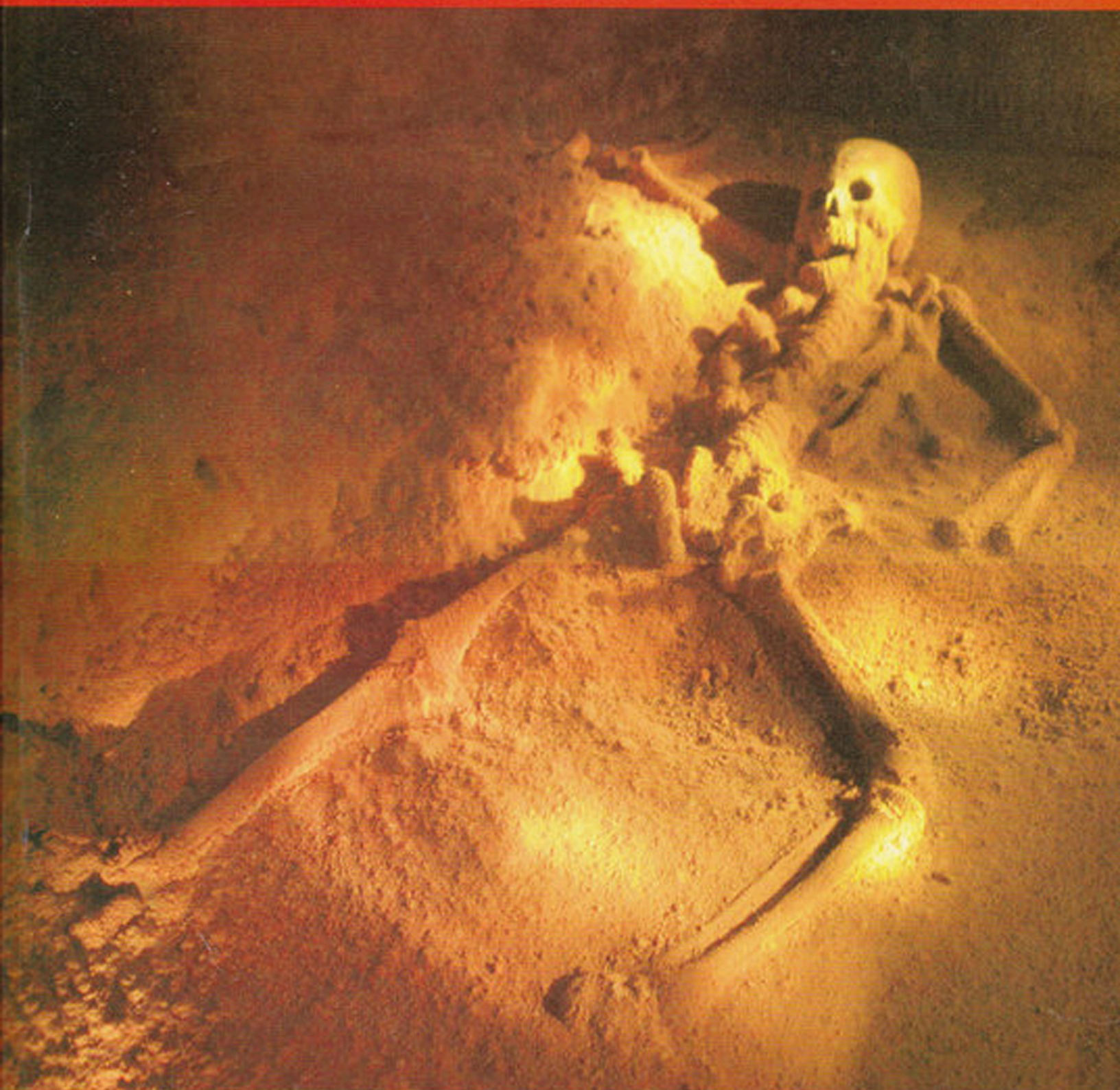


Research Reports in Belizean Archaeology

Papers of the 2009 Belize Archaeology Symposium



Edited by

John Morris, Sherilyne Jones, Jaime Awe,
George Thompson and Melissa Badillo

2010

Research Reports in Belizean Archaeology Volume 7

*Archaeological Investigations in the Eastern
Maya Lowlands: Papers of the 2009
Belize Archaeology Symposium*

Edited by John Morris, Sherilyne Jones, Jaime Awe, George Thompson and Melissa Badillo



Institute of Archaeology
National Institute of Culture and History
Belmopan, Belize
2010

Research Reports in Belizean Archaeology

Research Reports in Belizean Archaeology is an annual publication of the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize. The journal is devoted primarily to the publication of specialized reports on the archaeology of Belize but also features articles from other disciplines and areas.

Publisher: Institute of Archaeology
National Institute of Culture and History
Culvert Road
Belmopan, Cayo District
Belize

Telephone: +501-822-2106
+501-822-2227

Email: research@nichbelize.org

Editorial Board: Institute of Archaeology, NICH
John Morris, Jaime Awe, Sherilyne Jones and George Thompson

Cover design: Peter Richards and John

Front Cover: Photo of the female skeletal remains at Actun Tunich Hill Muknal (Photograph courtesy Jaime Awe).

Back cover: Photo-Montage / collage on the back is a compilation of artefacts from the IA collection and partially based on the poster from last year's symposium

Layout and Graphic Design: Sherilyne Jones (Institute of Archaeology, Belize)
George Thompson (Institute of Archaeology, Belize)
Melissa Badillo (Institute of Archaeology, Belize)

ISBN 978-976-8197-36-8

Copyright © 2010
Printed by Print Belize Limited.

ACKNOWLEDGEMENTS

We wish to express our sincerest thanks to every individual who contributed to the success of our Seventh Annual Symposium, and to the subsequent publication of the scientific contributions that are contained in the sixth volume of the Research Reports in Belizean Archaeology. A special thanks to Print Belize and the staff for their efforts to have the Symposium Volume printed on time despite receiving the documents on very short notice.

We extend a special thank you to all our 2009 sponsors: Belize Communication Services Limited, The Protected Areas Conservation Trust (PACT), Galen University and Belize Electric Company Limited (BECOL) for their financial support. To the staff and management of our sister Institutions, within NICH, the Institute of Creative Arts (ICA), Museum of Belize and ISCR, and various other institutions that provided financial and logistical assistance.

We are especially grateful to the Honorable Manuel Heredia Minister of Tourism, Culture and Civil Aviation for his tremendous and continuous support. Special thanks to Ms. Diane Haylock, our indefatigable President of the National Institute of Culture and History for her encouragement to improve the professional capacity of our institution, for her vision and for ensuring that the volume gets published. Thanks also to Mr. Gil Williams, Administrator, of NICH who provided considerable funding to ensure the success of our symposium and the subsequent publication of this volume. We extend a special thanks to the staff and management of the Bliss Center of Creative Arts and the Institute of Creative Arts (ICA), thank you for your assistance and for graciously hosting the 2009 symposium. We are grateful to the Belize National Library Service and Information System, for providing our ISBN number.

Meetings of this scope are never possible without professional participation. We therefore thank all of our colleagues who took time from their busy schedules to attend and present papers in our symposium. The various themes of their papers serve to reflect the diversity of Belizean Archaeology, and provide a wealth of scientific information to the people of Belize.

Several editors and anonymous reviewers gave of their time and made constructive criticisms that enhanced our end product. George Thompson and Melissa Badillo invaluable assistance in doing line editing and reviewing of all the bibliographic references is always invaluable and appreciated.

Finally, it should be noted that our successes are a direct result of the tremendous effort expended by the entire staff of the Institute of Archaeology. Special thanks must be given to Enrique Itza, Melissa Badillo, Jorge Can, Darcy Correa, David Griffith, Rafael Guerra, Delsia Marsden, Wayne Moore, Hector Hernandez, and Brian Woodye. Mr. George Thompson, Program Chair deserved many thanks. We are grateful for your patience, expertise and invaluable help. The Seventh Volume of the Research Reports in Belizean Archaeology is a testimony to your dedication and your ability to address the challenges of our institution.

John Morris and Jaime Awe

Belmopan, Belize, June 2010

CONTENTS

	page
SECTION ONE: ANCIENT MAYA RITUAL AND RELIGION	1
1. <i>The Context of Ritual: Examining the Archaeological Record at Caracol, Belize</i> Arlen F. Chase and Diane Z. Chase	3
2. <i>Death in the West: Social Status, Representation, and Mortuary Ritual in Western Belize</i> Sonja A. Schwake.....	17
3. <i>Maya “Travelers”: Iconography, Liminality, and Ancient Worldview</i> Dianna L. Wilson-Mosley, Arlen F. Chase and Diane Z. Chase	25
4. <i>From Sunrise to Sunset: Preliminary Investigations of Preclassic and Postclassic Ritual Activity at Xunantunich, Belize</i> M. Kathryn Brown.....	37
5. <i>Contextualizing Ritual Behaviour at the Chan Site: Pottery Vessels and Ceramic Artifacts from Burials, Caches, and Problematic Deposits</i> Laura J. Kosakowsky and Cynthia Robin.....	45
6. <i>Scalping as a Component of Terminus Structure Ritual at the Site of Baking Pot, Belize Valley</i> Jennifer C. Piehl and Jaime J. Awe.....	55
7. <i>The Diet, Health, and Death at Pusilhá, Belize</i> Megan R. Pitcavage and Geoffrey E. Braswell.....	65
8. <i>An Introduction to the First Season of the Caves Branch Archaeological Survey</i> Gabriel Wrobel, Shawn Morton, and Christopher R. Andres.....	73
9. <i>At the Crossroads in the Middle Belize Valley: Modeling Networks of Ritual Interaction in Belize from Classic to Colonial Times</i> Eleanor Harrison-Buck.....	85
10. <i>Architectural History and Ritual Planning at La Milpa: A Reconsideration</i> Brett A. Houk and Gregory Zaro.....	95
11. <i>Ancient Maya Household Ritual in Northwestern Belize: memory, Expression, and Identity</i> Rissa M. Trachman.....	103

12.	<i>You Only Live Twice: The Agency of Ritual Ceramics at Lamanai</i> James Aimers	119
13.	<i>An Introduction to Pre-Hispanic Music in the Belize Valley: Aerophones in the Archaeological Record</i> Amy Benton	127
	SECTION TWO: GENERAL RESEARCH REPORTS	137
14.	<i>A Consideration of the Spatial Arrangement of Settlement Groups and Terraces in Contreras, Minanha, Belize</i> Carmen A. McCane, Scott A. Macrae, and Gyles Iannone	141
15.	<i>Preliminary Investigations of Three Caves Sites in the Periphery of Pacbitun, Belize</i> Terry G. Powis	153
16.	<i>Social and Economic Dynamics at Buenavista del Cayo during the Late and Terminal Classic Periods</i> Jason Yaeger, Meaghan Peuramaki-Brown, and Bernadette Cap	161
17.	<i>Beyond the Baking Pot Polity: Continuing Settlement Research in the Upper Belize River Valley</i> Julie A. Hoggarth, Jaime J. Awe, Eva Jobbová, and Christopher Sims	171
18.	<i>The Milpa Cycle and the Making of the Maya Forest Garden</i> Anabel Ford and Ronald Nigh	183
19.	<i>Marine Shell Use from Structure B1 at Blackman Eddy, Belize: A Diachronic Perspective</i> Jennifer L. Cochran	191
20.	<i>More than Meets the Eye: Ceramic Production and Consumption at Lamanai, Belize, during the Postclassic to Spanish Colonial Periods</i> Darcy L. Wiewall and Linda Howie	201
21.	<i>Current Research in Northwestern Belize in 2008 and 2009</i> Thomas H. Guderjan, Jason W. Barrett and Timothy Beach et al	219
22.	<i>Settlement and Society at Uxbenká: The Uxbenká Archaeological Project Settlement Survey</i> Ethan K. Kalosky and Keith M. Prufer	229
23.	<i>Sea-Level Rise and Inundation of the Classic Maya Paynes Creek Salt Works: Evidence from Marine Sediment</i> Heather McKillop, E. Cory Sills, and Jessica Harrison	245

24.	<i>The Architecture of Salt Production at the John Spang Site, Paynes Creek National Park, Belize</i> E. Cory Sills and Heather McKillop.....	253
25.	<i>Birthplace of a Nation: The Archaeology of St. George’s Caye, Belize</i> James F. Garber, Jaime J. Awe, and Lauren A. Sullivan.....	259
26.	<i>The Ritual “Termination” of Royal Residential Courtyards during the Terminal Classic Period: Implications for Understanding Ancient Maya Societal Structure, and the Terminal Classic “Collapse”</i> Gyles Iannone.....	267
27.	<i>Lessons Learned: Evaluating the Knowledge Belizean Students have about Archaeology, History, and the Ancient Maya</i> Alicia Beth Ebbitt McGill.....	281

SECTION ONE: ANCIENT MAYA RITUAL AND RELIGION

1 THE CONTEXT OF RITUAL: EXAMINING THE ARCHAEOLOGICAL RECORD AT CARACOL, BELIZE

Arlen F. Chase and Diane Z. Chase

Purposefully placed archaeological deposits recovered at Maya sites are often viewed as having resulted from ancient ritual acts. These deposits are generally associated with specific buildings and locales in the archaeological record. Whether the rituals took place in public or private settings, however, is subject to interpretation on a variety of levels. Yet, the deposits themselves – their location, form, and contents – can help to answer questions about their purpose and the role of ritual in ancient society. This paper reviews archaeological deposits from Caracol, Belize and places them within a broader temporal and social context. It specifically reviews evidence of caching practices, burial practices, tomb re-entries, the use of incensarios, the placement of child sacrifices, and problematic contexts in the archaeological record. The overall objective of this examination of deposits recovered at Caracol, Belize is a greater understanding of the ancient Maya use of private and public ritual.

Introduction

For the ancient Maya, ritual behavior surely accompanied the placement of burials, caches, and certain other remains. The results of these ritual actions are often found in the archaeological record and, while the motivations behind some rites and customs can be deduced in certain archaeological situations, the deeper religious structure behind the ritual is more difficult to discern (Insoll 2004; Fogelin 2007). However, because ritual involves repeated, almost rote, behavior, it is possible to observe patterning in the material remains associated with ceremonial behavior in the archaeological record (e.g., Marcus 2007:68). It is also possible to observe how this patterning changes over time.

Many ritual deposits have been archaeologically recovered from Caracol, Belize. Most of these may be labeled as “caches” and/or “burials,” but others are more problematic. Because there is change in contents, positioning, and iconography associated with these deposits over time, it is possible to gain some insight regarding ancient Maya ritual behavior and to also speculate in some instances as to the purpose of these deposits. Furthermore, the positioning of special deposits provides insight into the private and public nature of these rites and behaviors. Often, the act of placing a cache was witnessed by a very limited audience, either within a public venue or within view of the household in a residential compound. Similarly, funerary activities and interments could be privately and

publically placed within public architecture, but were likely restricted to the participation of household members in residential groups. Other ceremonial acts visible in the archaeological record had a public - and political – component, whether undertaken within the site epicenter or in surrounding residential constructions. Thus, a contradiction emerges in terms of a consideration of the public and private components of ritual. While many rituals may have been undertaken for the public good, the archaeological deposition of the results of such ceremonial acts was generally a fairly private restricted matter. The archaeological record at Caracol, Belize provides tantalizing clues to the maturation of ritual activities at the site, suggesting a cyclical pattern of dynastic and community ritual linked with the political and economic history of the site.

Consecrated Space

Ritual was used by the ancient Maya to imbue their surroundings with sanctity and “power” and to assure meaningful interactions with an animate universe (Marcus 2007:51). For the Maya, ritual acts were interactive and to some extent additive. A single deposit might be placed within a public building for the purposes of centering that space - and each building within a public group might be individually consecrated. In some cases, deposits were added to already consecrated space over time as buildings were substantially modified. In other cases, separate ritual acts were carried out within

the same structure again and again, probably in alignment with a specific temporal cycle.

Thus, Maya centers were a combination of both consecrated space and useable secular space. The public sanctified space served as the representational foci for the community at large, and the center of a Maya city needed to be positioned within Maya cosmology, meaning that the kinds of deposits placed in these epicentral buildings generally differed from those found within outlying residential groups. The initial cosmological founding of a center, especially in the southeast Peten (Laporte 1996) and east-central Belize was accomplished through the establishment of an “E Group” (A. Chase 1985). E Groups served notice to the Maya world that a specific group of Maya had established their place within the cosmos (A. Chase and D. Chase 1995; Aimers and Rice 2006). At Caracol the final establishment of its E Group was timed to coincide with the onset of the 8th Baktun and was bracketed by a series of 4 elaborate caches all placed on axis to the central building in the middle of the first century A.D. (A. Chase and D. Chase 2006).

Through the Early Classic Period, public buildings at given Maya sites were consecrated using a symbol set that positioned each specific edifice, and sometimes entire groups (D. Chase and A. Chase 1998), into the world order. By the Late Classic most public buildings had been consecrated and the focus shifted to family ritual. Thus, there was a distinct move from public to private ritual over the span of the Classic Period. At least for Caracol, the uniformity of ritual acts carried out within residential groups served to integrate the broader community. Thus, the change may more appropriately be characterized as a transition from focused ritual associated with public architecture and public spaces to decentralized and disseminated, but unified, ritual localized within private residential spaces. Because there was broader ritual integration, it probably should not be referred to simply as “domestic ritual” (Plunket 2002; Wells and Davis-Salazar 2007). In the Terminal Classic Period, another shift occurred; public and private ritual both focused on the use of incensarios and on the deconsecration of early ritual nodes (D. Chase and A. Chase 2000). In contrast to the Late

Classic Period, Terminal Classic ritual was again focused in public buildings that altered cosmological meanings and associations.

Temporal Cycles

Maya concepts of time differed from those used today. In Western society, time is often viewed as linear - in conformance with a life cycle involving key events such as birth, puberty, marriage, birth of children and grandchildren, or death. However, the Maya did not view things in a similar simple linear progression (e.g., A. Chase 1986; Rice 2007). Only in death does the archaeological record offer distinct rituals clearly related to an individual’s life-cycle event. And, even the Maya dead can be categorized in terms of “earth offerings” (Becker 1993) and temporal cycles (D. Chase and A. Chase 2004b), thus removing their interments from the strict constraints of linear time.

Less than 10% of the individuals who lived in a residential group were physically buried in that residential group (D. Chase 1997). Thus, the individuals who were interred in a group were chosen for that honor. Of even more interest is the fact that burials were not placed in Caracol’s residential groups to coincide with actual death events. Rather, the interments appear to be purposefully placed at certain temporal intervals. Thus, the Caracol contexts suggest a different view of mortuary ritual. First, the remains of important decedents were collected and curated, presumably in the eastern mausoleums of each residential group. Sequential burials in eastern buildings in Caracol’s residential groups indicate that burials were generally deposited on a temporal cycle of some 40 to 52 years (D. Chase and A. Chase 2004b). Thus, while we may interpret these deposits as the burials of one or more deceased individuals, the ancient Maya may have rather viewed them as temporally significant earth offerings providing both ancestor veneration and community-wide integration. Ritual, at least during the Late Classic Period at Caracol, was community-based rather than dynastic in focus.

A tie between special deposits and temporal cycles has been demonstrated for caches associated with more than 100 stelae at Tikal, Guatemala. These stone monuments were

erected on a regular 20-year temporal cycle. The caches associated with these stelae contained repetitious patterned combinations of eccentric cherts and obsidians, presumably representing the nine lords of the night – and the nine different eccentrics associated with each stela can be placed into a clear temporal seriation (Moholy-Nagy 2007).

Burials

The burials found in both the public and residential buildings of any given Maya site usually constitute the largest body of archaeological data relating to ritual. Between 60%-80% of the residential groups at Caracol are associated with eastern constructions that functioned as shrines or mausoleums (A. Chase and D. Chase 1994). Most eastern structures at Caracol contain one or more tombs and one or more additional interments. A typical temporal sequence for the deposits in these buildings has been derived from the archaeological record (Figure 1). The tomb was the initial construction. If the tomb had an entryway, then it often continued to be used over time, but it also may have been sealed after the interment of the initial occupant(s). Next, burials were placed in the front of the building, first at the base of a stairway and, then, intruded into the front of the structure itself. If an architectural expansion took place, the new stairway also became a likely locale for an additional burial. The positioning of these burials within a given construction was temporally spaced. Late Classic Period interments were often associated with either a finger bowl or a face cache to the front of the eastern structure; other cache forms were sometimes placed within the initial step of the building. Broken vessels were also sometimes placed directly atop burial capstones and sealed in the fill of a building.

Another fairly common ritual practice associated with Caracol's interments was tomb re-entry (D. Chase and A. Chase 2003). In some cases, there was little disturbance of the original tomb contents; in other cases, new artifacts like cache vessels or censers were added to the chamber's burial assemblage; in still other cases, the contents of the tomb and the chamber itself were drastically altered. We have been able to distinguish minimally two types of re-entry.

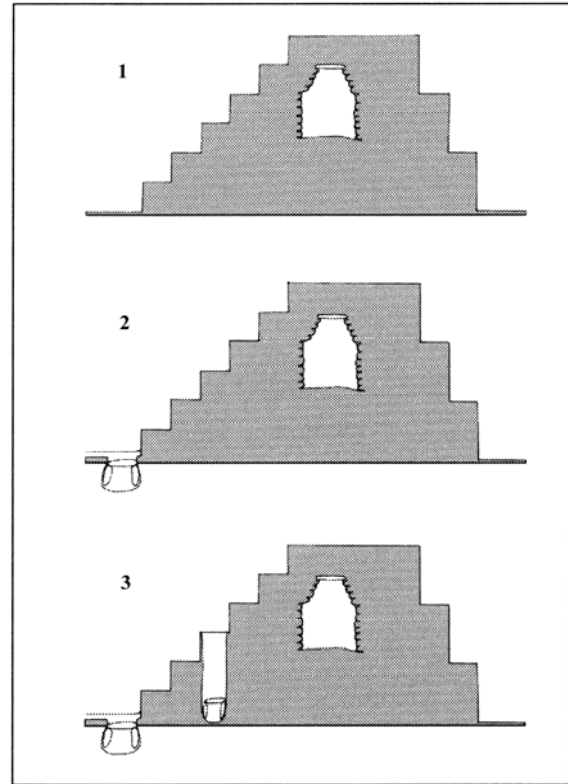


Figure 1. Idealized sequence of interments in eastern shrines of residential groups at Caracol, Belize: (1) tomb is sealed within the core of the building; (2) a burial is placed at the base of the front step of the building; (3) one or more burials are placed through the stairway (after D. Chase and A. Chase 2004:206).

The first we call “accidental,” being either caused by structural roof collapse or by rebuilding efforts. This kind of re-entry usually resulted in the removal of the entire roof and in the infilling of the chamber with stone and earth directly over the *in situ* bones, ceramics, and artifacts. The second kind of tomb re-entry is called “transformational” and there were different degrees of disturbance associated with this kind of re-entry. In several cases, tombs were re-entered, the contents of the chamber were broken and strewn about, and then the chamber was resealed. In other cases, the chamber was re-entered and desecrated and then was infilled with broken and burnt bone, pottery, and artifacts.

Child Sacrifice

Diego de Landa noted that the Maya practiced child sacrifice in 16th century Yucatan (Tozzer 1941). Archaeological contexts at Caracol also provide evidence that sacrificial

victims, both adults and children, could be placed within consecrated spaces as “earth offerings.” For the Central Acropolis at Caracol, we were able to demonstrate that the diets of sacrificial victims differed from those who were occupants of the burial chambers within the groups (A. Chase et al. 2001). Thus, the sacrificial victims were not eating within the residences and were likely not members of the residential group. While the sacrificial victims were buried in front of the structures containing eastern tombs in the Central Acropolis, the skeletal remains of children were also found in association with re-entered tombs. Presumably sacrifices, these sub-adult remains were deposited in the fill directly above the infilled, accidentally re-entered chambers in at least two instances (D. Chase and A. Chase 2003).

Caches

Purposefully placed materials are common in the fill of Caracol’s buildings and plazas. If these special deposits did not involve the interment of human remains, then they are commonly referred to as “caches.” At Caracol, the majority of caches were formally encased within specialized pottery containers. These containers varied in size over time, but for the most part consisted of either faced and unfaced urns and dishes or small lip-to-lip cups (Figure 2). Urns and large lip-to-lip dishes often contained and/or were surrounded by other artifacts or ecofacts. Small cups and dishes generally contained the skeletal remains of human fingers. The practice of caching human fingers at Caracol extended from the Late Preclassic through the Late Classic Period. In the early temporal horizons, finger caches usually accompanied other urns, but during the Late Classic Period, they were often deposited as individual offerings.

For the Late Preclassic and the Early Classic Periods, caches tended to be made in association with undecorated lidded urns. The earliest cache vessels from Caracol derive from Structure A6, the Temple of the Wooden Lintel, and were recovered from four axial deposits (A. Chase and D. Chase 1995, 2006); they are well-defined in terms of stratigraphy and radiocarbon dates. Two were sealed within the earlier construction. Social memory must have

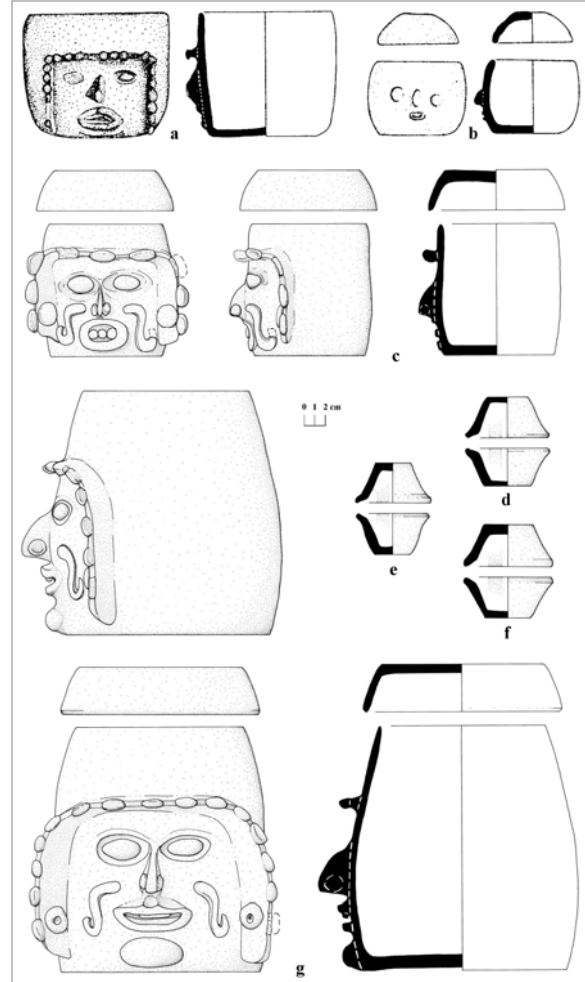


Figure 2. Typical ceramic cache vessels from Caracol, Belize, dating to the Late Classic Period: a, b, c, and g are “face caches”; d, e, and f are “finger caches.”

recorded the location of these caches, for the next two deposits were set in a perfect line with the earlier two (even though they would not have been visible). These subsequent caches accompanied the latest version of Structure A6 that was constructed on or about in A.D. 41, the onset of the 8th Baktun. The initial deposit for the final building was placed in front of the rear wall within a sealed stone geode and consisted of a jadeite face set between two spondylus shells; an earflare was set above the shells and 684 grams of mercury and pieces of malachite were placed beneath the shells. The second cache was dug into the fill in the area of the front door and was situated within a vaulted cavity. This cache consisted of a large barrel-shaped urn placed on a bed of shells. The contents of the urn were layered (see D. Chase

1988 and Mathews and Garber 2004) with a beehive occupying the upper hollow and malachite pebbles on the bottom of the vessel. In between these two layers were set mirrors, seashells oriented in four directions, a central jadeite earflare, jadeite and shell Charlie Chaplins (as defined by Moholy Nagy 1985), other shell and jadeite objects, sharks' teeth, pine needles, and pumpkin seeds. These last two caches served to center Structure A6 for the onset of the 8th Baktun.

Early Classic caches tended to represent two extremes: either their contents were austere or the urns were filled with shells and carved items. The majority of Caracol's Early Classic caches contained a diverse set of shells, mirrors, jadeite figures, and Charlie Chaplins (see A. Chase and D. Chase 2005). These complex caches were usually deposited one to a building and are believed to have served to center the public construction in terms of the Maya universe. In one case, a lidded square box was cached within a triple-lifesize seated stucco figure, that served as a locus for ritual. The ceramic box contained two large obsidian points, a large jadeite chest pendent, two smaller jadeite carvings, and "cache dirt," consisting of many small bits of jadeite and spondylus (D. Chase and A. Chase 2008).

At the onset of the Late Classic Period, a significant change in the focus and context of caching practices occurred in Caracol. Late Preclassic and Early Classic Period caches tended to be focused in monumental epicentral architecture and to have included varied, but predictable, interior elements; when caches from these earlier temporal horizons are located in residential structures, the caches are not uniform in their appearance or contents. Some of the early caches were clearly associated with temporal/calendric celebrations. In the Late Classic Period, monumental architecture tended not to be a locus for caching; instead caches were dispersed into residential units and similar cache containers were used throughout the landscape in association with rituals focusing on eastern mausoleums. Thus, there was disseminated, but uniform, ritual activity centered in residential units during the Late Classic Period.

In the early part of the Late Classic Period, caching patterns at Caracol emphasized urns with modeled faces, which were sometimes associated with eccentric obsidians (Figure 3) and, in one case, malachite pebbles. Earlier faced urns tended to be larger in size and also to be more elaborately modeled. The faces included a mix of various human representations, as well as the Maya sun god and visages of birds. Birds were portrayed with a simple beak and eyes. Human visages were often depicted with earrings and nose beads. A beaded border, similar to contemporaneous representations of the site's rulers on carved stone monuments (e.g. Caracol Stelae 5 and 14; Beetz and Satterthwaite 1981: figures. 6 and 14), framed a number of other faces. Still other portraits seem to represent dead trophy heads. Representations of the Sun god are smiling with barbules placed at the edges of their mouths. During the late Late Classic Period, cached urns portrayed either the most elemental of faces or reverted to their undecorated state. Rather than being barrel-shaped, they were also more bulbous in form. In general, however, the majority of these face caches were placed in front of Caracol's eastern constructions, showing a clear association with the burials and tombs that were placed within these structures. These ceramic vessels were also uniformly manufactured with the same paste and general style, probably indicative of production within a single ritual workshop, and they must have been readily available to the site's populace based on their widespread distribution.

Incensarios

The burning of incense was a common Maya ritual practice and specially formed ceramic vessels were made for this purpose; these "incensarios" offer an interesting contrast to Caracol's cache vessels. In the late Early Classic, at a time when caches were undecorated, hourglass incensarios were modeled with the face of the sun god with night-time jaguar aspects. Spiked hourglass incensarios also appeared at this time and continued to be used into the early Late Classic Period. The most common incensario found in the early part of the Late Classic Period was not decorated and consisted of a plain ring-based

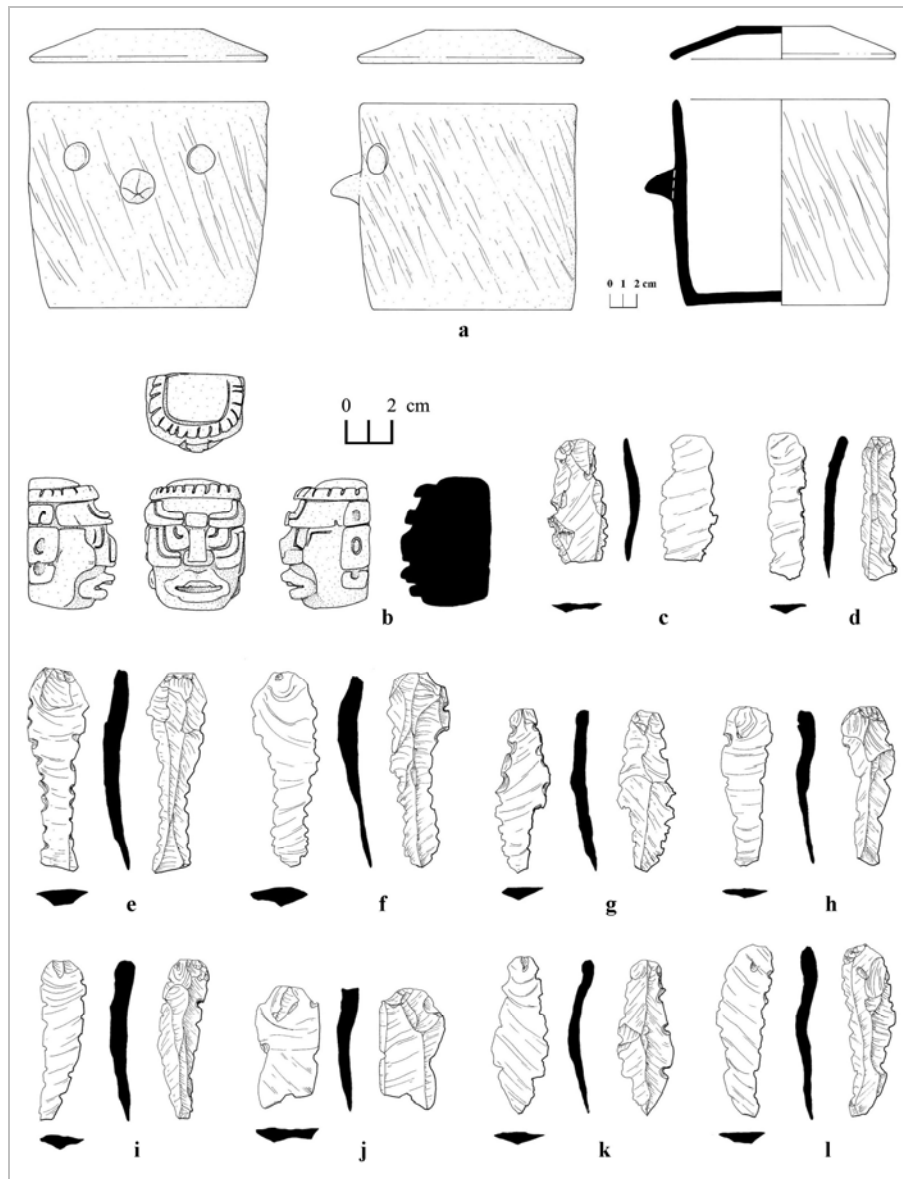


Figure 3. Lidded ceramic face cache, representing a bird, and its contents from Caracol Structure I5. The modeled head of Kinich Ahau is carved from limestone and was set atop the ten obsidian eccentrics inside the urn.

urn. By the late Late Classic Period, however, incensarios had morphed into flanged ring-based cylinders that were decorated with a series of faces, again usually the sun god with jaguar aspects (Figure 4). These censers often appeared in association with Caracol's latest deposits. In the epicenter, they were often paired as part of the final artifactual materials left in temples before their abandonment, but within the outlying residential area, flanged cylinder incensarios appeared singly in association with the stairs of several

mausoleums (perhaps also serving a similar purpose).

Other Ritual Practices Recovered in the Archaeological Record

Some of Caracol's archaeological deposits are more challenging to discern, define, and interpret; yet, these contexts clearly fall within the realm of ritual and help to broaden our understanding of ancient Maya ritual practices. Unlike situations at other sites, where artifactual materials included within fill are

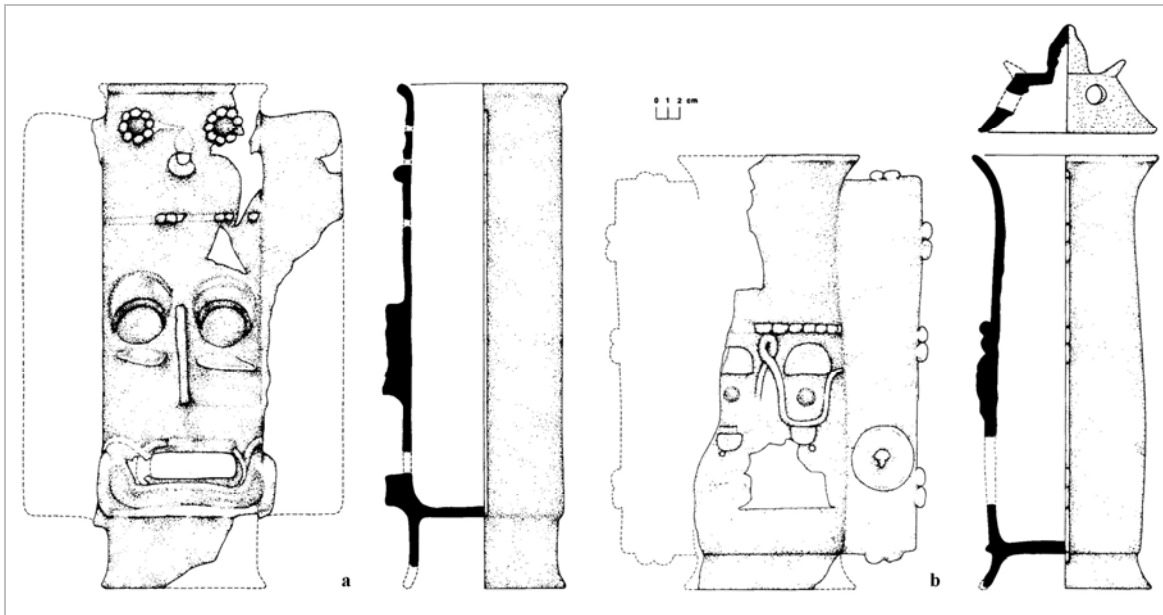


Figure 4. Late to Terminal Classic Period modeled and flanged ring-based cylinder incensarios from epicentral Caracol (after A. Chase and D. Chase 1987:14,25).

problematically assigned a ritual function (e.g. Lucero 2006), the context and content of these materials can be archaeologically established and shown to be purposeful. At Caracol, such contexts include deposits of burnt materials purposefully placed in structural fills, extensive episodic caching, and cache materials placed within structural and plaza fills without the benefit of a ceramic container.

