RESEARCH REPORTS FROM THE PROGRAMME FOR BELIZE ARCHAEOLOGICAL PROJECT, VOLUME SIX

Edited by:

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And

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Occasional Papers, Number 14
Mesoamerican Archaeological Research Laboratory
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BACKGROUND AND INTRODUCTION TO THE 2011 SEASON OF THE PROGRAMME FOR BELIZE ARCHAEOLOGICAL PROJECT

Fred Valdez, Jr., The University of Texas at Austin
Marisol Cortes-Rincon, Humboldt State University

INTRODUCTION AND BACKGROUND

The geographic area in NW Belize is known as the Rio Bravo Conservation and Management Area (RBCMA) serves as the research region for the The Programme for Belize Archaeological Project (PfBAP; see Figure 1). The property, currently at 260,000 acres, is owned and managed by the Programme for Belize (administrative offices in Belize City). The PfBAP has been involved in yearly research on the RBCMA since 1992.

While most of the research endeavors of the PfBAP have been focused on the Maya Period, ca. 1000 BC - AD 1500, the research data available on the property ranges from well before the Maya occupation and beyond the "Maya only" into the historic period. There is growing evidence, primarily in the form of chipped stone tools, for Paleoindian era and Archaic period remains. Unfortunately, these early remains are from surface finds rather than stratigraphic contexts. Beyond the prehistoric Maya remains are sites and artifacts of the historic period. Sites in-and-around Hill Bank as well as Quam Hill remind us of the very long and generally continuous utilization of the RBCMA region.

For the Maya research on the RBCMA, the PfBAP has been provided a great opportunity to pursue a regional research interest. While we have excavations, etc. at specific sites such as La Milpa and Dos Hombres, the PfBAP is adding to the prehistoric reconstruction through many small site investigations as well as transect surveys and mapping. Ultimately, the PfBAP intends to provide a regional perspective concerning the interaction between large sites, small settlements, and the myriad of features that connect them all.

RESEARCH METHODS (Research Design)

The PfBAP has several significant goals as a regional focused research project. Two significant interests include: 1) defining regional patterns of cultural development and decline (through time); and 2) applying identified patterns to major research interests/problems of ancient Maya Civilization and generally to lowland Maya archaeology.

The regional approach in Maya archaeology may help understand certain processual and cultural-historical questions. The approach is viable in that it allows us to see the prehistoric Maya from its urban centers to the supporting villages and structures that provide a more comprehensive view of how Maya Civilization may have operated, etc.

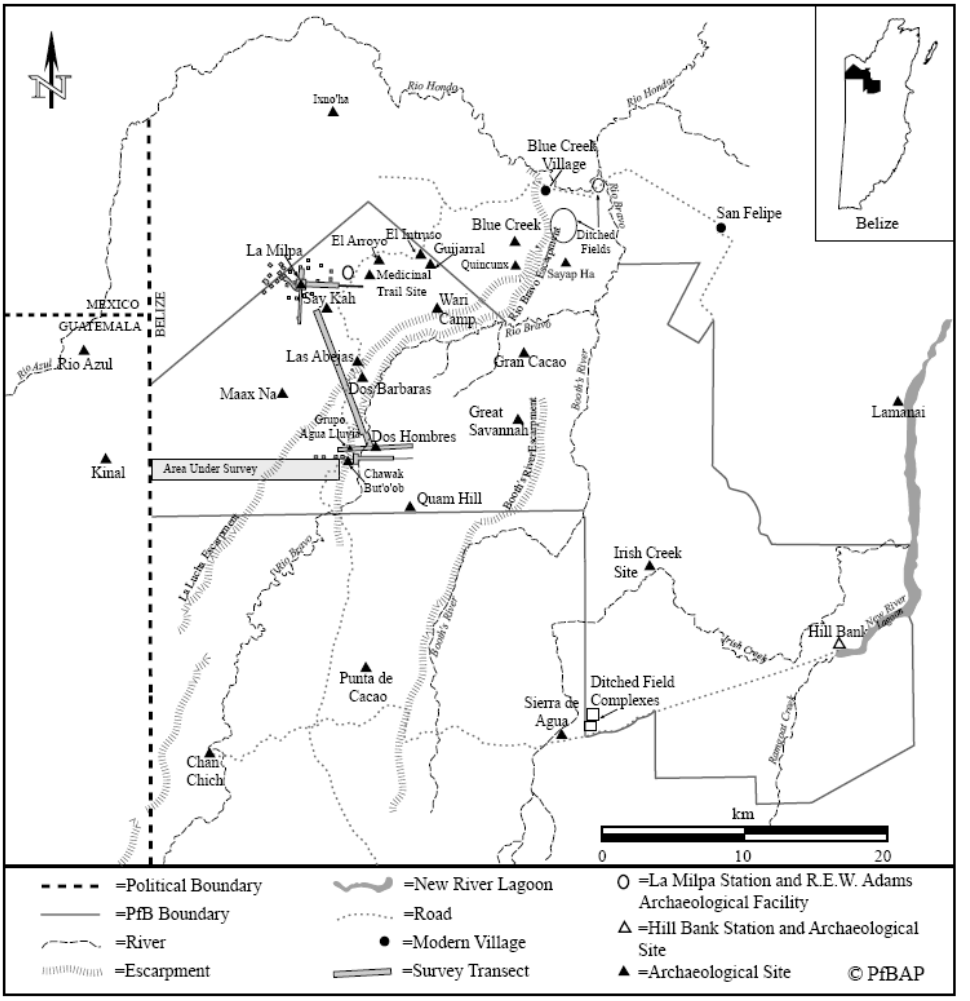

Figure 1. Map of sites in the PfBAP and neighboring areas. Map version by Rissa Trachman.

The larger research unit, PfBAP, serves as an umbrella organization for many research interests. Each "independent" project may bring forth a particular research/theoretical agenda, but that articulates with the broader goals of the PfBAP. Thus, the papers contributed to this volume represent many perspectives and interests about ancient Maya life.

REVIEW OF THE 2011 INVESTIGATIONS

The research reported in this volume are papers from colleagues with their own research projects as well as graduate student research (usually dissertation research). This introductory chapter is a quick summary/comment to contextualize the volume. The archaeological research herein reported was completed under a permit issued by the Institute of Archaeology, Belmopan, Belize.

The range of studies under the PfBAP in the 2011 season was quite broad and extensive. In the La Milpa "realm" area were investigations at the site center as well as several support locations. At the La Milpa center are investigations by Trein at Structure 3; Houk and Zaro in the B-Group area; Lewis at significant residential groups by the South Acropolis; Chatelain at the South Ballcourt; Aylesworth with some testing of Plaza A and significant photo-work; Riddick's investigations of LM-4; and Drake's excavation/study of a burial from LM-4. What we term support locations are medium to small sites within the La Milpa "influence" including: Jackson and Brown at Say Ka; Dodge at the Hun Tun site; La Milpa North investigations by Heller; La Milpa East (and more) from Weiss-Krejci and Brandl; and perhaps Levi's study in the Warrie Camp area.

More distant studies within the RBCMA and by the PfBAP include: Aylesworth's savannah survey near Hill Bank; Trachman's research at Dos Hombres; and Cortes-Rincon's research on the Dos Hombres-to-Gran Cacao Transect (although this latter item is published as a separate volume). Several special studies are included in this volume including a tree survey by Brokaw and Ward; Brennan's limestone study; and Hyde's analysis of chipped stone artifacts from seveal small sites (in the La Milpa area).

OTHER ACTIVITIES OF THE PfBAP

As in previous season, the PfBAP remains active in providing guest talks for visiting groups to the La Milpa Education center next door to the archaeology camp facility. Guests provided lectures about the PfBAP/Maya studies are foreign (teacher and/or student) groups visiting Belize as well as local high school groups from Orange Walk and Belize City.

PfBAP also remains active in public outreach providing access to our lab and field endeavors to the Mennonite Community and to the workmen (and their families). Access here specifically means "knowledge about" and the opportunity to see our research first-hand.

Once again, the PfBAP was most fortunate to have Sharon Hankins continue with her pottery-making research. Students, staff, and local workers have all learned much from Sharon as she moves ever-closer to understanding the techniques for pottery-making that the prehistoric Maya may have employed. The PfBAP has also benefited greatly from the professional photo-work of Bruce Templeton. Bruce has kindly and generously given of

his time and equipment to provide several of the research projects with high quality artifact and field photos.

ACKNOWLEDGEMENTS

We and the PfBAP extend our gratitude to the many people and institutions that make the program a success. From the Institute of Archaeology we thanks Drs. Jaime Awe, John Morris, and Allan Moore for their interest and advice. At the IoA we also acknowledge Melissa Badillo, George Thompson, and Brian Woodye. Sherilyne Jones of the Belize Museum in Belize City remains a constant voice of support as are John Masson of Ladyville, Paul Hunt of Belize City, and Herbert Masson of Belmopan.

The many families of Blue Creek have made our research efforts run more smoothly. We especially thank the Peter Rempel family and the Neufeldt family. In camp, Oscar Garcia and his family help in numerous concerns and our cooks are simply the best in Belize. The many workmen, most from San Felipe, are a constant source of comfort in the field and around camp.

At home (mainly Austin), we thank the Dean's Office at the College of Liber Arts for their support and continued interests. Diane Ruetz at TARL takes care of all of our accounting issues, etc. and several members of the Department of Anthropology serve as a source of moral support.

Of great significance for the 2011 season was support to several research interests in the "La Milpa realm" provided by the Alphawood Foundation. We hope the foundation may be pleased that their support is leading to three dissertations. Finally, thanks to all of our PfBAP colleagues for their constant interest, support, and above all their humor.

INVESTIGATIONS AT STRUCTURE 3, LA MILPA: THE 2011 FIELD SEASON*

Debora Trein, The University of Texas at Austin

INTRODUCTION

This report details the findings of the archaeological investigations conducted during the 2011 field season at Structure 3 and environs at the site of La Milpa, northwest Belize. The research effort of the 2011 field season represents the third field season of the author's doctoral dissertation research, that is concerned with the examination of the ways Structure 3 (a monumental structure) was used and accessed by the La Milpa community through time.

RESEARCH AREA AND SUMMARY OF PREVIOUS RESEARCH

The research area for this project is located at the ancient Maya site of La Milpa, in northwest Belize, Central America, close to the border with Mexico and Guatemala (Figure 1). The core of La Milpa is oriented in a largely north-south axis and is located 190 meters above sea level over a limestone escarpment (Figure 2). The northern sector is comprised of Plaza A, located on a high limestone plateau and ringed by some of the largest structures on the site. The southern sector is composed of Plazas B and C, Courtyard D, and the South Acropolis. The two sectors are linked by a causeway (sacbe). Occupation at La Milpa begins from the Late Preclassic period (400 BC-AD 250) and extends through to the Late Classic period (AD 600-800), where construction episodes of the core monumental structures seem to either terminate or are abandoned (Hammond and Bobo 1994; Hammond and Tortellot 2004; Hammond et al. 1998; Kosakowsky 1999; Sagebiel 2006), although signs of visitation and smaller-scale habitation in and around the site core after AD 850 can be identified in the archaeological record (Hammond and Bobo 1994; Moats and Nanney 2011).

The area investigated as part of this research comprises Structures 3 and associated architectural features immediately adjacent or connected to Structure 3 (Figure 3). These features include a west-facing lower stairs which projects out from the main body of Structure 3 and a small flat platform on the southwest corner of Structure 3 (identified in initial mapping efforts as Structure 93 and 94, respectively) (Hammond and Tourtellot 1993; Hammond et al. 1996). Adjacent plazas, courtyards, and open areas are also included in the research area, due to the role of Structure 3 in architecturally framing these areas (Cap 2008; Dahlin and Ardren 2002; Trein 2010, 2011). Structure 3 is situated on the southeastern side of Plaza A, and it represents one of the most imposing structures in the region, both in height and volume. Structure 3 is separated from other Plaza A architecture by two smaller structures immediately to the north, Structures 6 and 7. These buildings dramatically reduce visibility from Structure 3 to the center of Plaza A, and vice-versa. The area occupied by Structure 3 is also the site for a high number of recorded stela and altar stones at La Milpa, seven in total. Based on comparative

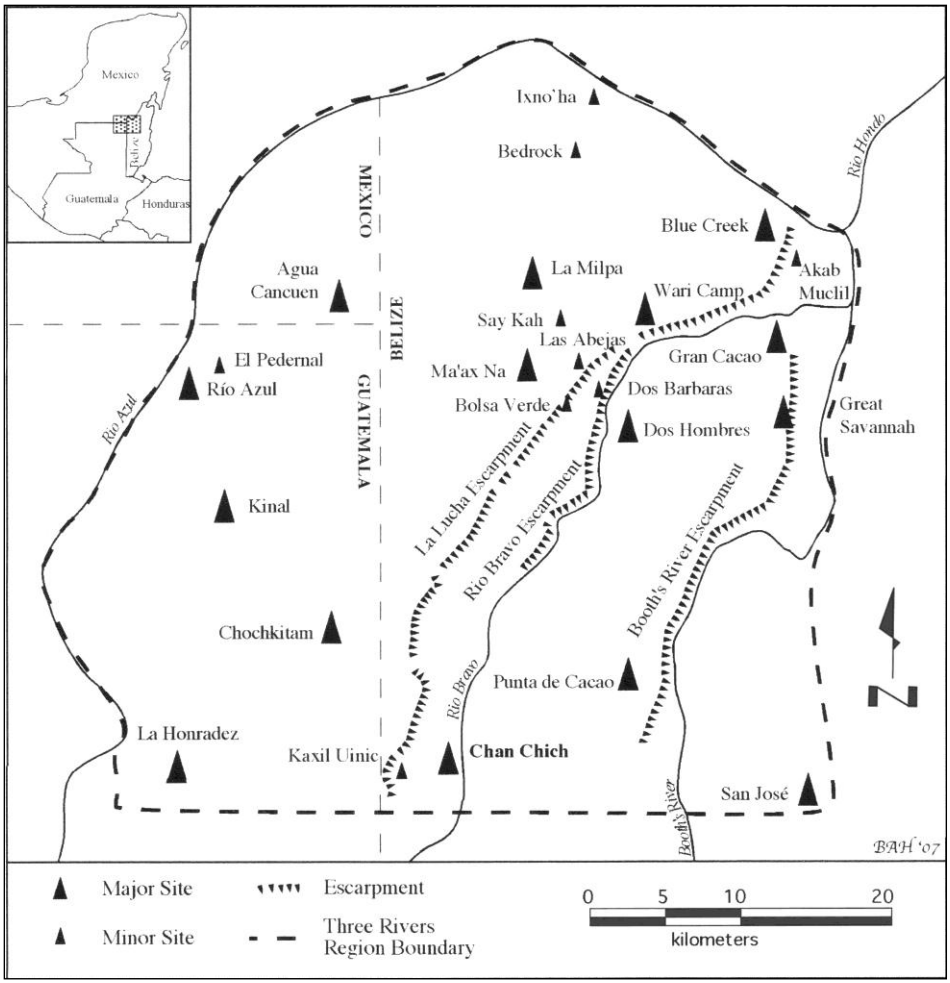

Figure 1. Map of the Three Rivers Region. Houk et al 2007.

literature from the Maya area, the positioning, size and association to other monumental features clearly give Structure 3 the designation of monumental architecture (Hammond and Tourtellot 1993; Hammond et al. 1996; 1998).

Excavations of the research area commenced in 2007, and these focused on the examination of the last construction phase of the west-facing lower stairs of Structure 3 (noted as Structure 93 in Hammond & Tourtellot 1993), which was found to date to the Late Classic period (Grazioso 2008). In 2009, excavations continued on the western façade of Structure 3 and expanded to encompass the north and south articulation between the lower stairs and the main body of Structure 3 (Figure 4). The stratigraphy

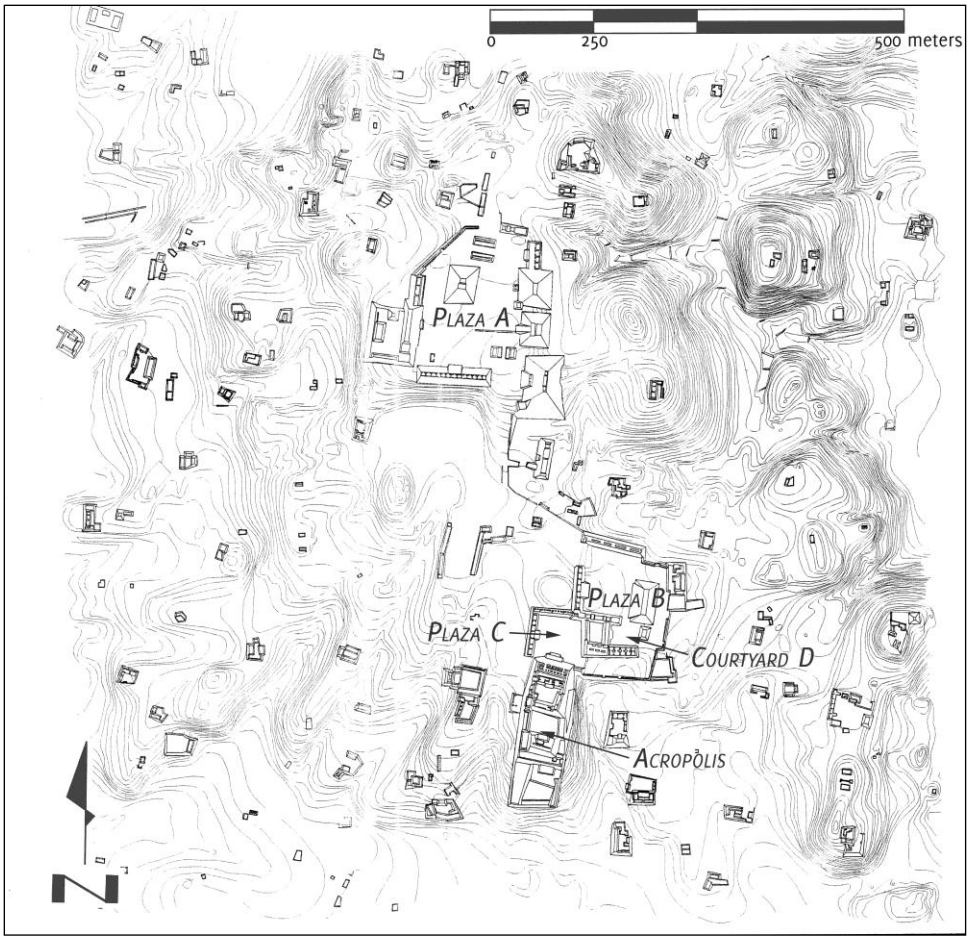

Figure 2. Plan of the site core of La Milpa. Hammond and Tourtellot 1993, with notes from the author.

uncovered at these two articulations indicate treatment of these buildings as a single structure, in which a project of maintenance, renovation, and/or reconstruction was designed and undertaken for the entire architectural complex rather than as two separate structures as their initial interpretation suggested (Hammond & Tourtellot 1993; Trein 2010). In 2010, work continued on the excavation of the lower stairs of Structure 3, both at the level of Plaza A and in its upper intersection with the main body of Structure 3, exposing two construction phases and the remains of a possible Postclassic cache(s) which included a lenticular biface and fragments of an incensario (Trein 2011). The flat platform to the southwest of Structure 3 (also known as Structure 94) was excavated, and stratigraphic analysis suggests that it was built in one construction episode in the Late

Classic as part of the same construction effort as the last architectural phase of Structure 3. The area to the northeast of Structure 3 was also investigated, leading to the discovery of a dense concentration of chert debitage and micro-debitage. In the southeast section of the research area a deposit of biface fragments and other lithic chopping tools, most of these blunt or showing signs of wear, were encountered in association to areas of exposed limestone bedrock. The artifact assemblages uncovered in the northeast and southeast portions of the research area are contemporaneous with the last phase(s) Structure 3 in the Late Classic period as they are contextually associated to diagnostic ceramics of Late Classic chronology (Lauren Sullivan, 2010 personal communication).

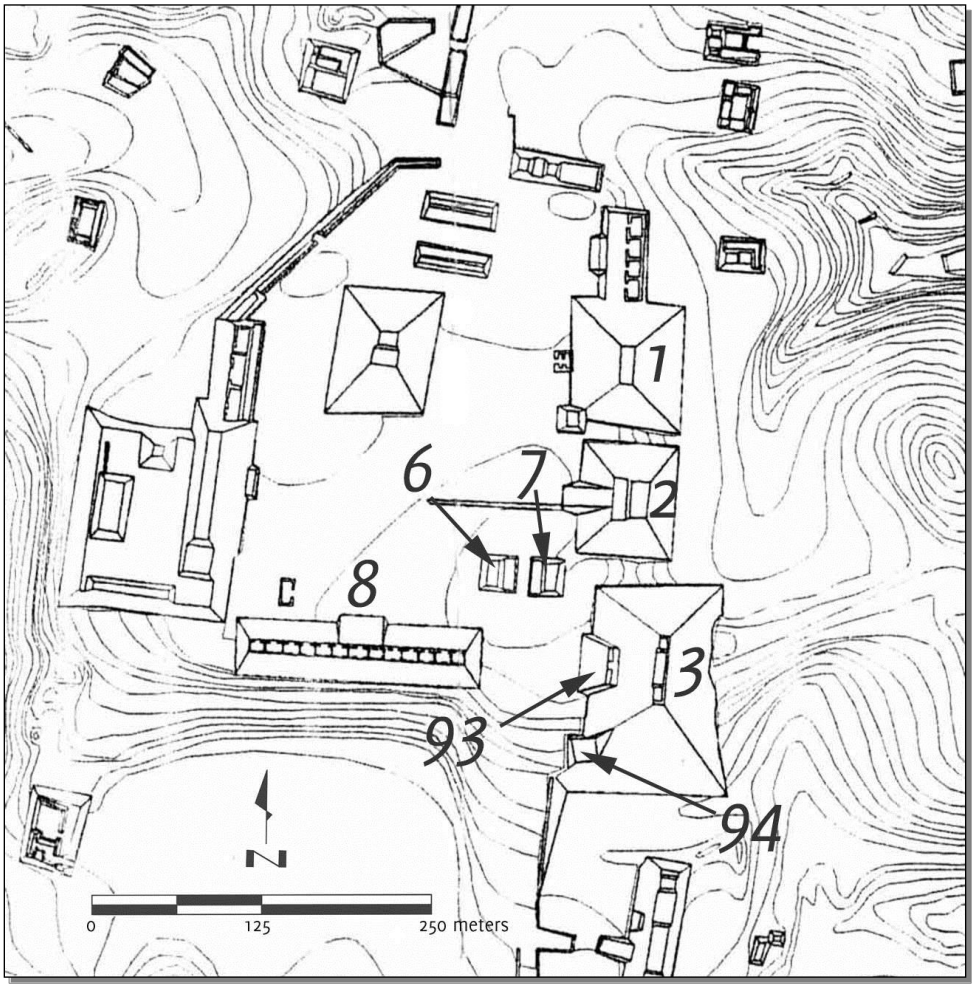

Figure 3. Plan map of Plaza A with relevant structures demarcated. Hammond & Tourtellot 1993.

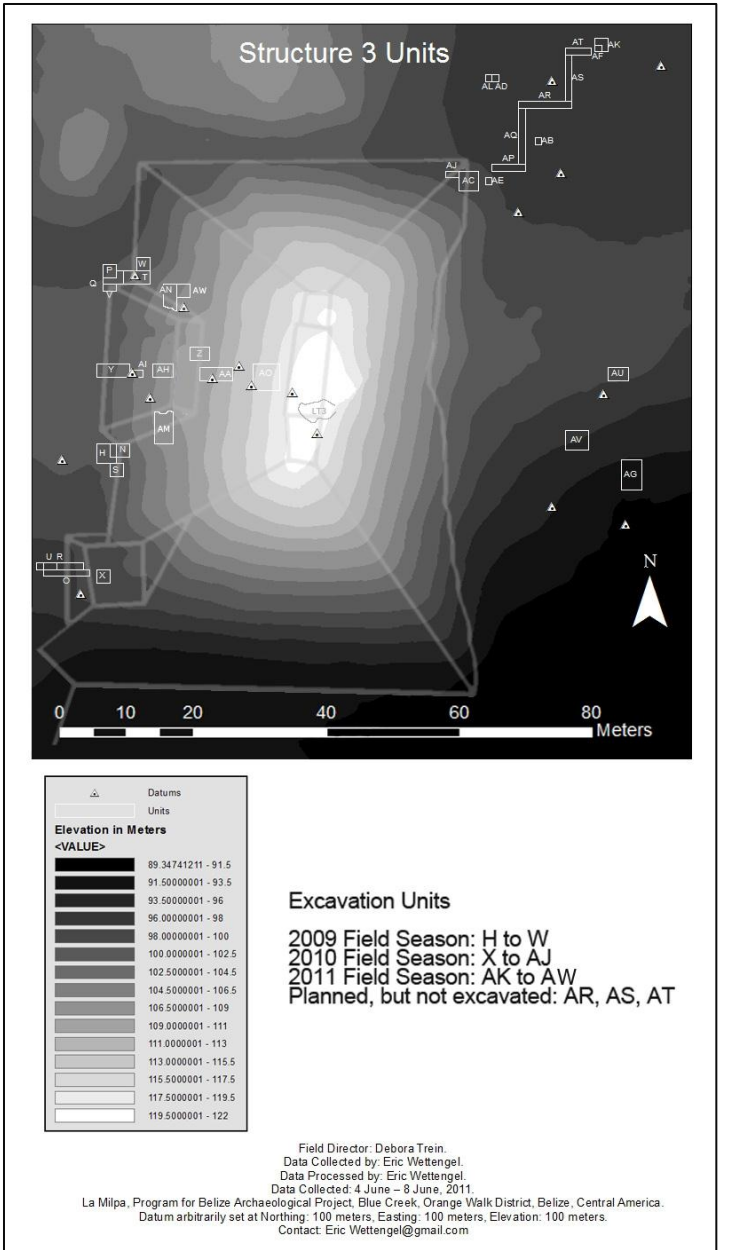

Figure 4. Topographic map of the research area with information on the location of units excavated and data points. An outline of Structure 3(as originally mapped by Hammond and Tourtellot 1993) is overlaid on top of the topographic map.

RESEARCH GOALS AND METHODOLOGY OF THE 2011 FIELD SEASON

As part of a multi-year research project, the research goals of the 2011 research effort remain the same as the research goals that shaped previous field seasons at Structure 3. The focus of this research consists of an investigation of the variable ways in which monumental architecture at La Milpa was used and accessed by different groups within the La Milpa community. It is posited that monumental spaces could be associated to activities other than solely the events of elite significance, these being often emphasized in a great number of scholarly works on ancient Maya monumental architecture (Ashmore 1991a; Ashmore and Sabloff 2002; Freidel and Schele 1986, 1988; Villamil 2007; and others). In addition to being spaces for ritual performances and political statements (Ashmore 1991b; Hammond 1991; Pendergast 1965; Prouskouriakoff 1963; Stuart 1986; Traxler 2003), this research aims to test the hypothesis that monumental structures can also function periodically as working spaces and transit areas for groups in ancient Maya society other than the elite. In order to understand the variable nature of use of monumental architecture within the context of larger-scale social dynamics in La Milpa, an investigation of the types of activities that were taking place in and around Structure 3 is required. As all action is mediated materially (Meskell 1998, 2005; Miller 2005), different types of activities and events should leave material traces of their existence.

The methods employed in the 2011 field season at Structure 3 also remained consistent as in previous field seasons. The methodology used in the 2011 field season was three-fold: horizontal and vertical excavations, soil analysis, and TDS (Total Data Station) topographic mapping. This particular approach was adopted for its comprehensive character: excavations, soil sampling, and topographic mapping deal with different types and scales of archaeological evidence, and as such it should counter potential biases against micro- and/or perishable remains in the archaeological record. This approach is to be complemented and contextualized through a comparative analysis of present scholarly archaeological and ethnoarchaeological literature and an examination of epigraphic evidence found in the research area.

SUMMARY OF THE RESULTS OF THE 2011 FIELD SEASON

The 2011 field season results presented here originate from topographic mapping and excavations, and are discussed separately. Soil samples were gathered, but not analyzed in the 2011 field season, and as such there are no results to discuss at this time.

Topographic mapping

Topographic mapping of the research area was conducted by Eric Wettengel, of Texas State University. The topographic map shows that the research area is characterized by high variability in the disposition of the topographic surface. In terms of present architecture, aside from Structure 3 – the dominant cultural feature in the landscape – Structures 2 and 7 are also visible to the northeast. The non-architectural areas include a

flat area to the west and northeast of Structure 3. A considerable stepped decline on the southeast sector of the research area is also visible, where the landscape drops in elevation from west to east. Mapping of the topography (as well as the position of data and excavation units) will allow for the investigation of possible spatial relationships between artifact assemblages, features, and architectural elements in the landscape that are recovered through excavation and soil analysis.

Excavations

Due to the wide scope of archaeological investigations utilized in the previous three field seasons, in the 2011 field season we were able to distinguish and investigate in detail three sectors of the research area that were pertinent to the goals of this project: Structure 3, in particular the top section of stairs, landing, and superstructure; the area to the northeast of Structure 3; and the area to the southeast of Structure 3. The last two locales were determined to be areas of interest due to the identification of distinct artifact assemblages during the 2010 field season, namely a dense lithic debitage deposit in the northeast and a relatively large number of distal biface fragments in the southeast sector of the research area. Excavation units are here listed based on their position within the research area. The first unit of the 2011 field season was A1-AK, continuing with the nomenclature system used in previous field seasons.

Structure 3

A1-AM: Unit A1-AM was established on the southern side of the western façade of Structure 3 to determine the location of the southwestern corner of the lower superstructure (which furnished the top of the lower stairs) of Structure 3. This superstructure would have stood approximately as a mid-way point between the level of Plaza A and the top of Structure 3. Passage through the lower superstructure would have granted an individual access to the upper stairs leading to the top of Structure 3. Together with Units A1-AN and A1-AW discussed below, Unit A1-AM was intended to provide information on the general dimensions of the lower superstructure of Structure 3. This superstructure had already been the subject of investigations in 2010 – the central doorway on the western façade of the lower superstructure was uncovered in the cleanup and documentation of a looter's trench (LT2), and the excavation of A1-AH (Figure 4). Using the architectural data recovered in 2010, A1-AM was started as a cateo, a small trench that used the known architecture (the western façade of the lower superstructure) present on the southern profile of LT2 as a guide. It was hoped that in following the western façade of the lower superstructure in a southerly direction, the southwest corner of the lower superstructure would be uncovered, preservation conditions permitting. Once the southwest corner of the lower superstructure was identified, the formal dimensions of A1-AM could be established. In utilizing a cateo excavation strategy for the excavation of A1-AM, an investigation of the southwest corner of the lower superstructure was made efficient and minimal, ideal for safeguarding the precarious architecture present at this location.

Investigations at A1-AM consisted of the removal of the layer of architectural collapse that covered the last construction phase architecture in this part of the lower superstructure. Excavations uncovered a section of the western façade, the remains of the southwest corner, and a section of the southern façade of the lower superstructure of Structure 3. The landing and top two steps leading up to the lower superstructure were also uncovered (Figure 5).

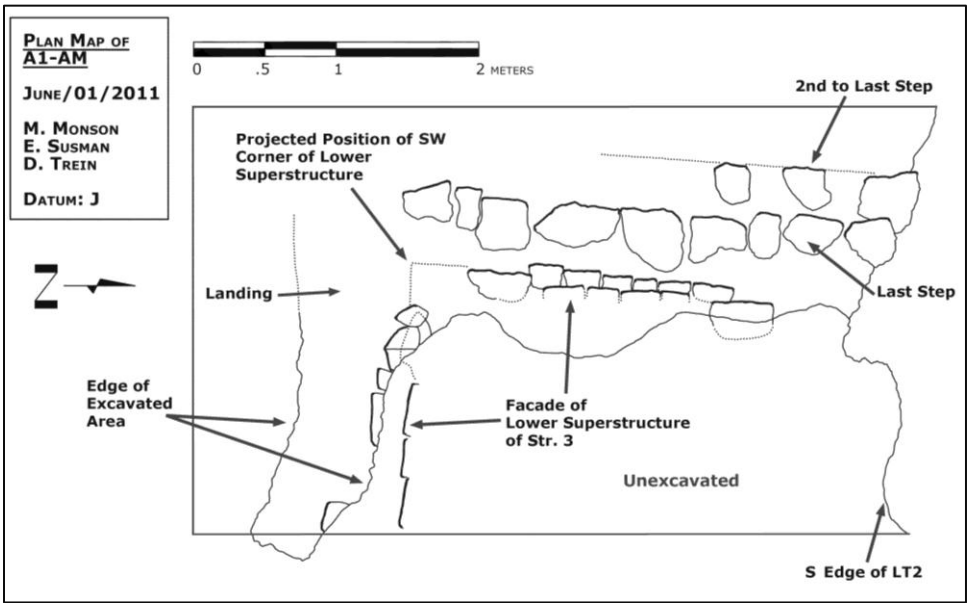

Figure 5. Plan map of A1-AM.

The western and southern façades were preserved up to the third or fourth course of stone, the southern façade showing a better level of preservation due to the its location closer to the main body of Structure 3. The western and southern façades showed a peculiar architectural composition: the bottom-most row of stones were square and set back into the building, the second bottom-most row was composed of rectangular stones that jutted out from the level of the bottom row, and the third and fourth rows, where visible, were square and in line with the bottom row (Figure 6). As it is unlikely that only the second bottom-most row of stones on the façade would have been pushed out by post-depositional formation processes, it seems likely that the architectural morphology identifiable on this façade was intentionally created as such. The function and meaning of this architectural feature remain unclear: interpretive possibilities include its use as a base for a plaster mask, or as a decorative band. No doorways or other openings could be identified from the remains of the façade of the lower superstructure at this location (which was also the case in the excavation of A1-AN, discussed below), and as such it

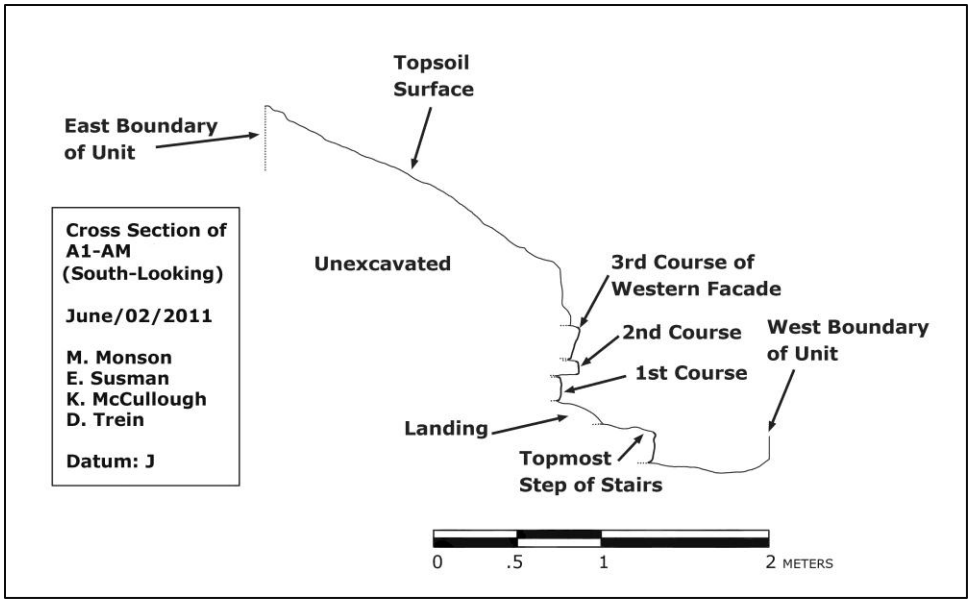

Figure 6. Cross section of the western façade of the lower superstructure of Structure 3, as uncovered in A1-AM, showing the morphology of the western façade. Looking towards the south.

can be suggested that the lower superstructure of Structure 3 only had one central doorway that provided access to the upper stairs and superstructure above.

The artifact assemblage uncovered in A1-AM was composed of scarce ceramic sherds and lithic debitage, which were all part of architectural collapse, the only context excavated in this unit. Ceramics date from the Late Classic period (Lauren Sullivan, 2011 personal communication), congruent with the data retrieved from elsewhere on the structure at this stratigraphic level.

A1-AN and A1-AW: A1-AN and A1-AW were designed to complement A1-AM, in that these two units were established to investigate the northwest corner of the lower superstructure of Structure 3. Utilizing the same excavation methodology as that applied in the excavation of A1-AM, a cateo was excavated using the western façade of the lower superstructure as a guide, identified in the northern profile of a looter's trench (LT1) located on the northern half of the western façade of Structure 3. LT1 had been cleaned and extensively documented in 2007 (Grazioso 2008), and as such the position of the western façade of the lower superstructure in this location was known to excavators in the 2011 field season. Like A1-AM, only the architectural collapse material was removed in the excavation process. The poorly preserved remains of the western façade of the lower superstructure were followed northwards until they were not observable. The preservation conditions in A1-AN were not as those encountered in A1-AM, therefore,

the northwest corner could not be discerned in the excavation of A1-AN. The northern façade of the lower superstructure could also not be identified in this unit. Nevertheless, the excavation of the cateo uncovered a relatively well-preserved northern side of the lower stairs and the top-most two steps (Figure 7 and 8).

Figure 7. South-facing photo of A1-AN, showing the exposed northern side of the lower stairs in the foreground, the second-to-last step on the left (by the unit string) and LT1 in the background. The superstructure's northern façade could not be discerned.

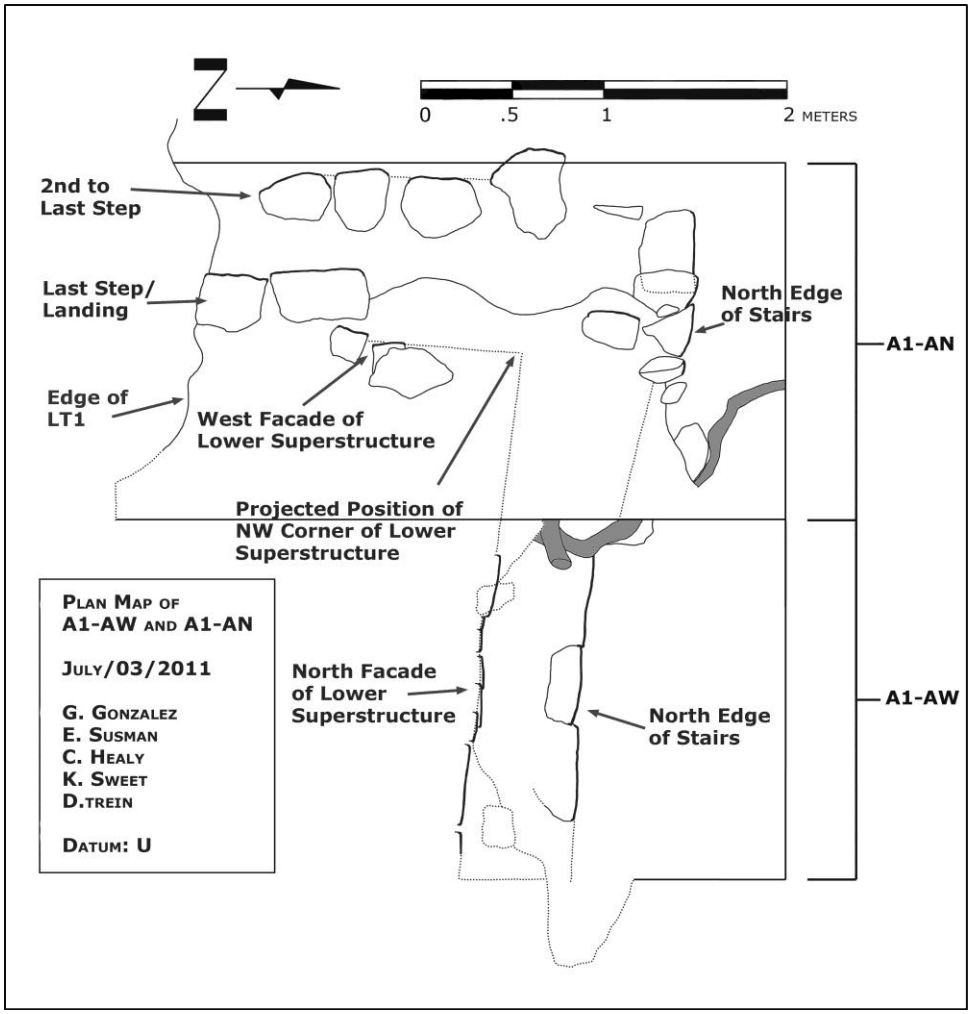

Figure 8. Plan map of A1-AN and A1-AW.

In order to determine the position of the northwest corner of the lower superstructure, which could not be identified in A1-AN, A1-AW was established immediately to the east of A1-AN. In the archaeological investigation of A1-AW, the northern side of the lower stairs was identified, as well as the northern façade of the lower superstructure, which was in a better preservation condition towards the eastern half of the unit, closest to the main body of Structure 3. Using the recovered information of the location and orientation of the western and northern façades of the lower superstructure in Units A1-AN and A1-AW, the northwest corner of the lower superstructure could be projected (Figure 8).

Similarly to A1-AM, the artifact assemblage recovered in A1-AN and A1-AW consisted mostly of ceramic sherds and lithic debitage, the ceramics dating to the Late Classic (Lauren Sullivan, 2011 personal communication). In analyzing the total architectural information recovered from A1-AM, A1-AN, and A1-AW, it can be proposed that the lower superstructure of Structure 3 was oriented to approximately 6°, and was not furnished with a deep landing (less than 50cm in depth). Moreover the western façade was equipped with a central doorway, which was possibly mirrored on the eastern façade of the building, creating a passage way to grant access to the upmost parts of Structure 3 (a hypothesis that cannot be tested at this time due to the precarious conditions created by the two looter's trenches on this structure [LT1 and LT2]). The length of the façade of this building measured approximately 21.5m.

A1-AO: Unit A1-AO measured 4 x 4 m, and aimed to examine the last construction phase architecture of the top-most area of the western façade of Structure 3, in particular the upper stairs, its articulation with an upper landing, and the top superstructure of Structure 3. The excavation of A1-AO uncovered the top-most five steps of the upper stairs of Structure 3. These steps were oriented to approximately 6°, which is consistent with the orientation of other known architectural features of Structure 3 (Figure 9).

The steps in A1-AO articulated with a landing, characterized by at least one – possibly two – plaster floors located at the eastern boundaries of the unit. The floor that has been positively identified as such was characterized by a warped, brittle and cracked, but still present, surface. The possible second floor was positioned on top of the visible floor. It consisted of a hard, relatively level plaster deposit, but lacked a surface and a sub-plaster construction fill deposit. It is possible that this plaster deposit corresponds to decayed plaster that degraded from the surface of the west façade of the superstructure of Structure 3 and was re-deposited on top of the existing surface of the landing (Figure 10).

A fragmented undecorated vessel was found covered by the topmost plaster deposit, lying on the surface of the confirmed floor, which was dated to the Late Classic (Lauren Sullivan, 2011 personal communication). In addition to ceramics, all of which were dated to the Late Classic period, lithic debitage were also observed and collected. Substantial amounts of large fragments of obsidian, which included a modified flake (the total weight of obsidian found in this unit exceeded the combined total weight of all obsidian found elsewhere at Structure 3 in 2011), and decoratively shaped plaster, which included the bottom half of a face, were also encountered in this unit (Figure 11).

The west façade of the superstructure of Structure 3 was not encountered, however based on information gathered from the documentation of LT3 (discussed below) this façade is located approximately 2.5m from the eastern boundaries of A1-AO (Figure 12).

A1-LT3: This unit represents the area occupied by LT3, or the third looter's trench identified on Structure 3. LT3 is located on the eastern side of Structure 3, and seems to

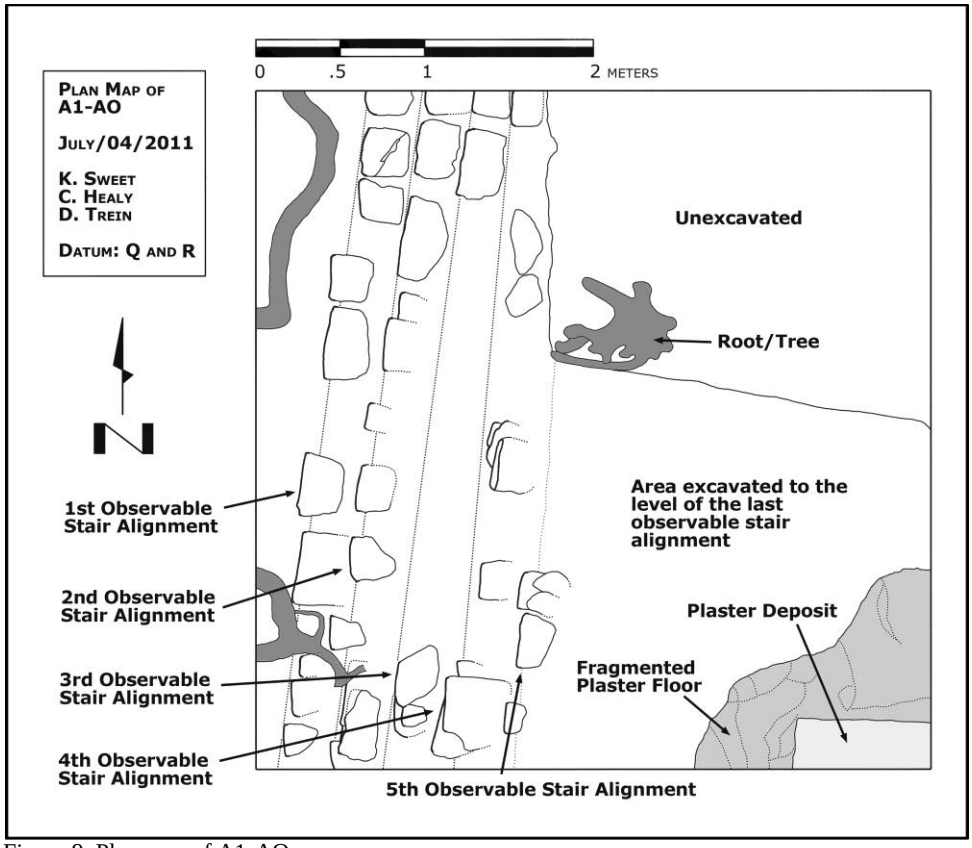

Figure 9. Plan map of A1-AO.

have been initially excavated by unknown parties to reach the inside of the top superstructure of Structure 3, at around its central-southern area, from the east. Signs of recent collapse of sides and remaining ceiling of the original tunnel excavated by looters were detected. In the 2011 field season LT3 was excavated for the examination of stratigraphy and exposed architecture, and consolidated in order to prevent further structural collapse.

The excavations of LT3 were limited to the cleaning of exposed architecture that had been covered in the looting debris and subsequent degrading of the looter's tunnel. As such, the work conducted in LT3 was confined to the clearing of the remains of the east wall of the superstructure of Structure 3, a fragment of a floor to the east of this wall, and the internal façade of the west wall of the superstructure (Figure 13).

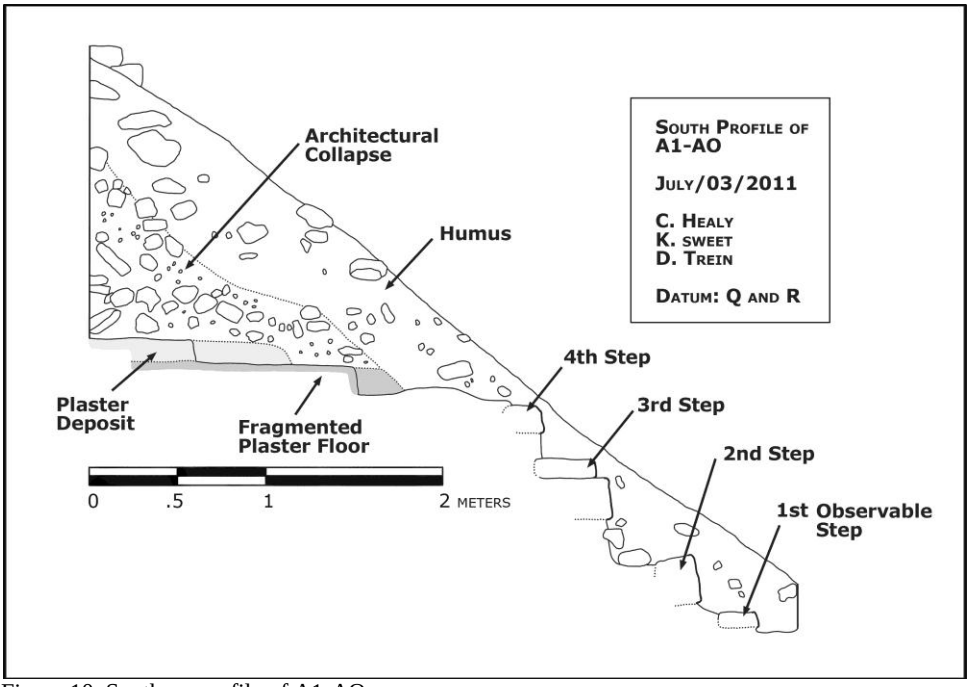

Figure 10. Southern profile of A1-AO.

