factor that may be driving the rates of monumental construction, we might expect for there to be little construction



Figure 2: Profile of southern baulk of unit CT4-200 in Courtyard 4 of the royal palace complex at Baking Pot.



Figure 3: Plan view of E.U. CT4-200, showing the different floors that were preserved in different areas of the unit.

during the Terminal Classic and Early Classic periods, during which time we know that there are recorded droughts in the region (Kennett et al. 2012). During other times, especially during the Late Classic period, we might expect more robust monumental construction efforts. From our initial findings, it is apparent that we may have construction during all these time periods, although the radiocarbon dating will be able to better pinpoint the precise timing of the construction efforts.

For the second research question, we anticipate completing the architectural energetics work in the future, but we may be able to estimate based on the initial findings. For example, it is clear from excavations in Plaza B that there were substantial construction episodes that occurred during the Preclassic period. Given the population was smaller during that time period, we might expect higher rates of monumental construction labor during the Preclassic than during later times. In contrast, sizable construction likely also occurred in the Late Classic, but the higher population levels may have reduced the overall energetics per person. Only future research will test these ideas.

Finally, we assess the third question, whether changes in land use correlate with political decision-making. Again, we need to wait for the results of the lake core and palaeobotanical work in the ditched agricultural fields, but we can surmise what this may look like. The lake core will give us a sense of changes in overall vegetation through time, which can also inform about agricultural production through time. It will be interesting to note whether rulers are devoting their power towards monumental construction efforts, or other efforts like expanding agricultural production, during these times.

CONCLUSIONS

Overall, excavations during the 2023 season have expanded our knowledge about the nature and timing of monumental construction at Baking Pot through time. We have identified many construction episodes, both in Plaza B in Group B, as well as in the royal palace complex of the site. Together this information is necessary to get at some of the political dynamics of kingship and to assess how rulers prioritized their actions during both good and bad climatic times. Future research will allow us to answer the questions that we have set out and to give us a solid foundation for better understanding the changing dynamics of kingship through time.

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A REPORT OF THE 2023 EXCAVATIONS AT THE ORCHARD GROUP SETTLEMENT

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INTRODUCTION

The Orchard Group is a small intermediate elite settlement group surrounded by commoner residences in the Baking Pot periphery. The 2023 field season marked the first excavations conducted in this group. Excavations were carried out with the goal of investigating differential food production and consumption practices associated with different social classes throughout the Classic period (AD 250-900/1000) Maya social hierarchy. Previous research about Classic Maya foodways has shown differentiation in food practices based on social status, which can allow for broader analyses of sociopolitical dynamics and inequality (e.g., Ardren 2020; Staller and Carrasco 2010; Metcalfe et al. 2009; White et al. 2001). Research focusing on differences between intermediate elite and commoners will complement landscape and household studies at Baking Pot (e.g., Hoggarth 2012; Walden et al. 2019), while also emphasizing the role of inequality from a bottom-up perspective.

This research builds on previous work across the Baking Pot Settlement. Excavations within the Baking Pot monumental center and peripheral settlements began as early as the 1930s (Ricketson 1929; Bullard and Bullard 1965; Willey et al. 1965) and are still ongoing today through the Belize Valley Archaeological Reconnaissance (BVAR) Project. Research in the site's settlement zones began in 1992, focusing on exposed plow zones and pasture lands. This early BVAR research focused on documenting residential settlement to the east and southwest of the site's epicenter, with an emphasis on excavation at the intermediate elite Bedran group (see Conlon 1993, 1995). A second phase of settlement research began in 2007 under the direction of Julie Hoggarth to investigate changes in domestic and settlement organization around the site center through time (Hoggarth 2012; Hoggarth et al. 2010). Hoggarth concentrated her household excavations to the east of the site core in Settlement Cluster C and conducted excavations of a representative sample of intermediate elite, and high and low status commoner households. More limited test excavations have also been conducted at the Lubul Huh Group (M-410), a high-status commoner group (du Menil 2014).

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The 2023 season of field work at the Orchard Group focused on establishing a chronology of the group's intermediate elite patio and targeting household refuse for artifacts associated with food production and consumption (i.e. pottery, fauna). Previous studies of Maya intermediate elite groups suggest they employed a variety of strategies, including differential foodways, to ensure their longevity including ancestor veneration, integrating commoners into ceremonies, and acting as local administrators (Walden 2021). Feast hosting is a well-documented political strategy both cross-culturally and in the Maya world, offering an ideal case study to the variable role of foodways in settlement hierarchies (e.g. Dietler and Hayden 2010; Ardren 2020). Patterns in feasting are visible through analysis of pottery. The proportions of different vessel types (cooking, storage, serving) reflect the kind of production or consumption activities that took place (Dietler and Hayden 2010). Greater proportions of serving vessels, higher frequencies of decorated pottery, and/or specialized vessels (e.g., cacao drinking vases) can be indicative of feasting. Social differentiation is also visible in some cases through everyday food consumption. These differences are often seen in access to different foods, like high-quality protein species (e.g. large mammals such as deer and dog) or in differential consumption of maize (Ebert et al. 2021; Fernández Souza et al. 2020; Metcalfe et al. 2009; White et al. 2001; Chase and Chase 2001). The species of fauna present in each context is indicative of these everyday consumption differences, as are species of paleoethnobotanical remains. To better understand these patterns of food production and consumption, work at the Orchard Group focused on the following research questions:

- 1. How did food consumption and production practices vary through different levels of the social hierarchy in the Baking Pot settlement? Are there differences in access to certain food items or in the quantity and quality of cooking and other food preparation implements between social classes? What foods were people eating and how were they prepared and consumed?
- 2. Are different food preparation and consumption practices in the Baking Pot settlement reflective of broader sociopolitical dynamics? Were feasts being hosted, and if so, were they hosted by all status groups or primarily by intermediate elites?

To answer these questions, two units were placed in the patio of the intermediate elite residential group (Patio 1), which rests on the top of a small hill in the middle of an orchard along the George Price highway. Standard BVAR field and laboratory methods were followed for these excavations, as described in the introduction to this volume (Davis et al. 2024).

EXCAVATION RESULTS

Two 1x 2-meter excavation units were placed in Patio 1 (Figure 1). A full analysis of pottery from the two 2023 excavation units was not completed in the 2023 field season. Approximate time periods are discussed in the following paragraphs based on observations of pottery styles in the field, but a more accurate assessment of the pottery will be completed during the 2024 field season.



Figure 1: Lidar map of Patio 1 showing excavation units.

E.U. OG-PT1-1

The first excavation unit was placed in the center of the intermediate elite group, aligned with the front steps of the southern structure (see Figure 1), which is the largest in the group. There were three distinct phases of occupation noted within this unit.

Phase 1

The earliest level of occupation was marked by a light brown fill (Munsell 10 YR 3/3). Large rocks were prominent throughout this level, as well as pockets of dark soil (Figure 2). Many of these dark pockets contained charcoal, especially in the southeast corner of the unit. There is a much higher frequency of freshwater shell (*n*=128) in this lot (OG-PT1-1-7) than in any other part of the unit, and the first and only appearance of marine shell (n=3). Chert, daub, fauna, and obsidian were also collected from this level, as well as 3 carbon samples (CA# OG-PT1-1-4, 5, 6). Noted ceramics belong to the Floral Park Complex. The presence of mammiform feet and sherds from the Aguacate group suggests a Terminal Preclassic (AD 100/150-300) date for this level. No Early Classic (AD 300-600) or Late Preclassic (100 BC-AD 250) ceramics were noted in the field from any part of this excavation but may be revealed through future ceramic analysis. Additionally, one ceramic spindle whorl was noted in this level (SF# OG-PT1-1-1). This level continued for approximately 50 cm before sterile soil was reached. The unit was bisected, and the north half was excavated for 50 more cm, with no more cultural materials being found.



Figure 2: Beginning of Phase 1.

Phase 2

Floor 2, shown in Figure 3, marked the earliest architectural construction in this patio unit. Floor 2 was decomposed, observable by chunks of plaster and ballast mixed into a loose pebblefilled matrix. The pottery in the fill below Floor 2 seemed to be Late Classic (AD 600–750) in nature, though pottery analysis will need to be completed to confirm this. In addition to pottery, chert and obsidian were present in this fill.

Phase 3

Below the humic layer, a thick concentration of daub was revealed primarily in the southern half of the unit. A large amount of charcoal was mixed into the daub, though the daub itself seemed unburned. Two samples of this charcoal were taken (CA# OG-PT1-1-2, 3). 10 cm below the thickest concentration of daub, Floor 1 (Figure 4) was revealed. Not much of Floor 1 remained, and it was noticeable only by ballast and small bits of plaster mixed into the soil. Though the floor had nearly 10 cm separating it from the daub concentration in some parts of the unit, the extremely decomposed state of the floor and the ephemeral nature of the daub, which continued to be mixed into the matrix down to the floor, makes the relationship between these two features unclear. The two are likely associated, and it is possible that the daub is from a structure that resided on top of Floor 1. The humic layer (lot # OG-PT1-1-2) contained a mix of pottery, chert, daub, obsidian, and a small amount of faunal remains. The pottery appeared to be Late Classic based on field observation.



Figure 3: Floor 2 surface.



Figure 4: Floor 1 surface.



Figure 5: Profile of OG-PT1-1.

E.U. OG-PT1-2

This 1x1 m excavation unit was placed directly in front of the center of the eastern structure. The eastern structure is one of the smallest within the patio group, with much of its definition lost in the natural slope of the hill, making the boundaries of the structure difficult to detect. The unit was intended to locate the front patio, and possibly find the building's front (west) wall to establish a perimeter of the structure. However, no architecture, including patio floors, was revealed. The unit was split into three levels, the third remaining unexcavated due to time and labor constraints.

The humic layer contained a mix of ceramic, chert, daub, faunal remains, obsidian, and quartz. The pottery in this lot (OG-PT1-2-2) was mixed but appeared to belong to Late Preclassic-Early Classic complexes. No Late Classic ceramics were noted in the field, though a full ceramic analysis might reveal some. A new lot (OG-PT1-2-3) was started approximately 20 cm into the humus, when a much lighter matrix (Munsell 10 YR 4/4) was reached. This matrix contained many medium-large chunks of limestone and was interspersed with dark pockets of soil. Ceramic objects, chert, daub, freshwater shell, obsidian, faunal remains, and quartz were all found within this lot, and several carbon samples were collected (CA# OG-PT1-2-1, 2). Many mammiform feet were collected, suggesting Terminal Preclassic occupation. This was corroborated by the presence of sherds from the Aguacate group throughout the level. This lot characterizes the remainder of excavations in this unit. Directly below this fill, a crypt containing a burial was reached. The unit was extended one meter to the north to uncover the entirety of the crypt. However, once the extension was completed, issues in the field arose and the unit was backfilled prior to excavating the burial.

DISCUSSION AND CONCLUSIONS

The excavations at the Orchard Group revealed an interesting chronology in the intermediate elite Patio 1. While the unit in the center of Patio 1 was primarily composed of Late Classic artifacts, the unit in the east revealed a much larger Terminal Preclassic component, possibly lacking in any Late Classic artifacts. While two floors were discovered in the center unit, none were seen in the east. Future excavations could reveal the cause of these notable differences across the patio. The 2024 field season will allow for the analysis of the ceramics excavated in 2023, as well as flotation of collected soil samples. These future analyses should reveal a broader understanding of food production and consumption practices across the group. The collected carbon samples will further allow for chronological analysis, as radiocarbon dating will be conducted in the near future.

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Figure 6: Profile of E.U. OG-PT1-2.



Figure 7: Lot OG-PT1-2-3.



Figure 8: Lot OG-PT1-2-4 / Crypt.

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APPENDIX A: ORCHARD GROUP SPECIAL FINDS INDEX

SF#	Lot	S.F. Description
SF # OG-PT1-1-1	OG-PT1-1-7	Spindle Whorl

Lot	Lot Description	Class	Frequency
OG-PT1-1-2	Humic	Ce	72
OG-PT1-1-2	Humic	Ch	90
OG-PT1-1-2	Humic	Db	60
OG-PT1-1-2	Humic	Fa	2
OG-PT1-1-2	Humic	Ob	2
OG-PT1-1-2	Humic	Qz	1
OG-PT1-1-3	Daub concentration	Ce	39
OG-PT1-1-3	Daub concentration	Ch	39
OG-PT1-1-3	Daub concentration	Db	144
OG-PT1-1-3	Daub concentration	Fa	1
OG-PT1-1-3	Daub concentration	Ob	1
OG-PT1-1-3	Daub concentration	Mx	
OG-PT1-1-4	Fill below daub concentration	Ce	25
OG-PT1-1-4	Fill below daub concentration	Ch	24
OG-PT1-1-4	Fill below daub concentration	Db	91
OG-PT1-1-5	Fill Below Floor 1	Ce	31
OG-PT1-1-5	Fill Below Floor 1	Ch	27
OG-PT1-1-5	Fill Below Floor 1	Db	27
OG-PT1-1-6	Fill Below Floor 2	Ce	185
OG-PT1-1-6	Fill Below Floor 2	Ch	48
OG-PT1-1-6	Fill Below Floor 2	Ob	2
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Ce	203
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Ch	186
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Db	21
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Fa	1
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Fs	126
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Ms	3
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Ob	5

APPENDIX B: ARTIFACT INVENTORY

Lot	Lot Description	Class	Frequency
OG-PT1-1-7	Lighter brown matrix below floor 2 fill	Mx	
OG-PT1-2-2	Humic	Ce	270
OG-PT1-2-2	Humic	Ch	118
OG-PT1-2-2	Humic	Db	203
OG-PT1-2-2	Humic	Fa	2
OG-PT1-2-2	Humic	Ob	5
OG-PT1-2-2	Humic	Qz	16
OG-PT1-2-3	Light matrix below humic	Ce	567
OG-PT1-2-3	Light matrix below humic	Ch	112
OG-PT1-2-3	Light matrix below humic	Db	69
OG-PT1-2-3	Lighter matrix below humic	Fa	
OG-PT1-2-3	Light matrix below humic	Fs	
OG-PT1-2-3	Lighter matrix below humic	Ob	
OG-PT1-2-3	Lighter matrix below humic	Mx	
OG-PT1-2-3	Light matrix below humic	Qz	30
OG-PT1-2-4	Burial 1	Ce	10
OG-PT1-2-4	Burial 1	Ch	
OG-PT1-2-4	Burial 1	Fs	1
OG-PT1-2-4	Burial 1	Hr	

CHRONOLOGY AND CONSTRUCTION: EXPLORING THE OCCUPATION AND GROWTH OF EK TZUL

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INTRODUCTION

The large minor center of Ek Tzul was first identified through an analysis of the 2013 West-Central Belize Lidar Survey (Chase et al. 2014). Located roughly three kilometers south of Baking Pot, the site is nestled in the foothills bordering the Belize River Valley. Due to being identified only recently, little is known about the chronology or occupation of Ek Tzul and how it fits into the regional political dynamics. Originally thought to be a major center, or polity capital, (Awe et al. 2015; Walden et al. 2019), subsequent investigations have revealed that it is missing key traits associated with major centers, such as the presence of an Eastern Triadic Structure (Awe et al. 2017; Meyer et al. 2023; see also Walden et al. 2023).

Initial excavations of Ek Tzul were conducted in 2022. Units were placed into the ballcourt alley, and a large trench was placed on the eastern side of Structure A2 along the central axis. The ballcourt units revealed a Late-Terminal Classic (AD 600-900/1000) construction and the absence of ballcourt markers or caches (Ellis et al. 2023), which mirrors the ballcourts at other large minor centers in the region, such as North Caracol Farm, Ontario, and Xualcanil (Garber et al. 1994; Golden and Conlon 1996; Iannone 2003). The trench in Structure A2 revealed a longer occupation history with Barton Creek, Mount Hope, and Floral Park phase ceramics suggesting the earliest construction was during the Late Preclassic (300 BC-AD 300). This followed extensive leveling of the hilltop through successive layers of fill. The largest construction phase occurred during the Late-Terminal Classic when Structure A2 increased in height by about 2 meters (Meyer et al. 2023). Based on the 2022 excavations, which revealed a surge in construction during the Late Classic (AD 600-800), it was hypothesized that Ek Tzul underwent a transformation to become a large minor center at this time. However, it is unknown what the earliest occupation looked like and how this transformation occurred. Our excavations during the 2023 season aimed to refine the site chronology and to begin examining development through time. To do this, units were placed in each of the three plazas and a large trench was placed into Structure B1, the largest structure at the site which was originally thought to be an elite residence or administrative building (Figure 1). Excavations followed standard BVAR protocols, as outlined in this volume by Davis et al. (2024).

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Figure 1: Map of Ek Tzul epicenter showing location of 2023 excavation units.
SITE MAPPING

Despite access to lidar data for the Ek Tzul area, an accurate map of the site was lacking. While the data from other heavily vegetated sites in the Belize Valley have produced clear maps, there is low resolution of the Ek Tzul site core, especially for the structures surrounding Plaza C. Therefore, it was determined that traditional mapping techniques needed to be employed. The bases of all structures were cleared of vegetation to facilitate measurement. Once cleared, a tape and compass were used to measure the length and orientation of the sides. All measurements were rounded to the nearest half meter. Architectural collapse makes precise measurements difficult as it widens/lengthens the structures and obscures the corners. Edges were defined where the slope of the structure met the relatively flat plaza floor. Corners were determined based on sharp directional changes of the sides. This proved difficult for some structures, particularly those in Plaza C, as the collapse rounded the structures and the thickness of the overgrowth made visual determinations problematic.

Despite these obstacles, an updated map of Ek Tzul was produced (Figure 2). Traditional malerization was used to depict height as is customary in the Maya lowlands. This map should be considered preliminary, especially regarding Plaza C and its associated structures. Continued excavations will further reveal the extent of the structures and the plazas. Additionally, greater clearing of vegetation to the north of Plaza C will reveal whether additional structures exist.



Figure 2: Updated Ek Tzul site map. Location of the sacbe is tentative.

EXCAVATIONS

Plaza A

Stratigraphy

A 1.5 x 1.5 m unit was placed in the approximate center of Plaza A (Figure 1). The unit was aligned with Structure A2. A heavily eroded plaza floor was encountered roughly 15 cm below the ground surface (Figure 3). There was no plaster surface intact, but a whitish matrix and a layer of loose ballast indicated the presence of a floor. This layer of ballast and whitish matrix was about 10 cm thick and overlaid a thick band of loamy-clay soil. This soil was very sticky and continued down to bedrock which was 70 cm below the ground surface. No other plaza floors were encountered, but it is likely that bioturbation mixed multiple floors resulting in the single poorly preserved floor that was observed.





Artifacts

Artifacts recovered from Plaza A include ceramic, chert, *jute*, marine shell, and quartz. The few diagnostic ceramics recovered indicated a Late-Terminal Classic construction for Plaza Floor 1. For a detailed report on the ceramics from Ek Tzul, see Densel et al. (this volume). Lithics are represented by primarily chert debitage, though an informal modified chert flake tool was also recovered. Two specimens of *Pachychilus indiorum* and a fragment of a marine shell (Littorinimorpha) were collected. The *jute* were both spire-lopped, and the marine shell showed

signs of modification. A matrix sample was taken below the plaza floor; the heavy fraction contained no artifacts, and the light fraction will be sorted at a later time.

Plaza B

Stratigraphy

A 1.5 x 1.5 m unit (PLB-1) was placed in Plaza B, similarly near the center of the plaza. However, it could not be placed in the exact center as a *chultun* and the dirt pile from the *chultun* cover this area. Instead, the unit was placed slightly to the southwest of center and was aligned to Structure B1. Like the unit in Plaza A, a heavily eroded floor was located 15 cm below the ground surface (Figure 4). It is likely that multiple floors were present but were degraded by bioturbation.

Beneath the plaza floor, an alignment of three cut stones (Wall 1) was found embedded in the north baulk (Figure 5). These stones were sitting on a very thin layer of soil that covered bedrock which was 45 cm below the ground surface; in some places, the stones were on bedrock. No other cut stones were found in the rest of the unit. It was determined that the alignment should be followed. A 1.5 m (N/S) x 1 m (E/W) extension (PLB-1-Ext A) was opened to the east and followed the same stratigraphy uncovered in PLB-1. However, the wall did not extend into this unit, so a second extension (PLB-1-Ext B) was opened off the northwest corner of PLB-1. This was a 1 x 1 m unit intended to follow the wall. Again, the same stratigraphy as the original unit was followed. Below the plaza floor, the continuation of the wall was encountered, and an additional four stones were uncovered. The wall continues to the west and the structure seems to be positioned north of the current units. Future excavations may seek to further expose this structure.



Figure 4: Plaza B north profile.



Figure 5: Photogrammetric model of Plaza B units showing Wall 1.

Artifacts

The discussion of artifacts from Plaza B treats the three units as a whole and distinguishes based on stratigraphy only. An array of artifacts was recovered including ceramics, lithics of various raw materials, freshwater shell, and marine shell. Ceramics in both the humus and below the plaza floor date to primarily the Late-Terminal Classic, though the sample size is small. Lithics include artifacts made from obsidian, chert, quartz, basalt, limestone, and greenstone. An obsidian blade was found in the humic layer, and a flake was found below the plaza floor. Other lithics include numerous chert and several quartz debitage flakes. On the ground surface near the unit, a basalt grooved stone (SF-EKT-PLB-surface-4; see Appendix A) and a drilled limestone ball (SF-EKT-PLB-surface-3) were found. In the humic layer, an additional drilled limestone ball was found (SF-EKT-PLB-1-1). Lastly, a small greenstone object was collected below the plaza floor, but it does not seem to be modified.

Several freshwater shells were recovered from below the plaza floor in addition to a single, unworked marine specimen (Littorinimorpha) found in the humus. The freshwater fauna includes six *Pachychilus indiorum*, one *P. glaphyrus*, and two *Nephronaias sp.* bivalves.

In addition to the artifacts, two charcoal samples were collected from beneath the plaza floor in unit PLB-1, both coming from outside of the structure. These samples will provide dates for the construction of the plaza floor over the earlier structure. While there is currently no datable material (charcoal or ceramics) from inside the structure, a *terminus ante quem* is provided by the Late Classic construction of the plaza floor immediately above it. Therefore, the construction may date to earlier in the Late Classic, the Early Classic (AD 300-600), or any point in the Preclassic (1200/1100 BC-AD 300). The position of the structure in the center of the plaza is at odds with the typical cardinally oriented Classic period plaza plan, which our excavations have shown was adopted in Plaza B by at least the Floral Park phase, suggesting this earlier construction could be Middle to Late Preclassic.

Plaza C

Stratigraphy

Unlike the units placed in Plazas A and B, a 1 m (N/S) x 1.5 m (E/W) unit was placed at the base of Structure C3 (Figure 6). This was done with the hopes of recovering intact plaza floors, which had been missing in the previous plaza units. Below the humic layer, a lighter soil matrix and evidence of terminal phase collapse was encountered (Figure 7). Unfortunately, there was no preserved architecture underneath the collapse, but a poorly preserved plaza floor was located. Beneath Plaza Floor 1 was roughly 40 cm of ballast and fill, which covered what was originally thought to be Plaza Floor 2. When encountered, this plaster layer was only apparent in the west part of the unit, while the rest of the unit contained ballast. However, as this supposed plaza floor was removed, it became obvious that this was not a floor but perhaps a marl deposit. Below what was considered ballast, the marl spread to encompass the entire unit. Despite digging a meter through the compact marl, no matrix change was reached. Excavation of this unit was terminated due to time constraints and the lack of artifacts within the marl matrix.



Figure 6: Plaza C Unit 1 with large marl deposit at the bottom.

Artifacts

The diversity of artifacts recovered from Plaza C was less than the other plaza units. A single obsidian blade was located on the surface of Structure C1, and a large ceramic scatter was noted on the eastern surface of the plaza. Within the excavation unit, ceramics and chert comprised the bulk of the artifacts recovered, though freshwater shell and charcoal were also collected. Diagnostic ceramics suggest a Late-Terminal Classic construction of Plaza Floor 1, though Middle and Late Preclassic (900 BC-AD 300) types were also recovered from above and below the floor. Three charcoal samples, one from the terminal collapse (RC-EKT-PLC-1-1) and two from the fill below Plaza Floor 1 (RC-EKT-PLC-1-2 and 3), will clarify the chronology. Lithic artifacts consisted of chert flakes and a single chert core. Freshwater shell included three *Pachychilus indiorum* and one *Nephronaias sp*. In the marl deposit, the only artifacts recovered were eight ceramic sherds, which were found toward the top of the level but were not identifiable to type.



Figure 7: Plaza C profiles.

Structure B1

A 6.2 m (N/S) x 3.1 m (E/W) trench was placed on the south side of Structure B1. Structure B1 is a rectangular structure measuring roughly 20 m by 17 m. The trench originated at the plaza and continued up approximately three-quarters of the southern face of the structure, terminating just below the summit where a multi-room vaulted structure containing benches and suspected looted tombs has been revealed by looting. The trench was positioned to include a different looter's trench that cut from the plaza up and into the structure. The looter's trench was filled with roughly a meter of backdirt, mostly resulting from efforts to tunnel into the structure, which contained ceramics, chert, freshwater shell, and limestone artifacts. Unsurprisingly, the ceramics represent a wide range of types, though most date to the Late-Terminal Classic. Lithics consist of primarily debitage, including a limestone flake, though two chert flake tools and two chert cores were also recovered. Eleven *Pachychilus indiorum* shells represent the only fauna found. With the backdirt cleared, the profile of the trench was used to facilitate the recognition of architecture and matrix changes as we proceeded with the rest of the unit.

Construction Phase 1

To reach the deepest deposits, a 2 m (N/S) x 1.5 m (E/W) unit was placed in the center of the larger trench with the intention of reaching bedrock. Directly overlying the undulating bedrock was a thick, sticky, gravelly matrix (Lot 25), possibly a paleosol (Figure 8), which was nearly devoid of artifacts, except for two *Pachychilus indiorum* shells. This layer varied from a few centimeters, in some corners, to over half a meter in others.



Figure 8: Bisected unit within Structure B1. Notice the dark, sticky soil directly on bedrock.

Covering this possible paleosol was a ~40 cm cobble and ballast layer supporting Plaza Floor 3 (Lot 24), a well-preserved plaster floor running the length of the unit. Beneath Plaza Floor 3, a diverse assemblage of artifacts was encountered, including many chert flakes, a quartz flake, two chert flake tools, three chert cores, an artifact of an unknown material, and three Savana Orange spouts along with other Savana Orange ceramics. Notably, only Savana Orange ceramics were recovered indicating this was a single component Middle Preclassic context. Fauna was also found consisting of 24 *Pachychilus indiorum* specimens, three Strombidae fragments, and a *Nephronaias* sp. fragment. Two charcoal samples (RC-EKT-B1-1-7 and 10) and a matrix sample were collected. The matrix sample has yet to be processed.

Construction Phase 2

Sitting on Plaza Floor 3 was an unusual stone alignment (Figure 9) located in the center of the unit. The stones were separated from Plaza Floor 3 by a thin soil matrix and were embedded in the plaster of Plaza Floor 2. While none of the stones appeared to be cut, they ran the width of the unit and clearly separated the fill behind from the fill in front. It is not clear what this alignment represents, though, it was not a retaining or construction wall as it was only a single course tall. Interestingly, Plaza Floor 2 was laid on a layer of ballast behind the alignment (Lot 22), but the plaster becomes thicker in front of it so that no ballast was present between Plaza Floors 2 and 3 (Lot 23). Behind the alignment, Middle and Terminal Preclassic ceramics (Chunhinta Black and Hillbank Red) and a few chert flakes were recovered. A matrix sample was also taken from this lot



Figure 9: The Structure B1 stone alignment resting on Plaza Floor 3. There is no discernible pattern to the alignment, but there was nothing similar in front of or behind it.

which contained two ceramic sherds and one chert flake in the >1/4-inch size grade and a single ceramic sherd in the #5 size grade of the heavy fraction. The light fraction has yet to be sorted. In front of the stone alignment, Late and Terminal Preclassic ceramics (Society Hall Red and Ixcanrio Orange Polychrome), chert debitage, and a chert core were recovered. These two lots likely are associated but were separated due to the unusual nature of the stone alignment.

Construction Phase 3

This construction phase establishes Structure B1 and serves as the foundation on which several later modifications are made. The construction of this structure is similar to Structure A2 (Meyer et al. 2023) in that a large pile of stones was formed to serve as the core of the platform. The very center of the structure appears to consist of boulder fill which was revealed as a result of active looting during the course of excavations and as glimpsed in the prior looter's tunnel. In front of this, and covering Plaza Floor 2 behind the rock alignment, was cobble fill stacked in a rough pile sloping from the back of the unit forward to the alignment (Lot 21). Within the cobble fill, Middle Preclassic through Early Classic ceramics (e.g., Savana Orange, Sierra Red, Aguila Orange) were identified. Lithics, including numerous chert flakes, a single limestone flake, a chert flake tool, a possible chert chopper, and a quartz *mano* fragment, were also recovered. Other materials recovered include a fragment of stucco, two charcoal samples (RC-EKT-B1-1-5 and 6), and fragments of a human tibia.

Covering this cobble fill were several distinct soil profiles. Unfortunately, the localized nature of many of these deposits resulted in their absence from the profile (Figure 13 and 14). Still, lots were changed when a new soil matrix was encountered. These deposits consisted of marl (Lots 14, 16, 18, and 20), rock fill (Lot 17), and mixed fill with a darker loamy soil (Lot 19). Much of the fill beneath the penultimate steps consisted of marl, as can be seen in the profile, with small pockets of the other various types of fill mixed in.

Directly overlying the cobble fill was marl consisting of Lots 18 and 20. These lots are likely a continuation of each other and probably also belong to Lot 16 but were kept separate as a precaution. Ceramics from these lots include Middle Preclassic through Early Classic types (e.g., Reforma Incised, Mopan and Socotz Striated, Chan Pond). Lithics consist of chert and limestone debitage, two chert cores, and a Stage 2 chert biface. Cutting through these marl deposits were Lots 17 and 19. Lot 17 was a deposit consisting of ballast-like stones with Late Preclassic through Early Classic ceramics (e.g., Aguacate Orange, Monkey Falls Striated, Hewlett Bank), chert debitage, six chert flake tools, and three chert cores. A matrix sample was also taken from this lot, though it has not been processed yet. Lot 19 was a pocket of darker loamy soil and mixed fill with Middle and Late-Terminal Preclassic ceramics (Savana Orange and Monkey Falls Striated), along with chert debitage, seven chert flake tools, and a quartz *mano* fragment.

Finally, the steps of Structure B1 were built upon a marl and ballast layer (Lot 14) covering these earlier deposits. There are six stairs, some of which could be considered walls given their height (Figure 10 and 11). Penultimate Step 1 was a single course stair that was abutted by Plaza Floor 1. This may have been a later addition, as it and Penultimate Step 2 rest on Plaza Floor 2, and no floor was found connecting them. Penultimate Step 2 was six courses high and was connected to Penultimate Step 3 by Floor 6. Penultimate Step 3 was also six courses high but



Figure 10: Terminal and penultimate stairs from Structure B1.



Figure 11: The penultimate stairs of Structure B1.

shorter in height. Additionally, basal moulding existed on the western half of the stair but was absent on the eastern half. Penultimate Step 3 was presumably connected to Step 4, a two-course riser, by a plaster floor, though none was found. Floor 10 connected Penultimate Steps 4 and 5 but was only preserved in the center of the unit. Covering Penultimate Step 5 was Floor 9, which continued north under Penultimate Step 6, a five-course riser, which was a later addition. The ceramics from directly beneath these stairs span from the Late Preclassic through the Terminal Classic and include types such as Polvero Black, Sierra Red, Dolphin Head Red, and Benque Viejo Polychrome. Lithics include chert debitage, five chert cores, and 12 flake tools. A single limestone flake was also identified. Other lithic tools include a quartz *mano* fragment (SF-EKT-B1-1-3) and an obsidian blade.

Construction Phase 4

Penultimate Step 6 appears to be a modification of the original staircase as it caps Floor 9. Unfortunately, the floor was only noticed in the profile after the fact, so lots were not separated. On top of the step, Floors 2 and 3 were uncovered in quick succession with Floor 2 representing a replastering event. Floor 1 was also laid immediately over Floor 2 with no ballast in between, though this floor probably coincides with the terminal architecture.

Construction Phase 5

Within the rest of the unit, there was a significant amount of collapse located at the base of the structure, and the preservation of the terminal phase of architecture was poor. Still, the remains of eight terminal phase stairs were recorded. Each of these stairs was only a single course except for the plaza-level riser (Terminal Step 1), which was two courses. It was noted that beneath the terminal stairs, the remnants of several plaster floors appeared to connect the terminal stairs to earlier construction phases. For example, Floor 1 covered the penultimate stairs and seemed to connect to Terminal Step 7 (no plaster was preserved near Terminal Step 7), though Terminal Step 8 was positioned above Floor 1. Below Terminal Step 8 (Lot 4), only ceramics, dating to the Late-Terminal Classic (Alexanders Unslipped and Belize Red), and a chert flake tool were recovered.

Floor 8 (Lot 9) abutted the middle of Penultimate Step 6 and supported a basal moulding (Figure 12). The fill beneath the floor contained Late-Terminal Classic ceramics (Cayo Unslipped and Yaha Creek Cream), chert debitage, and a single *Pachychilus indiorum* shell. Floor 8 sloped toward Terminal Step 5 (again, no plaster was preserved by the riser), and Terminal Steps 6 and 7 were located above the floor. In between these stairs and the floor (Lot 5), Late-Terminal Classic ceramics (Cayo Unslipped and Belize Red), chert flakes, a chert core, and a single *Pachychilus indiorum* specimen were recovered.

Floors 5 and 7 followed a similar pattern to those described earlier, though no terminal stairs were located above it. Beneath Floor 5 (Lot 7) ceramics, of which a single sherd was dated to the Late-Terminal Preclassic (Chan Pond), and two chert flakes were collected. The fill below Floor 7 (Lot 8) also had a low artifact count. Ceramics included a sherd dating to the Early Classic (Mopan and Socotz Striated), and lithics consisted of chert debitage. A single *Pachychilus glaphyrus* specimen was also identified.



Figure 12: Basal moulding along Penultimate Step 6 sitting atop Floor 8. Notice the wellpreserved section of floor in the foreground underneath the moulding.

At the base of the structure, Plaza Floor 1 was laid during the Late-Terminal Classic to cover Penultimate Step 1. Late-Terminal Classic ceramics (Mountain Pine Red and Cayo-Unslipped) were found beneath Plaza Floor 1 (Lot 12) along with chert debitage and a quartz *mano* fragment. Later, Terminal Step 1 was built on top of Plaza Floor 1. Floors 11 and 12 also appear to conform to the pattern observed in the upper floors, though plaster was only preserved near Penultimate Step 2, making it difficult to determine whether these floors were associated with Terminal Step 1. If so, Terminal Step 2 would have overlain these two floors, of which Floor 11 is likely a replastering event. Below Floor 11 (Lot 10), non-diagnostic ceramics, chert debitage, and a possible slate artifact were recovered. Mixed Classic ceramics (Belize Red and Mopan and Socotz Striated) were the only artifacts found in the fill below Floor 12 (Lot 13).