Located on the southwestern edge of Caracol's epicenter, Structure D2 appears as a large elevated pyramid. Excavation within this construction demonstrated that it had been built in the Early Classic Period. Deep within its core was a feature placed directly into the construction fill. It consisted of a crude ring of stone, measuring approximately 1.2 meters in diameter, which housed fill that had clearly been burned and was full of broken burnt pottery and obsidian. When analyzed and reconstructed, the burnt, broken, and dispersed materials within this ring yielded 16 whole obsidian lancets, 25 obsidian blade fragments, 1 jadeite ball, 1 broken jadeite bead, 2 limestone bars, and 14 reconstructible ceramic vessels. Ten of the reconstructible vessels were in typical Early Classic cache vessel form and 4 were polychrome ring-base dishes. This deposit was

directly above an Early Classic urn cache that would have served to center the building.

Dating to the very onset of the Late Classic Period within Structure B19 was an intensive caching episode associated with an earlier building. The floor of the earlier building was pierced numerous times for the deposition of a large number of finger caches and jadeite beads. The floor was then strewn with stingray spines and eccentric obsidians and extensively burnt. This entire episodic cache deposit was then covered by fill from a single construction episode that raised the building's surface over a meter to a new floor surface. This new surface was then also pierced to place a spiked incensario above a finger bowl cache with the remains of a child. No other deposits were then placed in the building for an extended period of time, even though the building was again raised another meter in height. Only in the Terminal Classic Period was the latest floor again pierced to place a deposit within the building's core that consisted of a series of 5 Terminal Classic vessels (A. Chase and D. Chase 2004:figure 16.2).

Some caches are deposited directly into building fill without the benefit of a container; however, the artifactual materials and their proximity to each other make it clear that they

were purposeful deposits. While infrequent at Caracol, this kind of cache does occur. Within the core of Structure B19, a ritual deposit was placed into the fill above red-painted earlier stairs; this deposit consisted of spondylus shells, eccentric obsidians, and jadeite chips strewn directly into fill. A similar deposit was placed directly into the summit fill of Structure A2 and consisted of eccentric obsidians and rounded limestone balls. Perhaps the most elaborate “fill” cache recovered does not come from the epicenter, but was rather found in the plaza of a residential group. Placed in front of Structure C21 and dating to the Early Classic Period, were a concentration of items that, upon analysis, proved to consist of 3 chert eccentrics (Figure 5), 8 obsidian eccentrics, 6 spondylus shells, 3 stingray spines (along with 52 “fish” vertebrae, probably indicating the presence of whole stingrays [e.g., Teeter 2001]), 1 jadeite bead, 1 stone ball, 1 piece of brain coral, 128 hematite mirror pieces, and “cache dirt” consisting of 4,571 small chips of spondylus and 747 small chips of jadeite. The chert eccentrics within this deposit constitute the only known examples from Caracol after 25 years of continuous research.

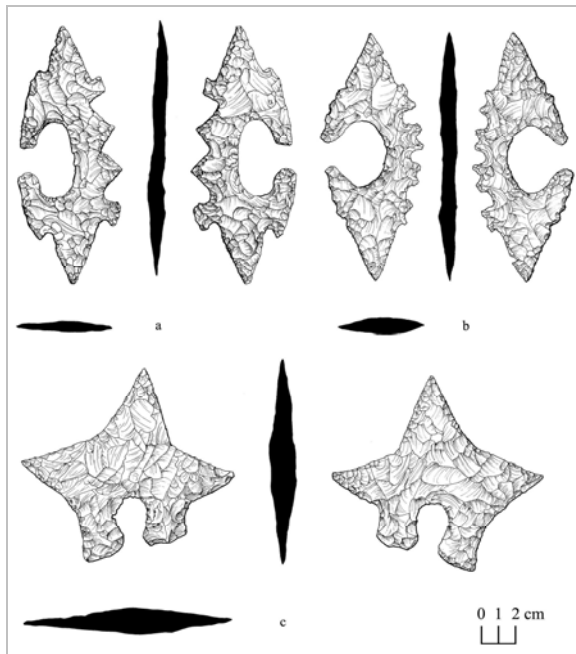


Figure 5. Three chert eccentrics dating to the Early Classic Period from a plaza cache placed in front of Structure C21, located within a non-epicentral residential group.

Within Caracol’s residential settlement, variations occur on the standard cache pattern of one or two deposits being placed in front of the eastern building. In a few residential groups, excavation has demonstrated that multiple caches had been sequentially placed both in front of and within a single structure. In one case (Structure J20), a central shrine construction housed at least 32 distinct finger caches as well as a single set of large lip-to-lip bowls. In another case (Highrise residential group), the eastern building contained at least a dozen sets of caches placed on the front central axis to a building, some with eccentric obsidians (Jaeger 1991). In a third case (Structure I5), at least eight caches were located on axis to the building. Many of the Structure I5 caches were associated with other items, such as shells, jadeite, limestone bars, and a multitude of eccentric obsidians; also recovered in these caches were a shark’s tooth and a limestone carving of “Kinich Ahau” (Figure 3b).

Private and Public Aspects of Ritual in the Archaeological Record of Caracol

The archaeological contexts related to ritual practice at Caracol can be used to show that ritual deposits at the site were used to establish group solidarity on a variety of levels. Depending on the context and the time period, the public and private aspects of the rituals varied. However, a distinction can be made between ritual carried out in epicentral architecture as opposed to ritual undertaken in residential architecture - although, in all contexts, the inferred ritual acts are to some degree mixed as to their public and private nature during the Late Classic Period.

We would see the placement of certain caches within Caracol’s epicenter, especially those dating earlier than the Late Classic Period that were placed during the construction of buildings, as being representative of private ritual. The physical placement of the cache and the contents included within the cache could not have been witnessed by more than a few people; yet, the location of the cache was symbolically necessary for the well-being of the public at large. Thus, these rituals had perceived impact far beyond those who witnessed the final interment of ritual offerings.

Caracol's elite would have tightly controlled the "centering" of the major constructions at the site during the Late Preclassic and Early Classic Periods – and this ritual practice would have provided the elite with a source of both knowledge and power that was largely hidden from the bulk of the population. However, privately deposited materials may have been part of wider public ritual events. This is particularly true of the ubiquitous "blood-letting" ascribed to the ancient Maya. Archaeological contexts indicate that blood-letting with the use of stingray spines and lancets was not generally a public ceremony (e.g., D. Chase 1994), but rather one that was participated in by only a few people and one that was presumably carried out in hidden locations. At Caracol, stingray spines are only infrequently found in tombs and more often occur as contents within Early Classic urns in association with the centering of the site's buildings, indicating again the participation of specific and restricted individuals in the rituals necessary to undertake this task.

Whether elaborate public rituals were carried out in the public spaces of Maya sites should remain an open question; it should not simply be assumed that epicentral plazas were venues for such practices. Some models of Maya political organization, such as those that refer to "galactic polities" (Demarest 1992) or to "theater states" (Inomata and Coben 2006), are based to a large extent on the postulation that charismatic elites carried out substantial, impressive rituals in these public spaces. We would caution, however, that spectacle and ritual are not necessarily the same things. While Maya iconography is replete with elaborate costuming, these costumes are for the most part specifically associated with rituals that celebrated temporal cycles (and not political spectacles). The rituals involved in these temporal cycles, however, were clearly in the public domain. This can be seen through placement of the stelae that commemorated these cycles in public epicentral plazas and in the repetitious cache patterns associated with stelae at sites like Tikal, Guatemala (Moholy-Nagy 2007).

Another form of public ritual in the epicenters of Maya sites probably accompanied interments that were conspicuously placed

within public buildings. The construction activities and modifications that were made to place such deposits would have been publically viewable. At Caracol, this is presumably true for the tomb intruded into Structure A3 (A. Chase and D. Chase 1987:15) and also for the burial intruded into the steps of Structure B5 during the Terminal Classic Period (A. Chase 1994). Public ritual display was also associated with certain specific epicentral venues for more than a single point in time. The rear alley of Structure A1 was the location of a publicly-viewable, thrice life-size, red-painted stucco statue dating to the end of the Early Classic Period. A cache had been secreted in the chest of the statue and another was secreted in the construction that covered it. When the statue was engulfed, a tomb was built immediately in front of the statue and it is likely that Stela 1 and Altar 1 were also erected immediately in front of this locus at this time. Subsequently, this tomb was infilled from a top constructed chute with burned bodies, vessels, and obsidian lancets placed within a dirt and stone matrix, representing the results of repeated rituals that were possibly associated with the accession of K'an II (D. Chase and A. Chase 2008). Thus, public ritual appears to have been necessary to establish the legitimacy of this ruler.

Yet, the physical construction of some features within buildings is suggestive of private ritual, particularly with regard to some interments. At Caracol, several epicentral buildings included pre-planned tombs within the cores of these edifices that were only accessible by means of carefully hidden, but easily accessible, entryways. Thus, the dead could be placed within these chambers with or without public fanfare.

Residential architecture at Caracol was also a widespread venue for ritual acts during the Late Classic Period. These rituals were focused not on the legitimacy or deification of the ruler, but rather on the integration of the inhabitants of Caracol through disseminated, but unified, ritual actions. The majority of Caracol's residential groups had their own shrines and mausoleums that were the focus of family ritual. Like the site epicenter, this localized ritual also had a temporal aspect to it; the burials were not timed with lifespans, but rather with time

periods (D. Chase and A. Chase 2003). Whether one considers the ritual carried out within residential groups to be private or public is a matter of semantics. The ritual acts carried out within the residential group were presumably only participated in and knowable by the group itself. Thus, each residential group carried out their own private rituals, but these rituals were public to members of the residential group. Similar ritual acts took place in each of the residential groups within Caracol's metropolitan area, including those located in the epicenter. In a twist on epicentral caching, the most public aspect of residential ritual would have been the placement of face and finger caches in front of eastern mausoleums. The placement of interments in these living areas was also in the public venue for group residents, as it is likely that bundled dead were stored in constructions on top of the eastern buildings and that all of the members of a group knew when (and where) they were actually buried. That there was a social memory involved in these interments is also reflected by the placement of incensarios in accidentally entered tombs and in the deposition of what appear to be child sacrifices in the fill directly above reburied chambers. However, the distinction between private and public ritual becomes moot at the residential level. It is only an issue for community-wide ritual conducted by the elite living within public architecture.

Conclusion

Most of the buildings and plazas that constituted the site of Caracol may be thought of as consecrated space. Whether public or private, ritual governed the temporal cycles associated with both residential groups and public architecture. While it is evident that ritual deposits were placed in both public epicentral architecture and private residential locations, the distinction between public and private ritual is often difficult to establish. Ritual in public places may have had both public and private aspects. Publically necessary ritual may have been witnessed by a select few, but would have had an impact on many. Likewise, residential ritual may have been public to the residents of a plazuela group; yet, by virtue of the limited size of the group's occupants, such ritual was more restricted and private in nature. Importantly,

caches placed within public architecture were generally deposited inside these constructions outside of public view; however, public display may have been conjoined with private offerings and private deposition. Even more haziness is apparent when cache contents are considered, as there are parallels between epicentral public architectural and residential caching. Only with the Late Classic Period proliferation of face caches at Caracol does there appear to be a clear distinction between rituals carried out in public as opposed to residential space. Yet, even here, the replication of caching practices among residential units makes it evident that private ritual reinforced uniform and unified public functions and beliefs. Thus, this paper provides a cautionary note regarding the simple assignation of the terms "public" and "private" to ritual, suggesting that only extensive excavation samples and detailed analyses of archaeological contexts can help illuminate past practices.

References Cited

- Aimers, James J. and Prudence M. Rice
2006 "Astronomy, Ritual, the Interpretation of Maya "E-Group" Architectural Assemblages," *Ancient Mesoamerica* 17:79-96.
- Becker, Marshall
1993 "Earth Offering among the Classic Period Lowland Maya: Burials and Caches as Ritual Deposits," in M.J. Iglesias P. and F. Liogorred P., Eds., *Perspectivas Antropologicas en el Mundo Maya*, pp. 45-74, SEEM, Madrid.
- Beetz, Carl P. and Linton Satterthwaite
1981 *The Monuments and Inscriptions of Caracol, Belize*, Monograph 45, The University Museum, Philadelphia.
- Chase, Arlen F.
1985 "Archaeology in the Maya Heartland: The Tayasal - Paxcaman Zone, Lake Peten, Guatemala," *Archaeology* 38(1): 32-39.
- 1986 "Time Depth and Vacuum: The 11.3.0.0.0 Correlation and the Lowland Maya Postclassic," in J.A. Sabloff and E.W. Andrews V, Eds., *Late Lowland Maya*

- Civilization: Classic to Postclassic*, pp. 99-140, University of New Mexico Press, Albuquerque.
- 1994 "A Contextual Approach to the Ceramics of Caracol, Belize," in D. Chase and A. Chase, Eds., *Studies in the Archaeology of Caracol, Belize*, pp. 157-182, Pre-Columbian Art Research Institute Monograph 7, San Francisco.
- Chase, Arlen F. and Diane Z. Chase
- 1987 *Investigations at the Classic Maya City of Caracol, Belize: 1985-1987*, Pre-Columbian Art Research Institute Monograph 3, San Francisco.
- 1994 "Maya Veneration of the Dead at Caracol, Belize," in Merle Robertson and Virginia Fields, Eds., *Seventh Palenque Round Table, 1989*, pp. 55-62, Pre-Columbian Art Research Institute, San Francisco.
- 1995 "External Impetus, Internal Synthesis, and Standardization: E Group Assemblages and the Crystallization of Classic Maya Society in the Southern Lowlands," *Acta Mesoamericana* 8:87-101 (special issue edited by N. Grube entitled *The Emergence of Lowland Maya Civilization: The Transition from the Preclassic to Early Classic*) Markt Schwaben Verlag A. Surwein, Germany.
- 2004 "Terminal Classic Status-Linked Ceramics and the Maya "Collapse:" *De Facto* Refuse at Caracol, Belize," in A. Demarest, P. Rice, D. Rice, Eds., *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, pp. 342-366, University Press of Colorado, Boulder.
- 2005 "The Early Classic Period at Caracol, Belize: Transitions, Complexity, and Methodological Issues in Maya Archaeology," *Research Reports in Belizean Archaeology* 2:17-38.
- 2006 "Before the Boom: Caracol's Preclassic Era," *Research Reports in Belizean Archaeology* 3:41-67.
- 2007 "'This is the End:' Archaeological Transitions and the Terminal Classic Period at Caracol, Belize," *Research Reports in Belizean Archaeology* 4:13-27.
- Chase, Arlen F., Diane Z. Chase, and Christine White
- 2001 "El Paisaje Urbano Maya: La Integración de los Espacios Construidos y la Estructura Social en Caracol, Belice," in A. Ciudad Ruiz, M. Josefa Iglesias Ponce de Leon, and M. Del Carmen Martinez Martinez, Eds., *Reconstruyendo la Ciudad Maya: El Urbanismo en las Sociedades Antiguas*, pp. 95-122, Sociedad Espanola de Estudios Mayas, Madrid.
- Chase, Diane Z.
- 1988 "Caches and Censerwares: Meaning from Maya Pottery," in L. Lackey and C. Kolb, Eds., *A Pot for All Reasons: Ceramic Ecology Revisited*, pp. 81-104, Laboratory of Anthropology, Temple University, Philadelphia.
- 1994 "Human Osteology, Pathology, and Demography as Represented in the Burials of Caracol, Belize," in D. Chase and A. Chase, Eds., *Studies in the Archaeology of Caracol, Belize*, pp. 123-138, Pre-Columbian Art Research Institute Monograph 7, San Francisco.
- 1997 "Southern Lowland Maya Archaeology and Human Skeletal Remains: Interpretations from Caracol (Belize), Santa Rita Corozal (Belize), and Tayasal (Guatemala)," in Stephen C. Whittington and David M. Reed, Eds., *Bones of the Maya: Studies of Ancient Skeletons*, pp. 15-27, Smithsonian Institution Press, Washington, D.C.
- Chase, Diane Z. Chase and Arlen F. Chase
- 1998 "The Architectural Context of Caches, Burials, and Other Ritual Activities for the Classic Period Maya (as Reflected at Caracol, Belize)," in Stephen D. Houston, Ed., *Function and Meaning in Classic Maya Architecture*, pp. 299-332, Dumbarton Oaks, Washington, D.C.
- 2000 "Inferences about Abandonment: Maya Household Archaeology and Caracol, Belize," *Mayab* 13:67-77.
- 2002 "Classic Maya Warfare and Settlement Archaeology at Caracol, Belize," *Estudios de Cultura Maya* 22:33-51.

- 2003 "Secular, Sagrado, y Revisitado: La Profanacion, Alteracion, y Reconsagracion de los Antiguos Entierros Mayas," in A. Ciudad Ruiz, M.H. Ruz Sosa, and M.J. Iglesias Ponce de Leon, Eds., *Antropología de la Eternidad: La Muerte en la Cultura Maya*, pp. 255-277, Publicación 7, Sociedad de los Estudios Mayas, Madrid.
- 2004a "Archaeological Perspectives on Classic Maya Social Organization from Caracol, Belize," *Ancient Mesoamerica* 15:111-119.
- 2004b "Patrones de Enterramiento y Ciclos Residenciales en Caracol, Belice," in R. Cobos, Ed., *Culto Funerario en la Sociedad Maya: Memoria de la Cuarta Mesa Redonda de Palenque*, pp. 203-230, INAH, México, D.F.
- 2008 "Que no nos Cuentan los Jeroglíficos?: Arqueología e Historia en Caracol, Belice," *Mayab* 20:93-108.
- Demarest, Arthur A.
1992 "Ideology in Ancient Maya Cultural Evolution: The Dynamics of Galactic Politics," in A. Demarest and G. Conrad, Eds., *Ideology and Pre-Columbian Civilizations*, pp. 135-158, School of American Research Press, Santa Fe.
- Fogelin, Lars
2007 "The Archaeology of Religious Ritual," *Annual Review of Anthropology* 36:55-71.
- Inomata, Takeshi and L.S. Coben
2006 *Archaeology of Performance: Theaters of Power, Community, and Politics*, Altamira, Walnut Creek.
- Insoll, Timothy
2004 *Archaeology, Ritual, and Religion*, Routledge, London.
- Jaeger, Susan
1991 Settlement Pattern Research at Caracol, Belize: The Social Organization in a Classic Maya City, Ph.D. Dissertation, Department of Anthropology, Southern Methodist University, Dallas.
- Laporte, Juan Pedro
1996 "Organización territorial y política prehispánica en el sureste de Peten, *Atlas Arqueológico de Guatemala No. 4*, IDAEH, Guatemala.
- Lucero, Lisa J.
2006 *Water and Ritual: The Rise and Fall of Classic Maya Rulers*, University of Texas Press, Austin.
- Marcus, Joyce
2007 "Rethinking Ritual," in E. Kyriakidis, *The Archaeology of Ritual*, pp. 43-76, Cotsen Institute of Archaeology, University of California, Los Angeles.
- Martin, Simon and Nikolai Grube
2000 *Chronicle of Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*, Thames and Hudson, Ltd., London.
- Mathews, Jennifer and James Garber
2004 "Models of Cosmic Order: Physical Expression of Sacred Space among the Ancient Maya," *Ancient Mesoamerica* 15(1):49-59.
- Moholy-Nagy, Hattula
1985 "Social and Ceremonial Uses of Marine Mollusks at Tikal," in M. Pohl, Ed., *Prehistoric Lowland Maya Environment and Subsistence Economy*, pp. 145-158, Papers of the Peabody Museum 77, Harvard University Press, Cambridge.
2007 *The Artifacts of Tikal*, Tikal Report 27A, The University Museum, Philadelphia.
- Plunket, Patricia
2002 Ed., *Domestic Ritual in Ancient Mesoamerica*, Cotsen Institute of Archaeology, Los Angeles.
- Rice, Prudence M.
2004 *Maya Political Science: Time, Astronomy, and the Cosmos*, University of Texas Press, Austin.
2008 "Time, Power, and the Maya," *Latin American Antiquity* 19(3):275-298.
- Teeter, Wendy
2001 Maya Diet in a Changing Urban Environment: Faunal Utilization at Caracol, Belize, Ph.D. Dissertation, Department of Anthropology, UCLA, Los Angeles.

Tozzer, Alfred M.

1941 *Landa's Relacion de las Cosas de Yucatan*, Papers of the Peabody Museum 18, Harvard University Press, Cambridge.

Wells, Christian and Karla L. Davis-Salazar

2007 "Mesoamerican Ritual Economy: Materialization as Ritual and Economic Process," in E. Wells and K. Davis-Salazar, *Mesoamerican Ritual Economy: Archaeological and Ethnological Perspectives*, pp. 1-26, University Press of Colorado, Boulder.

2 **DEATH IN THE WEST: SOCIAL STATUS, REPRESENTATION, AND MORTUARY RITUAL IN WESTERN BELIZE**

Sonja A. Schwake

Ancient Maya lesser elites used the rituals associated with death to manipulate their status position during the Late and Terminal Classic Periods (A.D. 700-900). An emphasis on group distinctiveness was made with material remains in order to create distance from commoners, and increase proximity to ruling elites. This paper examines the strategy of group status-building through mortuary representation as a means to challenge the ruling authority. These strategies correlate with times of waning central authority in the Maya Lowlands, and suggest the general weakness of political authority in the ancient Maya state. A case study from the site of Minanha in western Belize will be used to exemplify this pattern. As well, an examination of comparative data from the broad western Belize and central Petén regions will show the widespread, but patterned, implementation of group mortuary strategies.

Introduction

Death and mortuary ritual are a universal rite of passage (van Gennep 1908), which are intimately related to the social conditions of the deceased individual and those participating in the ritual. In the particular case of mortuary ritual, it is the group of the living who decide how to commemorate the departed community member. Because of that decision-making power, the rituals associated with death are important for archaeologists interested in the social dynamics of death. Following Turner (1977:44), mortuary commemorations fall under at least two categories; those that are part of centralized, sanctioned cycles of ritual, and those that develop outside the central political and economic structure of a society. In other words, Turner (1977:44) characterized the ritual sphere as containing a competing tension between officially sanctioned group activities and those that were performed to challenge the existing power structure, ruling authority, or status quo. Death is a very powerful metaphor that is present in many other stages of transition through the lifecycle, thus it stands to reason that rituals associated with actual death have parallels to all other stages of life, and are relevant to the social relations, political hierarchy, and economic systems of a particular group.

The challenge, for archaeologists, is to operationalize the connection between the material remains associated with mortuary ritual, and their particular social significances. I assert

that the material culture associated with mortuary ritual in the Maya area, when compared between different social strata at a site, holds important insights into the social aspirations of these respective groups (Schwake 2008). In addition, the rituals surrounding death serve as an outlet where non-ruling, but still high status individuals can challenge their position in the social hierarchy. A case study from the ancient site of Minanha, in west central Belize will be used to exemplify how different social groups use the occasion of the death of a group member to emphasize concerns of particular interest to the entire group.

Mortuary Practice and Society

Binford (1971), Saxe (1971), and others discussed the importance of how mortuary rituals change over time, and how these changes are correlated with the relative stability or instability of the social and political structure of the group. As well, Binford (1971:14) noted that within a single society, there is often a great diversity in burial practices, and he hypothesized that this formal differentiation is related to differences in status and the group affiliation of the deceased. Subsequent work on the interpretation of mortuary remains by Brown (1995:5) and Dillehay (1995:4) has focused not only on those aspects of status that pertain to the deceased individual, but also on the re-formulation of the social group in the absence of that individual. In other words, the rites associated with death are enacted by the living

members of the society to which the deceased was a part, and that this provides an additional level of social significance to mortuary custom. There are a significant number of more recent mortuary analyses that focus on the recurrent theme of the relationship between the living and the dead. The presence of ancestor worship strengthens community cohesion through social, economic, and political frames of reference (Dillehay 1995:17; McAnany 1995). McAnany (1995) points out that the practice of ancestor veneration among sub-groups of a particular population relates to attempts to establish preferential access to lands and resources for the group's surviving members. The continued relationship with ancestors is a strategy employed by the living to forward their own material or prestige gains (Salomon 1995). Particularly in instances where mass burial or sequential multiple burial is practiced (but not the interment of sacrificial companions or attendees), the identity of the individual is subsumed by that of the group in the interest of emphasizing cohesiveness and promoting the material and social interests of that group (Duncan 2005:223). The group identity goes beyond the identities of the individuals who make up the group, and there is a deliberate association or link made between the group and a particular occupation or specialization. This conscious attempt to create a group identity is an example of Manuel Castell's (2000:8) "project identity" where social actors redefine their position in society for upward gain, and in doing so, transform the social structure itself.

The research of archaeologists working in the Maya area reflects these shifting perspectives in mortuary and ritual analysis. We are very familiar with the numerous stunning examples of burials from the Maya area that contain a single, important individual, often a king or queen, interred with a wealth of grave goods. This burial pattern is pan-Mesoamerican in scope, and commands a disproportionate amount of archaeological attention. These rich tombs represent the elite of Maya society, the ruling lineages, those in positions of power. They too are creating a deliberate identity, one that tries to justify their social position at the top of the hierarchy, and one that legitimates their right to rule. Some interpret this preoccupation

with justifying their right to rule as an indication of the tenuous hold Maya rulers actually had over their polities (Borowicz 2004). This "legitimizing identity", is clearly not something that could be directly copied or emulated by other non-ruling members of ancient Maya society. Instead, lesser-elites utilized mortuary ritual to create and project an identity via representation linked to occupational specialization. Mortuary practice does not simply reflect society; it is composed of values and symbols which institute, establish, or enact power through social practice. Mortuary representation is a conscious strategy to project the individual or group in death. In the case I will discuss from Minanha, the creation of this group identity serves a dual function; 1) to decrease the social and structural distance between the lesser elites and the ruling elites, and 2) to increase the distance between the lesser elites and other groups of similar status and commoners.

One way to conceptualize the effect this strategy had on social position is to think of a Cartesian field of status positions (see Kim 1999). In a strict hierarchy, with no particular strategy of mortuary representation, the y axis in such a field can be imagined as a gradation of status positions from lowest to highest (Figure 1). For the ancient Maya, the top-ranked position was taken by ruling or apical elites. Still within but at the lower end of the elite stratum was the location of lesser elites. Finally, within a separate stratum, and in the lowest position, were the commoners. The addition of an x axis, representing an increasing degree of emphasis on specialization through mortuary assemblages turns this continuum of statuses into a field of status positions, and allows for certain lesser elites to shift their position closer to the ruling or apical elites, and farther from other lesser elites and commoners simultaneously (Figure 2). Thus, during a time of sociopolitical breakdown of the ruling elite, such as that seen in the Terminal Classic Period in the Maya Lowlands, this lesser elite strategy of representation emerged between apical elites trying to maintain the status quo, and lesser elites trying to forward their position in the power vacuum created by the weakening of the control of the ruling elites.

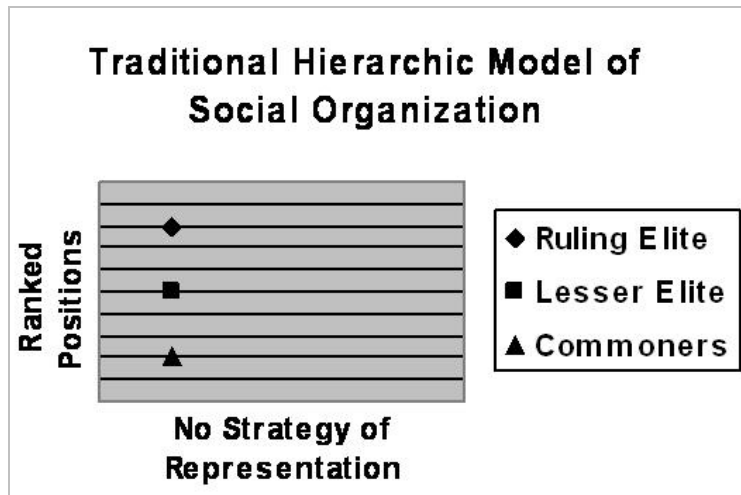


Figure 1. Model of linear status positions, without a strategy of mortuary representation. (Schwake 2008:64).

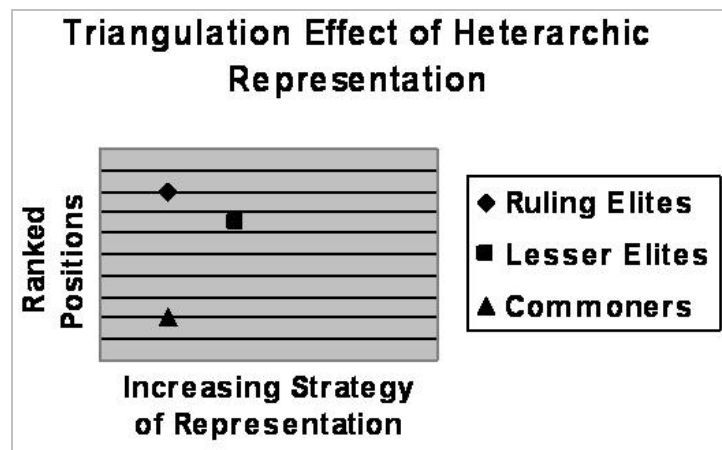


Figure 2. Model of field of status positions: when a strategy of mortuary representation is implemented. (Schwake 2008:65).

These ideas about distinct identity representation through mortuary ritual are very compelling. However, does the on-the-ground data from mortuary contexts at ancient Maya sites actually reflect this idea about strategies of representation? We can assume that the data does fit the model if it holds true to several conditions. First, there have to be distinct physical areas at the site that correspond to groups with different sociopolitical standing. Second, each of these physical locations must include a discrete mortuary component or context. Third, the mortuary practices of each stratum must differ beyond just an order of scale or intensity. This last condition is somewhat oversimplified, as of course there is broad

overlap in some aspects of the mortuary ritual of members of the same society. An example of a simple difference of scale would be the frequent discovery of apical elites with a jade bead in their mouth, whereas lesser elites were interred with a shell bead in their mouth. Presumably, the presence of the bead, whether jade or shell, is intended to serve the same function. The bead represents similar aspirations for the dead on the part of the living, regardless of social standing, and the lesser status group employs a strategy of emulation in that case, not the creation of a novel mortuary practice (Schwake 2008:76). The mortuary assemblages of different groups within a given society must differ significantly in terms of the intentionality behind the

inclusion of certain associated artifacts, and the choices of emphasis made in the associated mortuary ritual.

Case Study: Minanha

The site of Minanha is located in west central Belize, equidistant between the large polity of Caracol to the south, and smaller sites in the Belize Valley to the north (Figure 3). The site also sits at the approximate midpoint between the sites of Caracol and the great city of Naranjo (Iannone 1999:14). Gyles Iannone (1999) posits that the location of Minanha is significant in relation to the power struggle between the sites of Caracol and Tikal, two large polities with a history of mutual aggression. Minanha sits in a critical medial position between these sites, and thus was an area of contention between the larger sites when local alliances and affiliations oscillated between the larger polities (Iannone 1999:14). Secondary or lesser elites could also manipulate their position in regards to this advantageous spatial proximity to the two larger polities.

There are three physically distinct tiers of vertical settlement at Minanha---the acropolis in the site epicenter, the lower ring of settlement surrounding the site epicenter, and the groups at the bottom of the hill in the periphery of the site-- that correspond to at least three levels of social status positions within the community. The raised, restricted acropolis is the apical elite residence. The large compounds surrounding the site center were the residences and activity areas of lesser elites. The peripheral groups were the residences of the support population, or the commoners at the site. Iannone (2005) interprets the events of the Late and Terminal Classic periods at Minanha as mainly responsive to the large-scale political and demographic realignment of the Maya collapse. He posits that the major centers of the Petén and Vaca Plateau lost power, creating a vacuum that secondary centers located in the frontier zones between large centers used to attain power (Iannone 2005:26). Iannone (2005:26) describes the emergence of a royal court at Minanha in the Late Classic Period that had a 100 year period of florescence, before being destroyed in the Terminal Classic. It is during this critical period that an interesting pattern of mortuary behaviour

emerges amongst the lesser elites at the site (Schwake 2008).

With regards to the overall variety and distribution of mortuary practices, the apical or ruling elites at the site were most concerned during this volatile time with emphasizing their legitimacy, right to rule, and longstanding community connections (see Schwake 2008). One major ruling elite mortuary location is the vaulted T-shaped tomb in Structure 3A of the site core, associated with a series of vertically aligned caches deposited in front of the structure. The timing and location of the caches is such that the ruling elite were concerned with linking their Late and Terminal Classic mortuary remains with ritual caching events that had happened much earlier in the Minanha community site center (Schwake and Iannone 2010). The associated materials and the caches themselves are unique in the Minanha repertoire of mortuary activities. In contrast, the lesser elites were using a deliberate strategy of multiple individual interment to create an identity based on occupational specialization, specifically, their special role as scribes (Schwake 2008).

Two hundred meters to the southeast of the epicenter is Group S, a large plaza group including three structures that form an ancestor shrine on the eastern side. The location of the group, the size and elaboration of the architecture, and the recovered items of material culture confirm the group's designation as an elite complex (Schwake 2008:310). The fact that the group is spatially removed from the epicenter and does not reach the level of elaboration of the epicentral elite architecture, indicates that the occupants held the status of lesser elites rather than apical or ruling elites (Schwake 2008:310). Structure 77S, the central pyramid of the ancestor shrine of Group S, has two interment loci associated with it. The first is a simple crypt burial underneath the terminal floor located at the base of the structure. The remains of at least nine individuals were interred in this grave during the construction of the building in the Late Classic period. The second interment location consists of an elaborate crypt within the 77S pyramid. The well-constructed, north-south oriented chamber measures approximately 2.3 meters long by 1.2 meters

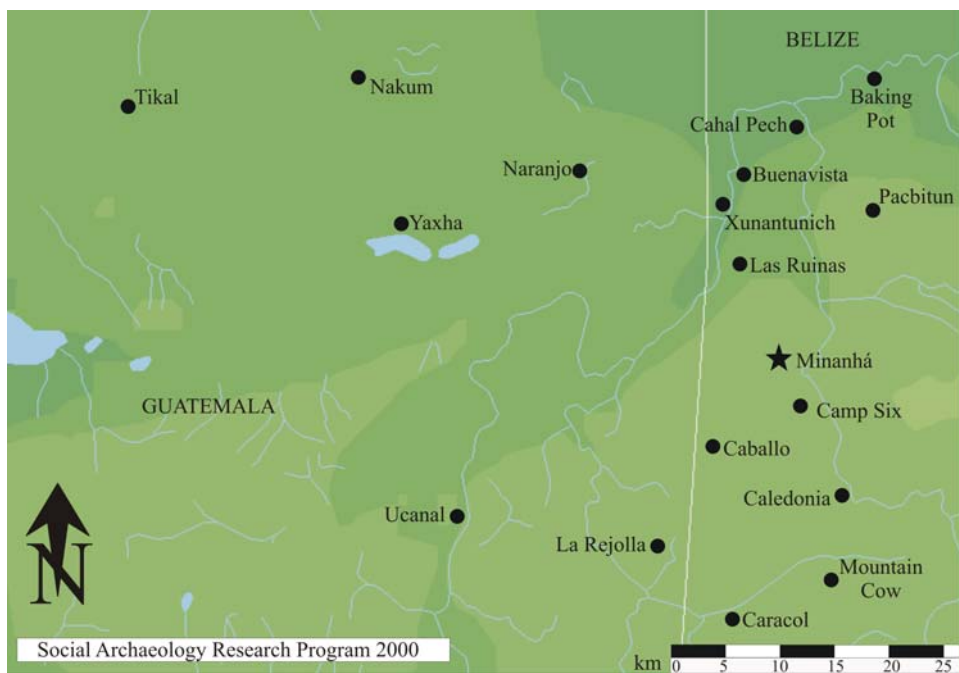


Figure 3. Map showing location of Minanha, and surrounding region. (Map provided by Gyles Iannone).

wide, with a height of 0.7 meters. In the northeast corner of the chamber, an entryway slants upwards to the north, ending in a large capstone that served as a permanent point of access to the crypt. The remains of at least 15 individuals were found within the chamber, along with numerous grave goods. The presence of the open access point, as well as the dispersed nature of the human remains (with some articulated in an extended position, and others, disarticulated and displaced to the southeast corner of the chamber) together indicate that the individuals were interred in the chamber at different times (Schwake 2008:311).