Figure 11. Bottom half of a human face, shaped in plaster.

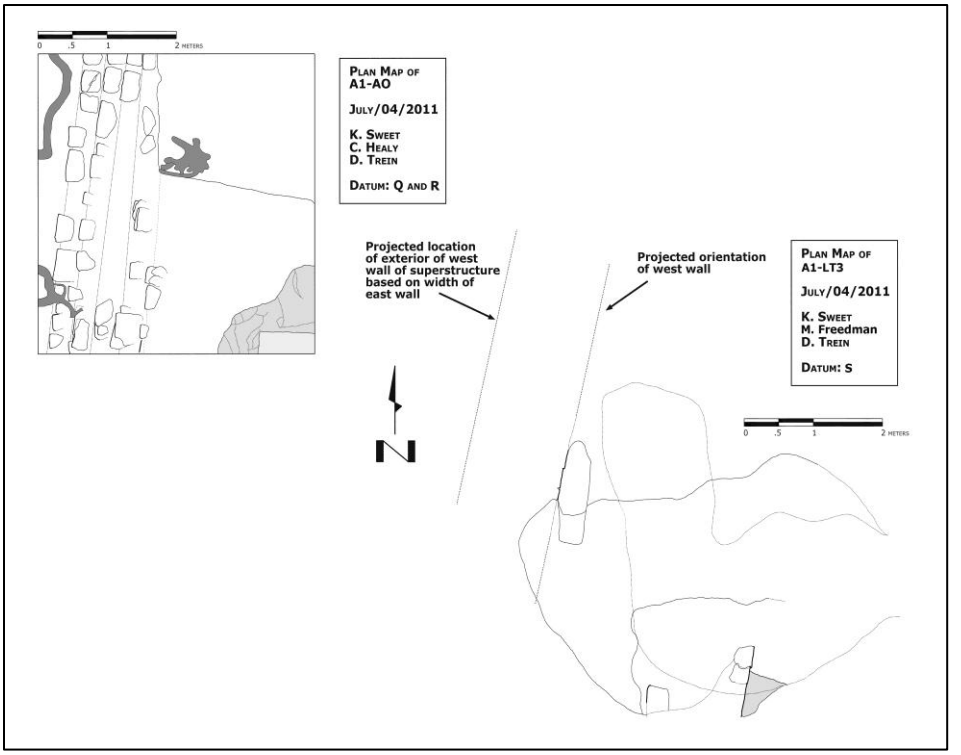

Figure 12. Plan map of A1-AO, LT3, and approximate location of the western façade of the superstructure of Structure 3, based on measurements of observable superstructure architecture in LT3.

The east wall of the superstructure was found to have measured approximately 1.5 m in thickness, and, in the fragment observed, was approximately 2 m in height, from its base to its where it is degraded close to the surface (Figure 14). It is not known at this point how tall this wall was in antiquity. The east wall was covered in a thick coat of plaster, which was visible in substantial amounts in both the internal and external sides of the wall. A floor was encountered in association to the east wall. This floor was most visible on the exterior of the superstructure and was found to have run under the wall, indicating that the floor was built before the walls of the superstructure of Structure 3. Due to the fragile nature of the looter's trench and the collapsed material in it, we were unable to confirm the presence of the floor in the interior of the superstructure. With the presence of the floor under the wall, however, it is probable that the floor was present in the interior of the building as well.

The internal side of the west wall of the top superstructure was also uncovered in order to confirm its role in the architecture of the superstructure. This façade was covered in a

coat of plaster, similarly to the east wall. Diagonal etchings (striations) were found on the surface of the plaster, creating diamond-shaped patterns that were present throughout the exposed surface (Figure 15). These etchings could be associated with the creation of a textured surface on existing plaster surfaces in preparation for the deposition of a new layer of plaster (Fred Valdez, 2011 personal communication), or might also be associated with graffiti or wall decoration. A larger area of exposure would be needed to confirm any of these possible interpretations.

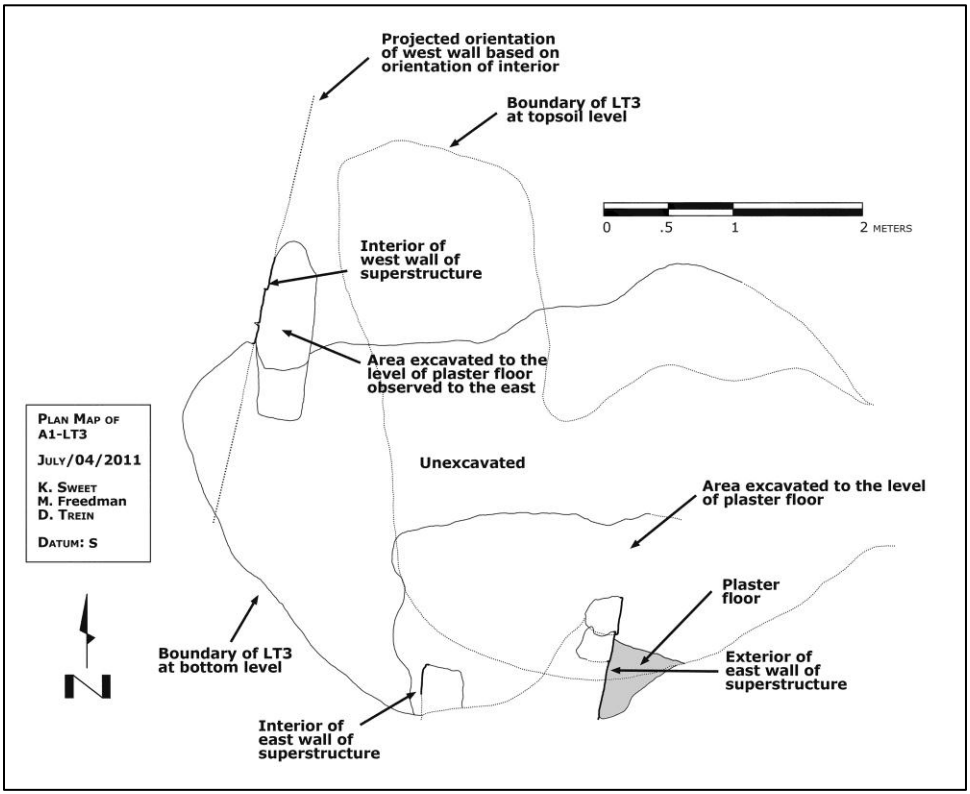

Figure 13. Plan map of looter's trench 3 (LT3).

Northeast Sector

A1-AK: A1-AK is an L-shaped unit that was designed to investigate the lithic deposit that was encountered in the area to the northeast of Structure 3 in 2010, in the excavation of Unit A1-AF. A1-AK envelops A1-AF at its northeast corner, where the densest concentration of lithic debitage was found. The excavation of A1-AK uncovered the same stratigraphic sequence recovered from elsewhere in the area to the northeast of Structure 3: humus/layer of compact matrix and limestone pebbles/degraded plaster (possible degraded floor), a layer of limestone cobble and boulders in silty matrix

(possible construction fill), a layer of non-sterile clay (stratum that contained lithic and ceramic artifacts), and bedrock (Figure 16).

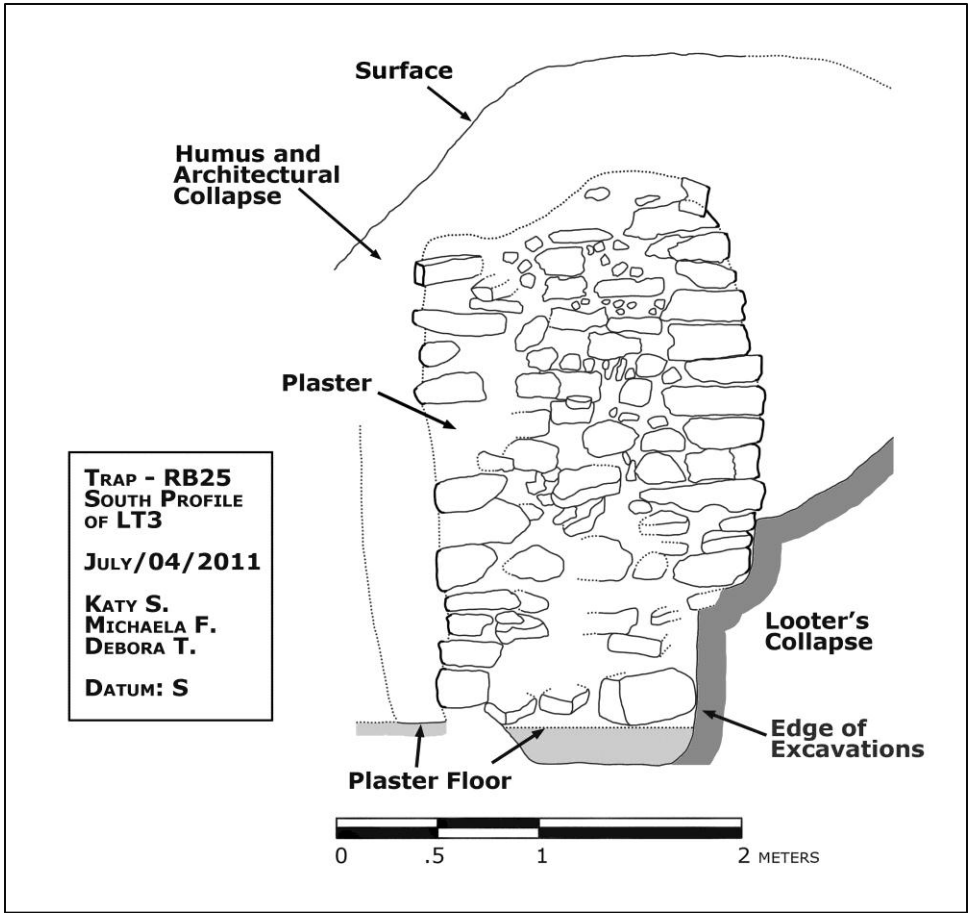

Figure 14. Southern profile of the east wall of the superstructure of Structure 3.

In association with the remains of a possible floor and construction fill, an extensive artifact assemblage was encountered, which corresponded with the assemblage encountered at the same level in A1-AF in the previous field season. This assemblage contained 10,073 chert debitage (flakes and non-flakes), four possible chert biface performs, eight possible chert cores, as well as ceramics sherds, obsidian debitage and two green stone beads. The chert and obsidian debitage recovered consisted mainly of artifacts that measured 2 cm in diameter or less, many of these measuring less than 4 mm in diameter, which were classified as micro-debitage (Helmke 2006). While some of the recovered debitage was created through post-depositional processes (discussed below),

some specimens were produced through lithic tool manufacture. A preliminary analysis of the lithic component of the assemblage recovered from A1-AK (which, combined with that of A1-AF, totals to nearly 15,000 artifacts in 0.4 m^3) has suggested that these lithics were the result of late-stage biface production and possible re-sharpening (David Hyde 2011 personal communication). The size of the lithic assemblage, in conjunction with the manufacture processes that produced them and the associated architectural context, suggest that the area outlined and investigated by Units A1-AF and A1-AK was the site of late stage biface manufacture and/or sharpening/repairing of damaged bifaces, possibly for use in the construction and maintenance of Structure 3.

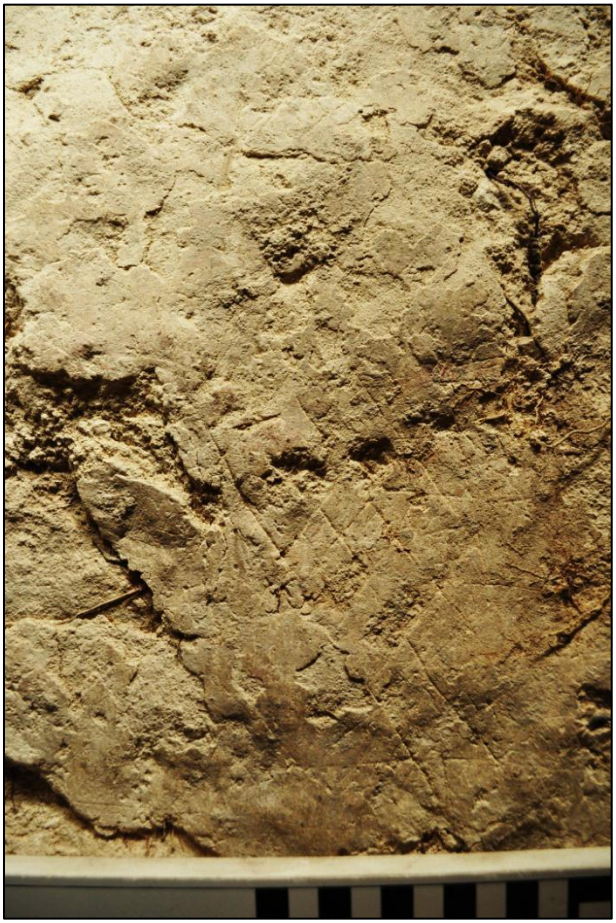

Figure 15. Photograph of the fine etchings on the surface of the plaster on the internal side of the west wall of the superstructure of Structure 3.

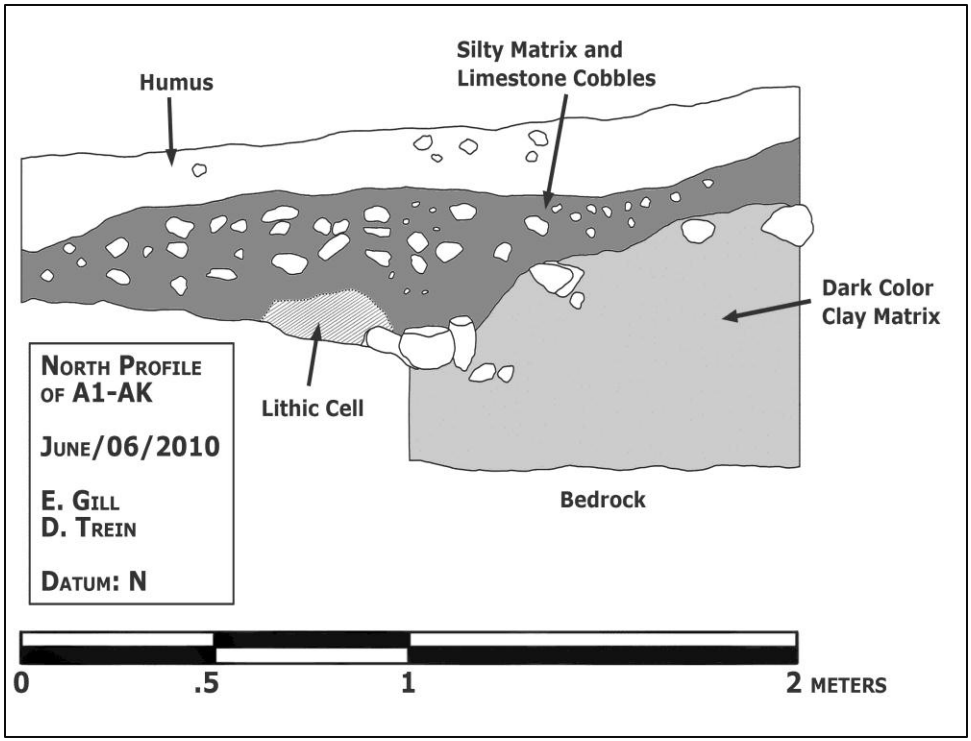

Figure 16. North profile of A1-AK.

In addition, artifact data recovered from A1-AK showed other noteworthy trends. Most of the micro debitage observed in the chert lithic assemblage at A1-AK did not show the morphological traits of having been produced in the process of lithic tool production. The absence of physical indicators of manufacture (such as bulbs/waves of percussion) seemed to indicate their diminutive size arising through events such as trampling of people/animals on a deposit of larger lithic flakes. In addition to the high number of micro-artifacts encountered in the chert lithic assemblage, the majority of ceramic and obsidian artifacts recovered from A1-AK were also smaller in size (under 4 cm in diameter), compared to artifacts observed elsewhere in the research area. Moreover, a high degree of wear and fragmentation on the edges could also be observed in ceramic sherds and obsidian fragments recovered, which also suggests such cultural formation processes as trampling. In light of these observations, it can be tentatively proposed that the area investigated by Units A1-AF and A1-AK was a high-traffic area in antiquity. Diagnostic ceramics encountered in this unit date to the Late Classic (Lauren Sullivan, 2011 personal communication). Soil samples were collected for micro-artifact and geochemical analysis for examination of minute artifactual residues or chemical signatures that may have been left behind.

A1-AL: Unit A1-AL measured 1 x 1 m, and was established to investigate the artifact distribution of the area to the east A1-AD, a 1 x 1 m unit excavated in 2010, which uncovered a significant deposit of obsidian micro-debitage and blade micro-fragments (under 4 mm in diameter in their majority). The stratigraphy present in A1-AL reflects the stratigraphy present elsewhere in the northeast sector of the research area, being a close parallel to the stratigraphy of A1-AK (Figure 17). A layer of topsoil and compact matrix with scarce limestone pebbles and degraded plaster was found above a stratum of limestone cobbles and boulders in dark loose matrix, followed in turn by a thick layer of non-sterile clay, positioned over sterile bedrock.

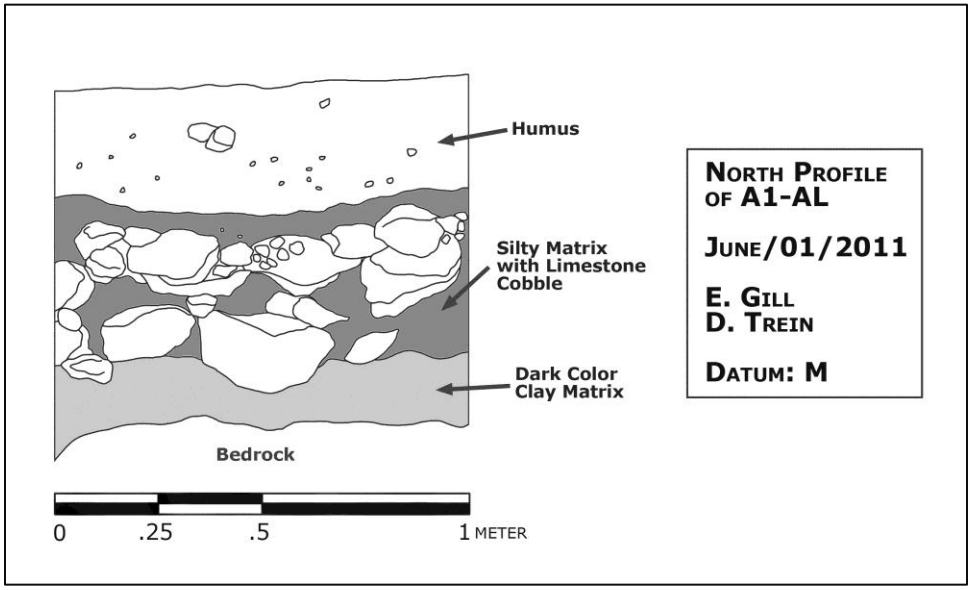

Figure 17. North profile of A1-AL.

The artifact assemblage encountered in A1-AL is similar to that of A1-AD, in that small obsidian debitage and blade fragments (these being significantly less represented in the total obsidian artifact assemblage) were present in larger proportion in relation to the total artifact assemblage present in other sectors of the research area. Interestingly, the artifact assemblage recovered in A1-AD and A1-AL show similar patterning as that encountered in A1-AK – worn edges, minute size of the artifacts and the lack of diagnostic traits in some lithic artifacts associated with tool manufacture – which may indicate trampling action in antiquity (Rissa Trachman, 2011 personal communication). Ceramics encountered in association with the obsidian assemblage date to the Late Classic (Lauren Sullivan, 2011 personal communication). Soil samples were collected for micro-artifact and geochemical analysis for examination of minute artifactual residues or chemical signatures that may have been left behind.

A1-AP and A1-AQ: A1-AP and A1-AQ measured 1 x 3 m and 1 x 8.5 m respectively and were established as part of a horizontal excavation effort to expose the archaeology present in the northeast sector of the research area. The way in which A1-AP and A1-AQ (as well as A1-AR, A1-AS and A1-AT, discussed below) were designed and laid out guaranteed a continuous view of the archaeological material potentially present in the space between the dense lithic deposit encountered in A1-AK and the north-east corner of Structure 3 (Figure 4). The aims of A1-AP and A1-AQ were to determine whether the lithic deposit found in A1-AK was spatially distinct; investigate whether other activity areas were present in the space between A1-AK and Structure 3; and gain a fuller understanding of how this space was built.

A preliminary understanding of the nature of the stratigraphy present in the area had been gained from the 2010 research and excavations of A1-AK and A1-AL. It was established that activity areas, if detectable, were to be found in the strata above the limestone cobble and boulder (construction fill) stratum, as evidenced by the findings in A1-AK and A1-AL. Therefore investigations in A1-AP and A1-AQ targeted specifically the topmost strata, excavations terminating once the construction fill was located and uncovered. This strategy guaranteed expedience in the excavation effort. In order to maintain chronological control and assure full exposure of possible variability in the local stratigraphy, three 1 x 1 m sub-ops were interspersed within the boundaries of A1-AP and A1-AQ. These 1 x 1 m sub-ops were excavated in 10 cm levels and were excavated to bedrock (Figure 18).

Upon excavation, it was ascertained that the stratigraphy present in A1-AP and A1-AQ was parallel to that encountered in A1-AK and A1-AL (Figure 19). Artifacts were encountered throughout, the assemblage consisting of lithics, ceramics, obsidian and one shell pendant. The artifact assemblages observed and collected were not present in significant quantities or distributed in any visibly meaningful pattern in comparison with artifact-dense areas such as A1-AK, which leads to the suggestion that the artifact assemblage found in A1-AK is spatially distinct. Soil samples were taken for micro-artifact and geochemical analysis.

A1-AR, A1-AS and A1-AT: These units are part of the horizontal excavations of the northeast section of the research area (of which A1-AP and A1-AQ are part), and were planned to bridge the space between A1-AQ and A1-AK (Figure 4). Due to time constraints, however, these were not excavated and will be investigated in the next field season of 2012.

Southeast Sector

A1-AU and A1-AV: The area to the southeast of Structure 3 stands in stark contrast to the flat nature of the area to the northeast and west of Structure 3 (Figure 4) and is

characterized by a highly variable topography. The ground surface shows a dramatic slope from east to west, formed by a set of limestone shelves that are immediately visible without excavation (Figure 20). A1-AU and A1-AV were established in this area to investigate the possibility that the area to the southeast of Structure 3 served as a limestone quarry in the Late Classic, a hypothesis based on data recovered from area in the 2010 field season. A1-AU and A1-AV measured 2 x 3 m and 3 x 3.5 m, respectively.

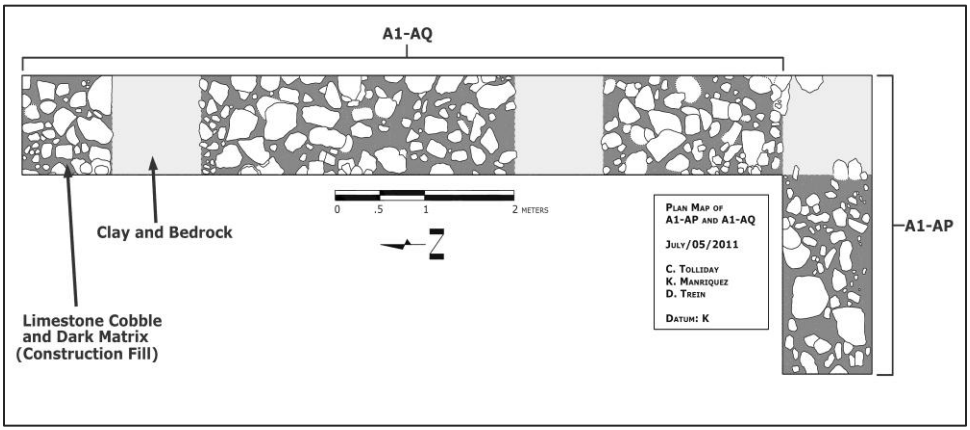

Figure 18. Plan map of Units A1-AP and A1-AQ. 1 x 1 m sub-ops are shown as having reached bedrock.

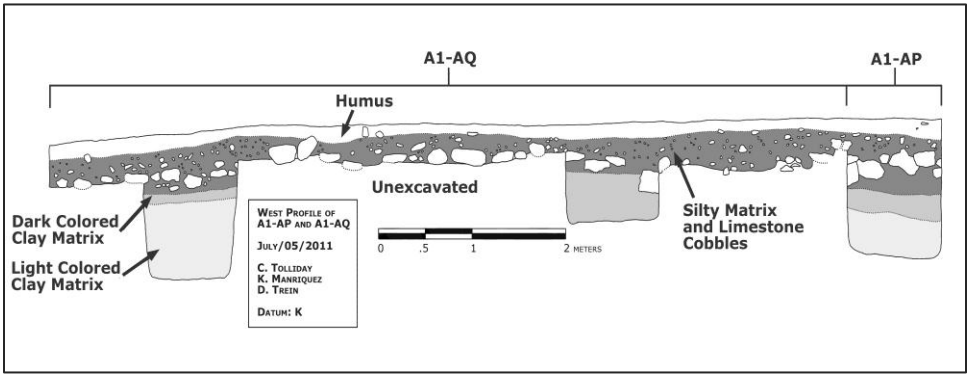

Figure 19. East profile of Units A1-AP and A1-AQ.

The findings of A1-AU and A1-AV greatly mirror those encountered in the 2010 field season. The stratigraphy of A1-AU and A1-AV is composed of a layer of topsoil and naturally decomposed limestone (marl and limestone cobbles) lying immediately above the limestone bedrock, which was found to be composed of limestone shelves that were detached from the main bedrock mass below. There was often a gap between the shelf and the main body of bedrock below which was filled with limestone fragments, matrix,

and artifacts (Figure 21). Signs that the limestone bedrock had been culturally modified were not identified in excavations – as the limestone bedrock in this location is brittle and soft, any potential tool marks would have probably been degraded from natural weathering processes.

Figure 20. Photograph of the southeast sector of the research area, taken in a northwest direction, showing the dynamic nature of the limestone bedrock in this area. The east façade of Structure 3 is visible through the tree-line on the left.

The artifact assemblage recovered from A1-AU and A1-AV is composed mainly of lithic debitage and lithic tools (all encountered in a fragmentary state), as well as ceramic sherds, which were relatively scarce in comparison to the lithic assemblage. The lithic assemblage in A1-AU and A1-AV is parallel to that found in 2010 at this location: lithic debitage, a few possible choppers and/or cores, and a proportionately high number of distal ends of bifaces, most showing signs of wear (Figure 22). The edges of the bifaces recovered showed wear patterns that are consistent with continuous impact, as blunt and irregular edges are observable. In conducting an experiment recreating stone quarrying using ancient Maya lithic tools, Woods and Titmus (1996) have observed similar wear patterns in bifaces which caused dulling and macro damage of the biface edge. Taking into consideration the context of the artifact assemblages in an area with exposed limestone bedrock, it can be suggested that the bifaces encountered in the southeast sector of the research area may be associated with limestone quarrying activity. Ceramic artifacts recovered from these units date to the Late Classic period (Lauren Sullivan, 2011 personal communication).

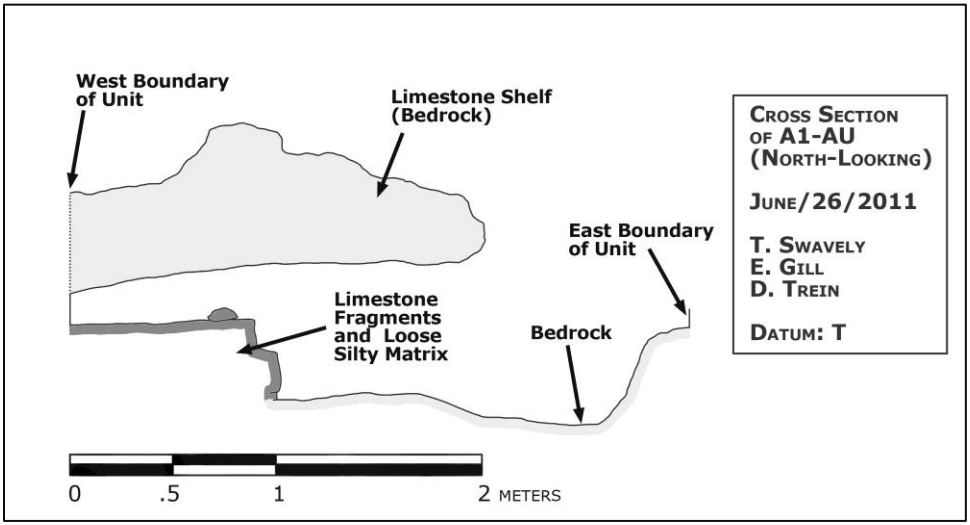

Figure 21. Cross-section of unit A1-AU, looking north.

FINAL THOUGHTS AND FURTHER RESEARCH

The research questions for this project concern a reconsideration of how monumental architecture is conceptualized in Maya archaeology by testing the hypothesis that monumental spaces did not exist solely as "elite" spaces, but were used, accessed, and experienced differently by different sets of groups within the La Milpa community. The variability in use, access, and experience is grounded in the concept of multilocality, which asserts that one's interpretation of space (and place) is influenced by the activity one engages in and the context in which that activity is performed, along with other factors that include the positioning of the participant in terms of socio-political and economical standing, age, gender, and so on (Brück 2001; Mack 2004). As such, analyzing the diversity of activities that were taking place in and around Structure 3 may be the first step in determining the varied roles Structure 3 and surroundings played in the lives of individuals and groups in the La Milpa community. By investigating the possibility of multiple activity areas in relation to Structure 3, it may be possible to assert that this monumental structure was not only the stage for performances and activities associated with the maintenance of an elite group, but may have also been the working, transiting, and living spaces of other members of the La Milpa community. A spatially defined lithic processing area, possibly associated to the final stages of biface production and perhaps re-sharpening, seems to have been present in the Late Classic period in the area to the northeast of Structure 3. Artifacts in this area, which is comparatively flat in relation to the southeast sector of the research area, also show significant evidence for trampling, indicating that this space may have been a high-traffic area. To the southeast, several biface fragments with wear patterns associated with the quarrying of limestone

were recovered in an area with abundant exposed limestone bedrock, also dating to the Late Classic period. On the structure itself the top landing was shown to have a depth of over 1.5 m, although it was not fully excavated. Molded and painted plaster fragments, including the bottom half of a face, tentatively indicate that the western façade of the top superstructure of Structure 3 was highly decorated, and, in conjunction with the deep landing, point to its possible use as a ritualistic performance space.

The aim of the 2012 field season is finalize the work that was started in 2011. To the northeast of Structure 3, Units A1-AR, A1-AS and A1-AT will be excavated in accordance with the methodology used in the excavation of A1-AP and A1-AQ. On top of Structure 3, the top landing and superstructure of Structure 3 will be investigated. The excavation of Unit A1-AO and the documentation of LT3 enabled a projection of the location of the exterior of the western façade of the top superstructure of Structure 3 (Figure 11), and using this information a targeted excavation unit will be established, to the east of A1-AO, to reach and investigate this architectural feature. Time allowing, up to four vertical soundings (up to 1 x 1 m in size) will be placed to the west of Structure 3. The information gathered in these four units is expected to complement the data gathered in the areas to the northeast and southeast of Structure 3.

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REFERENCES CITED

Ashmore, Wendy

1991a Site Planning Principles and Concepts of Directionality among the Ancient Maya. *Latin American Antiquity* 2:199-226

1991b Deciphering Maya Site Plans. In *New Theories on the Ancient Maya*, edited by Elin Danien and Robert J. Sharer, pp. 173-184. Museum Monographs, 77, University of Pennsylvania Museum: Philadelphia PA.

Ashmore, Wendy & Sabloff, Jeremy A.

2002 Spatial Orders in Maya Civic Plans. *Latin American Antiquity* 13:199-226

Brück, Joanna

2001 Monuments, Power and Personhood in the British Neolithic. *The Journal of the Royal Anthropological Institute* 7 (4): 649-667

Cap, Bernadette

2008 The Study of "Empty" Plaza Space: Determining the Function of Chan's West Plaza. *Archaeological Investigations in the Eastern Maya Lowlands: Papers of the 2007 Belize Archaeological Symposium*, edited by

John Morris, Sherilyne Jones, Jaime Awe and Christophe Helmke. pp. 209-218. Institute of Archaeology, Belmopan, Belize.

Dahlin, Bruce H. and Traci Ardren
2002 Modes of Exchange and Regional Patterns: Chunchucmil, Yucatan. In *Ancient Maya Political Economies*, edited by Marilyn A. Masson and David A. Freidel, pp. 249-284. Altamira, Walnut Creek

Freidel, David A., and Linda Schele
1986 Symbol and Power: A History of the Lowland Maya Cosmogram. In *Maya Iconography*, edited by Elizabeth P. Benson, and Gillet G. Griffin, pp. 44-93. Princeton University Press, Princeton.
1988 Kingship in the Late Preclassic Maya Lowlands: The Instruments and Places of Ritual of Ritual Power. *American Anthropologist* 90 (3): 547-567

Grazioso, Liwy
2008 Archaeological Investigations at La Milpa, Structures 3 and 93: The 2007 Season. In *Research Reports from the Programme for Belize Archaeological Project, Volume Two.* Occasional Papers, Number 9, pp. 19-28. MARL, Austin.

Hammond, Norman
1991 Discovery of La Milpa. *Mexicon* 13:46-51.

Hammond, Norman, and Matt Bobo
1994 Pilgrimage's Last Mile: Late Maya Monument Veneration at La Milpa, Belize
World Archaeology 26(1):19-34.

Hammond, Norman, and Gair Tourtellot, III
1993 Survey and Excavations at La Milpa, Belize, 1993. *Mexicon* 15:71-75.
2004 Out with a Whimper: La Milpa in the Terminal Classic. In *The Terminal Classic in the Maya Lowlands*, edited by Arthur A. Demarest, Prudence M. Rice and Don S. Rice. pp. 288-301. University Press of Colorado: Boulder.

Hammond, Norman, Gair Tourtellot, III, Sara Donaghey, and Amanda Clarke.
1996 Survey and Excavation at La Milpa, Belize, 1996. *Mexicon* 18:86-91.
1998 No Slow Dusk: Maya Urban Development and Decline at La Milpa, Belize. *Antiquity* 72(279):831-837.

Helmke, Cristophe G. B.
2006 A Summary of the 1999-2002 Seasons of Archaeological Investigations at Pook's Hill, Cayo District, Belize. *Archaeological Investigations in the Eastern Maya Lowlands: Papers of the 2005 Belize Archaeological Symposium*, edited by John Morris, Sherilyne Jones, Jaime Awe and Christophe Helmke. pp. 173-191. Institute of Archaeology, Belmopan, Belize.

Houk, Brett A., Grant Aylesworth, Liwy Grazioso Sierra, and Rebecca E. Bria
2007 Results of the 2006 Investigations at Say Kah, Belize. In Research Reports from the Programme for Belize Archaeological Project, edited by Fred Valdez, Jr. *Occasional Papers 8*. pp. 127-150 MARL: Austin TX

Kosakowsky, Laura J.
1999 The Ceramic Sequence of La Milpa, Belize. *Mexicon* 21:131-136.

Mack, Alexandra
2004 One Landscape, Many Experiences: Differing Perspectives of the Temple Districts of Vijayanagara. *Journal of Archaeological Method and Theory* 11 (1): 59-81.

Meskell, Lynn
1998 An Archaeology of Social Relations in an Egyptian Village. *Journal of Archaeological Method and Theory* 5 (3): 209-243
2005 Objects in the Mirror Appear Closer than They Are. In *Materiality*, edited by Daniel Miller, pp. 51-71. Duke University Press: Durham NC

Miller, Daniel
2005 Materiality: An Introduction. In *Materiality*, edited by Daniel Miller, pp. 1-50. Duke University Press, Durham NC

Moats, Lindsey R. and Jacob R. Nanney
2011 Results of the 2010 Excavations at Courtyard 100, La Milpa, Belize. In Research Reports from the Programme for Belize Archaeological Project, edited by Brett A. Houk and Fred Valdez, Jr. *Occasional Papers* 12. pp. 25-38 MARL: Austin TX

Pendergast, David M.
1965 Maya Tombs at Altun Ha. *Archaeology* 18:210-217

Prouskouriakoff, Tatiana
1963 *An Album of Maya Architecture*. University of Oklahoma Press: Norman.

Sagebiel, Kerry

2006 La Milpa: Shifting Alliances, Shifting Fortunes. *Archaeological Investigations in the Eastern Maya Lowlands: Papers of the 2005 Belize Archaeological Symposium*, edited by John Morris, Sherilyne Jones, Jaime Awe and Christophe Helmke. pp. 341-352. Institute of Archaeology, Belmopan, Belize.

Stuart, David

1986 Blood Symbolism in Maya Iconography. In *Maya Iconography*, edited by Elizabeth P. Benson and Gillet G. Griffin. pp. 175-221. Princeton University Press: Princeton

Traxler, Loa P.

2003 At Court at Copan: Palace Groups of the Early Classic. In: Christie, J. J. (ed) *Maya Palaces and Elite Residences: An Interdisciplinary Approach.* University of Texas: Austin, TX pp.: 46-68

Trein, Debora C.

2010 Preliminary Results of 2009 Season Excavations at Structures 3/93 and Associated Features. In Research Reports from the Programme for Belize Archaeological Project, edited by Fred Valdez, Jr. *Occasional Papers* 11. pp. 69-80 MARL: Austin TX

2011 Investigating Monumental Architecture at La Milpa: The 2010 Season. In Research Reports from the Programme for Belize Archaeological Project, edited by Brett A. Houk and Fred Valdez, Jr. *Occasional Papers* 12. pp. 39-66 MARL: Austin TX

Villamil, Laura P.

2007 Creating, Transforming, Rejecting, and Reinterpreting Ancient Maya Urban Landscapes: Insights from Lagartera and Margarita. In: *Negotiating the Past in the Past: Identity, Memory, and Landscape in Archaeological Research*, edited by Norman Yoffee, pp. 183-214. University of Arizona Press, Tucson.

Woods and Titmus

1996 Stone on Stone: Perspectives on Maya Civilization from Lithic Studies. In Eighth Palenque Round Table 1993, edited by Merle G. Robertson, Martha J. Macri, and Jon McHargue, pp. 479-489. Pre-Columbian Art Research Institute, San Francisco CA.

REPORT OF THE 2011 EXCAVATIONS AT THE SOUTH BALLCOURT OF LA MILPA, OP A6

David Chatelain, Tulane University

INTRODUCTION

This paper reports on the preliminary results of excavations conducted at Structure 6 of La Milpa, Plaza A. Structure 6 is the eastern structure of the South Ballcourt, one of two ballcourts at La Milpa, both in Plaza A. The excavations of the South Ballcourt were designated Operation A6.

Structures 6 and 7 of Plaza A have previously been interpreted as representing a ballcourt (Schultz et al. 1994), although there has always been some reticence regarding this identification (Guderjan 1990). Many colleagues present during the 2011 season also expressed doubt as to whether the structures indeed represented a ballcourt. One of the purposes to the 2011 investigations was therefore to confirm whether in fact the structures form a ballcourt or whether they represent some other architectural form. Ultimately, excavations confirmed that Structures 6 and 7 form a ballcourt.

The doubt as to whether the structures represented a ballcourt was largely due to the proportions of the mounds themselves. They are not especially elongated (about 20 x 10 m) relative to their height (about 5 m), particularly when compared to the North Ballcourt which is formed by very long, low range structures (26 x 11 x 2.5 m, Schultz et al. 1994). The architectural forms of these two courts are certainly quite distinct from one another. The questionable ballcourt status of Structures 6 and 7 was also complicated by the extensive looting of Structure 7. Structure 7 has been virtually destroyed by four looters' trenches. Two of them meet and cut across the entire center of the structure from west to east. A third cuts into the structure from the north and meets the two in the middle. A fourth trench is present on the southern end. The tailings of the eastern looters' trench are left in the ballcourt playing alley. These tailings upset the outline of the mound and make it difficult to discern its shape.

The North Ballcourt was excavated by researchers from Boston University from 1992-1993, and it was concluded that this court was Terminal Classic in date and probably postdated the South Ballcourt (Schultz et al. 1994). The South Ballcourt was also contour-mapped at this time, but only a 2 x 2 m test pit was reported to have been excavated in the playing alley in order to locate any central marker stone. They report that no stone marker was found but provide no other data regarding their excavations. Colleagues from the 2011 season recalled another recent limited excavation in the South Ballcourt playing alley, but no report or specific information on this work was known. A profile of the east-west looters' trench in the western range structure of the South Ballcourt was also apparently drawn in a prior season and filed with the Belize Institute

of Archaeology. Unfortunately, a copy of this profile has not yet been acquired, but apparently many previous construction phases were identified. Several of these can still be clearly seen in the looter's trench. Schultz et al. (1994) also report the identification of at least eight construction phases in Structure 7, the first five involving pre-ballcourt architecture, the sixth involving the construction of the ballcourt, and the final two phases focused on the superstructure and the western face alone.

Although the 2011 excavations were preliminary and limited in scope, architectural evidence was gained confirming that Structure 6 was the eastern range structure of a ballcourt, paired with Structure 7. The playing alley was found to be constructed in a single phase, and evidence of only one construction phase was found for Structure 6. Additionally, an orange ceramic sherd layer (almost mosaic-like) was found embedded in the plaster floor below Structure 6, possibly a dedicatory feature related to the ballcourt's construction or alternatively a previously open feature of the plaza. Specific information regarding dates and chronology are unavailable at this time.

OBJECTIVES AND METHODOLOGY

The 2011 excavations at the South Ballcourt were intended as preliminary investigations for future research into the ballcourts of the PfBAP area. The objectives of the 2011 excavations were: (1) to determine whether Structures 6 and 7 in fact represent a ballcourt, (2) to locate the previous 2 x 2 m unit excavated in the playing alley in order to avoid it for a subsequent trench, (3) to establish the construction history and chronology of the possible playing alley, and (4) to expose the final-phase architecture of Structure 6, the eastern range structure.

Structures 6 and 7 were estimated by pacing to be about 20 m (N-S) by 10 m (E-W). Orientation of both structures was estimated as 9° E of N based on the orientation of the mounds.

All excavation units (Subops) were mapped onto the existing grid system utilized for La Milpa Plaza A. Subops were correlated to the datum (100 E, 100 N, 100 Z) in front of Structure 3 via tape-and-compass. Results from each Subop are presented below.

EXCAVATIONS

Subop A

Subop A was a 2 x 4 m (long axis N-S) unit in the playing alley of the South Ballcourt (Figures 1, 2). The coordinates for the southwest corner were (83 E, 147 N) on the Plaza A grid. Subop A was intended as a shallow strip excavation in order to locate the previous 2 x 2 m unit excavated by LaMAP. A trench would then be placed to avoid it, stretching from the playing alley to the western side of Structure 6.

Lot 1 proved to be quite complex, with distinct patches of sediments varying by color, texture, and size of limestone inclusions. While dark brown humus was present in

patches, it was interspersed by patches of fine, compact light gray silt with <5 cm limestone pebbles and a patch of fine dark gray silt in the southwest corner. Below these layers was a distinct layer of fine, compact dark gray silt with <5 cm limestone inclusions. This was interrupted in the south profile by a roughly 1 m wide patch of coarse, compact light brown sediment with >2 cm limestone inclusions. Previous excavations in the playing alley certainly led to some of this complexity. The surface had been used as a pathway through the site in modern times, which also likely contributed to the confusion. Looters' trenching debris probably contributed to the strange mosaic of surface sediments as well. While Lot 1 was intended to be a shallow strip in order to find evidence of the earlier excavation unit, it was taken down to about 50 cm on the south end and 70 cm on the north end as a result of the complexity. Splitting Lot 1 into further lots corresponding to each change in sediment would have been impossible.

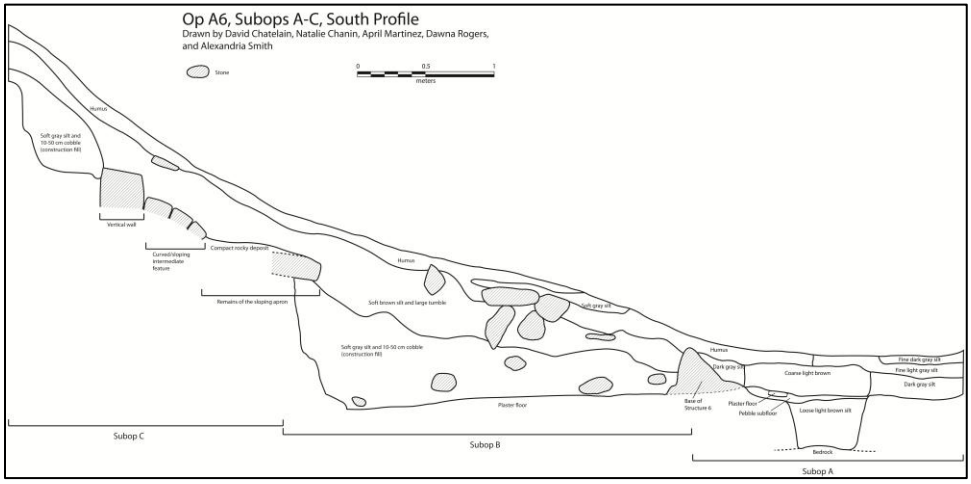

Figure 1. South profile, Subops A-C.

On the south end, a two-course high stone alignment was soon discovered at about 10 cm below the surface (Figure 2). Further excavation of Lot 1 confirmed this to be the western edge of Structure 6. The orientation of the architecture corroborated our earlier measurement of 9° E of N. At the base of the alignment, 39 cm below the surface, we encountered intact portions of the plaster floor of the playing alley. It was just possible to make out the upward curve of the plaster as it began to curve up the stone architecture, although none survived on the stone alignment itself. Lot 1 was terminated at the level of this plaster floor.

Additionally, a roughly 2 m wide (N-S) alignment of large limestone boulders was found running E-W through the center of Subop A. This was later designated Lot 3. Initially, it was uncertain whether this was the previous Boston University (LaMAP) excavation or whether it was a cultural feature. Though it roughly matched where the LaMAP

excavation had been reported to be located, it clearly ran past the eastern and western walls of our unit and so must have been a longer trench than the 2 x 2 m unit reported. The use of large limestone boulders as backfill this close to the surface (some actually penetrated the surface) also seemed odd, especially since we had encountered no such boulders to the south or north of this feature. An old nail from the BU excavations was found at the northern edge of this stone feature, but it was unclear at the time whether it was associated with these stones or with an area just to the north. On the eastern edge of our unit, this large stone feature cut through the stone alignment representing the edge of Structure 6. Whether this cut and this stone feature was made in antiquity or represented excavation backfill was not immediately apparent, though the very loose gray-brown matrix around it was consistent with it being backfill. Further excavations confirmed it to be the backfill of a previous 2 m wide (N-S) trench (see below).

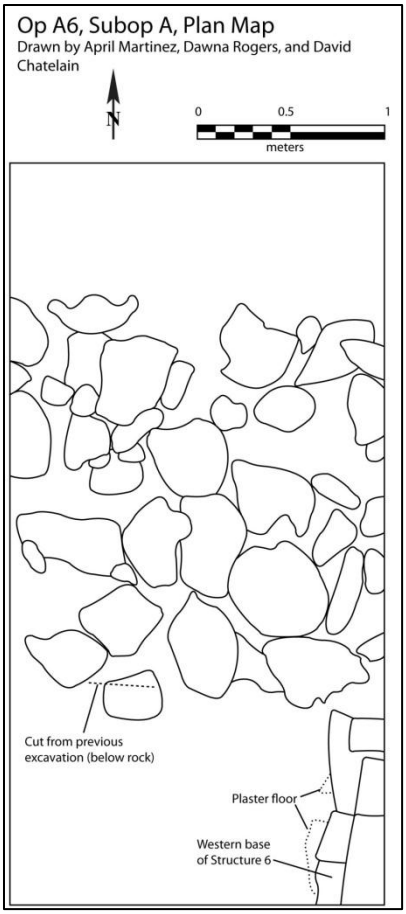

Figure 2. Plan map, Subop A.

Lot 2 was a 0.5 x 0.7 m (long axis N-S) area below Lot 1 on the northern side of the E-W stone feature (Lot 3), running from the northern side of this feature to the north wall of Subop A. It began 56 cm below the surface, a bit below the level of the plaster floor found on the south end of Subop A. Lot 2 was designed to be taken down to bedrock, in addition to another lot (Lot 4) on the southern side of the E-W stone feature (Lot 3), to create comparative data on each side of this feature. Bedrock was known to be fairly shallow in this area of Plaza A, so Lot 2 was reduced in area to 0.5 m (E-W) in order to expedite excavation.

Lot 2 consisted exclusively of a loose light brown silt with <10 cm limestone inclusions with some larger (about 10 cm) cobbles. Below this layer at 80-88 cm below the surface was bedrock, which was unmodified. This presumably represented fill from a single

construction phase to build up the plaza, which became the playing alley between the two ballcourt structures. No evidence was found of any subsequent modification of the plaza floor in this area in its conversion to a ballcourt playing alley.

Lot 3 was the designation given to the E-W stone feature running through the center of Subop A, described above.