In the fill beneath Terminals Steps 1, 2, and 3 (Lot 6), ceramics, chert, quartz, marine shell, and charcoal were recovered. Ceramics primarily date to the Late-Terminal Classic and include Cayo Unslipped, Vaca Falls Red, and Alexanders Unslipped types. Debitage was mainly chert with a single quartz flake. Three chert cores and a chert flake tool were identified. The marine shell could only be identified to Littorinimorpha. The two charcoal samples (RC-EKT-B1-1-2 and 3) were collected behind Terminal Step 1. A third sample (RC-EKT-B1-1-1) was collected above and behind Penultimate Step 1 and below Floor 12.



Figure 13: Structure B1 west profile.

The confusion surrounding the association of these floors and the terminal stairs is due to several modifications to the penultimate structure. As a result, lots were changed often in an attempt to keep potential remodeling events separate. Rather than covering the entire structure with a new façade, the penultimate stairs appear to be incorporated into subsequent construction phases. Over time, these stairs became covered by an accumulation of modifications that comprise the terminal stairs.

Covering the terminal architecture was a humic layer (Lot 3) with artifacts consisting of ceramics, chert, an obsidian blade, quartz, and freshwater shell. Ceramics are primarily Late-Terminal Classic in date (e.g., Cayo Unslipped, Vaca Fall Red, Belize Red). Chert flakes were collected along with a single quartz flake. Two Stage 2 chert bifaces, a quartz *mano* fragment, and three chert cores were also found. An additional nodule of quartz was also collected that may be a core though this assignation is dubious. Eight *Pachychilus indiorum* represent the freshwater shell from this lot.

Finally, on the surface of Structure B1, two granite grooved stones (SF-EKT-B1-surface-1 and 2) and a granite *mano* (SF-EKT-B1-surface-3) were recovered. Additionally, two limestone artifacts were collected from the backdirt. One is a possible celt or fragment of a ceremonial "mace" or "wrench" (Willey et al. 1965, Fig. 295 and 300), and the other is a complete bark beater (SF-EKT-B1-1-2).



Figure 14: Structure B1 north profile.

Looter's Tunnel

Excavations of the looter's tunnel (Figure 15) intended to clear it of collapse and looter's backdirt to assess the profile for architecture. This strategy was employed as it would allow an efficient look into the center of the structure without having to undertake massive excavations. Moderate progress was made, but efforts to clear the tunnel were halted abruptly when active looting undermined the stability of the tunnel and obliterated one of the profiles. Fortunately, the profile of the looted area could be recorded, which revealed that Floor 9 continued further north

along with the ballast and cobble fill. It also revealed boulder dry core fill near the center of the structure.

Artifacts recovered before the termination of activities (Lot 26) included a large quantity of ceramics, chert debitage, a chert flake tool, two chert cores, an unidentified mammal vertebra fragment, a domestic pig (*Sus scrofa scrofa*) second phalanx, and two unknown artifacts. One is a possible burnishing stone, and the other is a bright blue pebble. The antiquity of the blue pebble is uncertain, but it may be some type of bluestone.



Figure 15: Looter's tunnel at the back of Structure B1 Unit 1. Much of the soil covering the mouth is looter's backdirt. Notice the distinct line between intact and disturbed soil on the left.

DISCUSSION

The results of the 2023 excavations support prior conclusions about the growth and development of Ek Tzul. Though it was contested whether Savana Orange ceramics were present in Structure A2 (Meyer et al. 2023), the large quantity of these ceramics from Structure B1, including several clearly distinguishable Savana Orange spouts (Densel et al., this volume), supports a Middle Preclassic occupation at Ek Tzul. While radiometric dating is still needed to confirm this, it is clear that the earliest inhabitants of the hill chose the apex as the location to settle. Extensive leveling and widening of the hilltop occurred during the Middle and Late Preclassic, as evidenced by the gravelly matrix found overlying bedrock under Structure B1. This

matrix was used to fill in natural crevices and depressions in the bedrock, which can be seen in the west profile from Structure B1. This fill event coincides with the multiple fill deposits encountered under Structure A2 in which alternating layers of dark soil and marl were used to expand the western edge of the hilltop (Meyer et al. 2023).

Structure B1 subsequently mirrors the same construction sequence as Structure A2. Following the leveling of the hilltop, there is a pause in building with little evidence for Early Classic construction at the site. This may be due to issues with identifying ceramics from this period as the identifiable Early Classic ceramics tend to be nicer vessels that may not be present in these contexts, and many of the Late and Terminal Preclassic types are used as late as AD 500. Still, Early Classic forms, such as those with basal flanges, have been found and are often comingled with Late Classic ceramics. Therefore, it appears that Ek Tzul was still inhabited during the Early Classic, though the degree of construction during this time is uncertain. Forthcoming radiometric dating will clarify this chronology.

Ek Tzul experiences a resurgence of construction during the Late Classic, and many of the structures are raised to their current heights. Prior to this phase, structures appear to have been small and constructed with roughly shaped limestone blocks (Meyer et al. 2023). Interestingly, there was no earlier structure beneath Structure B1, like that seen beneath Structure A2. Two earlier construction phases were uncovered beneath the Late Classic phase of Structure A2. Both of these earlier phases consisted of small walls constructed on top of the immense fill deposits used to level the hill (Meyer et al. 2023). In Structure B1, on the other hand, there was no architecture found above the hill-leveling deposits. Instead, it was capped with a plaza floor. Perhaps this area of the plaza was left open at this time, or maybe the remains of earlier architecture are buried closer to the core of the structure.

Regardless, the Late Classic construction phase established Structure B1 as an imposing structure in Plaza B. The southern face contained a staircase that led to a multi-room vaulted structure at the top. Over time, the configuration of the stairs was modified as additional steps were added. This remodeling likely coincides with modifications taking place at the summit. While the summit was not excavated, looter's trenches reveal a spine wall and several rooms with possible benches. It appears that these rooms had been filled in to accommodate construction of the terminal phase of architecture. The terminal architecture on the summit is difficult to discern, but it appears that corbelled vaulting was no longer used, and a pole and thatch building may have been used instead. Further testing is needed to corroborate this.

Initial assessment of Structure B1 suggested a palace function given its size, location within a restricted plaza of a presumed Tier 1 site, and the presence of corbelled vaulting (Walden et al. 2019:7). However, the reclassification of Ek Tzul as a Tier 2 site (Meyer et al. 2023) and the excavation results from this structure cast doubt on this designation. Webster (2001) discusses the common traits of royal palaces through the examples of Tikal and Copan (see also Skaggs et al. 2020). While Ek Tzul most definitely does not contain the same level of architecture as these two sites, it is Webster's discussion of the palaces of Maya nobles that provides a useful gauge for Structure B1. He lists six traits that can be used to classify noble palaces: (1) presence of rooms with thrones, (2) carved altars in plazas, (3) high quality buildings that required massive labor, (4) patio groups with shrines, men's houses, kitchens, and craft production facilities, (5) domestic refuse, and (6) burials.

Based on the 2023 excavations, Structure B1 is lacking many of these features. No carved altars have been recovered thus far, nor have any shrines, men's houses, kitchens, or craft production facilities been identified. No burials have been recovered, though this may be the result of looting and not due to their absence prehistorically. Even the presence of domestic trash is questionable. Some domestic implements, like *manos*, have been recovered, but food waste is largely absent. While the summit of the structure contains multiple rooms, it is doubtful that any contain a throne. As previously mentioned, several of these rooms can be seen in the looter's trenches, and benches are visible, but future excavation is needed to determine the extent and function of these rooms.

Given the current evidence, it is best to be conservative when assigning function to Structure B1. As Webster astutely observes: "The risk we now face is that of overconfidence and overgeneralization—that is, glibly labeling any large, central architectural complex as a palace or palace complex" (Webster 2001:163). Yet, the presence of corbelled vaulting and its prominent location indicate that it was likely the residence of a cadre of intermediate elites who administered the surrounding district (Estrada-Belli et al. 2023, Walden et al. 2023).

Finally, the plaza excavations further confirm the construction sequence at Ek Tzul. Plaza A is a primarily Late Classic construction. This indicates that the inhabitants occupied Plaza B initially and expanded down the hill as time went on. Plaza B, unsurprisingly, has evidence of earlier construction. While most of the ceramics date to the Late-Terminal Classic, the presence of a structure beneath the plaza floor indicates that this area of the plaza was utilized at an earlier time. Though the structure has yet to be dated, it seems likely that it dates to the Preclassic given the construction sequences of Structures A2 and B1. This structure may be key to understanding what the earliest occupation on the hilltop looked like. Further excavations are needed to determine if other structures are located beneath the plaza.

Plaza C also seems to date to the Late Classic, suggesting the terminus group was built as the site was growing and possibly taking on more ritual importance. This matches with what Iannone (2003) found at Te Tun Na, the terminus complex of Xualcanil. However, further excavations are needed to understand the construction of this plaza. Two possibilities exist for the presence of the thick marl layer encountered at the bottom of the Plaza C unit. It is either a fill layer used to build up the plaza height or to level its surface, similar to what was found beneath Structure A2 (Meyer et al. 2023), or it is eroded bedrock. Given the nature of the marl deposit under Structure A2, which was originally deemed bedrock, and the absence of large stone fragments within the matrix, it is most likely a fill layer used to construct Plaza C and its associated structures.

CONCLUSIONS

While the occupation history of Ek Tzul is beginning to become clear, the results of the radiocarbon dating are needed to confirm our conclusions. The initial settlement of Ek Tzul, during the Preclassic, is on par with other sites in the valley. However, unlike some sites which saw rapid growth during the Late Preclassic and Early Classic, Ek Tzul seems to have halted. This changed

during the Late Classic as the site grew swiftly, possibly as the inhabitants of Ek Tzul came under the influence of one of the nearby polity capitals (see Walden et al. 2023).

These excavations produced more evidence for parallel trajectories between Ek Tzul and Xualcanil. As Tier 2 sites, both exhibit similar site layouts, construction sequences, and artifact inventories. This research is useful for understanding the form and function of Tier 2 sites in the valley which have been largely neglected in prior research. Therefore, further research is needed at Ek Tzul, and other Tier 2 sites, to understand the roles this category of sites performed within the valley. Undoubtedly, there is variation within this category, so further investigations that explore not only the similarities, but also the differences in these sites and the social, political, and economic outcomes of these differences, will be well founded. Lastly, continued research at Ek Tzul is necessary to better understand how its growth fits into larger regional political dynamics. Therefore, it is imperative to investigate to whom Ek Tzul was subordinate.

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APPENDIX	A: STRU	CUTRE B1	SPECIAL	FINDS INDEX
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Special Find #	Description
SF-EKT-B1-surface-1	Granite grooved stone
SF-EKT-PLB-1-1	Drilled limestone ball
SF-EKT-A2-surface-2	Granite grooved stone
SF-EKT-PLB-surface-3	Drilled limestone ball
SF-EKT-B1-surface-2	Granite grooved stone
SF-EKT-B1-surface-3	Granite mano fragment
SF-EKT-B1-1-2	Quartz mano fragment
SF-EKT-PLB-surface-4	Basalt grooved stone
SF-EKT-BC1-surface-1	Limestone grooved stone
SF-EKT-BC1-surface-2	Granite grooved stone
SF-EKT-BC1-surface-3	Basalt grooved stone
SF-EKT-B1-1-1	Quartz mano fragment
SF-EKT-B1-1-3	Limestone bark beater



Figure 16: Ek Tzul Special Finds.

Lot	Lot Description	Class	Quantity	Notes
EKT-PLA-2	Humus	Ceramic	28	
		Chert	16	
		Freshwater Shell	1	
		Matrix	1	
EKT-PLA-3	Plaza Floor 1	Ceramic	161	
		Chert	12	
		Quartz	2	
		Freshwater Shell	4	
		Marine Shell	1	
		Matrix	1	
EKT-PLB-2	Humus	Ceramic	53	
		Quartz	1	
		Granite	1	
		Limestone	1	SF-EKT-PLB-1-1
		Obsidian	1	
EKT-PLB-3	Plaza Floor 1	Ceramic	51	
		Chert	1	
		Quartz	2	
		Freshwater Shell	1	
		Charcoal	2	RC-EKT-PLB-1-1, 2
EKT-PLB-5	Humus	Ceramic	28	,
		Chert	6	
EKT-PLB-6	Plaza Floor 1	Ceramic	35	
		Chert	12	
		Quartz	1	
		Greenstone	1	
		Freshwater Shell	4	
EKT-PLB-8	Humus	Ceramic	24	
		Chert	1	
		Marine Shell	1	
EKT-PLB-9	Plaza Floor 1	Ceramic	5	
		Chert	10	
		Quartz	2	
		Obsidian	1	
		Freshwater Shell	3	
EKT-PLC-2	Humus	Ceramic	18	
		Chert	4	
EKT-PLC-3	Terminal Collapse	Ceramic	5	
		Chert	2	
		Charcoal	1	RC-EKT-PLC-1-1
EKT-PLC-4	Fill Below Plaza Floor 1	Ceramic	117	
		Chert	16	
		Freshwater Shell	4	
		Charcoal	2	RC-EKT-PLC-1-2, 3
EKT-PLC-5	Marl Dump	Ceramic	8	, -

Lot	Lot Description	Class	Quantity	Notes
EKT-B1-1	Surface	Ceramic	6	
EKT-B1-2	Looter's Trench	Ceramic	283	
		Chert	29	
		Limestone	1	
		Freshwater Shell	11	
EKT-B1-3	Humus	Ceramic	499	
		Chert	45	
		Obsidian	1	
		Quartz	3	
		Freshwater Shell	8	
EKT-B1-4	Fill Below Step 8	Ceramic	32	
		Chert	1	
EKT-B1-5	Fill Below Floor 1	Ceramic	25	
		Chert	3	
		Freshwater Shell	1	
EKT-B1-6	Fill Below Terminal	Ceramic	200	
	Architecture	Chert	21	
		Quartz	1	
		Marine Shell	1	
		Charcoal	3	RC-EKT-B1-1-1, 2, 3
EKT-B1-7	Fill Below Floor 5	Ceramic	25	
		Chert	2	
EKT-B1-8	Fill Below Floor 7	Ceramic	23	
		Chert	6	
		Freshwater Shell	1	
EKT-B1-9	Fill Below Floor 8	Ceramic	55	
		Chert	2	
		Freshwater Shell	1	
EKT-B1-10	Fill Below Floor 11	Ceramic	9	
		Chert	5	
		Unknown	2	
EKT-B1-12	Fill Below Plaza Floor 1	Ceramic	61	
		Chert	16	
		Quartz	1	
EKT-B1-13	Fill Below Penult. Step 1	Ceramic	12	
		Chert	1	
EKT-B1-14	Fill Below Penultimate Steps	Ceramic	616	
		Chert	70	
		Limestone	1	
		Obsidian	1	
		Quartz	1	SF-EKT-B1-1-1
EKT-B1-15	Dry Core	Ceramic	363	
		Chert	37	
		Limestone	1	
		Quartz	1	SF-EKT-B1-1-2
		Plaster	1	Stucco
		Human Remains	1	
		Charcoal	2	RC-EKT-B1-1-5, 6

Lot	Lot Description	Class	Quantity	Notes
EKT-B1-16	Marl	Ceramic	59	
		Chert	7	
		Limestone	1	
EKT-B1-17	Rock Fill Below Marl	Ceramic	147	
		Chert	26	
		Matrix	1	
EKT-B1-18	Marl Dump	Ceramic	62	
	-	Chert	9	
EKT-B1-19	Mixed Fill	Ceramic	140	
		Chert	26	
		Quartz	1	
EKT-B1-20	Marl on Dry Core	Ceramic	62	
		Chert	4	
EKT-B1-22	Fill Below Plaza Floor 2	Ceramic	36	
		Chert	3	
		Matrix	1	
EKT-B1-23	Fill in Front of Rock	Ceramic	145	
	Alignment	Chert	13	
EKT-B1-24	Fill Below Plaza Floor 3	Ceramic	416	
		Chert	68	
		Quartz	1	
		Freshwater Shell	25	
		Marine Shell	3	
		Matrix	1	
		Charcoal	2	RC-EKT-B1-1-7, 10
		Unknown	1	
EKT-B1-25	Gravel	Freshwater Shell	2	
EKT-B1-26	Looter's Tunnel	Ceramic	224	
		Chert	24	
		Fauna	2	
		Unknown	2	

APPENDIX C: RADIOCARBON LOG

Str.	Lot	Carbon Sample (CS) #	Context	East (cm)	North (cm)	Absolute (cmbd)	Comments
Plaza B	3	RC-EKT-PLB-1-1	Plaza Floor 1	100	84	129	
Plaza B	3	RC-EKT-PLB-1-2	Plaza Floor 1	119	105	119	
B1	11	RC-EKT-B1-1-1	Fill below penultimate steps	244	288	433	
B1	11	RC-EKT-B1-1-2	Fill below penultimate steps	57	140	435	
B1	6	RC-EKT-B1-1-3	Fill below terminal architecture	76	123	431	
B1	15	RC-EKT-B1-1-4	Cobble fill	250	259	454	Discarded in field
B1	21	RC-EKT-B1-1-5	Dry core	95	508	458	
B1	21	RC-EKT-B1-1-6	Dry core	190	509	463	
B1	24	RC-EKT-B1-1-7	Fill below Plaza Floor 3	110	133	478	
B1	24	RC-EKT-B1-1-8	Fill below Plaza Floor 3	39	154	487	Discarded in field
B1	24	RC-EKT-B1-1-9	Fill below Plaza Floor 3	80	172	493	Discarded in field
B1	24	RC-EKT-B1-1-10	Fill below Plaza Floor 3	48	36	504	
Plaza C	3	RC-EKT-PLC-1-1	Terminal collapse	70	55	112	
Plaza C	4	RC-EKT-PLC-1-2	Fill below Plaza Floor 1	143	60	123	Possibly modern
Plaza C	4	RC-EKT-PLC-1-3	Fill below Plaza Floor 1	76	14	141	

CERAMIC ANALYSES FROM EK TZUL, BELIZE: RESULTS OF THE 2023 FIELD SEASON

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INTRODUCTION

This report presents the results of the ceramic analyses conducted during the 2023 field season at the Classic Maya minor center of Ek Tzul, Georgeville, Belize. The 2023 field season was the second season of excavations at Ek Tzul. Excavations sought to clarify the chronology of the site, and to resolve debate regarding the earliest identifiable occupation of the site-core.

First identified via lidar in 2013 (Chase et al. 2014; Awe et al. 2015), Ek Tzul is located in the foothills on the southern edge of the Belize Valley. After initial excavations in 2022, it was determined that the site was not a major political center as previously believed (Awe et al. 2015; Walden et al. 2019), but rather a minor outpost of another polity, similar in nature to North Caracol Farm, Floral Park, and Xualcanil (Meyer et al. 2023; see also Walden et al. 2023). Investigation of Structure A2 (Meyer et al. 2023) confirmed the site was occupied as early as the Late/Terminal Preclassic period (300 BC-AD 300), but experienced rapid growth during the Late Classic (AD 600-800), at which point Ek Tzul became a minor center (Meyer et al. 2023; Ellis et al. 2023). Possible Middle Preclassic (900-300 BC) sherds were also uncovered in mixed fill contexts, however, it was unclear whether these sherds reflected actual Middle Preclassic construction on the hilltop or were simply dumped in the fill of a later structure. One of the goals for the 2023 season, therefore, was to investigate whether such contexts were apparent in other structures at the center and if so, assess whether the ceramic sherds were from single component Middle Preclassic contexts associated with architecture. A second, but equally important goal was to refine the chronology for later construction at the site, specifically the Late Classic surge in monumental construction.

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Over the course of the 2023 season, excavation units were opened in Plazas A, B, and C, as well as in Structure B1. For the results and analyses of these excavations, see Meyer and colleagues, this volume.



Figure 1: The 2023 excavation units at Ek Tzul (from Meyer et al. 2024:Fig. 1)

CERAMIC ANALYSES

All ceramic sherds were analyzed using the type:variety-mode method established for the Belize Valley by Gifford (1976), based on the ceramic assemblage from Barton Ramie and refined by numerous others (Aimers 2002, 2007, 2013; Chase and Chase 2008; Kosakowsky 2012; Kosakowsky and Robin 2010; LeCount 1999; Pring 2000). In total, we examined 410 diagnostic sherds from Plazas A, B, C, and Structure B1 (Table 1). For the purposes of this report, "diagnostic" refers to any characteristics such as surface treatment, paste composition, and vessel form which provide information about dating or use. Additionally, Table 2 contains information about formal decorations such as painting, incising, and flanges/ridges, censer prongs, and foot/handle scars.

Structure	Complex	Type/Variety	Frequency
B1	Spanish Lookout	Belize Red	16
		Benque Viejo Polychrome	2
		Cayo Red and Unslipped	1
		Cayo Unslipped	35
		Dolphin Head Red	3
		Garbutt Creek Red	2
		Misera	1
		Platon Punctated Incised	1
		Rubber Camp Brown	1
		Vaca Falls Red	5
		Yaha Creek Cream	8
	Tiger Run	Mountain Pine Red	1
	Hermitage	Actuncan Orange Polychrome	2
	C C	Aguila Orange	2
		Dos Arroyos Orange Polychrome	3
		Hewlett Bank Unslipped	2
		Mopan and Socotz Striated	6
		Pucte Brown	1
		St. Herman Impressed	1
		Minanha Red	1
	Floral Park	Aguacate Orange	17
		Chan Pond Unslipped	12
		Gavilan Black-on-Orange	1
		Ixcanrio Orange Polychrome	2
		Monkey Falls Striated	9
		Sacluc Black-on-Orange	1
	Barton Creek	Flor Cream	2
		Polvero Black	5
		Puletan Red and Unslipped	2
		San Felipe Brown	3
		Sierra Red	7
		Society Hall Red	1
	Mt. Hope	Hillbank Red	1
	Jenney Creek	Chunhuita Black	1
		Jocote Orange-Brown	7
		Reforma Incised	10
		Sampoppero Red	1
		Savana Orange	19
		Sayab Daub Striated	8
	Unknown		152
Plaza A	Spanish Lookout	Belize Red	1
		Yaha Creek Cream	1
	Barton Creek	Sierra Red	1
	Jenney Creek	Jocote Orange-Brown	1
		Reforma Incised	1
		Savana Orange	1

Table 1: Frequency of ceramics (type/variety) by structure from the 2023 excavations at the Ek Tzul site core (n=410).

Structure	Complex	Type/Variety	Frequency
	Unknown		12
Plaza B	Spanish Lookout	Cayo Unslipped	4
	*	Garbutt Creek Red	1
		Yaha Creek Cream	3
	Barton Creek	Polvero Black	1
		Sierra Red	2
	Unknown		8
Plaza C	Spanish Lookout	Belize Red	3
		Cayo Uslipped	1
		Vaca Falls Red	1
	Barton Creek	Polvero Black	1
		Polvero Black Dichrome	1
	Floral Park	Chan Pond Unslipped	1
	Jenney Creek	Reforma Incised	1
		Savana Orange	2
	Unknown		7

Table 2: Frequency of ceramics by vessel form for each complex present in the assemblage (percentage rounded to the nearest hundredth).

Complex	Vessel Form	Frequency	% Per Complex
Spanish Lookout	Body Sherd	3	3.33
_	Bowl	21	23.33
	Censer	1	1.11
	Dish	8	8.89
	Flat Base	1	1.11
	Jar	55	61.11
	Plate	1	1.11
Tiger Run	Dish	1	100.00
Hermitage	Body Sherd	3	16.67
	Bowl	8	44.44
	Dish	1	5.56
	Jar	6	33.33
Floral Park	Body Sherd	1	2.33
	Bowl	10	23.26
	Dish	4	9.30
	Jar	25	58.14
	Pedestal Base	3	6.98
Barton Creek	Basin	1	3.85
	Bowl	17	65.38
	Dish	2	7.69
	Jar	6	23.08
Jenney Creek	Body Sherd	7	13.46
-	Bowl	14	26.92
	Dish	3	5.77
	Jar	24	46.15
	Spout	4	7.69

Complex	Vessel Form	Frequency	% Per Complex
Unknown	Basin	2	1.12
	Body Sherd	16	8.94
	Bowl	38	21.23
	Censer Prong	1	0.56
	Dish	33	18.44
	Flat Base	1	0.56
	Foot	1	0.56
	Foot Scar	2	1.12
	Handle Scar	3	1.68
	Jar	48	26.82
	Lug Handle	10	5.59
	Pedestal Base	1	0.56
	Ring Base	16	8.94
	Suspension Loop	6	3.35
	Trumpet Base	1	0.56

DISCUSSION

The 2023 field season at Ek Tzul provided much needed data to further examine the development of the site core. As indicated by the type/variety analysis above, there is a significant Preclassic component, evidenced by the abundance of Jenney Creek, Barton Creek, Mt. Hope, and Floral Park ceramics in all four contexts. The data also supports the idea of a Late Classic resurgence as significant amounts of Spanish Lookout types are also present. This is not to say, however, that the site was abandoned between the Terminal Preclassic and Late Classic. The presence, albeit minor, of Early Classic (Hermitage) ceramics in the construction fill of Structure B1 shows that there was some degree of continuity, although building seems to have slowed or halted. Furthermore, the quantity and diversity of Jenney Creek types from unmixed single component contexts associated with architecture, particularly from Structure B1, proves beyond a reasonable doubt that the site was occupied as early as the Middle Preclassic. This corresponds with an extensive reshaping of the hilltop, indicated by a layer of gravely matrix on top of the bedrock underlying Structure B1 (Meyer et al., this volume) and multiple fill deposits beneath Structure A2 (Meyer et al. 2023).

The results of the modal analysis are not as clear but are still useful in understanding the changes in economic activity at Ek Tzul. As shown above, jars were the most commonly found type during the Spanish Lookout phase (61.11%) and the Floral Park phase (58.14%). This finding stands in contrast with earlier periods, such as the Middle to Late Preclassic when bowls and dishes predominate in the Jenney Creek and Barton Creek assemblages. Spouts are present in the Jenney Creek assemblage (see Figure 2), a vessel form unique to the Preclassic. Changes in the proportions of vessel forms over time is perhaps indicative of changing economic circumstances and shifts in the scale of consumptive events versus storage activities. Ultimately, assessing changing patterns in activities based on the proportions of artifacts at Ek Tzul will be carried out following completion of all excavations in the core. These excavations will provide a larger and more robust sample of materials which we will more reliably date to specific time periods using both ceramic analyses and radiocarbon dating. Following this, statistical methods which account for confidence and significance will be employed to account for possible sample size biases.



Figure 2: Middle Preclassic sherds, including chocolate spouts, before washing in the lab. From lot EKT-B1-24.

CONCLUSIONS

The ceramics uncovered during the 2023 field season at Ek Tzul provide much needed data regarding the chronology of the site. Based on the types and varieties present in the assemblage, it is clear that the hilltop was occupied as early as the Middle Preclassic, and Ek Tzul experienced a period of intense construction during the Late Classic. The lack of ceramic types dating to the Hermitage phase may not be associated with an Early Classic abandonment or any real decline in construction. Many of the temporally diagnostic Hermitage types are fineware ceramics whose presence varies depending on the status of the occupants. Moreover, Late and Terminal Preclassic types were in use throughout the Early Classic period (see Lincoln 1985). Assessing the scale of activity during the Early Classic period at Ek Tzul will become easier given larger sample sizes of ceramics and radiocarbon dating to tease these time periods apart. Analysis of the vessel forms within each complex also - loosely - suggests that a change in economic activity might have occurred towards the end of the Preclassic, then once more as the site began to grow during the Late Classic. The addition of radiometric dates will, undoubtedly, help further refine this chronology. Ultimately, refining the chronology of monumental construction of both residential space and ceremonial areas will provide important information about the fates and fortunes of the intermediate elites based at Ek Tzul and their interactions with commoner subordinates and apical elite suzerains (Walden 2023).



Figure 3: Articulated fragment of a Middle Preclassic bowl in situ, lot EKT-B1-24. Note the poor preservation.

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Structure	Lot	Complex	Type/Variety	Frequency
B1	EKT-B1-01	Spanish Lookout	Cayo Unslipped	2
			Unknown	1
B1	EKT-B1-02	Spanish Lookout	Belize Red	2
	(looted)	_	Cayo Unslipped	2
			Garbutt Creek Red	1
			Miseria	1
			Vaca Falls Red	1
			Yaha Creek Cream	3
		Hermitage	Aguila Orange	1
		-	Hewlett Bank Unslipped	1
		Floral Park	Aguacate Orange	4
			Chan Pond Unslipped	1
			Monkey Falls Striated	2
		Unknown		9
B1	EKT-B1-03	Spanish Lookout	Belize Red	5
		1	Cayo Red and Unslipped	1
			Cayo Unslipped	7
			Dolphin Head Red	1
			Vaca Falls Red	3
			Yaha Creek Cream	2
		Hermitage	St. Herman Impressed	1
		Floral Park	Aguacate Orange	1
			Chan Pond Unslipped	2
		Unknown	11	14
B1	EKT-B1-04	Spanish Lookout	Belize Red	2
		1	Cayo Unslipped	1
B1	EKT-B1-05	Spanish Lookout	Belize Red	1
		1	Cayo Unslipped	1
B1	EKT-B1-06	Spanish Lookout	Cayo Unslipped	6
		1	Vaca Falls Red	1
		Jenney Creek	Reforma Incised	1
		Unknown		3
B1	EKT-B1-07	Floral Park	Chan Pond Unslipped	2
B1	EKT-B1-08	Hermitage	Mopan and Socotz Striated	1
		Unknown	*	1
B1	EKT-B1-09	Spanish Lookout	Cayo Unslipped	1
		1	Yaha Creek Cream	1
		Unknown		1
B1	EKT-B1-10	Unknown		1
B1	EKT-B1-11	Spanish Lookout	Cayo Unslipped	2
		1	Garbutt Creek Red	1
B1	EKT-B1-12	Spanish Lookout	Cayo Unslipped	1
		Tiger Run	Mountain Pine Red	1
		Unknown		1
B1	EKT-B1-13	Spanish Lookout	Belize Red	1
	_	Hermitage	Mopan and Socotz Striated	1
		Unknown	*	1

APPENDIX A: EK TZUL CERAMICS BY LOT

Structure	Lot	Complex	Type/Variety	Frequency
B1	EKT-B1-14	Spanish Lookout	Belize Red	1
			Benque Viejo Polychrome	2
			Cayo Unslipped	8
			Dolphin Head Red	1
			Yaha Creek Cream	2
		Hermitage	Dos Arroyos Orange Polychrome	1
		Floral Park	Aguacate Orange	3
			Chan Pond Unslipped	4
			Gavilan Black-on-Orange	1
			Monkey Falls Striated	1
			Sacluc Black-on-Orange	1
		Barton Creek	Polvero Black	1
			Sierra Red	2
		Unknown		31
B1	EKT-B1-15	Spanish Lookout	Cayo Unslipped	1
		Unknown		8
B1	EKT-B1-16	Unknown		9
B1	EKT-B1-17	Hermitage	Actuncan Orange Polychrome	1
			Dos Arroyos Orange Polychrome	1
			Hewlett Bank Unslipped	1
			Minanha Red	1
		Floral Park	Aguacate Orange	5
			Chan Pond Unslipped	2
			Monkey Falls Striated	3
		Barton Creek	Polvero Black	3
			Puletan Red and Unslipped	1
		Unknown		5
BI	EKT-BI-18	Hermitage	Actuncan Orange Polychrome	
		F1 1 D 1	Dos Arroyos Orange Polychrome	
		Floral Park	Aguacate Orange	
			Chan Pond Unslipped	
			Ixcanrio Orange Polychrome	
		Barton Creek	Flor Cream	
			Polvero Black	
		TT1	Puletan Red and Unslipped	
D1	EVT D1 10	Unknown		2
BI	EK1-B1-19	Floral Park	Monkey Falls Striated	
		Jenney Creek	Savana Orange	
D1	EKT D1 20	Unknown	Manager 1 Carate States 1	3
BI	EK1-B1-20	Hermitage	Mopan and Socotz Striated	
		Jenney Creek	Reforma Incised	
D1	EVT D1 21	Unknown	A guila Oren go	1
DI	EN1-D1-21	Hermitage	Aguna Orange Monon and Sacatz Stripted	
			Puoto Prown	5 1
		Floral Dark	A guagate Orange	
		Pioral Fark	Flor Cream	5
		Darion Creek	San Feline Brown	
			Sierra Red	2
1	1	1		<u>~</u>
Structure	Lot	Complex	Type/Variety	Frequency
-----------	-------------	-------------------------	----------------------------	-----------
		Jenney Creek	Savana Orange	2
		Unknown		26
B1	EKT-B1-22	Mt. Hope	Hillbank Red	1
		Jenney Creek	Chunhuita Black	1
		Unknown		3
B1	EKT-B1-23	Floral Park	Ixcanrio Orange Polychrome	1
		Barton Creek	Society Hall Red	1
		Unknown		1
B1	EKT-B1-24	Barton Creek	Sierra Red	3
		Jenney Creek	Jocote Orange-Brown	7
			Reforma Incised	8
			Sampoppero Red	1
			Savana Red	16
			Sayab Daub Red	8
		Unknown		26
B1	EKT-B1-26	Spanish Lookout	Belize Red	4
	(looted)		Cayo Unslipped	3
			Dolphin Head Red	1
			Platon Punctated Incised	1
			Rubber Camp Brown	1
		Unknown		3
Plaza A	EKT-PLA-02	Spanish Lookout	Yaha Creek Cream	1
		Unknown		12
Plaza A	EKT-PLA-03	Spanish Lookout	Belize Red	1
		Barton Creek	Sierra Red	1
		Jenney Creek	Jocote Orange-Brown	1
			Reforma Incised	1
		TT 1	Savana Orange	1
		Unknown		12
Plaza B	EKT-PLB-02	Spanish Lookout	Cayo Unslipped	4
			Garbutt Creek Red	
		Barton Creek	Polvero Black	
		T T 1	Sierra Red	2
D1 D		Unknown	<u>V1 0 10</u>	1
Plaza B	EKI-PLB-03	Spanish Lookout	Yaha Creek Cream	3
D1 D	EVT DI D 05	Unknown Dantau Caral	Delacar Diala Diala and	/
Plaza B	EKT-PLB-05	Barton Creek	Polvero Black Dichrome	1
Plaza B	EKI-PLB-06	Barton Creek	Polvero Black	
D1 D		Jenney Creek	Savana Orange	1
Plaza B	EKI-PLB-08	Spanish Lookout	Belize Red	2
		Jonney Cusalr	Vaca Falls Red	
		Jenney Creek	Kelorina incised	
Dlaga C	EVT DI C 02	Janmay Craals	Sovono Orongo	<u> </u>
r iaza C	EKI-PLC-02	Jenney Creek	Savana Orange	
Dlaza C		Spanish Lastrart	Cave Unglinned	3 1
Plaza C	EKT DLC 04	Spanish Lookoul	Paliza Dad	1
r iaza C	LKI-PLC-04	Floral Deals	Chan Dond Unslinned	1
		Linknown	Chan rong Onsupped	1
1	1	UIIKIIUWII		1

INTERIM REPORT OF THE 2023 EXCAVATIONS AT STRUCTURE B1, LOWER DOVER

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INTRODUCTION

After 80 years of settlement research in various parts of the Lower Dover polity we have a solid understanding of the hinterland occupations (Biggie et al. 2023; Brown et al. 1996; Glassman, Driver, and Conlon 1995; Walden 2021; Walden et al. 2024, Willey et al. 1965). Recent settlement research has been driven by a desire to understand the political, ceremonial, and economic strategies of intermediate elite and commoner actors and overarching patterns of social change over the 2000-year occupation of the area (Walden 2023; Walden et al. 2023a, 2023b). In

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comparison to research in the periphery, archaeological investigation in the polity core remains in its infancy. First documented archaeologically in 1995 (Castelhano and Reeder 1996), the civicceremonial epicenter was surveyed by Wölfel and colleagues (2009), and intensively investigated by Guerra (2021). Unlike the settlement which was occupied by at least the Middle Preclassic (900-300 BC) period (Walden 2021; Willey et al. 1965), the civic-ceremonial core was almost entirely Late Classic (AD 600-900; see Guerra and Awe 2017). BVAR excavations revealed two main phases of construction dating to the Tiger Run phase (early Late Classic AD 600-700) and Spanish Lookout I-II phases (AD 700-900; Figure 1). That said, few deep excavations in the larger core architecture were possible due to a lack of funding and resources. Investigation of these larger ceremonial structures is important for establishing whether Lower Dover was a new "greenfield" Late Classic center or whether it began life as a minor center which only arose to paramountcy in the Late Classic (Table 1; see also Walden et al. 2023c). Excavation of pyramidal mortuary temples and the palace would provide information about the changing political power and authority of the apical elite regime (measured in access to labor for monumental construction and the presence of royal sumptuary items in graves), the scale of theatricality associated with apical funerary events, and the extent to which they were tied into ruling elite networks (visible in epigraphic inscriptions on grave goods). A grant by the Rust Family Foundation provided funding to begin answering these questions through excavation of core architecture. The primary reason for investigating Str. B1 was the scale of looting on the structure which had left a chasm running east west through the apex of the pyramid. Previous excavation by Guerra had revealed a small corbelled-vaulted room within the stair block and quantities of broken polychrome pottery and other elaborate grave goods strewn around the surface of the looter's trench. Recording the scale of destruction and consolidating the structure were our priorities for opening Excavation unit (E.U.) B1-6 on Str. B1 during the 2023 field season.