The dispersed nature of the human remains in the chamber precluded an exact association of grave goods to individuals, with the exception of specific items of personal adornment (Schwake 2008:311). Many items of material culture were included in the chamber as grave goods; including bone, shell, ceramic and lithic remains. One sub-set of these is of particular interest here. This set of related materials can be seen as a grave assemblage linked to all of the individuals inside the chamber, creating and emphasizing their collective identity; a unique strategy of representation particular to these lesser elites.

The items of interest recovered from the chamber include a painted polychrome cylinder vase, two miniature flask-shaped vessels, and two specially modified pieces of conch shell (Schwake 2008:311).

The polychrome vessel, centrally located along the west wall of the chamber, is a member of the Zacatel Cream polychrome variety, with characteristic bands of pseudo-glyphs just under the rim, and the main body divided into repetitive design quarters (Figure 4). The Zacatel Cream polychromes date to between A.D. 672 and 830 (Reents-Budet 1994:328), and were produced in the Northern Petén lowlands of Guatemala, in the general region of Nakbe. One attribute of this vessel is particularly interesting: the pseudo-glyph text just beneath the rim. The presence of pseudo-glyphs, rather than readable glyphs, indicates that the painter of the vessel did not have the wherewithal to access true writing. However, those who chose to include the vessel in the mortuary assemblage in Structure 77S did recognize the power inherent in the script, as true script is what the pseudo-glyphs serve to emulate. This emphasizes that both the artisan and ultimate consumers of the vessel were members of the elite, but they did not have

access to true writing, as apical or ruling elites did.

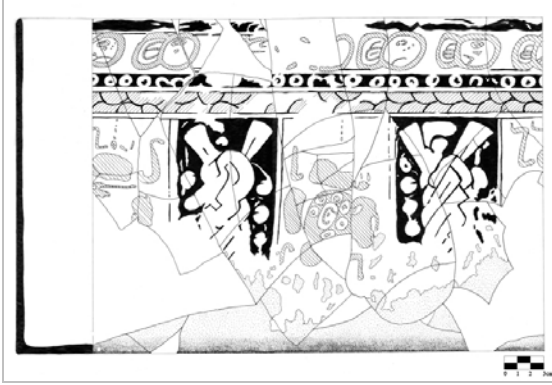


Figure 4. Zacatel Cream polychrome: Illustration by Kim Kersey. (Schwake 2008:193).

The other interesting artifacts found in contextual association with the polychrome vessel include the two miniature ceramic flasks, and two worked conch shell elements. One of the flasks was plain, but the other had an elaborate face molded on one side, a repetitive pattern of pseudo-glyphs bi-laterally, and molded shoulder holes that would have allowed for the suspension of the vessel, without any spillage of the contents (Figure 5). Several Early Classic examples of similar vessels from Copán, El Cerén, Uaxactún, and Aguateca have contained pigment, thus these vessels likely had the same function (Reents-Budet 1994:68, 214-215). The conch shell artifacts consist of a flattened scoop-like piece of shell and a worked central element of a conch shell (Figure 6). Although crude, the first could have served as a pigment holder, while the second may have served in the application of pigment. Numerous depictions of scribes on painted pottery show them with similar accoutrements; a brush for applying pigment in one hand and a flattened conch shell pigment holder in the other (Reents-Budet 1994:36). There are even very specific depictions of a tool used to apply pigment. This tool or stylus is characterized by a rigid form that is clutched differently than the brush by the artist (Reents-Budet 1994:41). Very few examples of either the pigment holder, or brush or stylus implements have been recovered archaeologically, but the conch shell implements from this interment comprise a rare example of a scribe's tool kit.

Taken together, the ceramic flasks served as more permanent pigment storage vessels, the shell pigment holder and stylus served in the application of pigment to ceramic, wood, or stucco media, and the painted polychrome may represent a valued gift from distant artisans in the Petén. That these items were included as part of the mortuary furnishings of the group interred in the chamber indicates a deliberate attempt to represent and identify the deceased in their role as artisans.

In contrast, the commoners in the periphery of the site enact very different rituals associated with death. One small ancestor shrine at a group in the periphery of the site had a multiple interment, but the associated ritual caches were of the more widespread small, lip-to-lip plain vessels with a human digit inside. This exemplifies how the mortuary contexts representing different socio-economic groups at the site do vary considerably in form and association when compared critically, suggesting different groups at the site held different beliefs when it came to interring their dead.

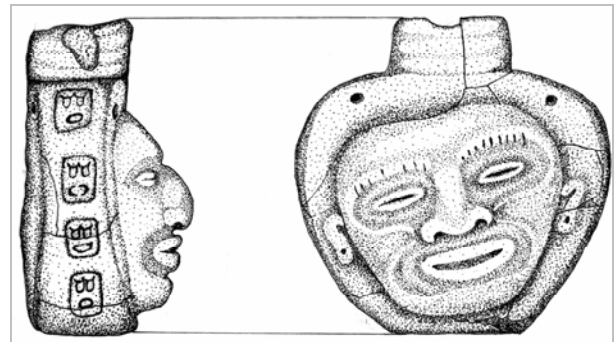


Figure 5. Pigment vessel with modeled face: Illustration by Kim Kersey. (Schwake 2008:192).

One aspect of the strategy that contributes to the representation of group members as distinct is the deliberate choice to subsume individual identity through a process of multiple burial. One of the most fundamental choices that has to do with mortuary events relates to whether or not the ceremonies are going to emphasize or downplay the individual as a social persona in death. The deliberate choice to inter people in groups is a strong statement that the living are also creating their own identity in that form. If the most important aspect of creating ancestors is their collective

identity, then as archaeologists, we should also look to the frequency and distribution of this form of interment in the broader regional area we are studying. One of my first assertions in this paper was that the lesser-elite strategy of group representation in death is linked to moments of waning central authority in the Maya Lowlands. So, there should be an upswing in the frequency of multiple interments in the region during the Late and Terminal Classic periods.

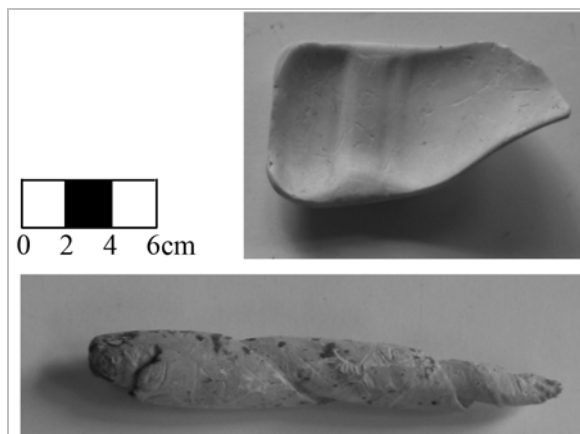


Figure 6. Conch shell artifacts, including pigment holder and applicator. (Schwake 2008:194).

To look at the regional picture, I compiled burial data from both published materials and other literature from three regions; the Belize Valley region north of Minanha, the southeast Petén region to the southwest of the Minanha region, and the Vaca Plateau of west central Belize, where Minanha is located (see Schwake 2008). The sample included a total of 678 burials containing the remains of at least 1031 individuals spanning the Preclassic through Terminal Classic periods. One of the striking patterns that emerged from comparing data between regions is the high frequency of multiple interments in the Vaca Plateau when compared to regions adjacent to Minanha. More importantly, the dramatic increase in frequency of multiple individual interment during the Late and Terminal Classic periods. This coincides of course to the increased sociopolitical instability in the region at the time, but it also reflects the degree of transformation and innovation in mortuary practices, and concomitantly, the degree of deliberate choice enacted by groups in

how they wanted to represent their dead through mortuary ritual.

Conclusions

The mortuary assemblage from Group S at Minanha fulfills all of the necessary conditions I set out in the beginning of this paper to positively indicate the presence of a group strategy of mortuary representation to counteract the top-down power hierarchy of the ruling elite. The Minanha example comes from a physical location at the site that can be identified as a lesser elite group through multiple lines of material categories. The group has a distinct mortuary assemblage in association with it, and the form of mortuary representation, that is, emphasizing the importance of group members as scribes, does not simply emulate the mortuary practices of the elites, nor overlap with the mortuary rituals of the commoners. The creation of this collective identity is done as a deliberate strategy to elevate the group as a whole closer to the ruling elite, and farther from the commoners, but it also serves to threaten those at the top, and challenge their ruling authority.

One caution to take away from the research discussed here is to re-assess some of the interpretations we have already made about mortuary data in the Maya area. I believe that we can tease out the objectives and strategies of different segments of a society based on their mortuary behaviour. For every royal pumping their tomb full of unbelievable riches, there are numerous lesser elites generating counterpoised power in the form of resistance through mortuary representation and challenging the status quo.

Acknowledgements Many thanks to the Institute of Archaeology in Belize, especially Drs. Jaime Awe and John Morris, and Mr. George Thompson and Mr. Brian Woodye, as well as to the hardworking staff of the IA who make the annual Belize Symposium a great conference. Thanks are also due to the Social Sciences and Humanities Research Council of Canada, Trent University, UCSD, and SUNY-Buffalo for generous financial support. Thanks to Dr. Geoffrey Braswell, Nadine Gray, Dr. Christophe Helmke, Dr. Gyles Iannone, Beniamino Volta, and the editors of this volume.

Lastly, I would like to acknowledge our late colleague, Dr. Pat Killpack, a gentleman, and a scholar, may he rest in peace.

References Cited

Binford, Lewis

- 1971 Mortuary Practices; Their Study and Their Potential. In *Approaches to the Social Dimensions of Mortuary Practices*, edited by J.A. Brown, pp. 6-29. *Memoirs of the Society for American Archaeology*, Number 25.

Borowicz, James

- 2004 Images of Power and the Power of Images: Early Classic Iconographic Programs of the Carved Monuments of Tikal. In *The Maya and Teotihuacan: Reinterpreting Early Classic Interaction*, edited by Geoffrey E. Braswell, pp. 217-234. University of Texas Press, Austin.

Castells, M.

- 2000 *The Power of Identity*. Volume 2. *The Information Age: Economy, Society and Culture*. Blackwell Publishers Inc., Malden.

Dillehay, T.

- 1995 Introduction. In *Tombs for the Living: Andean Mortuary Practices*, edited by T. Dillehay, pp. 1-26. *Dumbarton Oaks*, Washington, D.C.

Duncan, William N.

- 2005 Understanding Veneration and Violation in the Archaeological Record. In *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium*, edited by G.F.M. Rakita, J.E. Buikstra, L.A. Beck, and S.R. Williams, pp. 207-227. University Press of Florida, Gainesville.

Iannone, Gyles J.

- 1999 Archaeological Investigations at Minanha, Belize: A Research Proposal. In *Archaeological Investigations in the North Vaca Plateau, Belize: Progress Report of the First (1999) Field Season*, edited by Gyles Iannone, Jeffrey Seibert, and Nadine Gray, pp. 1-28. Trent University, Peterborough.

- 2005 The Rise and Fall of an Ancient Maya Petty Royal Court. *Latin American Antiquity* 16(1):26-44.

Kim, Claire Jean

- 1999 The Racial Triangulation of Asian Americans. *Politics and Society* 27(21):105-138.

McAnany, Patricia A.

- 1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press: Austin.

Reents-Budet, Dorie

- 1994 *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Duke University Press, Durham.

Salomon, F.

- 1995 "The Beautiful Grandparents": Andean Ancestor Shrines and Mortuary Rituals as Seen Through Colonial Records". In *Tombs for the Living: Andean Mortuary Practices*, edited by T. Dillehay, pp. 315-353. *Dumbarton Oaks*, Washington, D.C.

Saxe, A.A.

- 1971 Social Dimensions of Mortuary Practices in a Mesolithic Population from Wadi Halfa, Sudan. In *Approaches to the Social Dimensions of Mortuary Practices*, edited by J.A. Brown, pp. 39-57. *Memoirs of the Society for American Archaeology*, Number 25.

Schwake, Sonja A.

- 2008 *The Social Implications of Ritual Behavior in the Maya Lowlands: A Perspective from Minanha, Belize*. Ph.D. dissertation, University of California-San Diego, San Diego.

Schwake, Sonja A., and Gyles Iannone

- 2010 Ritual Remains and Social Memory: Maya Examples from West Central Belize. Submitted to *Ancient Mesoamerica*.

Turner, Victor

- 1977 Variations on a Theme of Liminality. In *Secular Ritual*, edited by S.F. Moore and B.G. Myerhoff, pp. 36-52. Van Gorcum, Amsterdam.

Van Gennep, A.

- 1908 *The Rites of Passage*. Translated by M.B. Vizedom and G.L. Caffee (1960). University of Chicago Press, Chicago.

3 MAYA “TRAVELERS”: ICONOGRAPHY, LIMINALITY, AND ANCIENT WORLDVIEW

Dianna L. Wilson-Mosley, Arlen F. Chase, and Diane Z. Chase

One example of an iconographic theme that is incorporated into the surviving media of the ancient Maya, but that is neither mentioned in ethnographically-recorded myths nor represented in the iconography from most non-contextual objects, is denoted here by the term “travelers.” “Travelers” are so named because they comprise an iconographic group of images that are gods, humans, and animals depicted journeying from one level or realm of the Maya universe to another. To accomplish this, they use objects that are capable of bridging more than one plane of existence at a time. Their iconographic journey is portrayed through their holding onto or riding objects that held other-world or afterlife symbolic significance for the ancient Maya; their portrayal is further associated with transitional events related to birth, death, and leadership. The iconographic recognition of these “travelers” provides insight and broadens what is currently understood about the ancient Maya view of life and death by providing iconographic representations of the permeable boundaries between worlds.

Introduction

Faced with two thousand years of change, much of it forced and revolutionary, ancient Maya worldview is a difficult topic to approach. Recently, however, there has been a concerted effort at gaining some insight into that ancient worldview (Cecil and Pugh 2009). While it is difficult to gain access to a vanished and eradicated cosmology through using archaeological, ethnographic, and ethnohistoric data, it can be accomplished, particularly through the careful use of iconography.

This study examines the ancient Maya iconographic use of subsidiary figures that are referred to here as “travelers.” Travelers constitute an iconographic theme that featured prominently in ancient Maya art. They are a group of figures that are usually depicted in scenes depicting important human or community transitions and that are interpreted as having been capable of traveling through different levels of existence. For the Maya, travelers are widely distributed, both in terms of chronology and areal extent. These images are inextricably tied to our understanding of the ancient Maya worldview. They are liminal figures that were capable of crossing between the different planes of Maya existence. The extant iconography makes it clear that they were also were important in life’s transitions. Taken as a whole, travelers broaden our understanding of ancient Maya views of life and death by showing how boundaries were transcended in the world of the living and the world of the supernatural.

Ancient Maya Underworld Symbolism

The ancient Maya believed that there were a minimum of three layers to the universe and that life followed a cyclical pattern of birth, death, and rebirth. The transition from death to rebirth was associated with the underworld (Freidel and Suhler 1999:255). Worldly humans were generally restricted to the surface of the earth during their natural lives. However, supernatural upperworld and underworld creatures could exist in or journey to more than one level. Maya rulers also appeared to have been imbued with the ability to navigate between levels (Clancy 2009). Thus, a central theme in Maya iconography is the use of “portals, thresholds, transitions, and co-essences” to transition between these three realms (D. Chase and A. Chase 2009).

The ancient Maya afterlife was associated with underwater imagery. One of the most prominent water symbols in Maya art is the blossoming lily pad. Water also may be represented in Maya art through water scrolls, shell scrolls, water stacks, and water lines (Schele 1988:301). Crocodiles, fish, snakes or serpents, turtles, sharks, water birds, standing water, oceans, lakes, swamps, and agricultural canals were also used to symbolize water and the underworld (Schele and Miller 1986:46). Additional symbols bridge multiple levels of the universe. The ceiba tree or world tree is representative of the earth’s axis and is a portal; the roots, the trunk, and the branches bridge the underworld, the present world, and the upperworld (Freidel et al. 1993:7; Newsome

2001:199); Thompson (1970:195) found that for some Maya, the roots provided a path for ancestors to ascend into the world, and the trunk and branches allowed the dead to “climb to the highest sky.” Other symbols that may have been used to show connections between earthly and otherworldly existence included clouds, smoke, umbilical cords, and twisted ropes (Miller 1982).

A series of personages were more likely to be involved in conveyance or transmission across levels of the universe; these included various deities, the paddler gods, the bacabs, serpents, and the Celestial monster. Underworld and upperworld deities had features distinct from humans, often termed “grotesque” (Baudez 1989:74; Spinden 1970:49); in particular, they often can be identified by stylized or exaggerated skeletal features that display signs of death, such as black spots, closed eyes, or “death eyes” (Coe 1977:16).

“Paddler gods,” frequently shown as old men, are so named because they use paddles to navigate the surface of a transitional zone, transporting the dead to the afterlife. The ancient Maya likely equated death with sinking underwater (Schele and Miller 1986:268). The Paddler gods are also identified as the “Old Jaguar God” and the “Aged Stingray God” (Newsome 2001:28; Schele and Miller 1986:270). Another set of supernatural transitional characters, also often shown as wrinkled old men, are the Bacabs, who are credited with holding up the earth (Baudez 1989:78,266).

Serpents are among the most commonly displayed figures in afterlife activities. They are frequently depicted as being in motion, but are also quite stylized; they may be skeletal or two-headed and, significantly, they transcend all levels of the universe, being located in the sky, in water, on the earth, or even suspended in midair (Spinden 1970:36). When appearing as Serpent Bars, the heads that emerge from their mouths are thought to represent portraits of mythical or historical ancestors of the ruler (Stuart 1988:212) or, alternatively, Paddler gods (Schele and Miller 1986:46).

Finally, the Celestial monster, also called the Bicephalic monster or Cosmic monster, is depicted consistently in relation to images of transitional events such as birth,

accession, death, and rebirth. The body of this personage is often shaped like a crocodile, but with two heads and a single body.

Archaeologically, items connected symbolically to the underworld have been incorporated in caches or burials. Excavated caches at both Caracol and Santa Rita Corozal, Belize, include stingray spines, sharks teeth, coral and sea shells (A. Chase and D. Chase 2005; D. Chase and A. Chase 2005). Some caches also contained modeled ceramic figures of turtles, sharks, crocodiles, and Cauac or Earth monsters (D. Chase and A. Chase 2008) that are not only water or underworld creatures, but are also capable of moving above and below the surface of the water (Baudez 1989:74; D. Chase and A. Chase 2004:6). Arthur Miller (1982:90) argues that Mesoamerican supernatural beings are “transitory ... and on occasion occupy liminal states.” Miller (1982:91) calls the characters “complex, fluid, ever-changing” entities that “take on new identities.” The ancient Maya created a variety of scenes depicting transition or liminality, and we would argue that much of their iconography also dealt with this topic.

Liminality

Arnold van Gennep (1960:vii) theorized that major life crises are dealt with in similar ways in all societies. He calls the major life crises “rites of passage.” The rite of passage concepts expressed by van Gennep are divided into three stages: separation, transition (liminality), and incorporation (van Gennep 1960:vii). The separation phase is the first stage, which is signaled by an individual being removed from the community for any number of reasons, including death. Incorporation is the final stage, when the individual rejoins the group, but with significant changes in his or her appearance, role or status. Liminality is the middle stage in an individual’s rite of passage (van Gennep 1960:vii). People in the middle stage are acquiring the knowledge, overcoming obstacles, or completing tasks necessary to be re-connected with the group, which will result in a new role and status. Victor Turner (2000:494) suggested that the rites of passage were not limited to the individual – communities could also experience a “collective liminality” creating

a unity and sense of belonging between group members. Capturing the moments of transition iconographically seems to have been a topic of great interest to the ancient Maya.

The “Traveler”

The liminal beings depicted on the ancient Maya iconography can be aptly labeled “travelers.” Travelers in Maya iconography are able to move from the underworld to the earthly realm and into the upperworld with ease by embracing objects that can bridge the different levels. Travelers represent more than one type of entity engaged in a single behavior; travelers are diverse and use a variety of techniques to transition from one plane to another. The incorporation of the figures into various media shows their widespread application to narratives.

There were regional variations, as well as changes over time, in the role of the traveler in the Maya afterlife iconography. Some of the travelers appear to be dead humans, while others appear to be living gods or animals. Some are actively engaged in the event highlighted in the iconography, whereas others are seemingly unaware of their surroundings. There are, however, some commonalities, the most significant one being that all travelers are holding onto, riding, or associated with objects that have liminal properties-- smoke scrolls, blood scrolls, clouds, a tree, scepters, ropes, umbilical cords, the moon, canoes, or lily-pad stalks. They are also depicted emerging from the mouth of serpents.

Travelers are nearly always portrayed in motion. They sometimes have death marks or other indications of decomposition. Travelers are usually depicted with little or no torso coverage, although they wear jewelry and headdresses. They can be either the focus of the scene or a character on the periphery. When in the periphery, they are often located in the top part of the register, the area that David Stuart (1988:219) suggested was designated for ancestors; they are alert and appear interested in the ceremonial events being acted out. When on the periphery, travelers may also sit within elaborate headdresses of formally dressed rulers who stand on platforms or structures with elaborately dressed attendants and bound captives. Travelers can be located in the air

above the scene, floating on water, or placed underwater.

The traveler images come from a variety of media: codices, murals, a gold plate, ceramic and wooden vessels, stelae, decorated stucco, architectural elements, doorway lintels, façades of buildings, benches, and altars. There is no way to know the full variety of perishable media onto which the travelers were originally carved, inscribed, painted, woven, or molded.

They are found in all parts of the Maya region and represent large and small cultural centers. They are also found in all time periods, although the majority of the materials date to the Classic and Postclassic Periods. Travelers have been identified at a wide range of sites (A. Chase 1985; Freidel and Schele 1988; Kowalski 1999; Miller 1982; Thompson 1963) and have been given a variety of names: “ancestors” (Newsome 2001; Stuart 1988), “sky figures” (A. Chase 1985), “liminal lords, monstrous creatures” (Miller 1982), “floaters-in-blood” (Stuart 1988), and “revival or old sky gods” (A. Chase 1985). The variety of places, time depth, and media styles in which the traveler image is inscribed or painted supports the argument that the images represent a broad-based belief in ancestors and gods journeying from one dimension to another by using objects connected to liminal aspects of life and death. The event that the ancestor or deity is bearing witness to is often related to transitions associated with a liminal period in the individual’s life (death, accession) or commemorated by the community (cosmology or agriculture). The messages artistically represented in the iconography broaden the current view of the ancient Maya by recognizing that their afterlife did not include being permanently bound to the underworld; they were able to bridge time and space. Traveler iconography can be grouped into three “themes”: birth or cosmic events, dead or dying humans, and figures that are observing or participating in events.

Cosmic or Birth Event Travelers

The cosmic or birth event travelers have a distinctive appearance and behavior that set them apart from other travelers. Their imagery portrays figures with ambiguous transitional characteristics that are suspended in air or water



Figure 1. Iconographically decorated doorway from Copan Structure 10L-22 that contains numerous representations of travelers in the upper part of the assemblage (after Grube 2000:290).

or that hold onto twisted cords, possibly representing the cosmic umbilical cord. Cosmic or birth events are often framed in twisted cords or umbilical cords and can be found in codices, on architectural facades, on freestanding monuments, and on ceramic vessels. The beings may be associated with creation mythology, literal birth, or the underworld. The cords are usually attached to the traveler either on the stomach or on the head. Figures have a mixture of god and human features. They are often nude, but wear jewelry, headdresses, and other adornments. Cosmic or birth event travelers often form part of the main scene. They may also show signs of mortality and decay. The figures are associated with the afterlife or the supernatural, as represented by stylized serpents, lily-pads signs, caves, and cenotes.

Oral traditions collected during the first years of the 20th century in Yucatan told of a time in the past when a road was “suspended in the sky” (Miller 1982:92). An important part of the myth states that at one time there was a pathway between the sky and the land.

However, the gods cut this large “umbilical cord” so that it no longer joined the earth with the sky, disconnecting the beings on the earth from the supernatural. Travelers that are betwixt this severed link between the earth and the sky appear frequently in Maya iconography, suggesting that this mythology has great time depth. Examples of cosmic or birth event travelers may be found on the façade of Copan Structure 10L-22 (dating to A.D. 715), on a mural found on Tulum Structure 16 (Miller 1982:91), and in images from the Codex Paris.

Mayanists have long argued that Copan Temple 22 was a symbolic entrance to the underworld (Fash 2001:122; Freidel and Suhler 1999:258; Newsome 2001:70; Schele and Miller 1986:154; Stierlin 1997:64). Gods or ancestral deities ride astride a two-headed serpent that stretches from one Bacab to another Bacab over the doorway arch (Figure 1). The travelers appear to be nude except for jewelry (bracelets, necklaces, and head gear) and other adornments on their shins. They are attentive; some look directly at their audience. David Stuart

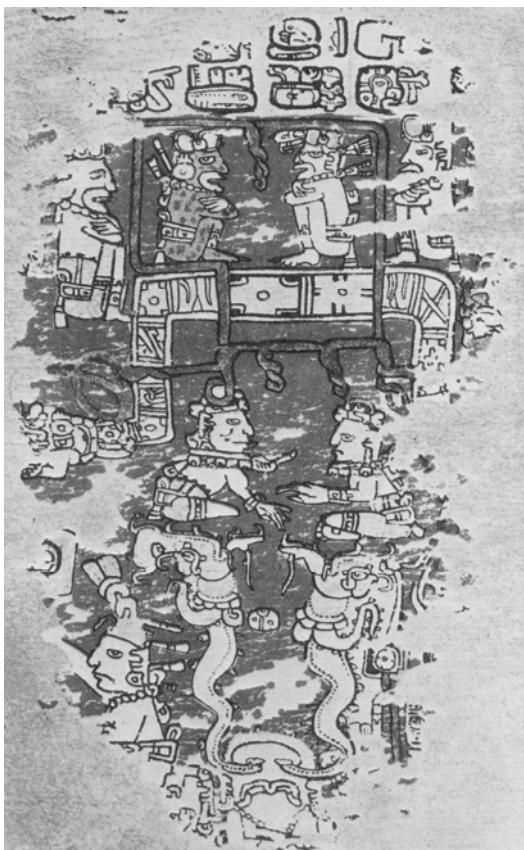


Figure 2. Page 22 from the Paris Codex, dating to the Late Postclassic Period, showing travelers associated with “twisted cords” (after Lee 1985:156).

(1988:199,203) refers to these beings as deities involved in an ancestor-related blood ritual. The smoke-scroll-riding deities are portrayed as being in the above world in this scene and have also been described as riding on clouds (Newsome 2001:70).

Cosmic or birth even travelers also occur in a Postclassic mural at Tulum, Mexico. Mural 8 in Tulum Structure 16 shows a human-like body, with a god-like head, in motion, apparently sliding along a conduit (Paxton 1999). Miller (1982:91) argues that the murals in Structure 16 portray individuals who are in “neither the world of the living nor the world of the dead” but who rather exist in “a liminal condition in between.”

Pages 19 and 22 of the Codex Paris also portray travelers. Paris Page 19 has been interpreted as a scene of “descending deities” or as a representation of a “cosmic umbilical cord” (Miller 1982:93). Page 22 shows two human figures - wearing decorative skirts, bracelets,

necklaces (possibly made of eyeballs), and head adornment - face each other with extended hands; the travelers heads are touched by twisted cords that wind throughout the scene, connecting each level of the image (Figure 2). Arthur Miller (1982:95) argues that the central figures are deceased and that the central section is “transitional, a liminal realm.” These figures hover just above the open mouths of the serpents and a section of the twisted cord is coiled on the neck of this serpent, whose body doubles as a skyband. The figure featured on Page 22 of the Codex Paris wears only jewelry and a headdress. This traveler is suspended with an umbilical cord emerging from his middle; the cord ascends into a damaged part of the page and was capable of sustaining “life through a passage from one state of being to another” (Miller 1982:95). Thus, both pages from the Copex Paris portray travelers that are related to cosmic or birth events.

Dead or Dying Travelers

The dead and dying travelers are portrayed in Maya art from the Early Classic to Postclassic Periods. Their images are found from Chichen Itza in the north to Quirigua in the south. They appear on murals, ceramic and stuccoed-wooden bowls, architectural facades, painted lintels, and stone monuments. Dead or dying travelers usually hold onto a rope, an umbilical cord, a Vision Serpent, a scepter, or lily-pad stalks as they journey from the here-and-now to the underworld. The object transporting the traveler may be smoke, blood, or water. They are centrally located in a scene and are typically human, although often with some deity characteristics. Because many faces have been damaged or eroded and other faces were stylized, it is often difficult to determine if the being was alive or dead. Just like the cosmic or birth travelers, the ones who are dead and dying have bracelets, anklets, and headdresses.

An excellent example of dead or dying travelers occurs on an Early Classic bowl found by Thomas Gann on the bank of the Rio Hondo in Quintana Roo, Mexico, just north of the Belize border (Figure 3). The iconography of the Rio Hondo bowl contains unmistakable references to the scene as taking place under water. The outer rim is composed of a series of water stacks divided by fish nibbling on water

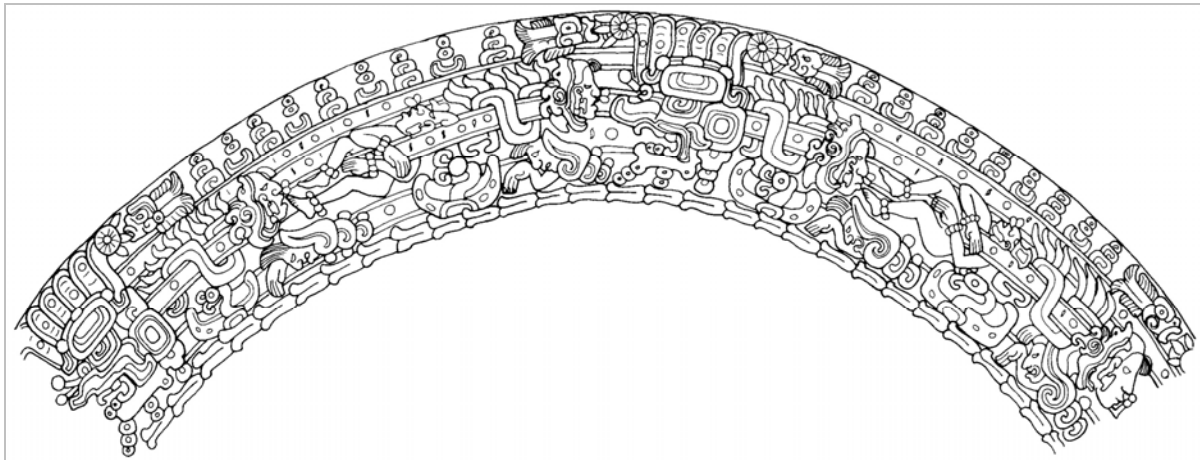


Figure 3. A decorated ceramic bowl depicting two travelers; the lidded bowl was recovered by Thomas Gann early in the 20th century from a deposit in Quintana Roo, Mexico; the vessel dates to the Early Classic Period (after Schele and Miller 1986:280).



Figure 4. Quirigua Monument 24 showing a masked traveler emerging from the jaws of an earth monster (after Jones 1983).

lilies; the water stacks, fish, and water lily blossoms represent the upper level of the register. The central images are of humans who are nude, except for anklets, bracelets and “double beads on their noses” (Schele and Miller 1986:280). Their mouths are slightly open and they appear to be dead, but still cling to the central bar. On either side of the humans is a serpent with an ancestor emerging from the serpent’s mouth. Spaced evenly between humans and serpents are Cauacs, with skeletal heads and jaws, earflares, and god mirrors. The bottom register portrays shells with emerging heads, similar to images of the Maize god or Bacabs. The beings all have their wrists to their foreheads in a similar position to the main individual shown in the canoe carved on the bones from Tiakl Burial 116. Schele and Miller (1986:280) identify the imagery on this Rio Hondo/Gann vessel as “dead souls in the watery underworld.” Quenon and Le Fort (1997:890-891) argue that the images on this vessel represent the journey of the dead, moving from birth to death to rebirth.

Monument 24 at Quirigua may also portray a dead or dying traveler (Figure 4). Dating to A.D. 795, this stone altar may show an upside-down traveler wearing a mask and holding a scroll, emerging from the mouth of a serpent (Sharer 1990:63; Stierlin 1997:58). The border of the image displays the open maw of an Earth monster. Alternative interpretations of this scene argue that the figure is a masked human falling backward into the underworld (Sharer 1994:527) or the Storm god erupting from a T-shaped cleft in the earth (Newsome 2001:148).

Dead or dying travelers may also be identified in architectural elements found in northern Yucatan at Uxmal’s Temple of the Magician and Chichen Itza’s Temple of Jaguars (see Heine-Geldern 1966:283). The travelers depicted on the Temple of Jaguars at Chichen Itza are very similar to the figures detailed on a frieze in the lower inner temple of the Temple of the Magician at Uxmal. All these images wear headdresses and adornments around their ankles and wrists; one set has nose adornments. They hold onto lily-pad stalks and are in motion.

These are likely deceased humans on their journey to the underworld.

Travelers Observing or Participating in Events

Images of travelers observing or participating in events occur from the Preclassic through Postclassic Periods. They are shown as animals, gods, and humans that are sitting, hanging onto, or sliding along objects capable of transferring them from one realm to another. As opposed to the previous categories, the travelers belonging to the observing or participating theme appear alive, alert, and interested in the activities occurring around them. The images are found throughout the Maya region and in a variety of media: artifacts, stelae, murals, structural roof combs, and stucco relief. The travelers in this genre are mostly shown on the periphery of the scene. They play a supportive role in the narrative of the iconography, which usually portrays a single figure standing in a position of authority holding symbols of leadership. The travelers are shown in the air, in clouds, or in the headdress of the central figure. Sometimes they carry objects, but usually they are empty-handed.

Spirit companions are sometimes shown with Maya kings, climbing on their regalia or floating around them (Freidel and Suhler 1999:262). Stelae served as ancient propaganda used to promote, justify and authenticate a ruler’s power. As an intermediary between humans and deities, a ruler’s authority was sanctioned by the gods and was, thus, sacred (Hernández et al. 1999:190). One way of displaying the approval of the ancestors or gods was to depict them in the upper part of the register, in the ruler’s headdress, or as watching the event unfold. By showing the ancestors or gods participating in or observing an event, the ruler’s powers were legitimized and the ruler’s liminality was expressed (Benson and Griffin 1988:3; D. Chase and A. Chase 2009).

A recurring symbol of power is found in the double-headed Ceremonial Bar (Spinden 1970:49) or Serpent Bar (Schele and Miller 1986:268; Tate:1992:61). Schele and Miller (1986:268) define the Serpent Bar as a representation of the “authority of the king and



Figure 5. Chichen Itza Gold Disk B, dredged from the Sacred Cenote at the beginning of the 20th century, showing a centrally placed traveler (after Schele and Freidel 1990:395).

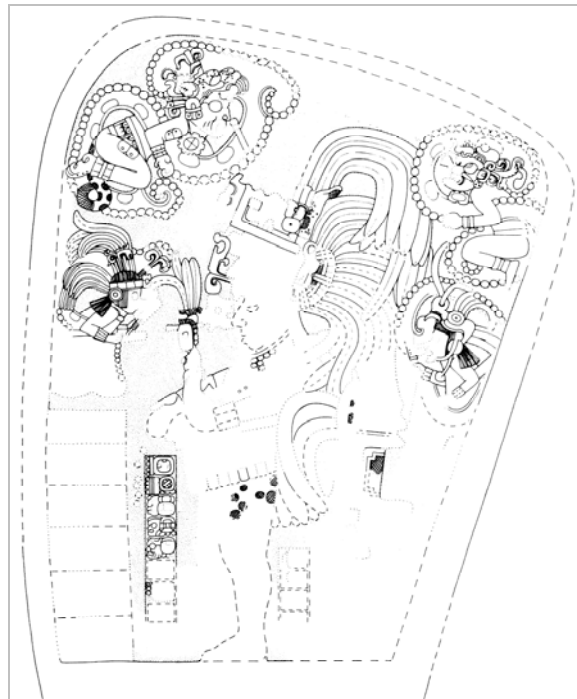


Figure 6. Ixlu Stela 2, showing four travelers in the register above the ruler (after Jones and Satterthwaite 1982:fig. 81).

the larger human community.” Sometimes the Ceremonial Bar is depicted with a “flexible, drooping body,” with wide-open jaws that have human or “grotesque faces” emerging from them (Spinden 1970:49). At other times, the bar is rigid with astronomical signs across the body. Carolyn Tate (1992:61) suggests that the Ceremonial Bar indicates that the ruler is a mediator between the three levels of the cosmos. The majority of the travelers represented in accession or leadership images are deities who are usually located on the periphery and dressed similarly to the central figure. The earliest known occurrence of this imagery occurs on the Hauberg stela, which portrays “small deities climbing or grasping poles, snakes, or plants” (Hellmuth 1988:164) to the sides of the central figure; the scene on this miniature monument is interpreted to be the inauguration of the ruler holding a Vision Serpent (Tate 1992:120).