Lot 4 was a 0.5 x 1 m (long axis N-S) area below Lot 1 on the southern side of the E-W stone feature (Lot 3), running from the southern side of this feature to the south wall of Subop A. It was placed just west of the stone architectural alignment and the plaster floor portions of Lot 1. It began at 42 cm below the surface, just below the plaster floor found in Lot 1. Just below the portions of plaster floor, a pebble subfloor was found. Below this was the same loose light brown sediment with <10 cm limestone inclusions and rare cobbles found in Lot 2, thus corroborating the single construction phase of the plaza in this area. Bedrock just below this layer at 68 cm was also unmodified.

Lot 5 was a 60 cm northward extension of Lot 4, just below part of the E-W stone feature (Lot 3). Lot 5 was intended to determine the depth of the E-W stone feature and to assess the stratigraphy below it. Three large (50-60 cm) limestone boulders were initially removed from the stone feature (Lot 3) in order to excavate below it. Similar large (about 60 cm) limestone boulders were present below. Many bits of old pink flagging tape were found just below these boulders, confirming that the stone feature was in fact the backfill of a previous 2 m (N-S) trench excavation. Below one boulder removed from the western edge of Lot 5, a cut from the wall of this old excavation unit could be clearly seen. Many cavities between the boulders and the general loose gray-brown matrix were consistent with the identification of this feature as backfill.

Subop B

Subop B was a 3 x 1.5 m (long axis E-W) unit extending from the eastern edge of Subop A over the western part of Structure 6 (Figures 1, 3). This line was placed strategically to avoid a pile of old backdirt left on the surface of the Structure 6 mound just to the south. The south walls of Subops A and B formed one continuous profile. The southwest corner of Subop B (matching the southeast corner of Subop A) had coordinates of (85 E, 147 N) on the Plaza A grid. Subop B was placed in order to follow the architecture found in Subop A up the structure. Unfortunately, the architecture had completely collapsed or degraded within the area of Subop B, an unfortunate result similar to other ballcourt excavations in the PfBAP area (Houk 1996: 174-176). Subop B also overlapped the backfill (Subop A, Lot 3) found in Subop A by about 40-50 cm in order to keep track of it so that we could be confident of the pristine nature of our excavations.

Lot 1 consisted of dark brown humus spread evenly over the surface with several degraded stones tumbled from the architecture above. Just below the surface in a 0.5 m (N-S) by 2.2 m (E-W) rectangular patch was a loose gray-brown sediment with large

(about 60 cm) limestone boulders consistent with the backfill found in Subop A. We also found another nail at the southeast corner of this patch, confirming that the trench extended only about 2 m over Structure 6. Presumably they found no preserved architecture above the base alignment either. Lot 1 was terminated at about 16 cm from the surface once a large amount of tumble was encountered.

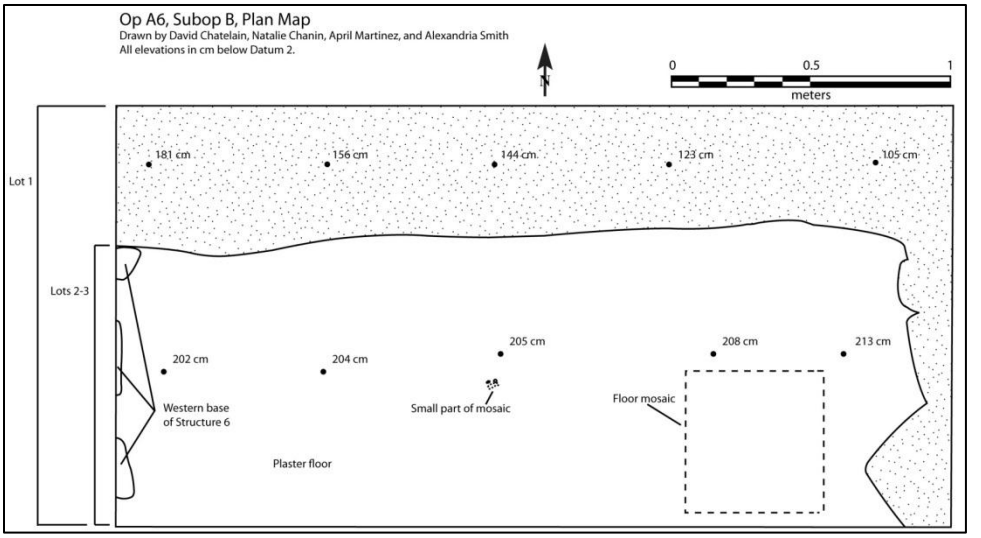

Figure 3. Plan map, Subop B.

Lot 2 was narrowed on the N-S axis to 1 m to avoid digging through more of the previous backfill, now that it had been defined. The continuous south wall with Subop A was kept intact in order to profile the completed trench. Lot 2 consisted of a soft brown silty matrix with large (20-60 cm) limestone tumble. Artifacts included small chunks of red and white painted stucco. Lot 2 was terminated when the matrix changed to a light gray color.

Lot 3 retained the same 3 x 1 m dimensions of Lot 2. Lot 3 consisted of a soft, light gray silty matrix with large 20-60 cm limestone cobbles. Lot 3 represents the boulder-and-cobble construction fill of the structure, sloping up from behind the architectural alignment found in Subop A, the back of which overlapped into Subop B. Though it was quickly identified as construction fill, Lot 3 was continued down in order to find any previous construction phases. No previous phase was found. A well-preserved plaster floor was found, however. The elevation of the floor matched that of the floor found in the playing alley. Once all of Lot 3 was brought down to the level of the floor, it was clear that the floor ran directly beneath the stone alignment, meaning that the base of Structure 6 had been constructed directly over this floor. The floor sloped gradually down from west to east underneath the structure. It is uncertain whether this floor is related to the plaster floor fragments found in the playing alley, but their relative elevations make it

likely that they represent the same floor. Both floors can be connected to the western base of Structure 6, but it remains possible that the fragments found in Subop A were part of a subsequent renovation of the playing alley alone.

Of particular interest was a feature consisting of an orange ceramic sherd layer found in the plaster floor underneath the structure, beginning at about 2 m east of the structure's base, although a few sherds were also embedded at about 1.3 m (Figures 3, 4). The feature consisted of small ceramic sherds, ranging from about 1-2.5 cm in maximum length. The shapes of individual sherds were generally irregular. In those portions of the mosaic that were well-preserved, the ceramic sherds were perfectly embedded in the plaster, forming a smooth floor surface. It seemed as if the sherd layer had been laid in the wet plaster during the floor's initial construction. Portions of the plaster had chipped or degraded away in some places, revealing the thinness (<1cm) of the sherds. Whole sections of the feature had worn away in some parts, but the divots left in the floor provided a good idea of what the original surface may have looked like. The northern part of the feature resembles a quatrefoil, which would fit the Underworld symbolism of ballcourts in Maya cosmology and echoes the quatrefoil-framed scenes of the Copan Ballcourt II-B markers. However, the feature is incomplete and difficult to interpret, and may simply depict abstract curving scrolls typical of Maya iconography, perhaps connected to some unexposed iconography beyond the southern wall of Subop B, where it continued. The full extent of the ceramic deposit is thus unknown, and there is no clear evidence that it extended further north, east, or west than the part that was found. Certainly no clear interpretation of what was depicted by the feature, if anything specific, can be attempted at this time. However, some implications of its presence are discussed below. Unfortunately, time and labor did not permit the opening of another excavation unit to follow the ceramic layer.

Excavations in Subop B were terminated at the level of the plaster floor in order to preserve it. Artifacts included many more pieces of the red and white painted gray stucco also found in Lot 2. Some pieces were shaped and painted in ways that clearly mark them as part of sculpture. However, the pieces are all too small (<15 cm) to make out what form they may have originally represented. Although these pieces were found in the construction fill, collapse and depositional processes could easily have caused their breaking into small fragments. They were probably associated with the final phase architecture of the structure, although the possibility remains that they were associated with some earlier phase as yet undiscovered. They may also have been part of an old sculpture that got thrown into the construction fill. A few other flat, white plaster chunks were found that appear to represent parts of floors or architectural facing.

Subop C

Subop C was a 1.5 x 2 m (long axis E-W) excavation unit extending from the eastern edge of Subop B further up Structure 6 (Figures 1, 5, and 6). The continuous south wall was maintained between Subops A, B, and C in order to draw a complete profile of the

excavations. The southwest corner of Subop C (matching the southeast corner of Subop B) had coordinates of (88 E, 147 N) on the Plaza A grid. Subop C was placed in order to move further up the structure, with the hope of finding an intact part of the sloping apron and/or the vertical wall of the ballcourt. While architecture was indeed found, it was imperfectly preserved, and time did not permit opening another unit to better define it.

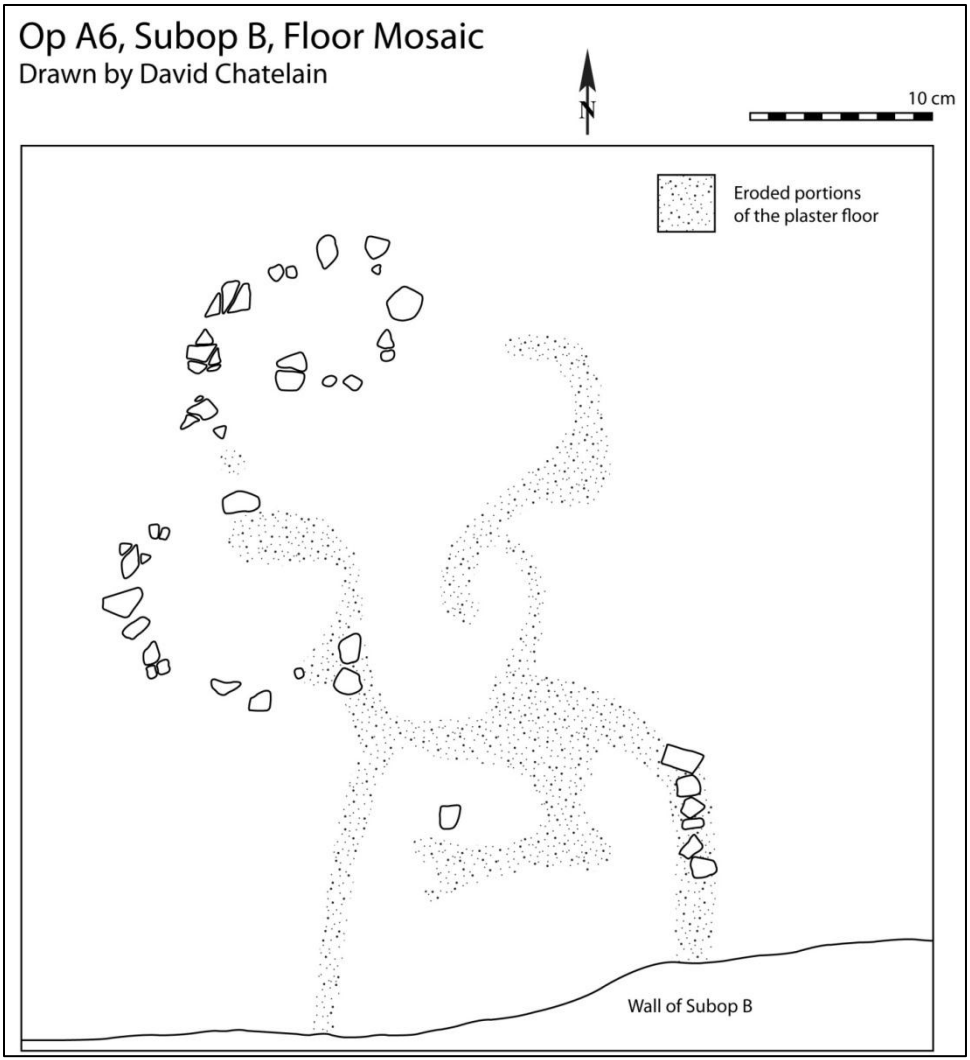

Figure 4. Ceramic Sherd Floor/Layer, Subop B.

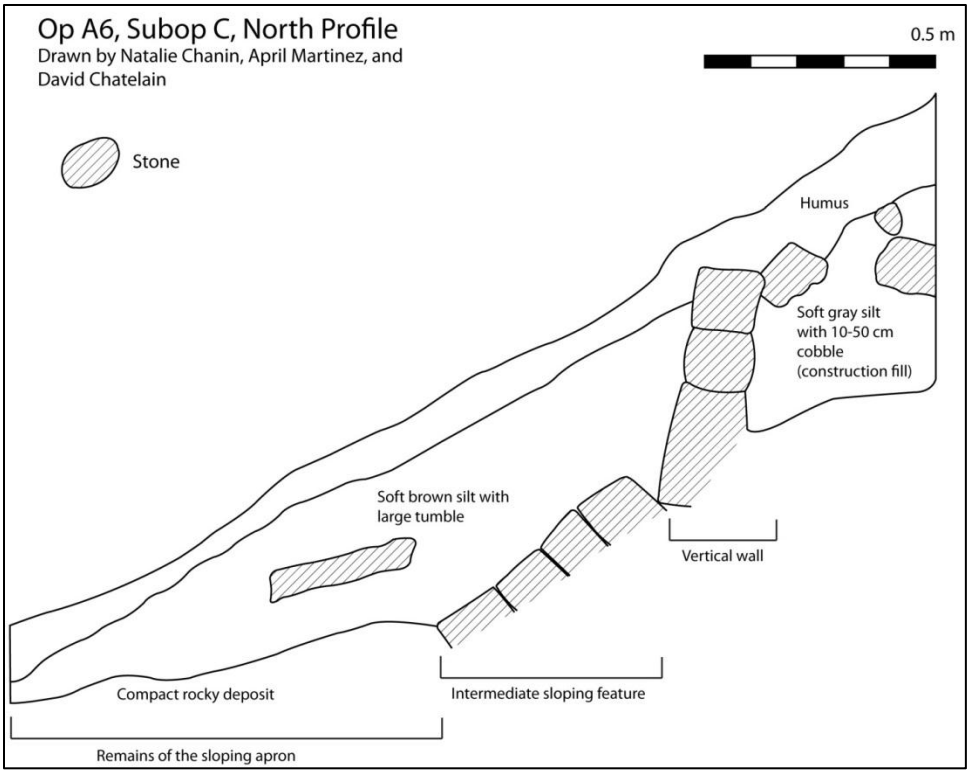

Figure 5. North profile, Subop C.

Lot 1 consisted of a dark brown humus with several large (30-50 cm) stones tumbled from the above architecture. Just below the humus, cut-stone architecture was found. Just behind this we began to hit light gray sediment matching the construction fill from Subop B. Lot 1 was terminated at this point. Artifacts included more pieces of the red and white painted gray stucco sculpture.

Lot 2 was brought down in order to fully expose the architecture found in Lot 1. It consisted of a soft brown silt with <5 cm limestone inclusions on the western side of the unit, on what would have been the exterior side of the architecture. On the eastern side of the unit, more gray construction fill was found behind this architecture. Lot 2 was terminated once the extent of the surviving architecture was fully exposed. More red and white painted gray stucco pieces and white plaster floor chunks were found.

The exposed architecture consisted of a vertical wall backed by the same gray construction fill from Subop B. The northern part of the wall was at least three courses high. From the base of this part of the wall, a sloping feature moved down three courses

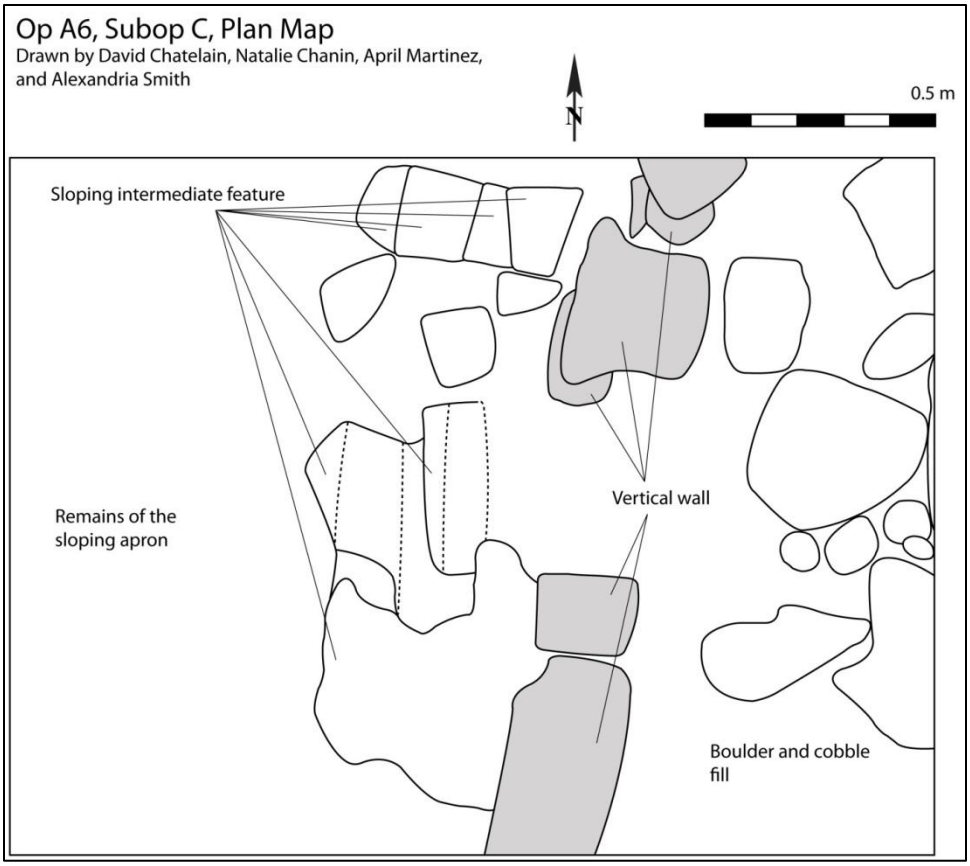

Figure 6. Plan map, Subop C.

to where it met the top of the sloping ballcourt apron. On the southern part of the vertical wall, only one course was visible. Below this, the same sloping feature moved down to where it met the sloping apron, although degradation made it appear more curved in this part of the unit. This feature was clearly separate from the vertical wall and formed some intermediate architectural element between the vertical wall and the sloping apron. Unfortunately, this intermediate area was badly eroded, but it seems to represent a sloping feature across the unit, between the vertical wall above and the sloping apron below. Further units moving laterally across the structure will be needed next season to better define this feature. The base of this feature ran into a compact rocky deposit moving at a shallow slope toward the base of the structure. This compact rocky deposit was clearly different from the soft brown sediment above and must have been deliberately deposited. It most likely represents a marl deposit laid down over the stone masonry apron to prepare it for a plaster facing. This deposit degraded away in Subop B,

and below it in the profile was cut stone slabs moved a bit out of place that may represent the masonry apron below. The compact marl deposit above was consistent across Subop C below and in front of the wall and the intermediate sloping feature. It also seemed to meet nicely with the base of the stones of the intermediate sloping feature just above. The identification of this deposit as the remains of the sloping ballcourt apron thus seems likely.

CONCLUSIONS

Ultimately, despite the imperfect preservation and the enigmatic nature of some architectural features, strong evidence was gained that Structure 6 represents the eastern range of a ballcourt. The base of the structure transitioned into the ballcourt apron, which moved at a shallow slope toward a more steeply sloping intermediate feature. This feature met the base of a vertical wall continuing up the structure. The intermediate feature between the sloping apron and the vertical wall is something of an enigma at this point and would represent a unique feature in Maya ballcourt architecture. Further excavation next season should be able to better define this feature.

The other surprising result of the 2011 season was the discovery of the ceramic sherd layer embedded in the plaster floor below Structure 6, just south of its central axis. Two possible scenarios exist to explain the presence of this feature. The placement of the sherd layer underneath the ballcourt most likely represents a dedicatory feature put in place in the floor in preparation for the construction of the ballcourt, possibly marking a cache below. A dedicatory feature in the form of a sherd floor is rare in the Maya area (Valdez, personal communication 2011) and would highlight the symbolic power of ballcourts within Maya ceremonial centers. However, it is also possible that the plaster floor here originally represented an open section of the plaza before the construction of the ballcourt. Given the more complex construction history of Structure 7 discussed earlier, the sherd deposit could have been associated with an earlier, pre-ballcourt structure underneath the final phase of Structure 7. If this was the case, then this public space must have been reinterpreted and transformed into a ballcourt, physically covering and entombing the earlier space and its symbolic meaning encoded in the sherd layer. While either of these two scenarios is plausible, the first seems most likely given the pattern of dedicatory caches placed in many ballcourts in the Maya area. Moreover, if the floor had been open for some time before the construction of the ballcourt, then it seems likely that a new floor would have been built in preparation. Still, it is possible that the ballcourt could have been built on an existing floor with only the playing alley being renovated. The lack of preservation in the playing alley makes confirmation of this scenario impossible with the current data.

REFERENCES CITED

Guderjan, Thomas H.

1991 New Information from La Milpa, the 1990 Field Season. *Mexicon* 13:5-10.

Houk, Brett A.

1996 The Archaeology of Site Planning: An Example from the Maya Site of Dos Hombres, Belize. Ph.D. dissertation, Department of Anthropology, University of Texas at Austin.

Schultz, Kevan C., Jason J. Gonzalez, and Norman Hammond

1994 Classic Maya Ballcourts at La Milpa, Belize. *Ancient Mesoamerica* 5:45-53.

SUMMARY OF THE 2011 ACTIVITIES OF THE LA MILPA CORE PROJECT

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INTRODUCTION

In 2011, the La Milpa Core Project (LMCP) conducted its fifth field season in the Plaza B area of La Milpa, Belize (Figure 1). The project began on May 9, 2011, with the arrival of the senior project staff in Belize and ended on July 8, 2011, when the last project staff member departed Belize. The project included a Texas Tech University (TTU) archaeological field school, which ran from May 19 to June 16 and included 12 students. Project staff included Dr. Brett A. Houk, project director, and Dr. Gregory Zaro, associate project director, who were assisted by operation directors Lindsey Moats and Vincent Sisneros, both TTU graduate students, and Chelsey Plumlee, Shannon Smith, and Jacob Nanney, project staff members. Much of the time before and after the field school was spent working at Courtyard 100, funded by a grant from the National Geographic Society's Committee for Research and Exploration (Grant Number 8889-11).

In 2011, the La Milpa Core Project (LMCP) proposed two main agendas. The first was to explore Structure 28 in the Kotanil Courtyard. The second was comprehensive work in Courtyard 100. This report presents a summary of our results in the two areas.

STRUCTURE 28

Initial work in-and-around Courtyard D and the Kotanil Courtyard determined that the area has a much longer and more complicated construction history than previously suspected. Excavations on Structure 27 have documented multiple construction phases dating from the Late Preclassic period through the Terminal Classic period, ca. 400 BC - AD 900. In addition, excavations on Structure 23 have shown that the Late Classic/Terminal Classic tandem range building was under renovation at the time of abandonment, with large boulder fill placed on the southern side of the building and the summit rooms apparently in-filled with compacted marl and limestone blocks (Houk and Zaro 2010). Excavations in 2010 on Structure 26 documented the architectural form of the structure's platform and exposed portions of two rooms on the summit of the building. The excavations of the rooms determined that the building had been in use for some time before final abandonment (Zaro et al. 2011).

As mapped by Tourtellot (1993:Figure 1), Structure 28 is a unique range building at La Milpa. It is approximately twice as wide as other range buildings, and Tourtellot (1993:Figure 1) mapped probable walls and rooms on its platform summit. A cursory study of the structure in 2010 confirmed the presence of visible walls, access ways, and rooms.

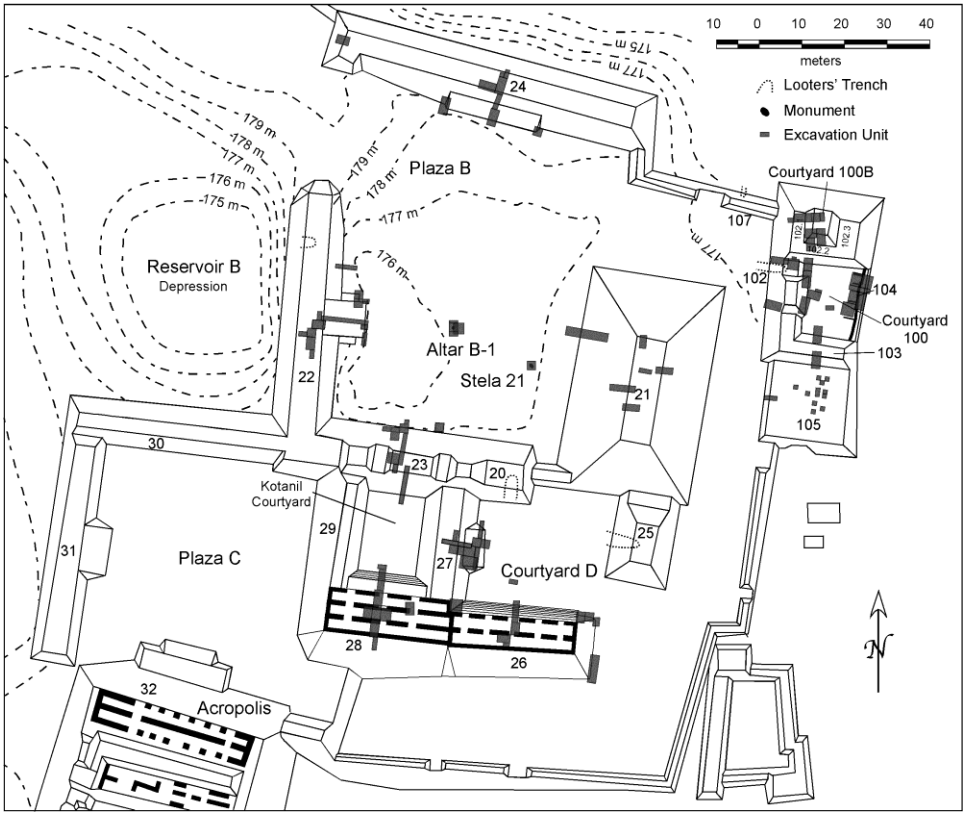

Figure 1. Map of Plaza B area showing the locations of LMCP units. The focus of work in 2011 was Structure 26 and Courtyard 100. Base map courtesy of La Milpa Archaeological Project and Dr. Norman Hammond, Boston University. Modifications by LMCP.

In 2011, the LMCP proposed to conduct preliminary excavations on Structure 28 to acquire basic data on the form and size of the building. Excavations included a series of contiguous units to expose a cross-section of the mound from north to south along the primary axis of the building and one isolated unit to explore a specific architectural question. The work was designated Operation (Op) B, and nine suboperations (Subops B7-A through B7-I) were opened on Structure 28 in 2011 (Figure 2).

The 2011 excavations at Structure 28 clarified the form of the building and collected important comparative architectural data. As has been the case with other range structures around Plaza B, our excavations encountered collapsed rooms, construction of highly variable quality, and evidence of multiple renovations at Structure 28. Pending analysis of the ceramics, we can only infer that the building's final phase was constructed during the Late Classic period, and that the building was used and renovated into the Terminal

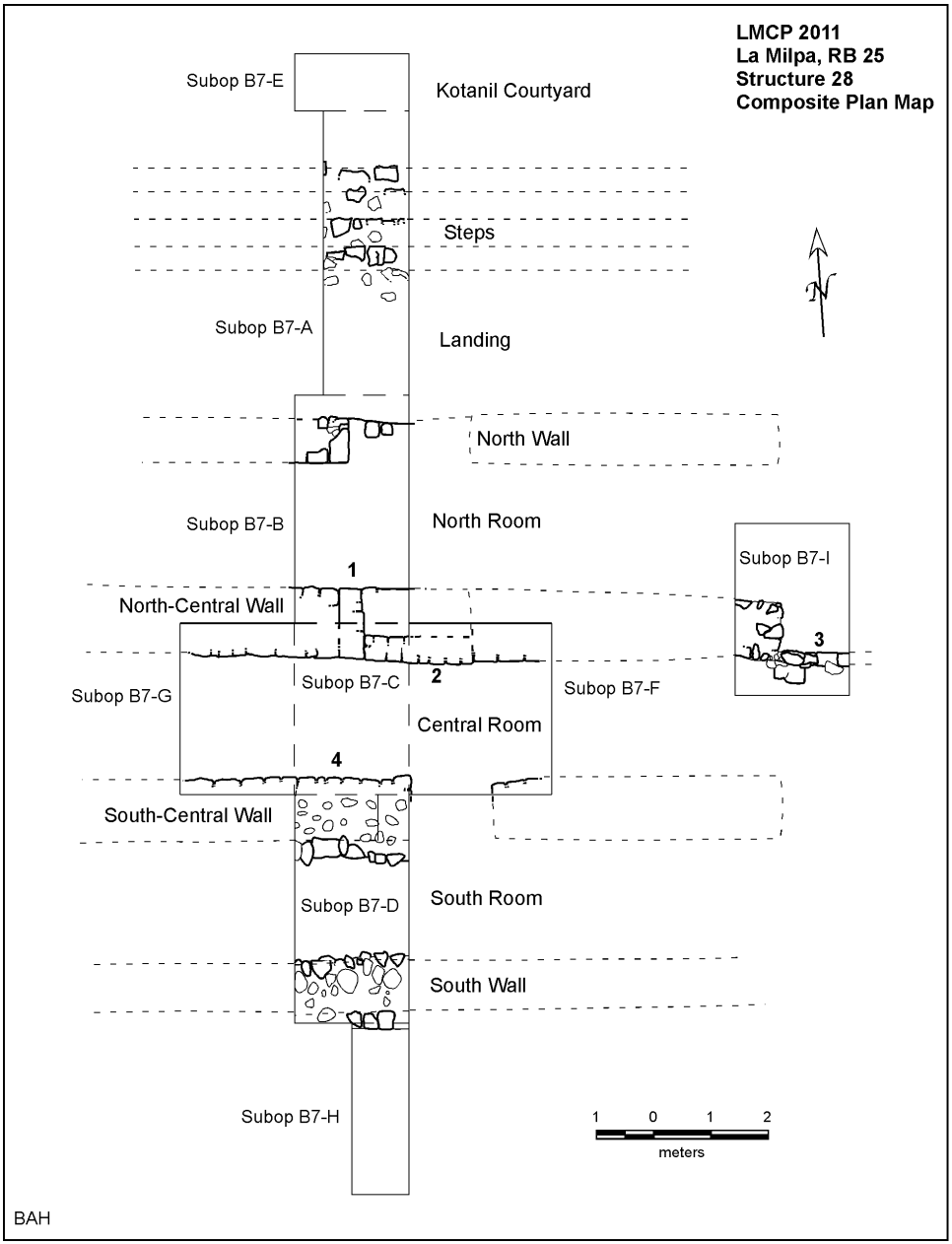

Figure 2. Plan map of Structure 28. Renovations numbered 1–4.

Classic (see Houk and Smith 2010 and Houk and Zaro 2010 for discussions of Terminal Classic renovations at Structure 27).

Structure 28 proved to be a tandem range building with three rows of rooms set atop a 1.75 m high platform. Our excavations exposed, from north to south, the courtyard floor surface, a stairway providing access to the structure, a landing, portions of three collapsed rooms (along with walls and doorways), and the back wall of the structure. Limited architectural penetrations collected some additional data on the architecture.

The building has three rows of rooms running east-west and possible evidence of a collapsed fourth row on the southern end of the mound. The building had a stairway and landing, which spanned the approximately 10 m width of the northern face of the structure. The front row (north) of rooms was once vaulted, and we infer that the top of the roof was highly decorated based on the large amount of modeled stucco found in the collapse debris in the northern row of rooms. We also infer, based on construction quality, that the north and central rows of rooms were built first, presumably in the Late Classic period. The southern row of rooms, which is very poorly constructed compared to the others, was probably built later as a major renovation to the building.

Throughout its use, Structure 28 underwent modification. At some point, the northern row of rooms had two doorways to the south blocked entirely. This act presumably changed the use and function of the building, although we can only speculate as to what the original and new functions may have been. As has been the case in excavations of other range buildings around Plaza B, the floors in Structure 28 were clean; no artifacts that might provide functional information were found in the rooms. One observation about function that we can make, however, is that the rooms in Structure 28 do not have cord holders in the walls. This stands in contrast to the rooms in Courtyard 100, where three different cord holders have been documented. Perhaps this is an indication that Structure 28 did not serve a residential function.

COURTYARD 100

Courtyard 100 is situated just beyond the eastern margin of Plaza B and is composed of 1.5 to 2 m high mounds. Structures 102, 103, and 104 define the western, southern, and eastern sides of the courtyard, respectively, while a small auxiliary courtyard, Courtyard 100B, forms its northern boundary and is composed of Structures 102.1, 102.2, and 102.3. To the south of Courtyard 100 is a low platform, Structure 105, that extends southward from Structure 103.

Previous excavations were exploratory in nature and focused on exposing the final phase of architecture on several of the buildings to assess structure form and preservation (Mann 2010). The eastern wall of the courtyard, Structure 104, was initially tested with a single 1 x 5 m trench in 2009, followed by an adjacent 2.5 x 3 m unit in 2010. These excavations, which sampled deposits to its east and west, encountered a dense artifact deposit on both sides of the wall. The deposit contained broken ceramics, lithics,

obsidian, and faunal material. Preliminary ceramic analysis suggested the deposit includes Three Rivers (TR) Tepeu 2-3 types, roughly dating the deposit to the Late-to-Terminal Classic periods (Mann 2010). However, two peccary bones from the midden were radiocarbon dated and returned 2-sigma calibrated age ranges of approximately AD 890 to 1040, demonstrating activity in the courtyard well into the Terminal Classic period and beyond the previously proposed early ninth century abandonment date. A test pit was also placed in Courtyard 100B, the small auxiliary patio bounded on three sides by low mounds. This 1 x 2 m unit also recovered dense artifactual material from the surface to approximately 20 cm in depth. While full analysis of this material is pending, a single Pabellon Modeled-carved sherd was identified during excavation—an important Terminal Classic diagnostic (see Sabloff 1975:198).

The 2011 investigation of Courtyard 100 was specifically designed to better understand the nature of Terminal Classic occupation at the site. Excavations were centered on investigating architectural elements of the courtyard, defining a construction sequence for the area, and determining the function of the dense problematic deposit associated with Structure 104. Field investigations around Courtyard 100 continued under Operation B6, with 25 new suboperations opened in 2011 (Figure 3). Suboperations B6-K through B6-AI were designed to (a) recover additional dateable material from the midden, (b) recover artifacts and/or organic material from below floors or benches in associated rooms to establish the group's construction history, and (c) recover artifacts indicative of the activities taking place in the courtyard and its associated structures.

Preliminary results suggest that multiple cultural processes probably account for the archaeological patterning identified in Courtyard 100. The architecture speaks to multiple construction episodes likely occurring during the Late-to-Terminal Classic periods while the problematic deposit associated with Structure 104 points to an active history long after the site was thought to have been abandoned. Below is a brief summary of the 2011 Courtyard 100 excavations.

Structure 104

Structure 104 defines the eastern boundary of Courtyard 100. It consists of a low wall with several partition walls extending westward into the courtyard. Excavations uncovered dense artifactual deposits along both the exterior and interior of the structure, which included a large amount of ceramics, lithics, and other materials. The deposit also appears to be mixed with collapse debris or other secondary material. The burial of an infant was also identified in association with the structure, on the western side of the wall and centered on a passageway to the exterior of the courtyard. The burial exhibited remarkable preservation, the analysis of which is ongoing. Several small, non-diagnostic ceramic fragments and a very small obsidian blade were recovered during excavation, but none appear to have been deliberately deposited with the burial. Excavation into the courtyard surface along the western face of Structure 104 also revealed multiple

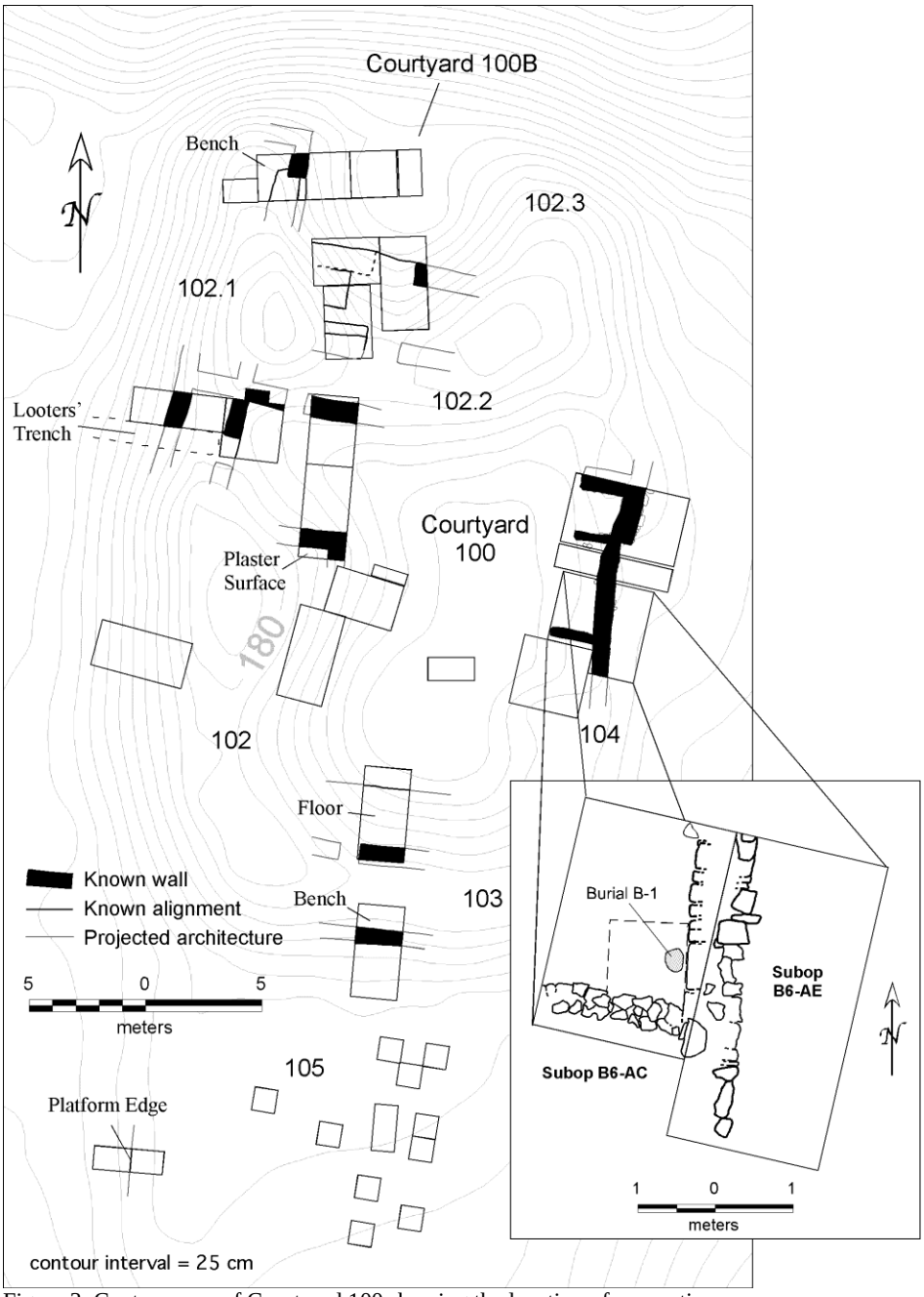

Figure 3. Contour map of Courtyard 100 showing the location of excavations.

resurfacing episodes that likely began in the Late Classic and continued into the Terminal Classic period.

While it is still unclear as to the exact process of events that led to the formation of the problematic deposit along Structure 104, several distinctive Terminal Classic markers have been recovered, and coupled with radiocarbon information, suggest that Courtyard 100 was in use into the Terminal Classic period. Importantly, the deposit stands in stark contrast to what others and we have found elsewhere in the site core. Our excavations of rooms in adjacent structures and in range buildings around Plaza B consistently encounter clean floors with no artifacts in the rooms nor any on the steps. Thus, the Structure 104 deposit represents distinct activities occurring in Courtyard 100 toward the end of La Milpa's days.

Structure 102

Structure 102 delineates the western boundary of Courtyard 100 and is the highest mound associated with the courtyard group. It is attached to Courtyard 100B to the north and Structure 103 to the south. The western face of this structure faces Structure 21, the fifth tallest mound at La Milpa (Houk and Zaro 2010). Structure 102 comes to an apex at approximately the center, which we initially interpreted as a possible entrance into the courtyard. Previous excavations focused on the northern section of the structure, where it articulates with Courtyard 100B. To broaden our exposure of this portion of the building, 2011 investigations implemented four suboperations at various locations along Structure 102 in order to better define the architecture associated with the mound and investigate the possible entrance into the courtyard noted near the center of the building.

No entrance was identified, though excavations did reveal one interior room (through which a looter's trench was excavated), and multiple construction episodes that suggest initial construction began in the Early Classic and persisted into the Late-to-Terminal Classic periods. Additional excavations along the eastern face of Structure 102 also revealed a scatter of fragmented ceramics on the courtyard surface, presumably *de facto* refuse related to the building's final stages of use, but exhibited no diagnostic Terminal Classic markers.

Structure 105

Structure 105 is a low platform attached to the southern end of Courtyard 100. In 2011, the LMCP set up a 15 x 15 m grid, within which ten 1 x 1 m suboperations were selected for excavation to better sample the platform's surface and gain a more complete picture of the distribution of an artifact deposit initially identified on it in 2009 (i.e., Mann 2010). Each suboperation was excavated in arbitrary 10 cm levels in order to preserve any stratigraphically important information regarding the artifacts recovered from the platform.

Excavations encountered a hard packed earthen floor in several locations and remnants of a heavily eroded plaster floor on the northeastern portion of the structure (Subop B6-Y). Collapse debris from Structure 103, located at the northern margin of the platform, was also identified in the suboperations located closest to this structure. Most notable was the large number of artifacts, mostly ceramics, recovered from some suboperations. In one case, B6-AA, almost 900 ceramic sherds were recovered. While other Structure 105 units did not yield quite as many ceramics, counts were still relatively high for such a location. In general, however, cultural material is concentrated near the center of the platform.

COURTYARD 100B

Courtyard 100B is a small courtyard space to the north of Courtyard 100. The space is composed of three structures, labeled Structures 102.1, 102.2, and 102.3, flanking the western, southern, and eastern sides of the courtyard, respectively (the area is open to the north). The courtyard surface is heavily eroded and almost nonexistent, but plaster surfaces preserved in rooms associated with the area show thick, intact floors leading into rooms lined with walls of faced stones. Within Structure 102.1, a bench was encountered along with a ceramic curtain rod holder similar in placement and form to those recovered in Structures 102 and 103 in Courtyard 100. Exposed architecture revealed several modifications, including doorway jamb renovations or extensions on Structure 102.1, and the apparent partial removal or deconstruction of an exterior wall on Structure 102.2.

ACKNOWELEDGEMENTS

The LMCP's research is a component of the Programme for Belize Archaeological Project (PfBAP) under the direction of Dr. Fred Valdez, Jr., who holds a permit issued by the Institute of Archaeology. Our work relied on PfBAP staff for support in 2011: Dr. Lauren Sullivan analyzed our ceramics, Dr. David Hyde analyzed our lithic artifacts, Eric Wettengel assisted with TDS mapping, and Dr. Lauri Martin and Stacy Evans conducted the excavation and analysis of a burial at Courtayard 100. Noemi Garcia, who was assisted by students from various universities, supervised the field laboratory. We were assisted in the field by an international team of excavators: Guadalupe Novelo, Augusto Gabriel Gutierrez, Rolando Cortez, Walter Martinez, Jose Funes, Abner Mogaña, Ruperto Mogaña, and Cruz Kante. Typically, we had four workmen assisting with the excavations each day, but at times, particularly near the end of the season, our crew included five or six workmen. Our radiocarbon specialist was Douglas Kennett at Pennsylvania State University.

REFERENCES CITED

Houk, Brett A., and Shannon M. Smith

2010 Continuing Investigations of Structure 27 at La Milpa: The 2009 Season. In *Research Reports from the Programme for Belize Archaeological Project, Volume Four*, edited by David M. Hyde and Fred Valdez, Jr., pp.

187–202. Occasional Papers, Number 11. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Houk, Brett A., and Gregory Zaro
2010 Architectural History and Ritual Planning at La Milpa: A Reconsideration. *Research Reports in Belizean Archaeology* 7:95–102.

Tourtellot, Gair
1993 *More Light on La Milpa Mapping: Interim Report of the 1993 Season*. La Milpa Archaeological Project, Boston University, Boston.

Zaro, Gregory, Brett A. Houk, Shannon M. Smith, Chelsey Shockley, and Catherine Joseph
2011 Structure 26 Excavations, La Milpa, 2010. In *Research Reports from the Programme for Belize Archaeological Project, Volume 5*, edited by Brett A. Houk and Fred Valdez, Jr., pp. 7–24. Occasional Papers, Number 12. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

SUMMARY OF 2011 FIELD SEASON: EXAMINATION OF EXTENDED LINEAGES ASSOCIATED WITH COURTYARDS 135 & 149 AT LA MILPA, BELIZE

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INTRODUCTION

The Three Rivers Archeological project represents a regional research program aimed at elucidating the nature of Maya political, social, and economic integration. Toward this end, extensive research is being undertaken at the primary center at La Milpa. As part of a multi-institutional endeavor, Santa Monica College is examining the role of elite lineages within the developmental trajectory of La Milpa. Ongoing research at two separate multi-courtyard lineages within the site epicenter is providing insight into the long-term historical development and overarching political economy of this polity.

THEORETICAL GOALS

As stated above, Santa Monica College is focusing on the examination of mid-to-upper elite lineages within the La Milpa polity. This research continues the long-term residential investigations conducted by Brandon Lewis. Importantly, the examination of elite residential compounds provides critical comparative data that can be examined in relation to the residential activities of the lower-to-middle class Maya. Of particular interest is the degree to which relative status affects involvement within systems of economics, ideology, and the overarching political economy.

In addition, the data being generated will allow us to examine the competing models being presented in regard to the developmental trajectory of La Milpa. Ongoing research by the Programme for Belize Archaeological Project suggests a pronounced Late Preclassic presence followed by gradual political expansion throughout the Classic period. Such an interpretation is in contrast to the initial model forwarded by Hammond and Tourtellot (2004). They, instead, argue for minimal Preclassic affluence/site monumentality followed by a period of political explosion in the Late Classic. Analysis of Courtyards 135 and149 will allow us to date the monumentality of these groupings and determine the extent to which there is evidence for an entrenched elite class in advance of the Late Classic/Terminal Classic period.

COURTYARD 149 - ASSOCIATED EXTENDED LINEAGE

Courtyard 149 is situated atop an artificially modified ridge slop approximately five meters in height. The dimensions of the raised slope generally measure 12 meters east/west by 25 meters north/south. This locus appears to include a combination of domestic and religious structures. The plaza appears to be functionally and socially integrated with the two courtyards lying immediately to the south. A comparison of courtyard size, form, and composition indicate that Courtyard 149 housed the ranking

individuals of this extended grouping. Courtyard 149 is the largest of the three loci, contains the most formalized architecture, exhibits restricted access and tight nucleation, and contains the sole temple structure.

Structure 63

2011 excavation of the eastern flank concentrated on further delineating the dimensions and construction history of Structure 63. In particular, excavations examined: 1) the northern and eastern terminus of the northern interior room, 2) the structural connection between the aforementioned room and a formalized bench located immediately to the south, and 3) the manner in which the eastern flank integrates with the proposed courtyard "entry way" located to the northwest.

A total of eight units were either initiated or continued to clarify the complex series of interior construction phases. Consistent with our 2010 interpretations, multiple building phases are projected. We tentatively propose a minimum of eight separate construction episodes for the eastern structure. Our 2011 efforts were able to delineate the eastern terminus (back wall) of the structure. This discovery has allowed us to formalize the east/west dimensions of Structure 63. In addition, preliminary probing may have identified the location of the northern wall. Finally, a newly discovered bench was identified at the base of (and integrated into) the structure's western wall. Based on bench orientation, it appears that structure access and layout were noticeably different during this earlier phase.

Importantly, we were careful to terminate our efforts atop the previously identified, red specular hematite, Late Preclassic floor. This temporal assessment is based on the presence of fine, cut-stone masonry, observable ceramics, and the thickness of the plaster surface. It is proposed that the majority of identified construction is associated with this Preclassic phase.

Southernmost Courtyard of Extended Lineage

In 2012, excavations resumed at this southerly courtyard. Previous excavations (2008) had been limited to a handful of midden-units and plaza test pits. As part of our efforts to understand the nature of lineage integration, our attention returned to this outlying group. Consistent with the project's methodology to extract associated economic data as quickly as possible, five units were placed behind the various structures. In addition, one unit was situated in the center of the primary courtyard. The majority of these units revealed dense, yet shallow, concentrations of artifacts. Our working hypothesis is that this courtyard was almost entirely constructed during the Late Classic, with intensive occupation and activity.

Comment on Extended Lineage

The data discussed above tentatively argue for long-term, accretionary growth of residential Structure 63 (Courtyard 149). The quality of cut-stone masonry, along with

the red, specular hematite floor, indicates a noticeable degree of residential affluence well in advance of the Late Classic. To the contrary, the courtyard's single-phase, Late Classic temple structure, along with the presumed Late Classic date for the lineage's southernmost plaza, testifies to considerable expansion during the Late Classic. These data appear to provide a balance between the competing developmental models discussed above.