THE 2023 STR. B1 EXCAVATION: E.U. B1-6

The 2023 excavations began with what would be an ongoing process for the entirety of the field season – the delineation of the extent of damage done to the structure by looting, to ascertain and access the remaining undisturbed construction and cultural sequences.

The Str. B1 Looter's Trench

Guerra and Romih (2017) began investigating the trench with the placement of a 2 x 6 m excavation unit. The surface was cleared, and surface artifacts collected, including a large amount of polychrome ceramic sherds from multiple vessels including Benque Viejo and Cabrito Cream Polychromes. Conservation of these vessels is ongoing, but the results will be included in the final report next year. The trench was covered with a blue tarp in preparation for Hurricane Earl but was destroyed by the hurricane. As a result, we found shreds of blue tarp mixed into the soil throughout our excavation. The looting of the structure was extensive. The looters appear to have started at the base of the western side of the structure and worked their way up the face of the structure. This "base-up" method is indicated evident by the fact that the looters, having misjudged the center of the structure, started digging to the right-of-center and missed the vaulted room in the stair block at the centerline of the base of the structure allowed them to realign their digging to follow the central axis of the structure. These looters then followed this central axis to the top and continued down the eastern face. Tombs/crypts appear to have been accessed by digging in from the front (west



Figure 1: Map of the Lower Dover civic-ceremonial core showing the location of E.U. B1-6 and other units in the Lower Dover civic-ceremonial core.

side). When each tomb/crypt was emptied, the looters would start above the looted tomb/crypt and dig into the structure until the next crypt was found, progressing up the structure in a "stairstep" pattern. Judging by what was left behind by the looters, the objects they removed must have been of high quality. Artifacts found in the looters trench include a finely worked chert disk, modified marine shell, an obsidian eccentric "scorpion", ceramics with incised glyphic inscriptions, and a jade pendant (Figure 2). Other artifacts included 7294 ceramic sherds, 1608 pieces of chert, 12 obsidian blade fragments, 38 pieces of daub, and four pieces of marine shell. In the 1990s a greenstone head was confiscated from a resident of the village of Unitedville by the Institute of Archaeology (Figure 2c). It seems probable that this artifact was removed at some point in the past from Structure B1 given the fact that similar jade heads and jade mosaic masks have been found in the eastern triadic structures at surrounding sites like Baking Pot (Audet and Awe 2003) and Cahal Pech (Awe 2013).



Figure 2: Finds from the looter's trench at Str. B1. (a) chert disk, (b) modified conch shell, (c) greenstone head obtained by the IA (courtesy of Jaime Awe, BVAR Project) (d) obsidian "scorpion", (e) incised hieroglyphic band on volcanic ash ware vase, (f) jade pendant.

Str. B1- Substructure

Excavations of Str. B1 in 2023 identified at least three major construction phases dating to the early Late Classic (Tiger Run), Late Classic (Spanish Lookout I), and Terminal Classic (Spanish Lookout II; Figure 3). Radiocarbon dating of this construction sequence is still currently pending. While we do not currently know how many construction phases occurred on the structure, we begin the report by documenting the earliest phase encountered. Terminal architecture was largely blown out, except for a small false stair façade 3 m up the structure (Stair 1). The penultimate phase included a substantial construction stair which was missing all its facing stones (presumably removed for construction of the Terminal Phase). The preceding phase comprised a well-preserved staircase (Stair 2; Figure 4).



Figure 3: North Profile of Str. B1 (adapted from Guerra and Romih 2017).



Figure 4: Plan Map of Structure B1 Stair 2, looter's trench, and Floors 3-5.



Figure 5: Stair 2 with cut in Riser 6 highlighted.

Str. B1 Early Late Classic (Tiger Run) Phase Structure

The first phase of architecture evident in our excavations comprised a staircase with nine well-constructed plastered stairs (Stair 2) which rose from the mid-section of the structure around 300 cmbd to an apical platform at 39 cmbd (Floors 4 and 5). Set atop this uppermost platform was a low wall (Wall 2) which likely served as the basal wall for a masonry embedded pole and thatch super-structure. Inside this was a step down to Floor 3 which functioned as the floor of an internal room at the summit of the structure. Unlike Stair 1 (which was likely an inoperable false stair given its pitch and tread width), the risers of Stair 2 were about 15-20 cm high (2-3 courses each; Figure 5). Note the looter's trench fill to the south (right side of picture was not removed). The wall running east-west perpendicular to the staircase on its northern side (left) is associated with a later construction phase. A single 50 x 60 cm cut was evident on Riser 6, this was investigated but it proved to be insignificant. Part of the plaster tread and cut stones from Riser 6 had been removed leaving a slight cache-like circular depression in the staircase. Investigation revealed construction fill immediately apparent beneath.

The fill of this construction phase was exposed at the apex of the structure. This was a mixture of red and brown clays, with a small number of inclusions (pebbles and cobbles), and was the point of deepest excavation into the structure at 402 cmbd (Lot B1-6-19). The clay layer was clearly sloping and was at 302 cmbd at the NE corner and only 252 cmbd at the SE corner. Examination of this clay deposit in the unit profile showed that it is conical in shape, its highest point being at the SE corner of the unit at the apical centerline of the structure. This clay deposit is at least 2 m deep, with time constraints preventing us from discovering the full depth of this stratum. In the northern part of the unit this clay was covered with a 50 cm thick layer of dry-core fill (Figure 3), possibly serving to level the construction surface (although the layers above this continued to slope up towards the SE corner of the unit). Atop this dry-core fill, and atop the clay in the rest of the unit where the dry-core was absent, were various alternating distinct strata of red clay (10 YR, 4/6), dark brown clay (7.5 YR, 2.5/1), and mixed fill and plaster (Figure 7). This was most evident in the SE corner of the unit, at the apex and centerline of the structure. A large amount of charcoal was also present in this corner. These strata had no consistent depths or thicknesses, as they more closely resembled a "material dumping" event than the laying down of any type of floor. Each stratum, however, was distinct from those above and below, and could be followed throughout the unit, as though the Maya were taking care to lay down a complete layer of one substance before moving to the next. The lowest stratum present is the dark brown clay, and atop this roughly 12 cm of red/brown clay (7.5YR, 3/1), fronted in the SE corner by a low cut-stone alignment (253 cmbd) which comprised of two squared stones 20 cm tall by 25 cm wide. Cache 2, a lip-to-lip cache of two small pinch pots (Hewlett Bank Unslipped) was placed upon this clay level at a depth of 283 cmbd (Figure 6). The vessels of this lip-to-lip were intact, but the lid had shifted slightly off when the subsequent stratum of was poured on top, allowing the bottom bowl to fill with plaster and clay. The plaster and clay were evidently wet when poured over because the plaster formed snugly around the bottom bowl, leaving an impression of the bowl in the plaster in the baulk. The clay was also wet, as it not only encased the bowls, but filled up the inside of the shifted top bowl. Inspection of the contents in the lab revealed charcoal, but nothing else of note. A drilled river cobble with an incised ring around the central perforation was also found in this area (Figure 6).



Figure 6: Finds from Early Late Classic phase fill. Miniature Hewlett Bank bowls from lip-to-lip cache (left) and perforated river cobble (right).

A large amorphous lens of plaster covered the cache, with an ~10 cm mixed stratum of plaster, clay, soil, charcoal, and pebbles laid over the plaster lens and cut-stone alignment. Overlaying this mixed stratum was another ~ 2 cm thick lens of charcoal, and above this was an ~ 10 cm umber-colored (10YR, 4/2) soil stratum that was mixed with chunks of limestone or plaster. An ~10 cm charcoal-filled stratum sat atop this, and above this was 3 cm yellow/brown (10 YR, 5/3) soil layer. This was followed by a 5 cm plaster layer, which was then capped with an ~8 cm thick layer of dark clay. Atop the dark clay was an ~6 cm layer of plaster. This strata sequence was topped with limestone cobble fill, which probably underlay a now destroyed floor (Figure 7). The assemblage of this massive construction phase contained an array of artifacts including 461 ceramic sherds, 255 pieces of chert, four pieces of daub, and one piece of obsidian. The ceramics were a mixture of Spanish Lookout and Tiger Run ceramics and it seems plausible that this substantial construction event occurred between AD 600-800. Samples for radiocarbon dating were selected from every charcoal lens, so dating these consecutive strata should be possible. The dense river clay fill was probably sourced locally but would still have been difficult to transport to and deposit in the structure. Currently we do not understand the significance of the clay fill, although this construction technique is not uncommon in the region at sites such as Baking Pot, which lie close to the river (Hoggarth 2012). One major unresolved question is the extent to which the clay in any one locale along the river is of a single homogeneous color versus heterogeneity. If substantial variability exists in any one locale, then the variability in different clay colors present in the structural fill is likely less significant. If, however, patterning of clay is less variable geospatially then this would indicate that fill was being gathered from multiple distinct locales over time. Moreover, if this latter scenario is proven correct then tracing clay sources may provide valuable insights into where resources were procured and possible social organization of labor. It remains unclear whether the different colors had some type of emic connotations to the Classic Maya, and while there are noteworthy examples of fill color being associated with cosmology, it seems likely in this context that the coloration of the clay was probably not representative of such beliefs (Inomata et al. 2020). Lastly, what is probably most notable is that the looters seemingly hit this clay level and proceeded no further, as is indicated by the presence of Cache 2 and the funerary architecture described below.



Figure 7: Charcoal-filled clay and plaster strata in the SE corner of E.U. B1-6.

Structure B1 Burial 3 (Crypt 1 and Cist 1)

A looted crypt (Crypt 1) was discovered 2.5 meters from the structure's summit and 5 m in from its westernmost face at 302 cmbd, with a crude cist dug into the red clay matrix at its base (Cist 1; Figure 8). The crypt had been built directly atop the red/brown clay stratum but had been found and largely destroyed by the looters digging in from the west, leaving only approximately 1.5 m of the crypt intact. The crypt had been emptied, presumably by the looters, leaving only a large perforated flat jade implement (Figure 9). Other miscellaneous artifacts associated with surrounding fill and looter's backdirt included 840 ceramic sherds, 119 pieces of chert, 40 daub fragments, and two pieces of groundstone. Some very fragmentary human remains (metacarpals, vertebrae, and long bone fragments) were still present. It is possible that many of the elaborate sumptuary items (jade pendant, chert disk, obsidian eccentric, ceramics) in the looter's backdirt in the vicinity (Lot B1-6-4) are associated with this burial, as they were found in the looters backdirt at roughly the same level as the crypt (Figure 2). A cist (Cist 1) was found in the bottom of the crypt. This very narrow cist (50 cm at its widest point) was cut down into the clay, and its base was lined with a plaster floor. No human remains were present in this cist, although it seemingly once served a mortuary function.



Figure 8: Photograph of Str. B1 Burial 4 from the west. Narrow Cist 1 shown at base of E.U. 1-6 with crypt capstone evident in the center-left.



Figure 9: Long perforated jade implement.

Cist 2

Excavation to the east of the looted crypt revealed a cut in the alternating clay and plaster strata. Cist 2 was cut into the red/brown clay (which was evident on all four sides and base of the cist) and was approximately 40 cm deep. Charcoal was found in the south baulk at the upper edge of the cist cut. A vertical shaft apparent in the profile (Figure 10) was cut through several of these plaster/clay strata directly above the cist. We strongly believe that this vertical shaft was dug in antiquity and reflects re-entry into the cist by the Terminal Classic Maya and not the result of looting because the destruction wrought by the looters is apparent more to the west (around Crypt 1 and Cist 1), and because the presence of a distinct vertical shaft in the profile (through unlooted contexts) roughly the same size as the cist would indicate specific targeting of the feature by persons who are knowledgeable of its existence. Cist 2 contained a small number of artifacts including 11 ceramic sherds and 15 pieces of chert.

Str. B1 Penultimate -2 Architecture

A set of crude construction stairs was built atop Stair 2. The construction stairs comprised 16 rough-hewn stone risers each roughly ~10 cm high placed immediately adjacent to one another rising from the midsection of the unit (at 456 cmbd) to the platform summit of Str. B1 at 213 cmbd (Figure 10). These construction stairs curved outward out from the front of the structure in a convex manner. The northern face of these stairs curved into the structure at the northern unit baulk. Like the previous construction phase, this staircase had been cut in half by the looter's trench to the south. There is no evidence of finished stair architecture for this construction phase. It seems highly likely that the finished stairway leading up to the apical platform was disassembled and repurposed in the terminal phase construction. The apical platform was then raised 30 cm, and a new floor (Floor 4) was laid. The top of Wall 2 was not covered by Floor 4, so it likely remained the basal foundation for the masonry embedded pole and thatch superstructure. The architectural fill of the construction stairs included pebbles, cobbles, and small boulders contained ceramics dating to the Spanish Lookout I and II. It remains plausible that the construction stairs date to the onset of the Terminal Classic period. In addition to 621 ceramic sherds were 872 chert pieces, seven daub fragments, two obsidian blade fragments, one piece of marine shell, freshwater shell, and a piece of coral. The construction stairs seemingly proceeded downward into the unexcavated



Figure 10: Photograph of the south baulk of E.U. B1-6 at the apex of Str. B1. Crypt 1 and Cist 1 (Str. B1 Burial 4) are on the right, Cist 2 (which was emptied in antiquity) is in the center (note cut in plaster/clay strata immediately above), and the clay, plaster, and charcoal layers are evident on the left.



Figure 10: The construction stairs (note curvature on northern side).

portion of the lower structure (beneath the following construction phase). Excavations planned for the 2024 field season will expose and delimit the extent of this construction stair.

Str. B1 Penultimate -1 Architecture

The final sub-component of the penultimate phase of architecture on Str. B1 involved modification of the platform at the apex of the structure. This involved the construction of a 1 m high retaining wall (Retaining Wall 2) at the top of the construction stair (213 cmbd). This retaining wall was likely faced with cut-stone limestone blocks the uppermost courses of which were likely subsequently removed for construction of the following terminal architecture. The lowest course of this wall remained immediately abutting the base of the retaining wall. It is likely that access to the apical platform was changed to a smaller central stair, further limiting access to the summit structure. Any evidence of that, however, was destroyed by the looters trench which destroyed the centerline architecture in this upper section of the unit. Retaining Wall 2 was topped by a well-made plaster floor (Floor 2). There is no evidence of architecture on top of this floor. The cobble fill of this platform contained Spanish Lookout II ceramics dating it to the Terminal Classic period. A total of 832 ceramic sherds were encountered. Other artifacts present in the assemblage included 206 pieces of chert, 24 fragments of daub, one obsidian blade, and freshwater shell.

Str. B1 Terminal Architecture

The penultimate phase of architecture at Str. B1 was an extensive construction project. A 4 m long by 2 m wide vaulted room was constructed in the central stair block at the base of the western axial face of the structure, looking out into the plaza (see Guerra and Romih 2017). Artifact counts from this excavation are reported by Guerra and Romih (2017). This room was flanked by two 2.8 m high stairs running west to east up either side of the central stair block and terminating in a low terrace running along the structure N/S and topped by a floor (Floor 8). This floor ran the length of the staircase, was approximately 1.6 m wide E/W and was backed on the east side by a 1 m high wall (Wall 3). Wall 3 was topped by a 1.6 m wide floor (Floor 7), which led to a set of false stairs (Stair 1). Four complete and one partial step were discovered, with an average height of 30 cm and an average tread depth of 20 cm. These stairs were likely too steep to function as a usable staircase (75° angle). A similar set of seemingly false stairs were apparent at Structure A1 at Lower Dover (Awe et al. 2023). Whether these reflect the expression of a local adaptation of the false stairs which are common in the Rio Bec region during the Terminal Classic (Michelet et al. 2013) remains unclear but both instances of false stairs at Lower Dover are very similar to those situated on the back of the Group B Ballcourt at Caracol, which dates to roughly this period (Awe et al. 2023; Chase and Chase 2004). The architecture above these false stairs most likely included a substantial staircase leading to the summit of the structure, but that architecture had likely collapsed, and no surviving terminal architecture was found further up the structure. The vaulted room and the first set of flanking stairs were consolidated after the 2016 field season. Excavation did not penetrate this construction and thus we have no data on artifacts or fill within.



Figure 11: Stair 1 and Floor 7.

Str. B1 Burial 4

Immediately below Floor 8 at the western extent of the unit was a sizeable cut limestone capstone. Burial 4 was interred in a very crude limestone crypt (Crypt 2) just above the consolidated vaulted room (Figures 3 and 12). This burial was seemingly intrusive through Floor 8 and was not associated with a corresponding structure, Floor 8 being terminal architecture. We subsequently believe that this crude crypt was constructed and the individual within interred during the Terminal Classic period just before abandonment. Radiocarbon dating will serve to corroborate or refute this hypothesis. The western crypt wall was largely intact, but no crypt wall was apparent on the eastern side. Instead, a rough plaster surface 50 cm below Floor 8 had been employed in an expedient fashion to serve this purpose, and the remaining capstones were positioned above the height of this floor (at 582 cmbd). This plaster surface may prove to be another floor, although this could not be established during the 2023 excavations. The remains within were fragmentary and in a very poor state of preservation. The placement of the fragments seemed to indicate the remains were of a fully articulated individual, interred head to the south. The teeth, for example, were found clustered an area of approximately 25cm, both above and beneath various rocks. A rusty nail was found in the burial, as were bits of blue tarp. It is possible that the bone fragments and teeth (Str. B1 Burial 1) found by Guerra and Romih (2017) in the boulder fill of the vaulted room had been washed down from this burial, which was situated directly above. Grave goods associated with this burial (Figure 13) include a Benque Viejo Polychrome vase that had been placed on the

individual's chest with an accompanying circular slate lid positioned near the top of the vase, a limestone spindle whorl, a drilled river clam (Nephronaias ortmanni spp.) shell, a piece of worked greenstone, and an obsidian blade. Slate disks, while commonly encountered, are rarely interpreted as possible lids. In this instance, however, the position of this slate disk immediately adjacent to the vase and the identical circumference of the vase rim and slate disk rim left little doubt that these two items were associated. The burial had been greatly disturbed by erosion and bioturbation, and the bones were spread throughout the crypt matrix (a mixture of soil, pebbles, and cobbles). Water erosion no doubt played a major role in this damage, given that water would rush down the front of the western face of the structure and pool in the general vicinity of the cap stones. The presence of metacarpals, ribs, and a radius but no other long bones is quite strange from a taphonomic perspective as we would expect these more delicate bones to degrade sooner. Subsequently it remains plausible given its position that this crypt was also opened in antiquity. While the slip on the Benque Viejo Polychrome vase was poorly preserved, this vessel was intact. This seems incongruent with the scale of taphonomic destruction of the human remains, and further corroborates the idea that bones were intentionally removed. Osteological analysis of these remains will be performed during the 2024 field season. The fill around this burial contained 271 ceramic sherds, 57 pieces of chert, one groundstone fragment, one limestone fragment, and one piece of marine shell.



Figure 12: Plan of Str. B1 Burial 4.



Figure 13: Selected special finds from Str. B1 Burial 4.

The only other architectural feature found associated with this phase of construction was a wall which we have nominally referred to as Retaining Wall 1, although its actual purpose is unclear (Figure 14). This wall extends approximately 3 meters runs east/west along the uppermost portion of the structure, in the vicinity of Floor 2 (\sim 161 cmbd). The wall is constructed of crude rough-hewn limestone boulders piled up. The wall is too narrow to have retained anything of substance, and the wall does not appear structurally sound enough to have been a freestanding construction pen. Retaining Wall 1 could have functioned to delineate space during construction, with stones being placed concurrently with the deposition of the fill. Retaining Wall 1 abutted Floor 2 to the south but was not set on it (plaster did not continue beneath the wall). Evidence of Floor 2 disappears to the west, and the stones of Retaining Wall 1 continue at a level below that of the original floor. There were traces of another floor (Floor 1) approximately 40 cm above Floor 2 (160 cmbd), but there was no associated architecture, leaving the purpose of this floor unknown. Artifacts associated with this construction phase include 2303 ceramic sherds, 913 chert pieces, 11 fragments of daub, one piece of granite, two obsidian blades, four pieces of marine shell, and freshwater shell.



Figure 14: Retaining Wall 1.

The last terminal event at Structure B1 appears to have been the partial destruction and infilling of the vaulted room at the base of the western face (Guerra and Romih 2017). The west wall was dismantled, and the room was filled with large boulders. Mixed in with these boulders were human remains (teeth, including two molars and a drilled incisor, and forearm bone fragments Str. B1 Burial 1). These remains were not part of a formal internment and may have washed down from Str. B1 Burial 4 above. According to Guerra and Romih (2017), a step was placed in front of the room to block access, but construction was left unfinished. Alternately, we are proposing the hypothesis that the conversion of the stair block was completed in the terminal phase of architecture, and that the "step" is the remains of a finished wall that was partially dismantled at some later date. Artifacts associated with this are reported by Guerra and Romih (2017).

Str. B1 Post-abandonment Terminal Classic/Postclassic Revisitation

A second lip-to-lip cache (Cache 1) was found sat atop a thin \sim 3 cm thick layer of soil matrix above the western extent of Floor 7 (Figure 15). This cache was comprised of two small Belize Red bowls with nothing evident inside. In theory, the placement of this cache atop a thin humic matrix may be indicative of post-abandonment revisitation. Reliable artifact counts for this revisitation contexts cannot be determined as it is unclear whether they are associated with revisitation, terminal architecture, or looting.



Figure 15: Lip-to-Lip Cache 1.

Str. B1 Burial 2

A secondary burial was identified in the humic layer at the summit of the structure (Str. B1 Burial 2). This small secondary bundle burial was in very poor condition and consisted of multiple long bone shaft fragments including a tibia, radius, and possible fibula fragment interred within a large crab shell (Figures 16 and 17). Secondary burial in crab shells is a relatively uncommon funerary practice with no known antecedents in the region. Given the location of this burial in the unit it is surprising that any remains preserved at all. Dating this interment is difficult as it was clearly placed below the terminal floor of the apical substructure (which no doubt collapsed long ago). The question remains as to whether the bundle was placed inside the terminal phase structure as it was being built, or if it was placed there long after its collapse in the Early to Late Postclassic period. Currently the latter explanation is considered more plausible, given the presence of New Town phase ceramics such as Chen Mul Modeled incense burners chert arrowheads, Moreforce jar rims, and Paxcaman scroll feet in the humic and looter's backdirt (Figure 18 and see Guerra and Romih 2017). No diagnostic ceramics were found with these remains, although two jute (Pachychilus glaphyrus, Pachychilus indiorum spp.) and a remarkable obsidian polyhedral core which had been unifacially worked into a blade were also present (Figure 17). Osteological analysis of the remains will occur in the 2024 field season.



Figure 16: Plan Map of Str. B1 Burial 2.



Figure 17: Grave goods from Str. B1 Burial 2.



Figure 18: Postclassic materials from the surface and looter's trench.

DISCUSSION AND CONCLUSIONS

Time constraints precluded deeper excavations in the structure, so we have yet to determine what exists below the clay layer. Possibilities include the presence of an earlier, yet-to-bediscovered structure, a boulder-fill substructure, or the realization that the entire Eastern Structure was built on a massive mound of clay. Continuing excavation at Structure B1 will be useful in determining the scale of labor involved in construction, and the span of occupation at the site. The 2023 excavations revealed the massive extent of looting at Str. B1, exposed evidence of royal tombs and confirmed our hypothesis that the structure was a royal mortuary shrine. Moreover, excavation showed more evidence of Postclassic revisitation at Lower Dover. A final report of these excavations will be authored in 2024 following the completion of this excavation project.

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APPENDIX A: ARTIFACT TABLE

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	1	B1-6-1	Humic and Fill	Charcoal		1
B1-6	1	B1-6-1	Humic and Fill	Charcoal		1
B1-6	1	B1-6-1	Humic and Fill	Ceramic	558	3047
B1-6	1	B1-6-1	Humic and Fill	Chert		646
B1-6	1	B1-6-1	Humic and Fill	Daub		18
B1-6	1	B1-6-1	Humic and Fill	Faunal Remains		N/A
B1-6	1	B1-6-1	Humic and Fill	Freshwater Shell		N/A
B1-6	1	B1-6-1	Humic and Fill	Groundstone		2
B1-6	1	B1-6-1	Humic and Fill	Human Remains		N/A
B1-6	1	B1-6-1	Humic and Fill	Obsidian		4
B1-6	1	B1-6-1	Humic and Fill	Quartz		1
B1-6	1	B1-6-2	Burial 2	Ceramic	6	9
B1-6	1	B1-6-2	Burial 2	Faunal Remains		N/A
B1-6	1	B1-6-2	Burial 2	Freshwater Shell		N/A
B1-6	1	B1-6-2	Burial 2	Human Remains		N/A
B1-6	1	B1-6-2	Burial 2	Worked Shell		15
B1-6	2	B1-6-3	Fill below Floor 1	Ceramic	56	341
B1-6	2	B1-6-3	Fill below Floor 1	Chert		75
B1-6	3	B1-6-3	Fill below Floor 1	Charcoal		1
B1-6	3	B1-6-3	Fill below Floor 1	Charcoal		1
B1-6	3	B1-6-3	Fill below Floor 1	Daub		7
B1-6	2	B1-6-3	Fill below Floor 1	Freshwater Shell		N/A
B1-6	3	B1-6-3	Fill below Floor 1	Human Remains		N/A
B1-6	2	B1-6-3	Fill below Floor 1	Marine Shell		1
B1-6	2	B1-6-3	Fill below Floor 1	Worked Shell		2
B1-6	3	B1-6-3	Fill below Floor 1	Unknown		1

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	1	B1-6-4	Looter's Backdirt	Basalt		1
B1-6	1	B1-6-4	Looter's Backdirt	Charcoal		1
B1-6	1	B1-6-4	Looter's Backdirt	Cobble		2
B1-6	1	B1-6-4	Looter's Backdirt	Ceramic	1459	5291
B1-6	1	B1-6-4	Looter's Backdirt	Chert		1552
B1-6	1	B1-6-4	Looter's Backdirt	Daub		38
B1-6	1	B1-6-4	Looter's Backdirt	Faunal Remains		N/A
B1-6	1	B1-6-4	Looter's Backdirt	Freshwater Shell		N/A
B1-6	1	B1-6-4	Looter's Backdirt	Groundstone		1
B1-6	1	B1-6-4	Looter's Backdirt	Human Remains		N/A
B1-6	1	B1-6-4	Looter's Backdirt	Jade		1
B1-6	1	B1-6-4	Looter's Backdirt	Limestone		1
B1-6	1	B1-6-4	Looter's Backdirt	Marine Shell		4
B1-6	1	B1-6-4	Looter's Backdirt	Obsidian		11
B1-6	1	B1-6-4	Looter's Backdirt	Quartz		1
B1-6	1	B1-6-4	Looter's Backdirt	Slate		1
B1-6	2	B1-6-5	Architecture Fill	Ceramic	52	236
B1-6	2	B1-6-5	Architecture Fill	Chert		54
B1-6	2	B1-6-5	Architecture Fill	Faunal Remains		N/A
B1-6	2	B1-6-5	Architecture Fill	Human Remains		N/A
B1-6	1	B1-6-6	Humus	Ceramic	164	562
B1-6	1	B1-6-6	Humus	Chert		309
B1-6	1	B1-6-6	Humus	Daub		2
B1-6	1	B1-6-6	Humus	Faunal Remains		N/A
B1-6	1	B1-6-6	Humus	Freshwater Shell		N/A
B1-6	1	B1-6-6	Humus	Groundstone		1
B1-6	1	B1-6-6	Humus	Human Remains		N/A

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	1	B1-6-6	Humus	Limestone		1
B1-6	1	B1-6-6	Humus	Obsidian		1
B1-6	1	B1-6-6	Humus	Speleothem		1
B1-6	4	B1-6-7	Terminal Collapse	Cobble		1.00
B1-6	2	B1-6-7	Terminal Collapse	Ceramic	325	1505
B1-6	2	B1-6-7	Terminal Collapse	Chert		550
B1-6	2	B1-6-7	Terminal Collapse	Daub		9
B1-6	2	B1-6-7	Terminal Collapse	Freshwater Shell		N/A
B1-6	2	B1-6-7	Terminal Collapse	Human Remains		N/A
B1-6	2	B1-6-7	Terminal Collapse	Marine Shell		4
B1-6	4	B1-6-7	Terminal Collapse	Matrix		1
B1-6	2	B1-6-7	Terminal Collapse	Obsidian		1
B1-6	2	B1-6-8	Fill north of Retaining Wall 1	Ceramic	31	245
B1-6	2	B1-6-8	Fill north of Retaining Wall 1	Chert		106
B1-6	2	B1-6-8	Fill north of Retaining Wall 1	Daub		6
B1-6	2	B1-6-8	Fill north of Retaining Wall 1	Freshwater Shell		N/A
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Charcoal		1
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Charcoal		1
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Ceramic	143	401
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Chert		56
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Faunal Remains		N/A
B1-6	2	B1-6-9	Looter's trench/possible tomb fill	Obsidian		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Charcoal		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Charcoal		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Charcoal		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Charcoal		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Charcoal		1

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Cobble		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Ceramic	404	1520
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Chert		442
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Daub		42
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Freshwater Shell		N/A
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Groundstone		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Limestone		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Marine Shell		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Obsidian		1
B1-6	3	B1-6-10	Fill between Floors 2 and 3	Unknown		1
B1-6	2	B1-6-11	Fill in front of Retaining Wall 2	Ceramic	53	215
B1-6	2	B1-6-11	Fill in front of Retaining Wall 2	Chert		70
B1-6	2	B1-6-11	Fill in front of Retaining Wall 2	Daub		2
B1-6	2	B1-6-11	Fill in front of Retaining Wall 2	Freshwater Shell		N/A
B1-6	2	B1-6-11	Fill in front of Retaining Wall 2	Quartz		1
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Charcoal		1
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Ceramic	179	832
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Chert		206
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Daub		24
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Freshwater Shell		N/A
B1-6	2	B1-6-12	Fill behind Retaining Wall 1 and 2	Obsidian		1
B1-6	3	B1-6-13	Cut into Floor 4	Ceramic	10	43
B1-6	3	B1-6-13	Cut into Floor 4	Chert		77
B1-6	3	B1-6-13	Cut into Floor 4	Daub		2
B1-6	3	B1-6-13	Cut into Floor 4	Freshwater Shell		N/A
B1-6	4	B1-6-14	Fill between construction stairs and Wall 2, between Floors 4 and 5	Ceramic	16	43
B1-6	4	B1-6-14	Fill between construction stairs and Wall 2, between Floors 4 and 5	Chert		31

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	4	B1-6-14	Fill between construction stairs and Wall 2, between Floors 4 and 5	Marine Shell		1
B1-6	4	B1-6-14	Fill between construction stairs and Wall 2, between Floors 4 and 5	Obsidian		1
B1-6	5	B1-6-15	Fill below Floor 5	Ceramic	10	62
B1-6	5	B1-6-15	Fill below Floor 5	Chert		106
B1-6	5	B1-6-15	Fill below Floor 5	Daub		3
B1-6	5	B1-6-15	Fill below Floor 5	Freshwater Shell		N/A
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Basalt		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Charcoal		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Charcoal		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Charcoal		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Ceramic	71	323
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Chert		406
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Daub		4
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Freshwater Shell		N/A
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Marine Shell		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Matrix		1
B1-6	4	B1-6-16	Fill under Wall 2 and Floor 3	Obsidian		2
B1-6	2	B1-6-17	Fill behind Stair 1	Ceramic	29	118
B1-6	2	B1-6-17	Fill behind Stair 1	Chert		47
B1-6	2	B1-6-17	Fill behind Stair 1	Daub		1
B1-6	2	B1-6-17	Fill behind Stair 1	Faunal Remains		N/A
B1-6	2	B1-6-17	Fill behind Stair 1	Limestone		1
B1-6	2	B1-6-17	Fill behind Stair 1	Quartz		1
B1-6	2	B1-6-17	Fill behind Stair 1	Speleothem		1
B1-6	2	B1-6-18	Fill behind construction stairs	Ceramic	82	298
B1-6	2	B1-6-18	Fill behind construction stairs	Chert		466
B1-6	2	B1-6-18	Fill behind construction stairs	Daub		1