Edward Thompson recovered several embossed gold disks from the Cenote of Sacrifice at Chichen Itza at the beginning of the 20th century (Schele and Friedel 1990:395; Thompson 1963:36). One of these disks, Gold Disk B, portrays four human figures, three standing and one bound, and a traveler, embracing a blood scroll (Schele and Friedel 1990:395) and suspended mid-air with a Vision Serpent (Figure 5). The traveler and the figure to the right of the bound captive are holding the same instrument. Similar imagery is found on Stela 4 at Ucanal, Guatemala, where a traveler holding an atlatl (A. Chase 1985:111) is intertwined with a cloud (McAnany 1995:44-45) or blood-scroll (Stuart 1988:183, 219) above two central figures. The dotted scroll motif is found additionally at the sites of Jimbal, Ixlu, and Tikal in Guatemala. On Ixlu Stela 2, four travelers are shown in dotted scrolls floating above the central scene (Figure 6); two of these have been identified as the paddler gods by Stuart (1988:187).

Roof-combs at Palenque may also show travelers. The comb on the Temple of the Sun portrays a ruler holding a Vision Serpent scepter; four travelers hold onto this scepter and umbilical cords are also associated with Temple 16 and 15 (Miller 1973:46), consistent with traveler imagery elsewhere. Travelers can also

be seen on the east side of Copan Stela 5, where they occur on the periphery of the main scene and emerge from shells (Baudez 1994:131). Other travelers may be found on Copan Stela D, where they hold onto the serpent in the center of the ruler’s headress (Baudez:1994:49), and on Copan Stela F, where multiple deity and human figures ride or embrace and enormous Vision Serpent or ceiba tree (Baudez 1994:39,40,49).

Conclusion

Travelers constitute a set of continuously repeated ancient Maya symbols. Symbols instigate social action (Turner 2000:488). To gain adequate meaning of a particular symbol, one needs to first examine the widest context of the symbol, to next consider what kinds of circumstances give rise to a performance of ritual, and to finally determine whether these rituals are concerned with natural phenomena, economic and technological processes, human life-crises, or the breach of crucial social relationships. These circumstances will most likely determine what sort of ritual is performed (Turner 2000:494). Travelers were clearly important in the ritual realm: they appear frequently in ancient Maya iconography; they have great time depth; and, they occur throughout the Maya area. They are present in representations of key times of transition such as birth, death, and accession. Thus, these images must relay information about the ways of life and belief systems of the ancient Maya.

Arthur Miller (1982:94) has suggested that art for art’s sake did not exist among the Maya prior to contact with the Spanish. Rather, each aspect of the image serves a purpose that goes beyond simple aesthetics. If Miller’s argument is correct, then no matter how small in stature or how peripheral the image of the traveler, it is an integral part of the narrative depicted. The participant or observer images were likely political propaganda used to prove legitimacy of rule, inspire political backing, or provide assurance of a leader’s knowledge and ability; such figures demonstrated “otherworld” and ancestral support for real-life actions. Accession or leadership events may have been attended by ancestors or deities, who would

participate, observe, supervise, or possibly only are there “in spirit.”

These ancestors and deities – the travelers discussed here – are shown moving from one realm to another by using items that were easily accessible and tied to multiple worlds, suggesting that the afterlife was not a place where one was confined, but rather a locale with connector bridges from which one could return. The images also confirm that ancestors and deities were important members of the corporeal community, providing additional insight into the belief systems of the ancient Maya.

The ancient Maya communicated with each other, with ancestors, and with deities by embedding narratives in their architecture, stone monuments, ceramics, codices, and murals. The term traveler is necessary and appropriate to describe the beings detailed here, because they share key characteristics and behaviors related to the afterlife. The travelers display traits that are associated with liminality and transitional events in the lives of individuals and/or the community represented. Just as the traveler could move between realms, their iconographic recognition permits researchers to travel from the realm of the present to the realm of the past in a search for a broader understanding of the ancient Maya worldview.

Acknowledgements This paper derives from an M.A. Thesis in Maya Studies by Dianna Wilson-Moseley entitled *Ancient Maya Underworld Iconography: Traveling Between Worlds* that was completed in August 2006 at the University of Central Florida. An earlier version of this paper was presented by the three authors in December 2007 at the 106th Annual Meeting of the American Anthropological Association in Washington, D.C.

References Cited

Baudez, Claude-François

- 1989 The House of the Bacabs: An Iconographic Analysis. In *The House of Bacabs, Copan, Honduras*, edited by David Webster, pp. 73-81. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- 1994 *Maya Sculpture of Copan: The Iconography*. Norman: University of Oklahoma Press.

Benson, Elizabeth P. and Gillett G. Griffin

- 1988 Introduction. In *Maya Iconography*, edited by Elizabeth P. Benson and Gillett G. Griffin, pp. 3-5. Princeton University Press, Princeton, New Jersey.

Cecil, Leslie G. and Timothy W. Pugh

- 2009 Eds., *Maya Worldviews at Conquest*, University Press of Colorado, Boulder.

Chase, Arlen F.

- 1985 Troubled Times: The Archaeology and Iconography of the Terminal Classic Southern Lowland Maya. In *Fifth Palenque Round Table*, Vol. VII, edited by Merle Greene Robertson and Virginia M. Fields, pp. 103-114. Pre-Columbian Art Research Institute, San Francisco, California.

Chase, Arlen F. and Diane Z. Chase

- 2005 The Early Classic Period at Caracol, Belize: Transitions, Complexity, and Methodological Issues in Maya Archaeology,” *Research Reports in Belizean Archaeology* 2:17-38.

Chase, Diane Z. and Arlen F. Chase

- 2004 The Ever-Changing Maya: Ritual Adaptations and the Archaeological Record. Paper prepared for 69th Annual Society for American Archeology Meetings. April 2004. Montreal, Canada.

- 2005 The Early Classic Period at Santa Rita Corozal: Issues of Hierarchy, Heterarchy, and Stratification in Northern Belize,” *Research Reports in Belizean Archaeology* 2:111-129.

- 2008 Late Postclassic Ritual at Santa Rita Corozal, Belize: Understanding the Archaeology of a Maya Capital City. *Research Reports in Belizean Archaeology* 5:79-92.

- 2009 Changes in Maya Religious Worldview: Liminality and the Archaeological Record. In *Maya Worldview at Conquest*, edited by L.G. Cecil and T.W. Pugh, pp. 219-237. University of Colorado Press, Boulder.

Clancy, Flora S.

- 2009 *The Monuments of Piedras Negras, An Ancient Maya City*. University of New Mexico Press, Albuquerque.

Coe, Michael

- 1977 *The Maya Scribe and His World*. Grolier Club, New York 1978 *Lords of the Underworld: Masterpieces of the Classic Maya Ceramics*. Princeton University Press, Princeton, New Jersey.

- Fash, William L.
2001 *Scribes, Warriors and Kings: The City of Copan and the Ancient Maya*. Thames & Hudson, London.
- Freidel, David and Linda Schele
1988 Symbol and Power: A History of the Lowland Maya Cosmogram. In *Maya Iconography*, edited by Elizabeth P. Benson and Gillett G. Griffin, pp. 44-93. Princeton University Press, Princeton, New Jersey.
- Freidel, David, Linda Schele, and Joy Parker
1993 *Maya Cosmos: Three Thousand years on the Shaman's Path*. William Morrow, New York.
- Freidel, David and Charles Suhler
1999 The Path of Life: Toward a Functional Analysis of Ancient Maya Architecture. In *Mesoamerican Architecture as a Cultural Symbol*, edited by Jeff Karl Kowalski, pp. 249-273. Oxford University Press, New York.
- Heine-Geldern, Robert
1966 The Problem of Transpacific Influences in Mesoamerica. In *Handbook of Middle American Indians*. Vol. 4, edited by Robert Wauchope, Gordon F. Ekholm, and Gordon R. Willey, pp. 277-295. University of Texas Press, Austin.
- Hellmuth, Nicholas M.
1988 Early Maya Iconography in an Incised Cylindrical Tripod. In *Maya Iconography*, edited by Elizabeth P. Benson and Gillett G. Griffin, pp. 152-174. Princeton University Press, Princeton, New Jersey.
- Hernández, A. Arellano, M. Ayala Falcón, B. De La Fuente, M. De La Garza, L. Staines Cicero, B. Olmedo Vera.
1999 *The Mayas of the Classical Period*. Jaca Book, Milano, Italy.
- Jones, Christopher
1983 New Drawings of Monuments 23 and 24, Quirigua, Guatemala. In *Quirigua Reports: Vol. II, Papers 6-15*, pp. 137-140. University Museum Monograph 49. University of Pennsylvania, Philadelphia.
- Jones, Christopher and Linton Satterthwaite
1982 *The Monuments and Inscriptions of Tikal: The Carved Monuments*. University Museum Monograph 44. University of Pennsylvania, Philadelphia.
- Kowalski, Jeff Karl and Nicholas P. Dunning
1999 Architecture of Uxmal: The Symbolics of Statemaking at a Puuc Maya Regional Capitals. In *Mesoamerican Architecture as a Cultural Symbol*, edited by Jeff Karl Kowalski, pp. 274-297. Oxford University Press, New York.
- Lee, Thomas A.
1985 *Los Codices Mayas*. Universidad Autonoma de Chiapas, Mexico.
- Grube, Nikolai
2000 Ed., *Maya: Gottkonige im Regenwald*. Konemann Verlagsgesellschaft, Koln.
- McAnany, Patricia
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin, Texas.
- Miller, Arthur G.
1973 West and East in Maya Thought: Death and Rebirth at Palenque and Tulum. In *Primera Mesa Redonda de Palenque: a Conference on the Art, Iconography, and Dynastic History of Palenque, Palenque, Chiapas, Mexico, December 14-22, 1973*, edited by Merle Greene Robertson, pt.2 pp. 45-48. Robert Louis Stevenson School, Pre-Columbian Art Research, Pebble Beach, California.
- 1982 *On the Edge of the Sea: Mural Painting at Tancha-Tulum, Quintana Roo, Mexico*. Dumbarton Oaks Trustees for Harvard University, Washington, D.C.
- Newsome, Elizabeth A.
2001 *Trees of Paradise and Pillars of the World: The Serial Stela Cycle of "18-Rabbit-God K," King of Copan*. University of Texas Press, Austin, Texas.
- Paxton, Meredith
1999 Structure 16, Tulum, Quintana Roo: Iconography and Function of a Late Postclassic Maya Building. In *Mesoamerican Architecture as a Cultural Symbol*, edited by Jeff Karl Kowalski, pp. 320-339. Oxford University Press, New York.
- Quenon, Michel and Geneviève Le Fort
1997 Rebirth and Resurrection in Maize God Iconography. In *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases*, edited by Barbara and Justin Kerr, pp. 884-902. Kerr Associates, New York.
- Schele, Linda
1988 The Xibalba Shuffle: A Dance after Death In *Maya Iconography* edited by Elizabeth P. Benson and Gillett G. Griffin. pp. 294-317. Princeton University Press, Princeton, New Jersey.

Maya Travelers and World View

Schele, Linda and David Freidel

1990 *A Forest of Kings: The Untold Story of the Ancient Maya*. Quill William Morrow, New York.

Schele, Linda and Mary Ellen Miller

1986 *The Blood of Kings: Dynasty and Ritual in Maya Art*. George Braziller, New York.

Sharer, Robert J.

1990 *Quirigua: A Classic Maya Center and Its Sculptures*. Carolina Academic Press, Durham.

1994 *The Ancient Maya*. 5th ed. Stanford University Press, Stanford, California.

Spinden, Herbert J.

1970 *A Study of Maya Art: Its Subject Matter and Historical Development*. Memoirs of the Peabody Museum of American Archaeology and Ethnology. Vol. VI. University Press: John Wilson and Son, Cambridge, Massachusetts.

Stierlin, Henri

1997 *The Maya: Palaces and Pyramids of the Rainforest*. Taschen, New York.

Stuart, David

1988 Blood Symbolism in Maya Iconography. In *Maya Iconography*, edited by Elizabeth P. Benson and Gillett G. Griffin, pp. 175-121. Princeton University Press, Princeton, New Jersey.

Tate, Carolyn Elaine

1992 *Yaxchilan: The Design of a Maya Ceremonial City*. University of Texas Press, Austin, Texas.

Thompson, J. Eric S.

1963 *Maya Archaeologist*. University of Oklahoma Press: Norman.

1970 *Maya History and Religion*. University of Oklahoma Press: Norman.

Turner, Victor

2000 Symbols in Ndembu Ritual. In *Anthropological Theory: An Introductory History*, 2nd ed., edited by Jon R. McGee and Richard L. Warms, pp. 478-495. Mayfield Publishing, Mountain View, California.

Van Gennep, Arnold

1960 *The Rites of Passage*. Translated by Monika B. Vizedom and Gabrielle L. Caffee. University of Chicago Press, Chicago.

4 FROM SUNRISE TO SUNSET: PRELIMINARY INVESTIGATIONS OF PRECLASSIC AND POSTCLASSIC RITUAL ACTIVITY AT XUNANTUNICH, BELIZE

M. Kathryn Brown

Recent investigations at Xunantunich, Belize, by the Mopan Valley Preclassic Project have focused on Group E, a Preclassic complex located 800m east of the site's main group. Group E is composed of several buildings including two pyramids on an east/west axis. Excavations on the eastern pyramid, Structure E-2, revealed a Middle Preclassic terraced pyramid. The form of the building suggests that deity masks may have flanked the central staircase. Evidence of Middle Preclassic ritual activity was encountered in front of the central staircase in the form of smashed ceramic vessels including Savanna Orange chocolate pots. Although the structure ceased to be used formally by the Terminal Preclassic, evidence suggests that ritual activity, such as bloodletting, was performed here centuries later in the Postclassic. Our excavations encountered a Postclassic altar set axially in front of the pyramid's staircase. The evidence of ritual activity at an abandoned structure suggests that this was an important place on the landscape that was integrated into the social memory of the valley's ancient inhabitants.

Introduction

Maya communities often repeatedly built ceremonial structures at locations that were established as sacred early in the history of those centers. Vestiges of earlier buildings were incorporated into new buildings to trigger social memories (Leventhal 2009). Although examples of this are very common, we also see complete re-building episodes that cover earlier structures, sometimes over the course of several millennia. While the buildings may be key triggers for memories, it is only through activities like commemorative events that those memories become collective and social. The ritual activities performed at sacred locations transformed these places into powerful locations that became part of both the physical and ideological landscape of the community. Clearly, ceremonial architecture was a visible aspect of the social landscape for the ancient Maya. Through continual ritual use and rebuilding, sacred places came to be cultural heritage and part of the shared memory of ancient Maya communities. Thus they lent themselves to manipulation by elites who sought to reinforce and strengthen their elevated status by controlling access to these sacred places. The appropriation of sacred places by the elite during the Preclassic can be identified in the archaeological record with the introduction of new architectural styles, such as the pyramidal

form, and new ritual behavior, such as caching to consecrate the ceremonial buildings (Brown 2003, Brown and Garber 2007). This has been well documented in the Belize River valley at the sites of Blackman Eddy (Brown and Garber 2008) and at Cahal Pech (Awe 1992).

This paper presents preliminary evidence of ritual activity associated with a pair of Preclassic pyramids at Xunantunich's Group E. We found evidence of rituals associated with these buildings during two distinct periods: during the use of the structures in the Preclassic, and during the Postclassic, at least 800 years after the buildings were abandoned. The evidence of Postclassic ritual activities at this location demonstrates the continued importance of sacred locations even when they were not subject to on-going architectural modification and formal use. The evidence of ritual activity at an abandoned structure suggests that this was a special place on the landscape and part of the social memory of the ancient inhabitants of the Mopan valley. Although Postclassic visitation and ritual offerings have been documented at many sites in Belize, (Chase et al. 2008; Hammond and Bobo 1994; Houk et al. 2008; and Yaeger 2008) a clear understanding is necessary of why certain sites were selected, and more specifically, certain structures within sites were targeted. The recent investigations at Xunantunich suggest that different buildings

may have been chosen for very different types of Postclassic ritual activities. Social memory of places clearly played a role in the selection of appropriate ritual locations and in this case, it seems that the site's oldest buildings were selected for ritual ancestor veneration activities.

Xunantunich Group E

The site of Xunantunich is located on a high ridge in the Mopan valley of Belize and is best known for its Late Classic core. The Xunantunich Archaeological Project (XAP) directed by Richard Leventhal and Wendy Ashmore, and the Belize Tourism Development Project (TDP), directed by Jaime Awe and Allan Moore, conducted intensive excavations within the site's monumental core of pyramids, ballcourts, and palaces. Their work confirmed that most of the site was constructed rapidly during the Late Classic time period (AD 600-780), while identifying the vestiges of the Early Classic and Preclassic settlements that preceded the Late Classic site (also LeCount and Yaeger 2010). The Preclassic occupation of Xunantunich remains poorly known, and it is the current focus of the Mopan Valley Preclassic Project (MVPP). Interestingly, evidence of Preclassic occupation within the Xunantunich site core is limited. Excavations have revealed a few low Middle Preclassic platforms, less than a meter tall, and some domestic deposits ((LeCount et al. 2002; LeCount and Yaeger 2008, 2010; Yaeger 1997). But no evidence of large Middle or Late Preclassic architecture has been found to date. Excavations within Plaza A-III during the 2008 summer field season by the Mopan Valley Preclassic Project support this assessment (Figure 1) (Brown 2009a). Although the MVPP 2008 investigations in Plaza A-III did not directly encounter Preclassic architectural remains, high percentages of Preclassic ceramics were recovered indicating a nearby Preclassic occupation.

In contrast, in the near hinterland of the Late Classic site core, a Preclassic site was documented by the Xunantunich Archaeological Project (XAP) in the 1990's (Robin et al. 1994). Located 800 meters east of Xunantunich's Late Classic core, the site consists of two closely spaced groups of large architecture, named

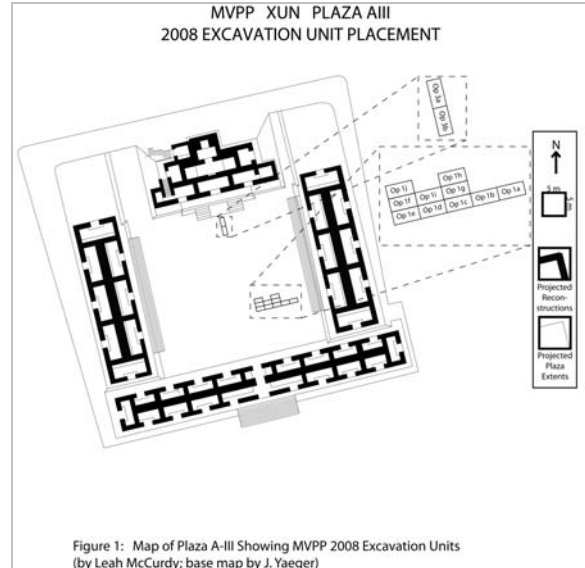


Figure 1. Map of Plaza A-III Showing MVPP 2008 Excavation Units (by Leah McCurdy; base map by J. Yaeger)

Group E and Site O/A2-1, that appeared to have been initially occupied by at least the Middle Preclassic and perhaps earlier, at a time when there is no evidence of monumental architecture at Xunantunich (Figure 2). Surface collections and limited testing by XAP at Group E and O/A2-1 recovered only Middle Preclassic ceramics, predominately Savanna Orange types, a hallmark of this time period in the Belize Valley (Robin et al. 1994).

At the core of Group E is a pair of small pyramids, Structures E-1 and E-2, situated along an east-west axis. Although they are dwarfed by the 39-meter tall Castillo acropolis in Group A, they are quite large for the Middle Preclassic period, each measuring approximately 7 m high. Wendy Ashmore (1998) suggests that the east-west alignment is a Preclassic pattern in the Belize valley. This orientation evokes the passage of the sun, which was an important symbol of authority in Preclassic Maya civilization. Just to the northeast of these pyramids, where the ridge slopes down toward the Mopan River, sits a massive platform measuring 100 meters north-south by 115 meters east-west and 13 meters high on its tallest side (Robin et al. 1994). Even accounting for the natural hillside, this platform represents a large amount of labor investment. The monumentality

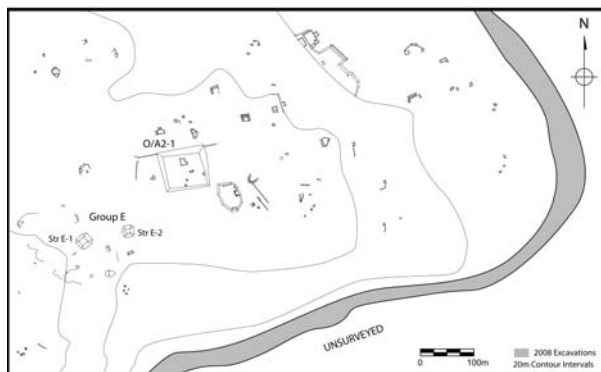


Figure 2. Map of Xunantunich Group E and O/A2-1

of this structure and the associated east/west pyramids of Group E suggest that this location was an important political seat in the Preclassic landscape of the Belize valley, perhaps even the largest center in the Mopan valley during the Middle Preclassic period (Brown 2009b), although Actuncan (McGovern 2004) and Buenavista del Cayo (Ball and Taschek 2004) both have substantial Preclassic constructions.

One of the goals of the Mopan Valley Preclassic Project is to understand the rise of complexity in the broader Belize valley and the ways that the earliest Maya elite used public architecture and ritual activities to create and legitimize social inequalities that placed them at the top of an emerging social hierarchy. Their strategies included the establishment and reuse of ideologically charged places and buildings in order to create sacred locations on the landscape that connected them to the supernatural realm. In order to address these processes, I began excavations at Group E in the summer of 2008, concentrating on Structure E-2, the eastern pyramid in the complex. During the 2008 field season, an 8x2 meter trench was placed down the western face of the mound and encountered two distinct construction phases. Earlier construction phases may be present, as the excavations were limited and terminated with the partial exposure of the penultimate construction phase. Further investigations on Structure E-2 were conducted in 2009 to define the base of the pyramid and collect a larger sample of ceramic material from the two phases as well as beneath the associated plaza surfaces. The terminal construction phase, designated

Structure E-2-1st was badly preserved, and preliminary ceramic analysis suggests a Terminal Preclassic date.

The basal step of the stairway of Structure E-2-1st and its associated plaza surface were located approximately 1.20 meters below the modern surface (Figure 3). This indicates a considerable sediment accumulation and the lack of later construction episodes confirms that the building was abandoned prior to the Early Classic period. I would also like to emphasize that neither our 2009 excavations on the western pyramid, Structure E-1, nor the limited testing by XAP on and in front of Structure E-1, found any evidence of Classic period construction. This supports the notion that the east and west pyramids that form the core of Group E were abandoned during the Terminal Preclassic and never re-built, despite the growth of Xunantunich during the Late Classic period. Thus, the investigation of this site provides an unparalleled opportunity to study in detail the history, layout, and functions of a Preclassic ceremonial center without the destruction of overlying Classic period architecture (Brown 2009b)

The penultimate construction phase of Structure E-2, designated Structure E-2-2nd, appears to date to the Middle Preclassic. The ceramic material from this phase is predominately Mars Orange Ware, but the sample is quite small. The basal three steps of the Structure E-2-2nd stairway were intact, but the upper stairs and terraces were only distinguishable by the thick, wet-laid, white marl fill of the stairway. The inspection of looters trenches on Structure E-1 and our 2009 excavations suggest that this building was also constructed of this distinctive wet-laid, marl fill. Because our excavations have just begun, we cannot yet reconstruct fully Structure E-2-2nd's original form. The overall form of the pyramid and the stairway with a broad landing, however, present obvious parallels to the famous Structure 5C-2nd at Cerros excavated by David Freidel (Figure 4) (Freidel and Schele 1988). The flat-topped, two-tier pyramid was accessed by a broad, outset stairway with wide landings for ritual performances. If the E-2 pyramid fully mirrors 5C-2nd, there should be stucco deity masks flanking the staircase. Future work on

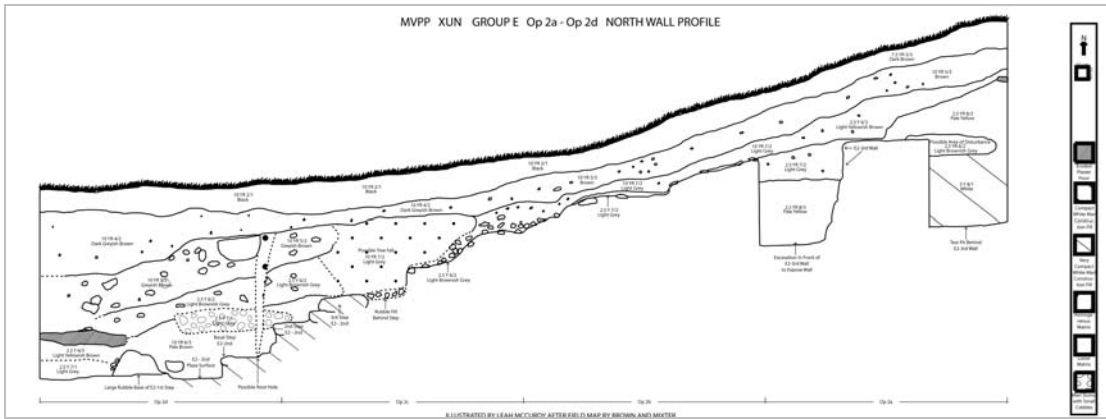


Figure 3. Profile of Structure E-2

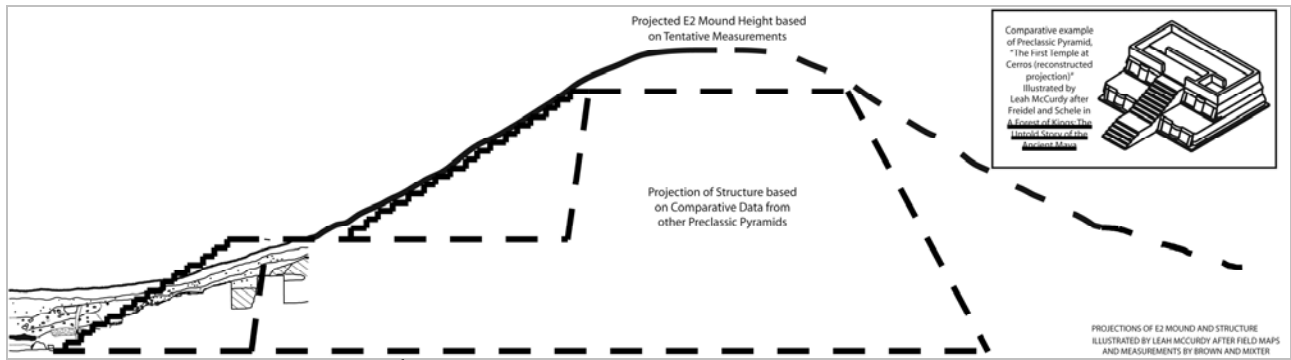


Figure 4. Projection of Structure E-2-2nd

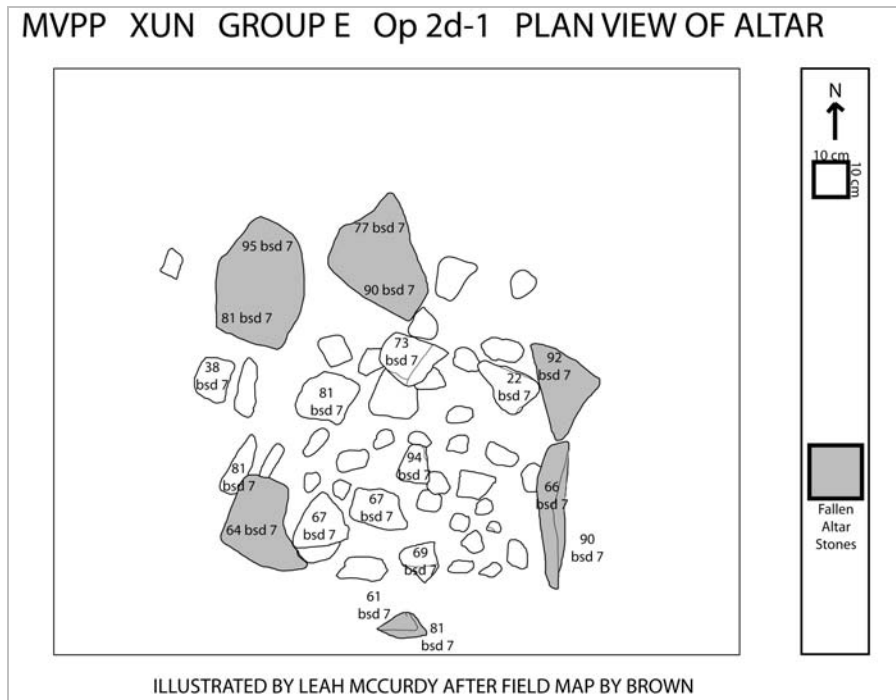


Figure 5. Plan map of Postclassic altar recovered in Op 2d

Str. E-2 will determine if masks are present. Our excavations this past summer, did, however, show that the central staircase was somewhat unusual. The two lowermost steps were inset into a low terrace. The upper portion of the staircase appears to have been outset.

Evidence of Preclassic ritual activity was encountered in front of both Structure E-1 and Structure E-2-2nd. Clusters of ceramic sherds containing several partial Savana Orange chocolate pots were found in both locations. The smashed ceramics appear to have been purposely placed in front of the staircases of both structures. Although exposure of these two deposits was limited, they resemble Middle Preclassic Problematic deposits found at Blackman Eddy that have been interpreted as feasting debris (Brown 2003). Alternatively, these deposits could reflect offerings placed in front of the structures. The ceramics were not intrusive into the structures or the associated plaza surfaces and therefore do not appear to be formal caches, however, they do not appear to resemble midden material as well. The placement of these ceramics in front of the central staircase of both pyramids suggests that they were the remains of some type of ritual activity. We plan to expose more of these two deposits during the 2010 field season to shed light on these interesting features.

Although Structure E-2 appears to have been abandoned in the Terminal Preclassic period, there is evidence that this structure continued to be an important ritual location during the Postclassic period. Fragments of an Augustine Red scroll foot dish, a Postclassic type, was found near the surface at the base of the mound indicating some Postclassic use of the abandoned building (Brown 2009a). Furthermore, in front of the central axis of the pyramid's stairway, just beneath the modern ground surface, our excavations found a modest Postclassic altar, roughly 1 meter on a side (Figure 5). The altar was constructed of flat limestone slabs that formed the outside of a box-like feature (Brown 2009a). The interior was filled with medium-sized rubble embedded in a clay matrix. The altar was associated with a broken obsidian blade and dozens of chert blades and flakes with sharp edges and points,

consistent with stone tools used for auto-sacrifice and bloodletting in Maya civilization. Of course, blood, whether human or animal, has been an important offering in Maya rituals for millennia and is often associated with communication with the ancestors. We were surprised to find that people living in the Mopan valley after the Maya collapse returned to this pyramid to construct an altar and conduct rituals at least 800 years after the pyramid's last construction phase.

Evidence of Postclassic re-visitation at Xunantunich's Group A has been documented by a find by Jaime Awe of a Late Postclassic effigy incensario fragment on the Castillo. In addition, Postclassic ceramic material was encountered scattered around several of the carved monuments in Xunantunich's main plaza. However, the erection of a formal altar clearly indicates that this location was especially sacred. In that respect, it is interesting to highlight the eastern location of this pyramid. The Maya identified East as the place of ancestors, and in the Belize valley and adjacent regions, ancestral shrines and the burials of important people were often placed on the eastern side of architectural groups. Although this pyramid may not have functioned as a shrine to a particular ancestor, it was likely a location where early rulers conducted rituals, such as bloodletting, to communicate with and interact with their ancestors and gods. It seems unlikely to be a coincidence that the altar was placed in front of the eastern pyramid in the area's earliest monumental complex.

Although the social memory of this special location most likely faded some through the many generations, the local Postclassic inhabitants appeared to have knowledge of its great antiquity and chose this place for ancestor veneration activities. This would have been the most auspicious and appropriate setting to communicate with the region's most ancient and powerful ancestors.

Excavations conducted during the MVPP 2009 field season on the western pyramid, Structure E-1, encountered an unusual feature. A circular pit over 1 m in diameter was cut into the basal step and plaza surface extending down to bedrock in front of the final

phase of Structure E-1. This pit was filled with fire-cracked rock and clearly had been used for some burning purpose. This feature was placed on what appeared visually to be the centerline of the abandoned building, directly opposite of the altar in front of Structure E-2. Excavations determined that this was actually not the centerline of the Preclassic structure, however, to later visitors of the site this specific location would have appeared to have been the centerline suggesting that this feature was created significantly after the pyramid was abandoned. Furthermore, Postclassic ceramic material was found on the surface associated with this building. Carbon collected from this interesting feature is planned to be analyzed in 2010, however, it seems likely that this feature, like the Structure E-2 altar, dates to the Postclassic, suggesting variability within Postclassic ritual behavior.

Evidence suggests that several different types of Postclassic rituals were conducted at Xunantunich. Incense burning appears to have occurred in front of the Castillo, offerings of some form were placed around the stone monuments at the site, a formal altar and bloodletting activities were conducted in front of the eastern pyramid in the oldest part of the site (Group E), and possibly some type of burning ritual occurred in a prepared circular pit in front of the western pyramid. I believe that through social memory of these sacred locations, they were purposely selected for specific ritual activities.

Conclusion

Finally, the ways in which the ancient Maya established and maintained sacred space through re-building programs and ritual activities is well documented. What is less known is the re-use of sacred places after the buildings were no longer in formal use. We need to examine why certain buildings were targeted for Postclassic ritual activities and what types of ritual activities were conducted at different locations. Often the evidence for Postclassic ritual is referred to as “Postclassic visitation” or “pilgrimage.” These generic labels obscure the diversity and complexity of ritual activities. Clearly different activities, such as incense burning, offerings of food and drink

and/or feasting, as well as bloodletting rituals may have been conducted in different locations for different reasons. This needs to be systematically studied in order to tease out patterns of ritual activities to shed light on these important and meaningful past behaviors. The new data from Group E at Xunantunich provide a first step in this direction.

Acknowledgements First, I want to thank the Belize Institute of Archaeology for the opportunity to conduct research at the amazing site of Xunantunich. Richard Leventhal, Cynthia Robin and Lisa LeCount deserve recognition for their support and recommendations pertaining to the MVPP investigations at Group E, Xunantunich. The 2009 Xunantunich excavations were funded through the University of Texas at Arlington and by the generous support of Ben and Trudy Termini. The Termini's deserve additional recognition for braving the heat, bugs, and humidity to visit the project and participate in our camp-life. I am grateful for the dedication and hard work performed by the 2009 MVPP staff, Operation Directors: Jennifer Cochran and David Mixter, Suboperation Directors: Leah McCurdy and Mario Romero, and Lab Director: Katrina Nuncio. I would also like to thank the very talented MVPP Project Illustrator, Leah McCurdy, who spent many long hours working on maps and illustrations. I would like to thank Anthony Chan (Foreman) and the hard working Belizean archaeology excavators on my team. Vicky Uck deserves special recognition for all her hard work and dedication. I am also appreciative of the Mopan Valley Archaeological Staff members for their assistance with various logistical tasks. Dr. Martinez of Belize City kindly allowed the project to conduct research on his property and I am especially grateful to him and his wife for their interest in Maya archaeology. Dr. Valdez of Belize City has been of great assistance and I am thankful for his support. Last, but not least, Jason Yaeger deserves acknowledgement for his comments on this paper and for his continual patience.