COURTYARDS 135, 136, and 142

Courtyard 135 and the adjoining compounds lie approximately 1/4 kilometer to the west of the terminus of the Southern Acropolis. Initial investigation of this extended grouping was conducted under the directorship of Hammond and Tourtellot in the mid-1990s. This location consists of three connected, formalized courtyards with ancillary structures to the south. Prior examination appears to have focused on the larger of the two courtyards, which includes an elevated C-shaped grouping. Hammond proposes that the subterranean chamber located at the rear of the C-shaped structure would have represented a royal throne. This, along with the discovery of a carved monument, argues for upper-level elite status. In fact, Hammond proposed that this locus represents the residence of a La Milpa ruler. While Hammond's excavations appear to have centered on the archaeological markers of political power, our efforts were directed toward identifying site chronology, recovering associated midden, and investigating drainage and landscape modification.

Courtyard 135

2011 excavations focused primarily on Courtyard 135, the northernmost grouping of the extended lineage. Our field research combined site mapping with an extensive test-pit program. In addition to recovering artifacts associated with each respective structure, we were interested in identifying the function of the large, apparently formalized space immediately to the north. Consequently, a minimum of eight 1 x 2 meter units were situated throughout the general courtyard (i.e., behind and adjacent to structures, and within the level terrain to the north). Overall artifact recovery was not as impressive as that achieved during our excavations of Courtyard 136 (immediately to the south). Nonetheless, cultural evidence indicated elite, residential function. The irregular patterning of artifacts within the level terrain to the north suggests a combination of functions. It appears that a significant portion of the land represented a formalized, paved surface, while the outlying perimeters may have been used for general trash disposal.

Cross-sectional maps were generated for both the east and south flanks of Courtyard 135. Compass and tape were used to identify the vertical rise and architectural transition that occurred in each. Although poorly preserved, both summits were reached by a centrally located staircase. In addition, both summits integrated a lower terrace surface with a superimposed platform supporting the residential structures.

Structure 190

Architectural investigation continued on Structure 190 (located between Courtyards 136 and 142). This structure was originally chosen because of its spatial isolation and offset form. Excavation was able to identify both the east and west terminus of the most recent living surface. In addition, evidence of at least three surface re-plasterings was apparent. Although a residential function is assumed, insufficient evidence exists at present to make a formal determination.

MAPPING

A detailed mapping project was initiated during the 2011 field season. Our goal was to update the existing La Milpa site map (Hammond and Tourtellot 2004) by integrating newly discovered cultural features and incorporating our reassessments of the natural and cultural landscape. The majority of the extended lineage associated with Courtyard 149 was completed along with details of Courtyard 135. Both loci were tied into existing points, thereby adding to the project's efforts to generate a new, master site map of La Milpa.

REFERENCES CITED

Hammond, Norman, and Gair Tourtellot, III

2004 Out with a Whimper: La Milpa in the Terminal Classic. In *The Terminal Classic in the Maya Lowlands*, edited by Arthur A. Demarest, Prudence M. Rice and Don S. Rice. pp. 288-301. University Press of Colorado: Boulder.

REPORT ON A NORTHERN RESIDENTIAL COMPLEX AT LA MILPA, BELIZE: OPERATION LM4*

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INTRODUCTION

The site of La Milpa is located in a large conservation area in Northwestern Belize, bordering Guatemala to the west and near Mexico to the north. The site contains three large open plazas, two large reservoirs located near the site center and two of ball courts. This site is composed of four large temple- pyramids in the Great Plaza and various "minor centers," which have been documented in the eastern, southern, and northern portions of the site (Guderjan 1991; Sagebiel 2005). The La Milpa landscape is composed of a large dispersed community. Research of the site's center, including civic architecture and the broader community are currently being investigated (for example, Trein this volume).

OBJECTIVES AND EXCAVATIONS

The goals of the 2011 field season included exposing residential architecture and assessing residential occupational episodes of Operation LM4. The research performed during this particular season was a continuation of the 2010 excavations that focused on initial excavations of the architecture comprising the residential group of Op LM4. Determining architectural function was and continues to be a focal point of this project. Additional goals of this season involved determining domestic activities, assessing patterns of consumption and production, and delineating their spatial boundaries at this group.

The patio group layout of Operation LM4 is compatible with J. E. S. Thompson's (1931) definition of a plazuela group, which refers to a cluster of structures set around a small plaza. OpLM4 also corresponds to the characterization of a group-focused patio cluster, where patio groups have surrounding "units that are single structures" (Ashmore 1981:51). It is acknowledged that plazuela groups are primarily composed of structures that are residential in function, however, as observed through various settlement projects, structures composing "residential compounds" also served supplementary functions, such as storehouses and kitchens (Haviland 1970: 193; Rice and Puleston 1981). Variability in size, form, and layout of residential compounds at any given site can be, in part, due to differences in kinship structural arrangements and/or household membership that would affect residential organization and continuous or lack of habitation (Rice and Puleston 1981). Additionally, there are multiple factors that would influence house organization, such as power, social importance and community positionality, and profession. The goal of this project is not to privilege one aspect, such as structure function, as a determining factor above sociological aspects. Instead, one, among many, aims is to elucidate the symbolic characteristics that are embodied, maintained, and transformed within the

physical house. The objective of excavating Structures 1, 2, and 3 was to illuminate these characteristics as preserved in the archaeological record. Excavations of Structures 1, 2 and 3 and their findings will be discussed below.

Unit HH (3 x 3 m), placed on Structure 2, was reopened during this field season. Excavations of this unit focused on understanding the function of this structure and discerning architectural composition. Student excavators removed backfill from the previous years' excavation and excavated the compact marl below. Excavations revealed a rock alignment in the center of Unit HH, running northeast. This alignment was determined to be a wall of a room (Room 1) in Structure 2 and a plaster floor was encountered in the room of Structure 2. The northwestern corner of this unit was excavated to the base of the wall. A circular alignment of large plastered blocks were encountered at the base, as well as various ceramic rims and body sherds, implying a possible cist burial positioned on a plaster surface at the base of the wall in Unit HH. The ceramic sherds were collected in the hopes of reconstructing whole vessels. Further excavations of this circular alignment revealed the presence of human remains. Excavation of this feature was not completed during this field season due to time constraints. Excavation of these remains will continue in the 2012 field season.

Unit II was a 3 x 3 m unit extension of Unit HH on Structure 2. This unit was established to follow the plaster floor discovered in HH. The corner of the northeastern wall was discovered in the southeastern portion of Unit II. This stone wall was composed of small marl cobbles, with only some of them cut or shaped. This wall was photographed and mapped and plaster samples of the floor abutting the northeastern wall were taken for future chemical analyses. Excavations continued below the plaster floor until another floor was encountered immediately below. The lack of construction fill between the two floors indicates a possible resurfacing. Samples of this floor were taken for further analyses. Excavations continued below floor two and human remains were encountered. Excavation of this unit was halted for the season and will be revisited in the 2012 field season.

Unit JJ was a 1 x 5 m unit was arranged on Structure 3 to define the entrance/staircase of this building and its relationship to the plaza floors. Students excavated the overlying humus and removed the tumbled limestone blocks (structural debris) in this unit. A series of plaster steps leading to a plaster floor/landing were discovered in this unit. The steps and plaster landing were in good condition. A face stone and possible doorjamb was identified above the staircase in the southwestern portion of the unit. The face stone and doorjamb were mapped and photographed. The spinal wall was visible at the southern portion of this unit and new unit was established to focus on this wall.

Unit KK, a 3 x 3 m unit, was a western extension of Unit HH. The goal of this unit was to determine the function of this building and its relationship to HH. Students and volunteers excavated the structural debris and overlying humus that comprised the

mound. Large rock tumble was encountered at the top of this unit and removed. An unusual number of lithics and ceramics were recovered throughout this unit. These artifacts require further analysis. An alignment was uncovered at the southern portion of this unit. This alignment was a continuation of the eastern wall found in Unit HH. The stones composing the wall differed in size and shape from those found in Unit HH and II, perhaps hinting at a later addition to Structure 2. Excavations of Unit KK found no additional stone alignments, but revealed an open platform space. It is currently unclear if this space served as an open working area as this unit revealed a lack of architectural features that would suggest its specific function. Excavations of this unit may continue in the 2012 field season.

Unit LL, a 1 x 2 m unit, was placed on Structure 2 as an extension of Unit II to determine the dimensions of the wall. The dimensions of this wall remained undetermined due to the invasiveness of large tree roots and the presence of a large tree that would have compromised the unit. Unit MM (1 x 5 m) served as an extension of Unit JJ on Structure 3. Unit MM was excavated down to the same level in Unit JJ that exposed a staircase and plaster landing. The goal of this unit was to delineate the dimensions of the staircase and catch the doorjamb on the southeastern portion of the unit. Unit NN (1.5 x 5 m) was placed on the northeastern portion of Structure 2 to determine the length of the wall found in Unit HH and to catch the spinal wall. Excavations of this unit were incomplete due to time constraints and will continue in the 2012 field season. Unit OO was a small 1 x 1 m test pit placed in front of Structure 2 to assess chronology of the courtyard space and compare the construction episodes to Structure 2.

Unit PP and QQ were 1 x 1 m test units placed behind Structure 1 to determine chronological construction episodes. Analysis of ceramics recovered from these units will serve as the basis for determining chronology. A comparative analysis of these phases with the episodes in the plaza of OpLM4 will provide information about occupation during the various time periods. Unit RR served as a 2 x 2 m unit extension of Units JJ and MM on Structure 3. The goal of this unit was to recover the interior wall of the building and spatially delineate the boundaries of the plaster landing. Excavations of this unit will continue in the 2012 field season. Unit SS served as a 1x6m unit on top of Structure 1. The purpose of this unit was to assess the construction phases of Structure 1. Two plaster floors were encountered, alluding to two phases of construction.

FUTURE GOALS AND EXCAVATIONS

The excavations from the 2011 field season were aimed at understanding structure function, assessing domestic activities and patterns of household behavior and practice. The function of Structure 2 and 3 have yet to be determined and excavations will continue in the 2012 field season. Analysis of the human remains recovered from Structure 2 will reveal important information about the inhabitants of OpLM4 and Operation LM4's wider role in the evolving La Milpa landscape. Excavations in the 2012 field season will include continual exposition of Structures 2, 3, 4, and 5.

** An earlier version of this paper was submitted as part of a report to the Alphawood Foundation.*

REFERENCES CITED

Ashmore, Wendy

1981 Some Issues of Method and Theory in Lowland Maya Settlement Archaeology. In *Lowland Maya Settlement Patterns*, edited by Wedny Ashmore, pp. 37-70. University of New Mexico Press, Albuquerque.

Guderjan, Thomas H. (editor)

1991 *Maya Settlement in Northwestern Belize: The 1988 and 1990 Season of the Rio Bravo Archaeological Project*. Maya Research Program, San Antonio, Texas, and Labryinthos, Culver City, California.

Haviland, William A.

1970 Tikal, Guatemala and Mesoamerican Urbanism. *World Archaeology* (2):168-98.

Rice, Don S. and Dennis E. Puleston

1981 Ancient Maya Settlement Patterns in the Petén, Guatemala. In *Lowland Maya Settlement Patterns*, edited by Wedny Ashmore, pp. 121-156. University of New Mexico Press, Albuquerque.

Sagebiel, Kerry Lynn

2005 Shifting Allegiances at La Milpa, Belize: A Typological, Chronological and Formal Analysis of the Ceramics. Unpublished Ph.D. dissertation, Department of Anthropology, The University of Arizona.

Thompson, J. Eric S.

1931 *Archaeological Investigations in the Southern Cayo District, British Honduras*. Field Museum of Natural History, Anthropological Series, vol. XVII, no. 3.

PRELIMINARY NOTES ON A CHULTUN BURIAL AT LA MILPA – LM-4

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INTRODUCTION

The ancient Maya site of La Milpa is located in the Three Rivers Region of Northwestern Belize. La Milpa is the third largest archaeological site in Belize and contains evidence of occupation extending from the Late Preclassic through Terminal Classic periods with population peaking during the Late and Terminal Classic (Riddick 2010). During the 2009 field season, a survey yielded a medium-sized residential complex located just outside of the La Milpa site core (Riddick 2010). This compound, operation LM-4, is located north of the central precinct of La Milpa and is composed of a patio group (consisting of four structures) and three detached structures (Figure 1). Two chultuns were also located within this complex. The following report provides preliminary notes on the excavation of a burial recovered from one of these chultuns during the 2010 and 2011 field seasons.

CHULTUN 1 OF OPERATION LM-4

Chultun 1 is located to the north of the patio group of LM-4 and to the west of Structure 6. In order to better understand the chronology and possible purpose of Chultun 1, Subop U was established above the chultun. Excavations of Subop U began in 2010 and uncovered a wealth of artifacts, including many ceramic sherds and a plaster floor (Riddick 2011). While continuing to excavate below the plaster floor of Chultun 1, archaeologists located human remains in the northern portion of the unit. Following the assessment of these remains, the feature was labeled as Burial 1 and was excavated under the supervision of Dr. Lauri Martin, the project osteologist. The following sections detail the excavation processes involved with the investigation of LM-4-U-9 Burial 1 and discuss any preliminary analysis and interpretation that is available at this time.

EXCAVATION OF BURIAL 1, LM-4-U-9

Excavation of Burial 1 began in the final weeks of the 2010 field season. Due to the limited timeframe and the frequent occurrence of rain storms near the end of the season, this excavation was not completed in 2010. The burial was carefully covered with layers of foil, sticks, palm fronds, tarps, and sterile dirt before back-fill of the chultun began so that the burial could be preserved until being reopened in the 2011 season. Excavation of Burial 1 resumed in June of 2011.

When the burial was uncovered in 2011, the bones proved to be well protected and preserved over the previous year. The 90 x 90 cm unit originally established over the burial in 2010 was relocated and the line-level utilized within the burial to aid in mapping was also reset. New measurements of this line-level and location of the exposed bones

were recorded before excavation continued. These excavations were assisted by students attending the University of Texas at Austin archaeology field school, and were supervised by Dr. Lauri Martin.

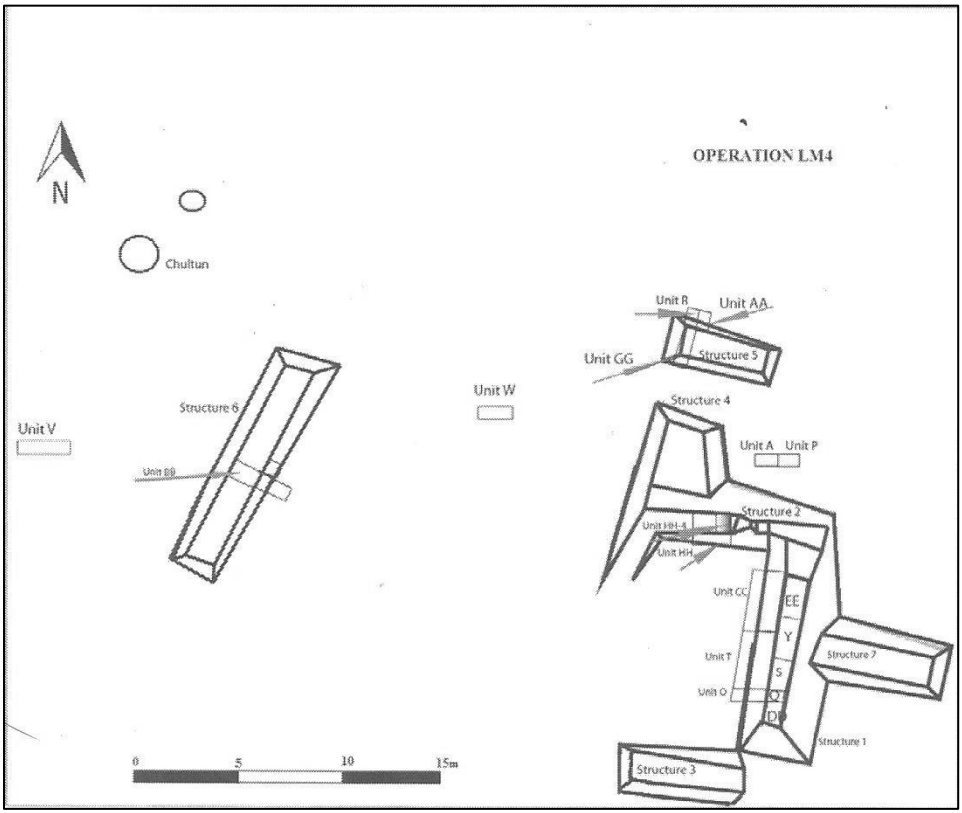

Figure 1. Map of Operation LM4 at La Milpa (adopted from Riddick 2011).

The "bathtub" method (Saul, et al. 2007:14) was utilized for excavation of Burial 1 and extensive notes and photographs were taken throughout the process. Although most of the burial was preserved in a fragmentary state, the few bones that were better preserved and potentially identifiable were pedestaled and left in situ as long as possible to provide an overview of the positioning of the body. Bone fragments that were surrounded by other fragments and maintained the general shape of individual bones were carefully cleaned and left in situ as well, in case their shape could be determined and utilized for later analysis of body-positioning. A few teeth were also recovered from the burial and prepared for export and DNA analysis. The teeth were cautiously extracted and handled using clean tools and sterilized surgeon's gloves to prevent potential contamination.

As it became necessary to remove bones from their location within the burial, each bone was mapped, numbered, and placed within a foil packet. These packets will be analyzed in following field seasons to determine position and directionality of the interred individual and any potential biological information regarding the interred, such as sex, age, status, health, and diet. In order to maintain stability and any possible structure of the fragmentary bones, an acetate-soluble solution (B72) was utilized during the excavation and removal of the bones. All back-dirt removed from the burial was screened over a "bone screen" of 1/8" mesh so that small artifacts or bone fragments could be collected and documented as needed.

In order to conduct the burial excavation and analysis in a timely manner, a brief field analysis of Burial 1 was conducted during the excavation. The application of osteology publications (Bass 2005; Steele and Bramblett 1988; White and Folkens 2005), careful documentation, and photographs of the remains provided further understanding of the burial throughout the excavation process. Large or interesting artifacts uncovered during excavation were also mapped and photographed in the event that they might provide information pertinent to the circumstances surrounding Burial 1. The majority of these artifacts included sizeable ceramic sherds (approximately 7-10 cm in length) and large cobbles (approximately 15-20 cm in length).

PRELIMINARY INTERPRETATION OF BURIAL 1

Due to the extremely fragmentary state of Burial 1, it is assumed that minimal information will be obtained from this excavation. Although the presence of identifiable ribs, vertebrae, cranial fragments, and some arm and leg bones were observed, no bones from the pelvic girdle were initially identified and therefore sexing the interred individual will prove difficult, if not impossible. Measurements of other bones may provide an approximation of the sex of the individual, but these measurements will not be conducted until the 2012 field season. Few complete bones were recovered from Burial 1, and very few long bones were recovered with the distal or proximal ends intact, and thus approximating the age of the individual has also proven difficult and will not be fully investigated until the 2012 analysis.

The fragmentary nature of the skeleton also hindered the interpretation of body position within Burial 1. Initially, the individual within Burial 1 was assumed to have been interred in a flexed position, lying on his or her left side with the head oriented to the east. As of the completion of this excavation, it is still assumed that the individual was interred in a flexed position, but further details on body position are proving problematic. Based on the location of the cranium and multiple arm bone fragments in the eastern portion of the burial, it is still quite possible that the individual was interred on his or her side (Figure 2). However, the recovery of three articulated lumbar vertebrae located one on top of the other suggests the individual may have initially been placed in a flexed and seated position. Hopefully, the positioning of the individual and other information regarding the interred will be solidified during the 2012 laboratory analysis.

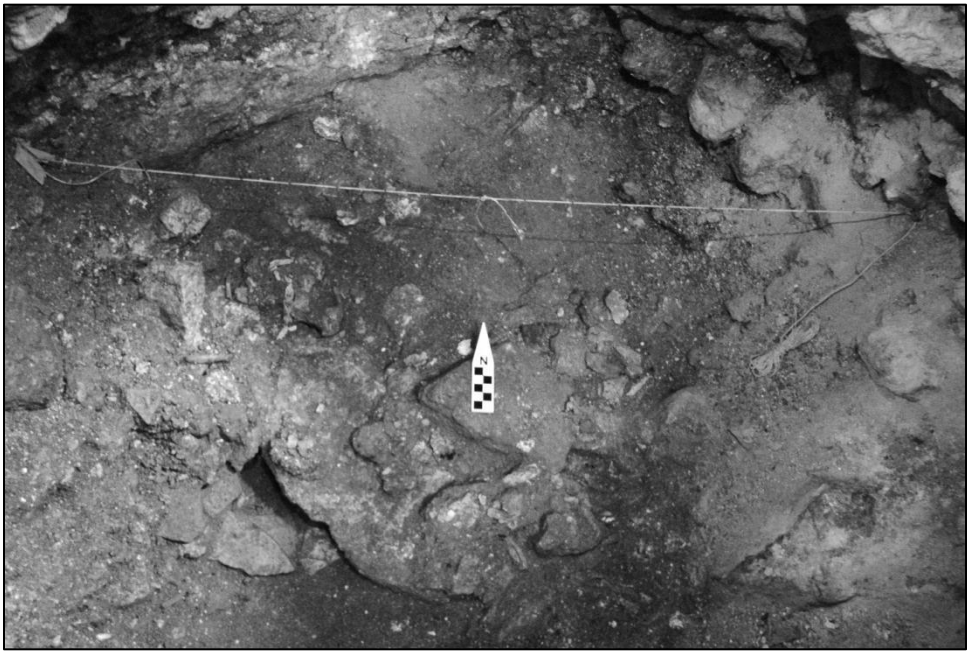

Figure 2. Overall view of Burial 1. Note large cobbles and ceramic sherds located throughout the burial. Cluster of bones just east of the north arrow consist of cranial fragments, with arm bone and mandibular fragments located south of the cranial cluster. WNW of the north arrow is a fragment of the femoral head, indicating leg bones were located in the western portion of the burial.

One aspect of Burial 1 that is fairly certain is the occurrence of a drastic post-interment disturbance of the burial. There are three factors noted during excavation that currently suggest such a disturbance. First, the extreme fragmentary nature of the bones within the burial conveys the impression that the bones were smashed or crushed. Second, although most of the bones recovered from Burial 1 maintain a fairly articulated positioning (suggesting this burial is a primary, and not secondary, burial), some bones appear to have been drastically relocated. The best evidence for this interpretation is the location of one tooth on the far western portion of the burial, while the other dental remains (including multiple teeth and maxillary and mandibular fragments) were recovered in the far eastern portion of the burial. Finally, several large cobbles were recovered throughout the burial excavation. These cobbles were heavy and found scattered throughout the bones of Burial 1. Some human remains were located on top of these large cobbles, while other human remains were located beneath the same and differing cobbles. At the time of the publishing of this report, these features of Burial 1 seem to suggest that the burial succumbed to a large and heavy force at some point in history, thus causing the bones to smash and scatter throughout the burial space and intermix with various pottery sherds

and large cobbles. The immense size of the cobbles within the burial seem too large to simply consider this burial as a cobble-fill burial (Saul, et al. 2007), but this possibility (among others) is still being considered.

CONCLUSION

At the time of this writing, it remains uncertain if the burial includes one individual and a singular tooth (or a possible small number of other bones) from a secondary individual, or if the burial was disturbed through bioturbation, collapse, or some other means. The body of the deceased may have also been merely "tossed" into the chultun and not buried in any particular or planned manner. Further research on chultun burials recorded throughout the Maya world should be conducted to better understand any possible correlating circumstances between chultun burials (if any are present). A final analysis of Burial 1 (to be conducted during the 2012 field season) will also hopefully yield a better understanding of the location of the bones within the chultun. This analysis will also be conducted to investigate any other noticeable features of Burial 1, including information regarding the age, sex, status, means of death, health, and diet of the interred individual.

REFERENCES CITED

Bass, William M.

2005 Human Osteology: A Laboratory and Field Manual, 5th edition. Missouri Archaeological Society, Columbia.

Riddick, Deanna M.

2010 An Intermediate Residential Group at the Site of La Milpa: Operation LM4, Suboperations A-N. In *Research Reports from the Programme for Belize Archaeological Project, Volume Four*, eds. David M. Hyde and Fred Valdez, Jr., pp. 85-96. Occasional Papers 11, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

2011 Ritual and Crafting at an Intermediate Elite Residential Group: Evidence from the 2010 Archaeological Excavations at Operation LM4. In *Research Reports from the Programme for Belize Archaeological Project, Volume Five*, eds. Brett A. Houk and Fred Valdez, Jr., pp. 93-107. Occasional Papers 12, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Saul, Julie Mather, Frank P. Saul and Lauri McInnis Thompson

2007 Recovery and Documentation of Skeletal Remains: A Brief Field Guide. Programme for Belize Archaeological Project Field Guide Series 1. Occasional Papers, Number 7, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Steele, D. Gentry and Claud A. Bramblett
1988 The Anatomy and Biology of the Human Skeleton. Texas A&M University Press, College Station.

White, Tim D. and Pieter A. Folkens
2005 The Human Bone Manual. Elsevier Academic Press, Boston.

EXCAVATIONS AT GROUPS B AND C, SAY KAH, BELIZE, 2011

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INTRODUCTION

Archaeological investigations were conducted in Groups B and C of Say Kah (Three Rivers Archaeological Project, Rio Bravo 26, Operations 2 and 3) between June 16 and July 9, 2011. This season focused on initial investigations of the unexcavated Group C, as well as returning to Group B to address questions that remained from our 2009 field season. Our investigations emphasized identifying and clarifying chronological, architectural, and functional understandings of both of these plaza groups.

Excavations were overseen by Sarah Jackson (University of Cincinnati) and Linda Brown (The George Washington University), project co-directors. They were assisted by University of Cincinnati graduate students Holly Dorning and Meredith Coats. Joshua Wright (Stanford University) was the project mapper. Denise Knisely, also a UC graduate student, provided assistance with burials. Work was also carried out by a team of Belizean workers, and by 20 undergraduate students affiliated with UC and GW, who were participants in the UC/GW field school. The project was conducted through collaboration with, and the support of, the Programme for Belize Archaeological Project, under the direction of Fred Valdez (University of Texas at Austin).

PROJECT BACKGROUND AND PREVIOUS RESEARCH

This season is the second season of research at Say Kah for the University of Cincinnati team, which was joined this year by a team from The George Washington University. Our 2011 investigations focused on Group B and Group C of the site. Work in Group B built upon previous excavations in that group carried out by the UC project in 2009 (Jackson et al. 2010), while Group C excavations represented the first investigations of this previously unexcavated (and unlooted – unlike Group B) plaza group.

Research in Group B in 2009 focused on establishing a chronology for this group, sampling architecture to determine construction phases and functions, and attempting to locate middens, while locating Say Kah within a larger regional socio-political landscape. Initial results suggested Late Classic construction and occupation of the plaza group, and largely single-phase architectural construction. We encountered significant difficulties in locating middens, and thus determining the types of activities that took place here. The size and organization of the plaza group and its structures, coupled with two burials located within structures, suggested a likely residential function for at least several of the buildings, and perhaps the group as a whole. We were surprised at the discovery of apparent elite markers (such as jade ear flares in a burial context, vaulted masonry architecture, ceramic sherds featuring hieroglyphic texts, and a possible monument) at a

secondary site. Investigations in 2011 – detailed below – helped to refine these interpretations, and to address outstanding questions.

Say Kah was initially recorded through survey in the area (Guderjan et al. 1991). Additionally, Group A of Say Kah was investigated between 2004 and 2006 under the direction of Brett Houk and Grant Aylesworth (Houk and Hageman 2007, Houk and Lyndon 2005, Houk et al. 2006, Houk et al. 2007). Their work suggested that Group A – a large patio group with 15 structures, many impressive in size – might have been a public space, perhaps positioning Say Kah as a mid-size administrative center with connections to La Milpa, located four kilometers away (Houk and Hageman 2007:155). According to the excavations carried out there, Group A was occupied during the Early and Late Classic periods (Houk and Hageman 2007:153-154) (Figures 1-3).

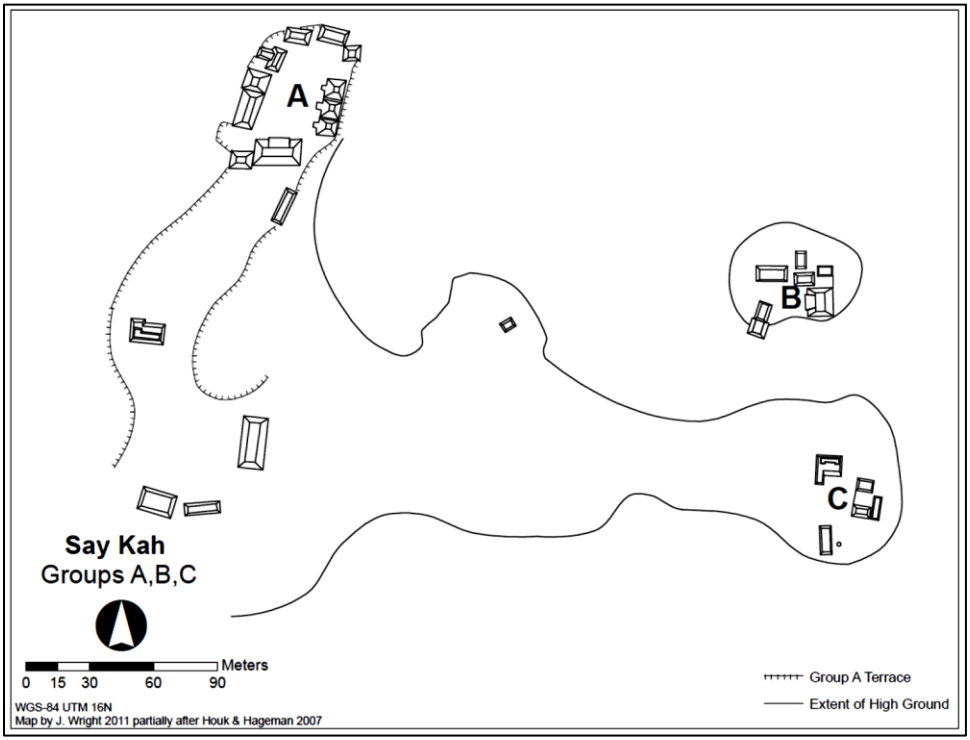

Figure 1. Map of Say Kah's Groups A, B, and C

2011 RESEARCH OBJECTIVES

The overarching goal of the UC/GW Say Kah Archaeological project is to understand Say Kah's role as a secondary center within the Three Rivers region. Say Kah provides an important case study of a site that is located at a mid-point of size and complexity in the larger settlement hierarchy, and thus has the potential to shed light on relationships

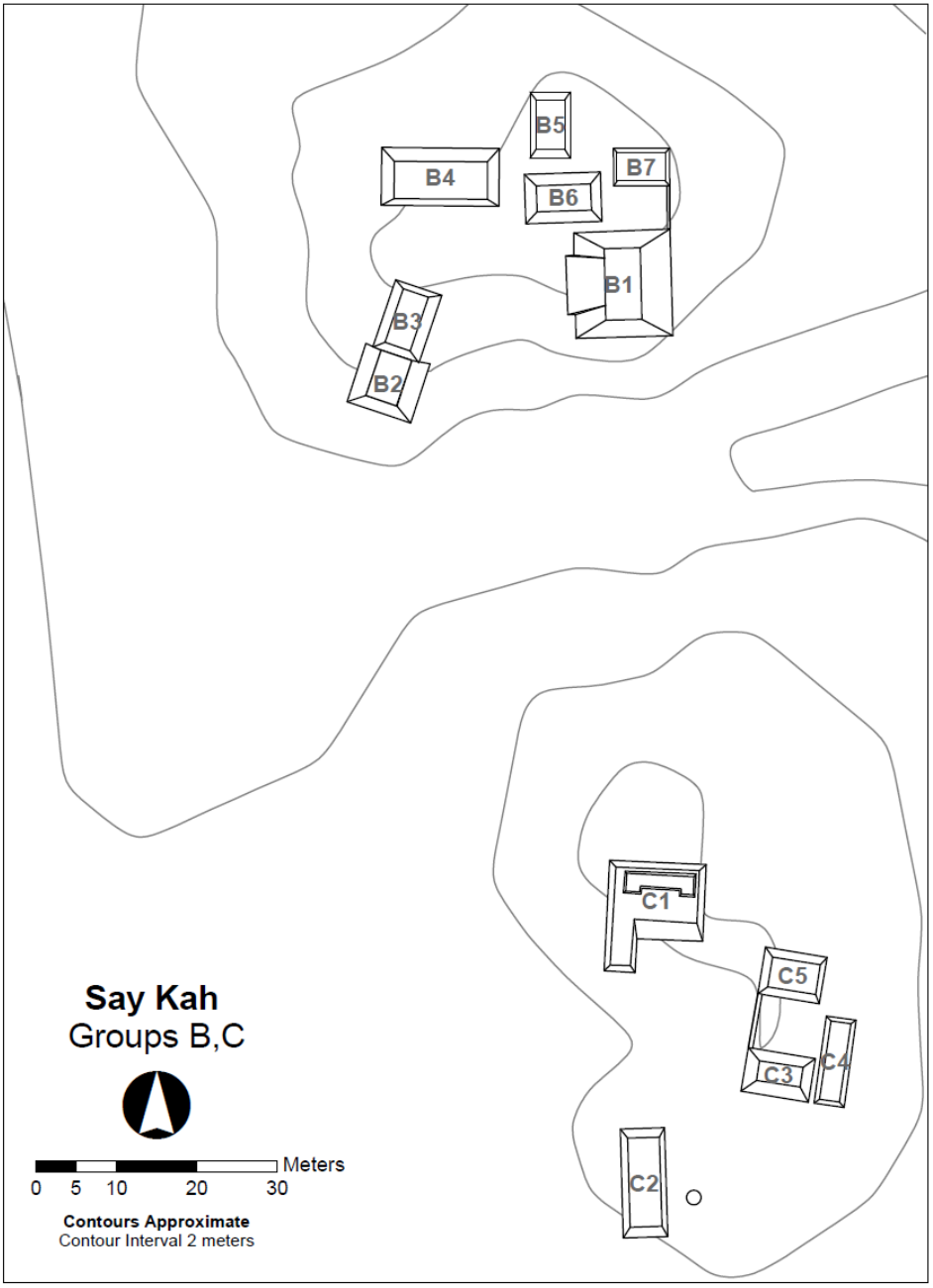

Figure 2. Say Kah Groups B and C.

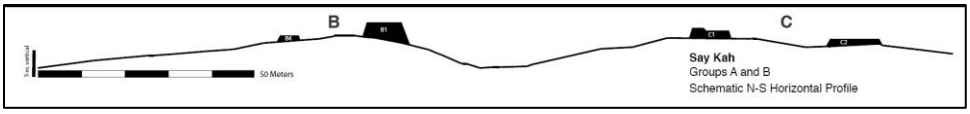

Figure 3. Profile relationship of Say Kah Groups B and C.

between sites (both larger and smaller), and the nature of sociopolitical organization within this region. Interest in a heterarchical model of regional organization (Crumley 1995; Scarborough et al. 2003), emphasizing more nuanced perspectives on organization and relationships than a strictly hierarchical view, provides a possible interpretive lens for understanding Say Kah's role, and for investigating possible resource-specialization for the site.

Building upon previous work in Groups A and B of Say Kah, the 2011 season involved further investigation in Group B, and the inauguration of excavations in Group C, as part of an effort to understand Say Kah as a whole. In Group B, we returned to areas that required additional investigation or clarification, while in Group C we endeavored to establish basic information about this plaza group. In particular, our excavations this season emphasized:

- In Group B, completing sampling of structures to clarify the chronological development of the group
- In Group B, returning to investigate a burial in Structure B-3 that was located at the end of the 2009 season
- Investigating the relationship between Groups B and C from an architectural standpoint
- In Groups B and C, seeking middens through the use of phosphate soil testing, in order to locate artifacts that would shed light on activities and affiliations of those occupying the site
- In Group C, establishing a chronology of construction and occupation for the plaza group
- In Group C, sampling multiple structures to illuminate architecture organization and construction techniques within the group

SUMMARY OF THE 2011 FIELD SEASON

In order to address the objectives listed above, a strategy combining test-pits and horizontal exposures within Groups B and C was implemented. In addition to these, we conducted phosphate prospecting to search for middens. We fully excavated the burial in Structure B3, located at the end of the 2009 research season. With the help of Joshua Wright, we successfully mapped Say Kah Groups B and C. Finally, we conducted preliminary cleaning of a chultun in Group C. In total, 34 suboperations were opened (see details below).

In brief, during the 2011 season the following was accomplished:

- Units placed on, or overlapping with, five structures in Group B (Structures B-1, B-2, B-3, B-4, and B-6) and four structures in Group C (Structures C-1, C-2, C-4, C-5)
- One unit investigating plaza sequence in Group C, placed in center of plaza;
- Two units placed on slope between Groups B and C to clarify the relationship between them
- Full excavation of burial uncovered in Structure B-3 at the end of the 2009 season;
- In-depth architectural investigation of the related Structures C-3 -4, and -5 through a north to south horizontal exposure across the complex's interior patio and Structure C5
- In-depth architectural investigation of Patio Group C 3-4-5 through an east to west horizontal exposure from main plaza area across the complex's patio and Structure C-4 in the east
- In-depth architectural investigation of Structure C-2 through an east to west horizontal exposure across the building
- Phosphate prospecting shovel tests to locate middens in Groups B and C with test excavations in areas of high readings
- Unit placed in chultun in Group C to conduct initial cleaning of the feature;
- Maps created of Groups B and C

RESULTS OF EXCAVATIONS

General soil descriptions of the types of matrices encountered are provided here; only where there are exceptions to these types are they specifically discussed in the sections below. The humus layer was typically characterized by a dark brown to light brown color, and was friable with high organic content. Wall fall or tumble was also frequently encountered, and consisted of small stones and larger cobbles within a matrix of gray-brown soil, including powdery remnants of eroded plaster. Construction fill, sealed within a structure, consisted of large and small stones, sometimes loosely placed, and sometimes cemented with plaster, acting as glue to stabilize the fill.

Depths recorded in the sections that follow represent depth below the surface. We have elected to record here the largest depth (i.e., biggest difference between opening and closing elevations); more complete elevation information is documented on our lot forms and in field notes. Local datums were used for measurements, but were tied together using a total station by our mapping team.

Most excavated contexts were not screened, with exceptions being burial and midden contexts (or expected midden contexts, based on phosphate testing), and contexts immediately above known floors, all of which were screened with ¼ inch mesh.

Group B

Units placed on structures: Structure B1

Subop S. Subop S (Figure 4) was a 2 x 2 m unit, oriented 20 degrees east of north in order to follow the orientation of Structure B-1, the structure on which it was located. The unit was placed on the northwest corner of Structure B-1, with the goal of clarifying the architectural design of Structure B-1, and also exploring the area of intersection between Structures B-1 and B-6, located immediately to the northwest of B-1. This unit was excavated in three lots, to the level of final phase architecture; the subop ended at a depth of 193 cm.

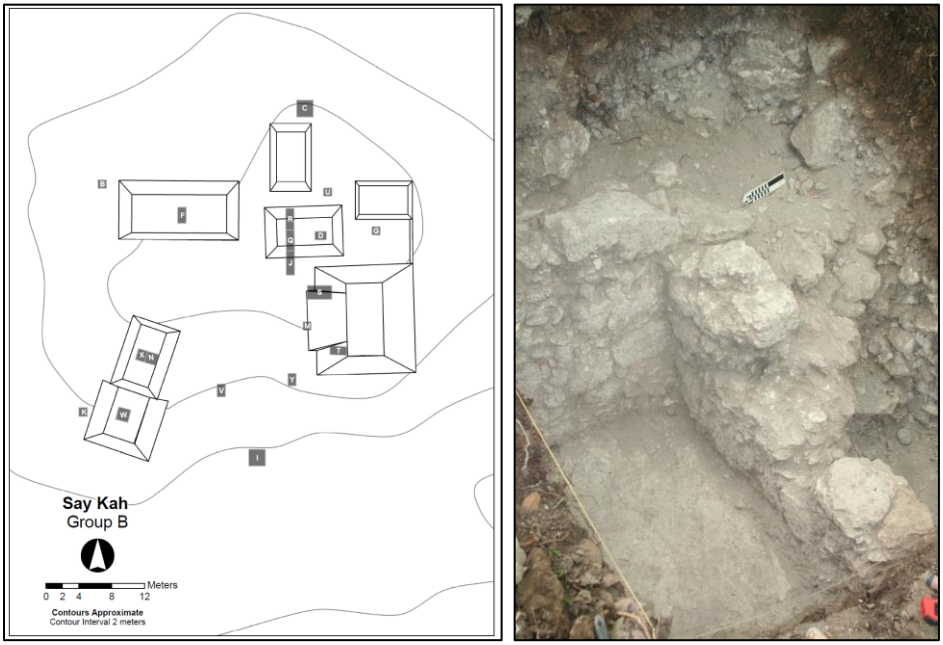

Figure 4. Left: Map of Say Kah Group B, showing excavations from both 2009 and 2011. Right: Subop 2-S. External architecture on northwest corner of Structure B1.

This unit did, indeed, come down on the edge of Structure B-1, but did not clip the side of Structure B-6. The excavations revealed a north-south wall in the northern section of the unit, presumably the outer wall of the structure, as well as an east-west wall in the southern section of the structure, which was likely part of an outset staircase on the structure (part of which was uncovered in 2009 in Subop N). These walls were constructed of stone, and exhibited some patches of remaining plaster. The north-south section of wall was slightly sloped. It appears that this wall was the outer edge of a riser of Structure B-1. Additionally, some plaster floor was located in the northwestern section of the unit, abutting the wall of B-1. Small quantities of ceramics and chert lithics were

recovered from this unit. A likely vault stone was uncovered in Lot 1; this may have originated from Structure B-6, which we know to be vaulted, or from Structure B-1.

Subop T. Subop T was a 1 x 2 m unit, oriented 20 degrees east of north in order to follow the orientation of Structure B-1, the building on which it was located. The unit was located on the far southern half of Structure B-1, near the top of the mound on the western side. Excavation on top of this structure was difficult, due to the presence of large trees, and the extensive looters trench on the eastern side of the structure, which created instability in the upper central part of the mound. Subop T was placed in order to attempt to clarify the superstructure of Structure B-1, while working around the constraints of large trees and the unstable central section of the mound. The dimensions and location of the unit were dictated by where it could be placed in the available space on the mound. The location of the unit was steeply sloped. It was excavated in three lots, to a depth of 268 cm. The intention was to excavate this unit to bedrock, in order to ascertain whether Structure B-1 had an earlier construction phase. However, the unit was terminated arbitrarily due to large, loose rubble fill, which became too unstable for excavations to safely continue.

Excavations revealed what appeared to be risers of the structure in the eastern section of the unit, at a higher vertical place on the structure than the one previously observed in 2009 in Subop S. Both apparent risers presented as approximately north-south alignments of about three courses of stone. Preservation was imperfect – the upper (eastern) riser tilted outward (westward), and the lower one was mainly apparent in profile. Construction fill was found between the two risers, suggesting that a previous horizontal surface connecting the risers had since eroded. After removing the risers, construction fill seemed to consist of two types: a smaller cobble fill, and then, at a deeper level, a larger rubble fill. Shortly before closing the unit, we wondered if had encountered an earlier floor or surface, as a large oblong stone in the western section of the unit appeared to be sitting on top of a plaster surface; however, after removal, it seems that this apparent surface was only a small patch, and was probably a remnant of the construction process. It seems unlikely that an earlier structure was located within, unless it was significantly smaller in footprint than the final phase of Structure B-1; thus, this question has not been answered definitively. Artifacts encountered in this unit included ceramic sherds, chert lithics, and obsidian. Additionally, two speleothems from caves were located within the construction fill of the structure; these are being analyzed by Jim Brady. Additionally, a vault stone was identified in the eastern wall of the unit, suggesting that the superstructure of this building was likely vaulted.

Subop W. Subop W was a 1.5 x 1.5 m unit, oriented 10 degrees east of north, and located in the approximate center of Structure B-2. The unit was oriented in order to line up with the apparent orientation of the structure. The unit was placed centrally on the building's platform in order to avoid possible structure walls; the purpose of the unit was to dig to the level of bedrock and identify any earlier construction phases under the final phase

structure. The unit was excavated five lots, and bedrock was encountered at a depth of 157 cm.

Excavations identified small and large rocks in the initial two lots, which probably represented some tumble from the walls of the structure. At a depth of 29 cm, a plaster floor was located in the southeast corner of the unit. The floor was approximately six centimeters thick, and was not preserved in the rest of the unit. Beneath this floor, excavations revealed what may have been a subfloor, as seen also in Structure B-3 during the 2009 season. Below this level, a thick layer (ranging from 52 to 93 cm in different parts of the unit) of construction fill consisting of larger stones extended to the level of bedrock. This significant depth may be connected with this structure and its platform being artificially raised up, above the slope that heads downwards towards Group C. The bedrock sloped downward from the northwest to the southeast corner, exhibiting an unevenness that has been evidenced in other areas of the site where bedrock has been exposed. No evidence of earlier construction phases or structures was found in this unit. Artifacts recovered from this unit included ceramics, and chert lithics, found above the level of the floor; below the level of the floor, we recovered ceramics, chert lithics, and shell. Particularly notable among the artifacts were two chert bifaces and a piece of cut marine shell, all located within the construction fill.

Subop X. Subop X (Figure 5) was a 1.5 x 1 m unit, oriented 10 degrees east of north, located on top of Structure B-3. This subop served as an extension to the west of Subop N, which was excavated during the 2009 field season, and which located a burial in the western wall of the unit. We were unable to excavate the burial at the end of the 2009 field season due to time constraints, so Subop X was placed to excavate the burial while also coming down more directly on top of it. Subop N measured 1.5 x 1.5 m; at the beginning of the 2011 field season, the backfill within this unit was removed, and then Subop X was subsequently excavated. Subop X was excavated in seven lots, to the level of bedrock (at 175 cm); the burial was then recovered. Subop X followed the lot changes from Subop N as closely as possible, so that the lots in the two subops would correspond.

As in Subop N, in Subop X a floor was encountered at the bottom of Lot 2 (approximately 110 cm below the surface), in the eastern section of the unit. In the western section of the unit, several plaster features were identified. A vertical plastered planar surface was located in the western wall of the unit, and appears to be the vertical face of a bench located within this unit. To the east of this apparent bench (but to the west of the plaster floor) was an additional plaster feature. It, too, had a vertical plaster face, though it was poorly preserved; based on the unit's profile, it appears that this may represent an extension of the original bench to the east, sometime after its initial construction.

Figure 5. Subop 2-X. Bench, with partial bench extension visible in front of it.

After careful documentation, excavation proceeded in Lot 3 through the northern half of the bench extension, as this feature had to be removed in order to reach the burial. The plaster floor located in the east side of the unit did not extend beneath the bench feature, suggesting that the bench extension may have been covering a punch through of the floor to place the burial; this would mean that the burial was intrusive. The construction fill within the bench consisted of stones cemented with plaster, and was quite hard. Lot 3 ended at the level of the floor in the east side of the unit. Proceeding below the level of the floor in Lot 4 revealed loose rubble construction fill; the appearance of the aluminum foil (covering the bones observed in 2009) in the southern section of Lot 4 indicated that the burial was located further south than anticipated, and that the southern section of the bench would also have to be removed in order to expose the entire area of the burial. Thus, Lot 5 involved the excavation of the southern half of the bench and construction fill, to the same level as the bottom of Lot 4. Lot 6 continued below the level of the floor in both the northern and southern sections of the western part of the subop (i.e., below Lots 4 and 5). Bedrock was encountered at a depth of 175 cm, with the burial located on top of bedrock, in a shallow depression. The burial itself (treated as Lot 7) ultimately straddled Subops N and X. Examination of the remains by Denise Knisely and Lauri Martin indicated that this is likely a secondary burial, in the form of a bundle burial. In consisted primarily of long bones, and oriented with its long axis lined up with the north/south axis of the structure (i.e., 10 degrees east of north). Bones identified within the bundle included: two tibias, multiple humerus fragments, one ulna, one femur, one radius, a single metacarpal, a single metatarsal fragment, and numerous non-diagnostic bone fragments.

Artifacts recovered above the level of the floor included ceramic sherds; below the floor, ceramics, chert lithics, and bone were recovered.

Units Placed to Clarify Relationship between Groups B and C

Subop V. Subop V was a 2 x 1 meter unit, oriented north, and located on the steeply sloped area immediately south of Group B. This sloped area, which ends in a low-lying area before rising steeply to Group C, was hypothesized to be a staircase or terrace that would have connected the open southern side of Group B to Group C. This unit was excavated in two lots to a depth of 31 cm, where bedrock was encountered.

The bedrock that was found in the bottom of this unit was uneven and lumpy (as has been observed elsewhere in Group B at Say Kah) and sloped downwards from north to south; there was no indication of a floor, terrace, or other architectural modification built upon it. Excavators did record a relatively high density of artifacts recovered, including ceramic sherds, chert (including a tool), and obsidian. It is possible that a midden was located on this slope, with residents of Group B disposing of trash off the southern edge of the plaza. Alternatively, artifacts from Group B may have washed down the slope over time due to water action.