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	2	B1-6-18	Fill behind construction stairs	Freshwater Shell		N/A
B1-6	4	B1-6-18	Fill behind construction stairs	Limestone		1
B1-6	4	B1-6-19	Fill behind Stair 2	Basalt		1
B1-6	4	B1-6-19	Fill behind Stair 2	Cobble		1
B1-6	4	B1-6-19	Fill behind Stair 2	Ceramic	44	106
B1-6	4	B1-6-19	Fill behind Stair 2	Chert		97
B1-6	4	B1-6-19	Fill behind Stair 2	Daub		3
B1-6	1	B1-6-20	Depression in Stair 2	Matrix		1
B1-6	2	B1-6-21	Looted Crypt 1	Charcoal		1
B1-6	2	B1-6-21	Looted Crypt 1	Charcoal		1
B1-6	2	B1-6-21	Looted Crypt 1	Ceramic	257	840
B1-6	2	B1-6-21	Looted Crypt 1	Chert		119
B1-6	2	B1-6-21	Looted Crypt 1	Daub		4
B1-6	2	B1-6-21	Looted Crypt 1	Faunal Remains		N/A
B1-6	2	B1-6-21	Looted Crypt 1	Freshwater Shell		N/A
B1-6	2	B1-6-21	Looted Crypt 1	Groundstone		2
B1-6	2	B1-6-21	Looted Crypt 1	Human Remains		N/A
B1-6	2	B1-6-21	Looted Crypt 1	Jade		2
B1-6	2	B1-6-21	Looted Crypt 1	Marine Shell		2
B1-6	2	B1-6-21	Looted Crypt 1	Obsidian		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1

EU	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds
B1-6	2	B1-6-22	Unlooted area east of crypt	Charcoal		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Cobble		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Ceramic	72	344
B1-6	2	B1-6-22	Unlooted area east of crypt	Chert		143
B1-6	2	B1-6-22	Unlooted area east of crypt	Daub		1
B1-6	2	B1-6-22	Unlooted area east of crypt	Freshwater Shell		N/A
B1-6	2	B1-6-22	Unlooted area east of crypt	Matrix		N/A
B1-6	2	B1-6-22	Unlooted area east of crypt	Obsidian		1
B1-6	1	B1-6-24	Burial 4	Charcoal		1
B1-6	2	B1-6-24	Burial 4	Charcoal		1
B1-6	1	B1-6-24	Burial 4	Ceramic	106	271
B1-6	1	B1-6-24	Burial 4	Chert		57
B1-6	2	B1-6-24	Burial 4	Freshwater Shell		N/A
B1-6	2	B1-6-24	Burial 4	Groundstone		1
B1-6	1	B1-6-24	Burial 4	Human Remains		N/A
B1-6	2	B1-6-24	Burial 4	Limestone		1
B1-6	2	B1-6-24	Burial 4	Marine Shell		1
B1-6	1	B1-6-24	Burial 4	Matrix		N/A
B1-6	2	B1-6-24	Burial 4	Obsidian		1
B1-6	1	B1-6-24	Burial 4	Worked Shell		1
B1-6	1	B1-6-24	Burial 4	Slate		2
B1-6	3	B1-6-25	Cist 2	Charcoal		1
B1-6	3	B1-6-25	Cist 2	Ceramic	6	11
B1-6	3	B1-6-25	Cist 2	Chert		15
B1-6	3	B1-6-25	Cist 2	Freshwater Shell		N/A

THE 2023 EXCAVATIONS AT STRUCTURE F2, PLAZA F, LOWER DOVER

Jorge E. Castellanos Belize Valley Archaeological Reconnaissance Project

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INTRODUCTION

Lower Dover is situated on property in the village of Unitedville owned by Mr. William and Madeline Reynolds, 11 km east of modern-day San Ignacio. It sits on the southern bank of the Belize River and is bounded on the southeast by the Lower Barton Creek and to the southwest by the Upper Barton Creek (Guerra and Awe 2017). It is located close to several contemporary Classic Maya centers, including the major centers of Baking Pot and Cahal Pech to the west and Blackman Eddy to the east, and minor centers Barton Ramie (BR-180/168) to the north, Tutu Uitz Na to the south, and Floral Park to the southwest. Lower Dover is classified as a major center that exerted territorial influence over nearby minor centers (Walden et al. 2023a, 2023b). In 2023, the Belize Valley Archaeological Reconnaissance (BVAR) project returned to Lower Dover to investigate elite spaces in Plaza B and Plaza F as part of a research program investigating these elite networks throughout the valley. This report reviews excavations and preliminary results from the investigations at Plaza F, a medium-sized (4000 m³) plazuela group located 100 m north of Plaza A (Figure 1; see Guerra and Romih 2017). Plaza F sits on the edge of a limestone bluff that drops down to the Belize River, marking the northernmost zone of the site core. Plaza F appears to be a Tier 3 minor center based on Walden and colleagues (2019) regional analyses because it is a similar

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2023 Field Season, edited by J. Britt Davis, John P. Walden, Tia B. Watkins, Claire E. Ebert, Julie A. Hoggarth & Jaime J. Awe, Volume 26, pp. 91-102. Department of Anthropology, Northern Arizona University, Flagstaff, AZ. © 2024

size to other Tier 3 centers like Tutu Uitz Na to the south and has an eastern triadic structure. Unlike the other Tier 3 centers in the region, Plaza F lacks much surrounding commoner habitation (Walden et al. 2020).



Figure 1: Map of the Lower Dover epicenter with Plaza F inset.

PREVIOUS RESEARCH

BVAR began investigations at Lower Dover in 2010 (Wilkinson and Hude 2011; see also Wölfel et al. 2009). A decade of excavation has revealed most of the ceremonial epicenter was constructed in two phases during the Late and Terminal Classic periods (AD 600–900; Guerra 2021; Walden et al. 2023c). Structure F2 is a low-standing eastern triadic structure measuring 2 m high, flanked by low platforms on the north and south, consistent with other eastern triadic structures throughout the Belize Valley (see Awe et al. 2017). Within the last 25 years, the structure was heavily looted from the top down. A large pit is apparent at the top of the structure, with looter's back dirt spilling down its eastern face. Investigations at Plaza F began during the 2016 field season. A 5 x 1.5 m unit (E.U. F2-1) was placed on the western face of the structure, running from its base at the modern-day plaza floor to its apex to investigate the hypothesized ancestral

function of the shrine and assess damage from looting (Guerra and Romih 2017). These excavations identified two Late Classic construction phases with some evidence of limited Postclassic activity (Guerra and Romih 2017). The terminal phase of the structure had a central set of stairs leading from the plaza floor to the top of the structure. Much of the collapse surrounding the terminal construction phase was likely from looters throwing their backdirt down across the structure. This backdirt contained cut stones, artifacts, and small fragments of human remains scattered throughout. Excavation into terminal phase architecture at the apex of the staircase revealed three poorly preserved floors atop an oblong arrangement of cut stones which formed a crude crypt (Feature #1). Beneath these crude capstones was Structure F2 Burial 1, a poorly preserved individual buried directly on a fourth floor alongside chert flakes, unslipped ceramic sherds, and carved marine shell. Excavators hypothesized this burial may have been intrusive. Roughly 30 cm beneath this burial, excavators encountered a fifth, well-preserved floor with a noticeable cut (Feature #2) which contained a crypt burial of a second individual (Structure F2 Burial 2). This individual was buried prone, head to the south, alongside two ceramic vessels, a whole Mountain Pine Red plate and a complete Sotero Red-Brown vase, and 300 shell beads around the head and neck (Guerra and Romih 2017). Due to the formal crypt architecture and associated grave goods, excavators concluded this individual held an elite or prestigious role at Lower Dover and that Structure F2 functioned as an ancestral shrine.

2023 INVESTIGATIONS

Excavation at Structure F2 was conducted to better understand the developmental trajectory of the plazuela center in relation to the polity capital of Lower Dover, and other minor centers like Tutu Uitz Na. Specifically, we sought to understand if earlier construction phases predating the Lower Dover epicenter were present. Moreover, we sought to investigate the status and activities of the intermediate elite occupants (for examples see Walden 2023). We were particularly interested in their relationship with the ruling elite at Lower Dover. Were the occupants of Plaza F bureaucrats or administrators? Or, following Guerra (2021), were they involved in economic activities born of their close position to the major trade artery which was the Belize River? Lastly, we wanted to consolidate and document the extensive looter's trench. We sought to investigate these questions through continued excavation at Structure F2.

EXCAVATION UNIT F2-2 RESULTS

Excavation unit F2-2 was 3 m north/south x 7 m east/west axial trench placed perpendicular with the front of Structure F2 at its centerline, completely overlapping the original 2016 unit excavated by Guerra and Romih (2017). The goal of excavation was to reconstruct the construction sequence of the structure. The intention was to document early construction phases and any associated plaza floors. Datum# F2-2 was set at the apex of the structure at 40 cm above ground surface. Lot numbers were assigned to contexts in the order they were exposed. The first lot number was designated to the ground surface regardless of whether artifacts were present as this practice can provide valuable survey data. The unit was dug using cultural stratigraphy. Any artifacts (including special finds) encountered are listed in Appendix A. Excavation was halted following the clearance of terminal architecture due to time constraints.



Figure 2: South Profile of E.U. F2-2.

Structure F2 Penultimate Architecture

The penultimate phase architecture exposed in 2016 (associated with Structure F2 Burial 1) was only encountered in a small section on the summit of the structure (Figure 2). A small section of floor (Floor 1) was present at the apex of the structure at 70 cm below datum (Lots F2-2-4 and F2-2-5). Roughly 45 cm of floor ran east to west across the summit. The eastern extent of this floor likely articulated with Riser 5 but was destroyed by a large Cohune Palm at its western extent and the looter's pit at its eastern extent. While only a limited amount of architectural fill was excavated below this floor, it contained Early Facet Spanish Lookout ceramics and charcoal (RS F2-2-1). The Spanish Lookout ceramics corroborate the Late Classic date of construction (Guerra and Romih 2017). However, some earlier ceramics were present, including a Dos Arroyos Orange Polychrome from a basal flange bowl. At least three earlier phases of construction are likely beneath this based on earlier excavation (Guerra and Romih 2017). The fill of this construction episode comprised a cobble ballast and loose boulder fill interspersed with a dark brown loamy clay matrix (10YR 2/1). While it remains unclear whether this sherd was originally included in construction fill or was associated with a burial the looter's encountered, it nonetheless speaks to the affluence of the elite household resident at Plaza F2 in the Late Classic period.

Structure F2 Terminal Architecture

Excavation at Structure F2 exposed terminal architecture (Figures 2 and 3). This involved clearing the 2016 unit and exposing the five courses of risers reported previously. The tread associated with Risers 1 (240 cmbd) and 2 (220 cmbd) was atypically large (~50 cm; as noted by Guerra and Romih 2017). Risers 3 (180 cmbd) and 4 (130 cmbd) were removed during the 2016 excavations. Strangely, these were not particularly clear outside the 2016 unit either. Inspection of the southern side of the unit revealed a substantial looter's trench had been excavated through the



Figure 3: Terminal phase architecture at Structure F2.

central staircase, leading from the plaza floor to the apex of the structure where it intersected with the large central pit. This trench had been entirely filled with a distinctive lighter yellow brown/beige (10 YR 3) backdirt (presumably removed from the central pit). The missing risers (Risers 3 and 4) in the southern extent of the unit was therefore likely removed during looting activity. Excavation of terminal fill at the apex of the structure (Lot F2-2-6), behind Riser 5 (110 cmbd) comprised a mixture of compact heterogeneous dark brown (10YR 2/2) cobble and boulder fill intermixed with dense concentrations of ceramics adjacent to the cohune palm. The ceramic deposit (79 cmbd) contained a mixture of Late Classic types including Cayo Unslipped jar sherds, Belize Red bowl and dish fragments, and a Vaca Falls rim, which had been heavily bioturbated by the cohune tree. Artifacts found in the terminal fill date to the Late and Terminal Classic (Spanish Lookout I and II). Notable artifacts encountered in this context include a drilled limestone block (Figure 4a) and an Achote Black vase rim with a substantial portion of preserved Maya blue paint at the eastern extent of the unit (near the looter's pit; see Figure 4b). This vase fragment was similar to one found at Tutu Uitz Na (Walden et al. 2018). Removal of fill beneath this ceramic deposit revealed a burial placed next to the interior face of Riser 5 (Figure 5).


Figure 4: Selected special finds from Structure F2. (a) drilled limestone block (b) rim sherd with Maya blue pigment.



Figure 5: Structure F2 Burial 3 plan map.

Str. F2-Burial 3

Structure F2 Burial 3 was likely a primary burial within a crude stone crypt. The fragmentary remains exhibited poor preservation and were significantly impacted by proximity to the ground surface and the cohune palm, but in situ observation of placement was possible. The first element that was recovered from this burial was an isolated right maxillary adult premolar at 97 cmbd at the southern edge of the crypt. Post-cranial elements were placed tightly together, with long bones oriented north to south. A seemingly articulated radius and ulna, an intact distal radius fragment, and a second, unarticulated ulna indicate both arms were present in the center of the crypt. The bones were fragmented but not commingled. A probable humerus to the west suggests flexed arm placement, and scapula fragments between the radius and humerus further support arm placement in the center of the crypt and body orientation north to south. The overall size of postcranial elements and presence of an adult premolar suggest this individual is of adult age. Southwest of the arms, the highly fragmentary pelvis was found on the edge of the crypt. The pelvis was not complete enough for analysis, but enough was uncovered to suggest that the whole pelvis was once there intact. Position of the pelvis indicates further that the individual was flexed, perhaps in the fetal position facing east. Though, without the presence of leg bones the body position cannot be positively determined, and it remains possible that the entire interment was secondary. If the individual was indeed flexed, this would suggest a Postclassic date of interment (Hoggarth et al. 2014). Underneath the pelvis cluster, discovery of relatively dense cortical bone in a circular shape and a premolar suggests that this was the cranial cluster, however, these elements were not well preserved and did not provide more diagnostic information in situ. Full osteological analysis of these remains will be completed in 2024. Five crypt stones were uncovered spanning Burial F2-3, with the arms placed over the top of one. Either these were the bottom crypt stones and the top and sides were moved/removed after interment, or there is another burial directly below this individual and these are top crypt stones. The northernmost stone was removed during excavation of Burial F2-3, and two teeth and sporadic cranial fragments were found in association with it. However, subsequent investigation in this area did not reveal more elements below them. The flat nature of these stones suggests this may be the top of a crypt, but time constraints limited further investigation underneath them. Several sherds from a very badly damaged, incomplete Belize Red bowl rim were found adjacent to the western side of the crypt. If this was once a complete vessel interred as a grave good with this individual, then it is sufficiently incomplete to suggest re-entry in the past. While it currently remains somewhat unclear whether this burial was primary or secondary, full osteological inventory and analysis of the remains in 2024 should serve to resolve this issue.

CONCLUSIONS

Excavations during the 2023 field season were unfortunately halted due to time constraints and so relatively little can be said about Structure F2 or the relative affluence or activities of the resident elite household. Several findings are, however, noteworthy. The looter's pit was more extensive than originally thought and had a trench component which ran from east to west extending from the base of the plaza floor to the looter's pit on the eastern section of the unit. This was seemingly entirely backfilled during the looter's excavation of the center pit. Aside from this, our investigations corroborated the findings of Guerra and Romih (2017). The eastern triadic structure certainly served as a locus of household ancestor veneration for the relatively high-status occupants of Plaza F. However, our excavations did not penetrate deep enough to question or corroborate the established Late Classic dating of this structure. Excavation at Plaza F is an ongoing process and further investigations during the 2024 field season will attempt to resolve the lingering questions about the role of the occupants and their relationships with other elites at Lower Dover.

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Structure	Excavation Unit	Lot	Lot Description	Class	Diagnostics	Total Sherds	ID/Notes
Structure F2	F2-2	F2-2-1	Humic and backfill	Ceramic	55	275	
Structure F2	F2-2	F2-2-1	Humic and backfill	Chert		129	
Structure F2	F2-2	F2-2-1	Humic and backfill	Freshwater Shell		N/A	
Structure F2	F2-2	F2-2-1	Humic and backfill	Faunal Remains		1	
Structure F2	F2-2	F2-2-1	Humic and backfill	Human Remains		N/A	
Structure F2	F2-2	F2-2-1	Humic and backfill	Quartz		1	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Ceramic	198	912	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Chert		772	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Daub		19	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Faunal Remains		5	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Freshwater Shell		N/A	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Human Remains		N/A	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Limestone		1	Perforated Limestone Block
Structure F2	F2-2	F2-2-2	Looter's backdirt	Marine Shell		2	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Quartz		3	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Obsidian		1	
Structure F2	F2-2	F2-2-2	Looter's backdirt	Ceramic		1	Vase rim w/Maya blue pigment
Structure F2	F2-2	F2-2-3	Looter's backdirt	Ceramic	22	221	
Structure F2	F2-2	F2-2-3	Looter's backdirt	Chert		69	
Structure F2	F2-2	F2-2-3	Looter's backdirt	Freshwater Shell		N/A	
Structure F2	F2-2	F2-2-3	Looter's backdirt	Human Remains		N/A	
Structure F2	F2-2	F2-2-4	Terminal fill	Ceramic	22	224	
Structure F2	F2-2	F2-2-4	Terminal fill	Chert		53	
Structure F2	F2-2	F2-2-4	Terminal fill	Daub		10	
Structure F2	F2-2	F2-2-4	Terminal fill	Freshwater Shell		N/A	

APPENDIX A: 2023 STRUCTURE F2 ARTIFACT INVENTORY

Structure	Excavation Unit	Lot	Lot Description	Class	Diagnostics	Total Sherds	ID/Notes
Structure F2	F2-2	F2-2-4	Terminal fill	Human Remains		N/A	
Structure F2	F2-2	F2-2-4	Terminal fill	Obsidian		1	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Ceramic	38	269	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Chert		40	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Daub		3	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Freshwater Shell		N/A	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Human Remains		N/A	
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Charcoal		1	RS# F2-2-1
Structure F2	F2-2	F2-2-5	Fill under Floor 1	Faunal Remains		1	
Structure F2	F2-2	F2-2-6	Ceramic Deposit	Ceramic	16	109	
Structure F2	F2-2	F2-2-6	Ceramic Deposit	Freshwater Shell		1	
Structure F2	F2-2	F2-2-6	Ceramic Deposit	Obsidian		1	
Structure F2	F2-2	F2-2-7	Burial F2-3	Charcoal		1	RS# F2-2-2
Structure F2	F2-2	F2-2-7	Burial F2-3	Chert		45	
Structure F2	F2-2	F2-2-7	Burial F2-3	Freshwater Shell		N/A	
Structure F2	F2-2	F2-2-7	Burial F2-3	Human Remains		N/A	
Structure F2	F2-2	F2-2-7	Burial F2-3	Obsidian		1	
Structure F2	F2-2	F2-2-7	Burial F2-3	Charcoal		1	RS# F2-2-3

A REPORT OF THE 2023 EXCAVATIONS AT SG 111: A LATE CLASSIC COMMONER HOUSEHOLD AT LOWER DOVER, BELIZE

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INTRODUCTION

The Late Classic (AD 600-900) Maya center of Lower Dover is located in the modern community of Unitedville on a property owned by Mr. William and Madeline Reynolds. Lower Dover is on the south bank of the Belize River and is 11 km east of modern-day San Ignacio, 7 km east of the ancient center of Baking Pot and 3 km east of the ancient center of Blackman Eddy (Guerra and Awe 2017; Walden et al. 2023). This report documents 2023 excavations at SG 111, a sizeable, 1 m high mound situated 200 m southeast of the civic-ceremonial epicenter immediately adjacent to the Lower Dover field station. The mound was considered part of the Lower Dover core due to its geospatial location (Walden, Biggie, and Ebert 2017), but its role and function was difficult to discern because the surrounding area was bulldozed in the 1980s. The presence of a possible stela butt nearby suggested the mound may have had a ceremonial function although the presence of a possible *chultun* close to the base of the mound suggested a residential function. This specific mound was chosen for excavation to better understand the use of this building and test these hypotheses. Excavation revealed that this mound was likely a platform for a relatively high-status commoner household which was constructed in two phases likely dating to the Late Classic period.

Excavation Unit (E.U.) SG 111-1, a 1 x 3 m trench, was placed perpendicular to the mound (oriented north-south) at the axial centerline of the north face of the mound. Elevations for this unit were taken from Datum# SG 111-1 which was placed 40 cm above ground surface at the apex of the structure. The mound was originally thought to be a southern structure (Str. S1) due to a flat patio/plaza-esque expanse immediately to its north adjacent to the stela butt. EU SG 111-1 was placed on the northern side of the mound to identify possible stairs leading from its apex to this space. Excavation revealed a set of coarse marl risers which could have functioned as stairs.

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Figure 1: Map showing location of SG 111 Str. S1.

SG 111- E1 Penultimate Phase

Excavation revealed that SG 111 was constructed on a substantial, 1 m high natural rise in bedrock, which largely explained the height of the mound and its prominence (Figures 2 and 3). Preference for settling on natural rises in bedrock was not uncommon across the Lower Dover settlement (Shaw-Muller et al. 2020; Walden et al. 2020; Walden 2021; Willey et al. 1965). The earliest phase of construction at SG 111 involved a 30 cm layer of white/grey marl (10YR 7/2) with some cobble inclusions found across the entire excavation unit. This layer of marl varied in thickness, at the apex of the structure it was only 10 cm thick, but lower down in the structure it was about 80 cm thick. Three very crude courses of steps were cut into this marl which likely reflect either risers for a staircase or a tiered structure (Figure 4). These risers were about 15 cm high. No artifacts were found in construction phase (Lot# SG 111-1-3). In the northern part of the unit, at base of these marl steps (at 154 cmbd) was a crudely built patio floor (Patio Floor 1) which was \sim 5 cm thick. The floor was constructed 30cm above bedrock with 5 cm of ballast placed prior to floor layer. The fill of this floor did not contain any diagnostic ceramics and no charcoal, problematizing dating of this initial construction phase, although numerous *jute (Pachychilus* spp.) were present. These freshwater shells are very common in Middle Preclassic contexts in the vicinity, like SG 3 (100 m to the south) and Tutu Uitz Na (SG 1, just 300 m to the southwest; see Biggie et al. 2023; Walden et al. 2018). These freshwater shells, by themselves are not a reliable dating metric, especially given that Little Barton Creek is just 50 m to the east.



Figure 2: West profile of Str. S1.



Figure 3: Photograph showing the bedrock rise.



Figure 4: Plan map of the marl risers associated with construction phase 1.

SG 111-E1 Terminal Phase

The second phase of construction was represented by a layer of cobbles and small boulders of various sizes set atop the marl layer (Lot SG 111-1-2). The marl layer served as the base for this light gray colored cobble layer (10 YR 6/2) which, by the concentration of cobbles, represented the construction fill of a terminal phase platform. The associated walls, floors, and second patio floor associated with this construction phase were destroyed by bioturbation. Cobbles of roughly 5-12 cm in diameter and boulders over 25 cm in diameter were found in this layer that extended throughout the unit. Late Classic ceramic sherds including Belize Red, Vaca Falls Red, Garbutt Creek Red, and Cayo Unslipped were found in this context. Alongside these sherds was chert debitage, *jute*, an obsidian blade fragment, two fragments of marine shell, a chert biface fragment, a perforated limestone pendant, and a very small piece of well-polished greenstone pebble (Figure 5a and b). Two badly eroded Benque Viejo Polychrome sherds were found in this layer which hinted at an earlier date for the first phase of construction.



Figure 5: Photograph of selected special finds from E.U. SG 111-1: (a) crude limestone pendant, (b) small, polished greenstone pebble.

DISCUSSION AND CONCLUSIONS

While no datable charcoal was uncovered in the unit, ceramic analysis shows that the terminal phase of SG 111 Structure S1 was constructed during the Late Classic (600-900 AD) and suggests that the earlier penultimate phase comprising the marl steps was also likely constructed during this phase although this phase may well be earlier. The residents of this household seemingly had access to some wealth items such as the polished green stone and the Benque Viejo Polychrome sherds. There is a rise in the number of artifacts in the fill from the first to the second construction phase suggesting that the residents were getting more access to goods. The mound had a terminal construction phase which was largely destroyed by bioturbation. This terminal construction had over thirty serving vessels which, based on the fact our unit which represents 5% of the overall mound, may suggest substantial numbers of such vessels were present possibly indicating that the household was hosting feasts. This finding will be tested in future investigations. While the prominence and height of the platform belied actual labor investment given the utilization of a natural rise in bedrock to make the house appear more impressive, the assemblage and amount of labor invested in the second construction phase suggests that SG 111 Structure S1 was likely inhabited by high-status commoner residents.

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Structure	Excavation Unit	Level	Lot	Lot Description	Class	Diagnostics	Total Sherds	ID/Notes
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Ceramic	84	597	
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Chert		273	
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Freshwater Shell		N/A	
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Greenstone		1	Greenstone Pebble
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Limestone		1	Limestone Pendant
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Marine Shell		3	
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Obsidian		2	
SG 111 S1	SG 111-1	1	SG 111-1-1	Humic and collapse	Quartz		2	
SG 111 S1	SG 111-1	2	SG 111-1-2	Fill under Patio Floor 1	Ceramic	8	51	
SG 111 S1	SG 111-1	2	SG 111-1-2	Fill under Patio Floor 1	Chert		32	
SG 111 S1	SG 111-1	2	SG 111-1-2	Fill under Patio Floor 1	Freshwater Shell		N/A	
SG 111 S1	SG 111-1	2	SG 111-1-2	Fill under Patio Floor 1	Quartz		1	
SG 111 S1	SG 111-1	2	SG 111-1-3	Marl Deposit	Ceramic	21	112	
SG 111 S1	SG 111-1	2	SG 111-1-3	Marl Deposit	Chert		38	
SG 111 S1	SG 111-1	2	SG 111-1-3	Marl Deposit	Freshwater Shell		N/A	

APPENDIX A: 2023 STRUCTURE SG 111 STRUCTURE S1 ARTIFACT INVENTORY

ARCHITECTURAL INVESTIGATIONS AT GROUP A, XUNANTUNICH: RESULTS FROM THE 2023 FIELD SEASON

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INTRODUCTION

Xunantunich is a Classic Maya civic-ceremonial center, located approximately 1km east of the modern Belize-Guatemala border in Cayo District, Belize. The site is situated atop a large limestone outcrop, overlooking the Mopan River and the Maya village of San Jose Succotz to the southeast. The site is comprised of six architectural groups, Groups A, B, C, D, E, and F. Group A serves as the primary public center and hosts the largest structures documented at the site. Groups B, C, D, and F likely served as upper-elite residential groups. Group E exhibits large temple-like architecture and served ceremonial purposes during the center's earliest configuration (Brown et al. 2011). Group A was the primary focus of our 2023 excavations and has been a topic of archaeological inquiry since the mid 1800's (Gann 1895, 1925; Graham 1979; LeCount and Yaeger [eds] 2010a; MacKie 1985; Pendergast and Graham 1981; Thompson 1940; Zanotto and Awe 2017; see also Maler 1908:73-79). Since 2015, the Xunantunich Archaeology and Conservation project (XACP) has overseen archaeological investigations at Group A and B, in collaboration with the Belize Valley Archaeological Reconnaissance (BVAR) project.

The research objectives for the 2023 field season involved four overarching questions, which derive from Watkins' doctoral research design:

- 1) What was the timing, tempo, and scale of monumental construction at Xunantunich?
- 2) What social, political, and environmental determinants influenced monumental construction at Xunantunich?
- 3) How does monumental construction at Xunantunich correspond to diachronic regional patterns of monumental construction?
- 4) How do the architectural patterns identified here reflect macro-regional socio-political trends?

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Figure 1: Map of Xunantunich with excavated areas highlighted in green.

Our excavations took place at Structures A4, A7, A10, A12, and A21 to address our research goals at the site level (Figure 1). In addition, a small excavation unit was placed in Plaza A-II to gain more information on the plaza's stratigraphy relative to the structures we excavated. This report provides information regarding the details of each excavation unit and a general overview of the artifacts documented in each context. The excavations conducted at Xunantunich follow the methods as outlined in the introduction of this volume. The artifacts we recovered were counted and photographed but were not subject to more in-depth analysis. Comprehensive artifact analyses will be conducted in the coming field season and subsequently reported. The following sections present the results from our archaeological efforts carried out across Group A during the 2023 field season.

EXCAVATION OBJECTIVES AND RESULTS

During the 2023 field season, XACP conducted an in-depth archaeological investigation of Group A. These operations spanned across the entire group with at least one operation (OP) in each of the group's three plazas, Plaza A-I (OPs A4-2023 and A7-2023), A-II (OP PLA2-2023), and A-III (OPs A10-2023 and A12-2023). These three plazas make up the majority of the group's public ceremonial space, providing us with a broad sample of contexts to create a comprehensive representation of Group A's chronological development. An additional operation (OP A21-2023) took place at Structure A21, which is situated at the western limit of Causeway II. This operation will provide construction information from a non-ceremonial context.

Structure A4

Structure A4 is a pyramidal-shaped structure and the southernmost component of the Eastern Triadic Assemblage in Plaza A-I. This architectural complex is comprised of three temple buildings that make up most of the eastern boundary of Group A (see Awe et al. 2017). Between 2000-2004, the Tourism Development Project (TDP) focused their operations at Xunantunich, placing emphasis on archaeological reconnaissance and architectural conservation. Structure A4 was investigated by the TDP to document a construction sequence for the Plaza A-I area. A single excavation unit was placed at the building's summit to document the construction stratigraphy. TDP's excavations concluded that Structure A4 was noted as having at least two construction phases. Some of the original maps and forms from these initial operations at Structure A4 were damaged due to unforeseen circumstances. Despite this, much information about the activities associated with Structure A4 were able to be determined based on artifact data, resulting in two Ph.D. Dissertations (Audet 2006; Freiwald 2011).

One of the most interesting finds from those initial excavations was the discovery of a multicomponent, unsealed burial (Burial A4-1) consisting of at least five individuals (Freiwald 2011:145-146). The burial was located at the summit of Structure A4, where the individuals were interred in an unsealed pit, which was dug out in front of a large stucco fragment that had been placed on the summit platform. The individuals documented in Burial A4-1 included one 10-year-old child (complete), one adolescent female (complete), two mandibles (A and B), and one cranium (Head 1). Later, these individuals were re-assessed by Freiwald (2011) which found that only Mandible B belonged to an individual who was local to Xunantunich. In 2023, our goal was to re-document the construction sequence of Structure A4 and further our knowledge of the building's function and use through time.

E.U. A4-2023-1

The 2023 investigations at Structure A4 began by establishing Excavation Unit (E.U.) A4-2023-1, which measured 2.5 m N/S by 5 m E/W. E.U. A4-2023-1 was positioned on the western face of the building and aligned to the building's central axis (Figures 2 and 3). We identified four different cultural contexts throughout our investigations, which are discussed below.



Figure 2: Site map close-up showing location of E.U. A4-2023-1.

Lot A4-2023-1-1 categorizes the architecture, and the artifact remains recorded within the terminal phase of the structure's construction but not below the building platform. We documented a variation in the materials that make up the structure's fill in this lot. The northern half of the building was constructed using dry-laid boulder fill, a common practice observed in Late Classic (~AD 600-800) construction in which large rocks and boulders are simply stacked without a binding agent such as mortar. However, the southern half of the building appears to have been constructed using various "water-related" materials, including large mudstone blocks, large speleothem fragments, and small river stones/pebbles. Lot A4-2023-1-1 was closed when we reached the plastered surface of the building platform, which was documented approximately 4.5 m in depth (inside the structure) at the unit's tallest baulk. A total of 1,725 artifacts were recovered from this lot including, pottery fragments, chert, obsidian blade fragments, faunal remains, and pieces of stucco.

Lot A4-2023-1-2 measured 1.5 m N/S by 4 m E/, smaller than the initial dimensions of E.U. A4-2023-1 due to concern for the stability of the building. This trench was positioned along the centerline of the initial unit dimensions. Lot A4-2023-1-2 provided a snapshot of the construction sequence below the terminal building platform and contained the most notable finds documented at the building during the 2023 field season. In the center of the trench, at approximately 45 cm down from the platform surface, we identified Stela 11 (Figure 4).



Figure 3: Profile of Structure A4 showing monuments and construction stratigraphy.

Stela 11 was embedded into the construction fill, standing upright. The fragment was likely the base of the monument. The upper half of Stela 11 was likely removed and placed elsewhere in antiquity as we did not find it in these excavations. The preserved lower half of Stela 11 measured 126 cm in total height, 75 cm in width, 53 cm in thickness at its base, and approximately 45 cm in thickness at its top, where it was broken. Both surfaces of the stela may have been carved at some point as the surface texture was very rough, however it is possible this is due to erosion as the limestone used for Stela 11 was reasonably soft (≤ 2.5 , Mohs Scale).

Approximately 65 cm behind Stela 11 (eastward), we discovered two additional stone monuments. The monuments were stacked on top of one another and consisted of Stela 12 and Altar 5 (Figure 5). Stela 12 was laid atop Altar 3 on an NW/SE diagonal in antiquity and was very crude in its form compared to Stela 10. Stela 12 measures 1.3 m in length, 54 cm in width, 40 cm in thickness at its (assumed) base, and 33 cm in thickness near the upper part of the stela. Like Stela 11, Stela 12 was also fragmented, with the top half of the monument likely moved. Stela 12 is also uncarved. Based on the shape and dimensions of both Stela 11 and Stela 12 as well as the stone itself, it is unlikely they are of the same monument. Altar 5 was discovered 38 cm behind Stela 11 and was centrally aligned with Stela 11. Altar 5 was complete yet broken into three distinct

pieces, once in half, then the western half broken again in two. On the altar surface, which was face-up, was much evidence of burning; thus, a sample was collected for later analysis. Altar 5 was likely uncarved, as no such elements were observed.



Figure 4: Stela 11 in situ.



Figure 5: Stela 12, Altar 5, and Stela 13 in situ, facing east.