References Cited

- Ashmore, Wendy
 1998 Monumentos políticos: sitio, asentamiento, y paisaje alrededor de Xunantunich, Belice. In *Anatomía de una Civilización: Aproximaciones Interdisciplinarias a la Cultura Maya*. Edited by Andrés Ciudad Ruiz, et al. 161-183. Madrid: Sociedad Española de Estudios Mayas.
- Awe, Jaime J.
 1992 Dawn in the Land Between the Rivers: Formative Occupation at Cahal Pech, Belize and its Implications for Preclassic Occupation in the Central Maya Lowlands. Unpublished Ph.D. dissertation, Institute of Archaeology, University of London, UK.
- Ball, Joseph W. and Jennifer T. Taschek.
 2004 Buenavista del Cayo: A Short Outline of Occupational and Cultural History at an Upper Belize Valley Regal-Ritual Center. In *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*. Edited by James F. Garber, 149-167. Gainesville: University Press of Florida.
- Brown, M. Kathryn
 2003 Emerging Complexity in the Maya Lowlands: A View from Blackman Eddy, Belize. Unpublished Ph.D. thesis, Southern Methodist University.
 2005 Preclassic Maya Architecture, Ritual, and the Emergence of Cultural Complexity: Some Comparisons with the Southwest. In *Fronteras* Vol. 14, No. 1:2-4. Center for Greater Southwestern Studies and the History of Cartography.
 2009a The Mopan Valley Preclassic Project: Results of the 2008 Field Season. Edited by M. Kathryn Brown. Report submitted to the Institute of Archaeology, Belmopan, Belize.
 2009b Postclassic Veneration at an abandoned Preclassic Pyramid at Xunantunich, Belize. Paper presented at the Society of American Archaeology, Atlanta, GA.
- Brown, M. Kathryn and James F. Garber
 2008 Establishing and Reusing Sacred Place: A Diachronic Perspective from Blackman Eddy, Belize. In *Ruins of the Past: The Use and Perception of Abandoned Structures in the Maya Lowlands*. Edited by Travis W. Stanton and Aline Magnoni. University Press of Colorado, Boulder Colorado.
- Chase, Diane Z., Arlen F. Chase and John M. Morris
 2008 Archaeological Myths of the Postclassic Period: Belizean Archaeology as the “Dragonslayer.” In *Research Reports in Belizean Archaeology* Vol.5:3-12. National Institute of Culture and History, Belmopan, Belize.
- Freidel, David and Linda Schele
 1988 Kingship in the Late Preclassic Maya Lowlands: The Instruments of Places of Ritual Power. *American Anthropologist* 90:547-567.
- Garber, James F., and M. Kathryn Brown, Jaime J. Awe, and Christopher J. Hartman
 2003 Middle Formative Prehistory of the Central Belize Valley: An Examination of the Architecture, Material Culture, and Sociopolitical Change at Blackman Eddy. In *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*. Edited by James F. Garber: 25-47. University Press of Florida, Orlando.
- Hammond, Norman, and Matthew R. Bobo
 1994 Pilgrimage’s Last Mile: Late Maya Monument Veneration at La Milpa, Belize. *World Archaeology* 26(1):19-34.
- Healy, Paul F., David Cheetham, Terry G. Powis, and Jaime J. Awe
 2004 Cahal Pech: The Middle Formative Period. In *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*. Edited by James F. Garber:103-124. University Press of Florida, Orlando.
- Houk, Brett A., Lauren A. Sullivan, and Fred Valdez, Jr.
 2008 Rethinking the Postclassic of Northwestern Belize. *Research Reports in Belizean Archaeology* Vol.5:93-102. National Institute of Culture and History, Belmopan, Belize.
- LeCount, Lisa, Jason Yaeger, Richard Leventhal, and Wendy Ashmore.
 2002 Dating the Rise and Fall of Xunantunich, Belize: A Late and Terminal Classic Lowland Maya Regional Center. *Ancient Mesoamerica* 13(1):41–63.
- LeCount, Lisa, and Jason Yaeger
 2008 Tunnel Vision: What We Know About Cunil-phase Materials and Contexts at Xunantunich, Belize. Paper proposed for the session entitled “Setting the Archaeological Record Straight at Cahal Pech, Belize,” organized by J. Awe and J. Garber for the 73rd SAA Meeting, Vancouver, Canada, March 2008.
 2010 Introduction to Part I: Xunantunich: A Provincial Capital. In *Provincial Politics: The Classic Maya Center of Xunantunich and its Hinterland*, ed. by L.J. LeCount & J. Yaeger. University of Arizona Press, Tucson.

Leventhal, Richard

- 2009 Keynote Address. Paper Presented at the 7th Annual Belize Archaeological Symposium. Belize City, Belize.

McGovern, James O.

- 2004 Monumental Ceremonial Architecture and Political Autonomy at the Ancient Maya City of Actuncan, Belize. Ph.D diss., University of California, Los Angeles.

Robin, Cynthia, L. Theodore Neff, Jennifer, J. Ehret, John Walkey, and Clarence H. Gifford

- 1994 Early Monumental Construction at Xunantunich: Preliminary Investigations of Group E and O/A2-1. In Xunantunich Archaeological Project 1994 Field Season. Edited by Richard M. Leventhal: 101-107. Belmopan and Los Angeles.

Yaeger, Jason

- 2008 Charting the Collapse: Late Classic to Postclassic Population Dynamics in the Mopan Valley, Belize. *Research Reports in Belizean Archaeology* Vol.5:13-22. National Institute of Culture and History, Belmopan, Belize.

5 CONTEXTUALIZING RITUAL BEHAVIOR AT THE CHAN SITE: POTTERY VESSELS AND CERAMIC ARTIFACTS FROM BURIALS, CACHES, AND PROBLEMATICAL DEPOSITS

Laura J. Kosakowsky and Cynthia Robin

The archaeology of Maya ritual too often has relied only on hieroglyphic texts, and pictorial representations on portable art and architecture for explanations. As such, much of the focus has been directed on the uppermost strata of Maya society with little reference to what were similar social practices on the part of Maya farmers. Community ritual represented a worldview or ideational knowledge that was symbolized materially in burials, caches, and other types of offerings. In this paper we examine the pottery vessels and ceramic artifacts that were utilized as offerings in burials, caches, and problematical deposits at the Chan site, during its 2,000 year occupation. This intersection of material goods used as ritual offerings with social practice represents a multi-layered view of the ancient Maya that was clearly not the sole domain of Maya elites. Through the activities of burial and ancestor worship, dedication and termination caching, and feasting, the residents of Chan created a sacred landscape that linked them to the living, to their dead ancestors, and to the gods.

Introduction

The archaeology of Maya ritual has had as long and varied a history within the discipline as the types of behaviors it has attempted to describe. However, it too often has relied only on hieroglyphic texts, and pictorial representations on portable art and architecture for explanations. As such, much of the focus has been directed on the ritual behaviors of the uppermost strata of Maya society with little reference to what were often similar social practices on the part of Maya farmers and communities. Community ritual represented a worldview or ideational knowledge that was symbolized materially in burials, caches, and other types of offerings. Research at Chan has demonstrated clearly that ritual practices had their beginnings at the very founding of the site in the Middle Preclassic, long before their adoption by the Maya elite of the Classic period.

The Chan site is located in west-central Belize in an interfluvial area of the limestone uplands between the Mopan and Macal branches of the Belize River. Across this hilly terrain Chan's inhabitants founded and constructed a small ceremonial center and farming community that consists mostly of low mound groups of less than 1 meter in height, and numerous agricultural terraces (Wyatt 2006). Settlement survey and GIS work (Robin et al. 2004) have documented 275 mound groups and a density of 304 terraces per square kilometer in the 3.2 square kilometer survey area of the site. The site was continuously occupied from 800 BC

until A.D. 900 with only sparse evidence for Early Postclassic activity (Kosakowsky 2006, 2007, 2008, 2009).

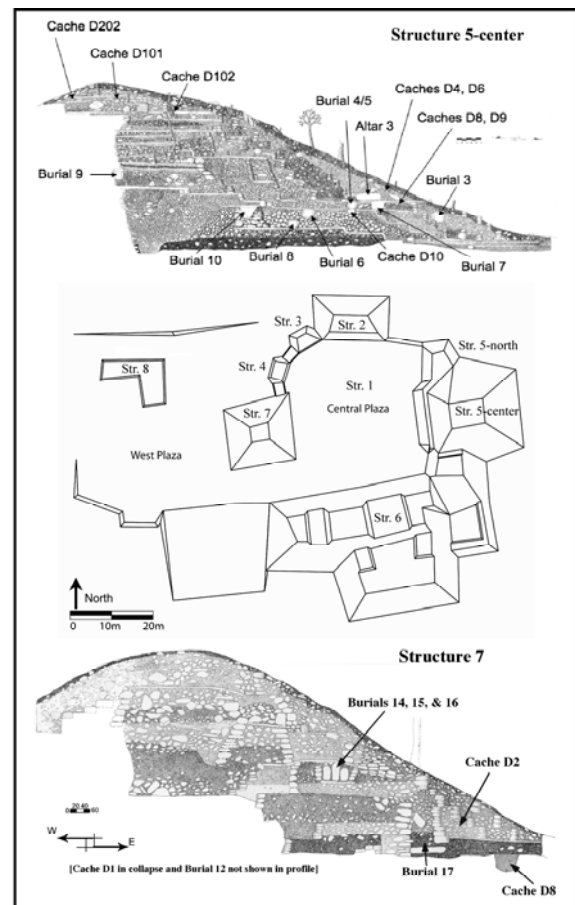


Figure 1: Map of the Chan site center and cross-sections of the East (Str. 5) and West (Str. 7) buildings of the E-Group showing locations of burials and caches.

However, it is the small ceremonial center, with its 5.6-meter high main temple, located on a central plaza that is the focus of this paper (Figure 1). The central group at Chan, is situated on the summit of its central and high hilltop, and is not only the spatial and geographical core of the community, but in ancient times served as the administrative and ritual community center for its inhabitants. While the site's earliest occupation and ritual date to the Middle Preclassic, the visible architectural layout and spatial patterning of the central group has its beginnings in the Late Preclassic. Chan's central group consists of east and west pyramidal structures that form an E-Group, constructed first in the Late Preclassic, and northern and southern buildings, the latter of which is the only vaulted structure at the site, that were relatively small until the Classic period (Robin et al. 2005). In spatial layout and directionality the Chan central group conforms to other, much larger centers throughout the Maya lowlands (Ashmore 1991; Robin et al. 2004).

Types of Deposits

The types of deposits associated with ritual behaviors found at Chan leave material traces that also conform to those found at other lowland Maya sites. Becker (1992) has defined caches as deposits of ritual objects interpreted as offerings, while William Coe (1959:77) defined the term as follows: a "cache refers to one or more objects found together, but apart from burials, whose grouping and situation point to intentional interment as an offering." Burials have been defined as "the original interment of one or more individuals in a prepared repository, however simple, together with any furniture or associated material, which may be absent." (Becker 1992:187). However, the myriad of what could be ritual deposits encountered in excavation, such as those containing incomplete skeletal remains and other artifacts; scatters of utilitarian objects that may or may not be container-less caches (Moholy-Nagy 1997; Diane Chase 1988); irregularly patterned deposits of offered material; or seemingly domestic refuse that has been intentionally deposited in a secondary location are just some examples that blur the distinction between

burials and caches, and helped to coin the term "problematical deposit" by the Tikal Project decades ago (Becker 1992; Clayton et al. 2005; Krejci and Culbert 1995; Kunen et al. 2002; Walker 1995). Most importantly, typologies of deposits that include static categories of cache, burial, dedicatory or termination deposits, feasting refuse, or other problematical deposits do not adequately describe the complex and dynamic nature of ritual behaviors and their material traces. In this paper we will present only the more detailed description of the whole vessels and ceramic figurines from the varied deposits found at Chan, although we argue ultimately for a contextual based approach that includes all artifact classes and architectural and excavation data in order to understand better the behaviors associated with Maya ritual (Chase and Chase 1998).

Middle Preclassic Boden Complex

If one can measure sacredness of a space or geographic location in terms of the length of time that locus is the focus of ritual practices then the center of Chan's central plaza was indeed among the most sacred (Robin et al. 2005). Beginning in the Middle Preclassic Boden Complex, caches were placed in small pits dug into the bedrock in the center of the Chan site. While no whole vessels or ceramic artifacts were found in the exceedingly complex stratigraphy of pits, cutting into other pits, the fill of these contained some greenstone, and sherds of the Savanna Orange Group. A single calibrated radiocarbon date from the earliest levels dates to 780-420 B.C. at the two-sigma range. A burial of a 20-24 year old of indeterminate sex was also located at the center of the plaza in the Middle Preclassic, with no ceramic grave goods and a single piece of greenstone. Novotny's bioarchaeological analysis (2008) of the burial indicates that it was re-entered at least twice during the Middle Preclassic, evidence that this was a marked location and suggests that the practice of ancestor veneration dates back at least to the Middle Preclassic at Chan.

Late Preclassic Cadle Complex

While caching of artifacts, including ceramics, in the central plaza at Chan continued

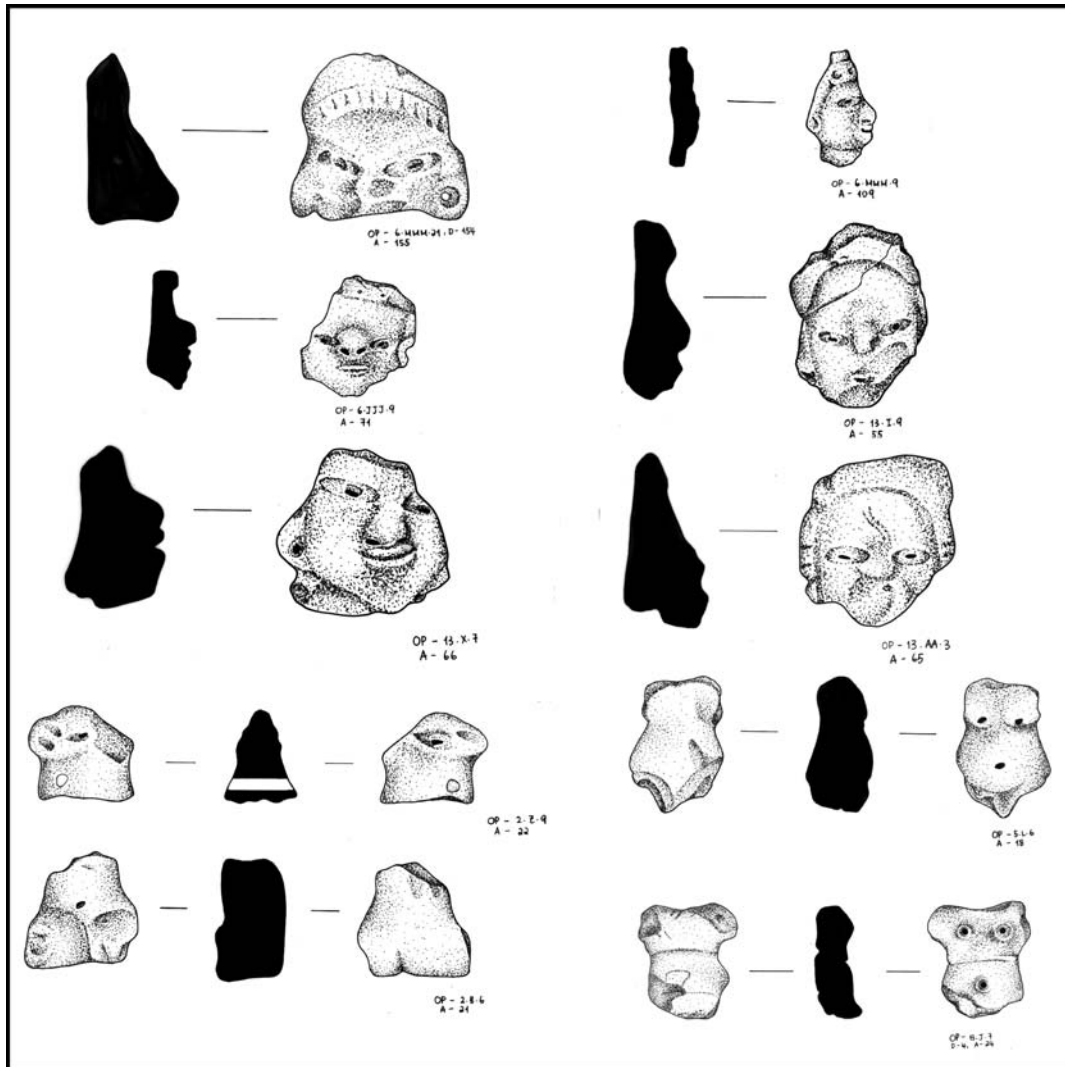


Figure 2: Middle Preclassic Boden figurine heads and torsos found in later burials and caches from Chan's site center excavations (Illustrated by Carmen Ting).

throughout the site's occupation history, the major focus of ritual activity shifted to both the eastern and western structures of Chan's E-Group during the Late Preclassic Cadle Complex. Prior to any masonry construction, an upright stone was set into the plaza floor, oriented along an east-west axis in the location below what became the north building of the eastern tripartite structure (Kestle 2004). Excavators also found a partial incensario, some sherds with evidence of charcoal and burning, and a broken fragment of a *spondylus* shell

associated with the upright stone; the charcoal from the deposit yielded a calibrated radiocarbon date of 400 to 200 B.C. at the two-sigma range.

Throughout the entire Late Preclassic architectural history of the E-group (Meierhoff et al. 2004), a series of burials was placed in both the eastern and western structures. Burials 10 and 8, both young adult males, are the earliest burials in the eastern structure of the E-group, and were interred with a wide array of grave goods (Novotny and Kosakowsky 2009).

Calibrated radiocarbon dates from charcoal within the burials date Burial 10 from 400 to 210 B.C., and Burial 8 from 50 B.C. to A.D. 90 both at the two-sigma range.

The grave goods associated with Burial 10 include a jade bead, marine shells, hematite fragments, obsidian, a stingray spine, and a turtle carapace, as well as a ceramic incensario or stove prong (Ball and Taschek 2007), a Sierra Red small recurving bucket showing use-wear, and a broken figurine head with a braided headband that is from a molded Middle Preclassic figurine. Others have identified the practice of curating Middle Preclassic figurines as antiques in later contexts in the Belize Valley (Garber, personal communication 2008).

A total of eight Middle Preclassic figurine heads have been found in later deposits at Chan, all in the central group at the site, including one in the central plaza caches, three in the eastern structure of the E-group (one from a Late Preclassic burial), three in the western structure of the E-group (one also from a Late Preclassic burial), and one in the north structure, which was likely a residence for the leading family (Figure 2). Four Middle Preclassic torso fragments also have been identified; three from the north structure and one from a Late Preclassic burial in the western structure of the E-group. The earliest burials in both the eastern and western structures of the E-group (Burial 10 and Burial 17 respectively) contained broken Middle Preclassic figurine heads. It is intriguing to suggest that these figurines represent actual portraiture, and their incorporation in later burials, caches, and fills of sacred spaces served to connect the Chan inhabitants with their ancestors, perhaps symbolizing the founding lineage of the Chan site, whose individuals were interred within the E-group.

Burial 8 was interred with a large chert blade, a jade bead, and six ceramic vessels, the most ceramic vessels of any burial in the Chan E-group. The whole vessels include four from the Sierra Red Group, and two from the Paila Unslipped Group and all show evidence of use-wear. According to Novotny's analysis (2008) this burial was re-entered in prehistoric times, and the cranium was placed within one of the Sierra Red bowls with the jade bead between its teeth. A final Late Preclassic burial (Burial 9) in

the eastern structure of the E-group is an individual male, aged 23-25 (Novotny 2008). This individual was interred with two vessels, both buckets; one a Sierra Red and the other a Society Hall Red, each exhibiting use-wear, and no other grave goods.

Four burials in the western structure of the E-group date to the Late Preclassic. As mentioned previously, the earliest, Burial 17, an adult of indeterminate sex (Novotny 2008) was interred with only a Middle Preclassic figurine head. The three later burials, 14, 15, and 16, are roughly coeval and a calibrated radiocarbon date from Burial 14 dates from 370 to 110 B.C., at the two-sigma range. Only Burial 14, an adult of indeterminate sex (Novotny 2008) contained ceramic grave goods including a torso of a Middle Preclassic figurine, and a badly eroded partial Sierra Red dish, though all three burials were interred with jade, shell ornaments, and conch.

Terminal Preclassic Potts Complex

The interment of burials containing ceramic grave goods continued in the Terminal Preclassic Potts Complex in both the eastern and western structures of Chan's E-group. Burial 6, an 18-22 year old of indeterminate sex (Novotny 2008), placed in the eastern structure, has a calibrated radiocarbon date of 170 B.C. to A.D. 50 at the two-sigma range. Grave goods included two vessels, a Paila Unslipped jar and a late Sierra Red basal flange bowl as well as a jade bead. Burial 2 of a young adult male (Novotny 2008) placed in the north building of the eastern tripartite structure dates to A.D. 140 to 380, calibrated at two sigma, and contained only shell artifacts. Burial 12, an eight year old child (Novotny 2008), was interred with shell artifacts and greenstone in the western structure of the E-group.

At the very end of the Preclassic, an important cache (D8) was placed into a hole dug by Chan's inhabitants into the bedrock underneath an expansion of the western structure of the E-group. Within this hole, they placed two basal-flange bowls stacked lip-to-lip, that are poorly preserved Pucate Brown or very poorly executed early Balanza Blacks. Inside, excavators found four diminutive anthropomorphic figurines of the "Charlie

Chaplin” type (one yellowish *spondylus*, one reddish *spondylus*, one green jade, and one black slate); one white shell human face profile; and an assortment of worked jade, spondylus, and polished hematite pieces (Keller 2008). According to Keller’s analysis (2008), the hematite pieces may have been part of a mosaic mirror layered in the cache. The four little figurines and one profile were arranged in a quincunx pattern at the base of one of the bowls, creating a model of the universe complete with color associations. At the site of Caracol, Diane and Arlen Chase (2006:51) have found a similar, more elaborate, dedicatory cache placed in the site’s E-group, which they interpret as a “cosmogram” intended “to center the building and by extension the site of Caracol” (Chase and Chase 2006:53).

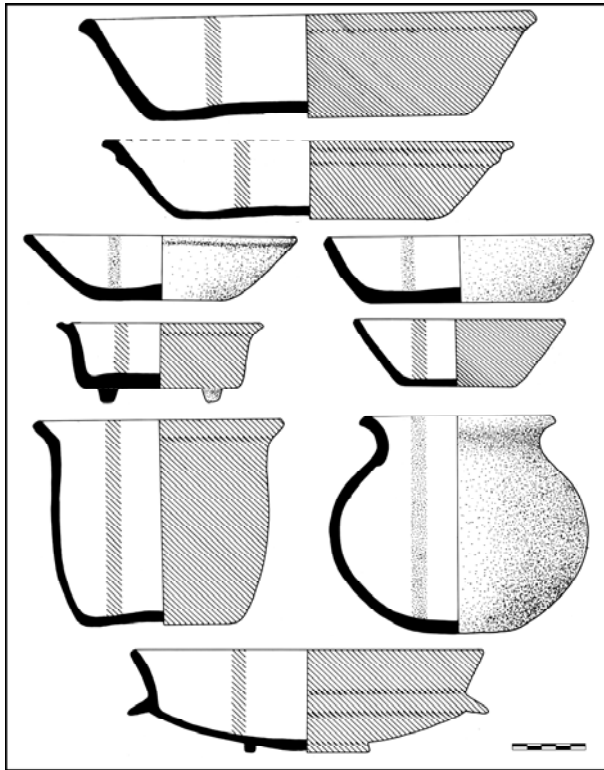


Figure 3: Preclassic Cadle Complex and Terminal Preclassic Potts Complex whole vessels of the Sierra Red and Paila Unslipped Groups, from burials in the eastern building of Chan’s E-Group (Illustrated by Carmen Ting).

Clearly, the inhabitants of Chan valued and interred a variety of ritual items when they placed their caches and buried their ancestors in the site’s E-group. The seven Late Preclassic burials and one cache, and the three Terminal

Preclassic burials and one elaborate cache often contained jadeite or greenstone, along with shell ornaments as well unmodified river mussels (*Nephronaias*) and jutes (*Pachychilus*). The ceramics (Figure 3) included as grave goods came from everyday household inventories, exhibit use-wear, and may have been both valuable possessions during the individual’s lifetime as well as containers for foodstuffs that accompanied the deceased on her path into an afterlife. The hypothesized use of Middle Preclassic figurines in burials to represent portraits of one’s ancestors may be seen as precursors to depictions of ancestors on Classic period sculpture. Taken as a complete group within their archaeological context, these Preclassic burials and caches demonstrate that the complex ideology associated with ancestor veneration and symbolism had its roots in a popular religion in the homes of Maya farmers, long before its appearance among the Classic Maya elite.

Early Classic Burrell Complex

The Early Classic Burrell Complex marks the beginning of a change in the use of ceramic vessels in ritual contexts. Throughout the Classic period pottery vessels are no longer included as grave goods in burials in the site’s E-group, although other artifact classes are found in mortuary contexts. Instead ceramics were placed as offerings in caches, which become the main focus of rituals at both the eastern and western structures of Chan’s E-group, representing a shift in focus from ritual associated with specific ancestors to rituals associated with the community as a whole. No Early Classic burials were interred in either the eastern or western structures of the E-group. At the end of the Early Classic three caches (D8, D9, and D10) were placed in the eastern structure, consisting of partial or poorly preserved vessels placed on a floor at roughly the same time to mark the refurbishing of the lower sub-structure and staircase. They include a number of Aguila Orange open bowls with ring bases, as well two small unslipped “finger bowls” similar to Hewlett Bank Unslipped in the Hermitage Complex at Barton Ramie (Gifford 1976), although the Chan form tends to become more common in the subsequent time period,

marking these caches as transitional into the Late Classic.

Early Late Classic Jalacte Complex

During the early Late Classic Jalacte Complex, both caches and burials were placed in the eastern structure of the E-group, though none were found in the western structure. The burials (3,4, 5 and 7) were accompanied with numerous grave goods including jade, obsidian, and elaborate shell ornaments (Keller 2008), but no ceramics, although ceramics continue to appear in caches. Cache D4 consisted of six chert eccentrics placed on the central axis of the structure near cache D6 and Altar 3, marking the construction and dedication of the upper structure. Cache D6 was placed in the fill at the center of the ultimate step of the upper structure and consists of a tall monochrome red cylinder and a mismatched shallow monochrome red dish used as a lid (see Figure 4). Cylinder vases are less common forms in household refuse at Chan, a pattern found also by LeCount (1996; 2001) in her research at Xunantunich, where more elaborate cylinder vases were likely used to drink cacao in celebratory feasting events (Houston et al. 1989; Stuart 1988). Research at other larger sites (Ball 1993; Reents-Budet 1994) has demonstrated that elaborately painted vases were produced by specialists as prestige items and widely traded at the uppermost levels of Maya society to cement socio-political relationships. The residents of Chan likely selected this specific vessel form for the caching event that terminated one construction phase of the eastern structure, and dedicated the new upper structure. Finally, a cache (D202) was recovered from the center doorway step leading to the rear bench of the eastern superstructure and contained multiple, highly eroded ridged plates, probably of the Mountain Pine Red Group.

Late Late Classic Pesoro Complex

During the late Late Classic Pesoro Complex, the final cache (D101) in architectural construction, a large unslipped incensario, was placed upright on the central step leading from the front to the rear room in the eastern structure of Chan's E-group. A single calibrated radiocarbon sample on charcoal found in

association with the incensario dates this event to A.D. 660 to 880 at the two-sigma range. At the same time, a final cache (D2) was placed in the upper sub-structure of the north building of the eastern tri-partite structure consisting of a Mt. Maloney bowl. LeCount's research at Xunantunich (1996) has shown the importance

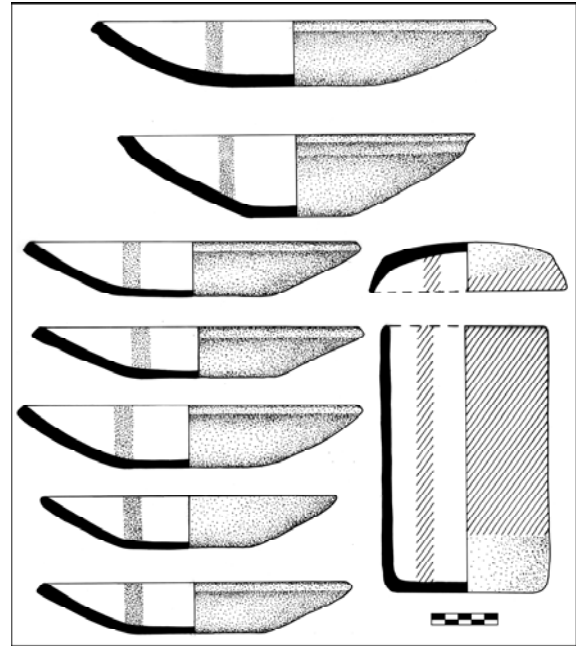


Figure 4: Cache vessels of the Late Classic Jalacte Complex and late Late Classic Pesoro Complex from Chan's site center excavations (*Illustrations by Carmen Ting*).

of this ceramic type and form in feasting events and community identity, though it is not commonly found in caches.

While the caching of ceramic vessels in architecture in Chan's E-group ends in the late Late Classic, the focus of architectural activity and caching shifts to the north-south axis of the site. The northern building of Chan's central group, Structure 2, is the highest residence at the Chan site and is associated with two low ancillary structures to its west. Excavations have uncovered 27 substructure floors and fills, with each new substructure centered upon and superimposed above the previous substructure beginning in the Middle Preclassic Boden Complex and ending in the Terminal Classic Vieras Complex. Residents placed a single piece of jade on the center of the floor of the

first substructure marking the center of their home with the color green (Latsch 2003).

Structure 6, the southern range structure of Chan's central group is the only full masonry vaulted building at the site. Excavations in 2005 (Robin et al. 2005) demonstrated a complex construction sequence with 226 fill, floor, and wall contexts comprising a ten phase construction sequence, and made up of two buildings- a higher and larger eastern one and a smaller and lower western building, which was heavily looted. Therefore, excavations focused on the intact eastern building, consisting of twelve north and south facing rooms, and a rear private plaza/patio. The vaulted masonry range structure was constructed with two floor levels, and a lower passageway that ran below the superstructure, providing access to the north and south sides of the superstructure by way of an interior stairway. Excavation data supports interpretations that this building served unique functions for the community including an *audiencia* style room, where Chan's leaders could have held meetings and settled disputes, and evidence of possible divination activities in another room. Caches placed in steps, benches, and walls within the architecture consist entirely of undecorated unslipped lip-to-lip bowls, or in one case a series of five stacked unslipped dishes (see Figure 4). No burials were uncovered in either the northern building, or the southern range structure of Chan's central group.

Terminal Classic Vieras Complex

No ceramics were utilized in caches during the Terminal Classic Vieras Complex. Instead, the final cache placed in the southern building of Chan's central group consists of two chert bifaces and deer antler fragments (Robin et al. 2005). A calibrated radiocarbon date from this cache dates to A.D. 770 to 980 at the two-sigma range. A final caching event at the western structure of Chan's E-group (Cache D1) also contained no ceramics. It is composed of two large, thin, chert laurel leaf bifaces found in an east-west orientation along the central axis of the western shrine. The bifaces were placed between the penultimate and ultimate fill of the final phase steps.

However, during the Terminal Classic the major focus of activity appears to be a

number of special deposits left on the surfaces of floors and buildings of the E-group and the north and south buildings of the central group effectively terminating the use of these structures and deconsecrating Chan's central group (Robin et al. 2005). A terminal deposit (D2) left on the centerline step of the western structure of the E-group contained partial Belize Red vessels, Cayo unslipped jars, and an incomplete Pedregal Modeled Incensario. Similarly, a terminal deposit (D102) represents the final depositional event on the surface of the eastern building of the E-group. It consisted of a number of mostly incomplete vessels and included fragments of incensarios, Belize ashwares, and eroded polychromes. A single calibrated radiocarbon sample dates this event to A.D. 780 to 980 at the two-sigma range. A similar final special deposit was placed on the north building, and a variety of special deposits were placed in the southern range structure including a unique termination event consisting of 548 jute (Keller 2008) covering a ceramic spindle whorl and a broken pedestal base from a Roaring Creek Red bowl that appears to have been modified into a cord holder, in the hypothesized diviner's room. Dense deposits of jute have been identified at Xunantunich (Jamison 1992) and Keller's research at Chan suggests, "the intentional deposition of (consumed) jutes seems distinctly ritual, and arguably related to the concepts of sacred water, fertility, death, and renewal (Keller 2008:7; see also Halperin et al. 2003).

Early Postclassic

By A.D. 900, the population of Chan appears to have declined dramatically. In the Terminal Classic/Early Postclassic period a low square structure was constructed in the central plaza of the site, as a shrine, and oriented towards the inter-cardinal directions. It was placed over the area of earliest offerings and associated with a mosaic altar of cut limestone on its eastern side (Blackmore 2003). A large cut stone fragment was located by the excavators on the shrine and fit with others located across the plaza to form one 2-meter high stone stela (Robin et al. 2005), although it is unclear when this stela was broken and moved. It appears that the final ancient ritual event in Chan's central

group was the placement of a cache consisting of shell, jade, and ceramics. Found just centimeters below the present ground surface, the cache contained an entire necklace of eleven heavy *spondylus* beads and pendants (Keller 2008), numerous jade beads, incensario prongs, incensarios, and figurines.

Conclusions

Our research on the 2,000 year occupation of the Chan site documents a set of rich and diverse religious practices that rather than being static and unchanging exhibited complex and careful planning in terms of the location of ritual events and the selection of material representations of the Maya worldview. In the Preclassic, everyday ceramics were utilized as grave goods and ritual was focused on specific ancestors (Novotny and Kosakowsky 2009), but beginning in the Early Classic and continuing throughout the Late and Terminal Classic periods, ceramics were placed in caches, as ritual changed from a focus on specific ancestors and their veneration to rituals associated with the community as a whole. This intersection of material goods used as ritual offerings with social practice represents a multi-layered view of the ancient Maya that was clearly not the sole domain of Maya elites, and had its beginnings in the Middle Preclassic long before their formalization by the elite of large Classic Maya centers. Through the shared activities of burial and ancestor worship, dedication and termination caching, and feasting, the material remains of which are often found by the archaeologist in so-called problematical deposits, the residents of Chan created a sacred landscape that linked them to the living, to their dead ancestors, and to the gods.

Acknowledgements We would like to thank the Institute of Archaeology, and Dr. Jaime Awe and Dr. John Morris for their continuing support of the Chan Project. We would also like to acknowledge the immense contribution of all the women of the IOA, especially Ms. Sherilyne Jones, who annually manage to keep the Belize Archaeology Symposium running so well, and throughout the year keep all of us organized. We would like to acknowledge all the members

of the Chan project, whose hard work and collaboration have enriched this research, and especially Dr. Angela Keller, Anna Novotny, Nick Hearth, Carmen Ting, Elise Docster, and Sylvia Batty. Unpublished papers from the Chan Project, Society for American Archaeology 2008 session, may be accessed online at <http://www.anthropology.northwestern.edu/chan/publications.html>.

References Cited

- Ashmore, W.
1991 Site-Planning Principles and Concepts of Directionality among the Ancient Maya. *Latin American Antiquity* 2 (3): 199-226.
- Ball, J. W.
1993 Pottery, Potters, Palaces, and Politics: Some Socioeconomic and Political Implications of Late Classic Maya Ceramic Industries. In *Lowland Maya Civilization in the Eighth Century A.D.*, edited by J. A. Sabloff and J. S. Henderson, pp. 243-272. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Ball, J. W. and J. T. Taschek
2007 Sometimes a "Stove" Is "Just A Stove" A Context-Based Reconsideration of Three-Prong "Incense Burners" from the Western Belize Valley. In *Latin American Antiquity* 18(4): 451-470.
- Becker, M. J.
1992 Burials as Caches; Caches as Burials: A New Interpretation of the Meaning of Ritual Deposits among the Classic Period Lowland Maya. In *New Theories on the Ancient Maya*, edited by E. C. Danien and R. J. Sharer, pp. 185-196. University Museum Monograph 77. University of Pennsylvania, Philadelphia.
- Blackmore, C.
2003 Operation 1, C-001. In *The Chan Project Report: 2003 Season*, edited by C. Robin, pp. 36-51. Report submitted to the Institute of Archaeology, Belize.
- Chase, A. and D. Z. Chase
2006 Before the Boom: Caracol's Preclassic Era. In *Archaeological Investigations in the Eastern Maya Lowlands: Papers of the 2005 Belize Archaeology Symposium*, edited by J. Morris, S. Jones, J. Awe, and C. Helmke, pp. 41-58. Institute of Archaeology, Belmopan, Belize.