Subop Y. Subop Y was also placed to help clarify the southern edge of Group B's plaza, and was located east of Subop V, close to the base of Structure B1. This unit also measured 2 x 2 m, and was oriented 20 degrees east of north (to correspond with the orientation of Structure B1, in case we encountered any feature associated with that structure). It was excavated in three lots to bedrock, encountered at a depth of 99 cm.

Unlike Subop V, Subop Y did uncover architecture, though not in an east-west alignment of a stairwell or terrace, as we had anticipated. Instead, a 3-4 course high (approximately 70-80 cm in height, depending on which part was measured) wall made of rough cobbles was found in the northeast corner of the unit, running approximately northwest to southeast. It seems that this wall was likely associated in some way with the base of Structure B-1, and might have acted as a retention wall or other architectural element to help shore up that structure's base. Neither Subop Y nor V gave any indication that there were stairs or terraces associated with the open, southern side of Group B's plaza. Artifacts collected in this unit include ceramics, shell, and chert lithics; artifact density was not as high, in comparison with Subop V.

Units Placed as a Result of Phosphate Testing/Midden Seeking

Subop U. Subop U measured 1 x 1 m, and was oriented five degrees east of north. It was located north of Structure B-6, and east of Structure B-5; the unit's orientation was aligned with previous (2009) excavations conducted on Structure B-6, in case we elected to connect the 2009 and 2011 units. This unit was placed before the phosphate testing in Group B was completed, and was located at another possible spot for locating a midden. It was hypothesized that this location behind multiple structures was a likely spot for trash disposal. The unit was excavated in three lots, to a depth of 99.5 cm, at which point bedrock was found.

Subop U was a surprise, in that not only was there no evidence of midden encountered, but also there was no evidence of floor, nor of the north-south stone alignment that was found on the outer, north side of Structure B-6 in 2009. The quantity of artifacts recovered here was also extremely low, with only some ceramic sherds, a broken groundstone artifact (mano), a chert biface scraper, and a shaped rock of unidentified function all located in Lot 3, close to the level of bedrock. The bedrock itself was very irregular, with marked variation between higher and lower sections. It seems likely that erosion and water action removed artifacts as well as remains of any previous living surface from this area. The remaining artifacts were larger and heavier, and perhaps resisted movement by rainwater. Thus, while this unit provides no support for the location of a midden here, taphonomic processes may have significantly impacted this location; it is possible that a midden and/or floor may have been located here in the past.

Subop Z. Subop Z measured 1 x 1 meter, and was oriented north. It was located at the southeast corner of Structure B-2, and was part of this season's efforts to locate middens. This location was identified as an area of high phosphate concentration (see discussion of

phosphate testing, below), and thus a good candidate for the location of a midden. This unit was excavated in two lots to a depth of 107 cm. Excavations ceased when very large rocks were encountered that could not be removed, and which precluded further excavation.

Subop Z revealed some large rocks in the upper section of the second lot, and mainly consisted of very dark brown soil, that was wet and somewhat sticky – consistent with this unit's location in a low topographic spot between Groups B and C; a soil change was observed in the final few centimeters of the lot, in which a lighter and more yellowy-brown soil appeared in the center section of the unit. Very few artifacts were recovered; a few eroded ceramic sherds and a chert flake were found. This unit does not appear to have been a midden location. Similar to Subop I, excavated in 2009, this unit may be reflecting the impacts of water movement down this low area, especially during the rainy season.

Subop AA. Subop AA measured 1 x 1 meter, and was oriented north. It was located south of Structure B1, in the low area between Groups B and C. This unit was placed to help located middens, and represented an area of high phosphate concentration. The unit was located in two lots to a depth of 61 cm. Excavation ceased when water began to fill the unit.

Subop AA was characterized by very sticky, dark, clay-like soil, and was similar to Subop Z in terms of its low concentration of artifacts. In AA, a few ceramic sherds were located, as were lithic artifacts. The soil type and the low concentration of cultural materials recovered may support the idea (suggested also by units I and Z) that this area has been affected by water action. There is no evidence of a midden in this location. The water that forced the termination of the unit entered primarily from the southeast and southwest corners of the unit. Initially, it seemed that the unit had hit a water source (such as a possible spring), as the water flow continued, and the unit filled with water. However, examination of the unit in subsequent days showed that the water level had subsided, and the unit did not continue to fill. Thus, it seems more likely that this location at the bottom of a slope had tapped into a subsurface drainage, with the water resulting from heavy rains that had recently occurred.

Subop AB. Subop AB measured 1 x 1 meter, and was oriented north. It was located northeast of Structure B-5. The location was chosen because of a high phosphate concentration identified in this area. The unit was excavated in a single lot, to a depth of 21 cm. At that depth, bedrock was encountered.

Subop AB helped to confirm the observation made in other units that bedrock is located extremely close to the surface at Say Kah: the soil above bedrock was only a thin (21 cm) covering of loamy humus. Artifacts recovered here included ceramic sherds, chert lithics, and some obsidian. The ceramics were mainly small, eroded pieces, with a few larger

pieces. Chert lithics included flakes, debitage, and split cores; a few obsidian microflakes were also recovered. Evidence did not support a midden; these artifacts may have been washed from locations closer to Structures B-5 and B-6.

GROUP C

Units Placed on Structure C-1

Subop C. Subop C (Figures 6 and 7) was placed along the southern face of Structure C-1 with the goals of understanding the architectural composition of the building (also see Subop P and R below) and obtaining a chronological sequence of construction. This unit was contiguous with Subop P to the north. Subop C measured 1 x 3 m oriented to the north. It was excavated in three lots and was terminated at the level of the plaster floor, 1.35 m below the surface.

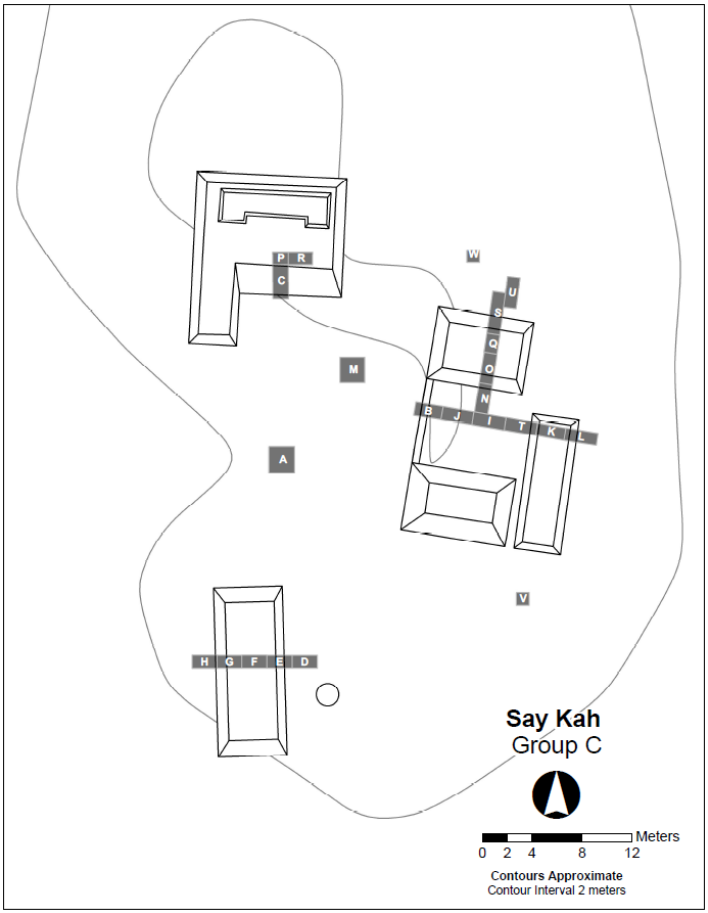

Figure 6. Map of Say Kah Group C, showing excavations from 2011.

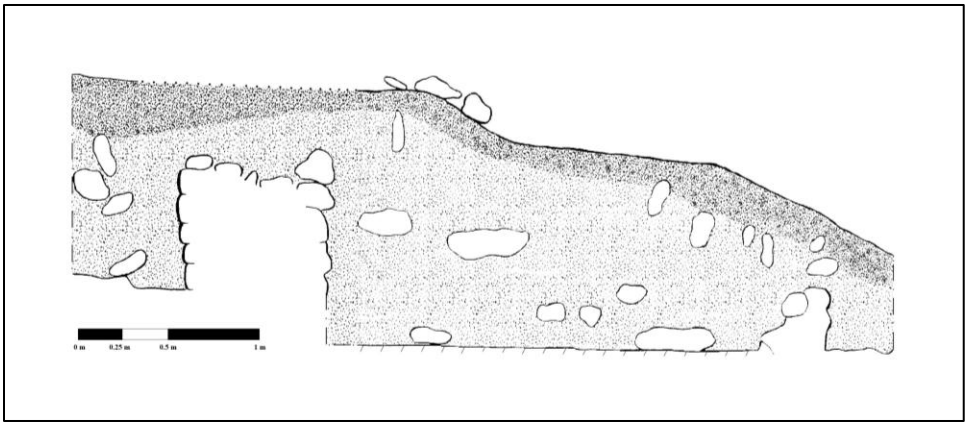

Figure 7. Subops 3-C, 3-P, and 3-R. North-south profile.

Excavations revealed an intact plaster floor throughout most of Subop C. The plaster surface extended from the northernmost limit of the unit to a low stone alignment running east-west and bisecting Subop C in the southern part of the exposed area. The floor surface was clear of artifacts with the exception of a broken *mano* and *metate* directly left on the floor surface. No evidence of a hearth or burning was noted nearby.

As mentioned, a low stone alignment was found in the southern part of the unit. As the plaster floor did not continue beyond (to the south) of this alignment, we concluded that this feature likely was a wall. The wall consisted of 1-2 courses of undressed stones with a maximum width of 25 cm.

Artifacts collected from Subop C included ceramics, chert, groundstone and obsidian.

Subop P. Subop P was opened immediately to the north of Subop C with the goals of understanding the architectural composition of the building and verifying whether the plaster floor observed in Subop C continued to the north. Subop P is contiguous with Subop C to the south and Subop R to the east. Subop P measured 1 x 1.6 m oriented to the north, with the long axis limited by the presence of a large tree and root system. The unit was excavated in two lots and was terminated arbitrarily at 1.32 m.

Excavations in this unit revealed an interior wall in the southern part of the unit. The exposed wall surface (northern side) was faced with dressed stones. Due to heavy rains, we did not have time to expose the southern side of this wall or excavate to the level of the floor in Subop C to evaluate whether the plaster floor continued into this unit. We plan to return to this structure during future research seasons to clarify architectural composition and construction sequence.

Lithics and ceramics were collected from this unit.

Subop R. Subop R was located immediately east of Subop P. This unit was placed to follow the east-west interior wall exposed in Subop P and expose the architectural profile of the building. Subop R measured 1.25 x 2 m and was oriented along cardinal directions with its long axis (east-west) forming a right angle with Subop P. This unit was excavated in two lots and terminated arbitrarily at 1.14 m.

Excavations confirmed that the wall exposed in Subop P continued east in Subop R for a length of 90 cm where it joined a north-south wall forming an interior corner of a room. As with the east-west wall, the north-south wall was faced with dressed stones. We did not a find the opposite (eastern) side of the north-south wall in this unit. However, in attempting to do so, our excavations indicated that we might be digging in construction fill inside of the wall suggesting that the north-south wall was quite thick with a minimum width of one meter.
Much of the southern half of Subop R was bisected by the previously mentioned east-west wall as well as tree roots intertwined with wall fall making excavation in this area difficult. Thus our focus shifted to the northern half of the unit where we proceeded to remove wall fall inside the room in search of a floor. Excavations in this area terminated at 83 cm when we uncovered a hard uneven limestone shelf, which extended outside and beyond Subop R. At present, we do not know what this feature is although it is likely a collapsed architectural element. Future excavations should clarify this question.

Artifacts recovered from Subop R included ceramics and chert.

Units placed on Structure C-2
Subop D. Subop D (Figures 8 and 9) measured 1.25 x 2 m, and was oriented five degrees east of north. It was part of the series of five units draped over Structure C-2, and was the most easterly of those units. In this unit, we hoped to encounter the eastern edge of Structure C-2. Subop D was excavated in three lots to a depth of 78 cm. In the easternmost portion of the unit, the unit was excavated to the level of bedrock; in the western section of the unit, excavation ceased at the level of a partially preserved plaster floor, underlain by pebble ballast.

Subop D was a complex unit in terms of construction materials observed. Beneath the humus layer and some larger stones that were likely wall fall, we encountered a plaster floor as well as subfloor ballast apparent where the plaster floor had eroded. These features were in the western section of the unit, as mentioned; in the eastern side of the unit, we encountered bedrock covered with stones that may have been used to level it. It seems that the plaster floor was only preserved in proximity to the structure, and eroded where it was more exposed. This is interesting evidence given the lack of plaza floor found in the center of the courtyard. Artifacts recovered from this unit included ceramics and lithics from Lots 1 and 2.

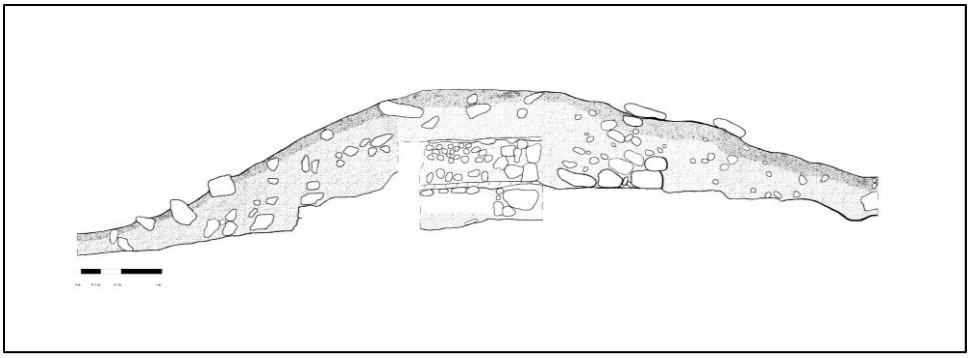

Figure 8. Subops 3-D, 3-E, 3-F, 3-G, and 3-H. East-west profile.

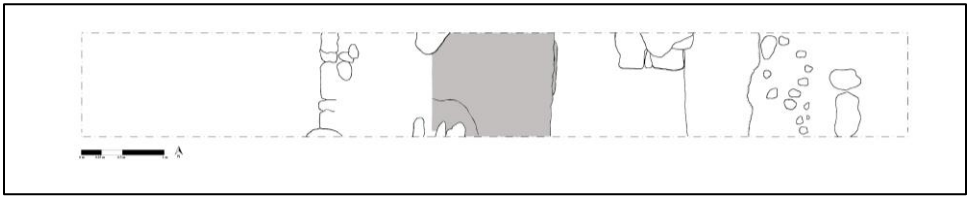

Figure 9. Subops 3-D, 3-E, 3-F, 3-G, and 3-H. Plan.

Subop E. Subop E measured 1.2 x 2 m, and was oriented 5 degree east of north. It was part of the series of five units draped over Structure C-2, and was located west of Subop D and east of Subop F. This unit was excavated in three lots to a level of 115 cm, to the level of final phase architecture (wall and plaster floor). Lots 1 and 2 represented removal of humus and wall fall layers, while Lot 3 involved removal of materials to the west of the wall, that is, inside the room of Structure C-2. The wall was determined to have included a doorway that was subsequently blocked; this material was also removed in Lot 3 to reveal the original doorway.

Clear architectural elements were exposed in this subop below a layer of wall fall, including a wall running north-south. The wall alignment appeared to have a doorway that had subsequently been filled in or blocked with masonry. A possible seam in the stonework was identified, as well as plaster lipping in the northern section of the unit on both east and west sides of the wall, indicating where the floor intersected with the wall; this contrasted with the southern section of the unit, where such lipping was not evident between the plaster floor and wall, supporting the idea that that masonry was added at a later date to fill a previous doorway, perhaps as part of deactivating or reconfiguring a room or the entire structure.

Artifacts recovered from this unit included ceramic sherds, lithics, and obsidian.

Subop F. Subop F measured 1.25 x 2 m, and oriented five degrees east of north. It was part of the series of five units draped over Structure C-2, and was located west of Subop E and east of Subop G. This unit was excavated in nine lots to a depth of 162 cm at its deepest point. This unit was placed inside Structure C-2 (i.e., within the room), and extended below the level of final phase architecture in order to seek possible earlier structures, as well as any possible burials or other special features associated with the building at the time of construction. The relationship of the nine lots excavated is somewhat complex. Lots 1 and 2 focused on removing humus and wall fall in all sections of the unit. In Lot 2, the flat, plastered surface of the bench became evident in the western section of the unit. Thus, Lot 3 focused on the eastern section of the unit, removing wall fall to the level of the room's floor, while leaving the bench intact. Subsequently, Lots 4-9 (discussed in greater detail below) focused on removal of the bench and excavation below it.

As mentioned, this unit was located inside of a room of the superstructure of Structure C-2. In the western section of the unit, we encountered a plaster surface (approximately 60 cm below the surface) that was the top surface of a bench; the top of the bench was covered with smooth plaster, while the front of the bench was composed of shaped stones partially covered with plaster. The eastern part of the room featured a plastered floor; the bench measured a height of approximately 50 cm above the level of the floor.

As indicated above, beginning with Lot 4, we excavated and removed the masonry bench in order to investigate whether a burial – representing a previous owner or occupant of the building – might be located here. Based on construction techniques observed in Group B of Say Kah during the 2009 season, we anticipated that the plaster floor would continue underneath the bench. In Lot 4, we elected to only remove the eastern section of the bench in order to preserve a portion of the bench in the western part of the unit. As we excavated through the top surface of the bench, we encountered thick plaster that was mixed with stones. This substance, difficult to excavate through, appears to have been the matrix used to construct the actual bench. Upon reaching the level of the plaster floor in the eastern part of the unit – where we anticipated we would also find plaster floor under the bench – we did encounter a corresponding plaster floor. Portions of the floor were very smooth; however, the floor under the bench in the southern portion of the unit was uneven and possibly broken up. We hypothesized that this might have been due to an intrusion made in the form of a burial. Additionally, the floor located under the bench is at a slightly lower level than the floor to the east of the bench, which lipped up to the eastern (north-south) edge of the bench, indicating that the final phase floor east of the bench was plastered after the bench was in place. We do not have enough information to determine the amount of time that elapsed between these events. Thus, this may have been a construction technique, in which the floor was plastered in the entire area of the room, the bench built, and then an additional layer of plaster placed in the eastern section (creating a lip up to the bench); or, if time elapsed between the events, this may indicate

the modification of the room over time, with the addition of a bench to what was originally an open space within the room.

After excavating Lot 4, it became clear that we would need to excavate further west in the unit (and bench) in order to have enough room to investigate the location of a possible burial (guided in part by the area of apparently disturbed floor). In Lot 5, an additional western section of the bench was excavated to a level that corresponded with that achieved in Lot 4 (to the east). Again, we noted that the southern section of exposed floor was uneven, suggesting possible disturbance to this surface. With Lots 4 and 5 completed (and thus, the bench removed throughout the unit), Lot 6 represented removal of the plaster floor, as well as a mixture of plaster and rocks immediately below the level of the floor. The lot was terminated when loose fill made of up soil and rocks was reached. In Lot 7, construction fill (consisting of rocks, plaster, and soil) was excavated, and bedrock was reached.

From the excavations in Lot 7, it became apparent that there were empty spaces or air pockets in the western side of the unit, under a final, remaining section of the bench. Additional excavation in the western section was then necessary to investigate these features further. Lot 8 involved the excavation of a final portion of the bench, located still further west in the unit. In Lot 8, we excavated to a level corresponding to Lot 5, that is, to the level of the floor underneath the bench. Lot 9 proceeded through the floor and continued into the construction fill beneath. A *laja* (large flat stone) was identified in the northwest corner of the unit, and bone – presumably human – was identified beneath it, but not collected. Another *laja* was identified to the south of the first, but was not removed at this time. Aluminum foil and palm fronds were used to cover the bone and protect it until we can return to it in a future season. Given the level at which bedrock was encountered in Lot 7, it seems likely that this burial was placed on top of bedrock, but this cannot be confirmed until the rest of the burial is uncovered and excavated.

Ceramics and lithics were recovered throughout the unit, both above and below the level of the floor and bench.

Subop G. Subop G measured 1.25 x 2 m, and was oriented five degrees east of north. It was part of the series of five units draped over Structure C-2, and was located west of Subop F and east of Subop H. This unit was excavated in two lots to a depth of 133 centimeters, with the intention of halting excavation at the level of final phase architecture; the extremely poor state of preservation of the architecture on this back (west) side of the structure made it difficult to identify architectural features.

Several trees remain on the top of the mound of Structure C-2, and there may have been additional ones located there in the past; it appeared that there was extensive disruption to the architecture on this section of the structure due to tree and root action. The back (western) edge of the bench located in Subop F was largely missing, and while one north-

south wall alignment (potentially part of the outside rear wall of the structure) was identified in this unit, the masonry in this subop was extremely disordered, and difficult to identify. Some remnants of a plaster surface were located in the eastern part of the unit, and may have been part of the surface of the bench in Subop F.

Ceramic and lithics were recovered from Lot 1 of this unit.

Subop H. Subop H measured 1.25 x 2 m, and was oriented five degrees east of north. It was part of the series of five units draped over Structure C-2, and was located furthest west (immediately west of Subop G). This unit was excavated in two lots to a depth of 87 cm, with the intention of halting excavation at the level of final phase architecture; poor preservation made this difficult, however.

This unit seems to have been located behind and to the west of Structure C-2; that is, it was not located on top of the structure itself. We anticipated that we might find floor or a wall line beneath the wall fall that we removed; however, there was no evidence of a plaster floor uncovered. Small cobbles and rocks were encountered, however, which could possibly be evidence of subfloor, with the original plaster floor having eroded. Ceramics and lithics were recovered from this unit.

Units Placed on Patio Group C 3-4-5

Patio Group C 3-4-5 is located on the eastern side of the plaza in Group C. The group consists of three mounds organized in a U-shaped arrangement around a central patio area that was mostly, or entirely, enclosed. To understand the architectural composition of this area as well as the chronological sequence of construction we draped two linear excavations over the east-west and north-south sides of this complex.

The east-west excavation units stretched across the entire profile of the group (Figure 10). Starting at the plaza side, and moving west to east, these units included: Subops B, J, I, T, K, and L. Our north-south linear exposure was restricted by a large tree with substantial roots on Structure C-3, which precluded extending the drape over the southernmost mound. Thus north-south units (Figure 11) began in the center of the patio area and extended north from Subop I in the following order: Subop N, O, Q, S. In addition to these linear units, Subop U was opened immediately of Subop S to expose a midden.

East-West Linear Units

Subop B. Subop B was placed on the western side of Patio Group C-3-4-5 adjacent to the Group C main plaza. The unit measured 1 x 2.5 m with the short axis oriented 10 degrees east of north in alignment with the architecture. Subop B was part of the east-west linear drape placed over the complex to understand the architectural constellation and function. The unit was excavated in three lots and terminated at 62 cm when we exposed bedrock.

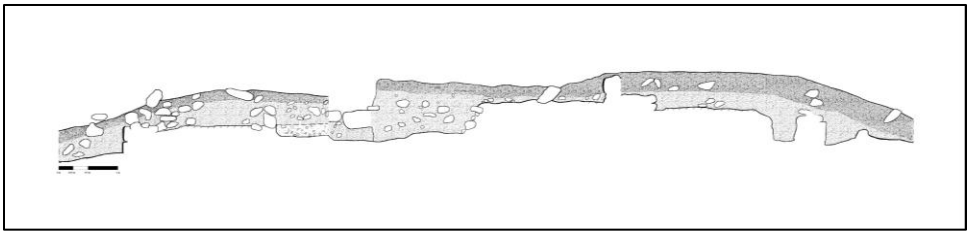

Figure 10. Subops 3-B, 3-J, 3-I, 3-T, 3-K, 3-L. East-west profile.

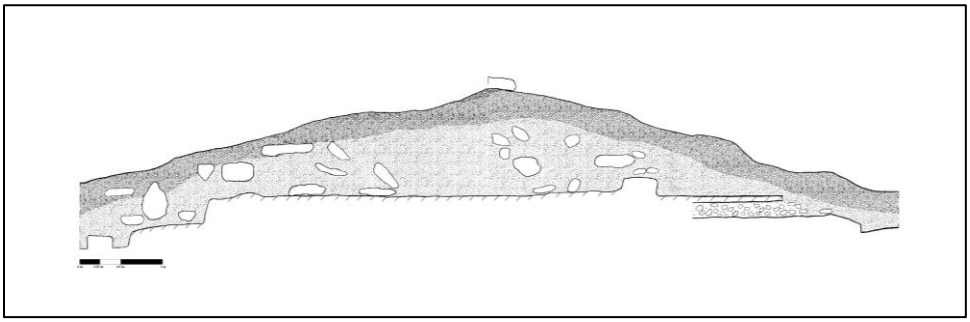

Figure 11. Subops 3-I, 3-N, 3-O, 3-Q, 3-S, 3-T. North-south profile.

A north-south low wall or step bisected Subop B near the center of the unit. It consisted of several courses of stone with a height of 40 cm and a width of 1 m. The wall was constructed directly on top of the bedrock surface. To the east of the wall, excavations revealed an intact plaster floor at a depth of 53 cm below surface. The plaster floor extended from the wall to the easternmost limits of the Subop B although it was poorly preserved in places. No evidence of a plaster floor or prepared surface was observed outside, or to the west, of the wall where the unit was excavated to bedrock.

Artifacts recovered from Subop B included ceramics, obsidian and chert. Additionally, a complete stemmed chert projectile point and chert biface were found as well as distal and proximal chert biface fragments, possibly broken axes.

Subop J. Subob J was placed to the east of Subop B as part of the linear east-west drape over the patio group. This unit was excavated to understand architectural components and building function, as well as obtain an architectural profile. The unit is contiguous with Subop B to the west and Subop I to the east. Subop J measured 1 x 2.5 m with the short axis aligned 10 degrees east of north. It was excavated in two lots. Excavations in the western part of the unit terminated at 55.5 cm when we uncovered a plaster floor; in the eastern part of the unit excavations terminated arbitrarily at 45.5 cm when it was apparent we were excavating in subfloor fill.

One of our questions concerned whether the plaster floor exposed in Subop B would continue in this unit. The floor did extend into Subop J and continued east in this unit for a length of 75 cm until it intersected with a low rock wall. The wall consisted of several courses of stones and it had a maximum width of 50 cm. The prepared plaster floor appeared to continue underneath the wall but only very small amount of plaster floor was observed on the opposite (east) side of the wall, along its southwest corner.

While we did not find an intact plaster floor to the east of the wall, in the interior patio space, we did observe evidence suggesting there was a prepared surface there previously. A layer of small stones, similar to the ballast-like subfloor preparation seen elsewhere on site, was noted in this area suggesting that the floor surface did not survive. Occasional stones observed resting on the apparent sub-floor surface made us wonder whether some portion of this floor may have been lined in cobbles.

The amount of chert recovered from this unit was notable. Sixty-four pieces of debitage and bifacial tool fragments were found here. Interestingly, virtually all lithics were recovered on the east side of the wall alignment – in the interior patio - suggesting this section may have functioned as a specialized lithic activity area.

Artifacts collected from Subop J included chert and ceramic.

Subop I. Subop I was part of the linear east-west drape over the patio group. We excavated Subop I to understand architectural components and building function as well as to obtain chronological information about the structure. This unit was contiguous with Subop J to the west, Subop T to the east, and Subop N to the north. Subop I measured 1 x 2.5 m with the short axis aligned 10 degrees east of north. The unit was excavated in three lots. Excavations terminated at 1.1 meters when we encountered bedrock.

Subop I was positioned in the sunken area. In contrast with the units to the east and north, very little wall fall was noted in Subop I supporting the hypothesis that we were excavating in an interior open patio. The patio may have had a plaster floor in the past as small segments of eroded floor were found in the western and central parts of the unit. Both plaster floor segments were associated with a stone alignment that bisected the unit from north to south at an approximate 45-degree angle. The alignment was composed of a single course of uncut cobbles that appeared to be placed directly on top of the plaster surface. The function of this alignment is unknown.

As with Subop J, a notable amount of chert was recovered in this unit. While lithic analysis will not be completed until next season, a total of 65 pieces of chert were recovered from Subop I in Lot 1 alone. Approximately half of these are small interior reduction flakes suggesting that the ancient inhabitants were making stone tools in this area.

Artifacts collected in Subop I included the chert assemblage as well as ceramic sherds.

Subop T. Subop T was part of the linear east-west drape over the patio group. We excavated Subop T to understand architectural components and building function as well as to obtain an architectural profile of the building. The unit was contiguous with Subop I to the west and Subop K to the east. Subop T measured 1 x 2.5 m with the short axis aligned 10 degrees east of north. The unit was excavated in two lots and terminated at 27 cm when we encountered part of a plaster floor.

Most of Subop T was located in the patio space just outside (west) of Structure C-4. Excavations revealed a similar eroded floor surface as seen in other patio units (Subops I and J) and excavations were terminated arbitrarily in this area. In the easternmost part of Subop T, we uncovered a north-south wall that appeared to be the exterior (western) wall of Structure C-4. The wall consisted of two standing courses of stone with a maximum width of 80 cm; the uppermost course was constructed of dressed stone. Excavations in the area immediately adjacent to the wall yet outside (west) of the structure exposed a small segment of intact plaster floor at a depth of 27 cm. Presumable this section of floor was protected from deterioration by wall fall from adjacent Structure C-4. Several artifacts rested directly on the floor surface including three ceramic sherds, chert and a *metate* fragment.

Artifacts collected in Subop T included ceramics, groundstone, and chert.

Subop K. Subop K was part of the linear east-west drape over the patio group. We excavated Subop K to understand architectural components and building function as well as to obtain an architectural profile of the building. The unit was contiguous with Subop T to the west and Subop L to the east. Subop K measured 1 x 2.5 m with the short axis aligned 10 degrees east of north. The unit was excavated in three lots and terminated at 62 cm.

Subop K extended from the exterior wall of Structure C-4 (exposed in Subop T) into an interior room. The wall consisted of two standing course of stone with a maximum width of 80 centimeters. Once inside the room, we uncovered an intact plaster floor that continued over the entire unit. The floor was discolored and mottled with dark staining, presumably charring from ancient hearths. At least three darker circular areas were observed, these likely represent individual hearths, with a more general discoloration noted between these areas. Two grinding stones were recovered in Subop K, a rounded *mano* fragment and a rectangular granite pestle/pounding stone with evidence of battering on a distal end. Both were found in northeastern corner of the unit.

As mentioned earlier, Structure C-4 is a long structure, measuring approximately 11 m (north-south) and our excavation crossed the northernmost part of the building in an area used for cooking, grinding, and food processing. Given the length of the building, it is

likely that the area to the south of the kitchen was used for the storage of food products, among other things. It seems likely that there is a midden on the back (east) side of this kitchen area; in subsequent field seasons we will test this hypothesis.

Artifacts collected from this unit included ceramics, chert, and groundstone.

Subop L. Subop L was part of the linear east-west drape over the patio group. We excavated this unit to understand architectural components and building function as well as to obtain an architectural profile of the building. Subop L was contiguous with Subop K to the west and formed the easternmost limit of our east-west excavation drape. Subop L measured 1 x 2.5 m with the short axis aligned 10 degrees east of north. The unit was excavated in two lots and terminated at 99 cm when we encountered bedrock.

Subop L was positioned on Structure C-4 and stretched outside of the building to the east. The north-south exterior (eastern) wall of Structure C-4 bisected the unit. The wall had a maximum width of 60 cm and consisted of four to five courses of dressed stone. We were curious as to whether the burned floor observed in Subop K would continue in this unit, yet no evidence of an intact floor remained. Excavations inside the structure (west of the wall) terminated arbitrarily when reaching bedrock became difficult due to the limited available space between the wall and boundary of the unit.

The area outside (east) of the exterior wall was excavated to bedrock. It appeared that the wall was constructed directly on top of the bedrock yet given the unevenness of the bedrock surface some leveling would have been necessary.

Artifacts collected from Subop L included chert, ceramics, and shell.

North-South Linear Units

Subop N. Subop N was part of the linear north-south drape over the patio area and Structure C-5. We excavated this unit to understand the architectural components and building function as well as to obtain an architectural profile of the building. Subop N was contiguous with Subop I to the south and Subop O to the north, and measured 2.5 x 1 m oriented at 10 degrees east of north. The unit was excavated in two lots and terminated at 74 cm.

Excavations in Subop N revealed a single plaster floor with two levels and a step connecting them. Starting with the lower area, the southernmost part of Subop N was located in the interior patio. Excavations here revealed a low east-west alignment, possibly a wall, bisecting the unit. The alignment had a maximum width of 30 cm yet no evidence of a prepared floor surface was noted in this area. To the north of this alignment, we encountered an intact plaster floor. The plaster floor continued north for 90 cm until reaching a 20 cm high step that lead up to the second floor. This plaster floor continued north throughout the remaining part of the unit.

Artifacts recovered in Subop N included chert, obsidian, ceramics, and a chert biface.

Subop O. Subop O was part of the linear north-south drape over Structure C-5. We excavated this unit to understand architectural components and building function as well as to obtain an architectural profile of the building. Subop O was contiguous with Subop N to the south and Subop Q to the north. Subop O measured 2.5 x 1 m oriented at 10 degrees east of north. The unit was excavated in three lots and terminated 1.19 m when we encountered a plaster floor.

The plaster floor observed in Subop N continued in Subop O. Several artifacts were left resting directly on the floor in this unit including a few ceramic sherds and a large groundstone artifact of unknown function. The groundstone object measured 54 x 27 cm and had a single central channel running along its long axis for three-fourths its length. The groove had a U-shaped cross-section with a maximum width of 4 cm. As the groove continued to the very edge of the stone, this object was likely used to funnel some type of liquid. Perhaps something was ground and processed in the channel area for its fluid, which flowed down the groove to where it could be collected. Alternatively this artifact might be a stone drain for funneling rainwater away from the structure, something we would have appreciated during this very wet field season! If the stone was used for diverting water, then at some point it was moved from its presumable use location outside of the building and placed inside of this room.

Artifacts collected from Subop O included ceramics, chert, and obsidian.

Subop Q. Subop Q was part of the linear north-south drape over Structure C-5. We excavated this unit to understand architectural components and building function as well as to obtain an architectural profile of the building. Subop Q was contiguous with Subop O to the south and Subop S to the north, and measured 2.5 x 1 m oriented at 10 degrees east of north. The unit was excavated in two lots and terminated 1.38 m when we encountered a plaster floor.

The plaster floor observed in Subop O continued in Subop Q however no artifacts were observed on the floor of this unit. An east-west wall bisected Subop Q in the northern part of the unit. The wall had a maximum width of 45 cm and consisted of two courses of dressed stone. As no wall was noted in Subop N, we assume this feature represents an exterior wall of Structure C-5.

Artifacts collected from Subop Q included ceramics, chert, and obsidian.

Subop S. Subop S consisted of the northernmost unit in the linear north-south drape over Structure C-5. We excavated this unit to understand architectural components and building function as well as to obtain an architectural profile of the building. Subop S was

contiguous with Subop Q to the south and Subop U to the east, and measured 2.5 x 1 m oriented at 10 degrees east of north. The unit was excavated in two lots and terminated 98 cm when we encountered bedrock in the northernmost part of the unit.

The plaster floor observed in Subop Q continued in this unit for a maximum length of 1.5 m. A ballast-like subfloor surface was noted for 25 cm beyond the intact floor presumably representing the total length of the floor. As no wall was observed in Subop S, the plaster floor surface here may have been an open platform space or enclosed with perishable materials that did not survive.

A dense deposit of cultural materials was found in the northernmost 80 cm of the Subop S, just beyond the boundary of the structure. Significant amounts of ceramic sherds as well as chert and obsidian were recovered, indicating the presence of a midden.

Artifacts collected from Subop S included ceramics, chert, and obsidian.

Units Placed as a Result of Phosphate Testing/Midden Seeking

Subop U. Subop U was placed to immediately to the east and north of Subop S to verify the presence of the possible midden associated with Structure C-5. Subop U measured 2.5 x 1 m and was oriented at 10 degrees east of north. The unit was excavated in two lots and terminated 51 cm when we exposed bedrock.

Excavations revealed a low east-west alignment – probably a step - bisecting the southern part of the unit close to the structure. Just beyond (to the north) of this step we recovered a high density of cultural materials supporting our hypothesis that this area served as a midden. Materials included some very large ceramic sherds as well as smaller sherds and chert.

Artifact collected from Subop U included ceramics and chert.

Subop V. Subop V was placed south of Structure C-4 in an area where phosphate prospecting revealed a high phosphate reading. Subop V measured 1 x 1 m oriented to cardinal directions. The unit was excavated in two lots and terminated arbitrarily at 31 cm when large tree roots made excavation difficult.

Although the phosphate reading showed very high levels in this area, excavations revealed very little cultural materials in this unit. Artifacts recovered consisted of eroded sherds and small fragments of chert suggesting these materials washed into this area. No cultural materials indicative of an *in situ* midden were located.

Artifacts collected from Subop V included ceramics sherds and chert.

Subop W. Subop W was placed to the north of the Structure C-5 in an area where our phosphate prospecting revealed a high reading. Subop W measured 1 x 1 m and was oriented to cardinal directions. The unit was excavated in two lots and terminated at 46 cm when we exposed bedrock.

Subop W was located 4-5 m to the north of Structure C-5 along the side of the building where we located a midden adjacent to the architecture. A high density of cultural materials was recovered from Subop W indicating that the midden was sizable and dispersed across the north side of the building.

Other suboperations

Subop A. Subop A was a 2 x 2 m unit, oriented north, and located in the approximate center of the plaza. This unit was excavated in order to investigate the sequence of construction of the plaza. It was excavated in a single lot to a depth of 50 cm, at which point we reached bedrock.

As we had encountered in Group B, as well, bedrock is located quite close to the surface. The bedrock surface itself was very uneven. We did not encounter any evidence of a plaster floor in this unit. Given the nature of the bedrock surface, it seems likely that it would have been leveled in some way, perhaps using ballast with a plaster floor on top; the proximity of the bedrock to the surface would negatively impact its preservation. Artifacts recovered included ceramics, lithics, and obsidian.

Subop M. Subop M was a 2 x 2 m unit, oriented north, and located in order to investigate a large, square stone (measuring 63 x 64 x 17 cm). Similar stones have been located in Groups A and B of Say Kah, and have been hypothesized to be some sort of monument stone or altar. None of these stones are carved; while erosion to a previously carved surface is possible, it is more likely that these would have been uncarved monuments. The stone in Subop M was possibly *in situ*, located near the southeast corner of Structure C-1; Group C has not been looted, increasing the chance that this stone remained in position. This unit was placed to see whether a cache or votive offering was associated with the monument, beneath it. The unit was excavated in two lots, to a depth of 36 cm, when bedrock was encountered, sloping gradually downward from the northeast to the southwest.

The stone itself, once moved, was similar to the others encountered – uncarved on both sides. It appears to have been lying on, or close to, the bedrock surface. There was no offering recovered beneath the stone. In both lots, but particularly Lot 1, large numbers of ceramic sherds were recovered, along with some lithics. Additionally, a large number of small, likely organic objects, seed-like in shape, were recovered. It seems likely that these are not ancient, given obvious preservation issues, but we have not yet been able to identify them; they have been exported to UC for additional analysis.

Subop X. Subop X consisted of materials recovered during clearing of a chultun opening. The chultun was located in an open area approximately three meters to the east of Structure C-2. Subop X measured 79 x 65 cm with its shape defined by the opening to the chultun itself. The unit was excavated in one lot and was terminated arbitrarily at 1.02 m.

Excavations consisted primarily of clearing debris around the opening of the feature. A large round stone that may have been a capstone to the chultun was found lodged at an angle within its opening.

Initial investigations revealed that the interior of the chultun opened to the north with a second channel leading off to the northeast toward Structure C-2. There is a possible southern channel as well. We plan to investigate this feature in subsequent excavations.

A small bag of ceramic sherds was collected from the chultun.

MAPPING

The Say Kah mapping program for 2011, led by Joshua Wright, was aimed at accomplishing four basic tasks, 1) to accurately plan the structures and plazas in Groups B and C, 2) to locate the current and previous excavation units accurately and in relation to the structures, 3) to establish the relationship between the different structural groups and their spatial context, and 4) locate all three of the Say Kah groups using GPS to accurately map their positions on the local Belizian topographic map series and Google Earth. We had initially planned to use a mix of Trimble GeoXT GPS and Sokkia Set 5 total station mapping to accomplish the mapping program, but technical problems with the GeoXT's antenna sensitivity and the total station's data logger caused us to fall back on a more basic strategy and use the total station as a transit and electronic distance measure. The basic strategy turned out to be a success, both structural groups were small enough that we could manually record and plot enough points to make all the maps. The GPS, though inaccurate, provided locations with 10 m of fixed points within the structure groups. Also, as a training exercise, the more basic surveying approach offered a great opportunity to teach several field school students the principles of site surveying without relying heavily on digital processing.

All four of the original aims of the mapping program were accomplished in six days of work. We were also able to use surveying of the cleared areas of the groups and walking sketches outside of those areas to established a rough relative topographic map of the area of groups B and C and a sketch of the landforms between them and group A providing context for the groups with Say Kah. All the data was combined into a GIS, which was used to produce plan maps and delivered as a geodatabase to the project for use and expansion in future seasons.

PHOSPHATE TESTING

Soil analysis, under the leadership of Jamie Herman, was conducted as a prospection technique on Groups B and C, particularly to identify high concentrations of phosphates that may indicate the presence of middens or other anthropogenic activity areas. These zones of high phosphorus content indicate areas of significant organic matter, which often correlate with soil modifications caused by horticultural or agricultural practices. Soil samples were taken at a depth of 10 cm and on a 5 m grid. Both structure groups were blanket sampled, while intensive point sampling was employed near buildings and other areas of known human occupation. A ring chromatography test was used to identify high phosphorus content, and six test pits that returned significant results were converted into 1 m^2 units. Of the six units that were excavated, three returned notable concentrations of cultural materials such as ceramic sherds, lithic tools, and obsidian microblades. Two of these units (S and U) were confirmed as middens.

DISCUSSION

Chronology and Occupation of the Site

The chronology of Say Kah at this stage derives entirely from ceramic evidence, supplemented by architectural evidence. We closed our 2009 season with an understanding of Group B as firmly rooted in the Late Classic (in contrast to what has been found at Group A), and without evidence of earlier occupation there. Similar results were found in the 2011 season, with overwhelming Tepeu 2-3 dates being identified in both Groups B and C, and no architectural evidence that would support multiple, distinct periods of occupation (see discussion below).

We will note here a few intriguing exceptions to the overall Tepeu 2-3 dating of both Groups 2 and 3. Analysis of the excavated ceramics (conducted by Lauren Sullivan and Justin Greco) indicate that one area of notable deviation from the Tepeu 2-3 dating is within Subop 2-T, which was excavated in the building fill of Structure B-1. Lot 2 of 2-T dates to Tepeu 1-2, while Lot 3 includes material identified as Tepeu 1-2, Tzakol, and traces of Chicanel. While still clearly affiliated with the Late Classic, this provides evidence that this structure may be one of the earliest ones built within Group B, and may date to the very beginning of the Late Classic or end of the Early Classic. In imagining the sequence of development of Group B in relationship to Group A, we can imagine that the earliest occupation (and occupants) of Group A began their expansion outwards to Group B (and perhaps Group C – the relative founding of these two groups is not yet entirely clear) at the end of the Early Classic or very beginning of the Late Classic period.

Another notable area where earlier ceramics were observed was within Subop 3-F, the deep unit where the burial was encountered in Structure C-2. Lot 7, consisting of construction fill underneath the bench and above bedrock, dated squarely to Tzakol, raising the possibility that both Groups B and C were founded as offshoots of Group A late in the Early Classic period; or, perhaps Group C was founded before Group B.

In order to understand the sequence of development of Say Kah and the geneses of Groups B and C, future excavations will have to include deep sounding units within architecture to identify founding dates, and developmental sequences for the groups and the structures within them.

Architecture

Within Group B, we attempted to shed additional light on Structure B-1. Our excavations in Units S and T continue to support the idea that this was the largest and most imposing structure in the group and that is was likely vaulted. We have not uncovered any evidence to indicate that there was an earlier structure within the final phase one, though we have not been successful in reaching bedrock beneath the structure. The form of the superstructure on B-1 remains unknown, despite our efforts to learn more about its configuration. We did learn that Structure B-1 was supported by a retaining wall (which we encountered on the southwest side of the structure), perhaps related to its proximity to the steep downward slope on the south side of Group B. Structures B-2 and B-3 both appear to be similar one-room, single-phase buildings; Structure B-3, at least, contained a plastered bench. These may have been simple, masonry residences. Our hypotheses about the primacy of connections and interaction between Groups B and C were disproven when we discovered that there was no connective architecture (e.g., stairs or terraces) on the south side of Group B that would have facilitated easy movement between the two groups. While the individuals residing in these two groups no doubt were aware of each other and interacted, it seems that they each, individually, were oriented (literally and metaphorically) towards Group A (see seen on the map – the first integrated representation of all three groups of Say Kah), rather than primarily towards each other.

As seen in Group B, our investigations of architecture in Group C revealed well preserved masonry buildings organized around a central plaza.

Based on size, Structure C-1 seems to have been a particularly important structure within the group. While further excavation is needed to clarify its layout, it is likely to have contained multiple rooms; its high standing walls make it a good candidate for vaulting, though vault stones were not observed during this season in this structure. Based on the preliminary information we have on this structure, it is likely either an elaborate residence, or a public/administrative building of some type.

Structure C-2 follows a typical residential layout, including the central positioning of a plaster bench. The identification of a burial underneath the bench similarly supports the idea of residence, and the interment of a previous resident there. The blocked doorway identified on the eastern side of the structure (as well as the modification to the floor surface inside the room) provides intriguing evidence on small-scale architecture modifications to a structure in Group C. (Interesting especially because we do not otherwise see evidence of multiple major phases of construction.) The closing of the doorway seems likely to have coincided with the death and burial of the building's

resident or owner; further excavation of this structure will be required to recognize whether the building was retired from use entirely, or whether only this room was deactivated.

On the east side of the plaza, patio Group C-3-4-5 was a residential compound. The group forms a U-shape with its opening facing west to the plaza. This opening comprises the main entranceway into the compound with the low wall constituting a platform or step riser leading up into the residential patio area. Structure C-5 is located in the northern part of the group. The building is a masonry structure with a maximum width of five meters (north-south) and length (east-west) of eight meters. Excavations revealed this building to contain a large open room with intact plaster floors. No benches or interior walls were exposed in our units. Structure C-4 forms the easternmost building in the complex. It is located southeast of Structure C-5 and positioned at a right angle to it. Structure C-4 was a long narrow structure measuring approximately 11 m (north-south) by 4 m (east-west). The area of the building exposed in our excavations was used as a kitchen and it seems likely that some of the area south of our units would have been used for food storage. There is a noticeable gap in surface features between Structures C-4 and C-5 suggesting a possible "back" (north-east) entranceway into the interior patio, a hypothesis we plan to test in future excavations. Structure C-3 forms the southernmost building in the complex. Based on surface mapping we estimate that the structure had a maximum length of eight meters (east-west) and a width of six meters. As mentioned previously, this building was not excavated as the mound is entangled in roots from a large tree near its summit. Structures C-3, C-4, and C-5 framed an interior patio space. The patio measured approximately eight meters (east-west) by six meters (north-south). This area may have had a prepared floor surface previously as occasional patches of plaster were uncovered, but little evidence remained. If the patio was plastered, then its degraded condition as compared to the floors in associated buildings suggests that it was unroofed or roofed with a perishable material that did not protect it from the elements after abandonment.

Artifacts

Our most striking artifactual finds came from Patio Group C-3-4-5, suggesting some clear functional usage for this area of the site; these finds will be discussed in the following paragraphs. We did not find other notable artifactual assemblages, although individual significant finds included the bundle burial in Structure B-3, the as-yet unexcavated burial in Structure C-2, and the speleothems from Structure B-1. Analysis of all of these items, still in progress by Lauri Martin and Jim Brady, respectively, will shed additional light on the inhabitants of the site. The presence of two complete bifacial chert celts deliberately placed in the subfloor of Structure B-2 is intriguing given evidence suggesting that bifacial tools were produced in nearby Group C.

One of our goals for this research season was to locate one or more middens to shed light on activities occurring within Say Kah Groups B and C, as well as possible identities of

those who occupied these groups. As mentioned previously, we did locate a midden immediately to the north of Structure C-5. Excavations indicate that the midden extended from the edge of the building and to the north for at least five meters.

A large quantity of ceramic sherds (3,557) was recovered from the midden, which we have only partially excavated, to date. Dr. Lauren Sullivan, with the assistance of a George Washington University student, Justin Greco, carried out the ceramic analysis. All ceramics date to the Late-Terminal Classic period (Tepeu 2-3 types). The majority of identifiable sherds were from bowls and jars with a lesser number from plates. In addition to these, one small ceramic head was found, presumably an applique from a small bowl or censor. Based on ceramic forms, clearly one activity occurring in Structure C-5 was the consumption of food and beverages. Food was likely prepared in the nearby kitchen (Structure C-4) and taken to Structure C-5 to be consumed by household members and guests. In addition to food preparation and consumption, a broken polished stone spindle whorl discarded in the midden indicates that cotton was likely spun in this household.