The last feature we documented in this lot is the lower steps of the pen-ultimate structure (A4-Sub 1), a structure that was buried in the process of building the terminal phase of structure A4 (A4-Prime). Relative to the stone monuments, the bottom step of A4-Sub 1 measures

approximately 15 cm behind Altar 5 and Stela 12 (eastward; Figure 5). Our efforts allowed us to document a section of the bottom three steps, which likely continue upward to the summit of the A4-Sub 1 structure. An exciting component of the A4-Sub 1 stair is that a section of the second stair was removed at some point, either during the use of A4-Sub 1 or during the termination and interring of the stone monuments, and was replaced with a third stela, Stela 13. Like Stela 11 and 12, Stela 13 was a fragment of the complete monument, with the lower half embedded into the stair in antiquity, allowing it to stand. We could not document the back of Stela 13 due to its position in the unit baulk and the stability of A4-Prime. Rough measurements of Stela 13 are 88 cm in observable height, 86 cm in width, and 22 cm in thickness. The limestone material of which Stela 13 was made is much harder than Stelas 11 and 12, ≥ 2.5 Mohs Scale. Stela 13 did not exhibit evidence of being carved, as the monument's observable face was eroded and broken. We could identify (at least two) large (~15 cm in diameter) chunks of Stela 13, which were used in the drylay fill of A4-Prime. These pieces did not show evidence of carving and were heavily fragmented. A total of 486 artifacts were documented in this lot, including pottery, chert, and freshwater shell.



Figure 6: Cache A4-2023-01 in situ.

Lot A4-1-3 was opened to continue our excavations under/below Floor 1 and the stone monuments documented in the previous lot. These excavations ceased soon after starting due to the identification of Floor 2 (20 cm below Floor 1). Floor 2 exhibited evidence of burning in the form of two circular burn marks on the western half of the unit. No notable artifacts were documented apart from the typical pottery and chert materials (n=30). We closed Lot A4-1-3 and opened a new Lot (A4-2023-1-4) to continue our excavations below Floor 2. Lot A4-2023-1-4 continued excavations below the Floor 2 level. We recorded a thick layer of dark sediment just below the ballast of Floor 2, extending until we reached the limestone bedrock.

Within the dark sediment, we encountered a cache of at least three, cylinder vases, recorded as Cache A4-2023-01 (Figure 6). The vessel's material was very damp due to their interment into the moist paleosol layer, which caused the vessels to become delicate and fragmentary. The vessels were straight walled cylinder vases in form and were constructed of an orange, medium-fine paste with a glossy black slip. The vessels in Cache A4-2023-01 are of the Molino Black: Type Unspecified pottery type (AD 600-700; Gifford 1976:202), which has also been documented at the nearby minor center, Chan (Robin 2012:54). A charcoal sample was retrieved from the cache to help determine the timing of events, including the cache internment and associated architectural constructions. This lot and the unit were closed when we reached bedrock at ~51 cm in depth from the terminal building platform.

Structure A7

In 2015, Structure A7 was incorporated into the multi-year plan involving archaeological reconnaissance and conservation under the XACP operations. In 2016, a test unit was placed on the eastern face of Structure A7, along the building's central axis (and primary stair). These initial investigations identified a well-preserved penultimate construction phase in the form of a stair (Tilden et al. 2017a). During the 2018 field season, excavations at Structure A7 were re-instated to expand on those conducted in 2016. The 2018 excavations revealed a complex construction history consisting of at least four major construction phases and several architectural modifications (Watkins et al. 2019). The construction history of Structure A7 is significant for two primary reasons. First, Structure A7 consists of four construction episodes, presenting a unique case at the site, as most structures in Group A only exhibit one or rarely two construction episodes. Second, the construction history of Structure A7 presents a rare glimpse at some of the earliest monumental construction efforts at the site. The 2023 excavations at Structure A7 are an extension of the work done during the 2018 field season and aimed to clarify the different architectural forms present in the sequence and refine the distinctions between each construction episode (Figure 7).

As a result of the 2023 investigations at Structure A7, we present a clarification of the construction sequence designations as we realized the possibility that an earlier construction phase may yet be identified (Table 1). The updated construction phase designations present a sequence in order of encounter during our excavation. The term "Prime" refers to the final construction phase, i.e. the building as it was last experienced. Earlier construction episodes are referred to as "Substructures" and will be labeled in the sequential order (e.g. A7-Sub 1, A7-Sub 2...). These updated designations provide a standardized method for how we catalog a given construction sequence, providing a more intuitive and analogous dataset of architectural stratigraphy.



Figure 7: Site map close-up showing location of E.U. A7-2023-1 and A7-2023-2.

Table 1: Updated designations for each construction episode at Structure A7 with the associated date range of construction (see Watkins et al. 2019, 2021).

2018 Designations	2023 Updated Designations	Construction Date Range
A7-4 th	A7-Prime	AD 650 – 750
A7-3 rd	A7-Sub 1	AD 500 – 600
A7-2 nd	A7-Sub 2	AD 50 – 150
A7-1 st	A7-Sub 3	

Excavation Unit A7-2023-1, South Trench

In July 2023, an 8 m N/S x 2.5 m E/W excavation unit was placed in the center of the southern face of Structure A7 to attempt to gather more information regarding the construction history of the structure. Excavations into the collapse of the structure (Lot A7-2023-1-1) revealed a spine wall running N/S. Excavations in 2018 (Watkins et al. 2019) revealed a N/S center line and similar double vaulted structure, so it is likely that this structure extends the entire length of A7. The rooms on either side of the spine wall were purposefully filled with stone rubble during antiquity. The eastern room seemed to be less packed with rubble, so excavations continued into this room. Artifacts of note for the humus/collapse layer include two chert bifaces (SF No. A7-

2023-001 & A7-2023-002). Excavations into this eastern room (Lot A7-2023-1-2) exposed a low bench abutting the spine wall. To find the width of the room, the unit was extended one meter to the east to try to locate an outer wall. A preserved door jamb was located, which indicates that the southern portion of the exterior wall was removed in prehistory. This suggests that the room is likely part of the penultimate architectural phase (A7-Sub 1), and the southern walls may have been removed to make room for the final construction phase (A7-Prime). Pottery associated with the room fill included various Preclassic (e.g., Savana Orange, Sierra Red) and Late Classic types (e.g., Dolphin Head Red). It is likely that the materials in the room fill came from nearby middens, and the paucity of Early Classic pottery could suggest a decline in nearby Early Classic occupation of the site core. A 1.5 m N/S x 2 m E/W excavation unit was set up to the east of the bench to expose the construction phases below the penultimate structure. These excavations (Lot A7-2023-1-3) showed that the plaster floor of the penultimate structure was approximately 10 cm thick. Many pottery and chert artifacts and large jute (Pachychilus glaphyrus) came from the fill in this lot. At 3 m below datum, a tamped floor (possibly marl) was located, and a new lot was started. Further excavations (Lot A7-2023-1-4) revealed more Preclassic pottery, including a Middle Preclassic Savana Orange anthropomorphic figurine head (SF No. A7-2023-003). Ultimately, excavations into this southern trench ceased at approximately 350 cmbd to shift focus on further excavations into the A7 East Trench.

E.U. A7-2023-2, East Trench

Excavation of Structure A7 in 2018 (Watkins et al. 2019) revealed at least one Late Preclassic construction episode (AD 50-150; Watkins et al. 2019). To determine the N/S dimensions of the A7-Sub 2 construction phase, we opened a south-trending tunnel (EU A7-2023-2) leading into the construction fill of the A7-Sub 2 stairway, using the eastern façade of building platform as our guiding factor (see Watkins et al. 2019). The goal of this tunnel was to locate the southeastern corner of Structure A7-Sub 2, which would aid in determining the N/S measurement of that construction phase. The first 1.72 m of the north/south building platform wall was unplastered. At 1.72 m into the tunnel (Lot A7-2023-2-1), an east/west wall consisting of large rectangular boulders and plaster was encountered and removed. It was determined that this "wall" was part of the interior construction of the A7-Sub 2 stair-side. Once we removed this wall, we encountered the well-preserved plastered exterior of A7-Sub 2. Lot A7-2023-2-2 was started because of this context change, corresponding to the construction fill associated with A7-Sub 1. Excavations continued for 7.8 m, where the southeast corner of A7-2nd was located and appeared to have been cut. Very few artifacts were recorded throughout our excavations in the tunnel, primarily potsherds.

Plaza A-II

Between 2016 and 2018, XACP investigated Plaza A-II. Several excavations revealed material dating from the Preclassic to the Late Classic (Austin 2019; Slocum 2018; Tilden et al. 2017b; Ramirez 2023). These investigations provided an understanding of the relationship between Plaza A-II and the surrounding temple buildings. Our 2023 excavations aim to contribute to those previous investigations by gathering data that speaks to the relationship between Plaza A-III plaze complex.



Figure 8: Site map close-up showing location of E.U. PLA2-2023-1.

E.U. PLA2-2023-1

A single excavation unit was established in Plaza A-II, E.U. PLA2-2023-1. We positioned this unit to abut the western corner of Structure A13's bottom step, allowing us to identify the stratigraphic relationship between Plaza A-II and Structure A13. E.U. PLA2-2023-1 measured 2 m N/S by 2.5 m E/W (Figure 8). This unit identified five plastered plaza floors, like those documented in Plaza A-I. Floor 1, approximately 8 cm below the modern surface, measured 6-9 cm thick and was very fragmented but was better preserved closer to Structure A13's bottom step (Figure 9). Floor 2 measured 3-5 cm in thickness and seemed only supported by a ~3 cm layer of compact *sascab* (see Figure 9). It is possible that Floor 2 was part of a replastering or resurfacing event intended to mend Floor 3, based on the proximity of the floors and the lack of cobble ballast below Floor 2. Floor 3 measured 8-10 cm thick, supported by a layer of cobble ballast. Floor 4, the best-preserved floor, was 6-8 cm thick and supported by 11 cm of cobble ballast. Floor 5 was well preserved, like Floor 4. The plaster for Floor 5 was the thickest documented, measuring 9-12 cm. The ballast below Floor 5 consisted of limestone cobbles mixed with sascab-like sediment and measured ~15 cm thick. Very few artifacts were recorded throughout the excavations of the plaza floors, including pottery, chert, faunal remains, and obsidian.



Figure 9: West profile of E.U. PLA2-2023-1.

Below the ballast of Floor 5, we noted a layer of darker brown sediment (60 cm below the surface), which was interpreted as a layer of buried humic. This buried humic layer measured \sim 16 cm thick and contained no artifacts. At \sim 96 cm below the surface, the buried humic layer transitioned into dense black-brown sediment that was almost clay-like in consistency. At the top of this layer, near Structure A13, we recorded pottery sherds, which were identified as possibly of Cunil pottery type (1000-850 BC; Awe 1992). A piece of charcoal (associated with the Cunil pottery) was sampled to determine an absolute date associated with the deposition of the pottery sherds. No other artifacts were documented after finding those pieces of pottery. The black-brown sediment was 20 cm thick and transitioned to a layer of rich orange-red clay (see Figure 9). No artifacts were recorded in the layer of clay, and beneath the clay, we encountered bedrock and subsequently closed the unit.

Structure A10

Structure A10 is in the northern palace complex (Plaza A-III) and serves as the western boundary of the palace's central plaza (Figure 10). Structure A10 underwent an initial archaeological investigation in 1996 conducted by XAP under the supervision of Eleanor Harrison. Harrison's excavations provided important information regarding the dimensions of the building and its association with neighboring buildings. During the 1996 efforts, Harrison documented a small section of a stair leading from the plaza up to the superstructure of Structure A10. This stair will be referred to as Stair-A from here onward. In 2022, the BVAR project continued Harrison's



Figure 10: Site map close-up showing location of E.U. A10-2023-1 and A12-2023-1.

work at Structure A10 through the horizontal excavation of the northernmost (Room 1) and central (Room 2) rooms on the eastern side of the building (Watkins et al. 2023). Additionally, the 2022 investigations re-opened Harrison's (1996) excavation of Stair-A and confirmed the extent of this unit. Reevaluating the 1996 efforts of the staircase prepared us to plan for the strategic expansion of these excavations during the 2023 field season.

E.U. A10-2023-1

The 2023 investigations focused on verifying the construction sequence of Structure A10 and Plaza A-III more broadly. Operation A10-2023 consisted of one 6 x 6 m unit (E.U. A10-2023-1), which both incorporated the investigations of the central stair conducted in 1996 and 2022. In re-opening these units, we hoped to locate the central axis of Staircase-A, hoping it aligned with the doorway of Room 2 (which marks the primary axis of the building). Early in our excavations, we realized the center of the stair was not aligned with the central axis of Staircase-A, which ends nearly in alignment with the Room 2 doorway and suggests the stair extends northward.

In continuing to expose more of the southern stair-side of Stair-A, we identified a mounded feature (2 m tall) consisting of mortared architectural fill. This feature abutted the southern stair-side and may have been the construction fill of an architectural modification to the building, however no facing stones were found. As we excavated through the mortared fill, we revealed a

batter terrace face (with a preserved plaster facade). The plaster facade was observed as being submerged below the terminal plaza floor, suggesting it was an earlier construction effort. Due to the preservation of the plaster and its stratigraphy underneath the plaza floor, the terrace was likely visible at some point earlier in the building's construction history and was later covered by the architectural modification (mortared fill feature). Once we exposed the southern stair-side and terminal plaza floor, we implemented a test unit (1.5 x 1 m) on the terminal plaza floor (Floor 1) fitted to the corner where the terrace and the south stair side of Stair-A meet. The positioning of this test unit provided us with an advantage as we could follow the construction stratigraphy of both architectural features in addition to the plaza floor stratigraphy. This test unit documented five plaza floors and one earlier architectural feature (wall) that was buried beneath the plaza (see Figure 11). Floor 1 was 8 cm below the modern lawn that covers the plaza and is supported by cobble ballast. Floor 2 was encountered ~ 10 cm below Floor 1 and was likely a re-plastering event due to the proximity to the Floor 3 level, ~5 cm below Floor 2. These excavations allowed us to determine that the construction of the terrace was concurrent with that of Floor 3, as the floor plaster lipped up to the terrace façade. The mortared wall feature measures ~35 cm in height and was constructed atop Floor 4 (see Figure 11). Floor 4 is situated 41 cm below Floor 1 and connects to the wall at half its height. In this sub-unit, we excavated 2.2 m in depth, closing the sub-unit once we had reached the layer of bedrock.

Structure A12

Structure A12 is the easternmost building in the Plaza A-III complex, opposite of Structure A10. The building had seen only one archaeological investigation prior to the 2023 field season. In 1997, the XAP project continued its inquisitive efforts at Plaza A-III, focusing its excavations at the southern end of Structure A12 (Yaeger 1997). These initial excavations documented a section of the building's lower terrace and three rooms designated as Rooms 1, 4, and 7 (Yaeger 1997). Most notably, Yaeger (1997) documented sufficient evidence which indicates the building underwent multiple architectural modifications and at least one earlier construction phase.

E.U. A12-2023-1

Our 2023 investigations of Structure A12 consisted of one 4.5 x 6 m unit, E.U. A12-2023-1. The excavations revealed a stair (and stair-side) consisting of three steps, the terminal plaza floor (Floor 1), and a batter terrace façade (Figure 12). In addition, we identified a mortared feature abutting the southern stair-side, very similar to that identified at Structure A10. Upon exploring the mortared feature more carefully, we discovered that it was the interior construction fill of a stair block. We suspect the stair block was a later addition to the building as it abuts the plastered surface of the southern stair side. To investigate the construction history of the plaza and Structure A12, we implemented a test-unit, which mirrored that implemented at Structure A10. This testunit documented four (possibly five) plaza floors. Floor 1 was 48 cm below the modern lawn that covers the plaza and is supported by a thin layer of cobble ballast. Floor 2 was encountered 10 cm below Floor 1 and was supported by *sascab* fill. Floor 3 was identified 8cm below Floor 2, and like the terrace at Structure A10, the terrace at Structure A12 was concurrent with the construction of Floor 3, as the floor plaster lipped up, continuing onto the terrace façade. Floor 4 is 38 cm below Floor 3 and was constructed on top of a significant layer of *sascab* and cobble ballast. In this test unit, we excavated ~1.4 m in depth, closing the unit once we had reached the layer of bedrock.



Figure 11: North profile of E.U. A10-2023-1.



Figure 12: North profile of E.U. A12-2023-1.

Structure A21

Structure A21 is constructed of a \sim 35 m long (N/S) by \sim 12 m wide (E/W) platform standing \sim 2 m in height, which supports a smaller range structure. The building is situated at the western limit of Sacbe II, and behind the building (westward) starts a series of steep agricultural terraces (Keller 1994). Structure A21 was first investigated by XAP in 1997, who employed eight excavation units along the E/W central axis of the building (Keller 1997). These excavations concluded that the building was constructed in one construction phase and contained cultural materials that are temporally associated with the Late Classic I period (AD 600-700; Keller 1997:108). Our 2023 excavations aimed to gain further clarification on Keller's findings and contribute to the construction history of the site through radiocarbon dating. Four excavation units were opened at Structure A21 (Figure 13) across the building's eastern face.

E.U. A21-2023-1

Excavation Unit A21-2023-1 was opened to investigate the northern limit of the central stair and measured 4 m N/S by 6.5 m E/W. This unit contained two Lots, Lot A21-2023-1-1 and A21-2023-1-2. Lot A21-2023-1-1 was designated for the humic layer context of the unit. We excavated humic layer (~15 cm deep) until we were able to identify the remains of collapsed architectural materials such as large, cut limestone blocks and rocks. Once we fully exposed the top of the collapsed materials, we closed Lot A21-2023-1-1. Subsequently, we opened Lot A21-2023-1-2 to excavate through the layer of collapse to locate any intact architectural elements. During the Lot A21-2023-1-2 excavations, we noticed several poorly preserved construction walls, which had supported a second building terrace and possibly a northern stair. Due to time constraints, this unit was closed soon after exposing the architectural feature.

E.U. A21-2023-2 and A21-2023-3

Excavation Unit A21-2023-2 was opened to continue exposing the terminal construction phase in hopes of locating the building's central stair. This unit measured 2 m N/S by 5 m E/W and only consisted of one lot, Lot A21-2023-2-1. We excavated through approximately 20 cm of earth before locating the northern stair-side of the building's central stair. It appeared as if the building was constructed directly on top of bedrock, which was likely filled in to be a level surface. The artifacts that were recorded in this unit include pottery, chert, and obsidian materials. After documenting the architecture, we closed this unit. Excavation Unit A21-2023-3 was opened to explore the stair-side southward to identify if the stair was in good enough preservation to excavate further. This unit measured 2 m N/S by 2.6 m E/W and was positioned abutting E.U. A21-2023-2 to the south. This unit was closed soon after it opened as we were able to expose the bottom step and the bedrock, ~6 cm below the surface.



Figure 13: Site map close-up showing location of E.U. A21-2023-1, A21-2023-2, A21-2023-3, and A21-2023-4.

E.U. A21-2023-4

Excavation Unit A21-2023-4 was positioned abutting E.U. A21-2023-3 to the south. We established this unit to continue following the exposed bottom step southward. This unit measured 6.5 m N/S by 2.5 m E/W and contained three Lots. Lot A21-2023-4-1 was designated for the excavations occurring in the humic and collapse layers and was closed when we exposed the surface of the terminal stair. Lot A21-2023-4-2 served as a test unit measuring 25 cm N/S by 50 cm E/W. This lot was opened to investigate the context below the terminal stairs. Lot A21-2023-4-2 was situated in the center of the building's central stair for the best chance of capturing the construction sequence. After excavating through the terminal phase architecture, we discovered the edge of a low (7 cm tall) plastered platform (Figure 14). Lot A21-2023-4-2 was closed after documenting the platform edge. Lot A21-2023-4-3 was opened to excavate beneath the penultimate platform identified in the previous lot. These excavations revealed that the platform was constructed directly on top of bedrock, ~7 cm below the platform surface. No artifacts were recorded in this lot except a charcoal sample. This lot and unit were closed when we reached the bedrock.



Figure 14: North profile of E.U. A21-2023-4.

DISCUSSION & CONCLUSIONS

The 2023 excavations have started to help to answer questions about the Group A occupation history, use/function of buildings, and the evolution of architectural scale. Artifact analysis and radiocarbon dating results are forthcoming however, the tentative results discussed above provide important insights on the construction history of Xunantunich. Previous work at the site suggested that the Xunantunich ceremonial core, Group A, was initially constructed during the Late Classic around AD 600 and saw political decline and collapse by the Terminal Classic period, AD 900/1000 (LeCount et al. 2002; LeCount and Yaeger 2010b; Leventhal and Ashmore 2004). This interpretation primarily stems from the data recorded by XAP during the excavation of Ballcourts I &II, El Castillo, Plaza A-III, Structure A1, and *Sacbeob* I and II, which demonstrated a strong Late-Terminal Classic occupation through the pottery assemblages and the limited but grand construction episodes (see LeCount 1996; Leventhal et al. 2010). The 2023 efforts by XACP have greatly expanded on those foundational studies, having identified several buildings which

exhibit multiple phases of construction throughout the occupation of Group A, namely Structures A4 (≥ 2 phases), A7 (≥ 4 phases), A21 (≥ 2 phases), Plaza A-II (≥ 5 phases) and A-III (≥ 4 phases). The temporal associations of these constructions will be clarified in Watkins' forthcoming Ph.D. Dissertation however, these construction strata have demonstrated that Group A saw progressive architectural development at several buildings and plazas rather than rapid, single-phase assembly.

The practice of relocating monuments was not uncommon. Many examples of this activity have been observed at major centers such as Caracol (see Helmke and Awe 2016a, 2016b), Naachtun (Morton et al. 2019), and Piedras Negras (Satterthwaite 1958) to name a few. However, examples of interred or cached Stelae are less common, the most noted examples being Stela 31 at Tikal (Martin and Grube 2000:36) and Stela 63 at Copan (Fash et al. 1992:108; Fash 2001:89). In the Belize Valley, an example of stela caching was documented at the Zopilote group of Cahal Pech, involving a Preclassic stela (Stela 9) which had been interred in a vaulted tomb (Tomb 2) in Structure A-1(Cheetham 2004:135-136). The act of exhuming, relocating, and interring a stela is no small feat, the monuments can weigh several tons and interment process could subject the monument to significant damage due to the relatively soft nature of limestone and the delicate manner of the plastered surfaces. At Xunantunich, a unique example of monument interment was documented at Structure A4. Altar 6 and Stela 13 were likely discovered in their primary context due to their alignment and proximity however, the upper half of Stela 13 was removed to build A4-Prime. The accompaniment of an altar arranged in front of a stela in direct association with a building is a typical formation observed in the Petén at centers such as Dos Pilas, Naachtun, Nakum, Tikal, and Yaxha, among others. Examples of this particular altar-stela arrangement are present at ceremonial centers outside the Petén region (e.g., Caracol and Copan), although it is less common. Stelae 11 and 12 were likely found in a secondary context, although Stela 11 was positioned upright and aligned with Altar 6 and Stela 13. We suggest Stela 11 was not in its original place as it was not buried very deep (~20 cm) and seemed to have been propped up by a wedged boulder. Stela 12 was laid facedown partially on top of Altar 6 and, as such, must have been moved there from its standing position. It is possible that Stelae 11 & 12 were at one point placed upright in front of A4-Sub 1 but were moved in antiquity to accommodate the construction of A4-prime. The burial of four monuments within the terminal construction phase at Structure A4 speaks to two practices, the relocation of monuments for a new or altered ceremonial reason (Satterthwaite 1958) and the meaningful distribution of fragmented materials (Morton et al. 2019).

The monuments interred at Structure A4 contribute to the veneratory significance of the building. Prior research by the TDP documented two formal burials within the building's construction, A4-BU 1, which consisted of the non-local woman and child accompanied by three crania (Audet 2006; Freiwald 2011), and A4-BU 2, which consisted of an adult male (likely an early ruler) who was adorned with jade jewelry and buried with chert and obsidian eccentrics (Audet 2006; Freiwald 2011). The act of burying monuments in proximity to an associated individual may be interpreted as an act of power transferal or consolidation by the individual's successor as Classic Maya monuments, such as Stela and Altars, serve to commemorate political, ideological, and military events typically in reference to an individual ruler's achievements (Just 2005:70 see also Fash 2001; Fash et al. 1992; Martin and Grube 2008:36). It is possible that the interment of the four monuments coincided with that of Burial 2, and both were sealed with the new construction of A4-Prime in honor of both the new construction episode and individual from A4-BU 2—however, this requires additional analysis of the A4-BU 2 remains.
Additional excavations at Group A will likely provide added examples of multi-phase construction, which will shift ideologies about the center from one as an outlier of rapid construction to one akin in development to other polities in the Belize Valley and the Petén regions. Future analysis of pottery and radiocarbon data (found at the buildings discussed above) will provide an in-depth evaluation of the timing of these construction phases and the socio-political implications of monumental construction across the Xunantunich ceremonial core and how that development fits within the regional patterns of polity progression.

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Lot	Artifact Class	SF Number	Description
A4-2023-1-3	Ce	A4-2023-001	Spindle Whorl Fragment
A4-2023-1-4	Ce	A4-2023-002	Cache A4-2023-01, Molino Black Vessels
A7-2023-1-1	Ch	A7-2023-001	Biface
A7-2023-1-1	Ch	A7-2023-002	Biface
A7-2023-1-4	Ce	A7-2023-003	Figurine Face (Savannah Orange)
A10-2023-1-1	Ch	A10-2023-001	Biface Fragment
A12-2023-1-1	Sh	A12-2023-001	Marine Shell Pendant
A12-2023-1-9	Sh	A12-2023-002	Spindle Whorl (Sierra Red)

APPENDIX A: SPECIAL FINDS INVENTORY

THE SEVENTH SEASON OF THE XUNANTUNICH ARCHAEOLOGICAL AND CONSERVATION PROJECT (XACP): A REPORT OF THE 2023 EXCAVATIONS AT GROUP B

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INTRODUCTION

The 2023 excavations in Group B at Xunantunich were part of an ongoing investigation by BVAR and XACP to understand the chronology of its occupation and abandonment, as well as the identity and ritual behavior of the inhabitants. Group B is located approximately 130 m west of the Xunantunich site core, and it served as an elite residential complex. Most of the recent BVAR/XACP research in this group was aimed at documenting the extensive Terminal Classic period (AD 750-900) peri-abandonment deposits (Alvarado et al. 2018; Ebert et al. 2020; Messinger et al. 2019; Sullivan et al. 2017) and reconstructing the terminal phase architecture for tourism (Messinger et al. 2023). The 2023 excavations continued these endeavors by exposing more of the terminal phase of Courtyard 3, conducting vertical excavations into the Structure B5 Alleyway, and through vertical excavations into Structure B1. For a full account of previous archaeological investigations at Group B, the reader is referred to Messinger and colleagues (2023). All excavation methods followed BVAR procedures (Davis et al. 2024). The primary research questions for 2023 excavations were:

- 1) What is the nature of revisitation during and after the abandonment of Group B?
- 2) What is the construction history of the alleyway between Structures B5A and B5B?
- 3) What is the spatial extent of Thompson's (1942) excavation unit in Structure B1?

The Belize Valley Archaeological Reconnaissance Project: A Report of the 2023 Field Season, edited by J. Britt Davis, John P. Walden, Tia B. Watkins, Claire E. Ebert, Julie A. Hoggarth & Jaime J. Awe, Volume 26, pp. 139-150. Department of Anthropology, Northern Arizona University, Flagstaff, AZ. © 2024

EXCAVATIONS

Courtyard B3 West

In Summer 2023, the Western and Northern portions of Courtyard B3W were chosen for additional excavations to further explore the nature of revisitation during and after abandonment of the site. The initial findings of an extensive peri-abandonment deposit (CTB3-2019-1, B9-2019-6) in 2019 by Ebert and colleagues (2020) and the continued exploration of the extent of this deposit (CTB3W-2022-1, CTB3W-2022-2, and B5-2022-2) led by G. Saldaña and E. Messinger (2023) highlighted the potential of further excavation in this area. Based on these previous findings, three units (CTB3W-2023-1, CTB3W-2023-2, and CTB3W-2023-3) were opened to continue learning about the period of abandonment at Xunantunich through peri- and post-abandonment deposits of artifacts. CTB3W-2023-1 and CTB3W-2023-2 were placed in Courtyard B3W, while CTB3W-2023-3 was placed in the courtyard area north of the sweatbath, located in Plaza 2.

CTB3W-2023-1

Unit CTB3W-2023-1 is a continuation of Unit CTB3W-2022-1 (Messinger et al. 2023) in the Western portion of Courtyard B3 and measured 3 m x 4 m. This unit was located south of the east-west running wall, directly east of the easternmost wall of structure B5 (Figures 1 and 2). The purpose of this excavation unit was to continue exploring the extent of the east-west wall and the nature of peri- and post-abandonment revisitation evident in the stratigraphic layers of the east wall of B5. New 2023 excavations began at Level 2 (CTB3W-2023-1-2). Artifacts recovered from this lot include ceramics, lithic debitage, obsidian, freshwater shell, worked shell, and one human tooth. Nine charcoal samples were collected from this level, including RC-CTB3W-2023-1-2 (Lot 2) at 137 cmbd, RC-CTB3W-2023-2 (Lot 2) at 95 cmbd, RC-CTB3W-2023-4 (Lot 2) at 87 cmbd, RC-CTB3W-2023-5 (Lot 2) at 88.5 cmbd, RC-CTB3W-2023-6 (Lot 2) at 99 cmbd, RC-CTB3W-2023-7 (Lot 2) at 72.4 cmbd, RC-CTB3W-2023-8 (Lot 2) at 91.8 cmbd, RC-CTB3W-2023-9 (Lot 2) at 33cmbd, and RC-CTB3W-2023-10 (Lot 3) at 112 cmbd (Table 2). Seven special finds were found in Level 2 including four ceramic figurine fragments (SF#CTB3W-2023-008, SF#CTB3W-2023-0012, and SF#CTB3W-2023-013), a bone tool (SF#CTB3W-2023-016), and a chert biface (SF#CTB3W-2023-022).

Excavations resumed below floor 2, into Level 3 (CTB3W-2023-1-3). Excavations continued until the entire layer was brought down to bedrock. Artifacts recovered from this lot include ceramics, lithic debitage, obsidian, freshwater shell, worked shell, marine shell, stucco, slate, and quartz. Four special finds were found in Level 3 including a ceramic cup (SF# CTB3W-2023-018), a chert drill (SF# CTB3W-2023-019), and a shell bead (SF# CTB3W-2023-021). Of particular note, excavations in the northwest corner of the unit uncovered an obsidian eccentric (SF# CTB3W-2023-020), which is the first eccentric found in Group B (Jaime Awe, Personal Communication). A small post-hole-shaped feature (Feature 1), measuring 20 cm in diameter and 15 cm in depth, was located in the southern portion of the unit. A single charcoal sample was collected from this level, RC-CTB3W-2023-10 (Lot 3), at 112 cmbd.



Figure 1: Unit CTB3W-2023-1 west profile with Str. B5 atop (photo by J. B. Davis)



Figure 2: Unit CTB3W-2023-1 south profile (by E. R. Messinger and J. B. Davis)

CTB3W-2023-2

Unit CTB3W-2023-2 (Alley) is a continuation effort placed directly south of the southernmost wall of Structure B9 to continue exploring the extent of peri-abandonment deposits found by previous excavations (CTB3-2019-1, B9-2019-6, and CTB3W-2022-2). This unit measured 5 x 5 m and was situated east of the easternmost wall of Structure B5, south of the southern wall of Structure B9, and north of the east-west running wall in the middle of Courtyard B3W. After exposing the layer of backfill from the 2022 excavations (Messinger et al. 2023), excavations continued to expose the layer of collapse above bedrock, most likely from the north wall. New 2023 excavations began at Level 1 (CTB3W-2023-2-1). Artifacts recovered from this lot include ceramics, lithic, and faunal artifacts, including four special finds, an ocarina fragment (SF# CTB3W-2023-001), a chert biface fragment (SF# CTB3W-2023-002), a mano fragment (SF# CTB3W-2023-003), and a worked shell piece (SF# CTB3W2023-004) (Table 1).

Excavations resumed into collapse above bedrock, Level 2 (CTB3W-2023-2-2). Modified bedrock was initially discovered towards the west side of the alleyway, and excavators worked to fully expose the drainage system previously found in 2019 excavations by Ebert and colleagues (2020). Artifacts recovered from this lot include ceramics, lithic debitage, faunal remains, and obsidian. One charcoal sample was collected from this level, RC-CTB3W-2023-3 (Lot 2) at 134 cmbd (Table 2). Six special finds were found in Level 3, an incense burner piece (SF# CTB3W-2023-005), a hammer stone (SF# CTB3W-2023-006), a worked shell (SF# CTB3W-2023-007), part of stone biface (SF# CTB3W-2023-010), large stone biface (SF# CTB3W-2023-011), and a ceramic "horn" fragment (SF# CTB3W-2023-014).

CTB3W-2023-3

Unit CTB3W-2023-3 was initiated to expose the location of the possible west wall within structure B5. Excavations began with CTB3W-2023-3-1 after removing a large tree and humic layer encompassing the area. Artifacts recovered from this lot include ceramics, lithic debitage, and obsidian. No charcoal samples or special finds were recovered during this lot.

Excavations resumed in the collapse layer of the unit with CTB3W2023-3-2. We concluded with the exposure of the northern face of the western wall in the area of structure B5. Artifacts recovered from this lot include ceramics, lithic debitage, faunal, obsidian, and freshwater shells. Two special finds were found in level 2, a chert biface (SF# CTB3W-2023-015) and a partial mano (SF# CTB3W-2023-017).

Structure B5 Alleyway

A single unit was opened in the B5 Alleyway to continue investigations from the 2022 field season (B5-2022-2; Messinger et al. 2023). Excavation Unit GRB-2023-2, measuring 1.1 x 3.2 m, was placed in the alleyway to the south of the sweat bath (Figures 3 and 4). The first level removed from the alley consisted of backfill from the 2022 excavations and was not sifted for artifacts. The second level excavated through the exposed plaster floor surface and continued to bedrock, approximately 14 cm down. The bedrock surface sloped downward on the northern side of the unit. No artifacts were collected from the first level. Artifact classes in the second level included



Figure 3: Unit GRB-2023-2 (Structure B5 Alleyway) facing east. Photo by J. B. Davis.



Figure 4: Unit GRB-2023-B (Structure B5 Alleyway) South and West Profiles (by E. R. Messinger and J. B. Davis).

ceramic sherds, chert, and one human phalanx bone. One radiocarbon sample, RC-GRB-2023-2-1, was collected from the western end of the unit. No special finds were collected from this layer.

Structure B1

Structure B1 is the Eastern shrine of the Group B complex. During the 2023 season, one excavation unit (GRB-2023-1) was placed in the Eastern shrine to uncover the depth and spatial extent of Sir J. Eric S. Thompson's excavation unit from the 1930s (Thompson 1942). Unit GRB-2023-1 measured 2 x 2 m and was placed in the center of the exposed interior terminal floor (Floor 1) (Figures 5 and 6). Beneath the terminal floor (Lot GRB-2023-1-1) in the NW corner of the unit, excavations revealed a ~10 cm N/S x 110 cm E/W cut containing a metal candy wrapper (probable chewing gum wrapper) and two torn corners of a modern tarp. This cut is very straight, and it appears to be the corner of a recent undocumented excavation unit. Lot GRB-2023-1-1 was completed when a floor (Floor 2) was in the western half of the unit. The floor did not extend into the eastern 90 cm of the unit, where an ovoid cut in the plaster floor was encountered. Excavations continued (Lot GRB-2023-1-2) into the cut area to determine the depth and extent of the cut. The western baulk of the lot revealed that three floors had been cut through (Floors 1-3).