- Chase, D. Z.
 1988 Caches and Censerwares: Meaning from Maya Pottery. In *A Pot for All Reasons: Ceramic Ecology Revisited*, edited by C. C. Kolb and L. M. Lackey, pp. 81–104. Laboratory of Anthropology, Temple University, Philadelphia.
- Chase, D. Z., and A. F. Chase
 1998 The Architectural Context of Caches, Burials, and Other Ritual Activities for the Classic Period Maya (as Reflected at Caracol, Belize). In *Function and Meaning in Classic Maya Architecture*, edited by S. D. Houston, pp. 299–332. Dumbarton Oaks, Washington, DC.
- Clayton, S. C., W. D. Driver, and L. J. Kosakowsky
 2005 Rubbish or Ritual? Contextualizing a Terminal Classic Problematic Deposit at Blue Creek, Belize. A Response to "Public Architecture, Ritual, and Temporal Dynamics at the Maya Center of Blue Creek, Belize" by T. H. Guderjan. In *Ancient Mesoamerica* 16:119-130.
- Coe, W. R.
 1959 *Piedras Negras Archaeology: Artifacts, Caches and Burials*. University Museum Monograph 18. University of Pennsylvania, Philadelphia.
- Gifford, J. C.
 1976 *Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 18. Cambridge, MA.
- Halperin, C. T., S. Garza, K. M. Prufer, and J. E. Brady
 2003 Caves and Ancient Maya Ritual Use of Jutes. *Latin American Antiquity* 14(2):207–219.
- Houston, S., D. Stuart, and K. A. Taube
 1989 Folk Classification of Classic Maya Pottery. *American Antiquity* 91:720-726.
- Jamison, T. R.
 1992 The Excavation of Structures A-1 and A- 4. In *Xunantunich Archaeological Project, 1992 Field Season*, edited by R. M. Leventhal, pp. 22–34. Report on file, Institute of Archaeology, University of California, Los Angeles, and Institute of Archaeology, Belmopan, Belize.
- Keller, A.
 2008 The Chan Shell Collection: Creating Community with Shell. Paper presented at the Society for American Archaeology 73rd Annual Meeting, Vancouver, British Columbia, Canada.
- Kestle, C.
 2004 Operation 6, Str. 5-north, C-001. In *The Chan Project Report: 2004 Season*, edited by C. Robin, pp. 39–46. Report submitted to the Institute of Archaeology, Belize.
- Kosakowsky, L. J.
 2006 Preliminary Analysis of the Chan Site Ceramics: Report from the 2006 Season. In *The Chan Project Report: 2006 Season*, edited by C. Robin. Report Submitted to the Institute of Archaeology, Belize.
- 2007 Preliminary Report on the Analysis of the Ceramics from the Chan Project: 2007 Laboratory Season. In *The Chan Project Report: 2007 Season*, edited by C. Robin. Report Submitted to the Institute of Archaeology, Belize.
- 2008 Preliminary Report on the Analysis of the Ceramics from the Chan Project: 2008 Laboratory Season. In *The Chan Project Report: 2008 Season*, edited by C. Robin. Report Submitted to the Institute of Archaeology, Belize.
- 2009 Preliminary Report on the Analysis of the Ceramics from the Chan Project: 2009 Laboratory Season. In *The Chan Project Report: 2009 Season*, edited by C. Robin. Report Submitted to the Institute of Archaeology, Belize.
- Krejci, E., and T. P. Culbert
 1995 Preclassic and Classic Burials and Caches in the Maya Lowlands. In *The Emergence of Lowland Maya Civilization: The Transition from the Preclassic to the Early Classic*, edited by N. Grube, pp. 103–116. Acta Mesoamericana Vol. 8. Verlag Anton Sauerwein, Möckmühl, Germany.
- Kunen, J. L., M. J. Galindo, and E. Chase
 2002 Pits and Bones: Identifying Maya Ritual Behavior in the Archaeological record. In *Ancient Mesoamerica* 13(2): 197-212
- Latsch, M.
 2003 Operation 2, C-001. In *The Chan Project Report: 2003 Season.*, edited by C. Robin, pp. 52-62. Report submitted to the Institute of Archaeology, Belize.
- LeCount, L.
 1996 Pottery and Power: Feasting, Gifting, and Displaying Wealth among the Late and Terminal Classic Lowland Maya. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.
- 2001 "Like Water for Chocolate: Feasting and Political Ritual among the Late Classic Maya at Xunantunich, Belize." In *American Anthropologist* 103(4): 935-953.
- Meierhoff, J., C. Kestle, and E. Kalosky
 2004 Operation 6, Str. 5-center, C-001, In *The Chan Project Report: 2004 Season*, edited by C.

- Robin, pp. 15-38. Report submitted to the Institute of Archaeology, Belize.
- Moholy-Nagy, H.
1997 Middens, Construction Fill, and Offerings: Evidence for the Organization of Classic Period Craft Production at Tikal, Guatemala. *Journal of Field Archaeology* 24:293-313.
- Novotny, A.
2008 Life and death in a Maya Farming Community: A bioarchaeological perspective. Paper presented the Society for American Archaeology 73rd Annual Meeting, Vancouver, British Columbia, Canada.
- Novotny, A. and L. J. Kosakowsky
2009 Burials And Caches From The Chan Site E-Group: A Bioarchaeological Perspective On Ritual And Social Complexity At An Ancient Maya Farming Community. In *Research Reports in Belizean Archaeology: Papers of the 2008 Belize Archaeology Symposium*, Volume 6. Edited by J. Morris, S. Jones, J. Awe, and C. Helmke, Institute of Archaeology, NICH, Belmopan, Belize.
- Reents-Budet, D.
1994 *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Durham: Duke University Press.
- C. Robin, W. Middleton, S. Juarez, and M. Morrison
2004 Surveying an Agrarian Community: The 2002 Season at the Chan Site, Belize. *Research Reports in Belizean Archaeology* 1(2): 231-242.
- Robin, C., C. Blackmore, and M. Latsch
2005 Household and Community Ritual in a Maya Farming Community: The 2003 Season at the Chan Site, Belize. *Research Reports in Belizean Archaeology* 2: 339-348.
- Robin, C., A. Wyatt, and C. Blackmore
2005 Summary Statement of the 2005 Chan Project Research. Report submitted to the Institute of Archaeology, Belize.
- Stuart, D.
1988 The Rio Azul Cacao Pot: Epigraphic Observations on the Function of a Maya Ceramic Vessel. *Antiquity* 62:153- 157.
- Walker, W. H.
1995 Ceremonial Trash? In *Expanding Archaeology*, edited by J. M. Skibo, W. H. Walker, and A. E. Nielsen, pp. 67-79. University of Utah Press, Salt Lake City.
- Wyatt, A.
2006 Excavations of Agricultural Terraces at Chan Belize: Results of the 2004 Season. *Research Reports in Belizean Archaeology* 3: 161-172.

6 SCALPING AS A COMPONENT OF TERMINUS STRUCTURE RITUAL AT THE SITE OF BAKING POT, BELIZE VALLEY

Jennifer C. Piehl and Jaime J. Awe

This paper presents and contextualizes the osteological evidence for scalping on two crania included in a multi-component ritual deposit at Structure 190, Baking Pot, Belize. The crania, associated with other deposits of dismembered human remains at this causeway terminus structure, evidence part of a series of rituals requiring interpersonal violence and extensive manipulation of human remains. The evidence for scalping and its significance in terminus structure ritual are discussed in the context of warfare, sacrifice and the cycle of death and rebirth among Mesoamerican cultures and the Classic period Lowland Maya.

Introduction

This paper presents evidence for the practice of scalping as a component of warfare-related Maya ritual. While an extensive and diverse repertoire of the manipulation, mutilation and curation of human remains is well known among the Maya, with varying purposes ranging from veneration to violation (Duncan 2005) and often conflating these, scalping has not to date been included within these behaviors. The examination of two crania deposited in ritual contexts in a causeway terminus structure at the site of Baking Pot in the upper Belize Valley (Figure 1) has led to the identification of scalping practices likely related to warfare and forming one component of the ritual violence carried out on these individuals. This article describes the context in which these crania were deposited, presents the osteological evidence for scalping, and contextualizes this practice within the better-known complex of rituals of violence and manipulation of human remains among the Maya.

Baking Pot Structure 190: The Causeway Terminus Structure and Deposits Containing Human Remains

Structure 190 at Baking Pot is located at the terminus of Causeway 2, which leads southwest from the epicenter's Group B (formerly Group II; Figure 1). Its final form consisted of a room atop a terraced platform with a central staircase, facing the causeway to the north (Figure 2a). Two stelae were associated with this structure, one placed near the front of the structure on its central axis and another in a walled partial enclosure at the western base of the platform. Excavations

revealed four main construction phases, dating from the Late Preclassic through the Late Classic (Audet 2007:252-257).

The ritual function of this structure is confirmed by its location, associated monuments, and numerous ritual deposits. Two stelae and an altar, all with associated deposits, were placed at Structure 190 during the history of its use. Evidence for both dedicatory and terminating ritual activities in association with the monuments took the form of smashed partial vessels, censers, obsidian blades and greenstone artifacts. Such deposits were found beneath Stela 2, commemorating its erection in the Late Preclassic (Barton Creek phase: 300-100 BC), and at the base of the staircase where Stela 1 was situated, suggesting termination of this ritual location in the Late or Terminal Classic (Audet 2007:257). A multi-component deposit including an altar (Figure 3a) was placed in the room atop the structure in the Late Preclassic, and this locus continued to be used into the Late Classic. This deposit, described below, included human finger phalanges and teeth. In addition to this use of human remains, four other deposits containing human bone were placed along Structure 190's central axis (Figure 2b). All of these have an offertory rather than funerary function, documenting the long tradition of ritual involving violence that occurred at Structure 190.

The earliest excavated deposit containing human remains was placed in association with the altar in the Late Preclassic (Barton Creek phase: 300-100 BC; Figure 3a). A feature containing 186 inverted miniature vessels and over 1500 greenstone fragments was found beneath the altar (Audet 2007:262-265). A

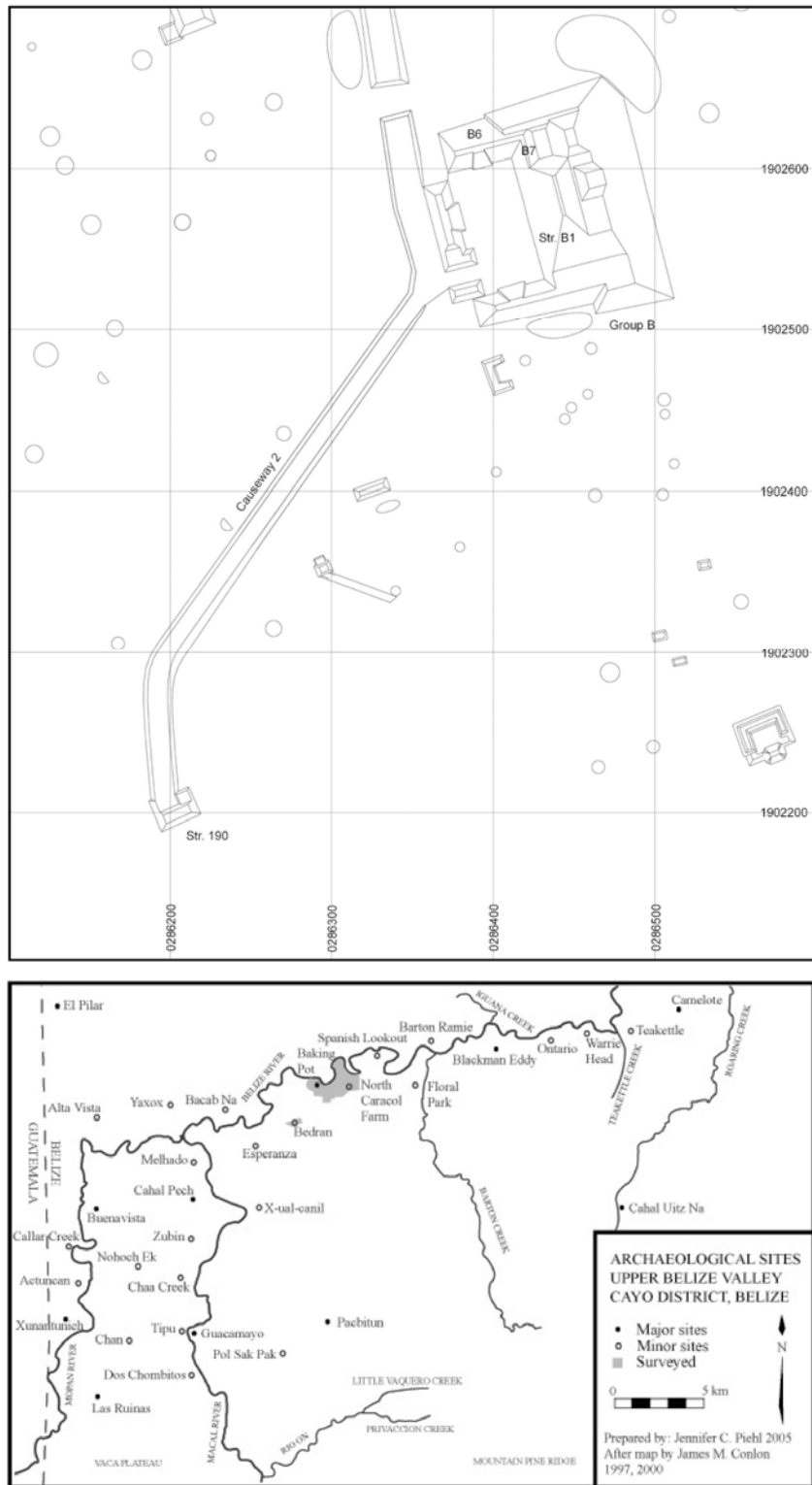


Figure 1. Map of Group B and Structure 190 in the Baking Pot epicenter, with location of the site in the upper Belize Valley. Illustrations by Pielh and Helmke.

second feature lay within the altar, and consisted of 26 miniature vessels, 9 of which were lip to lip. Finger phalanges and incisors (Figure 3b) from a minimum of 5 adults and 1 juvenile were included in these deposits, distributed primarily within the altar but also scattered beneath it. Multiple right and left hands are represented, and the phalanges derive from the second, third and/or fourth fingers. The bones within the altar were burned, while most beneath the altar were not. The 5 teeth are all mandibular first incisors, each from a different individual. Cut marks are absent on the phalanges, with the exception of a single possible glancing cut on the dorsal aspect of one intermediate phalanx. This does not, however, rule out the perimortem dismemberment of the fingers, given the documented practice of twisting to effect finger dislocation (e.g., as depicted on the north wall and bench of Room 2, Bonampak; Johnston 2001; Miller 1986: Pl. 1, 40) and the typical manner of joint destabilization when ligaments are torn, facilitating removal of the digit (Dreier 1992; Jupiter et al. 2003). While a minimum of 6 individuals are represented, it is possible (and we would suggest likely) that the phalanges derive from a larger number of people, with only one or two fingers belonging to each.

In the early Late Classic (Tiger Run phase: 580-680 AD), an infant around the age of 9 months (Burial 1) was interred on the structure's central axis beneath the room's terminal floor. Several partial dishes and a figurine head fragment were associated with this individual. The postcranial remains of a middle adult male (Burial 2) were placed north of Stela 1, also on the central axis, in association with lip-to-lip vessels containing the partial remains of a neonate. The adult's cranium was absent from this deposit.

Taken together, the deposits placed in Structure 190 indicate that this structure was a locus associated with rituals of violence, likely in connection with the mutilation and sacrifice of war captives. Two scalped crania (Burials 3 and 4) deposited in the same structure serve to reinforce this interpretation. The use of human fingers and teeth in a multi-component altar deposit has a clear correlate in the documented mutilation of war captives, and the burning

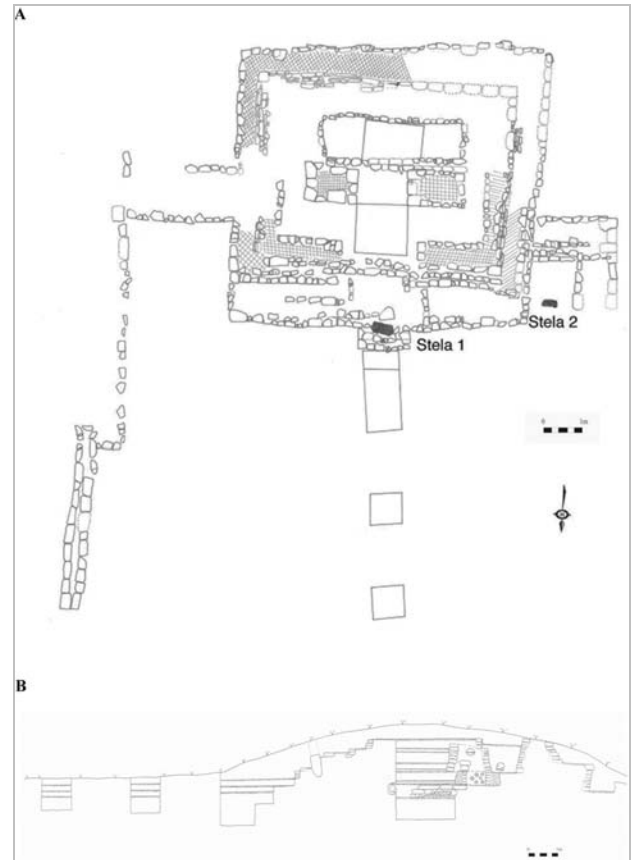


Figure 2. A. Structure 190 plan. B. Structure 190 profile. Illustrations by A. Itza.

associated with this deposit underscores its ritualized nature (Medina and Sanchez 2007:109-110; Tiesler 2007:28). The headless male of Burial 2 can also be interpreted with reference to the practice of decapitating war captives, documented in text and imagery throughout the Maya area (see for example Houston et al. 2006; Mock 1998; Vail and Hernández 2007). In addition, the offering of partial subadult remains, in the lip-to-lip vessels at the feet of the headless male and with one of the scalped crania, illustrates the offertory, rather than funerary, nature of these skeletal deposits. The behaviors leading to the inclusion of these human remains within Structure 190 clearly included ritualized violence. With these deposits as a background for interpreting activities at Structure 190, we now turn to the two crania that show evidence of scalping.

The first cranium (Burial 3) was placed in an intrusive pit on the north side of Structure

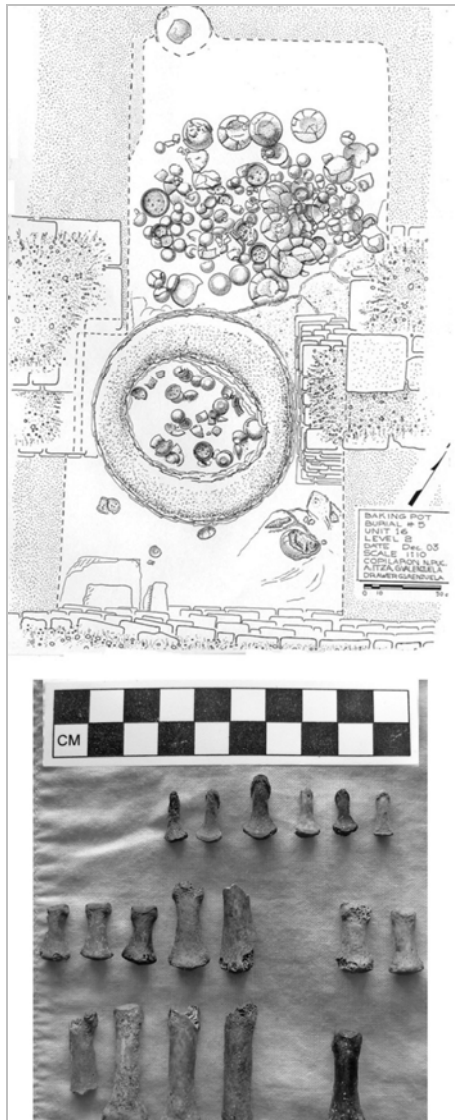


Figure 3. A. Structure 190 altar deposit. Illustration by G. Valenzuela. B. A sample of hand phalanges and incisors from the altar deposit.

190 (Figure 2b) in the early Late Classic (Tiger Run phase: 580-680 AD; Audet 2007:268). The adult male individual is represented by much of the cranial vault, about half of the mandible, and 11 teeth. The bones of the face are absent. Two deep and six shallow cuts are visible on the right superior frontal bone (Figure 4a). These were inflicted perimortem, as indicated by morphological characteristics of their texture and outline (Loe 2009:267). A rectilinear region around and behind these cut marks, on the superior portions of the frontal, parietals and occipital, shows an unhealed porotic reaction.

Healing of the cuts is also absent. This evidence indicates that the trauma was pre-mortem; the individual was alive when the trauma was inflicted, and the periosteal tissue reacted to it but there was not sufficient time for healing to occur.

The behavior that produced this trauma on the Burial 3 cranium is difficult to specify. The deposition of an isolated cranium in this context at Structure 190 suggests decapitation, although no cervical vertebrae are present and we thus lack osteological evidence of such activity. Similarly, the absence of the face evokes known practices of flaying or defacement found on crania from ritual contexts throughout the Maya area (Beck and Sievert 2005; Massey 1989; Massey and Steele 1997; Mock 1998). More of this cranium is absent, however, than the portions that would specifically indicate defacement, preventing us from identifying this activity here. The cut marks and the periosteal reaction, taken together, are the best evidence allowing the reconstruction of at least some of the behavior preceding deposition of these remains.

While the border of the active periostosis cannot be described as crisp, the boundaries are not as diffuse as typically seen for other pathological reactions (e.g., porotic hyperostosis or cranial porosity associated with systemic nonspecific infections), suggesting that it is related to the trauma evidenced by the cut marks. The position and angle of the cut marks on the frontal bone are more consistent with scalping than with flaying. Flaying usually results in a greater number of cut marks, particularly around the orbits and nasal region (Beck and Sievert 2005:299; Hurtado Cen et al. 2007: Figure 9.7; Massey 1989; Massey and Steele 1997). Marks distributed in these areas, as well as on the mandible and around the mastoid process, all result from the separation of soft tissue from the skull that is the goal of flaying. Such marks are absent on the Burial 3 cranium. In addition, cut marks that follow the crown and occur on the cranial vault are indicative of scalping, while those that are more multidirectional and include the face and basicranium are evidence of flaying or defleshing (Loe 2009:276; Mays and Steele

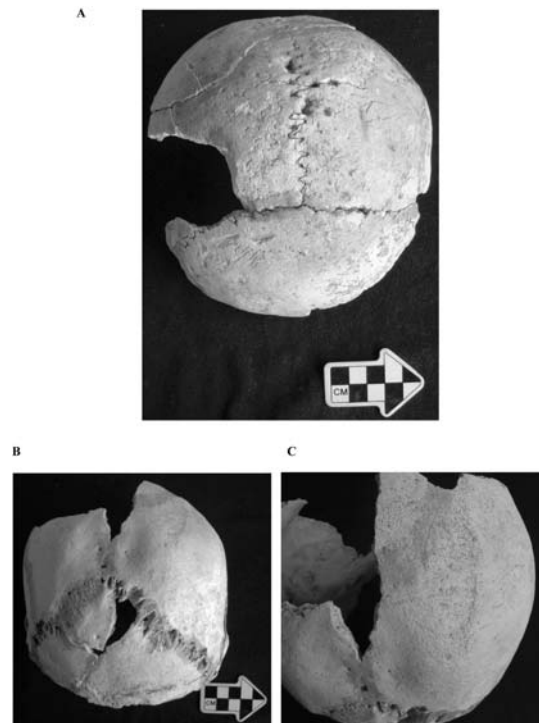


Figure 4. A. Structure 190 Burial 3 cranium (frontal bone is lowermost). B and C. Structure 190 Burial 4 cranium (occipital and close-up parietal views).

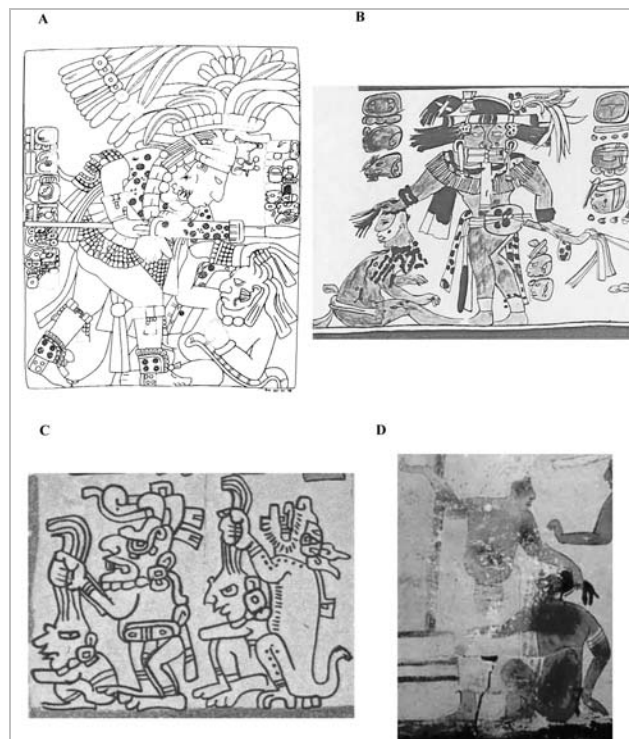


Figure 5. Selected images depicting captives grasped by the hair. A. Lintel 1, Bonampak. After Miller 1986. B. Detail of polychrome vase (K3059). Drawing by Lin Crocker © FLAAR. C. Madrid Codex, 88a. After FAMSI 2003. D. Detail of polychrome vase (K7516). © Justin Kerr 1999.

1996; Olsen and Shipman 1994). The pattern seen on the Baking Pot Burial 3 cranium thus fits within the accepted indicators of scalping trauma, and strongly resembles crania known to have been scalped, such as those from North American contexts (Jacobi 2007: Figures 11.4, 11.5; Mensforth 2007: Figures 9.1, 9.4). While evidence supporting either flaying or scalping is incomplete in this example, the co-occurrence of cut marks with active periostosis and the additional evidence supplied by the Burial 4 cranium (described below) lead us to favor an interpretation of scalping.

Burial 4 at Structure 190 was placed directly below the infant interment along the central axis of the structure (Figure 2b), also in the early Late Classic (Audet 2007:269). It contained the cranium and first 3 cervical vertebrae of a late adolescent male. The incomplete remains of a child and a stemmed chert biface typical of this time period (Willey et al. 1965:413, Figure 261b) accompanied the adult cranium, which bears an area of burning on the frontal bone. The presence of the first 3 cervical vertebrae indicates that this individual was decapitated. While no cut marks are present on the vertebrae, their absence is expected given the typically poor preservation of the vertebral body cortex, and decapitation can be confidently inferred in this example. In addition, an unhealed periosteal reaction with defined rectilinear margins is present on the frontal, parietals and occipital (Figures 4b and c). The reaction overlays an area of healed cranial porosity that was caused by nutritional deficiency or a systemic reaction, both common in the Baking Pot skeletal sample (Piehl 2006:565). The active periostosis indicates that, like the Burial 3 cranium, cranial trauma was inflicted on this individual pre-mortem. Unfortunately, the portion of the frontal bone where cut marks would be expected is absent on this cranium. The right zygomatic bone is present, and lacks cut marks characteristic of flaying (Massey and Steele 1997). Several additional locations where flaying marks would be expected are similarly unmarked by trauma on this cranium, including the nuchal crest and base of the occipital, the mastoid processes, and the right orbit. The similarity of the area and

outline of the periosteal reaction to known examples of scalping (e.g., Jacobi 2007: Figure 11.6) again strongly suggests that like the Burial 3 cranium, the interpretation of pre-mortem behavior for this adolescent male individual should include scalping.

These two crania are part of a long tradition of the incorporation of interpersonal violence in ritual activity at Structure 190. We posit that both of these individuals were scalped while alive, possibly on the battlefield, and then later decapitated in a separate event. The separation of these two behaviors is indicated by the bony reaction to the scalping, which required the individual to survive this trauma for at least a short period of time. This also obviously rules out the taking of these individuals' scalps after their deaths. The lack of healing suggests that the time between the scalping events and the individuals' deaths was relatively short, such as that required to bring war captives from the battlefield back to Baking Pot for the ritual treatment that included their perimortem decapitation and the use of the crania in ritual deposits at the causeway terminus structure.

Discussion

Decapitation, facial mutilation, flaying and the often consequent curation, display and wearing of trophy heads and flayed masks, are relatively familiar and well-studied aspects of prehispanic Maya manipulation of the head (among many others, see Beck and Sievert 2005; Berryman 2007; Duncan 2005; Massey 1989; Massey and Steele 1997; Mock 1998; Whittington 2003b; Houston et al. 2006). Decapitation occurred as a sacrificial method, or after an individual's death. In both cases, the isolated cranium could take several paths to incorporation in the archaeological record, not all of which can be clearly distinguished. The archaeological record contains examples of the deposition of these crania in various types of ritual assemblages, both isolated and in groups, as well as iconographic and ethnohistoric evidence of the display of decapitated crania on skull racks or posts (Miller 2007; Vail and Hernández 2007). Flaying or defacement also frequently followed decapitation, sometimes resulting in the curation and display of trophy

heads or flayed masks. Some of the best known bioarchaeological examples of the decapitation and flaying behavioral complex are the Colha skull pit (Massey 1989; Massey and Steele 1997; Mock 1998) and the Iximche skull deposit (Whittington 2003a, 2003b). Whittington (2003b:246) noted perimortem trauma to some of the Iximche crania that he interpreted as wounds inflicted during warfare. These lesions are primarily located on the left parietal and frontal bones; their location and angles indicate that they were inflicted by right-handed individuals in face-to-face combat. In contrast, evidence of scalping (such as that on the Structure 190 crania) is most often located on the right side of the cranium and displays contrasting angles of incidence, indicating a different behavioral origin.

While flaying is a postmortem and often postsacrificial processing treatment, scalping is an act of trophy taking during violent conflict. The practice of scalping has been widespread in diverse cultures across space and time (Lambert 2007), as a symbol of a warrior's bravery, dominance over the enemy and assumption of the defeated's life force (Duncan 2005). While flaying and decapitation among the Maya conflated the violation of an individual's power and identity with concepts of rebirth and renewal (Duncan 2005; Mock 1998), scalping falls more simply into the categories of predation and violation. The location of scalping on the battlefield and its conceptual alliance with the more definitive act of decapitation may have led to its conflation in text and images and its essential invisibility in the body of Maya iconography. Several clues, however, open the door to contextualization of this practice, documented on the Structure 190 crania from Baking Pot, within Mesoamerican and Maya concepts of life force, war captives, and sacrifice.

The relationship between the crown of the head, the hair, and animating life force has been most clearly documented in Mesoamerica for the Nahuatl by Lopez Austin (1988). He demonstrates the great importance of the head, as the locus of the *tonalli* life force and as the seat of a person's honor (Lopez Austin 1988:171-172, 214). Most intriguing for the present discussion is the close relationship

between the *tonalli* and the hair, especially that on the crown of the head. The Tzotzil *ch'ulel*, similar to the Nahuatl *tonalli*, is similarly contained in the hair (Fitzsimmons 2009:40). Lopez Austin states, "that hair was thought to be a recipient of power; that it formed a protective covering over the head, preventing the *tonalli*'s departure...and that, in damaging it, the person whose hair had been cut or removed was harmed" (1988:221). He goes on to say, "[T]he hair of prisoners taken in battle could also be kept as relics for the purpose of giving the captives' power to the captors" (1988:221). Similarly, Motolinía (1973:76) noted that the heads of prisoners were skinned, making particular reference to the retention of the hair. While Lopez Austin's statement does not specify whether such capture of hair involved removal of hair locks, cutting of the scalp, or both, these references are the closest we have found to textual documentation of scalping in Mesoamerica, and certainly provide a strong motivation for scalping, contextualized within a Mesoamerican world view.

Scholarship on concepts and beliefs associated with the head among the Maya has focused primarily on the decapitation, flaying and trophy head cycle, and less on the hair or the crown of the head. Interference with a person's hair is frequently depicted with scenes in which warriors grasp the hair of captives, displaying their dominance over the person and the captive's humiliation, and often serving as a precursor to decapitation (Figure 5). These scenes conceptually conflate the moment of capture on the battlefield and the decapitation, which we know from many iconographic and textual examples, as well as archaeological deposits, often took place later and at a public ritual location. While the humiliation of captives and the rituals of decapitation, flaying, and trophy head taking are the elements of this cycle emphasized in Maya text and art, this does not rule out the practice of scalping. Indeed, the evidence presented here shows that scalping fits comfortably within the behavioral processes of Maya warfare, sacrifice, and ritual use of human remains. We hope that additional examples come to light as osteologists become alert to the existence of scalping among the Maya,

increasing our knowledge of the frequency and contexts in which scalping occurred.

References Cited

Audet, Carolyn M.

- 2007 Political Organization in the Belize Valley: Excavations at Baking Pot, Cahal Pech, and Xunantunich. Ph. D. dissertation. Vanderbilt University, Nashville, TN.

Beck, Lane A., and April K. Sievert

- 2005 Mortuary Pathways Leading to the Cenote at Chichén Itzá. In *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium*, edited by Gordon F. M. Rakita, Jane E. Buikstra, Lane A. Beck and Sloan R. Williams, pp. 290-304. University Press of Florida, Gainesville.

Berryman, Carrie Anne

- 2007 Captive Sacrifice and Trophy Taking Among the Ancient Maya: An Evaluation of the Bioarchaeological Evidence and Its Sociopolitical Implications. In *The Taking and Displaying of Human Body Parts as Trophies by Amerindians*, edited by Richard J. Chacon and David H. Dye, pp. 377-399. Springer, New York.

Dreier, Frederick G.

- 1992 The Paleopathology of a Finger Dislocation. *International Journal of Osteoarchaeology* 2:31-35.

Duncan, William N.

- 2005 Understanding Veneration and Violation in the Archaeological Record. In *Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium*, edited by Gordon F. M. Rakita, Jane E. Buikstra, Lane A. Beck and Sloan R. Williams, pp. 207-227. University Press of Florida, Gainesville.

Fitzsimmons, James L.

- 2009 *Death and the Classic Maya Kings*. University of Texas Press, Austin.

Houston, Stephen, David Stuart, and Karl Taube

- 2006 *The Memory of Bones: Body, Being and Experience among the Classic Maya*. University of Texas Press, Austin.

Hurtado Cen, Araceli, Aleida Cetina Bastida, Vera Tiesler, and William J. Folan

- 2007 Sacred Spaces and Human Funerary and Non-funerary Placements in Champotón, Campeche, During the Postclassic Period. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society*, edited

by Vera Tiesler and Andrea Cucina, pp. 209-231. Springer, New York.

Jacobi, Keith P.

- 2007 Disabling the Dead: Human Trophy Taking in the Prehistoric Southeast. In *The Taking and Displaying of Human Body Parts as Trophies by Amerindians*, edited by Richard J. Chacon and David H. Dye, pp. 299-338. Springer, New York.

Johnston, Kevin J.

- 2001 Broken Fingers: Classic Maya Scribe Capture and Polity Consolidation. *Antiquity* 75:373-381.

Jupiter, Jesse B., Terry S. Axelrod, and Mark R. Belsky

- 2003 Fractures and Dislocations of the Hand. In *Skeletal Trauma: Basic Science, Management, and Reconstruction*, edited by Bruce D. Browner, Alan M. Levine, Jesse B. Jupiter, and Peter G. Trafton, pp. 1153-1266. Vol. 2. Elsevier Science, Philadelphia, PA.

Lambert, Patricia M.

- 2007 Ethnographic and Linguistic Evidence for the Origins of Human Trophy Taking in California. In *The Taking and Displaying of Human Body Parts as Trophies by Amerindians*, edited by Richard J. Chacon and David H. Dye, pp. 65-89. Springer, New York.

Loe, Louise

- 2009 *Perimortem Trauma*. In *Handbook of Forensic Anthropology and Archaeology*, edited by Soren Blau and Douglas H. Ubelaker, pp. 263-283. Left Coast Press, Inc., Walnut Creek, CA.

López Austin, Alfredo

- 1988 *The Human Body and Ideology: Concepts of the Ancient Nahuas*. 2 vols. University of Texas Press, Austin.

Massey, Virginia K.

- 1989 *The Human Skeletal Remains from a Terminal Classic Skull Pit at Colha, Belize*. Papers of the Colha Project, vol. 3. Texas Archaeological Research Laboratory, The University of Texas at Austin, and Department of Anthropology, Texas A & M University, College Station.

Massey, Virginia K. and D. Gentry Steele

- 1997 A Maya Skull Pit from the Terminal Classic Period, Colha, Belize. In *Bones of the Maya: Studies of Ancient Skeletons*, edited by Stephen L. Whittington and David M. Reed, pp. 62-77. Smithsonian Institution Press, Washington, DC.

Mays, S. and J. Steele

- 1996 A Mutilated Human Skull from Roman St. Albans, Hertfordshire, England. *Antiquity* 70:155-161.

- Medina Martín, Cecilia, and Mirna Sánchez Vargas
2007 Posthumous Body Treatments and Ritual Meaning in the Classic Period Northern Petén. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society*, edited by Vera Tiesler and Andrea Cucina, pp. 102-119. Springer, New York.
- Mensforth, Robert P.
2007 Human Trophy Taking in Eastern North America during the Archaic Period: The Relationship to Warfare and Social Complexity. In *The Taking and Displaying of Human Body Parts as Trophies by Amerindians*, edited by Richard J. Chacon and David H. Dye, pp. 222-277. Springer, New York.
- Miller, Mary Ellen
1986 *The Murals of Bonampak*. Princeton University Press, Princeton, NJ.
- Miller, Virginia E.
2007 Skeletons, Skulls, and Bones in the Art of Chichén Itzá. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society*, edited by Vera Tiesler and Andrea Cucina, pp. 165-189. Springer, New York.
- Mock, Shirley Boteler
1998 The Defaced and the Forgotten: Decapitation and Flaying/Mutilation as a Termination Event at Colha, Belize. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley Boteler Mock, pp. 113-124. University of New Mexico Press, Albuquerque.
- Motolinía, Fray Toribio
1973 *Motolinía's History of the Indians of New Spain*. Translated and edited by Elizabeth A. Foster. Reprint of 1950 edition. Greenwood Press, Westport, CT.
- Olsen, S. L. and P. Shipman
1994 Cut Marks and Perimortem Treatment of Skeletal Remains on the Northern Plains. In *Skeletal Biology in the Great Plains: Migration, Warfare, Health and Subsistence*, edited by D. W. Owsley and R. L. Jantz, pp. 377-387. Smithsonian Institution Press, Washington, D. C.
- Piehl, Jennifer C.
2006 Performing Identity in an Ancient Maya City: The Archaeology of Houses, Health and Social Differentiation at the Site of Baking Pot, Belize Valley. Ph.D. dissertation, Department of Anthropology, Tulane University.
- Tiesler, Vera
2007 Funerary or Nonfunerary? New References in Identifying Ancient Maya Sacrificial and Postsacrificial Behaviors from Human Assemblages. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society*, edited by Vera Tiesler and Andrea Cucina, pp. 14-44. Springer, New York.
- Vail, Gabrielle and Christine Hernández
2007 Human Sacrifice in Late Postclassic Maya Iconography and Texts. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society*, edited by Vera Tiesler and Andrea Cucina, pp. 120-164. Springer, New York.
- Whittington, Stephen L.
2003a Description of Human Remains and Burial Structures. In *Archaeology and Ethnohistory of Iximché*, edited by C. Roger Nance, Stephen L. Whittington, and Barbara E. Borg, pp. 205-240. University Press of Florida, Gainesville.
2003b Analysis of Human Skeletal Material excavated by Guillemín. In *Archaeology and Ethnohistory of Iximché*, edited by C. Roger Nance, Stephen L. Whittington, and Barbara E. Borg, pp. 241-304. University Press of Florida, Gainesville.
- Willey, Gordon R., William R. Bullard, Jr., John B. Glass, and James C. Gifford
1965 Prehistoric Settlement Patterns in the Belize Valley. Papers of the Peabody Museum of Archaeology and Ethnology, No. 54. Harvard University, Cambridge.