In addition to ceramics, an abundance of lithic material was recovered from this patio group. Although lithic analysis has yet to be carried out, we can make some preliminary interpretations from these remains. The highest concentration of chert came from the interior patio (Subops J, I, T) and the midden (Subop S, U, W). Both of these areas yielded whole projectile points and celts as well as other broken bifacial tools. In addition to formal tools, we recovered large reduction and small bifacial thinning flakes suggesting the ancient residents engaged in the production of stone tools. The spatial distribution of lithic remains suggests that chert was worked in the residential patio area. Unneeded knapping debris was discarded in the midden north of Structure C-5. The types of tools identified included projectile points and various bifacial tools likely used for working wood. Perhaps the ancient residents made hunting weapons as well as tools for craft-persons engaged in the construction and ongoing maintenance of formal masonry buildings at the nearby site of La Milpa? Stone celts and bifacial tools would have been necessary for fashioning building components such as corner and wall posts, roof timbers and lintels, as well as cutting fuel for plaster production. A bifacial chert adze recovered in the Group C plaza area (Subop A) directly downslope of this patio group further suggests a focus on tools used in woodworking.

The kitchen (Structure C-4) was used for preparing food and beverages likely consumed in Structure C-5. In addition to cooking, kitchen artifacts indicate that women ground corn here and processed harder agricultural products with the granite pestle.

FUTURE INVESTIGATIONS

The 2011 field season raised many questions concerning the identity of Say Kah's occupants and the role it played in the larger settlement hierarchy of the Three Rivers region. We plan to continue work at the site in future seasons with the following goals: complete excavation of the burial in Structure C-2; additional testing and architectural

exposure in structures and the chultun in Groups C; test units near Structure C4, the kitchen, to search for an associated midden; and the extension of excavations into Group A in search for middens and clarification of activity areas. Additionally, further research will focus on data comparisons between the information gathered from Say Kah with other sites in the area, including major centers such as La Milpa, Maax Na, and Dos Hombres, as well as smaller sites such as Las Abejas, in order to clarify Say Kah's position in the local settlement hierarchy and lead to more nuanced understandings of the relationships between the individuals and communities within this particular sociopolitical sphere.

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Illustrations created by Holly Dorning, with the help of Meredith Coats, based on field drawings by members of the Say Kah team. All maps are by Joshua Wright.

REFERENCES CITED

Crumley, Carole. L.

1995 Heterarchy and the Analysis of Complex Societies. In *Heterarchy and the Analysis of Complex Societies*, edited by Robert M. Ehrenreich, Carole L. Crumley, and Janet E. Levy, p. 1-5. Archaeological Papers of the American Anthropological Association Number 6, American Anthropological Association, Arlington, VA.

Guderjan, Thomas. H., Michael Lindeman, Ellen Ruble, Froyla Salam, and Jason Yaeger

1991 Archaeological Sites in the Rio Bravo Area. In *Maya Settlement in Northwestern Belize: The 1988 and 1990 Seasons of the Rio Bravo Archaeological Project*, edited by Thomas H. Guderjan, pp. 55-88. Maya Research Program and Labyrinthos, Culver City, CA.

Houk, Brett A., Grant Aylesworth, Liwy G. Sierra, Rebecca E. Bria

2007 Results of the 2006 Investigations at Say Kah, Belize. In *Research Reports from the Programme for Belize Archaeological Project*, edited by Fred Valdez, Jr., pp. 127-150. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Houk, Brett A., Rebecca E. Bria, and Shelly Fischbeck

2006 The 2005 Investigations at Say Kah, Belize. In *Programme for Belize Archaeological Project: Report of Activities from the 2005 Field Season*, edited by Fred Valdez, Jr., pp. 17-40. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Houk, Brett A. and Jon B. Hageman

2007 Lost and Found: (Re)-Placing Say Ka in the La Milpa Suburban Settlement Pattern. *Mexicon* XXIX:152-156.

Houk, Brett A. and Michael Lyndon

2005 The 2004 Investigations at Say Kah: A Pilot Project. In *Programme for Belize Archaeological Project: Report of Activities from the 2004 Field Season*, edited by Fred Valdez, Jr., pp. 45-62. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Jackson, Sarah E., Lindsay Argo, and Meredith Coats.

2010 Excavations at Group B, Say Kah, Belize 2009. In *Research Reports from the Programme for Belize Archaeological Project*, edited by Fred Valdez, Jr., pp. 61-84. Mesoamerican Archaeological Research Laboratory, University of Texas Press, Austin.

Scarborough, Vernon L., Fred Valdez Jr., and Nicholas Dunning (editors)
2003 *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatán Peninsula*. University of Arizona Press, Tucson.

HUN TUN ARCHAEOLOGY: REPORT ON THE 2011 FIELD SEASON*

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INTRODUCTION

Hun Tun is a modest, commoner community approximately five kilometers from the La Milpa site core. Based on its proximity to the large, urban, political capital, Hun Tun operates socially and politically with the La Milpa polity. Research at Hun Tun is conducted under the PfBAP excavation and exploration permit issued from the Institute of Archaeology, Belmopan, Belize. Research at Hun Tun is coordinated with the larger goals for the PfBAP. Interest in the various aspects that shape and influence Maya civilization can be examined at Hun Tun.

The 2011 field season marked the fourth season of investigations at Hun Tun. Research continues to focus on the long-term goals set forth in previous seasons (Dodge 2009, 2011; Dodge and Doumanoff 2010). To this regard, Hun Tun archaeology draws upon survey, settlement pattern analysis, household archaeology, and commoner rituals. Hun Tun site boundaries have expanded over the course of the previous field seasons. The site currently encompasses six courtyard groups. The courtyard groups range in size, layout, engineering, architectural characteristics, function and vary across the Hun Tun settlement. Particular research themes involve an analysis of settlement patterns for the Maya region, lowlands and northwestern Belize. More recently, research has shifted to a household, commoner ritual analysis. Identifying particular household activity areas, commoner ritual activity areas and locating differential use of space provide useful insight into the larger Maya social interactions. Maya commoner settlement studies provide a useful platform for analysis into how socialization processes occurred and were reinforced through repetitive action. More general household archaeology provides a micro-scale analysis into the larger operations of Maya civilization.

Annual field research at Hun Tun has been occurring since 2008. Hun Tun was first identified during a field survey in 2008. The 2008 and 2009 field seasons, involved field survey, test pit excavations, and developing a sound construction occupation chronology for the Hun Tun settlement. These initial seasons provided a greater perspective on the scale of the site, its layout and chronology. Preliminary research, based on ceramic analysis, places the site at a Late Classic occupation (Sullivan 2010). It was during this time that all six well-defined courtyards were constructed, occupied and abandoned. Some Terminal Classic occupation occurs near the base of structure A1 (Sullivan 2010), but the majority of the occupation activities occurred in the Late Classic.

More recent field seasons have focused on household and commoner ritual activities (Lohse 2007). The 2010 and 2011 field seasons were significant for excavations focusing

on limestone megaliths, and Structures A-1 and B-4. These structures provided greater information about household archaeology at Hun Tun, its changing needs, dynamics and household functions. Groups A and B vary in architectural styles and courtyard layout, providing a greater range of information. Features of particular interest, pertaining to ritual or household functions have been excavated. Group A, has been the focus of the majority of the 2010 and 2011 seasons, with particular emphasis upon Structure A-1.

The majority of the 2011 season focused on excavating Structure A-1 and B-2. The majority of the season was also focused on excavating the limestone chultun at the north-exterior base of Structure A-1 (Figures 1 and 2). This information provided useful in continuing the themes of household archaeology and commoner rituals. The 2011 season also included instrument mapping, botanical analysis, and geochemical analysis. The 2011 field season was eight weeks long. Fieldwork, laboratory analysis, and backfilling were successful tasks completed during the field season.

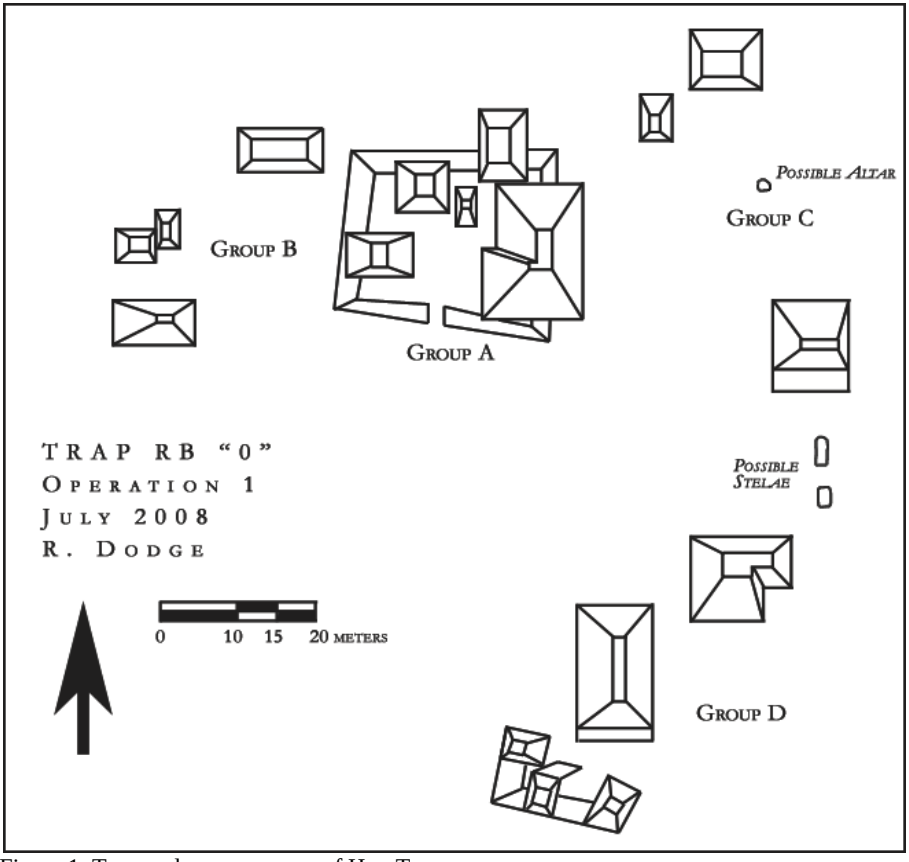

Figure 1. Tape and compass map of Hun Tun.

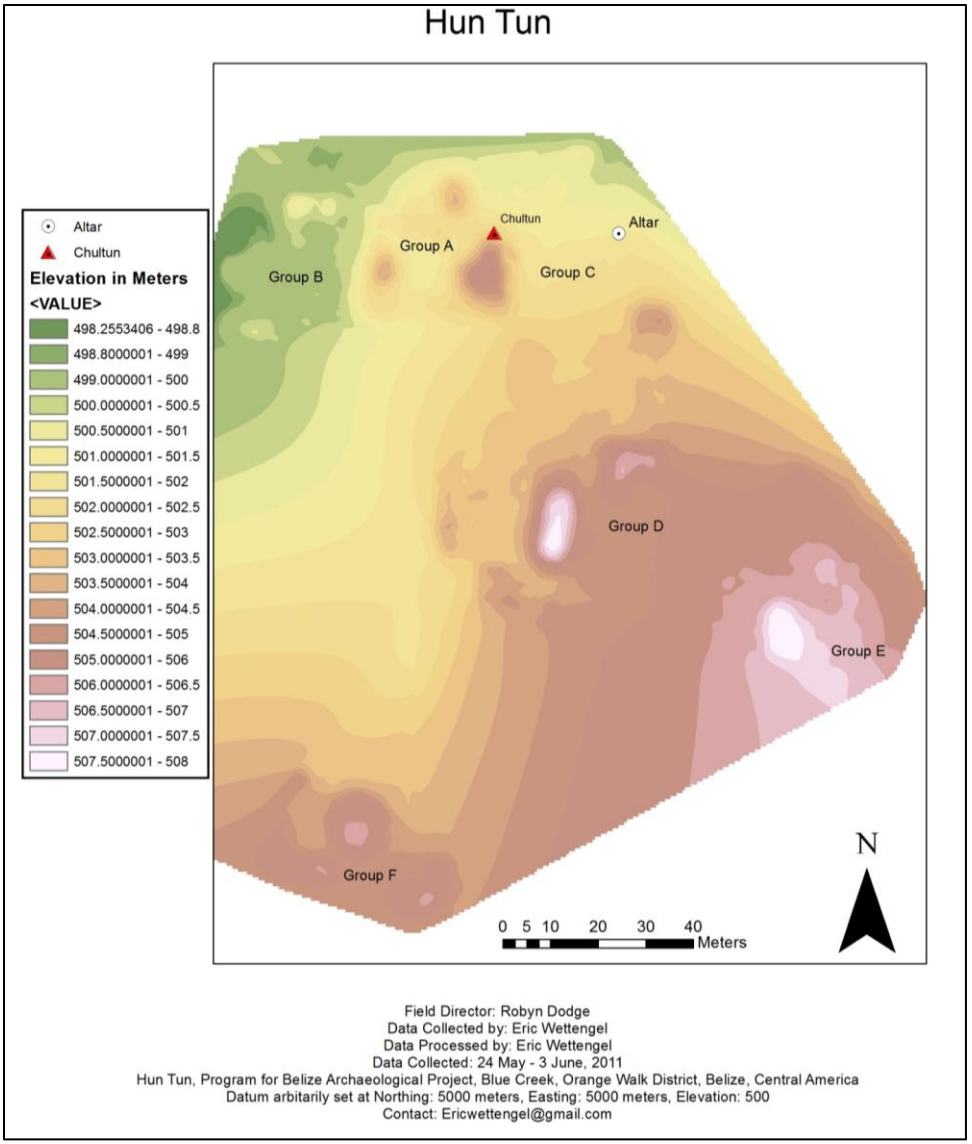

Figure 2. Topographical map of Hun Tun showing groups, chultun and altar locations.

METHODOLOGY

The 2011 Season employed similar methodology to previous seasons. Excavations and survey operate within a master site grid. All excavation units and features are correlated to the master site grid in reference to the established (0MN, 0ME) grid point. All

excavations are referenced to that initial zero demarcation and the grid serves as a mechanism to maintain long-term control, accuracy and precision of excavated units and survey features.

In addition to the site grid, the 2011 season included instrument mapping as part of the Hun Tun field research. Topographic maps were produced to identify natural features across the terrain and differentiate between natural and cultural patterns on the landscape. The instrument mapping is useful to correlate with existing tape-and-compass maps and ongoing excavations that confirm the presence of features.

EXCAVATIONS

The 2011 season focused on excavations in primarily four areas including in-and-around areas of the chultun, the southwest platform in Group A, exterior Structure A-1 architecture, and Structure B-3. The excavations were all conducted in cultural lots. Lot forms, maps, photographs, and laboratory analysis accompanied all the excavated materials. Datums Y-AF were established in the 2011 season. All datums were established arbitrarily. In future seasons, all datums will be correlated to a master site datum and anchored with a GPS to record their precise location in three-dimensional space. Subops AI- AV were established in the 2011 season. Along with establishing new subops, many subops from previous seasons were reopened and excavated during the 2011 season (See Subop Summaries).

The 2010 season launched detailed excavations in Group A. These excavations began a detailed investigation of household archaeology. Particular excavations were focused on identifying household activity areas, changing/modifying household dynamics. To this regard, architecture and non-utilitarian features served as a primary marker for household rituals. Structure A-1 is located on the eastern edge of Group A and is an "L-shaped" structure. The 2010 season yielded information locating a stairway leading up to the top of a platform on Structure A-1. Also, excavations in the northeast external corner identified a series of expansions and renovations to the structure's exterior patio area. Theses excavations positively identified the corners to calculate the internal dimensions of Structure A-1.

Subop Summaries

Subops S, V, and W were reopened from the 2010 Season. Subops S, V, and W were located at the northeast exterior base of Structure A-1. Subop W was excavated in seven lots during the 2010 season. Subop S, Lot 7 revealed a capstone sealing the opening of a chultun. Subops S, V, and W were excavated in cultural lots following construction sequences provided a series of expansions and renovations to the northeastern corner of Structure A-1, see Dodge (2011) for a more detailed explanation of Subops S, V, and W excavations from the 2010 field report.

Subop Y was reopened from the 2010 season and excavations during the 2011 season focused on exposing the exterior architecture of Structure A-1, and calculating the dimensions (Figure 3). Excavations during the 2011 season began with Lot 4 and continued into Lot 5. Ceramics, lithics, grindstones, incised ceramics, bone, and painted plaster are all among the recovered artifacts. Subop Y is associated with Subops AH and AL. Subop Y excavations revealed a plaster platform tucking into Structure A-1, along with more detailed information about the Late Classic style architecture, construction chronology, and occupation chronology.

Figure 3. South view of Structure A-1 with excavations exposed in Subops Y, AL, and AH.

Subop AH was a reopening from the 2010 season. Excavations in 2010 were limited to three lots. 2011 excavations continued in Lots 4-6. These excavations revealed ceramics, incised ceramics, lithics, obsidian, and painted plaster. Subop AH was opened in order to more clearly define the exterior architecture of Structure A-1. By expanding Subop Y to the south, excavations more clearly defined the exterior stone alignments.

Subops AI and AJ were not assigned to any excavations.

Subop AK is a 2 x 2 m subop established at the southwest area of Group A courtyard. Subop AK was established in order to delineate a possible platform perimeter wall or feature.

Subop AL is a 3 x 2 m subop at the middle of Structure A-1. Subop AL is an extension of Subops Y and AH that was established to identify the interior corner of Structure A-1 (Figure 3). It was excavated in 13 lots. Among the recovered artifacts include ceramics, lithics, incised ceramics, metate fragments, and obsidian. Charcoal was observed, but not collected. An intact vessel was excavated as a separate lot at the western base of the structure (Figure 4). Subop AL was established in order to gain a more comprehensive understanding of the architecture of Structure A-1 and the structure's precise dimensions.

Subop AM is the interior of the chultun (Figure 5). The subop dimensions are defined by the interior chultun space. The chultun is a circular shape and was excavated in cultural lots. The chultun was divided into four equal quadrants and each section was excavated as an independent lot. A datum was placed in the chultun wall and all mapping and excavation elevations were taken from the chultun datum AA. Lots 1-4 were excavated as debris removal. Lot 1 was the northwest quadrant and subsequent Lots 2-4 were excavated in the clockwise direction. The initial <10cm of soil was debris and collapse from the chultun opening. These lots were sterile of any cultural artifacts. Lot 5 was the northwest quadrant and Lot 6 was the southeast quadrant. Alternative quadrants were chosen for excavation in order to best preserve a profile to examine for stratigraphy. Although as excavations progressed it became obvious that no such profile was observable and eventually the entire interior chultun space was excavated. The chultun was excavated in 20 lots. Soil samples were taken in an effort to identify possible micro-botanical and micro-faunal remains. Charcoal samples were also taken for analysis. The soil samples were floated in camp and samples are in the process of being analyzed. The chultun excavations revealed material culture in the form of ceramic sherds, lithic flakes, tools, and a single stone on the chultun floor. The ceramic sherds were diagnostic, dating to the Late Classic. The interior space was round with a diameter of approximately 180 cm. The interior of the chultun was filled with approximately 80 cm of a clay matrix. The clay appeared yellow in color and was of high quality for working.

Subop AN is a 2 x 2 m unit at the southwest corner of Group A. This subop was established as an extension of Subop AK in order to identify possible platform walls. A platform structure was established in Subop AK that continued to the west. Subop AN was excavated in order to follow the structure and delineate its corners. Delineating its corners would provide information making it possible to calculate its dimensions and possibly lead to information about its function. Although the opposing corners were not identified in the 2011 season, information about the courtyard construction was obtained from the excavations. Subop AN was excavated in six lots. Among the recovered artifacts include lithic debitage, flakes, tools, ceramics, seashell and obsidian. Carbon was

collected and used to sample for botanical remains. Two plaster floors were identified in Subop AK.

Subop AO was a 1 x 2 m unit that was re-established as Subop AP to make a 2 x 2 m unit in order to gain a greater perspective of the architecture and how Structure A-2 was constructed in Group A. Subop AO was only excavated in two lots and was reintegrated into Subop AP.

Figure 4. Excavation of *in situ* ceramic vessel excavated in Subop AL at the base of Structure A-1.

Subop AQ is a 3 x 2 m unit established as an extension of Subop AL. Subop AQ was established in order to capture the northern boundary of the staircase and calculate its width. The staircase dimensions can be calculated based on information gained in Subop X excavations. Material culture was limited to ceramics, lithics and a complete anthropomorphic ceramic vessel that was placed at the base of the staircase facing west. A similar complete ceramic vessel was also excavated in Subop X during the 2010 field season. The vessel from Subop X was also anthropomorphic and was placed at the base of the staircase facing west. Both of those vessels were removed with the matrix and micro-excavated in the lab in order to gain more control.

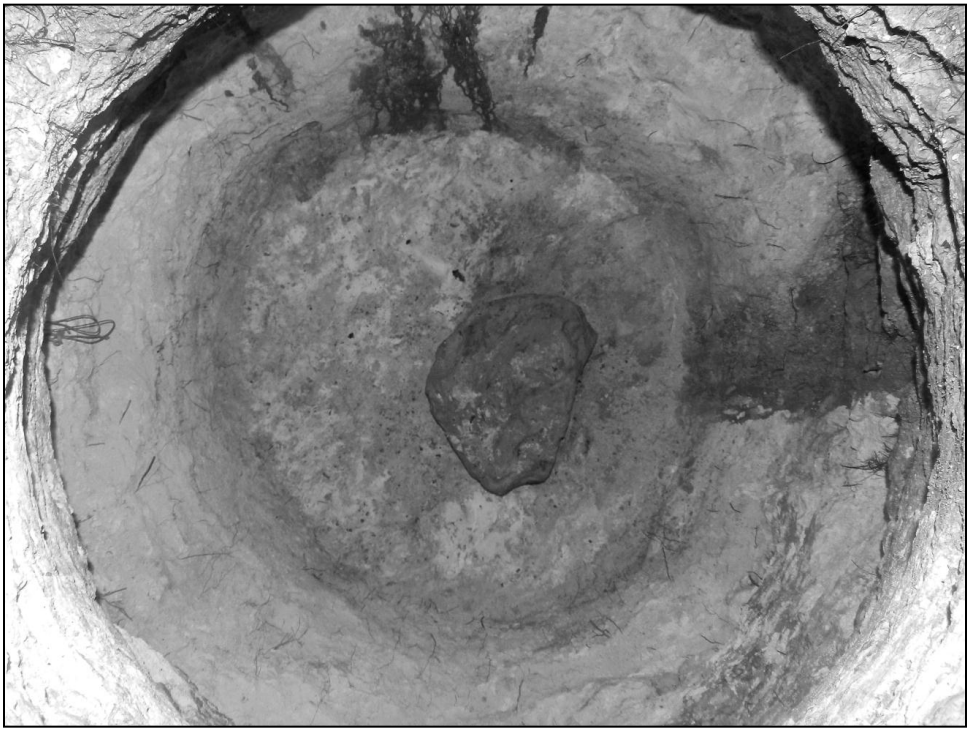

Figure 5. Subop AM interior. Chultun interior space is visible after it was excavated completely.

Subop AR is a 2 x 2 m subop established in Group B at the western base of Structure -. Subop AR was excavated in four lots and used to establish a construction and occupation chronology for Structure B-2. Subop AR was placed at the western base of Structure B-2 in order to capture the Southwest corner of the structure and began to understand its dimensions. Subop AR used Datum AB. Ceramics and lithics were among the recovered material culture.

Subop AS is a 2 x 2 m unit established to follow the platform feature initially identified in Subop AK. Subop AS was only partially excavated during the 2011 season and will require further investigation during the 2012 season. Artifact assemblage consisted of, but was not limited to an abundance of ceramics, lithics, obsidian, and seashell. Excavations will continue in the 2012 season to delineate the interior and exterior boundaries of the Group A courtyard platform wall.

Subop AT is a 2 x 2 m subop placed at the southeast portion of Structure B-2 in order to delineate its architecture. Excavated in tandem with Subop AR, Subop AT was excavated in order to capture the southeast corner and calculate the dimensions of Structure B-2. Any material culture recovered will also provide insight into a chronology and possible function for Structure B-2 and its surrounding courtyard space. Ceramics, lithic flakes, and obsidian were among the recovered artifacts. Datum AD was used to measure all elevations and mapping for Subop AT.

Subop AU is a 2 x 2 m subop that was established in order to continue the platform wall initially exposed in Subop AS at the southwest area of Group A courtyard.

Subop AV is a 1 x 1 m subop that was placed just north of Structure B-2. The test pit was placed in order to gain a basic understanding of the courtyard stratigraphy. The test pit produced an artifact assemblage of ceramics. Datum AF was established for Subop AV. Excavations will provide insight into courtyard function and courtyard construction chronology. Excavations will be used in tandem with previous work from Group B excavations during the 2008 (Dodge 2009) and 2010 field seasons (Dodge 2011).

FUTURE RESEARCH

The 2012 field season will continue with investigations of Group A and Structure A-1. Partially excavated subops will be reopened and a firm construction sequence will be established that provides insight into the courtyard architecture. Research components related to the identification of ancient Maya household and commoner ritual activity areas will also be conducted in future field seasons.

Future research will involve exploration of the areas surround Groups D, E, and F. Groups E is a terraced landscape and test excavations will reveal whether the terracing is a cultural phenomenon or a natural occurrence. Test pit excavations will provide insight into the function of the terraces. General excavations of the remaining groups (D, E, and F) (Figure 2) will take priority in the upcoming field seasons. Flotation samples will be taken in Group D to determine if any trace botanical species can be identified.

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REFERENCES CITED

Dodge, Robyn L.

2009 RB70: The 2008 Investigations. In *Research Reports from the Programme for Belize Archaeological Project, Volume Three*, edited Rissa M.Trachman and Fred Valdez, Jr., pp. 145-148. Occasional Papers, Number 10. Mesoamerican Archaeological Research Center, The University of Texas at Austin.

2011 Hun Tun Archaeology: Report on the 2010 Field Season at RB 70. In *Research Reports from the Programme for Belize Archaeological Project, Volume Five*, edited Brett A. Houk and Fred Valdez, Jr., pp. 123-132. Occasional Papers, Number 12. Mesoamerican Archaeological Research Center, The University of Texas at Austin.

Dodge, Robyn L. and Iasha Doumanoff

2010 Report on the 2009 Field Season at Hun Tun. In *Research Reports from the Programme for Belize Archaeological Project, Volume Four*, edited David M. Hyde and Fred Valdez, Jr., pp. 57-60. Occasional Papers, Number 11. Mesoamerican Archaeological Research Center, The University of Texas at Austin.

Hyde, David M.

2005 Excavations at the Medicinal Trail Site, Operation 7: Report of the 2004 Season. In *Programme for Belize Archaeological Project: Report of Activities from the 2004 Field Season*, edited by Fred Valdez, Jr., pp. 7-14. Occasional Papers, Number 4, Mesoamerican Archaeological Research Laboratory. The University of Texas at Austin.

Lohse, Jon C.

2007 Commoner Ritual, Commoner Ideology, Sub-Alternative Views of Social Complexity in Prehispanic Mesoamerica. In *Commoner Ritual and Ideology in Ancient Mesoamerica*, edited by Nancy Gonlin and Jon C. Lohse, pp. 1-32. University of Colorado Press, Boulder.

Lohse, Jon C. and Fred Valdez, Jr.

2004 Examining Ancient Maya Commoners Anew. In *Ancient Maya Commoners*, edited by Jon C. Lohse and Fred Valdez Jr. pp. 1-22. University of Texas Press, Austin.

Robin, Cynthia

2003 New Directions in Classic Maya Archaeology. *Journal of Archaeological Research* 11(4):307-356.

Sullivan, Lauren

2010 Preliminary Ceramic Analysis for RB 70, Hun Tun (Chronology). Manuscript on file, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Valdez, Fred, Jr.

2007 Situating Research: An Introduction to the PfBAP Research Reports (Vol. 2). In *Research Reports from the Programme for Belize Archaeological Project, Volume Two*, edited by Fred Valdez, Jr., pp. 1-10. Occasional Papers, Number 9, Mesoamerican Archaeological Research Laboratory. The University of Texas at Austin.

AGUADA LAGUNITA ELUSIVA (RB LAGUNITA), LA MILPA EAST (RB LME) AND RESULTS OF THE 2011 EXPLORATIONS ALONG THE LaMAP EAST TRANSECT EXTENSION

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INTRODUCTION

In 2011 we continued our excavations at Aguada Lagunita Elusiva (RB Lagunita) and mapped the surrounding area with tape and compass. We also continued research at La Milpa East (RB LME) and surveyed the area north of the LaMAP East Transect extension (Figure 1).

RESEARCH AT AGUADA LAGUNITA ELUSIVA (RB LAGUNITA, OP. 1)

In 2011, as in 2010 (see Weiss-Krejci and Brandl 2011), the Aguada Lagunita Elusiva was dry and its center overgrown with the sedge *Cladium jamaicense*. We continued several units which we had started in previous years (Op. 1, Subops. E, F, G, I, J, K) but also opened new ones (Subops Extension G, L and M). In total we have now exposed ca. 31 m^2. With the exception of Subop F, all units are located in the northern/central part of the *aguada* and are connected to each other (Figure 2). Because screening was impossible, as in previous seasons, artifacts were extracted in the process of excavation and bagged samples were taken back to the PfB lab and floated using a Flote Tech water flotation machine.

Excavations in Subops E, L, and M demonstrated that the *aguada* contains two constructed chert cobble layers, which are separated from each other by a thick gray clay layer. The upper layer is shown in Figures 2 and 3. It covers Subops A, B, C, D, and parts of G, H, I, J, and L. As far as we can tell the lower layer is located beneath these suboperations, but also extends into Subops E and M (Figure 4). On top of this earlier layer and embedded in the gray clay stratum we encountered various pieces of an almost complete Dolphin Head Red plate (Tepeu I, seventh century AD) which serves as *terminus post quem*, i.e. the gray clay deposit, which separates the two cobbles layers, can only have formed during or after the seventh century. The lower cobble layer has been excavated in Subop B and E, but was left in situ in Subop M (Figure 4). Unfortunately the ceramics are too eroded to be dated with precision.

The dry conditions and the lack of rain made it possible to excavate into sterile stratum in Subops E, F, G, I, J, K, and Ext. G. In Extension G (and including parts of the old Subops G, I, J, and K) we excavated half a meter into a clayey stratum, which we interpreted as bedrock (see Figure 4; Ext. G). In situ water infiltration tests showed the water impermeability of this stratum and flotation samples proved it to be entirely sterile.

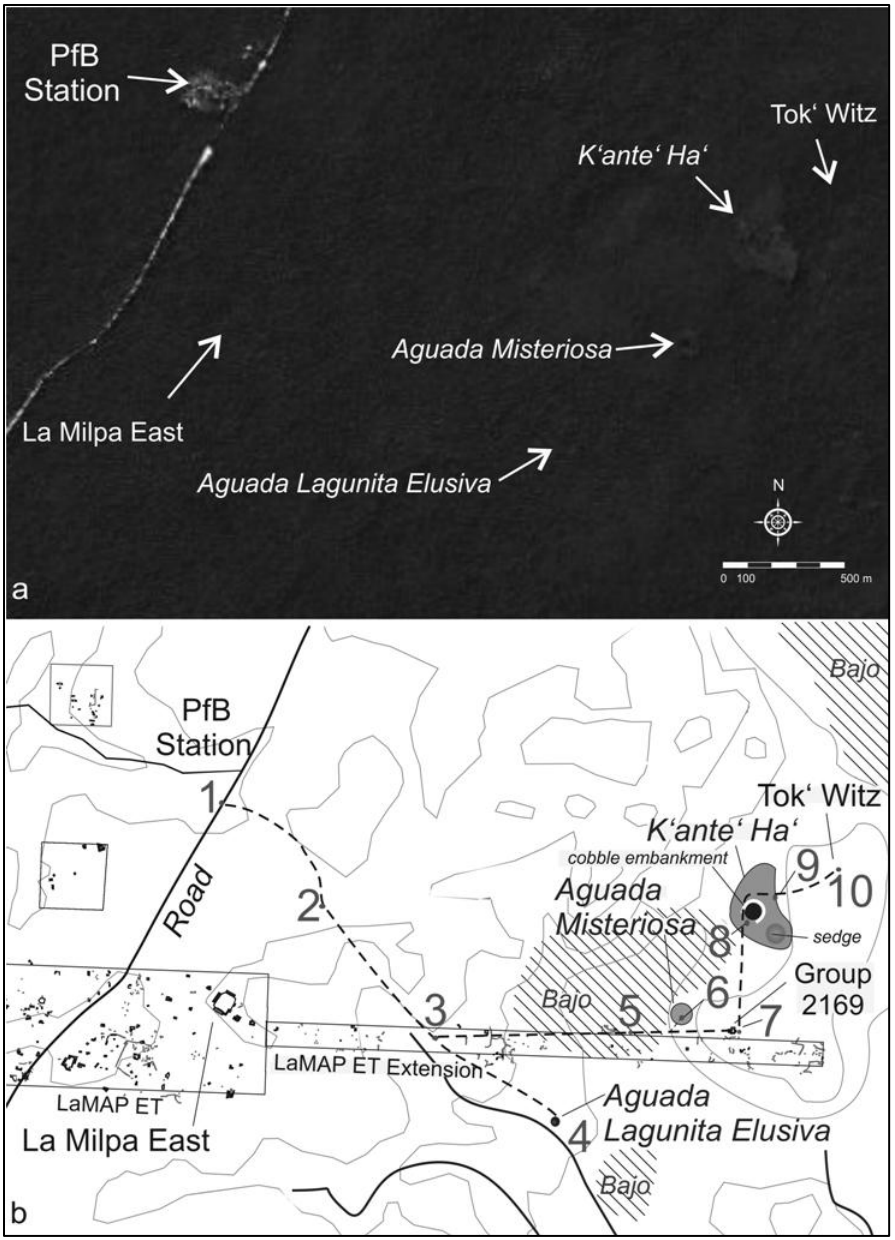

Figure 1: The area under investigation: 1a) Google map showing road, station, *aguadas* and *bajos*; the archaeological sites are not visible; 1b) Detailed map of area with trails and location of GPS points.

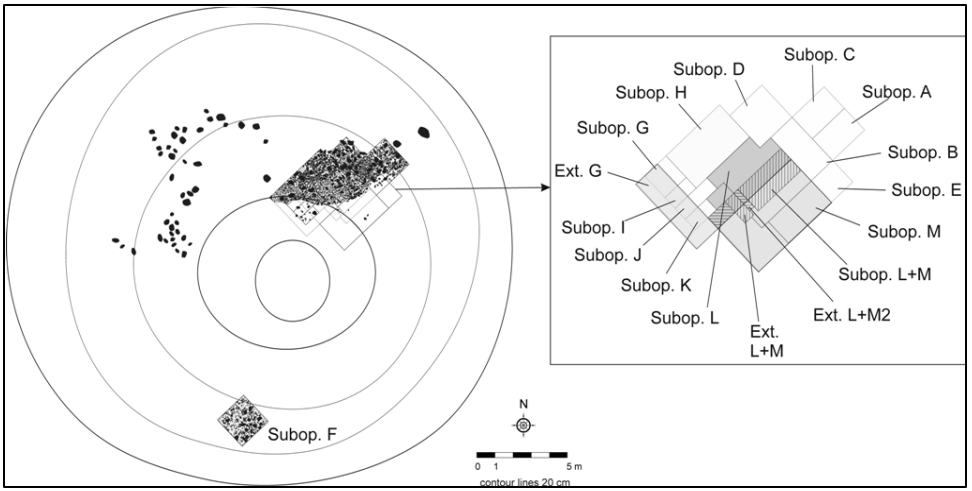

Figure 2: Aguada Lagunita Elusiva, excavation units and upper cobble platform.

Figure 3: Aguada Lagunita Elusiva, excavation looking SW, Subops. A-E, G-M.

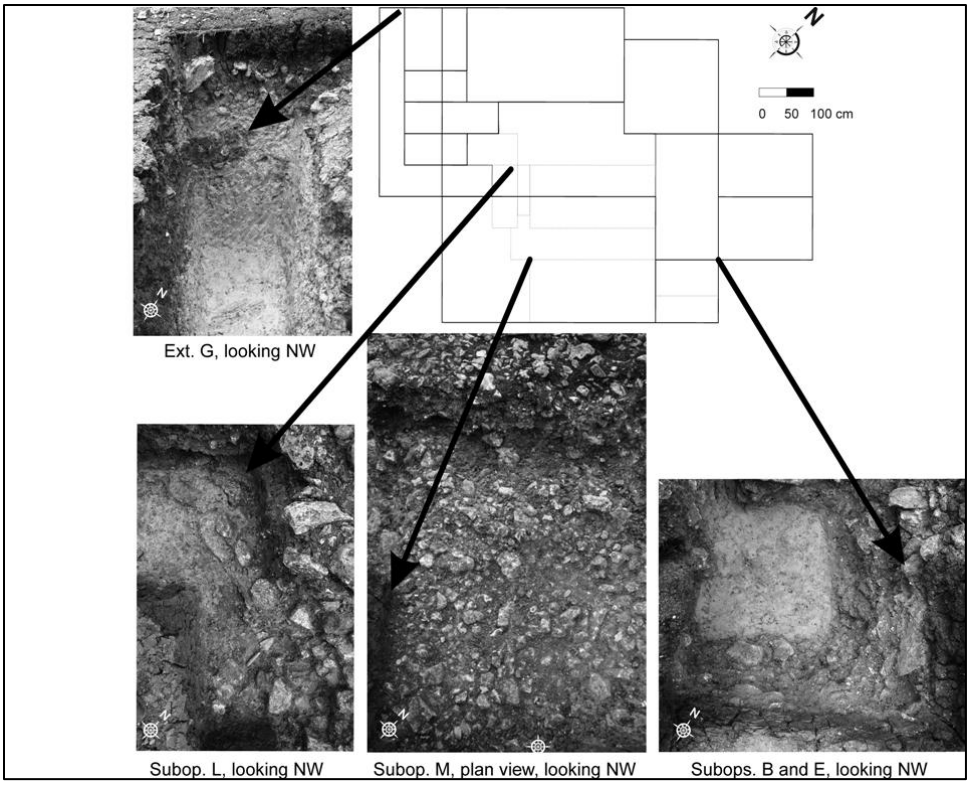

Figure 4: Aguada Lagunita Elusiva, lower cobble platform and NW profile of Ext. G.

In 2011 we also completed Subop F, which we had partially excavated in 2009 (Weiss-Krejci and Brandl 2010; details in Weiss-Krejci and Brandl 2011). The 2 x 2 m unit is composed of topsoil, followed by a one-meter thick cobble feature (Figure 2 and 5), a thick stratum of gray clay, and a plaster layer above bedrock with a few sherds and lithics. The cobble feature in Subop F is part of the *aguada* embankment and was constructed from lithic waste (including the remains of a lithic workshop). It contained high amount of chert tools and some Late Classic (Tepeu II) ceramics. The earlier plaster layer only existed in the southern part of the unit (connected to the aguada rim), but was absent from the northern corner. Unfortunately the ceramics (black types) in the plaster layer are too eroded to be dated.

LA MILPA EAST (RB LME, OP. 1)

June 7 to 10, 2011 we spent at La Milpa East (Figure 6) where we finished the excavation of Subop. P, a 2 x 1 m unit in the looter's trench of Structure 2040, which we had started in June 2009 (Weiss-Krejci and Brandl 2010:36). We found parts of an eroded plaster

layer (Lots 6 and 11) on the NW-side of the unit about 30 cm above the bedrock. Ceramic sherds (ca. 500g) from this unit have yet to be analyzed.

Figure 5: Aguada Lagunita Elusiva, Subop. F, SE profile.

In Depression A we continued excavations in Subop S (Lots 3 to 6). In order to get a full view of the entire cobble feature (Feature 2) we removed one decade old refill covering Operations K24, K26, and K15. Additionally we started five new units (Subops. V, W, X,Y, and Z) (Figure 6). Subop V is a north-south oriented 3 x 1 m unit, which borders Subops. U and S at the east. Subop. W is an east-west oriented 1 x 3.5 m unit which connects Depression 1 with the eastern collapsed *chultun* (Weiss-Krejci 2004; Weiss-Krejci and Sabbas 2002). Subop. X is 1 x 1.5 m and located to the south of Subop V. Subop Y is 0.5 x 1.5 m south of K 24 and the eastern half of K 26 and Subop Z is a 0.5 x 1 m unit west of Subop A and north of Op. K 24. The eastern parts of Subops V and X, as well as all of Subops W and Z consisted of nothing but a few limestone cobbles and thin topsoil above bedrock. On the western side of Subops V and X chert cobbles pertaining to Feature 2 appeared. Excavation at Subop Y (towards the center of Depression A and already beyond Feature 2) was halted at 50 cm below topsoil (top of Lot Y-3, level of the gray stratum on top of which Feature 2 had been built).

EXPLORATIONS ON THE LAMAP EAST TRANSECT EXTENSION: DISCOVERY OF AGUADA MISTERIOSA, THE *CIVAL* K'ANTE' HA' AND THE NEW SITE TOK'WITZ

On May 30 and 31, 2011 we started to search for two large treeless areas northeast of Aguada Lagunita Elusiva, which we had discovered on Google Earth (see Figure 1a) and interpreted as potential *aguadas*. Our starting point was the intersection of the Lagunita

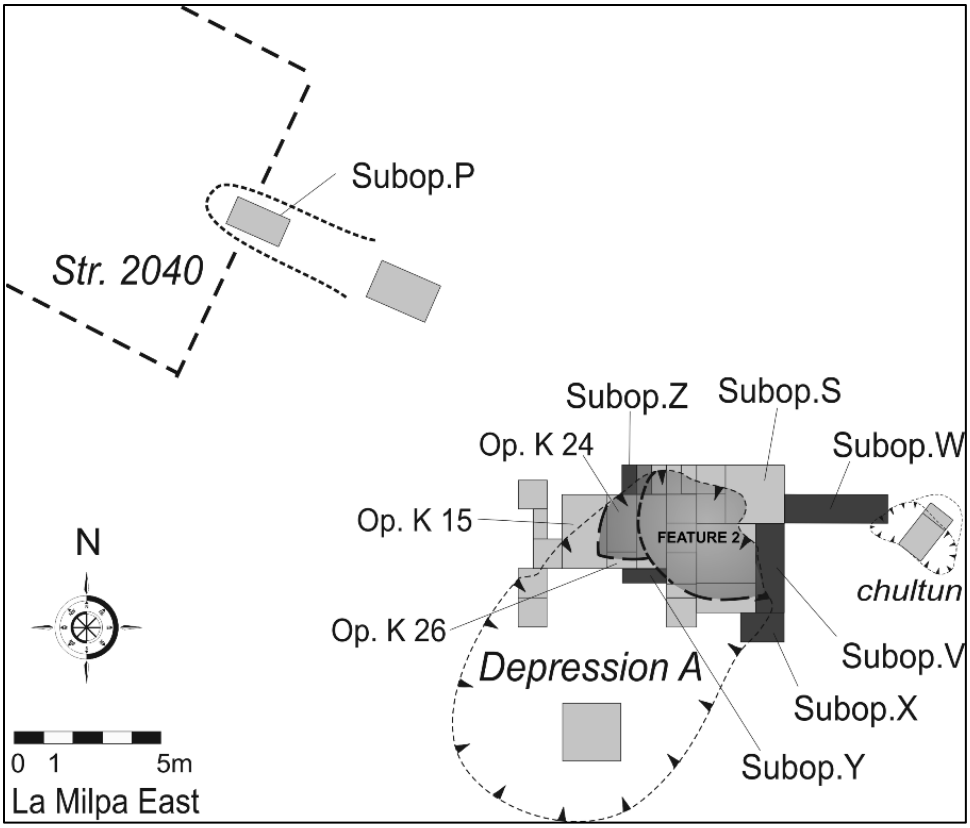

Figure 6: Research units at La Milpa East; 2011 units are dark grey .

trail with the La Milpa Archaeological Project East Transect Extension (Figure 1b, pt.3). Since we were unable to find the original transect, we decided to cut our own *brecha*, setting stakes every 50 meters. On the first day we managed to cut a straight 1000 meter-long W-E line (ca. 600 m through dense *bajo*) and reached the first aguada in the afternoon (Figure 1b, pt. 6). The rim area was characterized by dead wood, empty Pomacea shells and tapir feces. The inner part was overgrown with sedge and contained a few water thriving trees (Figure 7). The aguada has a diameter of approx. 100 meters and covers an estimated surface area of 8000 m^2. It is located 126 m above sea level (four meters lower than Aguada Lagunita Elusiva). It was entirely dry. Our workmen named this place Aguada Misteriosa.

On May 31 we continued our exploration cutting another 300 m towards the east. At Group 2169, a large courtyard excavated by Everson (2003: 308-312; Operation G 33), we turned north (Figure 1b, pt. 7). Between 200 and 300 meters north of Group 2169 we encountered long and tall E-W oriented berms. After another 100 meters we reached the

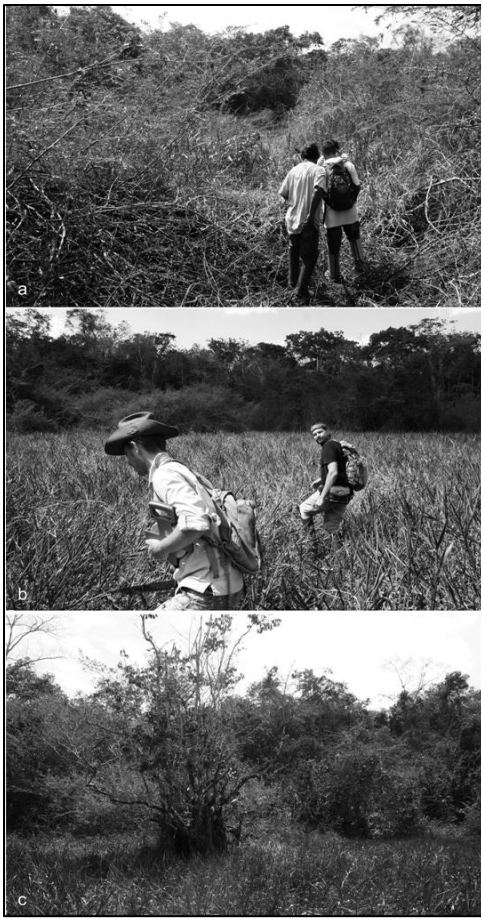

Figure 7: Aguada Misteriosa; a) *aguada* rim b) sedge in the center, c) trees in the center.

southern border of a large swamp (= *cival*). In a separate study of the Mirador Basin, Hansen *et al*. (2002) referred to the local names of *bajos* and *civales* for different areas of wetlands. *Bajos* are only seasonally inundated for about two months of the year and are dominated by *palo tinto* trees. Also, the vegetation canopy in the *bajo* areas is noticeably lower than in the surrounding upland rainforest. C*ivales* are more similar to marshes because they are smaller and are located within or adjacent to *bajos*. Also, the *civales* are treeless and comprise of mostly grasses and sedges.

The *cival* covers an approx. surface area of 47 000m^2 and is located 121 m above sea level (five meters lower than Aguada Misteriosa). We named it K'ante' Ha', which is Maya for *k'an*-tree water. The name is based on the pattern in the cutting of an allspice tree 100 m south of this swamp, which showed a "K'an cross" in the cross section (Figure 8a). In the same area we also discovered a blood tree (*Dracaena Americana*, also known as arbol de sangre and sangre de drago), known for its healing properties and its red resin (Figure 8b).

In the *cival* we found empty Pomacea shells and exotic bugs (Figures 8c and 8d). The area is characterized by diverse ecozones. At the rim the growth is especially dense (Figure 9a), and throughout the swamp higher patches of land exist with water thriving trees (Figure 9b). The lower parts are treeless and overgrown by sedges and reed-like grasses (e.g. the southeastern part, Figure 1b, Figure 9c). This area looks more or less like the center of Aguada Misteriosa. In the middle of K'ante' Ha' there is a huge horseshoe-shaped cobble berm (see Figure 1b) which measures approx. 100 meters in diameter. We assume that this was an artificially constructed reservoir within the swamp. Inside the berm we found hoof tracks (tapir?) and many water plants (Figure 9d). Despite the fact that the preceding months had been extremely dry there was a considerable amount of standing water left. Based on the vegetation we assume that this *aguada* holds water

throughout the year. North of the horseshoe-shaped berm there is an idyllic palm grove (Figure 9e).

East of K'ante' Ha' the terrain is forested and rises by 30 m. After walking 250 m from the swamp rim (Figure 1b, pt. 9) in an eastern direction we reached the top of a steep hill. There was a small site on it (not looted), which we named Tok' Witz (= chert hill). The chert that we have encountered on the surface in this part of PfB is of the same high quality as the chert which we have found in the Aguada Lagunita Elusiva.