Figure 5: Unit GRB-2023-1 (Str. B1) facing south (photo by J. B. Davis).



Figure 6: Unit GRB-2023-1 (Str. B1) west profile (by E. R. Messinger and J. B. Davis).

Four large cut stones trending N/S were located \sim 130 cmbd. Many pieces of slate debitage were recovered from around the stones. Beneath the stones, a poorly preserved floor (Floor 4) was encountered. Given the general lack of material remains in the hole – especially diagnostic ceramics – we believe this cut through three floors represents backfill from a previous unit that was excavated with shovels. The eastern baulk of the unit perfectly aligned with the remnants of a stone wall, which likely served as the eastern baulk for Thompson's supposed unit.

Excavations resumed in the western 110cm of the unit (Lot GRB-2023-1-3) for ~13cm where a Floor 3 was encountered across the western portion of the unit. The undocumented excavation unit did not penetrate Floor 3. Notable finds within this lot included a marine shell bead as well as a chert biface. Excavations continued below Floor 3 (GRB-2023-1-4) ~30 cm until Floor 4 was encountered. The entire unit was now brought down to Floor 4. Notable finds within this lot included a fossilized imprint of what appears to be a sea scallop. Excavations resumed across the entire unit (GRB-2023-1-5) until bedrock was reached. An abundance of Middle Preclassic sherds (i.e., Savana and Jocote types) were recovered from the fill above bedrock. Since no Middle Preclassic sherds were used to level off the undulating bedrock before the first floor (Floor 4) was created during the Classic Period. Three charcoal samples were collected from this level including RC-GRB-2023-1-2 (Lot 5) at 162 cmbd, RC-GRB-2023-1-3 (Lot 5) at 157 cmbd, and RC-GRB-2023-1-4 (Lot 5) at 181 cmbd.

DISCUSSION AND CONCLUSIONS

The continued excavations of Courtyard 3 revealed a paucity of peri-abandonment deposits, but there is evidence that the courtyard was likely raised with midden fill. Late Classic Period material remains were found throughout the excavation of Unit CTB3W-2023-1, which

suggests that the courtyard was raised near the end of its occupation. Of note, the foundation of Structure B5A sits atop this raised courtyard, which likely indicates a late building episode. Surprisingly, we did not encounter a peri-abandonment deposit in the northwest corner of the unit, where we would expect one to be. Instead, an obsidian eccentric was located, which is the first eccentric ever to be found in Group B. Excavations in the B5 Alleyway revealed that only one floor was ever placed, which also suggests a late construction date.

New excavations into Structure B1 revealed that Thompson (1942) only excavated into the eastern portion of the structure, leaving the terminal and previous floors intact. These excavations also revealed a previously unknown excavation unit in the northwest of Structure B1. Based on the abundance of Middle Preclassic sherds found in the fill above bedrock, yet only Classic period sherds above the first floor, it is likely that a nearby Middle Preclassic midden was used to level out the bedrock before a Classic Period construction of Structure B1.

Continued excavations into Group B answered our research questions pertaining to the construction history of the B5 Alleyway and revealed the extent and depth of Thompson's (1942) unit from the 1930s. New questions were encountered as it dawned on us that Structure B5A, and likely B5B, sits atop a raised courtyard composed of Late Classic fill materials. It is interesting that the sweatbath orientation was changed after the construction of Structure B5A, which likely happened shortly before the site was abandoned, or perhaps by remnant populations sometime later.

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APPENDIX A: GROUP B 2023 SPECIAL FINDS

Operation	Str/Area	EU	LVL	Lot	SF#	Description
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	1	CTB3W-2023-2-1	CTB3W-2023-001	Ocarina
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	1	CTB3W-2023-2-1	CTB3W-2023-002	Chert Biface Fragment
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	1	CTB3W-2023-2-1	CTB3W-2023-003	Mano Fragment
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	1	CTB3W-2023-2-1	CTB3W-2023-004	Worked Shell
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-005	Incense Burner Pieces
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-006	Hammer Stone
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-007	Worked Shell
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-008	Face Figurine (Hallow)
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-009	Ceramic Figurine Fragment
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-010	Part of Stone Biface
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-011	Large Stone Biface
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-012	Part of Ceramic
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-013	Piece of Figurine
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-014	Ceramic "Horn"
CTB3W-2023	Group B CTB3W	CTB3W-2023-3	2	CTB3W-2023-3-2	CTB3W-2023-015	Chert Biface
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-016	Bone (faunal?)
CTB3W-2023	Group B CTB3W	CTB3W-2023-3	2	CTB3W-2023-3-2	CTB3W-2023-017	Partial Mano
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-018	Ceramic Cup
GB-2023	Group B CTB3W	CTB3W-2023-1	3	CTB3W-2023-1-3	CTB3W-2023-019	Chert Drills
GB-2023	Group B CTB3W	CTB3W-2023-1	3	CTB3W-2023-1-3	CTB3W-2023-020	Chert Eccentric
GB-2023	Group B CTB3W	CTB3W-2023-1	3	CTB3W-2023-1-3	CTB3W-2023-021	Shell bead
GB-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-022	Chert Biface
GRB-2023	B5 Alley	GRB-2023-2	1	GRB-2023-2-1	GRB-2023-2-1	Marine Shell Bead
GRB-2023	B5 Alley	GRB-2023-2	1	GRB-2023-2-1	GRB-2023-2-2	Marine Shell Bead
GRB-2023	B5 Alley	GRB-2023-2	1	GRB-2023-2-1	GRB-2023-2-3	Marine Shell Bead
GRB-2023	Group B B1	GRB-2023-1	2	GRB-2023-1-2	GRB-2023-1-1	Obsidian Disk
GRB-2023	Group B B1	GRB-2023-1	2	GRB-2023-1-2	GRB-2023-1-2	Human Bone Fragment
GRB-2023	Group B B1	GRB-2023-1	2	GRB-2023-1-2	GRB-2023-1-3	Marine Shell Bead
GRB-2023	Group B B1	GRB-2023-1	3	GRB-2023-1-3	GRB-2023-1-4	Shell Bead
GRB-2023	Group B B1	GRB-2023-1	3	GRB-2023-1-3	GRB-2023-1-5	Chert Biface

APPENDIX B: GROUP B 2023 CHARCOAL SAMPLES

Ор	Str	EU	LVL	Lot	Sample	Provenience
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-1	137 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-2	95 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-2	2	CTB3W-2023-2-2	CTB3W-2023-RC-3	134 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-4	87 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-5	8.5 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-6	99 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-7	72.4 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	2	CTB3W-2023-1-2	CTB3W-2023-RC-8	91.8 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	3	CTB3W-2023-1-2	CTB3W-2023-RC-9	133 cmbd
CTB3W-2023	Group B CTB3W	CTB3W-2023-1	3	CTB3W-2023-1-3	CTB3W-2023-RC-10	112 cmbd
GRB-2023	B5 Alley	GRB-2023-2	2	GRB-2023-1-2	RC-GRB-2023-2-1	? cmbd
GRB-2023	Group B B1	GRB-2023-1	2	GRB-2023-1-2	RC-GRB-2023-1-1	? cmbd
GRB-2023	Group B B1	GRB-2023-1	4	GRB-2023-1-5	RC-GRB-2023-1-2	162 cmbd
GRB-2023	Group B B1	GRB-2023-1	4	GRB-2023-1-5	RC-GRB-2023-1-3	157 cmbd
GRB-2023	Group B B1	GRB-2023-1	4	GRB-2023-1-5	RC-GRB-2023-1-4	181 cmbd

CAVE-DWELLING ANIMALS OF XIBALBA: ARCHAEOLOGICAL FINDINGS FROM THE 2023 FIELD SEASON

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INTRODUCTION

Caves are among the most sacred landscapes in the Mundo Maya (Brady et al. 2005; Prufer et al. 2021). They tunnel through and beneath mountains and often contain water—the most essential cosmological element of the Maya universe, the ultimate symbol of fertility. Perhaps most importantly, caves represent entry portals to the Maya Underworld, or Xibalba—the K'iche' Maya word for "Place of Fright" (see Christenson and Frauke 2021). The animals associated with caves are highly revered by the Maya and have been woven into their cosmological worldview and religious ideology (Brady et al. 2016; Tozzer et al. 1910). Caves themselves are believed to be living entities, primordial reptilian beasts with yawning maws flanked by spiky canines that swallow up those brave enough to enter (Brady 2005; Brady et al. 2016; Griffith 2005).

Caves across the Maya landscape house archaeological evidence associated with Xibalba (Awe 1997, 1998, 2007; Brady 1997; Moyes 1998, 2002, 2009; McAnany 2002). However, examinations of ancient human activity relevant to wildlife worship have been limited, as has cross-disciplinary research that incorporates contemporary ecological studies of cave-dwelling animal species. The Cave-Dwelling Animals of Xibalba (CAX) Project is an interdisciplinary project guided by both biological and archaeological research objectives. The long-term archaeological goals aim to assess how modern animal activity in caves corresponds to ancient Maya iconography and zooarchaeological information associated with caves. The archaeological component of this project was executed by employing non-invasive techniques to further catalog animal iconography in caves (e.g., cave modifications, rock art, painted ceramics, etc.). Additionally, we aimed to identify all artifacts encountered on the surface and interpret cave modifications such as architecture and modified speleothems, regardless of whether these features depicted cave-dwelling animals.

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This report provides a summary of the archaeological findings documented during the 2023 cave surveys—focusing both on animal iconography and all material culture encountered. Results from the wildlife component of this study will be chronicled in a separate report and subsequent peer-reviewed publications. As the 2023 season represented the first phase of this project, our efforts did not involve an in-depth analysis of the artifacts/features documented in the caves, although pottery types were identified, and lithic tools were noted. Artifacts discussed herein will require further assessment to provide a comprehensive overview of regional Maya cave use.

METHODS

The field survey was conducted from June 15 to July 31, 2023. A total of 13 caves and one rock shelter were surveyed in Monkey Bay National Park, Actun Tunichil Muknal Archaeological Reserve, and Runaway Creek Nature Reserve in central Belize (Figure 1). Methods of archaeological survey and reconnaissance involved digital documentation and photogrammetry to obtain high-resolution images for further analysis. We documented all ceramics, lithics, artifact assemblages, cave modifications (including modified speleothems and architecture), pictographs, and faunal remains. Imagery was captured using a Nikon D5600 and a Nikon SB-800 Speedlight Flash. Additionally, photogrammetry was used to capture 3D images of potential animal iconography. We rendered the 3D models using Polycam and Metashape Pro. Ceramics and lithics were typed via image analysis.



Figure 1: Project area map featuring Monkey Bay National Park (center), Runaway Creek Nature Reserve (right), and Actun Tunichil Muknal Archaeological Reserve (left), Belize.

RESULTS

Herein, we provide details on petroglyphs, pictographs, and speleothems that were likely modified in antiquity and appear to resemble various animal species associated with the Maya underworld. Importantly, analysis of ceramics provided chronological data suggesting these caves were in use during the Late and Terminal Classic Periods. These reports describe preliminary investigations in all three project areas; several caves omitted from this report have yet to be surveyed, and those surveyed during the 2023 field season will require further examination.

Monkey Bay National Park

Monkey Bay National Park (MBNP) is a 2,250-acre public protected area located in the Maya Forest Corridor in central Belize. The park is co-managed by Monkey Bay Wildlife Sanctuary (a non-governmental organization) and the Belize Forest Department. Access to the park was facilitated by Monkey Bay Wildlife Sanctuary. The area is characterized by the Sibun River, which runs through its center, and tropical, seasonal broad-leaved lowland forest with sandy soils to the south and scrub forest and savanna to the north. The Monkey Bay region has 27 known caves, 16 of which have been formally investigated (Figure 2). Previous archaeological research in this national park and the broader Sibun River Valley is extensive and has involved an explicit focus on the ancient and historic use of caves (McAnany 2002; Harrison-Buck 2012). MBNP caves contain numerous archaeological materials, including pottery (fragmented and whole), faunal remains, groundstone tools, chert tools and debitage, obsidian blades, and wooden objects (Batty Cave, Gann 1929:244-246; Actun Polbilche, Malone 1971; Pendergast 1974; Sandy Bay Cave, McAnany 1998:38; Gracy Rock Hill Cave, Marochov and Williams 1992). In addition to cultural remains, cave modifications-including remains of architecture and modified speleothems-have been documented at several caves in Monkey Bay, including Actun Ik, Actun Ibach, Glenwood Cave, Pine Torch Rockshelter, Actun Yax Tun, Shoe Pot Cave, Ek' Waynal, Metate Cave, Pottery Cave, and Chrissy's Crawl Through (McAnany 1999, 2002; Peterson 2002; see also Kenward 2002).

We examined 13 caves and one rock shelter in MBNP. The immediate area encompassing the caves is ecologically diverse, supporting a dense lowland broadleaf forest nestled within expansive limestone outcrops. Of the 13 caves identified, Faces Cave and Old Man Cave were not surveyed due to lack of accessibility and timing. Three caves (Single Ledge Cave, Snaggletooth Cave, and Gibnut Cave) were surveyed but did not contain artifactual remains indicative of ancient Maya cave use; thus, these features were omitted from this report. However, more intensive surveys and/or excavation may reveal evidence of use by the ancient Maya. Eight caves and one rock shelter did contain archaeological materials. These include First Cave, Serpent Cave, Conch Cave, Three Ledges Cave, Single Pot Cave, Four Pot Cave, Jaguar Paw Cave, Altar Cave, and Rockshelter 1. Three Ledges Cave, Snaggletooth Cave, Jaguar Paw Cave, Gibnut Cave, Old Man Cave, and Rock Shelter 1 are situated at the base of limestone outcrops and are semi-wet caves. The features situated at higher elevations are primarily dry caves (i.e., First Cave, Serpent Cave, Conch Cave, Faces Cave, Single Pot Cave, Single Ledge Cave, Four Pot Cave, and Altar Cave), although calcified waterlines were observed in Four Pot and Altar Cave, suggesting they both experienced flooding. Most of the archaeological materials documented in the MBNP caves were associated with the Late Classic (AD 600-800) and Terminal Classic (AD 800-900) periods.

Rockshelter 1

Rockshelter 1 is a small feature situated 333 m south of the Sibun River. The entrance is approximately 2 m high and 1.5 m wide, with a linear depth of approximately 2 m. The only archaeological materials documented within the rockshelter were five chert flakes.

First Cave

First Cave is a small, dry, single-passage cave located 1.6 km south of the Sibun River. The cave entrance measures 1.5 m high by 8 m wide. The cave contains one dry-laid stone feature consisting of stacked limestone rocks/boulders, designated Feature 1. It measures approximately 8 m long by 1 m tall. No observable pattern was identified in the stacked rocks that might imply a construction strategy. The pile may have impacted access into the cave as it connects to another pile of limestone boulders that block a passageway west of the cave entrance. Six pottery sherds were documented throughout the cave. Only one diagnostic rim sherd was documented and subsequently identified as Sibun Red (AD 780-930; Harrison-Buck 2023). Two broken speleothem fragments were adjacent to a group of sherds on the west wall near the entrance of the cave, possibly cached. Wrapping around the entrance of the cave were three shallow recessions containing five jute snail shells, which were subsequently identified as five individual species types via image interpretation (Grego personal correspondence). Some of the jute in these recessions had the tips broken (spire lopped) or the bodies punctured, potentially indicating human consumption (Biggie et al. 2023). Alternatively, these marks may be signs of natural predators, which demonstrate similar tactics of consumption.



Figure 2: Jute shells located at the entrance of First Cave, Monkey Bay National Park.

Serpent Cave

Serpent Cave is a dry, multi-passage cave with one rear chamber. It is located 2.2 km south of the Sibun River. The entrance opens northward and measures 3 m high by 1.5 m wide. The name of the cave is derived from a possible modified speleothem near the entrance that resembles a serpent with an open mouth (Figure 3a). A modified stalactite representing a cave maw- a symbol that connotes the entrance of the cave as the mouth of a giant reptile--hangs above the cave opening (Griffith et al 2005). Below this stalactite, a simple petroglyph face was pecked into the surface of a stalagmite, a form of speleothem modification often referred to as a "Cave Guardian" (Griffith et al 2005). Near the entrance, we documented 15 *jute* shells, with some shells exhibiting signs of spire lopping, and 15 pottery sherds. One artifact cluster was found within the cave in a small lower chamber towards the terminus of the cave, containing approximately six sherds. Ceramic sherds were scattered throughout the main passage but were unidentifiable.



Figure 3: Serpent Cave, Monkey Bay National Park. A) Modified stalactite resembling a serpent with an open mouth documented at the entrance of Serpent Cave. B): Feature 2, a modified stalactite resembling a cave maw, and Feature 3, a modified stalagmite representing a cave guardian.

Conch Cave

Conch Cave is a small, dry, single passage feature with one rear chamber located 2.1 km south of the Sibun River. The entrance measures 0.8 meters high and one meter wide and faces southward. The cave is named for the single conch shell located in a small chamber towards the terminus of the cave. Conch Cave contains one rock pile feature (Feature 1) near the entrance partially obstructing ingress. Feature 1 measures 30 cm tall by 50 cm long and is constructed of limestone boulders. Two artifact clusters were documented. Conch Cave Artifact Cluster 1 (CCAC1) containing 12 pottery sherds was located near the entrance. Conch Cave Artifact Cluster 2 (CCAC2) resided in the rear chamber and contained the conch shell (*Aliger* sp.) and 30 pottery sherds (Figure 4). Notably, the park rangers relocated a small, intact ceramic pinch-pot from the surface and placed it with CCAC2 (see Figure 4).



Figure 4: Conch Cave, Monkey Bay National Park. CCAC2, containing sherds from a large olla and a conch shell. The small vessel was placed within the assemblage by park rangers.

Three Ledges Cave

Three Ledges Cave is a mid-sized, wet cave with an unknown number of passages; some were obviously flooded during our survey. The cave is located about 54 m south of Serpent Cave and 2.5 km south of the Sibun River. The entrance is oriented north and measures 3 m high by 10 m wide. Its name was derived from the three distinct and naturally formed ledges near the cave entrance. Only one pottery sherd was recorded but was unidentified.

Single Pot Cave

Single Pot Cave is a mid-sized, dry, multi-passage cave with three known chambers. The feature is approximately 150 m southwest of Three Ledges Cave and 2.5 km south of the Sibun River. The entrance is low clearance, approximately 50 cm high by 50 cm wide. Near the entrance of the cave, we noted a partially buried base of a Macal Orange-Red drum (ca. AD 600-700; Gifford 1976). The cave is named for the singular vessel placed in the first chamber (Figure 5). The olla is complete and identified to be of the Sibun Red Neck variety (AD 780-930; Harrison-Buck 2023). Opposite of the main entrance, a dry-laid stone wall composed of stacked boulders blocks access to a passageway (Peterson 2002). A possible cave modification in the form of a crescent "trail marker" was documented in the main chamber above the olla.



Figure 5: Single Pot Cave, Monkey Bay National Park. Sibun Red-Neck Jar encountered in the first chamber.

Four Pot Cave

Four Pot Cave is a small, dry, single-passage cave with at least one rear chamber. Located 120 m west of Single Pot Cave and 2.5 km south of the Sibun River, the entrance is oriented southwest and is narrow, 30 cm high by 50 cm wide. We encountered four clusters of artifacts in this feature. Four Pot Artifact Cluster 1 (FPAC1) included four large jars: Cayo Unslipped (n=3) and Sibun Red Neck (n=1) types were identified (AD 780-930; Harrison-Buck 2023) (Figure 6). These vessels are the namesake of the cave. FPAC1 is stationed along the west wall of the main passage, leading into a small passageway marked by a modified speleothem, likely representing the teeth of the cave maw, that adorns the roof of the small passage (Figure 6b). Notably, three of the ollas were reversed, and one was upright, leaning on one side, facing into a small chamber. The vessel closest to the passageway was intact and may have been burnt. In contrast, the other three vessels displayed signs of being burnt and each are cracked or slightly incomplete. Four Pot Artifact Cluster 2 (FPAC2) is comprised of two pottery sherds located on the east wall leading into a small passageway (which was not explored by the team). Four Pot Artifact Cluster 3 (FPAC3), located on the north side of the main chamber, included eight pottery sherds. Four Pot Artifact Cluster 4 (FPAC4), located on the west wall between the main entrance, included nine pottery sherds.



Figure 6: Four Pot Cave, Monkey Bay National Park. A) FPAC1, showing the four jars *in situ*. B) Speleothem modification of cave maw teeth.

Jaguar Paw Cave

Jaguar Paw Cave is a mid-sized cave with two chambers. The cave is wide and shallow, with a thick layer of damp alluvial soil covering the interior ground surface, indicating that the cave is subject to flooding. It is located about 80 m west of Four Pot Cave and 2.4 km south of the Sibun River. The cave opening is oriented to the south and measures approximately 25 m wide by 3 m tall. This cave was named for the possible petroglyph of a jaguar paw above the entrance on the west side of the cave (Figure 7). The petroglyph measures 60 x 39 cm and appears to have been

carved into the rock. Two ceramic sherds were found on a ledge directly above the main entrance to the cave. No artifacts were noted inside the cave.

Altar Cave

Altar Cave is a large, dry, multi-passage cave located 547 m northwest of Jaguar Paw Cave and 2 km south of the Sibun River. Altar Cave has three entrances: Entrance 1 is oriented west, Entrance 2 is oriented south, and Entrance 3 is also oriented south. Entrance 1 slopes down into a passageway that opens into a large chamber (Chamber 1). Chamber 1 is connected to a small, upper chamber (Chamber 2) that requires climbing to access. Chamber 1 is also connected to two lateral passageways, one leading west and the other north. The westward passage leads to an adjacent chamber (Chamber 3), while the northward passage leads to Entrance 2 and Entrance 3. Entrance 1 is marked by a wall (Feature 1) measuring 1.64 m in length and constructed of limestone cobbles; it is 27 cm tall at the west corner, 60 cm tall at the center, and 41 cm tall at the east corner. We also documented limestone plaster associated with this feature, suggesting the wall may have been plastered in antiquity. A series of small passageways are situated below Entrance 2; however, the research team did not venture into these small passageways.



Figure 7: Jaguar Paw Cave, Monkey Bay National Park. A) 3D Model of the entrance of Jaguar Paw Cave. B) 3D Model of the northwest corner of the entrance of Jaguar Paw Cave. C) 3D Model of proposed jaguar paw petroglyph. D) Possible jaguar paw petroglyph *in situ*.

Dozens of pottery sherds were observed around Entrance 1, Passageway 1, Chamber 2, Chamber 3, and Chamber 4. Several diagnostic sherds were documented in these areas. Two Sibun Red Neck jar fragments (AD 780-930; Harrison-Buck 2023) were documented in a crack adjacent to the entrance of Chamber 2. In Chamber 2, one complete upturned calcified jar was documented. In Chamber 3, another Sibun Red Neck sherd was located on the southwest corner of Altar 1. At Entrance 3, approximately 25 pottery sherds were noted, including Sibun Red Neck and Cayo Unslipped types (AD 780-930; Gifford 1976:276, Harrison-Buck 2023). Additionally, a single fragment of unidentified turtle carapace and approximately 200 jute shells were scattered through a shallow channel adjacent to the entrance. Finally, two pine torches were documented in and near Chamber 3; one was located on top of Altar 1, and another small piece of pine was found in a hearth feature at the doorway of Entrance 3.



Figure 8: Altar Cave, Monkey Bay National Park. A) Jute cluster, Entrance 3. B) Jute cluster, Entrance 3.

Four architectural assemblages were observed in the entirety of the cave, including Feature 1 described above, as well as two hearth features (Features 2 and 3). Feature 2 is located adjacent to the wall collapse from Feature 1 and measures 1.5 x 1.5 m. Feature 3 is a second, smaller hearth feature located outside of Chamber 3, measuring 50 x 50 cm. The first, and most noteworthy, feature in the cave is an altar feature located in Chamber 3, referred to as Altar 1 (Figure 8). This feature is made of a speleothem (likely part of a broken flowstone) and is broken into two halves. Flat stone slabs aid navigation through the break and into Chamber 3. In its entirety, the feature measures 1.1 m high by 3.3 m wide and 1.2 m long. There appear to be foothold grooves leading from Chamber 3 to a higher vantage point above Passageway 1. A stone slab was placed near this proposed path, possibly to aid navigation; this practice has been previously documented in Maya caves in this region (McAnany 2002). A possibly cut stalactite was documented outside Chamber 4. The bottom was jagged and rough, which may indicate that the feature was broken naturally, but we were unable to locate the broken speleothem fragment in the vicinity of the broken stalactite. The practice of breaking and removing speleothems is well-documented and may explain why the broken speleothem was not found (Brady et al. 1997). Finally, Entrance 3 is marked by a doorway that may resemble a giant Cave Maw, adjacent to an entryway west of the feature.



Figure 9: Altar Cave, Monkey Bay National Park. Altar 1 with evidence of burning on the surface. A large Sibun Red neck sherd and pine torch on the altar are highlighted.



Figure 10: Altar Cave, Monkey Bay National Park. Altar 1, Chamber 3.

Monkey Bay National Park Summary

The caves surveyed in Monkey Bay National Park provided substantial evidence of ancient Maya cave use during the Late and Terminal Classic Periods. We found evidence of animal iconography, including a potential modified speleothem resembling a snake extending from the cave ceiling downward, possible modified speleothems in a cave entrance that could represent jaguar canines adjacent to a potential jaguar paw petroglyph, and four proposed cave maws (Table 2). Further analysis of these potentially modified speleothems will be required to interpret these features more accurately (Griffith 2005).

The dominant diagnostic pottery type is Sibun Red Neck, which is characteristic of the Terminal Classic period in the region (AD 780-930; Harrison-Buck 2023). Faunal remains include a conch shell (Aliger sp.) from Conch Cave, an unidentified turtle carapace fragment in Altar Cave, and jute deposits associated with First, Serpent, and Altar caves. Notably, most of the artifacts were observed in high-elevation dry caves. Flooding may explain the relative paucity of artifacts observed in lower-elevation caves.

Modification	First Cave	Serpent Cave	Conch Cave	Three Ledges Cave	Single Pot Cave	Four Pot Cave	Jaguar Paw Cave	Altar Cave
Broken and/or cached speleothem	West Wall	-	-	-	-	-	-	Entrance to Chamber Four
Guardian (pecked pace)	-	East of Entrance	-	-	-	-	-	-
Cave Maw	-	East of Entrance	-	-	East of entrance	Main chamber (teeth)	-	East of Entrance 3
Zoomorph	-	Serpent in Entryway	-	-	-	-	Paw, north wall	-
Navigation markers	-	-	-	-	West wall first chamber above olla	-	-	-

Table 1: Cave Modifications, Monkey Bay National Park.

Actun Tunichil Muknal (ATM) Archaeological Reserve

Actun Tunichil Muknal (ATM) Archaeological Reserve resides in the Roaring Creek Valley, which is situated in the northern foothills of the Maya Mountains and spans approximately 2 km². The contemporary environment is characterized by the Roaring River and tropical, seasonal lowland broadleaf forest and steep karstic hills. The valley is relatively narrow and circumscribed by two precipitous north/south ranges that border the valley to the east and west (Awe et al. 1997). Previous research has been extensive as regional caves contain a variety of archaeological contexts and material remains such as ritual deposits, architectural features, mortuary contexts, and patterns of human-environment interactions (Awe and Helmke 2007; Helmke et al. 2012; Moyes 2002; Moyes and Awe 1998; Wrobel et al. 2017). Throughout the 1990s, the Western Regional Cave Project (1996-1999) conducted several archaeological investigations in the Roaring Creek Valley involving reconnaissance and survey of the following caves and rockshelters: *Actun Nohoch Uinik, Actun Tunichil Muknal* (ATM), *Actun Yaxteel Ahau, Chanchan Ototoch, Saatal Haa Nal,* Tarantula Cave, Twin Caves, *Uayak Na*, and *Zac Niix Tun* (see Awe et al. 1998).

In 1977, the Department of Archaeology launched cave archaeological investigations in this region, during which one large cave was preliminarily investigated and documented as Pancho Carranza Cave (Awe et al. 1997) later renamed Actun Yaxteel Ahau; in this report, we hereafter refer to this cave as "Yaxteel" (Mirro et al. 1999). Yaxteel is a two-entrance stream cave extending 630 m on a NW/SE axis. Investigations from 1998-1999 resulted in the designation of six archaeological significant areas, Ledges One through Six (Figure 8; Halperin 1999; Mirro and Awe 1999; Mirro and Halperin 2000, Owen and Gibbs 1999). Ledges Three and Four were not thoroughly investigated during these initial efforts (Owen and Gibbs 1999). Yaxteel houses artifacts that span from the Early Classic to the Late Classic period (ca. AD 300-800; Mirro and Awe 1999). Early Classic (AD 300-600) ceramic types include Balanza Black, Dos Arroyos Orange Polychrome, Minanha Red, and Pucte Brown (Gifford 1976:161, 173, 156, 167). Late Classic (AD 600-800) ceramics include Cabrito Cream Polychrome, Cayo Unslipped, Garbutt Creek Red, and Roaring Creek Red (Gifford 1976:276, 230, 235; see also Smith and Gifford 1966). Additional artifacts included granite mano and metate fragments, chert tools, crab remains (Callinectes bocourti), jute, and several unidentified faunal bones (Mirro and Halperin 2000). Additionally, Mirro and Halperin (2000:278) identified a pathway connecting the lower and upper ledges in the cave, which they suggest served as a ritual pathway connecting a "preparation area" on the lower ledges to a "performance area" within Ledge Two.



Figure 12. Map of Actun Yaxteel Ahau (Awe and Helmke 1999: Fig. 1).

During the 2023 field season, CAX revisited Yaxteel. The team had initially planned to continue work at the ATM cave as well; however, time did not permit a re-survey of the cave's interior chambers. Our objectives were to verify the artifact assemblages documented by the Western Belize Regional Cave Project (Awe 1998) and to reexamine Ledges One and Two. We intended to relocate artifact assemblages documented in 2000 and expand on their findings by a) digitally documenting previously recorded artifacts and b) documenting and digitally recording any previously unrecorded artifacts. Additionally, we aimed to document all evidence of iconography that may have been inspired by the cave-dwelling animal species associated with Xibalba. During the field season, we encountered substantial evidence of looting, vandalism, and modern damage, underscoring the need for a cave resource management plan and active monitoring of Yaxteel.

Actun Yaxteel Ahau, Ledge One

Ledge One is closest to the cave's main entrance (i.e., lower entrance) and measures approximately 100 m east to west, and approximately 40 m at its widest point (Figure 9; Mirro and Awe 1999). This feature is divided into three distinct areas: Area One (breakdown), Area Two (a sandy bank), and Area Three (rocky ledge). Area One consists of several large formations which have collapsed and averaged 9 m in diameter. Area Two is located southeast from Area One and is characterized by sandy alluvial sediment and seasonal floods based on the presence of organic matter (Mirro and Awe 1999). Area Three houses the greatest concentration of artifacts and is

divided into 10 subareas, including Entrance 1, Chambers One through Eight, and the Upper Chamber.

We documented three possible platforms from Area One to Area Three, but further inspection and documentation of these features will be required. The relative locations of these features are noted here: Feature 1 is situated at the north end of the breakdown, Feature 2 is located opposite the collapsed stairway, and Feature 3 is in Area Three. All three features are composed of limestone rocks and boulders mixed with layers of pottery sherds. Feature 3 appears to have been built atop a layer of black pebbles. Two modified cave formations identified by Plietez during the survey were documented in Ledge One, one resembling a ceiba tree (Figure 13), and the other was proposed to be a zoomorphic figure. Both modifications were in a sandy area between Areas Two and Three. In addition, one stela (Stela 1) was documented in the same area as the other modified cave formations. Stela 1 is a large yellow limestone block that appears to have been worked on one side, although further assessment of this feature is needed. Based on our inspection of the surrounding geology, this stela appears to have been transported from either the surface or from another area within the cave.



Figure 13. Map of Ledge One, Actun Yaxteel Ahau (Mirro and Halperin 2000: Fig. 1).

Actun Yaxteel Ahau, Ledge Two

Ledge Two is about 300 meters from the cave entrance and overlooks the stream from the north. This area was divided into the designations A-F and an area called the Phreatic Maze (Figure 13, Owen and Gibbs 1999). During this survey, we re-examined the 'Phreatic Maze' to acquire additional data and further document this area. The Phreatic Maze comprises a series of interlinking chambers, which we designated Chambers 1-5. Each chamber contained archaeological evidence, including numerous artifacts that appeared to be burnt. We grouped artifacts into arbitrary clusters, as most seemed to have been grouped (Table 2). Artifact Cluster 1 was located outside of Chamber 1. Artifact Clusters 2, 3, and 4 are located inside Chamber 1. Significant charcoal deposits were documented throughout Chamber 1, including layers of charcoal that covered the ground surface. Artifact Clusters 5 and 6 were in Chamber 2. Along the northern wall of Chamber 2, a looter's pit was documented, which exposed thick stratigraphic layers of burnt ceramics and charcoal. The pit measured approximately 30 cm wide and 15 cm deep. Artifact Clusters 7 and 8 were recorded in Chamber 3, and Artifact Clusters 9 and 10 were in Chamber 4. Artifact Cluster 11 was an artifact scattered across the cave floor in Chamber 5. Cluster 12 represented artifacts in a small passage that leads back to Area F; the crawl-through passageway was partially blocked by a dismantled stack of limestone boulders and speleothems.



Figure 14. Map of Ledge Two, Actun Yaxteel Ahau (Owen and Gibbs 1999:Fig. 1).

Chamber No.	Artifact Cluster No.	Pottery (n)	Fauna (n)	Notes
	1	8		
1	2	15	5	Jute shells
	3	20		
	4	14		
2	5	30		
	6	20	260	Jute shells
3	7	10		
	8	3		
4	9	2		
	10	19	12	Jute shells
5	11	30		
	Total	171	277	

Table 2: Artifact clusters documented on Ledge Two, Chambers 1 through 5.

Several modified cave formations were documented on Ledge Two. In Chambers 1 through 5, stalactites exhibited Crescent trail maker features at the entryway of each chamber (Figure 14a). According to local cave guide Pleitez, these crescent-shaped modifications may have functioned as trail markers indicating the direction of travel. Additionally, in Chambers 1 through 5, we observed carved holes in stalactites, which may represent "Duende Eyes." A modern interpretation describes how the "eyes" serve the spiritual purpose of observing those who enter to ensure the cave is safeguarded. Notably, the Duende Eye modifications were only located on the backside of the chamber entry, only noticeable if a person turned around to face the entryway through which they had just come. Other possible modifications include a cave maw near the passage leading into Chamber 1 (Owen 1999). Between Chambers 1 and 2, a wall constructed of limestone boulders was recorded, blocking off part of the passage and delineating the pathway into Chamber 2.