7 *DIET, HEALTH, AND DEATH AT PUSILHÁ, BELIZE*

Megan R. Pitcavage and Geoffrey E. Braswell

We examine Late and Terminal Classic human remains from Pusilhá, Toledo District, Belize, and consider patterns of burial, health, diet, and cultural modification. Our paleopathological analyses reveal that elites were healthier than commoners and consumed relatively greater quantities of maize. In certain cases, our analyses allow us to differentiate between human sacrifice and ancestor veneration. Finally, strontium isotope analysis suggests that individuals at Pusilhá may have come from as many as three distinct regions.

Introduction

Classic Maya elites employed an array of strategies to legitimize their social positions, political rights, and economic privileges. Ancient mortuary contexts often reflect these strategies. Elite Maya mortuary practices included the interment of valuable grave furnishings, the construction of labor-intensive burial chambers in important locations, and the inclusion of additional human remains—called funerary companions—as potent symbols of authority (Marcus 1992:262).

The capture and sacrifice of enemy warriors was especially important in building elite prestige and authority (Schele and Miller 1986:220; Tiesler and Cucina 2007). Some Maya burial companions were warriors slain in battle or kept for sacrifice. Other burial companions could have been foreign or local slaves. Early colonial records indicate that most victims of sacrificial rituals were members of the peripheral subgroups of society (de Landa 1978:48). Sacrificial victims included not only foreign captives taken in war, but also local slaves, orphans, and delinquents. But not all companion burials imply captive taking or human sacrifice. Maya elites curated and used the remains of venerated ancestors to ensure claims to heritable resources (Marcus 1992:262; McAnany 1995). The inclusion of the bones or teeth of revered ancestors in funerary rituals symbolized descent and rightful succession. Thus, the dead endorsed the authority of the living. Finally, sequential interments in the same spot could be family burials, or indicate membership in other types of identity groups linked to specific places or property.

Unfortunately, distinguishing among different kinds of multiple-individual funerary practices

can be difficult because of the generally poor preservation of human remains in the Maya area, which often obscures signs of violent death and dismemberment (Tiesler and Cucina 2007). Frequently, the lack of clear anthropogenic cut marks on bone forces researchers to rely on demographic and contextual evidence to identify sacrificial victims in the archaeological record (Fowler 1984; McAnany et al. 1999; Tiesler 2007; Welsh 1988).

Our presentation considers the problem of interpreting companion burials. We investigate Late and Terminal Classic diet, health, and funerary practices at Pusilhá, Toledo District, Belize. Key to our argument is the assumption that in multiple burials containing the remains of revered ancestors or other family members, both principal figures and companion individuals shared a common identity and lifestyle. In these cases, we expect roughly similar measurements of health, similar diet, and similar patterns of cultural modification of the body. We also expect that isotope analyses should most often indicate the same place of origin, although migration is possible. In contrast, in cases where either peripheral members of society or foreigners were interred as funerary companions, we might encounter evidence of different dietary patterns, health indices, and cultural modification practices. Interred foreign captives additionally would be expected to show distinct isotopic patterns.

Our paleopathological analyses of human remains from Pusilhá reveal that principal individuals were generally healthier than their funerary companions and consumed relatively greater quantities of maize. In the case of one companion burial, divergent patterns in the biological markers of principal and

companion diet and health allow us to differentiate between human sacrifice and ancestor veneration. Contextual analysis of another multiple burial is most consistent with a pattern of repeated interment of members of the same family. Finally, Strontium isotope analysis suggests that individuals at Pusilhá could have come from three or more distinct locations. Although foreign burial companions are often interpreted as victims of capture, we argue that our single foreign burial companion probably was a revered ancestor.

Pusilhá and its Mortuary Assemblage

Located in the modern village of San Benito Poité, Pusilhá is situated approximately one kilometer east of the border between Guatemala and Belize. During the Late and Terminal Classic periods (A.D. 600-850), Pusilhá was the largest Maya city in the region. Settlement studies allow us to estimate that the population was about 6,600 people (Volta 2007). The ancient community was approximately 6 km² in extent and was organized around a central axis of major architectural groups extending northwest to southeast from the Stela Plaza to the Gateway Hill Acropolis. The latter was the dynastic palace and administrative complex of the city.

The excavated Pusilhá mortuary population is a small and nonrandom sample drawn from 17 funerary contexts containing the remains of 22 individuals. We were able to assess age-at-death for twenty of these individuals. These ages ranged from young childhood to old age. We could determine the sex of just ten individuals; three are female and seven are male.

The majority of the burials excavated at Pusilhá were located in the Gateway Hill Acropolis and Lower Group I, a moderately sized plazuela group inhabited by non-royal elites (Figure 1). Our most spectacular burial is that thought to be of Ruler G, the last important ajaw of Pusilhá. This is the only case in Belize to date in which the remains of a historically known ruler have been identified (Braswell et al. 2005).

Companion Burials at Pusilhá

The three companion burials from Pusilhá that we discuss were associated with two

platforms, Structure 3 and Structure 8, positioned in the southeastern end of the Gateway Hill Acropolis. In all three cases, “principal figures” are those individuals placed in an extended position with capstones over their heads. Principal figures also have associated grave goods, and are oriented with their heads to the north. In contrast, “companions” are either incomplete sets of remains or complete bodies placed in flexed positions at the head or feet of the principal figures.

Burial 3/1 was located at the top of Structure 3, behind a cut stone feature running along the center of the platform mound. This feature defined an area specifically devoted to ritual interments. Behind this cut stone line and flanking the central burial were two more interments that seem to be contemporary with Burial 3/1. These are called Burial 3/1A and 3/1B. Burial 3/2 was located near the central axis of the same structure and at the base of its stair. Burial 8/3 was a simple crypt sealed with three capstones. It was discovered cut into the plaza floor in front of the staircase along the western side of Structure 8. After discussing each of these burials, we will turn to biological and cultural markers of lifestyles as manifested by the individuals in them.

Burial 3/1. Burial 3/1 consists of the articulated remains of a principal individual as well as the partial, secondary dental remains of two more companion individuals. The principal individual was a male who died as a young adult. Notable skeletal features include dental filing as well as periosteal bone formation on the right femur, indicating a healed fracture. The Burial 3/1 companion individuals are represented by two distinct sets of dentition, found in two distinct locations within the burial. Dental attrition reveals that these individuals survived until at least early adulthood. The first set of dental remains, called Companion #1, was found within a flaring-walled redware vessel located near the pelvis of the primary individual. Companion #2 consists of a set of loose teeth, some of which contain pyrite inlays, placed near the head of the principal individual. Burials 3/1A and 3/1B, located north and south of this central burial, each contained a single individual. The individual in Burial 3/1A was.

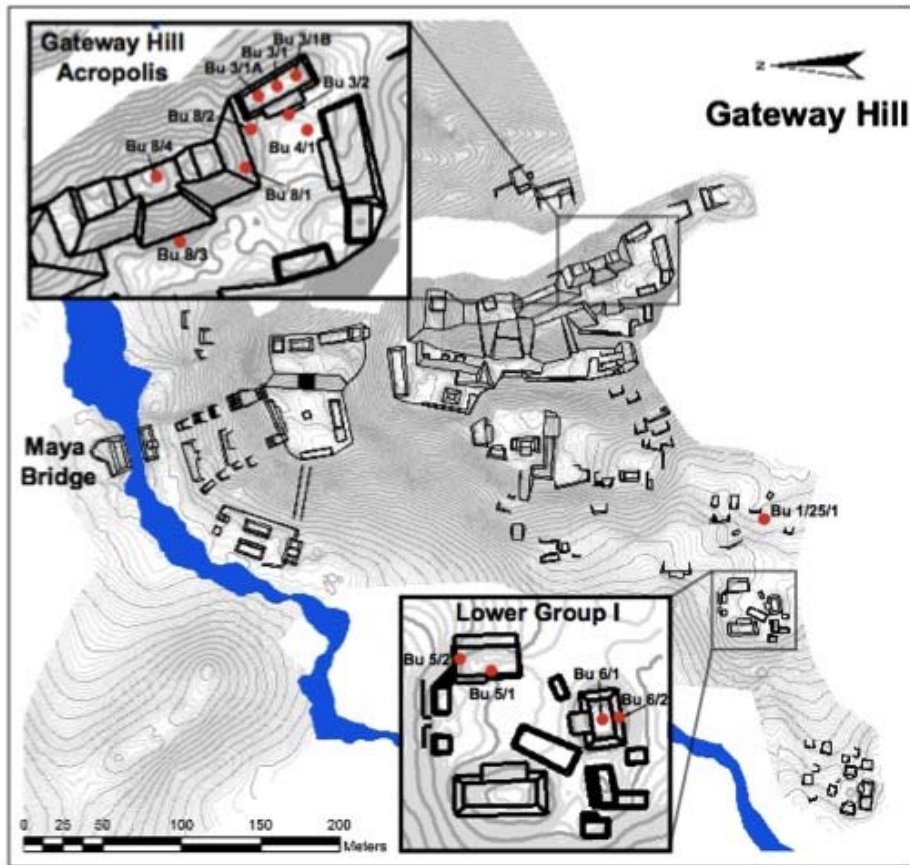


Figure 1. The locations of burials on Gateway Hill (after Braswell 2007:Figure 6).

male, and that in Burial 3/1B was probably female. Ceramics in all three burials seem to belong to a single set of vessels dating to the Late Classic period. We do not know if Burials 3/1, 3/1A, and 3/1B are contemporary, but if our interpretation that the vessels from all three form a single set, they are probably close in date.

Burial 3/2. Burial 3/2, at the foot of the stair of the same platform, is a Terminal Classic crypt that contained remains of two male individuals who survived until late adulthood. The principal individual was arranged in an extended, supine position and oriented north-south with his head to the north. The companion was placed in a flexed position at the feet of the principal individual. The principal individual exhibits no skeletal pathologies, but does display biocultural modifications including jade dental inlays, dental filing, and annular oblique cranial modification. The presence of this form of cranial modification is a unique occurrence in this mortuary population and may indicate the

individual's membership in a particular status or identity group. Unlike the principal individual in Burial 3/2, the companion exhibits much skeletal pathology concentrated in his lower appendages. Additionally, the presence of linear enamel hypoplasia indicates that the companion suffered an episode of systemic stress during his childhood.

Burial 8/3. Within Burial 8/3 were the remains of three individuals who died during the Terminal Classic period. In contrast to Burials 3/1 and 3/2, which appear to have included multiple individuals interred in one depositional episode, it is apparent that this multiple burial involved three distinct depositional events. The remains of Individual #3, a small child of at least five years of age, were found disarticulated throughout the crypt. These remains were scattered, indicating that they were disturbed by the subsequent interment of Individual #1, a male who survived until middle adulthood. Because of his location and burial position, we

classify Individual #1 as the principal individual in the crypt. The last to be buried was Individual #2, a female who survived into late adulthood and who was discovered in a flexed position just north of the cranium of Individual #1. The repeated opening of the crypt, as well as the ages, sexes, and comparable health of the individuals found in it, suggest to us that Burial 8/3 probably represents the interment of a nuclear family.

Elite Diet and Health at Pusilhá

Although our presentation concentrates on these three companion burials, general patterns of elite health and diet at Pusilhá are also apparent from the study of the entire mortuary sample. We identify elite individuals, including principal figures from the companion burials, by: (1) their placement in important buildings in or near the Gateway Hill Acropolis, the royal administrative and palace complex; (2) the inclusion of grave furnishings with these individuals; (3) their interment in formal graves within masonry structures; and (4) the ceremonial arrangement of the bodies in extended supine position with their heads to the north. These elite individuals—including the principals from the three companion burials—exhibit an average caries rate of 28.6%, which is higher than the entire mortuary population average of 22.0% (Table 1). This evidence suggests that the diet of elite individuals at Pusilhá was marked by greater access to cariogenic foodstuffs than the diet of non-elites who constitute the rest of our sample. A clear example of this pattern can be seen in the teeth of Ruler G – a confirmed *ajaw* of Pusilhá – who exhibits considerable caries at 26.9%.

For the ancient Maya, caries rates are highly correlated with maize consumption (White 1994:281). The dental analyses at Pusilhá therefore suggest a high consumption of maize by elite individuals. High-status individuals in Maya society typically had greater access to more nourishing foods, as well as socially and ideologically valued foods such as maize (Gerry 1997; Reed 1999; White et al. 1993; 2001; Whittington 1999). The elevated consumption of maize by high-status individuals at Pusilhá may be due to feasting activities limited to the elite classes of society. Dental

analyses conducted at Lamanai (White 1994:291) and Kichpanha (Magennis 1999:142), Belize show the same sort of pattern as observed at Pusilhá. At those two sites, elite groups exhibited caries rates of 20.1% and 28.5%.

The small sample size of the total Pusilhá mortuary population precludes a statistically significant analysis of the presence of skeletal pathologies and biocultural practices. Nonetheless, the presence and absence of skeletal lesions, cranial modification, and dental modification provides supplemental evidence of a generally healthy elite population.

Companion Burial and Indirect Evidence of Human Sacrifice

These status-based patterns of diet and general health are reflected in the companion burials at Pusilhá. First, dental pathologies within the mortuary assemblage indicate dietary differences between the principal and companion individuals. The average caries rate for the principal individuals is approximately twice that of the companion individuals (Table 1). Moreover, the principal individuals exhibit a slightly lower average calculus score than the companion individuals, although it is higher than the average for the entire adult population. Overall, the diet of the principal individuals consisted of a greater proportion of cariogenic foods than the diet of the companion individuals. From these results, it can be concluded that, when considered as two homogeneous groups, the principal individuals interred in the companion burials at Pusilhá enjoyed higher status than their companions.

Despite these general findings, when the companions are each considered separately, clearly defined differences in dental health between the principal and companion individuals are less visible (Table 2). For instance, the companion individual of Burial 3/2 appears to be an outlier due to his caries rate of 0.0% and high calculus score of 1.67, however, these scores may be skewed due to the fact that only six teeth were recovered, all of which have a single root. Therefore, the apparent absence of caries in this individual may be due to his lack of molars, which are more likely to develop caries than canines and incisors. An explanation for the high calculus score for this individual

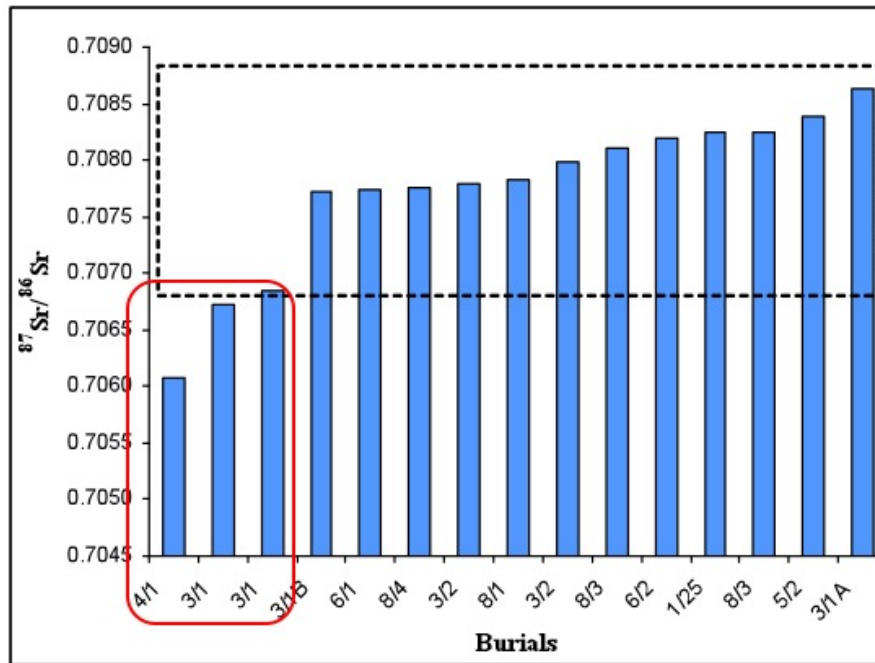


Figure 2. Strontium isotope ratios by individual indicate that the individual from Burial 4/1 and the two principal individuals from Burial 3/1 may not be local to Pusilhá (modified from Somerville 2009:Figure 3). Dashed box represents two sigma baseline range for Pusilhá once the $^{87}\text{Sr}/^{86}\text{Sr}$ value of Burial is 4/1 excluded.

carries than canines and incisors. An explanation for the high calculus score for this individual may be due to the advanced age of the individual because calculus continues to accumulate over a lifetime. Additionally, the dental health of Companion #1 of Burial 3/1 is consistent with that of the principal individuals, but the teeth from Companion #2 exhibit a caries rate similar to low-status individuals.

The lack of skeletal remains for the companion individuals interred in Burial 3/1 prevents an assessment of pathological differences for this burial, but clear differences are apparent in Burial 3/2. In that double burial, the principal individual enjoyed better health than the companion who suffered from growth disruptions, as indicated by linear enamel hypoplasia, as well as periostitis on the majority of his lower longbones.

Defining Foreign and Local: Strontium Isotope Analysis

Osteological methods alone do not allow us to test the hypothesis that some of the companions were foreign to Pusilhá. But Strontium isotope

assay, conducted by Andrew Somerville of the Department of Anthropology at the University of California, San Diego, allows us to begin to identify foreigners in the population. Somerville's results are presented here only in summary form.

Strontium isotope ratios, as well as the total concentrations of several other elements, were determined for 15 individuals from Pusilhá. Unfortunately, teeth from Companion #2 of Burial 3/1 were not available for study, and a sample from Burial 5/1 (a child with the jade inlays) appeared to be slightly contaminated so is excluded from discussion. Results fall into at least three clusters (Figure 2). The single most obvious far outlier is Burial 4/1. This consisted of the partial remains of a woman found resting on top of the Terminal Classic plaza floor of the Gateway Hill Acropolis. Given that the site was most likely already abandoned when her remains were left on the plaza floor, it is not surprising that she was of non-local origin. We cannot date her death, but the fact that a flat stone was placed on her cranium suggests continuation of mortuary

patterns common in both the Late and Terminal Classic.

The other individuals had Strontium isotopic ratios [$^{87}\text{Sr}/^{86}\text{Sr}$] averaging 0.7079 ± 0.0005 ($n=14$, 1σ). Two other outliers are the principal individual and Companion #1 from Burial 3/1 (Figure 2). What is interesting is that these two ratios are similar to each other yet differ from the Pusilhá average, suggesting that although they could have been non-local, they probably came from the same place.

The most important result from the perspective of the three companion burials is that in Burial 8/3, Burial 3/1, and Burial 3/2, the individuals identified as “companions” all shared the same Strontium isotope ratio as the principal individual in the same burial, regardless of their place of origin. In the case of Burial 8/3 and Burial 3/2, the individuals are all local, and hence, it does not appear that the companions were foreign prisoners. In the case of Burial 3/1, the principal figure shows a non-local pattern, but the companion shares that same non-local signal. Given that the principal individual in Burial 3/1, although a foreigner was given preferential burial treatment, it seems most likely to us that the companion teeth (from the same place of origin) represents not a captured enemy, but a relative.

Conclusions

Companion burials are the material reflections of important funerary rituals that served specific social and political functions in society at large. At the beginning of this report, we proposed that the relationship between principal individuals and their funerary companions could be understood in terms of companion sacrifice, ancestor veneration, or family burial practices. Following the assumption that each of these practices is linked to specific lifestyle patterns, we argue that differences with respect to diet, general health, and cultural modification practices between the principal and companion individuals should indicate the practice of companion sacrifice. Specifically, study of the entire mortuary sample from Pusilhá reveals that elites in single burials and the principal figures in the three companion burials had higher rates of caries than did the rest of the population, consistent with

preferential access to maize. These elites also enjoyed greater health, as measured by skeletal pathologies, than did the community as a whole. Together, paleopathological and Strontium isotope analyses reveal that the three companion burials discussed here display three distinct behavioral patterns. Our analysis of the three companion burials reveals only one case where such differences in diet, general health, and biocultural practices can be observed: Burial 3/2. Burial 3/2 contained two local individuals with remarkably different health indicators. Moreover, the principal individual displayed both cranial and dental modification. We tentatively conclude that the companion was of a different class and was probably a sacrificed slave or servant of local (or at least nearby) origin. Burial 8/3 appears to be a reopened family crypt containing a nuclear family. The two adults in that crypt were of local origin and had similar diets and health indices, and, we therefore assume, were both members of the elite class. Finally, Burial 3/1 contained the partial or complete remains of three individuals. Only two sets of remains were subject to Strontium isotope analysis, but both appear to be of non-local origin and from the same place. Since one of the foreigners is a principal figure and the other a companion, it seems likely that the companion represents a revered ancestor brought to be buried at Pusilhá with his or her descendent. Strontium isotope analyses are not on their own enough to identify a single place of origin, but the values exhibited by these two individuals are consistent with the geologies of Quiriguá, Copán, and - without a doubt - many poorly-known, small sites within a 100 km radius of Pusilhá.

Archaeologists, epigraphers, and biological anthropologists will no doubt continue to discuss the importance of group identity, human sacrifice, and ancestor worship to the ancient Maya. At Pusilhá, it now seems likely that all three influenced group mortuary behavior during the Late Classic and Terminal Classic periods.

Acknowledgments The Pusilhá Archaeological Project has been generously supported by grants from the National Science Foundation Archaeology Program (SBE-0215068), the

National Science Foundation International Research Fellowship Program (INT-0202581), the National Geographic Society (Grant #7847-05), the Wenner-Gren Foundation for Anthropological Research (Grant #6848), the School of American Research, the Foundation for the Advancement of Mesoamerican Research, Inc. (Grant #00029), and the Faculty Senate of the University of California, San Diego. We would like to give special thanks to the members of the Belize Institute of Archaeology, particularly Dr. Jaime Awe and Dr. John Morris. Without their institutional support and personal encouragement this project would not have been possible. We also acknowledge the important contributions of Co-Directors Dr. Cassandra Bill and Christian Prager. Additionally, we would like to thank Dr. Sonja Schwake, Sherry Gibbs, Beniamino Volta, and Brittany Frazier whose hard work in the field laid the basis for this paper. Finally, we thank the people of San Benito Poité for welcoming us to their community and collaborating on our project.

References Cited

- Braswell, Geoffrey E., Christian Prager, and Cassandra R. Bill
2005 The Kingdom of the Avocado: Recent Investigations at Pusilhá, a Classic Maya City of Southern Belize. *Notebooks of the Slovene Anthropological Society*, XI: 59-86.
- de Landa, Diego
1978 *Yucatan Before and After the Conquest*, translated by W. Gates. Dover Publications, New York.
- Fowler Jr., William R.
1984 Late Preclassic Mortuary Patterns and Evidence for Human Sacrifice at Chalchuapa, El Salvador. *American Antiquity* 49(3):603-618.
- Gerry, John P.
1997 Bone Isotope Ratios and their Bearing on Elite Privilege among the Classic Maya. *Geoarchaeology* 12:41-69.
- Magennis, Ann I.
1997 Dietary Change at the Lowland Maya Site of Kichpanha, Belize. In *Reconstructing Ancient Maya Diet*, edited by Christine D. White, pp 133-150. The University of Utah Press, Salt Lake City.
- Marcus, Joyce
1992 *Mesoamerican Writing Systems: Propaganda, Myth, and History in Four Ancient Civilizations*. Princeton University Press, Princeton.
- McAnany, Patricia A.
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.
- McAnany, Patricia A., Rebecca Storey, and Angela K. Lockard
1999 Mortuary Ritual and Family Politics at Formative and Early Classic K'axob, Belize. *Ancient Mesoamerica* 10:129-146.
- Reed, David Millard
1999 Cuisine from Hun-Nal-Ye. In *Reconstructing Ancient Maya Diet*, edited by Christine D. White, pp. 183-196. The University of Utah Press, Salt Lake City.
- Schele, Linda, and Mary Miller
1986 *The Blood of Kings: Dynasty and Ritual in Maya Art*. Kimball Art Museum, New York.
- Somerville, Andrew
2009 *Identifying the Local and the Foreign: Strontium Isotope and Trace Element Analysis of Companion Burials from Pusilhá, Toledo District, Belize*. Unpublished Masters thesis, Department of Anthropology, University of California, San Diego.
- Tiesler, Vera, and Andrea Cucina
2007 *New Perspectives on Human Sacrifice and Postsacrificial Body Treatments in Ancient Maya Society*. Springer, New York.
- Volta, Beniamino P.
2007 Archaeological Settlement Patterns in the Kingdom of the Avocado. Unpublished Masters thesis, Department of Anthropology, University of California, San Diego.
- Welsh, W. B. M.
1988 *An Analysis of Classic Lowland Maya Burials*. BAR International Series 409, British Archaeological Reports, Oxford, England.
- White, Christine D.
1994 Dietary Dental Pathology and Cultural Change in the Maya. In *Strength in Diversity: A Reader in Physical Anthropology*, edited by Ann Herring and Leslie Chan, pp. 279-302. Canadian Scholars' Press Inc., Toronto.
- White, Christine D., Paul F. Healy, and Henry P. Schwarcz
1993 Intensive Agriculture, Social Status, and Maya Diet at Pacbitun, Belize. *Journal of Anthropological Research* 4:347-375.

White, Christine D., David M. Pendergast, Fred J. Longstaffe, and Kimberley R. Law

2001 Social Complexity and Food Systems at Altun Ha, Belize: The Isotopic Evidence. *Latin American Antiquity* 12:371-393.

Whittington, Stephen L.

1999 Caries and Antemortem Tooth Loss at Copán: Implications for Commoner Diet. In *Reconstructing Ancient Maya Diet*, edited by Christine D. White, pp. 151-168. The University of Utah Press, Salt Lake City

8 ***AN INTRODUCTION TO THE FIRST SEASON OF THE CAVES BRANCH ARCHAEOLOGICAL SURVEY***

Gabriel Wrobel, Shawn Morton and Christopher R. Andres

This report summarizes the fieldwork and preliminary lab analyses conducted during the first season of the Caves Branch Archaeological Survey project, which focused on the cave sites of Actun Lubul Ha and Franz Harder Cave, Overlook Rockshelter, and the monumental center of Deep Valley. The cave sites all show repeated use, though vary in the types of rituals performed and in the amount of time used. While caching activities consistent with pilgrimage are constant over time, they vary in intensity between contexts. However, the mortuary use of caves appears to intensify significantly during the Late- to-Terminal Classic period (A.D. 700-900). These patterns may be directly related to the apparently late founding of the minor civic-ceremonial center of Deep Valley and other settlements in the Caves Branch River Valley between A.D. 600 and 800. While subterranean sites are unquestionably important in documenting the extensive history of use of the Caves Branch River Valley, settlement data are critical to understanding the rise of local social and political complexity.

Introduction

In its first year, the Caves Branch Archaeological Survey (CBAS) focused its efforts on beginning to construct a regional picture of pre-Hispanic use of the Caves Branch River Valley. Our approach is modeled on studies in the neighboring Sibun (McAnany et al. 2003), Macal, and Roaring Creek valleys (Awe 1998; Awe et al. 1998). Much of the success of these earlier projects resulted from their holistic approaches and their examination of social and political transformations from a variety of perspectives. The CBAS project is documenting Maya populations that occupied the Caves Branch River Valley by exploring a range of sites from the perspective that their use varied relative to changing social, political, and economic factors. On one hand, research conducted by CBAS represents a continuation of work initiated by the Belize Valley Archaeological Reconnaissance (BVAR) project, which sought to document cave ritual and better understand its complexity through attention to variations in its nature across time and space (Hardy 2009; Wrobel et al. 2007, 2009). At the same time, we are investigating the area's surface sites to document the establishment of local residential population and to assess how uses of built environments in the CBRV may have varied relative to other areas due to the presence of large numbers of caves. We are furthermore investigating how changing

patterns of site use reflect Maya populations responding to both internal and external pressures. The 2009 field season focused on several cave sites and the monumental center of Deep Valley. In addition, a very large previously unrecorded center, for which we have proposed the name of Tipan Chen Uitz (or "Fortress Mountain Well" in Yucatec Maya), was documented in the neighboring Roaring Creek Works. This paper summarizes our 2009 fieldwork and considers how these new data contribute to a developing picture of pre-Hispanic Maya cultural patterns in the CBRV.

Cave Ritual in the Caves Branch River Valley

Prior the recent BVAR project, research in the CBRV focused almost exclusively on caves, specifically the larger, more spectacular examples such as Footprint Cave (Graham et al. 1980) and Petroglyph Cave (MacLeod and Puleston 1978; Reents 1980), and an unusual cemetery in the Caves Branch Rockshelter (CBR) (Glassman and Bonor 2005; Wrobel et al. 2007, 2009). These studies revealed that human activity in the valley had significant time depth and noted changes in intensity of site use over time. Researchers were, however, unable to determine if local or more distant populations had carried out these activities or whether Footprint Cave, Petroglyph Cave, and CBR were representative of the full range of activities constituting ancient Maya cave ritual. In 2009,

our work in caves focused on three distinct types of contexts in an effort to further document the range of variation present. The sites examined include Overlook Rockshelter, Lubul Ha (“Waterfall Cave”) and Franz Harder Cave (a.k.a. *Je'reftheel*) (Figure 1).

Overlook Rockshelter

Overlook Rockshelter (OVR) was shown to members of the BVAR project by local tour guides in 2008. This small rockshelter is located high on a cliff face overlooking the CBRV and includes crude retaining wall. Looters’ spoil from a small, disturbed section of the walled area contained artifacts and human bones. As a relatively small rockshelter mortuary deposit, OVR contrasts with the massive CBR cemetery and provides important insight into variability in Maya mortuary use of cave/rockshelter contexts (Hardy 2009; Wrobel et al. 2009).

After creating a detailed map of the rockshelter and its constructed features, we completed excavations in the only areas (Areas A and B) where cultural material was present in an effort to determine the extent and nature of the ritual deposits. Area A included the space bounded by the retaining wall, as well as the small horizontal surface abutting it. Area B was located adjacent to Area A and was in a slump defined by several large boulders. In both areas, the assemblage comprised fairly typical items including ceramics, river cobbles, and jute, as well as 3 obsidian prismatic blades and human bone belonging to a single older adult female. Excavations within the small level areas (each measuring approximately 2 m x 3 m) revealed that the deposits had been thoroughly disturbed by looting activity. No stratigraphy was discernible, and artifacts were uniformly distributed throughout. Analysis of the ceramics revealed that all excavation levels contained ceramics spanning the Late Preclassic through Late Classic (A.D. 600-800) periods. Because the areas with evidence of human activity were so small, we were able to excavate both in their entirety. Thus, excavations at OVR afforded us a unique opportunity to collect and view a (nearly) complete assemblage from a ritual cave site.

The human bone found on the surface was initially thought to be part of a disturbed burial since it represented only a single individual. Further investigation revealed more scattered throughout the matrix in Area A and only a few elements in Area B. No pieces of the cranium or legs were located, and it thus appears that this was a secondary burial. In addition to the lack of stratigraphy at OVR, the ceramic analysis surprisingly showed very few fits: of the approximately 2000 sherds that were recovered, only four are from the same vessel. This is important, because apart from a small portion of the deposit which is assumed to have been lost over the cliff’s edge, the entire assemblage seems to be present. As a result, the large number of ceramics at OVR appear to reflect deposition of incomplete vessels, and in most cases, individual sherds.

OVR is located on a sheer cliff face and is therefore relatively difficult to access. The rockshelter’s small size and lack of spaces capable of accommodating more than a few individuals identify it as unlikely area for staging large-scale public events. The site’s restricted spatial characteristics and the large numbers of non-articulating sherds spanning the Late Preclassic through Late Classic periods raise the possibility that OVR was repeatedly visited over a long period of time by small numbers of individuals who left fragmentary ceramic offerings. Although not in evidence today, it is possible that the rockshelter was once accessible via a more direct route, such as a maintained trail.

Franz Harder Cave

Franz Harder Cave (also known as *Je'reftheel*) is located in the Mennonite village of Springfield and was initially investigated by Jaime Awe and Christophe Helmke of the BVAR project at the request of the landowners (Helmke 2009). Their investigation involved an initial description of the site, and the removal of artifacts that were at risk of looting. The narrow cave is approximately 30 m in length and relatively difficult to negotiate with several steep drops. Franz Harder Cave appears to have had an almost exclusively mortuary function.

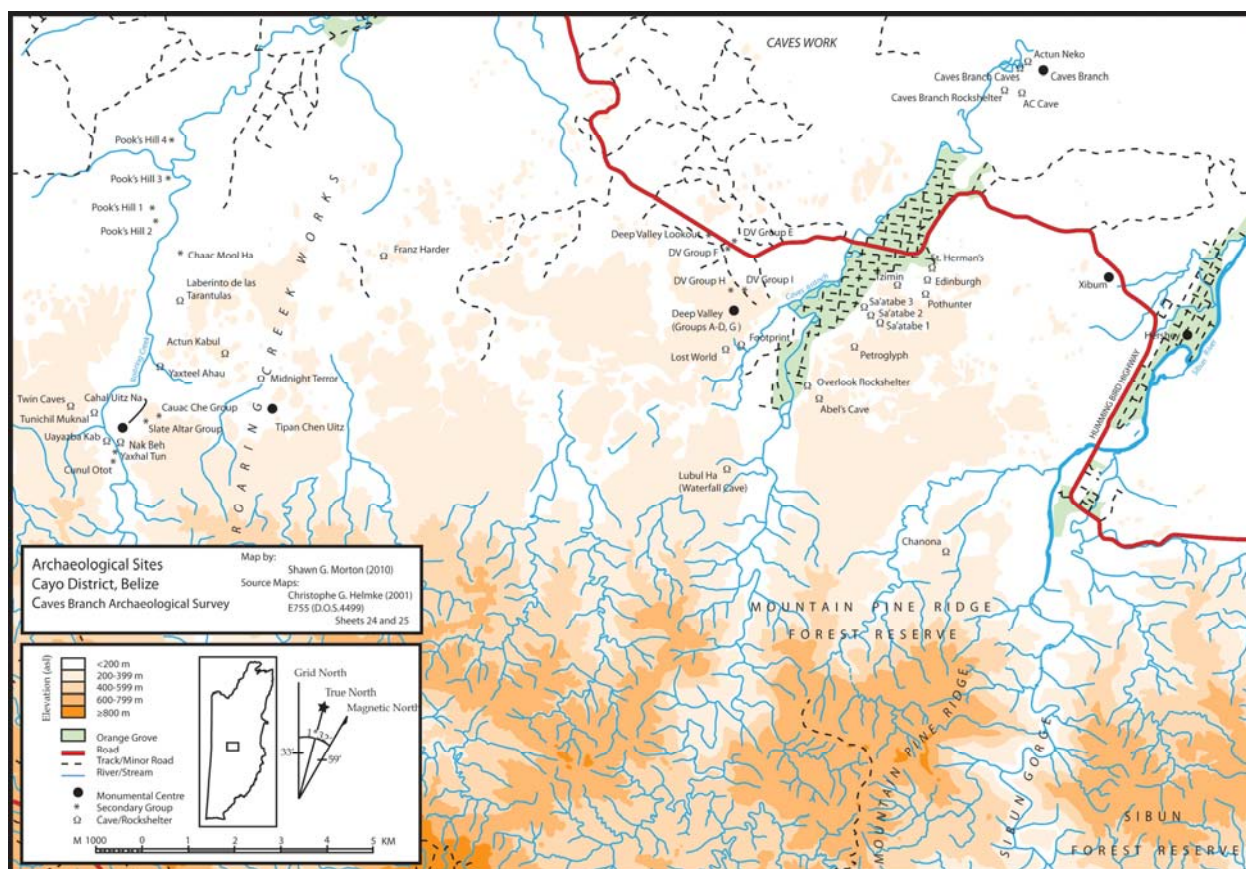


Figure 1. Map of sites in the Caves Branch River Valley, Belize (map by Shawn G. Morton).

Helmke (2009) identified 12 distinct features (Figure 2), most of which contained human remains, and his ceramic analysis of whole vessels identified only Late Classic examples. Other artifacts included a chert lanceolate biface and carved *olivella* shells. A preliminary *in situ* analysis of the human remains identified a range of ages and adults of both sexes. While the cave has been minimally disturbed recently, many of the bones cemented in place with flowstone show that they were disarticulated in antiquity, either through natural or cultural processes. The excellent preservation of the skeletal remains, as well as the clear primacy of mortuary activities, creates a unique setting in which to study cave mortuary ritual.