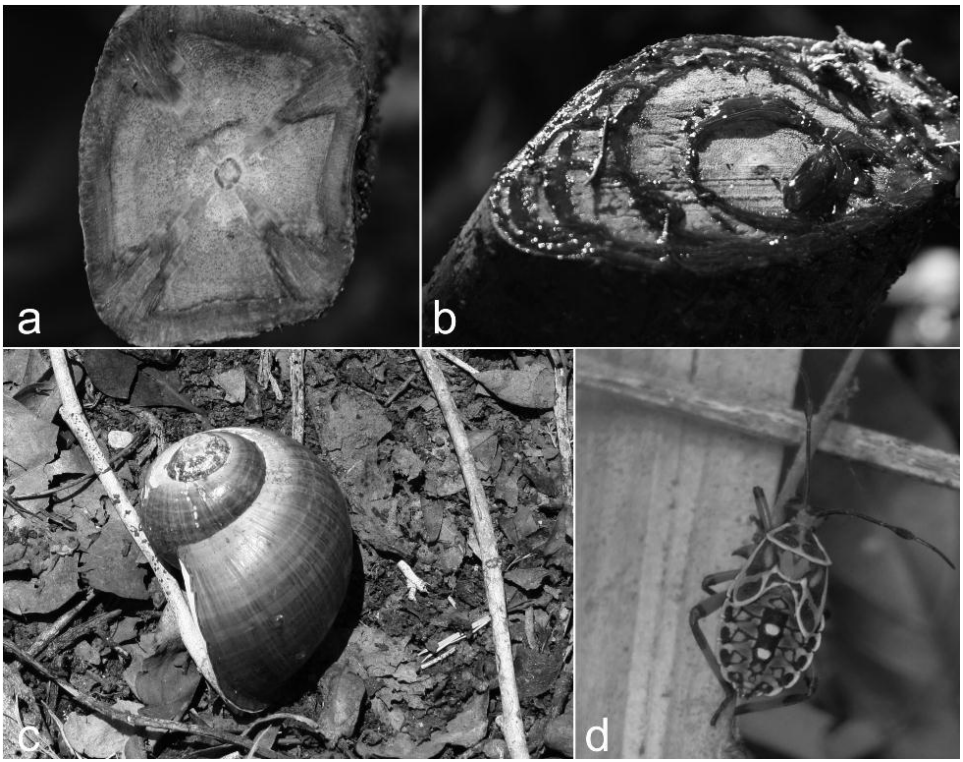

Figure 8: Flora and fauna in and around K'ante' Ha' a) allspice tree, b) blood tree (red resin), c) Pomacea, d) unidentified bug.

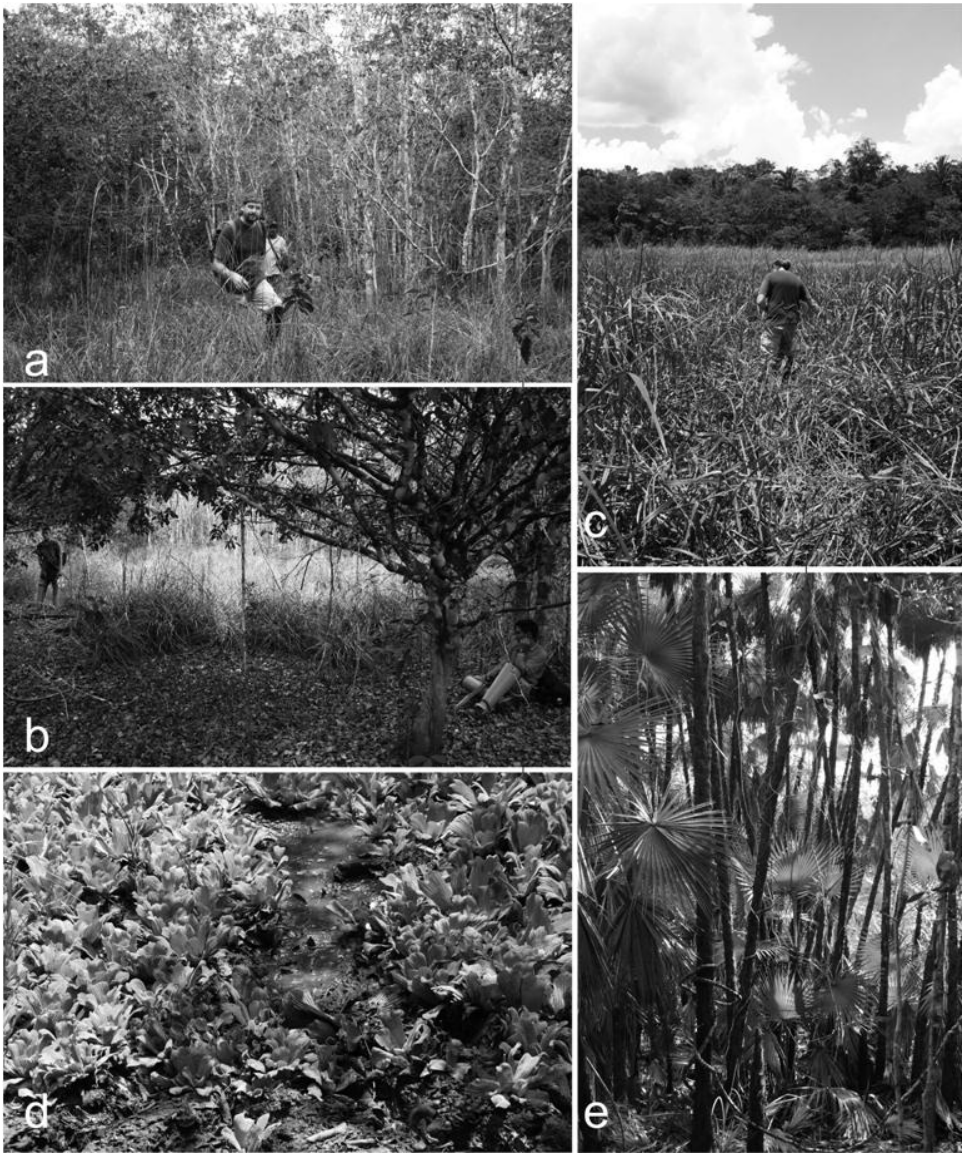

Figure 9: Diverse ecozones of K'ante' Ha': a) stretch of dry and dense forest at the rim; b water thriving trees on elevated patch; c) sedge area at southeast; d) water plants and standing water inside horseshoe-shaped cobble embankment; e) palm grove north of embankment.

GPS READINGS (see Figure 1 b):

1.	17.83985n, 89.01800w	Entrance from main road at station to Lagunita loop
2.	17.83594n, 89.01396w	Entrance from Lagunita loop to Lagunita trail
3.	17.83106n, 89.00957w	Junction Lagunita trail/LaMAP East Transect Extension, stake 0
4.	17.82797n, 89.00497w	Aguada Lagunita Elusiva
5.	17.83135n, 8900200w	W-E line, stake 17, few meters west of small N-S creek
6.	17.83195n, 89.00010w	Aguada Misteriosa (south part)
7.	17,83138n, 88.99780w	Group 2169, east of eastern mound
8.	17.83545n, 88.99747w	K'ante' Ha', sedge area
9.	17.83643n, 88.99625w	K'ante' Ha', east end
10.	17.83731n, 88.99402w	Housemound at Tok' Witz

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REFERENCES CITED

Everson, G

2003 Terminal Classic Maya Settlement Patterns at La Milpa, Belize. Unpublished Ph.D. Dissertation, Deptartment of Anthropology, Tulane University, New Orleans.

Hansen, Richard D., Steven Bozarth, John Jacob, David Wahl, and Thomas Schreiner

2002 Climatic and Environmental Variability in the Rise of Maya Civilization. *Ancient Mesoamerica* 13:273-295.

Weiss-Krejci, Estella

2004 Investigación de Las Depresiones Pequeñas en al Área de La Milpa, Belice. En *XVII Simposio de Investigaciones Arqueológicas en Guatemala 2003*, editado por Juan Pedro Laporte, Barbara Arroyo, Héctor L. Escobedo &

Héctor E. Mejía, pp. 1061-1074. Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Instituto de Antropología e Historia, Museo Nacional de Arqueología y Etnología, Asociación Tikal, Guatemala.

Weiss-Krejci, E. and M. Brandl

2010 Aguada Lagunita Elusiva (RB Lagunita) and La Milpa East (RB LME): Summary of the 2009 Season. In *Research Reports from the Programme for Belize Archaeological Project, Volume* Four, edited David M. Hyde and Fred Veldez, Jr., pp. 33-40. Occasional Papers, Number 11. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Weiss-Krejci, E. and M. Brandl

2011 Research at La Milpa East (RB LME) and the Aguada Lagunita Elusiva (RB Lagunita): The 2010 Season. In *Research Reports from the Programme for Belize Archaeological Project, Volume* Five, edited Brett Houk & Fred Valdez, Jr., pp. 143-169. Occasional Papers, Number 12. Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Weiss-Krejci, Estella. and Thomas Sabbas

2002 The Potential Role of Small Depressions as Water Storage Features in the Central Maya Lowlands. *Latin American Antiquity* 13:343-357.

TOWARDS A BIOGRAPHY OF PLACE: THE 2011 SEASON OF SURVEY AND EXCAVATION AT LA MILPA NORTH

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INTRODUCTION: THE GOALS OF THE LA MILPA NORTH PROGRAM

La Milpa North's location on the landscape has led some to suggest that it is part of a cosmogram(e.g. Hammond and Tourtellot 2003; Tourtellot, Wolf, Smith, Gardella, and Hammond 2002; Figure 1), its buildings and plazas imply that it may have been home to powerful elites (Tourtellot, Estrada-Belli, and Hammond 2003), and recently excavated materials imply it was a place of production for goods both exotic and mundane (Heller 2011). Possibly a location of pilgrimage, and power, as well as a residence and worksho p, La Milpa North was likely a multivalent place for the ancient Maya. Only when understood as a multivalent locality imbedded in dynamic social, political, and economic contexts can the ancient meanings encoded in the architecture and assemblages of La Milpa North be fully understood.

This project seeks to construct a biography of place; a narrative of the use, modification, and cognizance, of a single locality from its inception to afterlife (Ashmore 2009:158-159). Through a biography of place approach, this project examines the relationships between La Milpa North and its ancient Maya inhabitants while highlighting connections between this place, its residents, and major transformations in sociopolitical and economic arenas on local, regional, and interregional scales. In so doing, this project recognizes that creation, maintenance, modification, use, and abandonment of La Milpa North were meaningful symbolic acts (see Ashmore 2007), and attempt to illuminate aspects of human ideation and systems of belief within processes of social change (see Bradley 1987). Integrating three distinct theoretical approaches, this project seeks to explore the interface of persons, landscape, and material, in the production of manufactured goods, social relations, identities, and senses of place. Moving towards a biography of place, this project will utilize a set of theoretical approaches that collectively recognize the agency of ancient actors and firmly place the mechanisms of social change in the interactions between microscale activities and macroscale social movements.

The theories and approaches that will be applied to the data generated by this project include political and ritual economic theory, practice theory, and social landscape approaches. A common thread, the theme of production, facilitates the syncretic integration of these approaches. Production is a transformative process that reproduces and modifies the physical and social conditions of future production and is always generated from the sociocultural and material contexts of its producers (Tilley 1982), As a conceptual framework, production inherently recognizes the relationship between thought and action in a recursive process that begins with antecedent concepts and

physical realities and creates new conditions. Production can be understood as a historically constituted and interconnected series of generative experiences that produce memories, meanings, identities, and communities (see Hendon 2010; Pauketat and Alt 2005) and is therefore foundational to political and ritual economy approaches, practice theory, and social landscape archaeology.

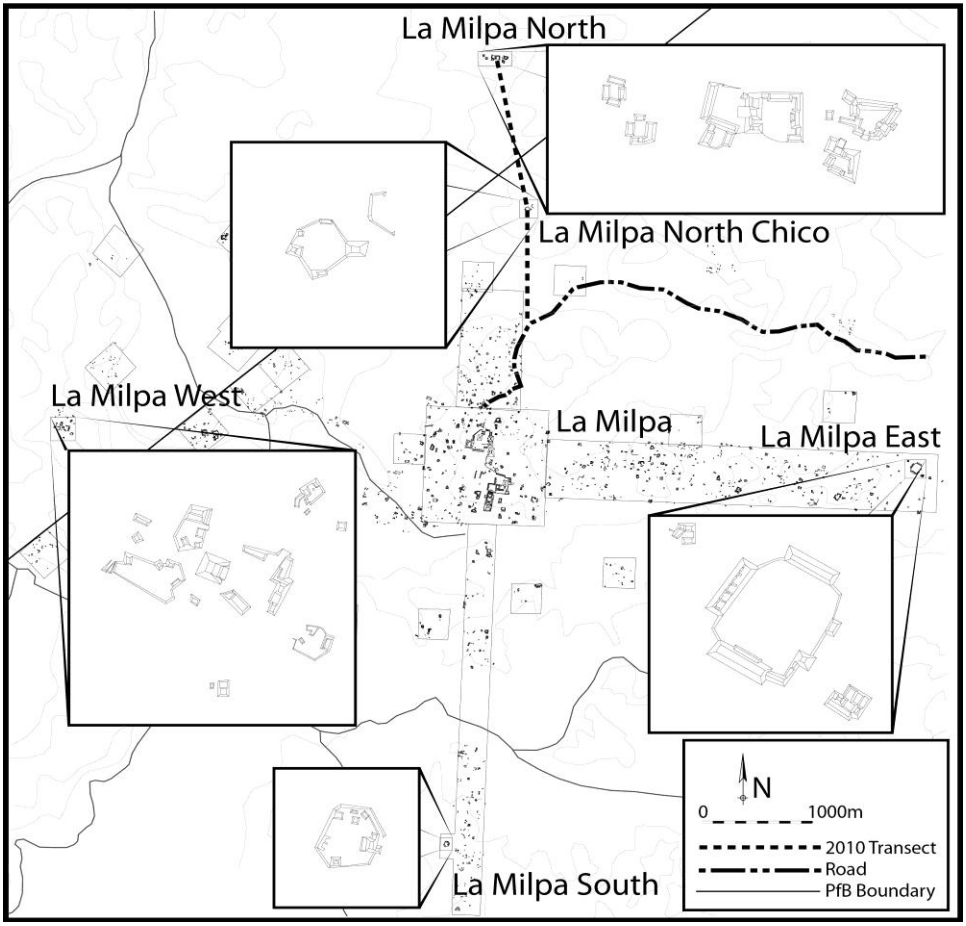

Figure 1. A map displaying the entirety of the La Milpa cosmogram as proposed. In addition, the course of the 2010 La Milpa North Project transect is shown, and the site of La Milpa North Chico is also displayed. The five sites are shown to scale of one another. This image was adapted from the GIS data compiled by Francisco Estrada-Belli, available at www.bu.edu/lamilpa.

Political economic approaches attempt to understand the relations of production, practices of consumption, strategies of accumulation, and ideologies, that together function to create conditions that contribute to the establishment and continuation of

differential relations of economic and political power (Hirth 1996). Building upon this, a ritual economy perspective recognizes that economic practices are often ritualized, ritual practices have economic components, and that both economic and ritual activities communicate and constitute worldviews (McAnany and Wells 2008; Wells and Davis-Salazar 2007). Political and ritual economic approaches will enable this project to undertake an exploration of the material remains of economic and ideological activities with the understanding that, for the ancient Maya, these concerns were dialectically engaged, mutually constitutive, and fundamentally integrated (e.g. Freidel, Reese-Taylor, and Mora-Martin 2002; Hendon 2000, 2010; Hruby 2007).

Practice theory considers the locus of social and cultural reproduction and alteration to be embedded in praxis, the materially and psychologically transformative acts of agency within structure and processes of structuration (Bourdieu 1977; Pauketat 2001). From this perspective, agendas, systems of belief, and preexisting social and material circumstances structure and inform the actions of individuals, which in turn, reproduce and modify social structure and the conditions of future endeavors (Giddens 1984; Silliman 2001). Because many of the actions that reproduce and modify the conditions for future actions have material consequences, practice theory has the power to bridge the materiality of the archaeological record to the lived experiences of ancient peoples that produced objects, identities, social relations, communities, and meanings (Pauketat 2001; Pauketat and Alt 2005). This framework will provide this project with a powerful interpretive standpoint because preliminary evidence suggests that La Milpa North may have been utilized as a place for the manufacture of both utilitarian and status objects (Heller 2011) as well as a possible cosmologically and ritually significant location (e.g. Hammond and Tourtellot 2003; Tourtellot et al. 2003; Tourtellot et al. 2002). Because a practice theory approach recognizes the capacity of quotidian, periodic, and singular activities in the construction, reproduction, and transformation of socially shared identities, meanings, and senses of place, it will facilitate an understanding of La Milpa North as a multivalent locality through its attention to spatial and material aspects of production, occupation, and ritual practice.

This project will also utilize an array of social landscape approaches. The value of these approaches for this project is in their express recognition that culture, ideation, and socioeconomic relations structure human interactions with landscapes, and through repetitive and often ritualized engagement with the landscape, human beings create, express, reproduce and modify economic conditions, belief systems, and community identities (Crumley 1999; Pauketat and Meskell 2010). In addition, most spatial and landscape approaches also recognize that spaces and landscapes are the results of recursive processes of production, a transformative practice that reproduces and modifies the conditions for future production from antecedent physical and conceptual aspects of place (Lefebvre 1991). This concept renders space as a fluid and dynamic arena for human activity that is simultaneously remade by human action (Knapp and Ashmore 1999; Robin and Rothschild 2002) that is imbued with social and political concerns

generated from the sociocultural contexts of its creators (Bender 2002), and reflective of the accumulated "decisions and dispositions" of its producers (Ashmore 2002). Spatial and landscape analysis also recognizes the power of space to structure action, serve as a mode of communication, and convey an array of possible appropriate choices (Rapoport 1982). Understanding La Milpa North as a produced space will allow the materiality of the architecture and assemblages of this site to be connected to symbolic and cognitive aspects of space by acknowledging that this place was created, inhabited, and modified by people who were simultaneously products and producers of their social, cultural, and physical environments.

Political and ritual economic theory, practice theory and social landscape approaches will enable an understanding of how diverse ancient Maya peoples may have used and conceptualized La Milpa North. Given the potential value of the syncretic use of these theoretical approaches to connect the materiality of this site to interpretative frameworks, the methods of this project are oriented to generate data related to the production and reproduction of material objects, space, ideology, identity, and social relations. As a biography of place is the ultimate goal of this project, a difficult task given limited time and resources, ideally the methods employed by this project should produce data lend themselves to a diachronic and holistic analysis. Therefore, this project has employs a diverse array of methods designed to capture a broad spectrum of data. These include survey, mapping, surface collection, and multiple excavation strategies. To date, two field seasons of survey and excavation have been conducted at La Milpa North (for a discussion of the findings of the 2010 season see, Heller 2011). In the next section, the findings of the 2011 field season are reviewed.

THE 2011 FIELD SEASON OF SURVEY AND EXCAVATION

Chronology and Architectural History of the Core Architecture

Among the primary goals of this project is the establishment of a firm site wide chronology. To this end, a series of test pits were opened in the 2010 and 2011 field seasons. The objective of Operation 1 is to establish basic chronology, stratigraphy, and phases of construction in the courtyards and adjacent to the structures of the site. In the first phase of Operation 1, completed in the 2010 field season, four 1 x 1 m test pits, (Suboperations 1-A, 1-B, 1-C, 1-D) aligned to magnetic north, were excavated to bedrock (Figure 2). In the 2011 field season, five additional test pits were excavated to bedrock. Four of these (Suboperations 1-E, 1-F, 1-G, 1-H) were placed in courtyards and plazuelas around the site, while one was placed adjacent to a structure to the northwest of the core architecture of LMN (Suboperation 1-I). Tentative interpretations of the data generated by these test pits are summarized below.

Thus far, the results of Operation 1 suggest that the core structures of La Milpa North were constructed in a single phase in the Late Classic period, as Dr. Lauren Sullivan PfBAP project ceramicist, dated all ceramic materials from these units date to the Tepeu 2 and Tepeu 3 periods and no test pit revealed more than a single floor. Although these

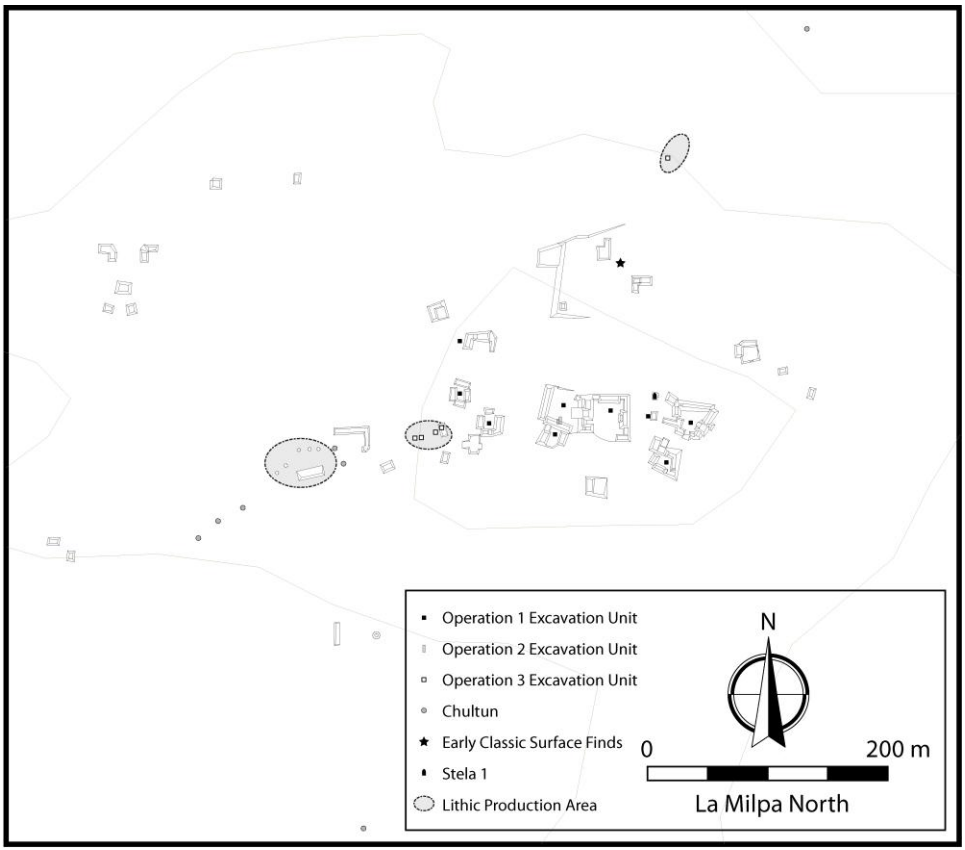

Figure 2. The tape and compass map of La Milpa North as of July 2011. The central structures and topographic lines were adapted from map produced by Tourtellot et al. and compiled by Francisco Estra-Belli, available at www.bu.edu/lamilpa.

data are too few and too coarse to move beyond speculative inferences, for the time being it appears that all tested courtyards were constructed and occupied coevally, which suggests, albeit tentatively, a similar occupation profile for the core architecture. Given the large size of the core architecture, and the amount by which the courtyard surfaces were raised in some cases, the construction of these buildings may represent a significant investment of labor and materials in a single construction episode. Furthermore, this finding supports Tourtellot et al.'s (2003) interpretation of La Milpa North as a Late Classic elite residence in palatial form. Takeshi Inomata and Daniela Triadan (2003) encourage scholars to problematize their use of the terms elite, elite residence, and palace, on the basis that these terms are self-referential and self-constituting, and often what may appear to be an elite residence could merely be the product of accumulated construction over time. Given the lack of evidence for multiple construction phases at Str. 1, Str. 2, Str.

3, Str. 4, and Str. 5, and the size of these structures, it seems likely that the individuals who commissioned and occupied these structures commanded social standing, labor, and resources that was above and beyond most Maya peoples of the Late Classic. Therefore, I believe that the term elite can be applied to at least some of those individuals who occupied La Milpa North. In addition, the scale and elaborateness of the architecture relative to that encountered in proximity to La Milpa North and on the survey transects likewise suggest that the term palace is not misapplied in this case (see Inomata and Triadan 2003:165; Tourtellot, Wolf, Estrada-Belli, Rose, and Hammond 2000). It is important to note however, that an elite residence in palatial form does not necessarily imply a royal residence. It is possible that the hinterland elites of La Milpa North did not maintain close relations with the ruling lineage of La Milpa and may have operated with a degree of independence from this nearby regional polity.

Evidence for Lithic and Sumptuary Goods Production

In addition, Operation 1 produced preliminary evidence for craft production at La Milpa North. Suboperations 1-A and 1-G revealed that the fill of Str. 1 and Str. 4 was composed of not only the limestone cobbles that are common fill materials in all courtyard units, but also a few chert nodules that had some cortex removed as well as broken bifacially flaked stones, lithic debitage, some microliths, fire cracked chert, and burned limestone that may be the result of fire treating chert.

Additional evidence for lithic production activities was located via pedestrian survey over the course of the 2011 field season. Pedestrian survey located three areas where dense scatterings of lithic debitage, broken bifaces, cores, and flake-scarred chert nodules to the west and north of the core architecture could be observed on the surface (Figure 2). Given the great abundance of chert material and the presence of chert veins observable in exposed bedrock outcroppings on the southern slope of the La Milpa North hill, it is likely that quarrying activities as well as multiple other stages of lithic production occurred at this site (see Rose 2000:107). To the west, two areas were of particular interest. The first is an exposed bedrock outcropping on which a dense scatter of debitage was observed. Under Operation 3, four units (Suboperations 3-A, 3-B, 3-C, and 3-D) were excavated to bedrock in proximity to this surface find to gather additional evidence of lithic production in this area. Under the specialized methods of Operation 3, the matrix of these four units were screened through a 1 mm hand screen, and a full 50% of the matrix of Suboperation 3-C was collected for flotation in order to recover a sample microdebitage materials that may have been missed by a 1 mm screen. Suboperation 3-A did contain a large quantity of lithic materials, including microliths (debitage of a size equal to or less than 3 mm) on the top layers. In lower layers of Suboperation 3-A however, it became clear that this area was in fact a structural platform and not the unmodified space it was assumed to be. Down slope and to the west of this structure, Suboperations 3-B, 3-C, and 3-D revealed additional evidence of lithic production, including incredibly dense concentrations of debitage, microdebitage, several biface preforms, and a few flake tools. Although the analysis of these materials is ongoing, it is

tentatively inferred that lithic production did occur at a level beyond household needs on or near to the platform revealed by Suboperation 3-A and debitage may have either eroded out or was swept down slope by the ancient Maya.

Further to the west, a second platform that contained evidence of lithic production was located via pedestrian survey. This long narrow platform had two distinct mounds of rough chert nodules on the eastern and western sides, many of which appear to have been tested or prepared for further reduction in the lithic production process, though many on the surface were heavily damaged by fire, thereby making any firm interpretations untenable until excavation can recover materials that are unaffected by modern burning episodes. Adjacent to this platform to the north and northwest, four distinct mounds of lithic materials were located. Although formal excavation is required in this area to support this inference, it seems likely that raw materials were brought to this area for initial processing. After initial processing in this area, it is possible that prepared cores were subsequently brought to other areas around the site, such as the previously mentioned platform to the east of this area, for further reduction into finished tools.

Finally, pedestrian survey efforts located an additional platform to the north of the core architecture that had an abundance of debitage, many distal ends of broken bifaces, and a few unfinished tools visible on the surface. Suboperation 3-E, a 1 x 1 m unit, was placed on this platform and revealed a dense layer of lithic materials directly on the surface of this structure. Although the analysis of these lithic materials will resume in the 2012 field season, the composition of these materials, as observed during excavation and surface collection, lends itself to the inference that both initial production of tools as well as the modification or resharpening of existing tools occurred here, as many of the recovered tool-like objects were the distal ends of bifaces similar to those known to have been employed in agricultural production. It is possible that many of the people who performed agricultural labor on the margins of the adjacent Dumbbell Bajo may have brought their broken tools to this location for retouching or repurposing.

These survey and excavation activities have produced preliminary evidence that may suggest that the entire cycle of lithic production occurred in various areas adjacent to the core architecture of La Milpa North. Evidence of quarrying is present from the somewhat stepped appearance of the southern slope and exposed veins of chert within the limestone in this area, evidence of preprocessing and final stage production is present to the west of La Milpa North, and evidence of retouching and repurposing of stone tools is present to the north of the site core. With additional excavation, this evidence may produce a relatively complete picture of the spatial distribution of the entire lithic production process as it occurred at La Milpa North, a process that may have produced much of the social and material capital necessary to build the palatial architecture of the site core and erect Stela 1. In addition to lithic production, there is evidence of other productive activities at La Milpa North. For instance, evidence of the production of sumptuary goods was revealed by Suboperation 1-D, where several special finds were recovered, including

a low concentration of lithic debitage, marine shell, obsidian blade fragments, a hematite object, and pebbles of raw red and yellow ochre. It is possible that these materials may have been used in the production of dyes, paints (pers. comm. Fred Valdez, Jr. 2010), or other products required in the end-stage production of high-status goods intended for elite consumption or ritual use. A synthesis of lithic and non-lithic production data with other markers of status (e.g. proximity to the palace and material cultural markers of wealth and privilege recovered from architectural excavation) may generate information directly pertaining to the political economy and social organization of production at this site.

Architectural Excavation

The initial stages of Operation 2, an excavation operation designed to explore the architecture of La Milpa North, were also commenced in the second half of the 2011 field season with Suboperations 2-A, 2-B, 2-C, and 2-D. These four units focused on the midpoint of the southern structure in the west plaza of Str. 3. Supoperation 2-A, a 1 x 3 m trench approaching the structure mound, began by excavating the northern 1 x 1 m third to bedrock. In this portion of the unit, a highly eroded plaster floor was encountered in the unit profile, which was then followed toward the structure to the south. When the architecture of this structure was encountered, additional 1 x 2 m units were opened adjacent to Suboperation 1-A to the west, south and southwest in order to follow architectural elements. In concert, these units removed a large amount of tumble that overlay architecture in surprisingly good condition. The large quantity of tumble suggests that in antiquity this structure likely had a superstructure of limestone blocks. In addition, a well-preserved block resembling a corbel vaulting stone was located in the tumble layer of Suboperation 2-A. Other possible vaulting stones of similar size and shape were located on the surface of the center portion of Str. 3. From the surface shape of the southern arm of the western portion of Str. 3, which has three distinct mounds on its highest level, it seems possible that this wing of the structure once had three rooms, corbel vaulted architecture and masonry walls. Excavation of these suboperations was interrupted by the termination of the 2011 field season and will be resumed immediately in the 2012 field season. In the 2012 field season, work on Operation 2 will focus on the southern and center arms of Str. 3 to more precisely determine the form of this structure and facilitate inferences into its possible functions. In addition, portions of the final phase of construction will be removed to seek evidence of earlier period structures to generate data relating to the architectural and occupation history of this portion of the site.

Excavation of Stela 1

Largely completed during the 2011 field season was also Operation 5, an operation designed to explore a possible limestone stela located during the 2010 field season. Suboperation 5-A, a 3 x 2 m excavation unit oriented to magnetic north, was placed directly over the possible monument, excavated, and plan mapped (Figure 3). Over the course of the suboperation, it was determined that the feature is a broken and fallen stela. Excavations located the base of the stela and it was possible to determine that the stela was placed directly into a form fit cut in the limestone bedrock. No indications of any

modifications to the surface of the bedrock were evident. It is likely that in antiquity, the topsoil around the stela was removed and the bedrock was left exposed, creating a large area of visible limestone in which the monument was directly placed. This method of placement may have evoked aspects of a Mesoamerican ontology, shared by the ancient Maya, that ascribed special significance to the materiality of stone monuments (Stuart 2010) and linked stelae to other stone objects such as jade celts (Porter 1996) and flint tools (Taube, 2005). The association between stelae and flint tools is of particular interest in this case, as the production of these objects was likely essential to the political economy of La Milpa North. Perhaps the limestone stela was carved into a form intended to evoke the chert bifaces that were likely produced in quantity on the periphery of the site. The stela's placement into exposed bedrock may have symbolically echoed the act of penetrating this bedrock with such a tool, an activity that likely occurred frequently on the periphery of this site as chert resources were quarried and exploited. In addition, the presence of this monument may suggest a ritually engineered connection (see Houk and Zaro 2011) between this site and others of the proposed La Milpa cosmogram that also have a single plain stela, such as La Milpa South and La Milpa East (see Hammond 2001; Hammond and Tourtellot 1999). In the 2012 field seasons, excavations will continue at the base of the stela to search for any potential caches or other evidence that may aid an interpretation of the potential significances of this stela and its method of placement.

Interpretive Structure Mapping

Over the course of the second half of the 2011 field season David Sandrock and Eric Novelo led an effort to map as many of the structures on and around the hilltop on which La Milpa North's core architecture is located (Figure 2). Aided by recent land clearances by the landowner and relatively low vegetation, every identifiable structure and other features within a nearly 600 x 600 m block was tape and compassed mapped. The location of each structure was noted by the use of a handheld GPS with accuracy to approximately 6 m. The resulting digital GIS map will enable a more detailed analysis and understanding of the landscape of this site during its final phase of occupation in the Late Classic period. Unfortunately, modern land clearance practices have damaged the great majority of smaller structures in this area, and while evidence of settlement is abundant throughout this site, only the largest and most bulldozer resistant structures remain in an identifiable form, resulting in a bias towards larger architecture in the settlement data generated by these mapping efforts. This portion of this project will continue in subsequent field seasons in order to expand the survey area to a full square kilometer centered on the apex of the La Milpa North hill. In addition, much of this area will be digitally topographically mapped with a total station in order to more accurately position the interpretive tape and compass maps in space as well as capture the elevation and intervisibility data that is essential to the modern landscape analysis that will be employed by this project.

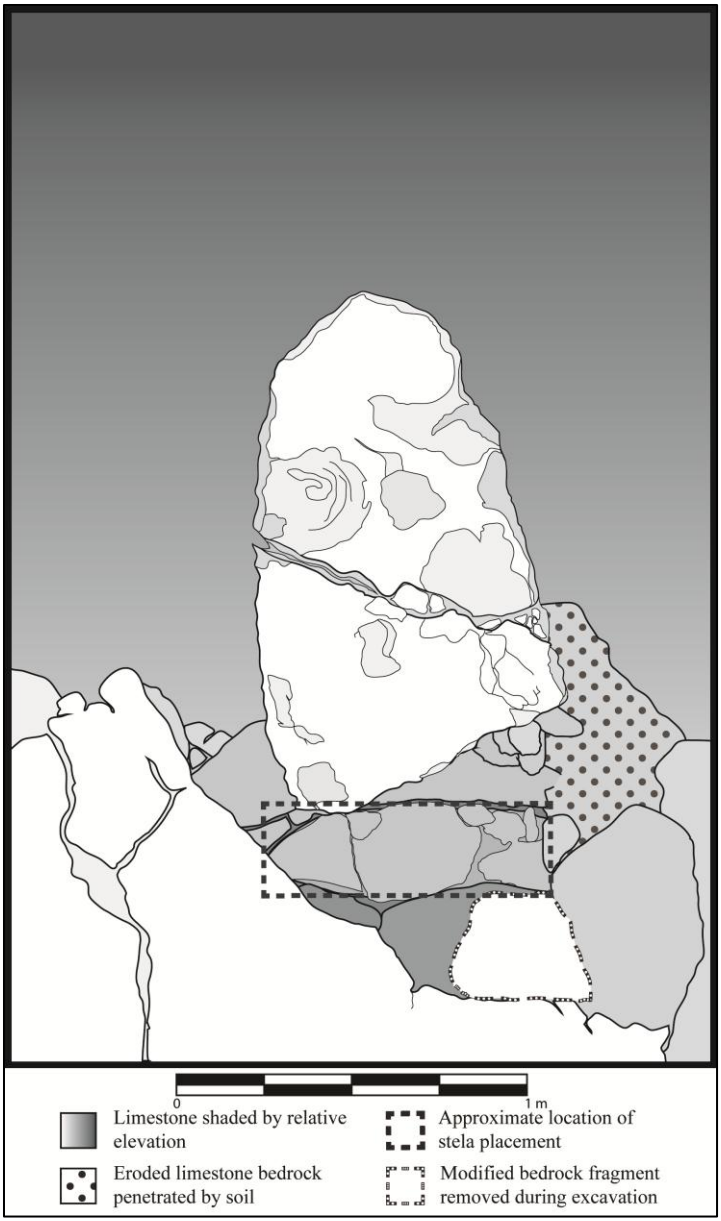

Figure 3. Plan Map of Suboperation 5-A showing detailed view of Stela 1 and its placement into a slotted bedrock surface. Adapted from plan map by Jessica Barnett, Eric Heller, Julie Perez, Cory Stevenson, and Michael Maddox.

Surface Collections

Finally, in 2011 a surface collection operation was commenced under Operation 6. Operation 6 is an expedient surface collection strategy designed to recover, preserve, and analyze diagnostic finds observed during pedestrian survey and mapping operations. Over the course of the 2011 fields season, materials were collected in 14 locations. These included samples from areas of potential lithic production sites, dense scatterings of ceramic materials, and other special finds. Notably, this operation recovered a pink granite metate with pyrite inclusions from the surface of a structure directly north of Str. 5 that may enable a discussion of connections between La Milpa North's residents and elsewhere if the granite can be sourced. Also, the materiality of this metate may be important as the material is more rare and of a higher aesthetic quality than necessary to process maize and other foodstuffs. Given an ancient Maya ontological system that may connect sparkling, shining, and reflective stones to sacred forces (Stuart 2010), the materiality of this *metate* may suggest a ritual function or a marker of status for the household from which this object was recovered. In addition, Suboperation 6-O-1 recovered a variety of diagnostic ceramic sherds that were densely packed into the root system of recently felled tree on the platform to the north of Str. 3 (Figure 2). These materials date to the Early Classic period, which provides the earliest known period of occupation of this hilltop and speaks to the long history of occupation in this area. This area will be explored with a series of Operation 1 test pits in the 2012 field season. Operation 6 surface collections will be ongoing in upcoming field seasons and will likely continue to provide critical information that contributes to this project's understanding of this site.

FINAL THOUGHTS AND DISCUSSIONS

Given the results of the 2010 and 2011 field seasons, it is likely that further survey and excavation will produce evidence that will facilitate a discussion of La Milpa North's possible cosmological significance, political and ritual economic aspects, strategic uses of architecture, and connections to wider social and political processes of transformation on a local, regional, and interregional scale. Although additional field research and laboratory analysis is required to solidify and refine any inferences that can be made based on the data established thus far, it is possible to speculate about aspects of this site at this time.

Based on the evidence thus far, it is likely that La Milpa North has an occupation history profile that is not dissimilar from that discussed by Julie Kunen's (2004) study of hilltop settlements adjacent to the nearby Far West Bajo. In this model, hilltops adjacent to bajo margins in the Three Rivers Region are settled in the Late Preclassic and Early Classic periods. These areas served as particularly productive agricultural spaces and provided access to a diverse array of perennial swampland resources. This new agricultural strategy proved to be quite successful and enabled these localities to sustain a pattern of significant economic and demographic growth over time, as observed through an increasing number of residences and progressively more elaborate architecture at these

hilltop settlements over time (Kunen 2004:56). La Milpa North's long history of occupation and increasingly elaborate architecture of both the site core and surrounding areas may articulate well with this model. It is likely that the sites of Bajo Hill and others excavated by Kunen (2004), will provide an excellent resource for a comparative analysis with La Milpa North.

In addition, although the scale of lithic production at La Milpa North remains to be determined evidence gathered thus far suggests that this site may have been instrumental in providing finished stone tools to specialized bajo margin agricultural communities that may have lacked access to chert resources and the specialized knowledge required to produce stone tools. This relationship may be similar, in form but certainly not scale, of the exchange pattern identified by Patricia McAnany (1986) between the bajo margin communities of Pulltrouser Swamp and the large-scale lithic producing center of Colha. In this model, increasingly specialized communities rely on short-distance interpolity exchange to gain access to a portion of the resources needed for the reproduction of those communities. In these cases, finished lithic tools may have been exchanged for agricultural products, labor, and other goods in market and non-market modes of exchange. This interpolity exchange pattern also meshes well Scarborough Valdez' (2003) notion of resource specialized communities in the Three Rivers Region in that it suggests an increasing level of interdependence among communities that largely specialize in the production in a small number of resources over time. Perhaps the growing dependency on La Milpa North's access to chert resources and its resident's specialized skill sets enabled this resource specialized community to gather and expend the material and social capital needed initiate the palatial construction that marked this site's apparent architectural florescence in the Late Classic period and empowered its residence to materialize their escalating socioeconomic difference through architecture (see McAnany 2010:184).

In the 2012 season, the efforts began in the 2010 and 2011 field seasons will be continued in an effort to supply the broad spectrum of data required by a biography of place approach. The priority for the upcoming season is the development of additional evidence of production and the analysis of current collections in order to evaluate the tentative interpretations outlined in this informé. This will be done with specific attention to the spatialization of productive activities and their linkages to markers of social standing and political power, the potential for escalating local and regional relationships of exchange and resource dependency that has been identified by many other scholars working in this region (e.g. Hyde 2011; Kunen 2004; McAnany 1986; Scarborough and Valdez 2003), and the relationships of these trends to broader movements in a dynamic regional and interregional political economies.

It is my hope that this project will articulate with ongoing discussions in Mesoamerican archaeology by producing evidence and interpretations that may reinforce or modify current understandings of the role of elite labor in ancient Maya political economies as well as the social, political and spatial dimensions of ritual economic and productive

activities. Furthermore, this project has the potential to elucidate strategies employed by hinterland elites in the construction of palatial architecture on the periphery of urban polities, including resource management, population surveillance and control, and the legitimization of structural differences in social, economic and political power outside of major regional centers. Moreover, attention to strategies imbedded in the architecture of La Milpa North, particularly if Hammond, Tourtellot and other's cosmogram hypothesis can be validated, may reveal an effort to delimit and define the boundaries of a community, thereby providing a rare glimpse into ancient Maya constructions of community identity rooted in arbitrary geographic and political divisions of the landscape (see Taube 2003).

As previously discussed, political and ritual economy theory, practice theory, and spatial and landscape approaches, will be employed to contextualize and interpret these data as well as those that will be gathered in future field seasons. I believe the value of this project rests in its syncretic use of multiple established and emergent theoretical paradigms, which are united by the concept of production, a materially grounded generative source of social change, and the biography of place approach, an integrative, multifaceted and diachronic narrative of human inhabitation within dynamic social contexts. The integration of multiple theoretical models, archaeological research methods, and analytical procedures will produce new understandings of La Milpa North, including its position within political, economic, and ideological spheres, and the diversity of the complex symbolically meaningful relationships that myriad ancient Maya individuals developed and maintained with this singular space on a dynamic cultural landscape.

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REFERENCES CITED

Ashmore, Wendy

2002 Decisions and Dispositions: Socializing Spatial Archaeology. *American Anthropologist* 104(4):1172-1183.

2007 Settlement Archaeology at Quiriguá, Guatemala. Quiriguá Reports IV. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

2009 Biographies of Place at Quirigua, Guatemala. In *The Archaeology of Meaningful Places*, edited Brenda J. Bowser and Maria. Nieves Zedeño, pp. 15-31. University of Utah Press, Salt Lake City.

Bender, Barbara

2002 Time and Landscape. *Current Anthropology* 43 (No. S4):S103-S112.

Bourdieu, Pierre

1977 *Outline of a Theory of Practice*. Cambridge University Press.

Bradley, Richard

1987 Time Regained: The Creation of Continuity. *Journal of the British Archaeological Association* 140:1-17.

Crumley, Carole

1999 Sacred Landscapes: Constructed and Conceptualized. In *Archaeologies of Landscape: Contemporary Perspectives*, edited by Wendy Ashmore and A. Bernard Knapp, pp. 269-276. Blackwell Publishers, Malden, Massachusetts.

Freidel, David A., Kathryn Reese-Taylor, and David Mora-Martin

2002 The Origins of Maya Civilization: The Old Shell Game, Commodity, Treasure, and Kingship. In *Ancient Maya Political Economies*, edited by Marilyn A. Masson and David A. Freidel, pp. 41-86. Alta Mira Press, Walnut Creek, CA.

Giddens, A
1984 *The Constitution of Society: Outline of the Theory of Structuration*. University of California Press, Berkley.

Hammond, Norman
2001 A New Maya Stela from La Milpa, Belize. *Antiquity* 75:267-268.

Hammond, Norman and Gair Tourtellot III
1999 Shifting Axes: Spatial Expressions of Power at La Milpa. Paper presented at the 64th Annual Meeting, Society for American Archaeology, Chicago, IL.
2003 Viewsheds and Watersheds: Topography and Cosmology in the Planning of the Classic Maya Cityscape of La Milpa, Belize. In *Reconstruyendo La Ciudad Maya: Espacios Mayas: Usos, Representaciones, Creencias*, edited by Alain Bretón, Aurore Monod-Becquelin, Mario Humberto Ruz, pp. 93-110. Sociedad Espannola de Estudios Mayas, Madrid.

Heller, Eric J.
2011 The 2010 Season of Survey and Excavation at La Milpa North, Belize. In *Research Reports from the Programme for Belize Archaeological Project, Volume Five*, edited Brett A. Houk and Fred Valdez, Jr., pp. 109-122. Occasional Papers, Number 12. Mesoamerican Archaeological Research Center, The University of Texas at Austin.

Hendon, Julia A.
2000 Having and Holding: Storage, Memory, Knowledge, and Social Relations. *American Anthropologist* 102(2):42-53.
2010 *Houses in a Landscape: Memory and Everyday Life in Mesoamerica*. Duke University Press.

Hirth, Kenneth G.
1996 Political Economy and Archaeology: Perspectives on Exchange and Production. *Journal of Archaeological Research* 4(3):203-239.

Houk, Brett A. and Gregory Zaro
2011 Evidence for Ritual Engineering in the Late/Terminal Classic Site Plan of La Milpa, Belize. *Latin American Antiquity* 22(2):178-198.

Hruby, Zachary X.
2007 Ritualized Chipped-Stone Production at Piedras Negras, Guatemala. *Archaeological Papers of the American Anthropological Association* 17(1): 68-87.

Hyde, David M.
2011 Power Dynamics at a Commoner Hinterland Community in the Maya Lowlands: The Medicinal Trail Site, Northwestern Belize. Unpublished Ph.D. Dissertation, Department of Anthropology, The University of Texas Austin.

Inomata, Takeshi and Daniela Triadan,
2003 Where Did Elites Live? Identifying Elite Residences at Aguateca, Guatemala. In *Maya Palaces and Elite Residences: An Interdisciplinary Approach*, edited Jessica. Joyce Christie, pp. 154-183. University of Texas Press, Austin.

Knapp, A. Bernard and Wendy Ashmore
1999 Archaeological Landscapes: Constructed, Conceptualized, Ideational. In *Archaeologies of Landscape: Contemporary Perspectives*, edited by Wedny Ashmore and A. Bernard Knapp, pp. 1-30. Blackwell Publishers, Malden, Massachusetts.

Kunen, Julie L.
2004 *Ancient Maya Life in the Far West Bajo: Social and Environemental Change in the Wetlands of Belize*. University of Arizona Press, Tucson.

Lefebvre, Henri
1991 *The Production of Space*. Translated by Donald Nicholson-Smith. Wiley-Blackwell, Oxford.

McAnany, Patricia A.
1986 Lithic Technology and Exchange among Wetland Farmers of the Eastern Maya Lowlands. Unpublished Ph.D. Dissertation, Department of Anthropology, University of New Mexico.
2010 *Ancestral Maya Economies in Archaeological Perspective*. Cambridge University Press, New York.

McAnany, Patricia. A. and E. Christian Wells
2008 Toward a Theory of Ritual Economy. In *Dimensions of Ritual Economy*, edited by E. Christian Wells and Patricia A. McAnany, pp. 1-18. Researhc in Economic Anthropology, Volume 27. Emerald Group Publishing.

Pauketat, Timothy R.
2001 Practice and History in Archaeology: An Emerging Paradigm. *Anthropological Theory* 1:73-98.

Pauketat, Timothy R and Susan M. Alt
2005 Agency in a Postmold? Physicality and the Archaeology of Culture-Making. *Journal of Archaeological Method and Theory* 12(3):213-236.

Pauketat, T. R., & Meskell, L.
2010 Changing Theoretical Directions in American Archaeology. In *Voices in American Archaeology*, edited by Wendy Ashmore, Dorothy T. Lippert, and Barbara J. Mills, pp. 193-219. SAA Press, Washington, D.C.

Porter, J. B.
1996 Celtiform Stelae: A New Olmec Sculpture Type and Its Implication for Epigraphers. In *Beyond Indigenous Voices: LAILA/ALILA 11th International Symposium on Latin American Indian Literature (1994)*, edited by Mary H. Preuss, pp. 65-72. Labyrinthos, Lancaster, CA.

Rapoport, Amos
1982 *The Meaning of the Built Environment: A Nonverbal Communication Approach*. Sage Publications, Beverly Hills.

Robin, Cinthia and Nan A. Rothschild
2002 Archaeological Ethnographies: Social Dynamics of Outdoor Space. *Journal of Social Archaeology* 2(2):159-172.