Figure 15: A) Crescent Trail Marker modification, Chamber 1, Ledge Two. B) Duende Eye modification, Chamber 1, Ledge Two. Yaxteel, ATM Archaeological Reserve.

Fable 3: Cave Modifications, Actun Yaxtee	l Ahau, ATM A	Archaeological Reserve.
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Modification	Location	Description/ Notes
Broken and/or cached speleothem	Chamber 5 Tunnel, Ledge Two	A dismantled stack of limestone boulders and speleothem.
Guardian (pecked face)	-	-
Guardian (other)	Chamber 1, Ledge Two	"Duende Eyes"
Cave maw	Entrance to Chamber 1, Ledge Two	-
Zoomorph	Ledge One	Unknown zoomorphic figure
Navigation markers	Chamber One, Ledge Two	Crescent trail marker
Other	Ledge One	Ceiba tree

ATM Archaeological Reserve Summary

During the 2023 field season, the CAX team successfully relocated and digitally documented previous archaeological findings on Ledges One and Two in Actun Yaxteel Ahau, including Artifact Clusters 2, 3, 4, and 6, one chert biface, and one granite mano fragment. The team expanded on the archaeological record for this cave by recording potential speleothem modifications on Ledges One and Two. Ledge One featured one zoomorphic formation and one ceiba tree formation. Ledge Two featured a cave maw at the entrance of the "Phreatic Maze," crescent-shaped trail markers, and duende eyes stationed throughout the "Phreatic Maze." Additionally, we documented several cases of ancient Maya activity on Ledge One and examined the chambers past Entrance One to Ledge Two, the entrance of which was previously identified as a possible ritual pathway (Mirro and Halperin 2000:278).

Archaeological documentation is crucial in ATM to preserve the history of cave use in the region, especially those areas subjected to contemporary human and/or environmental destruction. Extensive evidence of looting has been reported (Awe et al. 1997, 1998, 1999) and was observed during the 2023 field season. We observed a looter's trench inside Chamber 2 and a possible looters' camp near the cave entrance. This justifies the urgent need to develop a cave management plan to protect Yaxteel from further impacts.

Runaway Creek Nature Reserve

Runway Creek Nature Reserve (RCNR) is a 24 km² privately-owned protected area in the Belize District of east-central Belize, managed by The Foundation for Wildlife Conservation. The landscape comprises lowland savanna with broadleaf forest and rolling karst hills. At least 100 caves have been documented by RCNR personnel; of these, six caves have been the focus of previous archaeological surveys.

We surveyed five RCNR caves, including Guardians of the Cave, Painted Cave, one of the entrances associated with the KHC Cave Complex (KHC 4), Big Pot Cave, and Actun Zotz. Of these, Guardians of the Cave, Painted Cave, and Big Pot Cave have been previously investigated. The objectives of these surveys were to a) expand on previous archaeological research by digitally documenting any archaeological remains present in the caves and b) digitally record iconographic features relevant to the animal species associated with Xibalba. Only four caves contained evidence of ancient Maya activity, including rock art, artifact remains, and cave formation modifications. The following sections detail the findings and results of each survey. Actun Zotz did not contain archaeological materials and was omitted from this report; additional surveys may be required to confirm the absence of archaeological materials at this location.

Guardians of the Cave

Guardians of the Cave is located 236 m west of the Sibun River, and 697 m north/northwest of Painted Cave. The cave gets its name from the petroglyph faces that adorn some of the stalagmites in the cave. The cave spans 429 m in length and has five points of entry. Entrance 1 faces northeast, Entrances 2 and 3 face east, and Entrances 4 and 5 face south. Entrances 1, 2, and 3 provide access to the main chamber, which measures 56 m long and 23 m wide at its widest

point. Entrance 4 provides access to Chamber 2, which measures 24 m in length and is 15 m at its widest point. Chambers 1 and 2 join at a central point, with another passage leading northeast to the Flattener Chamber. Entrance 5 provides access to a passage leading to a room with a central pillar formation, creating a roundabout layout. The pillar room has another passage leading northeast, which connects to the area categorized as the Flattener Chamber. The Flattener Chamber is 76 m in total length, and although it is 14 m at its widest point, the ceiling ledge is so low that it is almost exclusively accessible by crouching or crawling (Gillieson 1996).

Chamber 1 contains a diverse artifact assemblage. A small conch shell (likely Strombus gigas) was documented at the base of a large stalagmite. One piece of wood was documented near Entrance 1, which displayed charring at both ends. Atop the northern ledge in Chamber 1, we documented two pieces of turtle carapace (cf. Kinosternon leucostomum) that had been moved to the ledge by modern cave visitors. A large cluster, recorded as Guardians of the Cave Cluster 1 (GCC1) had been relocated by modern cave visitors to protect the artifacts from damage. GCC1 is located atop a large boulder in front of the passages to Entrances 2 and 3. Cluster 1 consists of 29 pottery sherds, two broken conch shells (S. gigas), jute, chert flakes, one chert fragmented biface, one fragmented obsidian blade, one half of a peccary mandible (Tayassu pecari), one half of a peccary maxilla (*T. pecari*) and one unidentified fauna bone (cf. *T. pecari*). Peccary remains may have been remnants of contemporary wildlife activity. The pottery assemblage in GCC1 includes Sierra Red (300-100 BC; Gifford 1976:85), Sapote Striated (300-100 BC; Gifford 1976:105), Dolphin Head Red (AD 700-900; Gifford 1976:227), and Sibun Red Neck (AD 780-930; Harrison-Buck 2023). Six pottery sherds were documented near Entrance 2 near a stack of three burned wooden torches. These artifacts were positioned in front of an inaccessible well, possibly blocked off by breakdown. Chamber 1 contained most of the petroglyph faces "Guardians" on the surface of various cave formations. A total of nine pecked faces were observed by the survey team; however, reserve personnel indicated they have cataloged at least 25 pecked faces in the two main entrances of the cave. The most distinguished Guardian is No. 7, a stalagmite formation that faces Entrance 1 and is situated between two large pillars (Figure 16). The deep recession created by pecking/carving creates a face consisting of two eyes and an open mouth. The west wall of Chamber 2 had small artifact scatters comprised of 14 pottery sherds and burned wooden torches. An additional 11 jar sherds were located on a flowstone formation along the west cave wall, near Entrance 4. Within the dripline of Entrance 4, we documented one Daylight Orange pottery sherd (AD 700-900; Gifford 1976:302) at the base of the west wall and one petroglyph face into a central stalagmite.



Figure 16: Guardians of the Cave, Runaway Creek Nature Reserve. Jaime Awe, Mark LaRusse, and Estevan Ramirez documenting Guardian No. 7 near Entrance 1.

At the entrance of the Flattener Chamber, one small hearth was documented adjacent to the west wall. Average ceiling clearance in this area is 1 m. On the surface of the low ceiling, we noted at least eight charcoal pictographs and one area with charcoal smudging (see notation on Figure 12). GOC-PIC-1 (Guardians of the Cave-Pictograph-1) exhibits a group of images, including a crescent shape with dots decorating the bottom, chevrons, a circular element topped with feathered headdress, and a square shape similar to a hieroglyph cartouche (Figure 17A and 17C). GOC-PIC-2 depicts a bi-pedal figure with line elements extending from the figure's head, possibly representing a feathered headpiece or horns (Figure 17C). GOC-PIC-3 is a charcoal handprint. GOC-PIC-4 likely depicts a primate figure (*Ateles geoffroyi*) (Figure 16B and 16C). GOC-PIC-5 depicts a square containing a lined pattern that may symbolize a centipede. GOC-PIC-6,7,8 are smudge marks and unorganized linear designs with no discernable intentional artistic elements.



Figure 17: Guardians of the Cave, Runaway Creek Nature Reserve. A) GOC-PIC-1. B) GOC-PIC-4. C) Selection of charcoal pictographs on the ceiling in the Flattener Chamber.

Painted Cave

Painted Cave is located 51 m east of the Sibun River. The namesake derives from the pictograph panel that features the only known painted image of a jaguar in Belize (Figure 18). The cave has three entrances, Entrance 1, 2, and 3. Entrance 1 faces south and is the primary entrance, measuring 26 m wide. However, only 3 m of the entrance is unobstructed, providing access to the cave's interior chambers. Entrance 2 is 30 m wide but is completely blocked by collapsed ceiling spall. Entrance 2 is not easily accessible from outside the cave but is the primary access for Chamber 2. Entrance 3 is 4 m wide and provides access into the cave from a higher-up ledge that drops down into Chamber 2. Chamber 1 is approximately 25 m long and 19 m at its widest point. Chamber 2 is 23 m long by 15 m at its widest point. This chamber has little flat surface and is

mostly characterized by steep cave formations and slopping sediment deposits. A steep passage of loose sediment leads east from Chamber 2 to Entrance 3.



Figure 18: Painted Cave, Runaway Creek Nature Reserve. PC-UR-1, a pictograph of a jaguar.

The artifacts recorded in Painted Cave include one unifacially worked chert constricted adze (18 cm) and one greenstone celt (6.5 cm). Both artifacts were in a small cluster along the west cave wall at the base of the Chamber 1 Panel. Opposite Entrance 1, Artifact Cluster E1-C1 sits atop bedrock formations protruding from the floor. E1-C1 consists of approximately 30 pottery sherds, one small conch shell (likely *S. gigas*), four jute shells, and seven faunal bone fragments (species unidentified); we are uncertain whether some of these materials are archaeological or remnants of modern wildlife activity. The E1-C1 ceramic assemblage consist of Cayo Unslipped, Mount Maloney Black, and Sibun Red Neck (AD 780-930; Harrison-Buck 2023) sherds.

The western wall of Chamber 1 features the large panel of pictographs from which the cave gets its name. The panel consists of two registers (Upper and Lower), distinguished by the natural curvature of the wall (Figure 19). Each pictograph was assigned a sequential number starting on the left of each register. All pictographs on the Chamber 1 Panel were drawn in antiquity using an orange-red pigment, possibly from the annatto plant (Bixa orellana). The Upper Register consists of three distinct pictographs. PC-UR-1 (Painted Cave-Upper Register-1) depicts a jaguar with a distending belly, distinct markings down the creature's spine and side, and a long tail. The jaguar's face seems to be in profile. PC-UR-2 is a geometric shape (possibly glyphic) directly to the right of PC-UR-1. PC-UR-2 is a square shape that contains a relatively large circle in its center. Two small circles flank the larger circle on either side. PC-UR-3 depicts the bottom half of a square shape with two "feet" or extensions at each corner. The interior of the square shape shows solid dots and the outline of a circular shape. The Lower Register consists of two pictographs, both likely hieroglyphic in nature. PC-LR-1 (Painted Cave-Lower Register-1) has been interpreted as an Akbal glyph, meaning "night". PC-LR-2 has been interpreted as a K'in glyph meaning "sun." Additionally, reserve personnel indicated there is a pecked face on a speleothem; when facing the panel, it's approximately 6.1 m to the right of the panel.



Figure 19: Painted Cave, Runaway Creek Nature Reserve. Still image from 3D model of Panel 1 showing pictographs in orange pigment.

KHC Cave Complex (KHC 4)

KHC 4 within the KHC Cave Complex is located 525 m east of the Sibun River. The entire cave complex has five entrances which are interconnected and is one large chamber measuring approximately 90 m in length. Entrance 1 opens north, and Entrance 2 opens southwest. A change in elevation creates an upper and lower level within the chamber. Entrance 1 is in the upper area of the chamber and leads southward to the lower area. A cenote is located off the lower area but was left unexamined as we did not have the necessary equipment to survey this area.

The upper level contains one artifact cluster (likely assembled by modern visitors) that consists of approximately 20 pottery sherds, a constricted adze, three shark vertebrae (likely *Carcharhinus perezii*), two apple snail (*Pomacea flagellata*), two possible crocodile (*Crocodylus* sp.) teeth, one unidentified crab remnant, and jute shells. Pottery sherds include the following types: Roaring Creek Red (AD 600-780; Harrison-Buck 2023), Dos Arroyos Orange Polychrome (AD 300-500; Gifford 1976), Saturday Creek Polychrome (AD 600-700; Gifford 1976), and Sibun Red Neck (AD 780-930; Harrison-Buck 2023). One untyped sherd from a slab-foot cylinder vase (likely Early Classic, AD 300-600) was also present. Near the west side of the upper area, a series of columns and pillars separates a steep sloping channel. One partial Roaring Creek Red dish was documented in-situ at the top of the channel (Figure 20). We did not observe any artifacts on the lower level.



Figure 20: Upturned Roaring Creek Red dish at the top of channel in Cenote Group Cave.

Big Pot Cave

Big Pot Cave is located 525 meters east of the Sibun River. The cave derives its name from a large, upturned jar. It is approximately 134 meters in length and has two entrances; Entrance 1 opens to the north, while Entrance 2 faces south. The immediate area beyond Entrance 1 is the highest level in the cave. The main passage slopes downward, levels out at Chamber 1, slopes down again, and then levels out at Chamber 2. A very steep slope consisting of breakdown leads from Chamber 2 up toward the skylight referred to as Entrance 2.

Near Entrance 1, we observed two parallel rows of boulders, each measuring 4 meters in length, which may have been rough walls or blockades. In Chamber 1, a complete Tinaja Red olla (AD 690-870; Culbert and Kosakowsky 2019) was observed in a small recess on the floor (see Figure 20). No other artifacts were noted in Chamber 1. The upturned olla that inspired the name of the cave is situated in a small passage connecting to Chamber 2. The olla is of the Red Rim variety, possibly Petroglyph (AD 700-800). The vessel is whole except for a small fracture on its base. On the cave floor, near the entrance of this passage, we observed a fragmented Naranjo-style (AD 600-800) dish with a medial ridge and a red cormorant design in its center. The dish was pedestaled on a couple of rocks (possibly from modern visitors) and may be associated with two large rim sherds from another possible Petroglyph Red jar rim (AD 700-800). In Chamber 2, we identified Feature 1, an architectural feature likely an altar, consisting of at least three courses of neatly stacked boulders and topped with flat, sheet-like rocks creating a level surface. On the cave floor near the base of Feature 1, 16 non-diagnostic (body) sherds of pottery were noted. Finally, speleothems that may exhibit signs of modification were observed in both chambers. They are labeled BP-BS (Big Pot Bat Speleothem) 1 through 4. Each speleothem may have been modified to resemble a bat, depicted in facial profile, or with wings extended.



Figure 20: Potential modified speleothem in the shape of a bat (Bat-Shaped Speleothem 1), Big Pot Cave, Runaway Creek Nature Reserve.

Runaway Creek Nature Reserve Summary

Of the five caves surveyed in the RCNR, four contained evidence of use by the ancient Maya. Regarding potential animal iconography, one cave contained at least five potentially modified speleothems that appear to be shaped like roosting bats. This feature is particularly apparent when illuminated with artificial lighting from the appropriate angle. Additionally, two caves contained pictographs of animal iconography: Painted Cave had a jaguar pictograph, while Guardians of the Cave contained a pictograph that may represent a centipede.

Pottery (n=130 sherds) was prominently documented throughout the Runaway Creek caves. Dates range from the Late Classic (AD 600-800) to the Terminal Classic (AD 800-900) periods, except for KHC4, which contained Early Classic (AD 300-600) pottery types. Overall, the pictographs in Guardians of the Cave and Painted Cave are well-preserved, which is rare for the region. This preservation may be due to the higher elevation and increased airflow in these caves, resulting in a more arid environment.

Table 4: Cave Modifications, Runaway Creek Nature Reserve Caves.

Modification	Guardians Cave	Painted Cave	KHC4	Big Pot Cave
Guardian (pecked face) At least 25 within the two primary entrances		1 reported by RCNR personnel	-	-
Zoomorph	2 pictograph panels, 1 with possible centipede	Pictograph panel: Jaguar and other figures	-	4 Bat-Shaped Speleothems

DISCUSSION

Our 2023 survey efforts resulted in the contribution of new archaeological data on Maya cave use during the Late to Terminal Classic Periods in central Belize. We also provided an up-todate status of archaeological materials previously documented in these caves. The most common archaeological materials we encountered were pottery and modified cave formations.

Several zoomorphic depictions noted within the caves correlate to the animal species associated with Xibalba. The pictographs at RCNR of the jaguar and potential centipede echo characters from the Maya creation story of the Popol Vuh (Christenson and Frauke 2021), where these animals symbolize Maya deities associated with Xibalba and the creation of the cosmos. Notably, the caves that house these images sit in an ecological zone that experiences a high frequency of jaguar use.

Cave modifications related to the animals associated with Xibalba were examined in all three project areas, including the modified speleothem in the entryway of Serpent Cave, four batshaped modified stalactites in Big Pot Cave, the jaguar paw petroglyph in Jaguar Paw Cave, the zoomorphic feature on Ledge One of Yaxteel, and the cave maws in Serpent Cave, Four Pot Cave, Altar Cave, and Yaxteel.

We also documented modifications that did not directly pertain to cave-dwelling animal species. We observed speleothems that appeared to have been purposefully cut, moved, or modified in First Cave and Altar Cave (Brady et al. 1997:725). The most common cave modification we observed were the petroglyph faces known as "guardians," which may have functioned as loci for placing offerings to cave deities (Brady et al. 1997). Two examples of petroglyph faces were documented in direct association with artifact clusters, one in Serpent Cave and possibly one in Guardians of the Cave, possibly supporting the offering loci idea by Brady and colleagues (1997). The altar made from collapsed speleothems in Altar Cave may provide another good example of speleothem removal and rearrangement (see also Prufer 2002). Additional forms of stalactite modification included crescent markers cut into stalactites, which may have functioned to aid navigation, recorded in Single Pot Cave and Actun Yaxteel Ahau. Finally, one of the most striking forms of speleothem modification- a modification that likely resembles a ceiba tree, the tree of life that tethers the material world to the spirit worlds- was noted on Ledge One of Yaxteel. Documenting modified speleothems is difficult to accomplish objectively; this method of analysis is subject to wild speculations that undermine the legitimacy of modifications in the archaeological record. This is because of pareidolia, the enemy of the cave archaeologist. To authenticate these artifacts, there needs to be a refined method of analysis that clearly determines human activity took place.

Architecture was present in nine of the 13 surveyed caves. Artificial walls— low designation walls, blocking walls, and sealing walls (Kenward 2002)— were documented in each project area. We also noted two stairways in Altar Cave that aided navigation into Chamber Three and up to Chamber Two.

Yaxteel supported the highest concentration of artifact clusters. Although ceramic types ranged from Early Classic to Terminal Classic, especially in Yaxteel, the frequency of the Late Classic ceramic types in our surface analysis was notably higher than Early Classic ceramic types. This temporal association is consistent with a recent analysis of cave use in Central Belize, where Gescheider's (2023) assessment of 33 caves concluded that pottery assemblages primarily consisted of Late and Terminal Classic types (see also Moyes et al. 2009). The most frequent pottery type documented throughout all the caves was the Sibun Red-Neck jars (Harrison-Buck 2023). This pottery style is associated with ritual activities in caves during the Terminal Classic Periods (Harrison-Buck 2023).

Faunal remains were documented in all caves except Rockshelter 1, Three Ledges Cave, Four Pot Cave, and Jaguar Paw Cave. The faunal assemblage identified across all caves includes jute shells, conch, turtle, crab, and unidentified mammal remains. Jute shells, which exhibited spire lopping, provide evidence of consumption by humans in antiquity, a method that is still employed by modern Maya. Jute shells that exhibit no sign of spire-lopping but were not local to the ecosystem have also been documented in deposits at cave sites and serve as an indication of human activity (Healy et al. 1990; Halperin et al. 2003). *Jute* deposits located at the entrances of First Cave, Altar Cave, and KCH4 Cenote Group were examined via image analysis and revealed the presence of at least five varieties of freshwater mollusk species (Halperin et al. 2003; Grego correspondence). These deposits may provide evidence of ritual activities, as similar examples in previous studies of jute in cave sites were interpreted as ritual offerings to cave deities (Halperin et al. 2003). Moreover, the diversity of *Pachychilus* species indicates they were collected over larger geographical areas by humans, likely for consumption (Halperin et al. 2003; Grego correspondence). No formal zooarchaeological assessment was conducted in the field to identify the natural and cultural taphonomy markers on the faunal remains. Taphonomic analysis is particularly important when assessing faunal remains in cave contexts as the recurrent activity (wildlife, environmental, and human) in caves means that archaeological contexts are frequently disturbed and sometimes mixed with evidence of modern activities.

CONCLUSIONS

A total of 13 caves and one rockshelter were surveyed throughout the Monkey Bay National Park, ATM Archaeological Reserve, and the Runaway Creek Nature Reserve. We documented speleothems that were potentially modified to represent depictions of a snake, a jaguar, bats, and cave maws. Additionally, two animal pictographs were examined; one clearly represents a jaguar, while a second may represent a stylistic interpretation of a centipede. Ceramic analysis indicated the caves surveyed were used from the Early Classic (AD 300-600) to Terminal Classic period (AD 800-900). Importantly, contemporary activities (human-related or environmental) have been negatively impacting the archaeology of these caves. Flooding was noted across numerous caves, which contributed greatly to the movement of artifacts and the erosion of cave formations. This can inhibit archaeological interpretation as materials are often not found in-situ (as they were intentionally/naturally positioned). Further analysis of the petroglyphs and pictographs is needed to determine a relative date of their creation. Finally, evidence of looting was also noted, particularly in Yaxteel, where we observed one looter's pit and possible encampment. We recommend preventative measures such as routine monitoring and using trail cameras to dissuade looting and vandalism.

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TECHNOLOGICAL ANALYSIS OF OBSIDIAN ARTIFACTS FROM WESTERN BELIZE: PRELIMINARY RESULTS FROM THE BVAR PROJECT COLLECTIONS

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INTRODUCTION

Studies about ancient Maya commodities, especially those traded long-distances, have long focused on elite political control of economic institutions across all levels of society, or what is often referred to as the "political economy" (*sensu* Earle 1997). Obsidian was an essential commodity for virtually all Mesoamerican communities since it provided a razor-sharp "cutting edge" (Clark 1987:260). In contrast to local lithic resources, such as chert or rhyolite, consumers located in communities without direct access imported obsidian from outcrops as distant as 1000 km away. Some researchers have therefore suggested that controlling access to obsidian was a critical component in the development of social and economic hierarchies (e.g., Clark 1987:275; Clark and Bryant 1997:133). Several recent obsidian technological and geochemical studies from across Mesoamerica, however, show differential obsidian consumption at both the site and regional level (e.g., Ebert et al. 2015; Hirth et al. 2013; Silva de la Mora 2018), suggesting that blades traveled through networks of decentralized exchange relationships. While some leadership may have coordinated these interactions, ethnohistoric information suggests that for the Maya, these individuals were likely lower elites or high-status commoners (King 2020).

To understand how obsidian tool production and consumption reflected broader economic systems in the upper Belize River Valley and adjacent regions of western Belize (Figure 1), we are conducting an ongoing technological study of obsidian artifacts assemblages collected since the inception of the Belize Valley Archaeological Reconnaissance (BVAR) Project in 1988 (see Hoggarth et al. 2020). Between September 2022 until April 2023, the first co-author led a group of undergraduate students at the University of Pittsburgh in technological analysis of a total of 3,774 obsidian artifacts from eight primary sites, with a particular focus on recording the attributes of the prismatic blades that made up the bulk of the collection (n=3,404; 90.1% of the collection by count). The results of this analysis provide preliminary insights into the modes of lithic exchange present in the upper Belize River Valley from the Preclassic through Terminal Classic periods (~1000 BC-AD 900/1000). These data will also allow us to explore differences between obsidian production and consumption among elite and commoner groups through time. The

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Figure 1: Map of western Belize indicating the sites obsidian artifacts analyzed in this study were recovered from.

analysis presented here also provides the basis for ongoing geochemical sourcing of the BVAR Project obsidian collection using portable x-ray fluorescence (pXRF).

METHODS

Technological analysis of obsidian was performed with the assistance of four undergraduate students at the University of Pittsburgh Department of Anthropology (Mark LaRusse, Audrey Smith, Brandon Torres, and Jia Tucker) in the Tropical Paleoecology and Isotope Geochemistry Lab. The typology used for technological analysis was adapted from one developed by Dr. Rachel Horowitz at Washington State, which is based on the basic typologies presented by Andrefsky (2005) and Whittaker (2012) (Horowitz, personal communication 2023; see Appendix A). As intended by Andrefsky (2005:62), the morphological typology has been expanded to accommodate our research questions and composition of the assemblage. A schematic of our typology is depicted in Figure 2. In our typology, prismatic blades were differentiated from flakes and other types of tools (e.g., bifaces). The presence, type, and extent of retouching was also recorded. Researchers categorized artifacts within this typology via macroscopic observations of a given artifact's attributes; jewelers' loupes were used to aid identification of fine features, such as retouching. The attributes recorded for each artifact are detailed below.



Figure 2: Morphological typology for BVAR obsidian artifact analysis (adapted from Andrefsky 2005: Figure 4.7).

Measurements of Length, Width, and Thickness

The length, width, and thickness of each artifact were recorded in millimeters using a pair of digital calipers (Figure 3). Different methods were used for flake and non-flake artifacts. For each flake artifact (including prismatic blades), the length was measured along the axis defined by the dorsal and distal ends of the flake. The thickness was measured at the midpoint of each flake and consisted of the distance from the dorsal to ventral side of the flake. The width was measured at the widest portion of the flake along an axis perpendicular to those defined by the distal-proximal and dorsal-ventral sides. For non-flake artifacts (e.g., cores, debitage) without a well-defined set of features to define axes, the value recorded for length is the greatest distance between any two points on the artifact's surface (judged visually by the researcher), while the width was the greatest distance between two points on the artifact's surface that were on a plane perpendicular to the axis defined by the length measurement, and bisecting its midpoint. The thickness was measured along this plane as well, perpendicularly to the width. As such, for non-flake artifacts, the length, width, and thickness are always in decreasing value, while this is only usually true of those measurements taken from flake artifacts.

Tool Classification

Each artifact was classified as a piece of shatter, biface, uniface, core, retouched flake, burin, scraper, drill, denticulate, awl, notched tool, blade, hammerstone, or flake. Classification followed Andrefsky's division of chipped stone into the categories of "tools" and "debitage" (Andrefsky 2005: 76). Due to their preponderance and our specific interest in their properties,



Figure 3: Length, width, and thickness measurements for (a) a prismatic blade, (b) a flake, and (c) a medial segment of a prismatic blade (drawings by Jia Tucker).

prismatic blades were designated as "blades" using their distinctive two-or-three prismatic blade removal scars on their dorsal surface and almost parallel edges rather than the more usual definition of a flake with length more than twice the measurement of its width. Additionally, as many of the blades had been segmented either due to ancient anthropogenic processes or subsequent disturbance, the latter definition was insufficient for classifying prismatic blades.

Portion

Where applicable, each artifact was classified according to what portion of a flake it was: whole flake, broken flake (i.e., a broken flake bearing the proximal end), flake fragment (i.e., a broken flake missing its proximal end), shatter, bipolar flake, split flake, whole blade, proximal blade, distal blade, medial blade, decortication flake. The whole blade, proximal blade, distal blade, and medial blade designations were reserved for artifacts that had been identified as prismatic blades.

Stage

Each obsidian blade was designated as being either the initial series, comprising the first and second series blades (Hirth and Andrews 2002:4), or final series (i.e., Hirth and Andrew's "third series").

Termination

The termination was recorded for each flake, blade, and relevant fragments or portions thereof, and classified as feathered, truncated, pointed, hinged, or indeterminate. For this study, core overshoot terminations were given the same code as hinge terminations; extreme cases were noted separately. While it is typically difficult to differentiate between truncated / step terminations and broken flakes, the extreme standardization of prismatic blades allowed for easier differentiation between truncated terminations and breakage.

Retouch and Retouch Type

Retouch was identified and quantified, with researchers using jeweler's loupes to differentiate between flake retouch and macroscopic use wear (see Semenov 1964; Tringham et al. 1974). Retouch was quantified as being present on greater 50% or less 50% of a flake or blade's length, and qualified as either unifacial, bifacial, grinding, or battering.

Cortex

The amount of cortex present on the artifact was classified as follows: 0-25%, 26-50%, 51-75%, or 76-100%. For flake artifacts, the value was based on the amount of cortex on the dorsal surface of the flake, while for non-flake artifacts, this value was determined by the cortical percentage of its total surface area.

Analysis of Cores

For artifacts that had been classified as cores, the width of the flake-removal platform, the number of facets on it, and its preparation type (none, battering, ground, or other) were all recorded. Cores were classified as polyhedral blade cores, non-polyhedral blade cores, pyramidal, discoidal, multidirectional, or unidirectional. Finally, the number of flake/blade scars present on the sides of the cores were recorded.

OBSIDAN BLADE EXCHANGE PATTERNS

To interpret the results of our technological analysis, we compared our data to the models developed by De León and colleagues (2009; see Table 1). These models are constructed from the likely archaeological signatures of several different obsidian blade exchange patterns: the trade of whole blades, the trade of blade segments (i.e., "processed blade trade"), and two forms of local production. The first was facilitated by itinerant craftspeople, the other by on-site artisans producing blades for local use, potentially in marketplaces. The archaeological correlates used to differentiate each model consist of the presence or absence of whole blades, the presence or absence of primary production evidence (e.g. core shaping flakes and non-exhausted cores), the presence or absence of secondary production (e.g. initial series blades), and the ratios of different segments of prismatic blades (De León et al. 2009:119). These ratios are taken to be indicative of either normal use and breakage (for whole blade trade and local production) or pre-emptive segmentations of blades for convenient provisioning and transport.

Table 1: Summary of blade trade models and their corresponding archaeological evidence (adapted from De León et al. 2009:Table 3).

Model	Primary Production	Secondary Production	Whole Blades Present	Proximal- Distal Ratio	Medial Distal- Distal Ratio
Whole Blade	No	No	Yes	1	2-3
Processed Blade Trade	No	No	No	6	6
Itinerant local production	No	Yes	Yes	1	2-3
Local on-site production	Yes	Yes	Yes	1	2-3

RESULTS

The results of the technological analysis are presented below via two tables summarizing the artifacts across all eight sites, followed by a number of tables and figures for each site individually. Note that both Caledonia and Caracol have been merged into a single unit for the purpose of analysis, i.e. "The Vaca Plateau." Data is differentiated based on context and period. Context (site core vs. settlement) is intended as a broad proxy for the social class of the consumers of obsidian artifacts (i.e. elite vs. non-elite). Time periods are divided into two phases: the Preclassic Period (1200/1100 BC - 250 AD) and the Classic Period (250 AD - 900/1000 AD).

For individual sites, artifact counts are presented for whole prismatic blades, proximal, medial, and distal segments of prismatic blades, prismatic blade cores, miscellaneous artifacts, and the ratios for proximal:distal and medial:distal segments. These ratios are plotted with error ranges for 80, 95, and 99% confidence intervals, alongside the expected values for the idealized models discussed above for easy comparison (Drennan 2009).

Fable 2: Artifacts subject t	o technological analysis	listed by site by period.
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Site	Actun Halal	Baking Pot	Cahal Pech	Ek Tzul	Lower Dover	Xunantunich	Vaca Plateau
Preclassic	0	67	482	0	15	8	0
Classic	3	1374	397	11	503	447	467
Total	3	1441	879	11	518	455	467

Actun Halal Rockshelter

Four obsidian artifacts have been recovered from the Actun Halal rockshelter by recent BVAR excavations (2022), although only three have been included in this study as the fourth was not in a reliably dated context. Of the three artifacts, which are associated with Classic period levels, there is one medial prismatic blade segment, and two flakes.

Baking Pot

Artifacts (n=1,441) from the Baking Pot settlement from both the Preclassic and Classic, collected from the 1997 field season onwards, are present in the collection, as well as Classic Period artifacts from the Baking Pot site core (Table 3). Prismatic blade segments make up most of the assemblages (94.5% site core, 90.4% settlement, 91.4% total). Whole blades (n=41) are present in all represented times and contexts, while cores are present in the site core (n=2) and settlement (n=4) only during the Classic Period. The cores present in the collection are all exhausted blade cores.

Artifact Type	Whole Blade	Proximal Segment	Medial Segment	Distal Segment	Cores	Other	Proximal: Distal	Medial: Distal	Initial Series (%)
Baking Pot Site Core									
Preclassic	0	0	0	0	0	0			
Classic	6	96	184	45	2	0	2.13	4.09	0.91
Baking Pot	Settleme	nt							
Preclassic	4	19	19	22	0	1	0.86	0.86	7.69
Classic	31	340	448	144	4	2	2.36	3.11	2.29
Total	41	455	651	211	6	3			

Table 3: Results of obsidian technological analysis from Baking Pot.

Cahal Pech

Our analysis of obsidian artifacts from Cahal Pech builds on that of Ebert (2017), who undertook technological and pXRF analyses of 1,189 obsidian artifacts from the site's core and settlement. Ebert (2017:135-136) found that obsidian assemblage at Cahal Pech was composed primarily of third series prismatic blades (81% of the Preclassic assemblage and 87% of the Classic assemblage; Table 4). Medial segments of blades are the most common artifact, with blades becoming more common beginning in the Middle Preclassic after ~900 BC.

Obsidian artifacts from Cahal Pech analyzed for this study also come from both site core and settlement contexts (n=879; Table 5). Like previous results, our technological analysis identified high frequencies of blade segments from site core (81.7% of assemblage) and settlement (89.2% of assemblage) contexts. Cores are present from the Preclassic settlement (n=1) and the Classic Period site core (n=3). Whole blades (n=2) have only been recovered from the Classic Period site core.

Proximal:distal and medial:distal ratios for Cahal Pech were calculated for the combination of these two datasets (see Figures 4-7). While the values of the proximal:distal and medial:distal ratios for site core in the Preclassic and Classic accord best with whole blade trade and local production models, those from Cahal Pech settlement contexts accord better with the processed

blade trade model for both the Preclassic and Classic Period (similar to Classic Period Xunantunich).

Table 4: Results of Ebert's (2017) obsidian technological analyses from Cahal Pech, listed by time periods considered in this study (adapted from Ebert 2017:Table 4.2).

Artifact Type	Preclassic	Classic	Unknown Period	Total n	Percent of Assemblage
Percussion Artifacts	16	31		47	4%
Cores and Core Fragments	5	21	1	27	2%
Decortication	5	1		6	1%
Percussion Core Shaping	6	27		31	3%
Pressure Core Shaping					
Initial Series Blades	1	25	1	27	2%
Final Series Blades	167	845	12	1024	86%
Production Byproduct	2	5		7	1%
Blade Artifact	4	15	1	20	2%
Total	206	970	15	1189	100%

Table 5: Results of the current obsidian technological analysis from Cahal Pech.