Rose, John J.
2000 A Study of Late Classic Maya Population Growth at La Milpa Belize. Unpublished Ph.D. Dissertation, Department of Anthropology, University of Pittsburgh.

Scarborough, Vernon L. and Fred Valdez,Jr.
2003 The Engineered Environment and Political Economy of the Three Rivers Region. In *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatan* Peninsula, edited Vernon L. Scarborough, Fred Valdez, Jr., and Nicholas Dunning, pp. 3-13. University of Arizona Press, Tuscon.

Silliman, Stephen
2001 Agency, Practical Politics and the Archaeology of Cultural Contact. *Journal of Social Archaeology* 1(2):190-209.

Stuart, David
2010 Shining Stones: Observations on the Ritual Meaning of Early Maya Stelae. In *The Place of Stone Monuments: Context, Use and Meaning in*

Mesoamerica's Preclassic Transition, edited by Julia Guernsey, John E. Clark, and Barbara Arroyo, pp. 283-298. Dumbarton Oaks, Washington D.C.

Taube, Karl
2003 Ancient and Contemporary Maya Conceptions about Field and Forest. In *The Lowland Maya Area: Three Millennia at the Human-Wildland Interface*, edited by A. Gómez-Pompa, Michael F. Allen, Scott L. Fedick & Juan. J. Jiménez-Osornio, pp. 461-492. Ford Products Press, New York.
2005 The Symbolism of Jade in Classic Maya Religion. *Ancient Mesoamerica* 16:23-50.

Tilley, Christopher
1982 Social Formation, Social Structures, and Social Change. In *Symbolic and Structural Archaeology*, edited by Ian Hodder, pp. 26-38. Cambridge University Press.

Tourtellot, Gair, Francisco Estrada Belli, John J. Rose, and Norman Hammond
2003 Late Classic Maya Heterarchy, Hierarchy, and Landscape at La Milpa, Belize. In *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatan Peninsula*, edited by Vernon L. Scarborough, Fred Valdez, Jr., and Nicholas Dunning, pp. 37-51. University of Arizona Press, Tucson.

Tourtellot, Gair, Marc Wolf, Francisco Estrada Belli, John J. Rose, and Norman Hammond
2000 Discovery of Two Predicted Ancient Maya Sites in Belize. *Antiquity* 74:481-482.

Tourtellot, Gair, III, Marc Wolf, Scott Smith, Kristen Gardella, and Norman Hammond
2002 Exploring Heaven on Earth: Testing the Cosmological Model at La Milpa, Belize. *Antiquity* 76:633-634.

Wells, E. Christian and Karla L. Davis-Salazar
2007 Mesoamerican Ritual Economy: Materialization as Ritual and Economic Process. In *Mesoamerican Ritual Economy: Archaeological and Ethnological Perspectives*, edited by E. Christian Wells and Karla. L. Davis-Salazar, pp. 1-26. University Press of Colorado, Boulder.

PHASE 2 RESEARCH AT WARI CAMP (RB-56): SUMMER 2011

Laura Levi, The University of Texas at San Antonio

RESEARCH LOCATION

Wari Camp is situated at the top of the Bravo Escarpment, 10.75 kilometers due east of La Milpa and 12.25 kilometers northeast of Dos Hombres (Figure 1; UTM: zone 16 BQ, 19 71 100 [N], 2 92 150 [E]). The prehispanic settlement area extended from seasonally inundated wetlands formed by the Rio Bravo, up a series of steep terraces, across a vast drainage system, toward a flat upland bajo at the top of the Bravo escarpment (Figure 2). The community's central administrative precinct consisted of six functionally distinct plazas with commanding views of the river to the south and the escarpment drainage system to the north. We know that the community had three satellite administrative precincts but anticipate that one or more await discovery in the unexplored western zones of the site. Minimally, satellite precincts consisted of a hilltop plaza housing a monumental temple pyramid on its eastern side. A large, elite residential group often was situated in close proximity to the hilltop plaza.

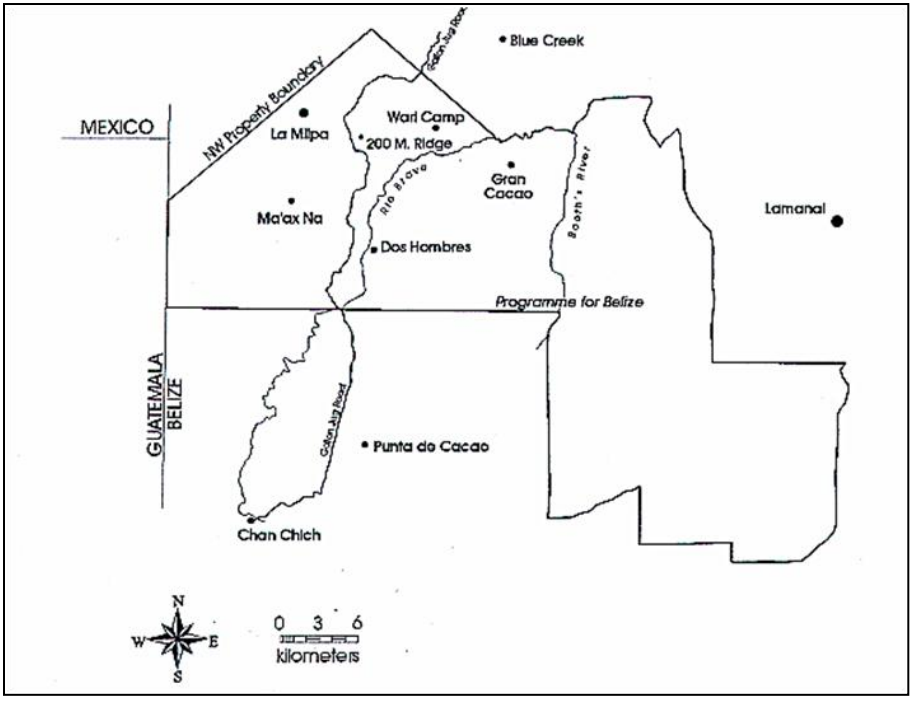

Figure 1. Wari Camp and Surrounding Sites in the PfB Area.

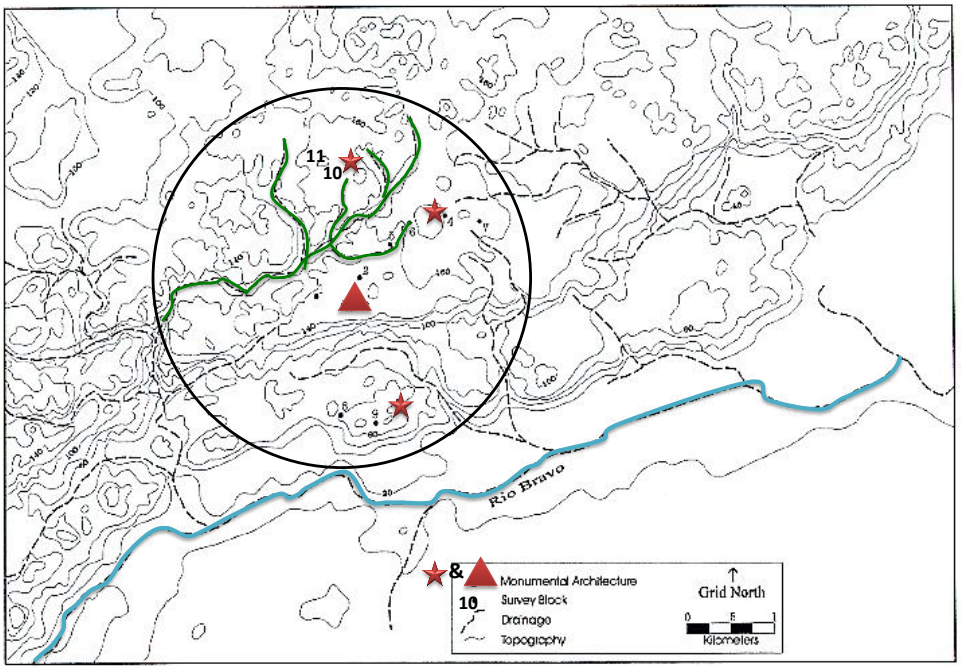

Figure 2. The Wari Camp Settlement Area.

PRIOR RESEARCH

Early work at the site focused on developing an understanding of community structure. Currently, we have evidence to suggest that the community possessed at least three kinds of organizational units: households, neighborhoods, and wards. Each of these units has been identified through an assessment of the spatial distributions characterizing the site's residential architecture.

Since 2008, we have focused attention on Wari Camp's Northern Satellite. We began with a few excavations in the hilltop temple complex, then moved to a systematic survey of the associated residential settlement. Two survey blocks were completely mapped in 2009 and 2010 (Blocks 10 and 11) and they produced some unusual finds that have structured subsequent investigations. Of principal interest was the discovery of four residential groups with five-to-seven meter temples constructed along their eastern perimeters. We also located an isolated stela standing on a hilltop about 325 meters south of the satellite precinct. A small seasonal wetland lay at the northern base of the stela hill while the terminus to an arm of Wari Camp's massive drainage system carved out the stela hill's southeastern side.

THE 2011 FIELD SEASON

By the close of the 2010 field season, we had concluded that: 1) the Northern Satellite was a ritually significant locale; and, 2) Wari Camp's drainage system was not only an important avenue of communication but a processional pathway connecting disparate areas of the settlement along a community-wide ritual circuit.

Fieldwork in 2011 was primarily dedicated to enhancing our understanding of the Northern Satellite. While additional survey and excavations were necessary, one of our major information deficits concerned the nature of activities occurring beyond the confines of residential and administrative architecture. For example, were there gardens, pathways, and public areas where people congregated? What purpose did the wetland area serve? In order to answer these and other questions, we developed and implemented a shovel test strategy that sampled "vacant terrain" in Survey Blocks 10 and 11.

Project Staff

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WORK ACCOMPLISHED

Every survey block at Wari Camp is 250 meters on a side and has stakes that mark out 25 meter intervals. Systematic altimeter readings have been taken for each block allowing for the creation of block contour maps. In addition, every survey block has been subject to a vegetation survey. Every block, therefore, has 121 stakes, each with a vegetational association. To create the shovel test samples for each block, we drew a 25 % random sample of survey block stakes, stratified on the basis of vegetational associations within the block. Thirty-one shovel tests were drawn from each block (N=62). Every shovel test was excavated stratigraphically, as well as by 10 cm arbitrary levels within specific stratigraphic contexts. Soils were screened and all artifacts were collected, washed, and analyzed in the lab. In addition, soil samples were drawn from each shovel test (typically 3 samples per test) and these were analyzed for phosphate content. Soil resistivity testing will be conducted on a subset of these samples.

Figures 3 and 4 illustrate the phosphate results in Blocks 10 and 11 according to contour elevations and the distribution of residential groups. Figures 5 and 6 illustrate Block 10 and 11 phosphate results in relation to vegetational associations and residential groups. We are still in the process of analyzing these results and fine-tuning our databases. However, a few preliminary observations can be made. First, high phosphate readings

occur much less frequently in Survey Block 10 than in Survey Block 11. For both survey blocks, high phosphate readings are typically associated with areas immediately adjacent to residential groups or at the margins of areas where there is a high concentration of residential groups. Cases that deviate from this pattern may represent pathways between groups that were periodically cleaned of organic materials. Alternatively, we may be seeing garden areas where concentrated plant growth depleted soil phosphates at inordinately high rates. The presence and concentration of artifacts will help us to distinguish between swept pathways and garden areas. Disappointingly, we have failed to see a consistent phosphate signature for the wetlands in Block 10. This may be the result of too few shovel tests. Our prospects for developing such a signature must await further data collection.

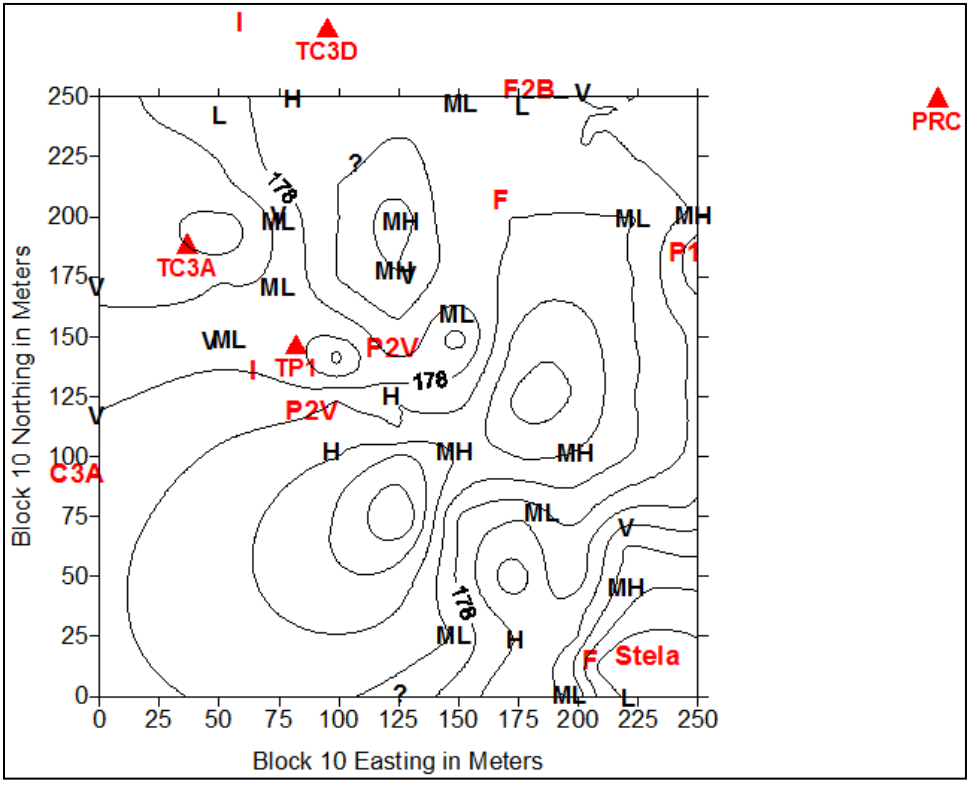

Figure 3. Block 10 Distributions of Phosphate Results and Residential Groups According to Contour Interval. (Architectural Groups are coded in red. Phosphate levels are coded as follows: H = High; MH = Medium High; ML = Medium Low; L = Low; V = Variable readings).

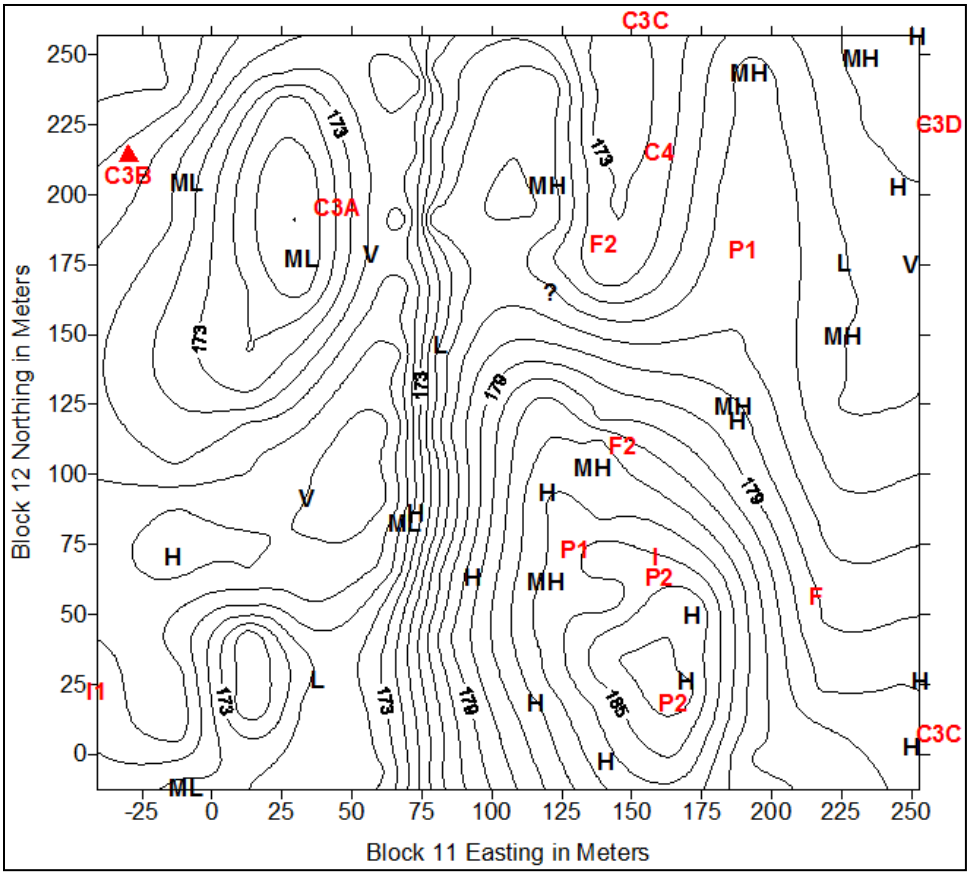

Figure 4. Block 11. Distributions of Phosphate Results and Residential Groups According to Contour Interval. (Architectural Groups are coded in red. Phosphate levels are coded as follows: H = High; MH = Medium High; ML = Medium Low; L = Low; V = Variable readings).

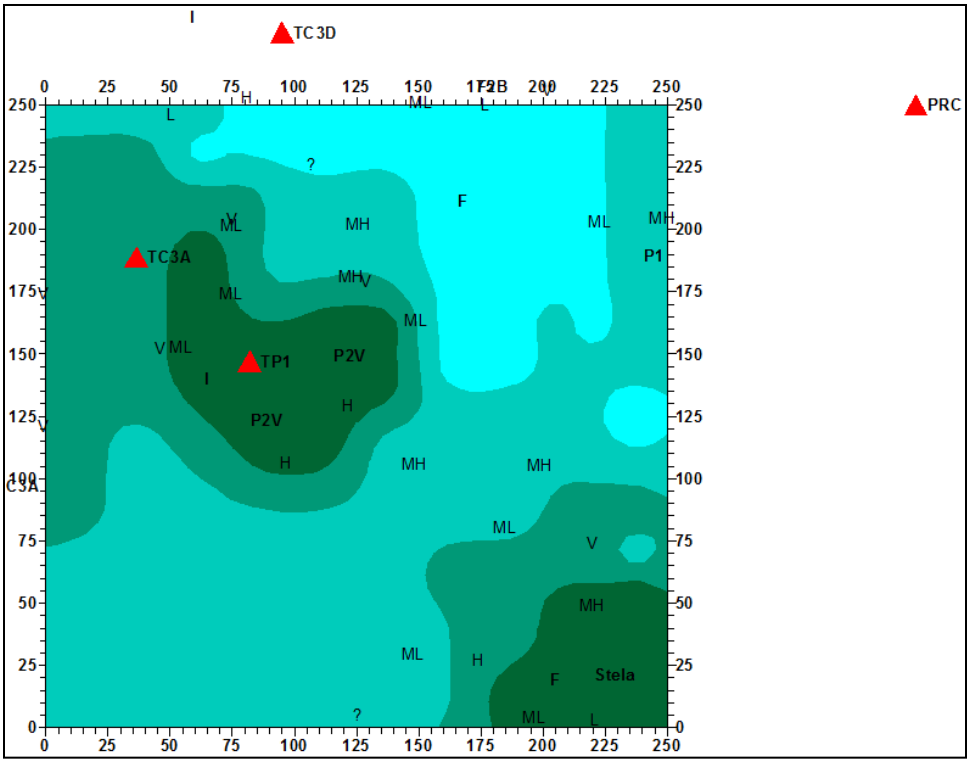

Figure 5. Block 10. Distributions of Phosphate Results and Residential Groups According to Vegetation Association. (Phosphate levels are coded as follows: H = High; MH = Medium High; ML = Medium Low; L = Low; V = Variable readings. Vegetation associations are coded as follows: Dark Green = monte medio; Teal = broken canopy; Light Turquoise = transitional forest; Sky Blue = seasonal wetland).

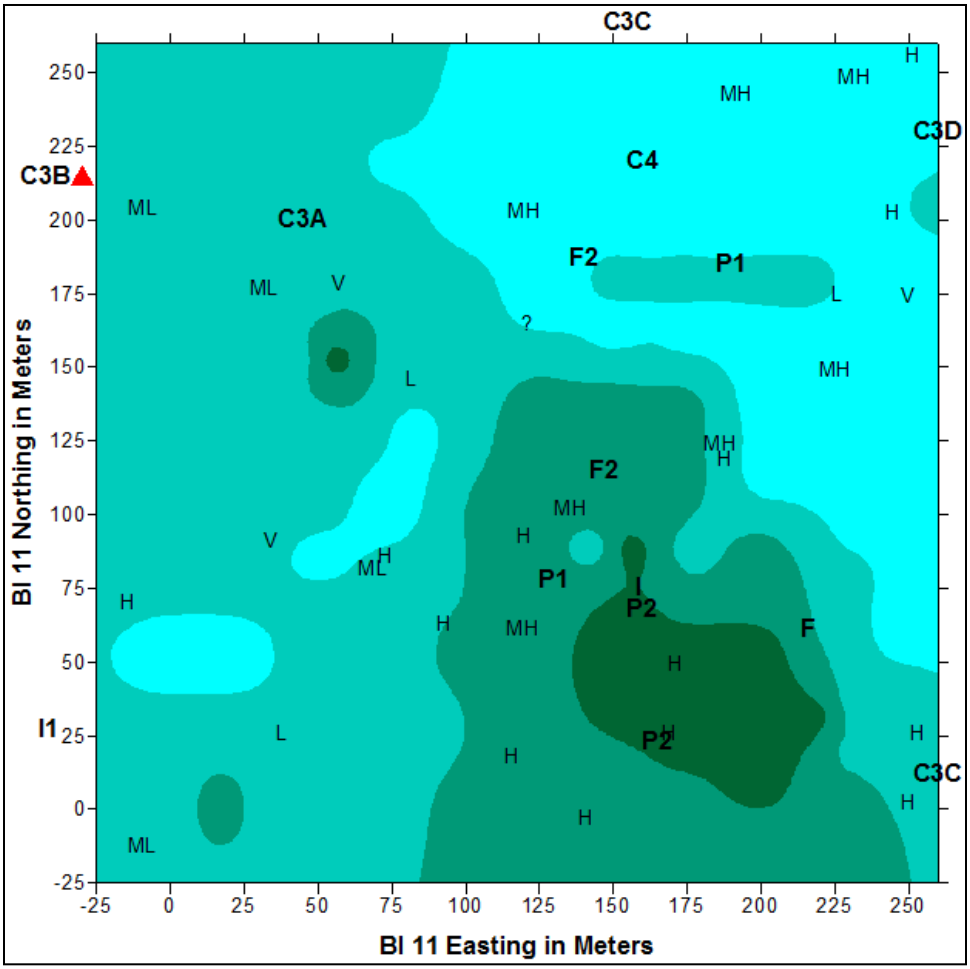

Figure 6. Block 11. Distributions of Phosphate Results and Residential Groups According to Vegetation Association. (Phosphate levels are coded as follows: H = High; MH = Medium High; ML = Medium Low; L = Low; V = Variable readings. Vegetation associations are coded as follows: Dark Green = monte medio; Teal = broken canopy; Light Turquoise = transitional forest; Sky Blue = seasonal wetland).

SUMMARY REPORT OF INVESTIGATIONS AT THE SITE OF DOS HOMBRES: SUMMER 2011

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INTRODUCTION

The 2011 summer season of the Dos Hombres Archaeological Project (DHAP) investigations were focused in the site center of Dos Hombres (Figure 1). The primary objectives of the DHAP in the 2011 were geared towards the overall research agenda to investigate the social, political, and economic organization of Dos Hombres, northwestern Belize. As such, we concentrated on excavations in the northern plaza, Plaza A (Figure 1, "Group A"). Plaza A will continue to be the focus of excavations for the next four-to-six seasons. We continued architectural excavations on Structure A-4, began to excavate a small domestic group just north of Plaza A, continued documenting looters trenches in the three primary plazas at Dos Hombres, and continued instrument mapping.

2010 SITE CENTER FIELDWORK

Four new excavation units were opened in Plaza A, on the exterior architecture of Structure A-4 (Figure 1) and we completed excavating one exposure that was begun in 2010. Excavations of Structure A-4 continued with the central stairway. Instead of width of the outset stairway, this year we focused on the length, following the stairway up to the structure on top of the basal platform. As such, we finished the central exposure in Subop I (2 x 5 m) (Figure 2) and opened Subops O (2 x .25 m) and Q (1 x 5 m) (Figure 3). All three units were excavated only to the surface of the terminal or last construction phase of architecture. The architecture was generally well preserved (Figure 2) and relatively shallow with little collapse debris covering it. The average depth of the architecture was 7-24 cm below the natural surface. The ceramics associated with the exposed architecture date to the Late/Terminal Classic (Tepeu 2-3). An additional excavation unit, Subop H, (1 x 1 m) was also opened in the center of the stairway just below or south of the bottom step.

It is Subop H that warrants further discussion in terms of its location just below the stairway architecture and the resulting exposure. Subop H was a 1 x 1 m unit that was excavated in order to test for potential datable deposits that may have been located below and in the center of the outset stairway of Structure A-4. Two very eroded floors were encountered during the excavation. The first was barely detectable at approximately 60 cm below the surface, but observable as a change in the stratigraphy. The second was noted at approximately 80 cm and detectable only in the southwest portion of the unit. At approximately 122 cm in depth a plaster feature (Figure 4) was encountered in the unit. The feature had a scatter of artifacts on top of it which were documented and collected separately. To the immediate south and east of the feature, a grey area of soil was

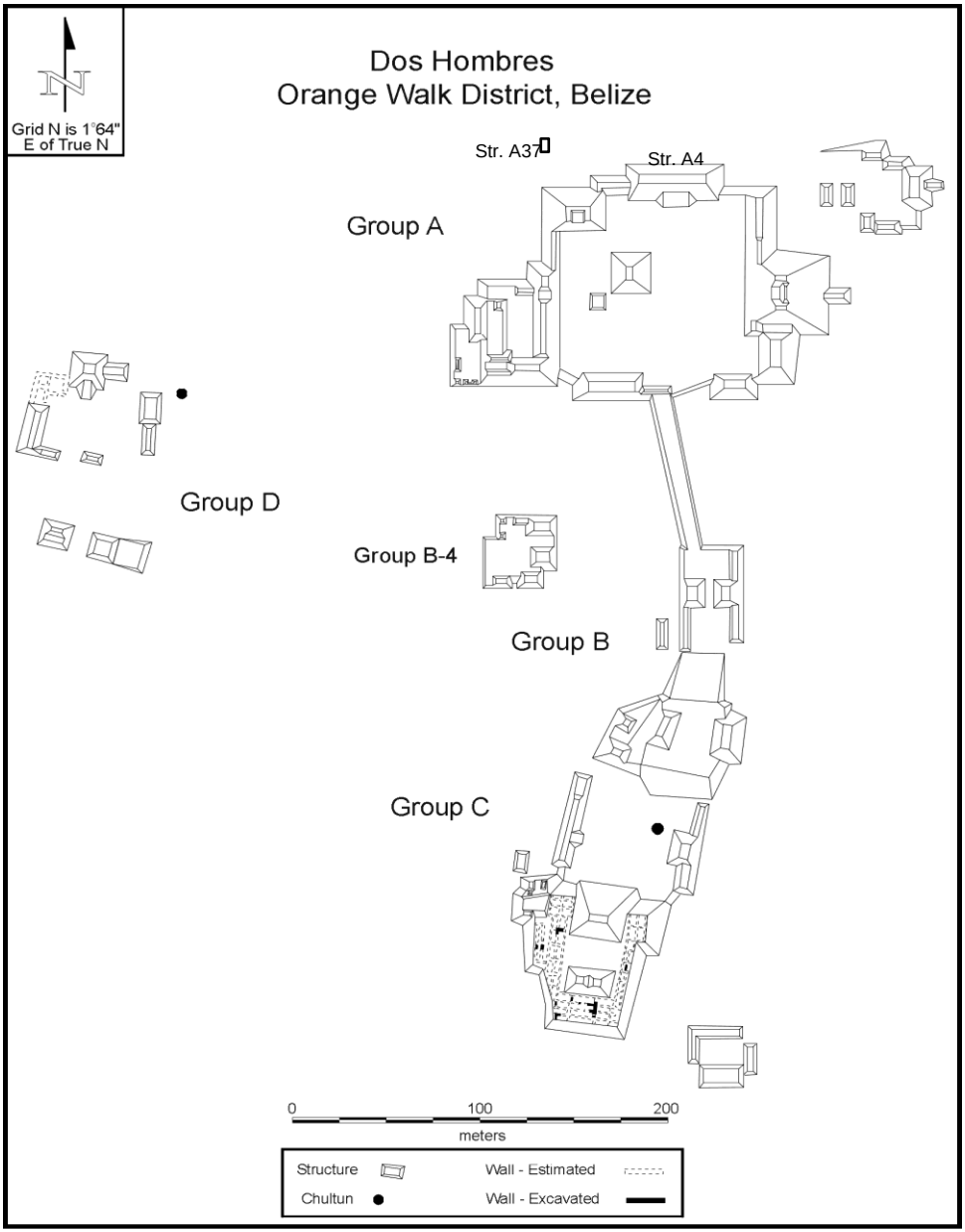

Figure 1: Map of Dos Hombres (after Houk 1996; Lohse 2001; © PfBAP).

Figure 2: Subop I with stairway exposed (photograph by Trachman).

Figure 3: Subop Q with partially preserved stairway exposed (photograph by Trachman).

Figure 4: Subop H with plaster feature exposed and artifacts in situ (photograph by Trachman).

encountered adjacent to the plaster feature. The soil had an ash appearance and inclusions of artifacts. It was late in the field session and there was not sufficient time to expand the 1 x 1 m unit in order to further investigate the deeply buried feature. As such it is impossible to propose an interpretation at the time of this report. The feature will be further investigated during the 2012 summer field season.

Structure A-37 was also investigated during the 2011 season. It is a very small house mound located just outside of Plaza A to the immediate north. It is approximately 40 m north of Plaza A (Figure2). A total of five very shallow excavation units were opened on Structure A-37 in order to assess the cobble architecture and function of this small mound. Preliminary data suggest that this mound, in direct association with Structure A38 adjacent to it, are domestic in function and form a very humble household. Further excavation will be necessary in order to understand the role of this small household as it relates to its context of proximity the very large, open, and public space of Plaza A of Dos Hombres.

We continued the documentation of looter's trenches located in temple mounds at Dos Hombres. Structures A-1, B-8, C-2, and C-3 were documented summer 2011. Two looter's trenches were noted on Structure A-1; however one of these was documented in summer 2010. The remaining looter's trench documented in 2011 was large and the

collapse was extensive, however there obvious architecture to be documented on the north and south profile walls as well as one plaster floor on the west profile wall. These indicate a minimum of three construction events.

Structure B-8 contained one looter's trench on the west side, but had significant collapse. The east profile wall was completely collapsed although some information could be documented from the eastern sections of the north and south profile walls. There was a broken and much eroded stela situated in front of (west) Structure B-8 and within the looter's trench which was also documented.

One looter's trench was located on the north side of Structure C-2 located in the lower section of the basal platform. The eastern profile of the looter's trench revealed a retaining wall as well as other architectural elements. One additional looter's trench was located on the north side of Structure C-3. The eastern profile wall revealed very well preserved cut stone masonry remnants of stucco plaster. It should also be noted that there is a looter's trench between temples C-2 and C-3 but it was not documented during this season.

CONCLUSION

Structure A-4 in Plaza A along with Structure A-37 just north the plaza were the focus of investigations during the 2011 field season. The exposure below the steps of Structure A4 will be further investigated in the 2012 field season in order to solidify an interpretation of this buried plaster feature. The looters trenches in the temple structures in all three plazas at Dos Hombres were also documented in their current state. The current state is much dilapidated from that encountered by Houk (1996).

REFERENCES CITED

Houk, Brett

1996 The Archaeology of Site Planning: An Example from the Maya Site of Dos Hombres, Belize. Unpublished Ph.D. dissertation, Department of Anthropology, The University of Texas at Austin.

PRELIMINARY REPORT ON THE 2011 ACTIVITIES OF THE MOUNT ALLISON UNIVERSITY ARCHAEOLOGICAL FIELD SCHOOL IN BELIZE

Grant R. Aylesworth, Mount Allison University

INTRODUCTION

The 2011 field season marked the fourth year of the Mount Allison University Archaeological Field School in Belize. As a follow-up to the 2010 survey, a small amount of fieldwork was undertaken in the savannah south of the New River Lagoon. At La Milpa, Plaza A, excavation continued of a feature discovered during the 2008 resistivity survey. Some experimental ultraviolet and infrared photography was done in the lab and some night photography of Stela 7, La Milpa, was undertaken.

SUMMARY OF FINDINGS

Savannah Survey and Test Pits

Lithic Scatter 8. Lithic Scatter 8 was first noted in 2010 and included a variety of material, including ground stone. The scatter was widely distributed north and south of the Programme for Belize road, immediately east of Big Pond Creek. About 100 pieces of debitage were obtained during a surface collection in 2011. Three 1 x 1 m test pits were excavated north of the road and east of the creek and GPS locations of each were recorded. These test pits reached a depth of 40-50 cm, all with similar sand matrix. Excavation terminated at densely packed sand. No cultural material was found in these test pits.

Lithic Scatter 17. Follow-up surface collection was undertaken at Lithic Scatter 17 and about 100 pieces of debitage were recovered. This area is heavily disturbed with numerous bulldozer cuts. All debitage has been photographed and awaits detailed analysis.

La Milpa Plaza A

Excavations begun in 2008 as part of Mount Allison University's resistivity survey of a portion of La Milpa, Plaza A were continued in 2010 and 2011. The resistivity survey of 2008 and resultant ground-truthing excavations encountered a previously unknown structure in the southern part of Plaza A. Suboperations O through W, were excavated to the north and south of this feature and a corner at the southwest of the feature was found. The feature is long and linear, extending at least 25 m from north to south. The nature of the feature is not yet clear, nor is its overall dimensions.

Photography

In the lab, the team experimented with UV and IR photography of ceramic vessels and pot sherds. Early results of pot sherds with eroded glyphs indicate that these techniques may reveal eroded portions of glyphs that are not visible under normal conditions. Photos

were taken of bottles (Figure 1) and bottle fragments that were collected in previous seasons along the causeway found between Bergen's Gate of Programme for Belize and Irish Creek.

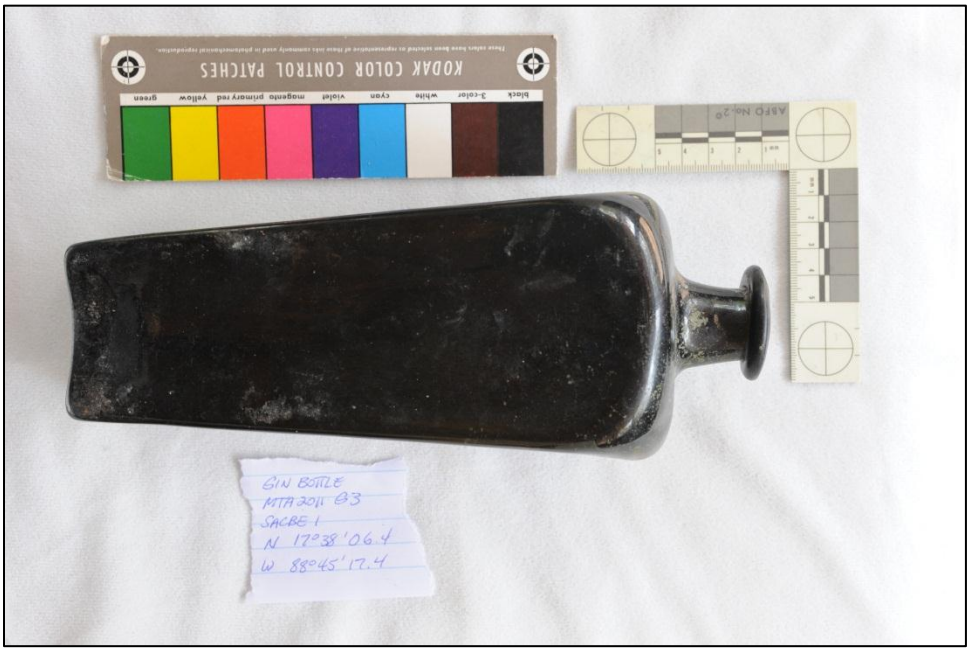

Figure 1. Gin bottle.

Night photography of Stela 7 was undertaken using a technique that combined multiple images, each with the light source coming from a different direction. This is in contrast to traditional night photographs which usually use one light source coming from one angle. Overlaying multiple images, each with light coming from a different oblique angle allowed for additional definition of the relief on the stela. A number of different processing techniques were employed, including combining images and then creating a negative black and white image (Figure 2). Under appropriate lighting conditions in daylight, some glyphs are still visible on Stela 7 (Figure 3), but the night photos with multiple angles for light sources make the details more apparent.

SUMMARY

The 2011 season proved successful for the Mount Allison University archaeological field school. Analysis continued with some experimental techniques in the lab and excavation was minimal. Future work should reveal more about the architectural feature found in Plaza A, La Milpa and further investigations are planned for the savannah in 2013 or future years. A more detailed report of the 2011 field school will be provided in future

Figure 2, Stela 7, north side, processed negative image.

and a number of publications are expected to result from the ongoing work of the Mount Allison University field school.

Figure 3. Stela 7, north side, normal daylight.

ACKNOWLEDGEMENTS

The 2011 season was successful due to the efforts, generosity, and collaboration of many people and institutions. These included undergraduate students, teaching assistants, the Programme for Belize, Belize's Institute of Archaeology, and Dr. Fred Valdez, Jr. The field school enjoys the continued collaboration at Mount Allison University, including Continuous Learning, Financial Services, the Department of Anthropology, and the Faculty of Social Sciences. Fieldwork was completed under a research permit to Dr. Fred Valdez, Jr., issued by the Institute of Archaeology and the Mount Allison University group lived at the R.E.W. Adams Research Facility. The generosity and cooperation of all involved is gratefully acknowledged.

TREE SPECIES COMPOSITION AT MEDICINAL TRAIL GROUP A

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INTRODUCTION AND FINDINGS

We recorded tree species (self-supporting, woody stems ≥ 10 cm diameter at breast height [130 cm above ground]) near the Medicinal Trail Group A archaeological site in the Rio Bravo Conservation and Management Area, Belize, as part of the Programme for Belize Archaeology Project.

The forest is classified as *subtropical moist forest* (Hartshorn et al. 1984). Trees were recorded using the point-centered quarter method along a c. 250 m transect established by archaeologists and heading east from the site. Trees were identified in the field. Field work was carried out in June and July 2009.

Among 285 stems sampled we recorded at least 43 species, plus some unknown species (Table 1). The forest to about 150 m along the transect east of the ruins was mid-age second growth; it appeared to have regrown from clearing 50-80 years in the past. Characteristic species of this second-growth were: *Spondias* sp. (hog plum), *Cupania belizensis* (bastard grand betty), *Metopium brownei* (black poisonwood), and *Attalea cohune* (cohune palm). Further to the east, the forest was older, with such characteristic species as *Drypetes brownii* (male bullhoof), *Pouteria reticulata* (zapotillo), and *Pseudolmedia* sp. (cherry).

Table 1. Tree species abundances (stems ≥ 10 cm) on transects near Medicinal Trail Group A archaeological site, Rio Bravo Conservation and Management Area, Belize.

Species	Number of stems
Acacia collinsii	2
Acosmium panamense	1
Alseis yucatanensis	6
Ampelocera hottlei	23
Aspidosperma megalocarpon	14
Attalea cohune	17
Bourreria oxyphyllaria	5
Brosimum alicastrum	2
Bursera simaruba	3
Caesalpinia gaumeri	5
Cassipourea elliptica	1
Cecropia peltata	4
Cojoba arborea	1
Cupania belizensis	16
Dendropanax arboreus	2
Drypetes brownii	26
Ficus sp.	3
Guettarda combsii	3
Hirtella americana	4
Lauraceae sp. unknown	3
Legume sp. unknown	1
Licaria peckii	2
Manilkara zapota	1
Matayba apetala	2
Metopium brownei	11
Pouteria spp.	18
Pouteria reticulata	22
Protium copal	3
Pseudolmedia sp.	11
Sabal mauritiiformis	7
Sideroxylon foetidissimum	1
Simarouba amara	2
Simira salvadorensis	1
Spondias sp.	34
Swietenia macrophylla	1
Terminalia amazonia	7
Trichospermum campbellii	4
Trichilia minutiflora	1
Trichilia sp.	1
Trophis racemosa	2
Vitex gaumeri	3
Xylopia frutescens	1
Zuelania guidonia	3
identification unknown	5

REFERENCES CITED

Hartshorn, Gary S., L. Nicolait, L. Hartshorn, G. Bevier, R. Brightman, J. Cal, A. Cawich, W. Davidson, R. Dubois, C. Dyer, J. Gibson, W. Hawley, J. Leonard, Robert Nicolait, D. Weyer, H. White, and C. Wright.

1984 *Belize: Country Environmental Profile: A Field Study*. Robert Nicolait and Associates, Ltd., Belize City, Belize.

REPORT ON SOME STONE TOOLS FROM RB 18, NORTHWEST BELIZE: GUIJARRAL AND THE CHISPAS GROUP

David M. Hyde, Western State College of Colorado

INTRODUCTION

This paper provides the preliminary results of an analysis of select lithic artifacts recovered from Operations 45 and 46 at the site of Guijarral, northwestern Belize, during the 2011 field season of the Programme for Belize Archaeological Project. The Operation 45 assemblage is the larger of the two, and consists of four informal tools and 23 flakes. The assemblage from Operation 46 consists of two straight stemmed biface points.

This analysis used Andrefsky's (1998) morphological typology for the initial sorting and segregating of the assemblage. The first distinction in segregating lithic material is made between tools and non-tool artifacts (Andrefsky 1998:75). Tools "are objective pieces that have been intentionally modified or modified by use to produce a product that has less weight than before it was modified" (Andrefsky 1998:75). These include formal tools such as bifaces, but also informal, or expedient tools such as cores, scrapers and utilized flakes. The tool typology used for this analysis is the one established by Hyde (2003) for the Three Rivers region. Unmodified pieces removed from objective pieces are called debitage. This category includes non-utilized flakes, flake fragments, and shatter.

ANALYSIS PER OPERATION

Operation 45

Lithic material from a total of five lots at Operation 45 was examined: 45-X-3, 45-X-4, 45-X-5, 45-Y-3, and 45-Z-3 (Table 1). Much of the lithic material recovered from Operation 45, in particular lots 45-X-3 and 45-X-4, consist of fire modified rocks. Four tools were recovered, three from 45-X-3, and one from 45-X-4. Lot 45-X-3 contained the most lithic material with 75% (3) of the tools (n=4) and 43% (10) of the flakes (n=23).

Table 1. Distribution of flakes and tools from Operation 45.

Prov.	Flakes		Tools	
45-X-3	10	43%	3	75%
45-X-4	5	22%	1	25%
45-X-5	1	4%	0	-
45-Y-3	2	9%	0	-
45-Z-3	5	22%	0	-
TOTAL	**23**		**4**	

The four tools at Operation 45 are all informal and include one scraper and three utilized flakes (Table 2). The scraper is made from "bad" quality chert (Hyde 2003) and shows

unimarginal use wear (Figure 1), and along one of the lateral margins there is a notch-like feature. Opposite the "notch," there is a flake platform and bulb.

Table 2. Metrics for the Operation 45 tools.

			Measurements			
Ref #	**Provenience**	**Artifact**	**L (mm)**	**W (mm)**	**T (mm)**	**Wt (g)**
001	45-X-3	Utilized Flake	46.7	19.4	6.6	4.5
002	45-X-3	Scraper	37.2	28.1	11.7	10.4
003	45-X-3	Utilized Flake	49.2	25.4	3.2	14.5
004	45-X-4	Utilized Flake	61	32.2	14.7	26.8

Figure 1. Edge scraper from 45-X-3:002.

The remaining three tools are all unimarginal utilized flakes made from chert. The three utilized flakes range in length from 46.7 mm to 61 mm, vary in weight from 4.5 g up to 26.8 g (Table 2). One specimen from 45-X-3 (ref# 003) is relatively thin and somewhat pointed, similar to a pointed biface (Figure 2).

The non-tool lithic material from Operation 45 consists of 23 chert flakes of varying quality (Table 3). In general, the flakes are not uniform in size, ranging from 6.7 to 56 mm in length, and from 0.2 g to up to 63.9 g (Figure 3). However 78% (18) of the flakes contain no cortex, and only three have more than 50% cortex cover (Table 3). Striking platform types on flakes is one way of distinguishing between the manufacture of bifaces (complex) and from core reduction (flat) (Tomka 1989). The vast majority (83%, n=19) of the 23 flakes have complex platforms.

Figure 2. Unimarginal flake tool: 45-X-3:003.

Table 3. Metrics for the Operation 45 flakes.

						Raw Material			
Ref #	**Provenience**	**L (mm)**	**W (mm)**	**Th (mm)**	**W (g)**	**Type**	**Quality**	**Cortex**	**Platform**
001	45-X-3	41.1	53.3	5.6	13.4	Chert	3	NONE	Complex
002	45-X-3	37.2	34.4	7.3	10.4	Chert	2	NONE	Complex
003	45-X-3	36.9	27.5	4	4.4	Chert	3	NONE	Complex
004	45-X-3	19.2	25.5	5.9	2.9	Chert	4	NONE	Complex
005	45-X-3	14.7	15.6	4.2	0.7	Chert	4	NONE	Complex
006	45-X-3	30.2	31.1	6	4.5	Chert	3	>50%	Cortical
007	45-X-3	20.0	26.2	3.7	2.4	Chert	4	NONE	Complex
008	45-X-3	23.1	25.7	6.5	5.8	Chert	2	NONE	Flat
009	45-X-3	16.7	23.4	3.9	1.9	Chert	4	NONE	Complex
010	45-X-3	30.0	13.8	4.0	2.9	Chert	3	NONE	Complex
011	45-X-4	56.0	44.7	6.9	16.2	Chert	3	NONE	Complex
012	45-X-4	40.1	49.3	9.3	23.5	Chert	2	NONE	Flat
013	45-X-4	40.1	26.7	5.1	5.3	Chert	1	<50%	Cortical
014	45-X-4	19.5	19.0	3.2	1.3	Chert	4	NONE	Complex
015	45-X-4	20.5	21.0	3.4	1.9	Chert	3	NONE	Complex
016	45-X-5	43.9	31.1	8.8	11.8	Chert	3	NONE	Complex
017	45-Y-3	54.1	60.1	20.3	63.9	Chert	3	>50%	Complex
018	45-Y-3	41.2	35.5	8.1	12	Chert	3	<50%	Complex
019	45-Z-3	23	48.1	8.6	8.3	Chert	2	>50%	Complex
020	45-Z-3	25.1	20.3	3.3	1.8	Chert	3	NONE	Complex
021	45-Z-3	16.1	13.1	2.4	0.5	Chert	4	NONE	Complex
022	45-Z-3	14.9	12.8	1.6	0.3	Chert	4	NONE	Complex
023	45-Z-3	6.7	11.5	1.5	0.2	Chert	3	NONE	Complex

Figure 3. Sample of flakes from 45-X-3.

Overall, the lithic assemblage sample examined for Operation 45 at Guijarral shows very little evidence of formal tool production. The flakes exhibit indications of biface retouching based on the high incidence of complex platforms and low presence of cortex. However, it should be noted that the tools that are present in this assemblage consist of informal tools.

Operation 46

A total of 2 specimens from Operation 46 were analyzed, one each from 46-U-62 and 46-U-1008 (Figure 4 and 5). Also, both specimens are Straight Stemmed Biface Points made from high quality chert. Though they differ in terms of overall metrics, they are very similar in terms of certain morphological attributes. For example, on both specimens, the base of the stem is angled approximately 20 degrees. Furthermore, they each have a "weak" shoulder on the same lateral margin that the stem base is shorter. Additionally, the tips of the points on both specimens exhibit slight impact fractures. These similarities are most likely the result of a combination of manufacturing and use.

Figure 4. Straight stemmed bifacial point: 46-U-62.

Figure 5. Straight stemmed bifacial point: 46-U-1008.

REFERENCES CITED

Andrefsky, William., Jr.

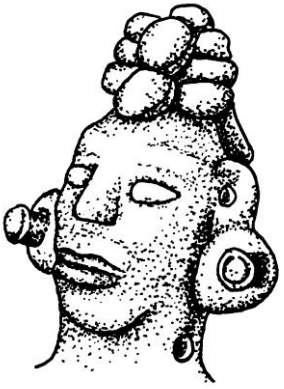
1998 *Lithics: Macroscopic Approaches to Analysis*. Cambridge Manuals in Archaeology. Cambridge University Press.

Hyde, David M.

2003 *Lithic Technological Organization in the Three Rivers Region of the Maya Lowlands.* M.A. thesis, Department of Anthropology, Washington State University, Pullman.

Tomka, Steven A.

1989 Differentiating Lithic Reduction Techniques: An Experimental Approach. In *Experiments in Lithic Technology*, edited by Amick, Daniel S. and Raymond P. Mauldin, pp. 137-162. BAR International Series 528. British Archaeological Reports, Oxford, U.K.



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