Artifact Type	Whole Blade	Proximal Segment	Medial Segment	Distal Segment	Cores	Other	Proximal: Distal	Medial: Distal	Initial Series (%)
Cahal Pech Site Core									
Preclassic	0	62	116	40	0	1	1.55	2.90	0.96
Classic	2	105	204	47	3	1	2.23	4.34	1.13
Cahal Pech	h Settleme	ent							
Preclassic	0	33	94	24	1	1	1.38	3.92	0.69
Classic	0	1	4	1	0	0	1.00	4.00	>0
Total	2	201	418	112	4	3			

Ek Tzul

The first season of excavations at EK Tzul, located on the southern periphery of the upper Belize River Valley, recovered thirteen obsidian artifacts. A total of 11 were recovered from primary contexts dating to the Late/Terminal Classic; the other two were found in looter's backdirt, making temporal assignment impossible. The 11 Late/Terminal Classic artifacts are prismatic blade segments: six medial, two are proximal, and three are distal. All were classified as final series, except for one initial series distal segment.

Lower Dover

Obsidian artifacts from the Lower Dover settlement for the Preclassic and Classic have been recovered since 1990 (Table 6), while the site core has only yielded artifacts associated with the Classic Period (Table 6). Whole blades (n=8) are present in all represented time periods and contexts, while cores (n=3) have only been found in Classic period contexts. Of the major sites included in this study, Lower Dover's Classic Period settlement has the greatest percentage of initial series blades (~5% of all blade segments).

Table 6: Results o	f obsidian	technological	analysis	from	Lower Dover	
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Artifact Type	Whole Blade	Proximal Segment	Medial Segment	Distal Segment	Cores	Other	Proximal: Distal	Medial: Distal	Initial Series (%)
Lower Dover Core									
Preclassic	0	0	0	0	0	0			
Classic	3	93	166	54	2	2	1.72	3.07	2.89
Lower Dov	er Settler	nent							
Preclassic	2	3	6	3	0	0	1.0	2.0	>0
Classic	3	42	76	27	1	0	1.56	2.81	4.73
Total	8	138	248	84	3	2			

Xunantunich

Most of the obsidian artifacts from Xunantunich date to the Classic Period (Table 7); whole blades (n=12) and cores are present from that period (n=7). The proximal:distal ratio (4.03) and medial:distal ratio (6.56) for Xunantunich in the Classic period are generally higher than other contexts, according better with the processed blade trade model than with the whole blade trade or either of the local blade production models.

Table 7: Results of obsidian technological analysis from Xunantunich.

Artifact Type	Whole Blade	Proximal Segment	Medial Segment	Distal Segment	Cores	Other	Proximal: Distal	Medial: Distal	Initial Series (%)
Xunantunic	Xunantunich Core								
Preclassic	0	1	3	4	0	0	0.25	0.75	>0
Classic	12	137	223	34	7	5	4.03	6.56	1.96
Total	12	138	226	38	7	5			

Vaca Plateau

Obsidian artifacts in the BVAR collection from the Classic Period site cores of Caracol and Caledonia are combined for the purpose of this analysis, as these sites, both on the Vaca Plateau, fall outside of the primary region investigated by BVAR (Table 8). Excavations at Caracol were undertaken as part of the Tourism Development Project (TDP) led by BVAR Project codirector Dr. Jaime Awe between 2000-2004. TDP excavations focused on exposing and stabilizing Late and Terminal Classic monumental architecture in the A Group, the B Group, Caana, the Central Acropolis, and the South Acropolis in the Caracol epicenter (Chase et al. 2020). Excavations at Caledonia were conducted by the Trent University Cayo Archaeological Project following the site's discovery in 1979; the artifacts included in this study were recovered from a series of excavations from 1980-1984 (Awe 1985:1).

Whole blades (n=3) and cores are present (n=9) in the Vaca Plateau assemblage. The percentage of initial series blades and blade segments is the second highest in the study (4.62% blades and blade segments), comparable to the percentage of initial series blades from Lower Dover's settlement during the Classic Period.

Artifact Type	Whole Blade	Proximal Segment	Medial Segment	Distal Segment	Cores	Other	Proximal: Distal	Medial: Distal	Initial Series (%)	
Caracol and Caledonia Site Cores										
Preclassic	0	0	0	0	0	0				
Classic	3	152	205	51	9	2	2.98	4.01	4.62	
Total	3	152	205	51	9	2				

Table 8: Results of obsidian technological analysis from Vaca Plateau sites

DISCUSSION AND FUTURE DIRECTIONS

In this study we compared the results of technological analyses of obsidian artifacts from sites in the Belize River Valley and the Vaca Plateau - with an emphasis on the major sites in the river valley with the largest sample sizes (Baking Pot, Cahal Pech, Lower Dover, and Xunantunich) - to different models of the production and exchange of prismatic obsidian blades. These include processed blade trade (characterized by high ratios of proximal and medial to distal segments), as well as whole blade trade and different forms of local production. For the sites of primary interest, the proximal:distal and medial:distal ratios generally fall closer to the values expected for whole blade trade or local production than they do to expected values for processed blade trade (Figures 4, 5, 6, & 7). The Cahal Pech Settlement (with a medial:distal ratio of 4.67 in the Preclassic and 8.38 in the Classic Period) and Classic Period Xunantunich (medial:distal ratio 6.56) provide exceptions. In the case of Xunantunich however, most of the Classic Period artifacts (86.0%) come from Group B, an elite residential area located northwest of the site's major plazas. Beginning in 2016, excavation in Group B exposed extensive peri-abandonment deposits covering much of the group, which have been interpreted as the remnants of pilgrimage activity (Awe et al. 2020). The elevated proximal:distal and medial:distal ratios from Xunantunich may be reflective

of peri-abandonment activity and reuse of obsidian object is specific ways, and not regular modes of production and consumption.

Overall, there is a trend towards higher values for both ratios in the Classic Period in site cores, but not in settlements (with the aforementioned exception of the Cahal Pech settlements). This may suggest shifts in elite obsidian consumption, as well as continuities in non-elite obsidian economies, with commoners retaining elements of earlier economic systems while elites further supplemented their acquisition of obsidian blades with processed blade trade. Differentiating whole blade trade from either of the two local modes of production then falls on interpretation of the signs of primary or secondary production. While not common, initial series blades (<5% of the total assemblage of blades and blade segments) may provide some evidence of secondary production. For each context and time period, the percentage of initial series blades and blade segments is <3%, with the exceptions of Lower Dover's Classic Period settlement (4.73%) and the Classic Period Vaca Plateau (4.62%). Where they are absent, however, the sample size is not large enough to rule out their presence in the larger archaeological record. Likewise, exhausted cores are present throughout the assemblages, so blade production cannot be ruled out where they are absent due to sample size. These patterns tentatively indicate local production by on-site craft specialists. Alternatively, these results may indicate production of obsidian blades by itinerant craftspeople in conjunction with an exchange of exhausted cores for non-utilitarian purposes. As noted by De León and colleagues (2009:115), the proposed models of exchange are not mutually exclusive, and several modes of exchange might have existed contemporaneously (likely with different relative intensities). This could explain contexts and time periods where the blade segment ratios do not comfortably fall within the bounds expected for any of the individual models.

The results of this analysis suggest an obsidian economy in western Belize primarily based on local blade production, either by on-site or itinerant craftspeople. We cannot however rule out the coexistence of several types of exchange varying in intensity at different times and locations. The overwhelming presence of third-series blades in all time periods and at all sites and the comparative dearth of whole blades, cores, and initial series blades suggests either some behavioral or depositional process that obscures these indicators of primary and secondary production, or that trade for blade segments must have been significant portion of the obsidian economy in Western Belize throughout the Classic and Preclassic and in both site cores and settlements. Planned future geochemical sourcing of the obsidian artifacts included in this study via portable x-ray fluorescence (pXRF) will shed further light on the matter and afford a more fine-grained examination of the dynamics of the obsidian economy in western Belize.

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Figure 4: Proximal:distal blade segment ratios from site cores of major sites in the Belize River Valley. Bullet graphs represent 80%, 95%, and 99% confidence intervals. The expected values for processed blade trade and other models (whole blade trade and local production models) are also plotted.



Figure 5: Proximal:distal blade segment ratios from settlements of major sites in the Belize River Valley. Bullet graphs represent 80%, 95%, and 99% confidence intervals. The expected values for processed blade trade and other models (whole blade trade and local production models) are also plotted.



Figure 6: Medial:distal blade segment ratios from site cores of major sites in the Belize River Valley. Bullet graphs represent 80%, 95%, and 99% confidence intervals. The expected values for processed blade trade and other models (whole blade trade and local production models) are also plotted.



Figure 7: Medial:distal blade segment ratios from settlements of major sites in the Belize River Valley. Bullet graphs represent 80%, 95%, and 99% confidence intervals. The expected values for processed blade trade and other models (whole blade trade and local production models) are also plotted.

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APPENDIX A: OBSIDIAN ANALYSIS CODE SYSTEM*

Tool Classification

1 – debitage 2 – biface 3 – uniface 4 - core5 – retouched flake 6 – burin 7-scraper 8 - drill9 – denticulate 10 - awl11–notched 12 - blade13 – hammerstone

4 – hinge

5 – Indeterminate

Portion

0- inapplicable 1 – whole flake 2 - broken flake 3 – flake fragment 4 - shatter5 – bipolar flake 6 – split flake 7 - whole blade 8 – proximal blade 9-distal blade 10 – medial blade

Stage

- 0 inapplicable
- 1 early series (1st and 2nd)
- 3 -third series
- 4 rejuvenation
- 5 other

Termination	Retouched	Type Retouch
0 – inapplicable	0 - N/A	0 - N/A
1 – feathered	1 - less 50 % of one edge	1 – unifacial flaking
2 – truncated (step)	2 - greater 50 % of one edge	2 – bifacial flaking
3 – pointed		3 – grinding

4 – battering

Platform Preparation	Cortex	Core Classification
0 – inapplicable	0-none	0 - inapplicable
1 – none	1 - 0 - 25%	1 – polyhedral blade core
2 – battering	2 - 26 - 50%	2 – non polyhedral blade o
3 - ground	3 - 51 - 75%	3 – pyramidal core
4 – other	4 - 76 - 100%	4 – discoidal core
		5 multidiractional core

* Adapted from R. Horowitz (n.d.).

- core
- 5 multidirectional core
- 6 unidirectional core

XUNANTUNICH STRUCTURE B-6 BURIAL 1: OSTEOLOGICAL ANALYSIS OF A MULTIPLE INTERMENT

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INTRODUCTION

During the summer 2022 field season of the Belize Valley Archaeological Reconnaissance (BVAR) Project, excavations continued at Xunantunich as part of an ongoing collaboration between the BVAR Project and Galen University (Beardall 2022; Beardall et al. 2023). The overall goal of investigations is to understand the development of the Late and Terminal Classic (~AD 500-900/1000) civic-ceremonial center of Xunantunich, as well as conserving structures to expand the tourism potential of this site (Zanotto and Awe 2017).

Group B is an elite residential household northwest of the Xunantunich epicenter. The group has been subject to archaeological investigations since mid-twentieth century. The past seven years of research in this part of the site (2016-2017) exposed several previously unknown enclosing structures around the Group B courtyards (Messinger et al. 2019), extended our understanding of the size and layout of earlier components of the residential groups, and documented extensive Terminal Classic period (AD 750-900) peri-abandonment deposits (see Ebert et al. 2020; Messinger et al. 2023 for overviews). Over 11 burials have been documented in Group B (Appendix A). This report focuses on the analysis of a recently excavated burial from Structure B6 in Courtyard 2 in Group B (Figure 1) from the summer of 2022 (Beardall et al. 2023).

STRUCTURE B6, BURIAL 1

The focus of the excavations that lead to the discovery of Structure B6 Burial 1, was on exposing peri-abandonment deposits throughout Courtyard B2 and structures B3, B5, B6, and B7. Peri-abandonment deposits have been defined as dense concentrations of pottery, high frequencies

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of smashed ceramics, lithic tools and debitage, faunal remains, and in some cases, underneath masonry buildings (Davis et al., this volume), have been radiocarbon dated to the Terminal Classic (~cal AD 800-1000) (Messinger et al. 2023).



Figure 1: Map of Xunantunich Group B with excavation unit B6-5 in red (adapted from Beardall et al. 2023: Fig. 1).

This burial described in this report was documented in Structure B6, Unit 5 (Str. B6-B5) (Figure 1), and likely also dates to the Terminal Classic period. Structure B6 is located in the southwest corner of Group B and makes up the western side of Courtyard B2. The specific use of Structure B6 is still unknown and no floorplan for the building has been uncovered (Yaeger, personal communication). Limited in situ bioarchaeological analysis took place during the excavation and will be referenced in this report (Beardall et al. 2023). Once the remains were excavated, they were curated at the BVAR Project lab facility, located at the Cahal Pech Archaeological Reserve, until further osteological analysis could be conducted.



Figure 2: Updated burial map for XUN Structure B6 Burial 1.

Based on an inventory conducted by Green Mink during the summer of 2023, at least three individuals are represented by the skeletal assemblage excavated from Structure B6. Below we present the osteological analysis for each individual including biological profiles, trauma and pathology assessments, taphonomy, and interpretation. Standard osteological analysis methods were employed for age (AlQahtani et al. 2010; Baker et al. 2005; Smith 1991), sex (Klales 2020), as well as pathology and trauma (Buikstra and Ubelaker 1994; Moorrees et al. 1963). Complete inventory and burial paperwork may be available upon request. Numerous BVAR Project students participated in the inventory and analysis of these individuals in June 2023; this experience was used as a teaching opportunity for introductory instruction in osteology and bioarchaeology. An
updated plan map of the burial was created for this report using the previous burial maps, field maps, and provenience information of the skeletal elements identified in the lab.

Burial analysis began with interpretation of the provenience provided on the bags and aligning it with the information from the excavation report and original burial map (Beardall et al. 2023). Individual bones were bagged and labeled separately in the field as Individual 1 and Individual 2, which aided in the segregation process. This process of the remains continued with identification of individual elements, refitting large to medium sized fragments, observation of differential preservation and taphonomic processes, morphoscopic traits (i.e., muscle attachments), and lastly, general size and shape. All skeletal elements and fragments were cleaned before inventory. Once segregation was complete, each individual was laid out in anatomical order to begin their individual analyses.

Individual 1

Individual 1's skeletal elements correspond to Cluster 1A, 1B, and 1C on the burial map (Figure 2). Individual 1 is represented by a mostly complete skeleton (>75% complete). The elements missing include the sternum, sacrum, right innominate, left ischium and pubis, right and left femoral heads, the proximal and distal ends of the right and left ulna, radius, tibia, and fibula. The cranium was mostly complete with only one tooth missing (#5) and the posterior portion of the cranium fragmented (Figure 3). While most postcranial elements were fragmentary, many refit, allowing for the identification of several long bones. The preservation of the bones is fair, which is expected based on the tropical environment. The excavation report also mentioned disturbance from tree roots and animals that likely affected the presence and quality of certain skeletal elements (Beardall et al. 2023).

The age of Individual 1 was estimated as adult based on the complete eruption of the maxillary and mandibular molars (Figure 4). The individual M1's and M2's have fully formed crowns and closed apices, which gives an age of 18+ years old (AlQahtani et al. 2010). Individual 1's third molars, although slightly variable in eruption timing, have fully formed crowns. Tooth 17 has a potentially open apex which gives an age of 18.5+ years old (AlQahtani et al. 2010). No age-related degeneration was observed on joint surfaces, so it is likely this individual is a young adult. There is little wear on any of the teeth and no other age indicators were observed.

The biological sex of the individual was assessed using observed cranial features which were scored and run through the morphoPASSE system (Figure 5)(Klales 2020). MorphoPASSE, which uses a random forest model with qualifiers of unknown ancestry, unknown time period, and unknown location, classified this individual as male at 100% (*accuracy* = .75). Keeping the qualifiers as unknown allowed for a larger comparable sample size (n=2331).

Stature was not estimated due to the lack of complete long bones. There was no evidence of trauma. This individual did have evidence of dental pathologies, specifically caries on teeth 2 (interproximal), 3 (interproximal), 13 (occlusal), and 30 (occlusal). This individual also possessed mild calculus on several teeth. Several mandibular and postcranial metrics were taken, but unfortunately could not be used for biological profile creation.



Figure 3: Individual 1, cranial views. A – left lateral, B – anterior, C – right lateral.



Figure 4: Individual 1, A – maxilla and associated dentition, B – mandible and associated dentition.



Figure 5: Individual 1 mastoid processes. A – left, B – right.

Individual 2

Individual 2's skeletal elements correspond to Clusters 2A, 2B, and 2C on the original burial map (Figure 2)(Beardall et al. 2023). Individual 2 is represented by a partial skeleton (25-75% complete). It is represented by fragments of cranium, mandible, 20 permanent teeth, C1, numerous vertebral and rib fragments, both left rib 1, left and right clavicle and scapula, left humerus and radius, and a partial left ilium. Many of the larger fragments can be refit and were therefore bagged together by element. Laboratory analysis identified approximately 75% of the cranium, mandible, and dentition, as well as 60% of the postcranial elements.

The age of Individual 2 was estimated as a subadult approximately 10-12 years old. This is based on dental eruption and epiphyseal unions. Specifically, the open apices of teeth 27, 28, and 29 place the individual between 10-15 years old (Figure 6) (AlQahtani et al. 2010; Smith 1991). The unfused coracoid processes (Figure 7) places the individual as <13 years old, while the unfused ilia and the acetabulum (Figure 8) ages this individual at <11 years old for females, and <14 years old for males (Baker et al. 2005).

This individual's sex is classified as indeterminate. No sexually dimorphic features were available for observation based on the age. No evidence of pathology or trauma was observed. Due to the fragmentary nature, no cranial or postcranial metrics were collected. It should be noted that tooth 18 had very different preservation then the rest of the dentition (Figure 9). Other than tooth 18, the taphonomic assessment is like that of Individual 1.; highly fragmentary, lightweight bones typical of remains from tropical environments with acidic soil.



Figure 6: Individual 2 open apices of teeth 27, 28, and 29.



Figure 7: Individual 2 unfused coracoid processes.



Figure 8: Individual 2 unfused ilia. A – anterior view, B – lateral view.



Figure 9: Individual 2 maxillary and mandibular dentition. Tooth 18 circled in red with differential preservation.

Individual 3

Individual 3 is represented by three deciduous teeth. They were found in matrix from cleaning the cranium of Individual 1 in the lab. The teeth present include a left deciduous maxillary M2, an unsided deciduous maxillary M1, and an unsided deciduous maxillary M2 (Figure 10). Only the crowns of each tooth are present. Age estimates based on the formation of the crowns places this individual at 7.5 to 10.5 months old (AlQahtani et al. 2010; Smith 1991). No sexually dimorphic features are observable, and no pathology or trauma was observed.



Figure 10: Individual 3 dentition, occlusal view.

DISCUSSION AND INTERPRETATION

Structure B6 produced a multiple, chronological burial consisting of three individuals. Individual 1 is an adult male, Individual 2 is a child aged 10-12 years old and of indeterminate sex, and Individual 3 is a 7.5- to 10.5-month-old infant with indeterminate sex. It is currently unknown if these individuals were placed in the grave at or around the same time, or if they represent separate interments. Individual 1 was located 55cm below the modern ground surface while Individual 2 was recorded as 63cm below the surface and 8cm below Individual 1. Based on this information we suggest that the individuals represent two separate interments, possibly representing a case of grave reentry. Beardall et al. (2023:227) notes that the terminal phase of construction on the summit of Structure B6 was "likely cut through" which indicates that both individuals were intrusive burials. The body positions of Individual 1 and Individual 2 is also very curious. Individual 1 was placed with the head to south in an extended prone position and arms by their side, a position typical of the Classic period (250-900 AD) in the Belize River Valley (Drake 2016; Freiwald 2011; Green 2016; Zanotto 2017). However, Individual 2, was placed in a tightly flexed position, supine, and head to the west. This position is more common during the Postclassic after AD 1000. Based on the updated burial map, the individual is flexed at the knee and hip joint, but no flexion was recorded for the arms, a position that is not widely documented in the Belize River Valley region. It is unlikely that Individual 2 represents a secondary burial based on the articulation of the long bones, vertebral column, and the presence of smaller bones of the hands, feet, cranium, and dentition. It may be possible that instead, they were interred as a bundle burial. The individual would have been bundled at or around the time of death. The updated plan map (Figure X) created for this report has shed some light on the placement of specific elements but does not change the current interpretation of an intrusive grave with multiple individuals placed during separate interments.

There is little interpretation of Individual 3 based on the context of the three deciduous teeth. Since infant remains are very fragile and do not last in the highly acidic soil of the tropics, it is impossible to say if a complete individual was buried in this grave, or if these teeth just happened to be present in the fill of the grave.

Future analysis will include AMS radiocarbon dating to directly date the individuals and confirm time period of interment. Additional analyses will include stable and radiogenic isotope measurements to discover origin, movement, diet, and weaning. Analyses of aDNA will be able to identify the biological sex of the subadults as well as discover genetic connections that can help explain the consecutive interment of these individuals.

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Burial ID	Provenience	Age	Sex	Burial Mode	Positio n	Head Placement	Head Orientation	Extensio n	Grave Type	Grave Goods	Relative Date	Reference
1	B1	A?	Ι		Supine	South	Facing east	Extended	Simple	none	LC	Thompson 1942
2	B1	A?	Ι		Supine	South	Facing east	Extended	Cappe d cist	none	LC	Thompson 1942
3	B1	SA	Ι		Laying on right side	South	Facing east	Flexed	Simple	Several unslipped dishes near head, 2 lip to lip vessels touching spine	LC	Thompson 1942
B5	B5 Platform	A	F(?)			South			Cappe d cist	Whistle at feet, unslipped bowl with pedregal and modeled censor	LC - Early Postclassic	Pendergast & Graham 1981

Burial ID	Provenience	Age	Sex	Burial Mode	Positio n	Head Placement	Head Orientation	Extensio n	Grave Type	Grave Goods	Relative Date	Reference
B1/B2	B1/B2 Platform	А	F		Laying on right side	South	Face down	Flexed	Cappe d cist	Four chert bifaces, 1 censor prong, mano, metate, 6 pieces of worked chert, 10 bone frags, small ceramic mask with headdress, chert between 2nd & 3rd vertebrae	LC	Etheridge 1995
B1/B2 skulls	B1/B2 platform								Cist		LC	Etheridge 1995
B1-4 Ind. 1	B1	A	Ι	Primary	Prone	South			Partial cist	Four small carved shell pendants, three chert biface blades, miniture jar, shell beads	LC	Sullivan et al. 2017; Green et al. 2018

Burial ID	Provenience	Age	Sex	Burial Mode	Positio n	Head Placement	Head Orientation	Extensio n	Grave Type	Grave Goods	Relative Date	Reference
B1-4 Ind. 2	B1	SA	Ι	Primary					Partial cist	Four small carved shell pendants, three chert biface blades, miniture jar, shell beads	LC	Sullivan et al., 2017; Green et al., 2018
B1-4 Ind. 3	B1		Ι						Partial cist	Four small carved shell pendants, three chert biface blades, miniture jar, shell beads	LC	Sullivan et al., 2017; Green et al., 2018
CTB1 -2019- 1 Ind. 1	Courtyard B1	Infant	Ι	Primary	Prone	South		Extended	Simple	None	TC	Ebert et al., 2020
CTB1 -2019- 1 Ind. 2	Courtyard B1	А	Ι							None	ТС	Ebert et al., 2020
B9- 2019- 1	В9	А	Ι	Secondary?						None		Ebert et al., 2020
B6-B1 Ind. 1	В6	A	Prob. M	Primary	Prone	South		Extended		None	ТС	Beardall et al., 2023; Green Mink et al., this report

Burial ID	Provenience	Age	Sex	Burial Mode	Positio n	Head Placement	Head Orientation	Extensio n	Grave Type	Grave Goods	Relative Date	Reference
B6-B1 Ind. 2	B6	10-12 yr	Ι	Primary	Supine	West		Tightly flexed		None	ТС	Beardall et al., 2023; Green Mink et al., this report
B6-B1 Ind. 3	B6	7.5-10.5 mo	I								TC	Beardall et al., 2023; Green Mink et al., this report

*Burial encountered by MVAP (Petrozza & Yaeger 2015) not included in this database.

REVISITING TERMINAL CONSTRUCTION OF STRUCTURE C6 AND ASSOCIATED PLAZAS, CAHAL PECH, BELIZE

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INTRODUCTION

Located near the southeastern limit of Cahal Pech's site core lies Structure C6. Structure C6 is a multi-terraced platform structure constructed ruing the Late to Terminal Classic period (~AD 600-900), with evidence of three to four rooms on top. This structure was constructed immediately south of Cahal Pech's eastern ballcourt, and its position perpendicular the court's playing alley. During the summers of 2009 and 2010, AFAR Operations carried out a thorough investigation of Structure C6, primarily exposing the terminal phase of construction on the northern facade of the structure facing the ballcourt, but a few elements of the structure were left uninvestigated (Pritchard et al. 2010). We returned in 2023 to complete this unfinished work. This report summarizes the work carried out by AFAR in July 2023. Dr. Jaime Awe and C. Mathew Saunders oversaw all aspects of the project with the support of Christy W. Pritchard and L. Michael Creswell. Seven students were instrumental in the success of the project.

The site of Cahal Pech was built atop a hill overlooking the Macal River in western Belize (Figures 1 and 2) and is today on the edge of the modern town of San Ignacio, the second-largest urban area in the country. The site's prominent location is emphasized by its situation on the west bank of the Macal River, just before its confluence with the Mopan River, where they become the Belize River. Due to its location and ease of access, the archaeological site has been the focus of investigations and excavations for five decades, the most important being those by the BVAR Project since the 1980s (see Awe 1992, 2008, 2013; Awe and Campbell 1989; see also Hoggarth et al. 2020). While the largest Classic Maya capital in the region, several important Classic royal tombs have been found at Cahal Pech, which has seen more archaeological work than almost any other Belizean site, with excavations beginning in the mid-twentieth century.

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Figure 1: Map of the upper Belie River Valley showing the location of Cahal Pech polity and surrounding settlement zone in red (map by C. Ebert, 2016).

The site center of Cahal Pech is composed of at least 34 structures arranged around seven courtyards. Evidence for occupation at Cahal Pech appears as early as 1200/1000 BC, when a small village was present (Awe 1992; Ebert et al. 2017). The site witnessed significant developments over time, starting with the Middle Preclassic period (700–500 BC) when an E-Group complex in Plaza B served as a communal forum (Ebert et al. 2021). Transitioning into the Late Preclassic, the formalization of dynastic rulership by an emerging elite class is evidenced by the construction of elite tombs on the east side of Plaza B (Awe 2013). The east side of Plaza B is formed by the triple, joined temples of B1, B2, and B3. Though not the tallest, B2 was the most prominent pyramid, and has revealed a total of 13 Late Preclassic through Late Classic royal burials to date (Awe 2013).



Figure 2: Map of Cahal Pech epicenter with location of Plaza C and Str. C6 highlighted (courtesy of the BVAR Project).

The Early Classic witnessed accelerated construction activity, with several structures within Plaza A being remodeled, the plaza resurfaced. Str. A2, a long, raised gallery building, provided the main entrance into the royal residential acropolis. Plazas C, D, F, and G also grew substantially through the construction of new buildings, including the first phase of the eastern ball court (Awe and Helmke 2005). During the Late Classic period, the site reached its maximum size. Buildings within public plazas in the western portion of the site were enlarged, and more restricted access plazas in the eastern sector were constructed to function as royal residences (Awe 1992, 2008). Evidence for the decline of the Cahal Pech polity appears around AD 800. Several periabandonment deposits within Plazas A, B, and H date to this time and are likely associated with a reduced remnant population at Cahal Pech or with small groups who continued to reside on the site's periphery during the last stages of the Terminal Classic period (Awe et al. 2020).

On the far eastern side of Plaza B, across from the tall temples, is the lower Plaza C, which surrounds one of Cahal Pech's two ballcourts (Santasilia 2013). Many of AFAR's earliest excavations took place in Plaza C, uncovering Str. C4 and C5, along with the ballcourt buildings,

and revealing that all but the lowermost course of facing stones on these structures had been removed in antiquity, likely in the Terminal Classic period (Pritchard et al. 2010). Other AFAR excavations found remains of a low wall restricting access between Str. B3 and C4 in the north and Str. C6 in the south, of which upper facing stones were also removed.

METHODS

Undertaken by a crew of seven students led by eight Belizean and American archaeologists, the 2023 AFAR excavations of Structure C6 were limited to three contiguous excavation units. Excavation Unit (EU) 1 had dimensions of 8 m east to west and 1 m north to south. EU 1A, situated within EU 1, measured approximately 1 x 1 m. Similarly, EU 3, situated west adjacent to EU 1, was also a 1 x 1 m excavation. The current excavation units were established to include a previously excavated portion of the northern façade of Structure C6. However, most of the investigation area was established north of the previous excavations. The westernmost limit of the excavation units was placed near the central axis of the structure, and the easternmost limit extended to the expected limit of the structure. During the 2009 and 2010 excavations, a terminal plaza floor was uncovered in this work area, but time constraints allowed only for the excavation of a 1 x 1 m exploratory unit to capture the deposition of the plaza (Pritchard et al. 2010). This unit revealed evidence of three well-defined plaster floors located 80 cm below the surface level. Our current excavation units were established to expand the findings of this test unit across the northernmost façade.

EXCAVATIONS

Structure CHP-C6-1 Excavations

CHP-C6-1 was established as an 8 x 1 m excavation unit (Figures 3 and 4). The southern edge of the unit was placed abutting the north façade of Structure C6, while the northern profile extended into the plaza. Level 1 of the excavation unit consisted of dark gray humic loam in the top 25 cm, underlain by light gray loam. Level 1 contained a plethora of limestone rubble and rocks, as well as Late and Terminal Classic ceramics and some lithics. In the approximate center of EU 1, at approximately 15 cm below the surface, there was a large fragment of an altar/ballcourt marker situated against the northern façade of Structure C6. A portion of the facing stones making up the Structure C6 façade behind the altar/ballcourt marker were missing. The terminal floor (Floor 1) was exposed within the excavation unit at approximately 20 cm below the surface. After the altar/ballcourt marker was fully exposed, the artifact was relocated atop the terminal floor in the eastern end of EU 1 to facilitate continued excavation of subsequent excavation unit levels. To accomplish this, EU 1A was established on the floor of EU 1, underneath where the altar/ballcourt marker was located.



Figure 3: Plan map of 2023 Excavation Units 1 and 1A associated with the Eastern ballcourt.



Figure 4: Plan map of 2023 Excavation Units 1 and 3 associated with the Eastern ballcourt.

Excavation of EU 1 Level 2 consisted of the western portion of the unit, west of where the altar/ballcourt marker was recovered and where EU 1A was established. Level 2 proceeded through the terminal floor, underlain by approximately 30 cm of limestone ballast fill. The excavation of Level 2 revealed the penultimate stage of Structure C6 architecture, including the penultimate basal molding at approximately 37 cm below the surface. The penultimate floor (Floor 2) was uncovered between 40 cm below the surface in the eastern part of the excavation unit and 60 cm below the surface in the western part of the excavation unit (Figure 3). Interestingly, a portion of the penultimate floor was covered by an amorphic, bulbous concentration of plaster which was not penetrated by the current excavation.



Figure 5: Possible ballcourt marker or altar fragment recovered from 2023 EU 1, associated with Str. C6.

Structure CHP-C6-1A Excavations

As previously mentioned, EU 1A was placed within EU 1 beneath the location where the altar/ballcourt marker was located. EU 1A was established as a 1 m by 1 m excavation unit. Within EU 1A and extending west, partially into EU 1, is an intrusion into the penultimate floor, similar

in attributes to a possible interment (Figure 3). The intrusion fill consisted of dark gray loam and was mostly sterile. However, the architecture of a different structure was revealed within the northern profile. Time did not allow for a thorough investigation, but preliminary assessments suggest the wall of the early structure exposed did not align with Structure C6 and may be the southern limit of a larger structure.

Structure CHP-C6-3 Excavations

CHP-C6-3 was established as a 1 m by 1 m excavation unit adjacent to EU 1. Like EU 1, the southern profile was placed against the north façade of Structure C6, and the northern profile extended into the plaza. This excavation unit was placed to expose a possible penultimate staircase suspected to be in this vicinity. Level 1 of the excavation unit consisted of dark gray humic loam, which was underlain by the terminal floor at approximately 25 cm below the surface. The Level 1 soil matrix contained a high frequency of limestone rubble, rock, and artifacts, including ceramics and lithics. Level 2 consisted of the terminal floor and below. Within EU 3 Level 2, at approximately 30 cm below the surface, it appeared that the western half of the excavation unit consisted of backfill from a previous excavation, as a plastic bottle was recovered within the matrix. The eastern half of EU 3 Level 2 soils were undisturbed by previous excavations and contained similar limestone ballast fill as exposed in EU 1. However, the fill within EU 3 contained a comparatively higher frequency of ceramic artifacts than found in EU 1. The penultimate floor within the eastern half of EU 3 was exposed at approximately 44 cm below the surface. Excavations of EU 3 Level 3 continued below the penultimate floor, uncovering early structural remains possibly associated with structural remains identified in EU 1A. This level continued to narrow with depth due to the amount of limestone in the soil matrix. Approximately 30 cm were excavated as Level 3, at which point the level was terminated (Figure 3). Few artifacts were contained within Level 3.

DISCUSSION AND CONCLUSIONS

The 2023 operations at Cahal Pech were limited in scope, but the team managed to revisit and expand upon earlier investigations from the 2009 and 2010 field seasons. Previous studies of Structure C-6 provided an understanding of the terminal phase of the structure. The 2023 investigations added to our knowledge of the associated plaza floor, as well as the previously unknown early structure found to the north. Beyond the discovery of the altar/ballcourt marker, the confirmation of the plaza floor deposition, and the discovery of the limits of the earlier structure, little information could be collected. A surprisingly limited quantity of cultural material was collected throughout each established excavation unit.

The presence of the carved altar or potential ballcourt marker at the base of Structure C6 led to no deeper understanding beyond the basic fact that it was present. Although the altar/ballcourt marker was as skillfully carved as any others found at Cahal Pech, the lack of details beyond shape and form denies our team any conclusive evidence that it was directly connected to the adjacent ballcourt. The altar/ballcourt marker's fractured edge leads us to believe that it was not discovered in situ and was likely reutilized. In other parts of Cahal Pech, we have discovered monumental elements reutilized as structural components, but the location of this altar/ballcourt marker strongly suggests that its placement was not structural in any way and must have

maintained some significance of its original function. Formal investigations of Structure C6 can be terminated, but further investigations of the earlier structure discovered are needed. Conserved structures surrounding this area could pose complications to this investigation but should be considered for future study.

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