The 2009 work at Franz Harder Cave focused on the excavation and recovery of skeletal remains from Feature 7, which is a small flat surface containing ceramics and skeletal

remains partially covered in mud and clay. In addition, disarticulated bone scatters from several other features were collected because they were becoming increasingly damaged by bat guano, dripwater, and human foot traffic. Each of these features was photomapped prior to removal as a means to eventually determine the relationship of each element as part of a taphonomic reconstruction of the context. Feature 7 contained bones that are well preserved and have a number of individuals still in articulation. Based on initial assessment of Feature 7, it appears to include a minimum of 5 to 7 partially articulated individuals. A reconstruction of the positions of the bodies based on the location of *in situ* articulations demonstrated that in cases where two bodies would have overlapped, portions of one had been removed. Thus, Feature 7 shows repeated use over time, with primary interments initially

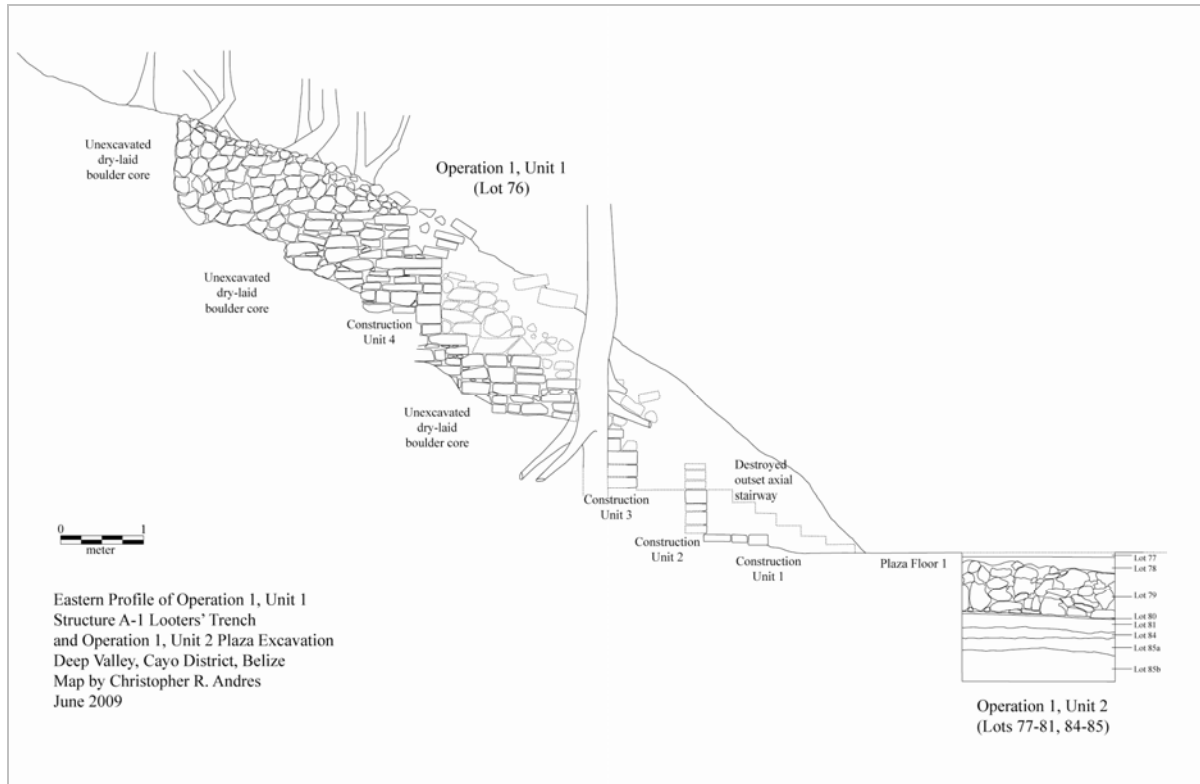


Figure 2. Map of Franz Harder Cave (map by Christophe Helmke).

being placed on the flat surfaces, and later being partially swept off to make room for new interments. These remains, which were in some cases still partially articulated, were likely swept down to become part of Feature 6, a hole next to Feature 7 containing human remains and pottery, much of which were cemented in place with flowstone. This form of deposition and reuse of space for mortuary ritual bears a striking resemblance to mortuary patterns evident in tombs, where bones from earlier burials are often swept aside, stacked in corners, or partly removed to make room for new burials (Healy et al 1998; Weiss-Krejci 2004). Several of the other features in Franz Harder Cave also appear to have been paired -- with a flattened area for the initial deposition of primary interments, and a depressed area in which the decomposed (or mostly decomposed) remains were swept. In addition, there are a number of small “shelves” in Chamber 2 where loose bones were purposely piled. Some have been partially cemented

suggesting that this is not a recent phenomenon. Though speculative at this point, such caching behavior may also be consistent with patterns common in tombs including the “extraction of bones during commemorative rites and the caching of tomb contents as part of ancestral rituals” (Weiss-Krejci 2004:369).

Actun Lubul Ha

Actun Lubul Ha (Yucatec Maya for “Cave of the Waterfalls”) is located on the western side of the Caves Branch River, approximately 4 km south of the Hummingbird Highway and approximately 2 km southwest of Overlook Rockshelter. As the name suggests, Actun Lubul Ha is a wet cave with a steady stream flowing between entrances separated by nearly 2 km of passage and divided by a series of eight cascades, some nearly 5 m high. The cave is beautifully decorated with draperies, stalagmites/stalactites, and columns of dense white, yellow, pink and red flowstone.

Eduardo Quiroz cave (Pendergast 1971). While carbon dates are, as of yet, unavailable for the hearth features found within Lubul Ha, if it is accepted that Chamber 1 was periodically ‘cleaned,’ then it may be expected that the hearths presently encountered date to the terminal phase of use; the presence of early ceramics in these presumably late deposits remains to be explained. The presence of large quantities of diffuse charcoal close to the walls with no accompanying fire/smoke damage, may suggest that fire pits were a prominent feature of earlier ritual as well and that the contents of these hearths were likewise subjected to periodic destruction or removal.

Ancient activity at Actun Lubul Ha appears to have been focused in the upper reaches of the cavern, on high ledges, and in crevices of boulder-sized breakdown. This stands in stark contrast to the findings of the WBRCP in the Main Chamber of Actun Tunichil Muknal, in which 51 percent of the artifact assemblage was placed in intermittent pools (Moyes et al. 2009). Admittedly, the lower reaches of Lubul Ha are annually scoured by high, powerful flood waters and these surely must have washed away any/all trace of human activity in their path, making the prominence of higher elevation remains a potential product of taphonomy rather than agency. We have, however, reason to believe that this is not the case. Lubul Ha is an extremely active cave; the sound of dripping/running water is everywhere. Thompson (1975:xviii-xix) cites the presence of a readily accessible stream near the entrance of Las Cuevas, Belize as evidence that the dense collection of broken ceramic vessels discovered in isolated dripping chambers deeper within the cave were the remains of vessels so placed as to collect water for ceremonial purposes rather than for mundane consumption. At Lubul Ha, no such vessels appear to have been placed, and no vessels or fragments thereof were noted to hold water.

Archaeologically, Lubul Ha is most akin to neighboring Footprint cave (approximately 2 km north), where Graham et al. (1980) report that archaeological materials are concentrated on high ledges above the river passage. As in Area A at Footprint, Lubul Ha’s Chamber 2 (OP-2) is dominated by weathered travertine. Chamber 2 (OP-2), is a smaller, more accessible chamber directly opposite Chamber 1, above the main passage. Here, the ancient Maya apparently filled and leveled a small corner of the chamber. This architecture is not associated directly with any other material deposit in the cave.

Surface Site Investigations at Deep Valley

In 2009, the surface site component of the CBAS project pursued a variety of inter-related objectives, including chronological assessment of Deep Valley, a minor ceremonial center and the largest known site in the CBRV; mapping of several of Deep Valley’s smaller, outlying groups; and reconnaissance intended to

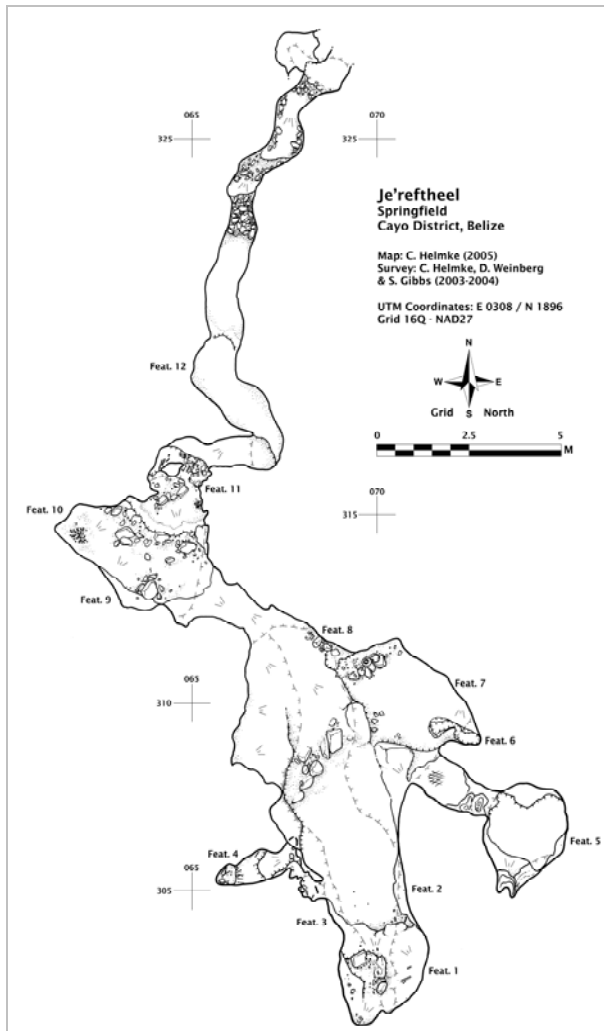


Figure 4. Map of Deep Valley Groups A-D and G (map by Jillian M. Jordan with additions by Christopher R. Andres).

document previously unrecorded sites in the surrounding area. Our work not only sought to establish occupational chronologies, but to create a framework for ultimately identifying relationships between sites of different sizes and types.

Investigations in Groups E and F at Deep Valley

The site of Deep Valley has a complex history of archaeological investigation and naming. The first two groups from Deep Valley to be recognized (currently designated Groups E and F) were initially reported by Clinton Davis (1980) in the early 1980s (Figure 1). These are located on natural elevations immediately adjacent to the Hummingbird Highway and were originally connected by a 7 m wide causeway or *sacbe* that was severed by the modern road. Group E lies on the north side of the Hummingbird Highway and consists of a sizable plaza surrounded by four pyramidal structures and six range structures. Due to the preliminary nature of Davis' (1980) pace and compass map, Group E was cleared and remapped by Cameron Howell of the University of Mississippi in 2009. Howell's work not only documented several buildings not included on the earlier map, but showed the group to be larger than originally suggested.

Clearing of Group E also identified five previously unreported monuments (five stelae and one possible altar). While these monuments are eroded and do not appear to have surviving images or texts, such a concentration of stelae at a relatively modest site is impressive. When considered together with probable evidence of the group's late construction (see below), the monuments may have functioned to give the impression of a degree of time depth the site did not in fact possess.

Group F lies on the south side of the Hummingbird Highway - approximately 70 m south of Group E - and consists of a plaza measuring approximately 20 m by 30 m that is surrounded by five low rectangular mounds and two pyramidal structures. Due to time constraints, Group F still awaits remapping (planned for 2010). While no excavations were conducted in either group in 2009, preliminary examination of looters' trenches revealed large

amounts of dry-laid boulder core consistent with rapid, single-phase construction. Based on this evidence and patterns documented in other groups at Deep Valley (see below), we suspect Groups E and F were both established in the Late Classic.

The Deep Valley Site Core (Groups A-D, and G)

Prior to 2009, the most recent investigations at Deep Valley were carried out by Jillian M. Jordan (2008) under the auspices of the BVAR project. Jordan's work focused on mapping and test excavations in a concentration of monumental constructions located south of Groups E and F. In 2009, we returned to this location to build upon her findings. In so doing, we primarily focused on assessing issues of architectural preservation and resolving lingering questions concerning the site's chronology.

Deep Valley's site core is an architectural node consisting of five groups (Groups A-D, and G). This hill-top concentration of structures, which is located approximately 1.25 km south of the Hummingbird Highway, has been referred to as Baatelek (or "Battle Star" in Yucatec Maya) (Jordan 2008), and consists of at least 31 structures arranged around five plazas (Figure 4). Four of these groups (Groups A-D) were mapped by Jordan in 2006 and 2007. The fifth group, Group G, was identified and mapped in 2009.

Based on the number of structures, their scale, and the range of building types represented (pyramidal structures, range structures, a ballcourt, and an elevated palatial group), Groups A-D and G appear to have constituted the community's epicenter (Jordan 2008; Wrobel et al. 2009). The architecture forming these five groups is not only consistent with that of a "minor" ceremonial center (e.g., Bullard 1960), but suggests that Deep Valley was the primary focus of political, ritual, and administrative activities in the Caves Branch River Valley.

2009 Excavations at Deep Valley

The excavations carried out in the Deep Valley site core in 2009 were limited in scale but produced significant new data. Our efforts were primarily concentrated in two areas: at the northern end of Plaza A, in the vicinity of Structure A-1; and in Group D, a presumed elite residential context (see Figure 4).

The Group A excavations included partial clearing of a large axial looters' trench located in the south face of Structure A-1, the community's primary civic-ceremonial structure. At the outset of the field season, this trench (Op. 1, Unit 1) extended from plaza level to Structure A-1's summit and no architectural details could be discerned.

Clearing of the building's base revealed that the latest phase incorporated an outset axial stair that had been almost completely destroyed by the looters. Only modest, undisturbed portions of the stairway's outermost edges were present beyond the east and west sides of the trench (Figure 5). Our work at this location also documented remnants of multiple earlier construction phases. These consisted of several low terraces (and high stairs) that underlay the ultimate outset stairway. These units led up to a facing that may be part of a stairblock. While no *in situ* remains of a burial chamber were encountered, several slate slabs present in the looters' backdirt support Jordan's (2008) suggestion that Structure A-1 once incorporated a centerline tomb. The few poorly preserved Roaring Creek Red sherds recovered place the building's construction in the Late Classic. This chronology was supported by a test pit placed just south of Structure A-1 which showed that the plaza had been built up to a height of about 1.50 m prior to construction of the pyramidal structure. The plaza is composed of dry-laid chert boulders apparently deposited during a single construction event. Judging from the mix of early and late facet ceramics (Roaring Creek, Garbutt Creek, Dolphin Head, and Cayo Unslipped) present in the plaza fill, construction of Group A seems to have been initiated in the later part of the Late Classic (A.D. 700-800).

The investigations in Deep Valley Group D sampled a midden deposit identified in Jordan's 2007 excavations (see Figure 4). This area produced a variety of chert, ceramic, shell,

obsidian, groundstone, and bone artifacts in 2009. While the Group D ceramics primarily belong to the Spanish Lookout phase (Roaring Creek Red), New Town materials (Paxcaman Red) were also present. This feature therefore proved significant, for it contains the latest materials recovered at Deep Valley to date and may well date to the time of the group's (if not the community's) abandonment.

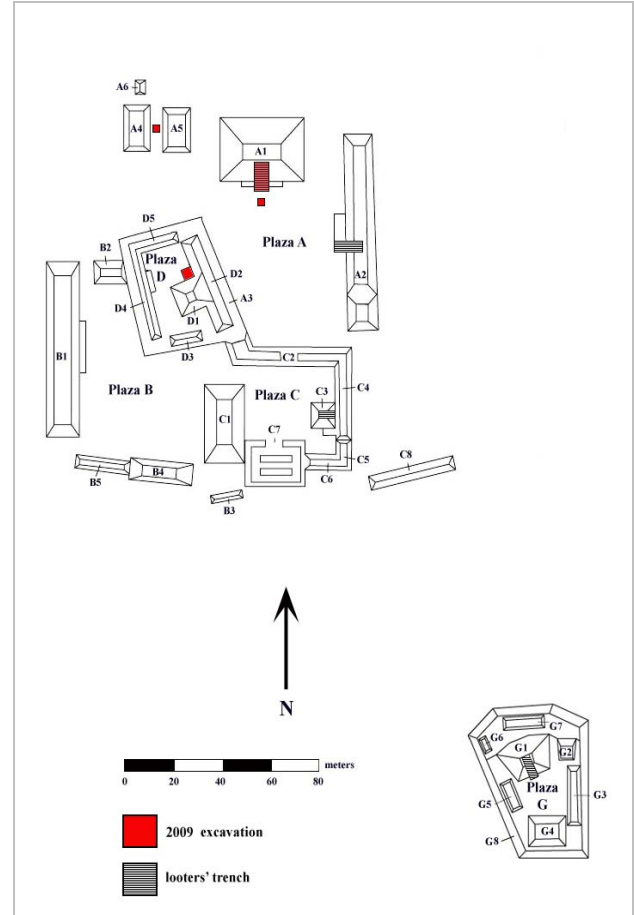


Figure 5. East profile of Op. 1, Unit 1, Structure A-1, Deep Valley (map by Christopher R. Andres).

Discussion

Our first season of research in the Caves Branch River Valley was highly productive. Already there are indications that the results of our cave and surface site investigations have begun to articulate nicely with those from surrounding valleys. Significantly, the regional cave survey initiated in 2009 has begun to reveal continuity and change in patterns of cave use in the CBRV. The sites we are examining -- even many of the very small, seemingly non-descript

cave contexts -- show evidence of long ceramic sequences. The dominant pattern emerging is one of continuous (if sporadic) use between the Late Preclassic and the Late-to-Terminal Classic periods. The contexts we investigated in 2009 showed repetition in use and function, similar to that evident in the Caves Branch Rockshelter cemetery (Glassman and Bonor 2005; Wrobel 2009). At the same time, most of these locations also display evidence of changing use(s) over time. Like other studies, ours has noted an intensification in cave ritual during the latter portion of the Late Classic (A.D. 700-800). This is reflected in an increasing number of artifacts and features in caves, and in an increasing number of cave sites. This transformation has recently been explored by Moyes et al. (2009), who convincingly argue that the timing of this “ramping up” of cave ritual coincides with extreme droughts in the Maya area.

We believe that changing use of caves can also be productively explored from the perspective of sociopolitical transformations taking place during the Late Classic. Research suggests that the Late-to-Terminal Classic was a time of political decentralization (e.g., Iannone 2005; LeCount et al. 2002) and was characterized by a movement away from the institution of *k'ul ajaw* or divine Maya kingship (Rice et al. 2004:9). From this perspective, intensified cave use may reflect less restricted access to elite associated cave contexts and/or increasing emphasis of cave-focused activities in an effort to shore up deteriorating prestige and sacred authority.

In some circumstances, this breakdown of more centralized political systems may have been marked by new centers, founded by break-away elites, springing up in former “frontier” or “buffer” zones (Iannone 2005; LeCount et al. 2002). Although it is premature to make definitive statements, our preliminary findings in the CBRV are potentially consistent with models of political balkanization at the end of the Classic period. Based on Deep Valley’s chronology, it is conceivable that the community was founded by intrusive populations perhaps originating in the Belize Valley or some other long inhabited area (Jordan 2008). This is a possibility we plan to investigate.

Sharer (1985) and others have noted how the need to demonstrate socio-political presence/power is often inversely related to the stability of the system in question. The apparently relatively late founding of Deep Valley, Cahal Uitz Na (Ferguson 1999:48), and possibly Tipan Chen Uitz (Andres et al. n.d.) in central Belize may reflect growing instability on the political landscape during the Late Classic period (A.D. 600-800). The emphasis apparently placed on rapid establishment of impressive built environments at each of these locations could also potentially be a marker of such insecurity (e.g., Webster 1998:36-39). Growing political instability may furthermore help explain increasing emphasis of caves, particularly if cave-focused rituals were centrally important in boundary marking and maintenance (c.f., McAnany 1995:87).

Our research suggests that a dramatic shift in ritual cave-use – evident in form, frequency and distribution – took place in the CBRV. Given the importance of caves in rites of political accession, aggrandizement, legitimization, and social incorporation (c.f., Bassie-Sweet 1996), attention to diachronic changes in cave-use should provide a window into broader sociopolitical and ideological transformations during the Classic-to-Postclassic transition. In conclusion, we hypothesize that changes in the form, frequency, and distribution of cave-use in the CBRV reflect territorial boundary concerns linked to the development of pronounced local political hierarchies late in the Classic period. It is our impression that ceremonial activities in the CBRV became increasingly focused on the acquisition and manipulation of the symbolism and authority of the cave context. In order to explore this and other issues, we plan to continue survey and excavation programs in a variety of contexts to gain an improved understanding of patterns linking the area’s caves, sinkholes, rockshelters, and ancient communities.

Acknowledgements We would like to thank the following individuals and institutions for their support and assistance: Dr. Jaime Awe, Dr. John Morris, Rafael Guerra, and all other members of the Belize Institute of Archaeology; Dr. Christophe Helmke, Cameron Griffith,

Myka Schwanke, Jenna James, Cameron Howell, Gonzo Pleitez, Nandina Rodriguez; Ian Anderson and all of the staff and guides at the Caves Branch Adventure Lodge, the residents of the villages of Armenia and Springfield, and the participants in the Caves Branch Archaeological Survey 2009 summer field school. We also gratefully acknowledge the support of FAMSI, the University of Mississippi Office of Research and Sponsored Programs, the University of Mississippi Department of Sociology and Anthropology, the Indiana University Purdue - University Fort Wayne (IPFW) Department of Anthropology, and the Office of Research and External Support at IPFW.

References Cited

Andres, Christopher R., Gabriel D. Wrobel, and Shawn G. Morton

n.d. Tipan Chen Uitz ("Fortress Mountain Well"): A Major "New" Maya Center in the Cayo District, Belize. Manuscript submitted to *Mexicon* October 2009.

Awe, Jaime J.

1998 The Western Belize Regional Cave Project: Objectives, Context, and Problem Orientation. In *The Western Belize Regional Cave Project: A Report of the 1997 Field Season*, edited by J. J. Awe. Department of Anthropology Occasional Paper No. 1. University of New Hampshire, Durham.

Awe, Jaime J., Christophe G.B. Helmke, and Cameron S. Griffith

1998 "Archaeological Reconnaissance in the Roaring Creek Valley: Caves, Rockshelters, and Settlements." *The Western Belize Regional Cave Project: A Report of the 1997 Field Season*, edited by Jaime J. Awe, pp. 223-244. Department of Anthropology, Occasional Paper No. 1, University of New Hampshire, Durham.

Bassie-Sweet, Karen.

1996 *At the Edge of the World: Caves and Late Classic Maya World View*. University of Oklahoma Press, Norman.

Bonor, Juan Luis

2002 "Caves Branch Caves: Archaeological Field Report." Research Report submitted to the Foundation for the Advancement of Mesoamerican Studies, Crystal River.

Bonor, Juan Luis and Carolina Martínez Klemm

1995 Trabajos Recientes en la Región de Caves Branch, Distrito de el Cayo, Belice. *V Encuentro*

Internacional Investigadores de la Cultura Maya 4:250-267.

Bullard, William R., Jr.

1960 Maya Settlement Patterns in Northeastern Peten, Guatemala. *American Antiquity* 25: 355-72.

Davis, Clinton Emerson

1980 *Archaeological Investigations in the Caves Branch-Deep Valley Region of Belize, Central America*. Unpublished M.A. Thesis, Department of Anthropology, University of Texas at Austin.

Digby, Adrian.

1958 A New Maya City Discovered in British Honduras: First Excavations at Las Cuevas and an Underground Necropolis Revealed. *Illustrated London News*. Pp. 274-275.

Ferguson, Joselyn

1999 Salvage Excavations of the Ballcourt at Cahal Uitz Na. In *The Western Belize Regional Cave Project: A Report of the 1998 Field Season*, edited by J.J. Awe, pp. 45-52. Department of Anthropology Occasional Paper No. 2. University of New Hampshire, Durham.

Glassman, David M. and Juan Luis Bonor Villarejo

2005 Mortuary Practices of the Prehistoric Maya from Caves Branch Rockshelter, Belize. In *Stone Houses and Earth Lords*, K.M. Prufer and J.E. Brady, eds., pp. 285-296. University Press of Colorado, Boulder.

Gossen, Gary H.

1999 *Telling Maya Tales: Tzotzil Identities in Modern Mexico*. Routledge, New York.

Graham, Elizabeth, Logan McNatt, and A. M. Gutchen

1980 Excavations in Footprint Cave, Caves Branch, Belize. *Journal of Field Archaeology* 7(2): 153-172.

Hammond, Norman

1975 Lubaantun: A Classic Maya Realm. Monographs of the Peabody Museum, No. 2. Harvard University, Cambridge, MA.

Hardy, Jessica L.

2009 *Ancient Maya Ritual Activity in Rockshelters of the Caves Branch River Valley, Cayo District, Belize: Understanding Regional Variation through a Comparative Approach*. Unpublished M.A. Thesis, Anthropology Department, University of Mississippi, Oxford.

Healy, Paul F., Jaime J. Awe, and Hermann Helmuth

1998 An Ancient Maya Multiple Burial at Caledonia, Cayo District, Belize. *Journal of Field Archaeology* 25(3): 261-274.

- Helmke, Christophe G. B.
 2009 Ancient Maya Cave Usage as Attested in the Glyphic Corpus of the Maya Lowlands and the Caves of the Roaring Creek Valley, Belize. Unpublished Ph.D. thesis, Institute of Archaeology, University College London.
- Hoopes, John W.
 2005 The Emergence of Social Complexity in the Chibchan World of Southern Central America and Northern Colombia, AD 300-600. *Journal of Archaeological Research* 13(1): 1-47.
- Jacobs, Jane
 2004 *Dark Age Ahead*. Vintage Canada, Toronto.
- Jordan, Jillian M.
 2008 *The Late-to-Terminal Classic period at Baatelek, Caves Branch River Valley, Cayo District, Belize*. Unpublished MA Thesis, Department of Anthropology, University of Mississippi, Oxford.
- Malinowski, Bronislaw K.
 1954 *Magic, Science, and Religion*. Doubleday, Garden City.
- McAnany, Patricia A.
 1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.
- McAnany, Patricia A., Kimberly A. Berry, and Ben S. Thomas
 2003 Wetlands, rivers, and caves: agricultural and ritual practice in two Lowland Maya landscapes. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 71-81. Monograph 49, Cotsen Institute of Archaeology, University of California, Los Angeles.
- MacLeod, Barbara and Dennis E. Puleston
 1978 Pathways into Darkness: The Search for the Road to Xibalbá. In *Tercera Mesa Redonda de Palenque*, edited by M. Greene-Robertson and D. C. Jeffers, pp. 71-77. vol. 4. Hearld Peters, Monterey.
- Morton, Shawn G.
 2009 Preliminary Reconnaissance of Three Caves in the Caves Branch River Valley, Cayo District, Belize. In *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2007 Field Season*, edited by C.G.B. Helmke, and J.J. Awe, pp. 49-68. Vol. 13. Institute of Archaeology, Belmopan, Belize.
- 2009 The Ancient Maya Drought Cult: Late Classic Cave Use in Belize. *Latin American Antiquity* 20(1):175-206.
- Pendergast, David M.
 1971 *Excavations at Eduardo Quiroz Cave, British Honduras (Belize)*. Occasional Papers of the Royal Ontario Museum, no. 21. University of Toronto Press, Toronto.
- Reents-Budet, Dorie J.
 1980 Prehistoric pottery from Petroglyph Cave, Caves Branch Valley, El Cayo District, Belize, Central America. Unpublished M.A. Thesis. University of Texas at Austin, Department of Anthropology. Austin.
- Reents-Budet, Dorie and Barbara MacLeod
 1986 "The Archaeology of Petroglyph Cave, Belize." Report on file at the Institute of Archaeology, Belmopan.
- Sharer, Robert J.
 1985 Terminal Events in the Southeastern Lowlands: A View from Quiriguá. In *The Lowland Maya Postclassic*, A.F. Chase and P.M. Rice, eds., pp. 245-253. University of Texas Press, Austin.
- Thompson, J. Eric S.
 1975 Introduction to the Reprint Edition. In *The Hill-Caves of Yucatan*, by Henry C. Mercer, pp.vii-xliv. University of Oklahoma Press, Norman.
- Vogt, Evon Z. and David Stuart
 2005 Some Notes on Ritual Caves Among the Ancient and Modern Maya. In *In the Maw of the Earth Monster*, J.E. Brady and K.M. Prufer, eds., pp. 155-185. University of Texas Press, Austin
- Wallace, A.
 1956 Revitalization Movements. *American Anthropologist* 58:264-281.
- Weiss-Krejci, Estella
 2004 Mortuary representations of the noble house: A cross-cultural comparison between collective tombs of the ancient Maya and dynastic Europe. *Journal of Social Archaeology* 4: 368-404.
- Wrobel, Gabriel D.
 2009 Report on the Caves Branch Rockshelter Excavations: 2006 and 2007 Field Seasons. In *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2007 Field Season*, edited by C.G.B. Helmke, and J.J. Awe, pp. 1-20. Vol. 13. Institute of Archaeology, Belmopan, Belize.
- Moyes, Holly, Jaime J. Awe, G. A. Brook, and J. W. Webster

Investigations at Caves Branch

Wrobel, Gabriel D., Jillian Jordan, and Jessica Hardy

2009 Social and Political Transformations in the Caves Branch River Valley: Evidence from Natural and Constructed Ritual Environments. *Research Reports in Belizean Archaeology* 6: 199-207.

Wrobel, Gabriel, James Tyler, and Jessica Hardy

2007 Rockshelter Excavations in the Caves Branch River Valley. *Research Reports in Belizean Archaeology* 4: 187-196

9 AT THE CROSSROADS IN THE MIDDLE BELIZE VALLEY: MODELING NETWORKS OF RITUAL INTERACTION IN BELIZE FROM CLASSIC TO COLONIAL TIMES

Eleanor Harrison-Buck

According to Spanish Colonial accounts, the junction of a north-south overland route once connected the mid-Belize River to the headwaters of the New River farther to the north. This junction served as a significant crossroads, linking a series of prominent Contact-period centers, including Tipu, Lamanai, and Salamanca de Bacalar. In this paper, I present a model for the middle Belize Valley that explores possible interaction spheres that developed in north-central Belize from Classic to Colonial times. These interaction networks appear to be both economic and ritual in nature and were likely facilitated by riverine and coastal networks, as well as the north-south overland route. Based on preliminary evidence, I suggest that Prehispanic sites in the middle Belize Valley may share architectural styles and ceramic types with other areas in north-central Belize, including the Sibun Valley to the south and Lamanai to the north. Based on the distribution patterns of Terminal Classic shrines and ceramic assemblages, I offer a projected model of expected finds in the middle Belize Valley. Future work in this area has the potential to reveal key boundaries of social interaction at this important crossroads and provide insight into how Maya ritual behavior was impacted during periods of major cultural upheaval—first during the Classic Maya “collapse” period and then, subsequently, during the Spanish Conquest.

Introduction

The middle Belize Valley (Figure 1) appears to have a long history that extends from the Formative period through Colonial times. Based on Spanish Colonial accounts, a total of six Spanish-Maya Contact period sites cluster in the mid-section of the Belize River Valley (Chunukum, Lucu, Boxelac, Chantome, Zaczuz, and Petenzub); they mark the southeastern frontier of early Colonial occupation and surround the junction of a north-south overland route that connects to the headwaters of the New River farther to the north (Jones 1989). Ethnohistorian Grant Jones suggests that the north-south overland route entered the Belize River at the site of Chantome (#17 on the map)—neither this site nor the overland route have been identified archaeologically. If located correctly, this Contact period site and the north-south overland route are in the vicinity of the prehispanic site of Saturday Creek (Figure 2). This junction in the middle Belize Valley, with its cluster of settlement, served as a significant crossroads in the Colonial period, linking a series of prominent Contact-period centers, including Tipu (along the western upper Belize River), Lamanai (north along the New River) and Salamanca de Bacalar (farther north in the Chetumal Bay area). As will be shown Lamanai and Saturday Creek in the middle Belize Valley also show strong connections during the

Terminal Classic period (ca. AD 750-900), suggesting that the north-south route is possibly Prehispanic in date.

In this paper, I present a research model for the middle Belize Valley that explores this area as an important crossroads for interaction spheres that may have developed as early as the Terminal Classic period. First, I will review the Terminal Classic ceramics recovered from previous investigations at Saturday Creek and discuss how they compare to sites in the surrounding region, namely Lamanai about 60km to the north, the Sibun Valley about 20km overland to the south, and Barton Ramie located about 20km overland to the west (or about 40 km paddling up the sinuous Belize River). I examine the distribution patterns of ceramics along side an architectural study of a Terminal Classic shrine complex found in this area. Based on comparative findings, I present a model for the middle Belize Valley that explores both local- and long-distance interaction networks that developed during the Classic-Postclassic transition, which appear to be both economic and ritual in nature.

Previous Investigations

From 1998-2001, Lisa Lucero and her team mapped and test-pitted Saturday Creek, as

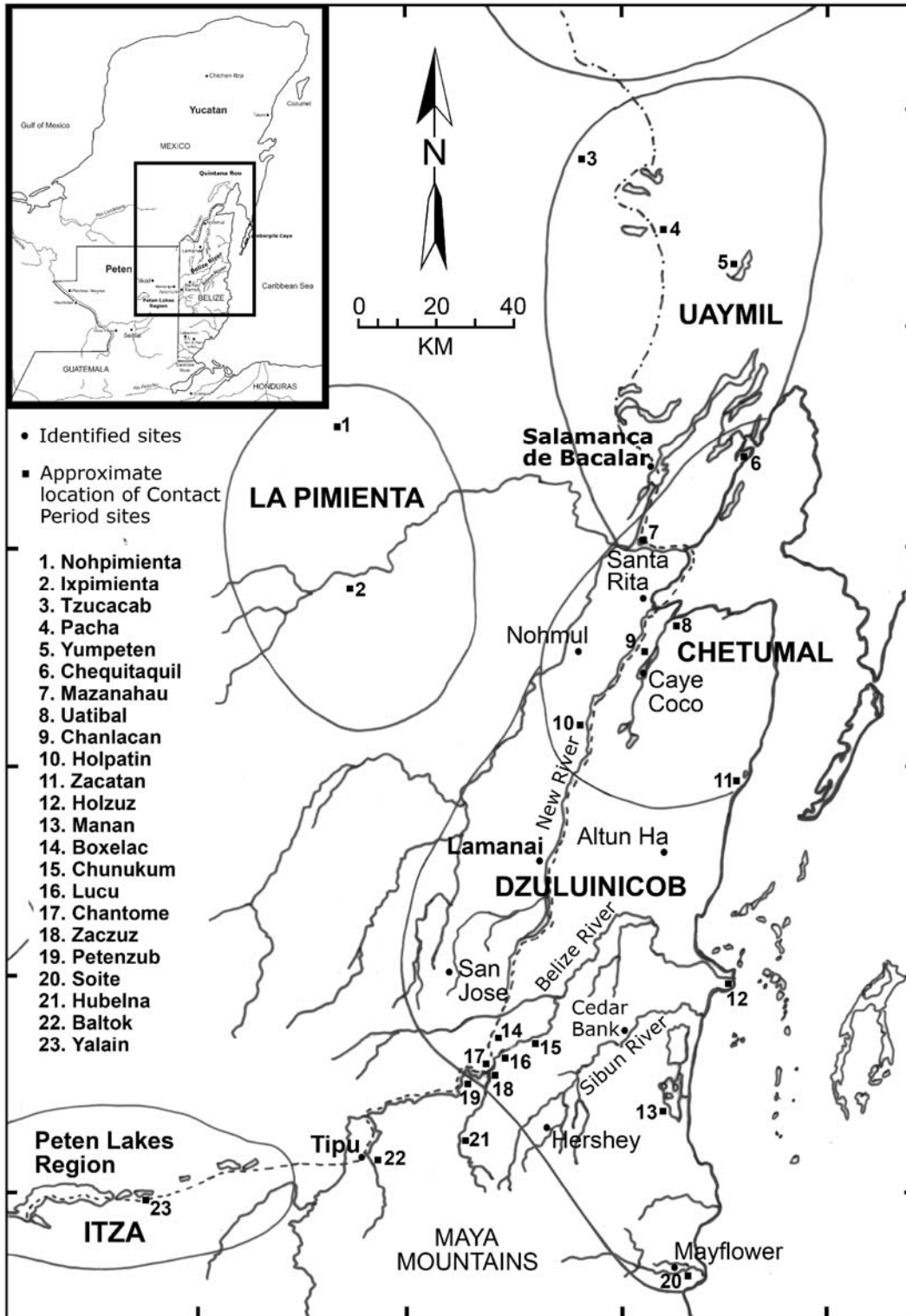


Figure 1. "Native Provinces" and Contact-Period sites in the southeastern Spanish Colonial frontier (adapted from G. Jones 1989:Map 2).

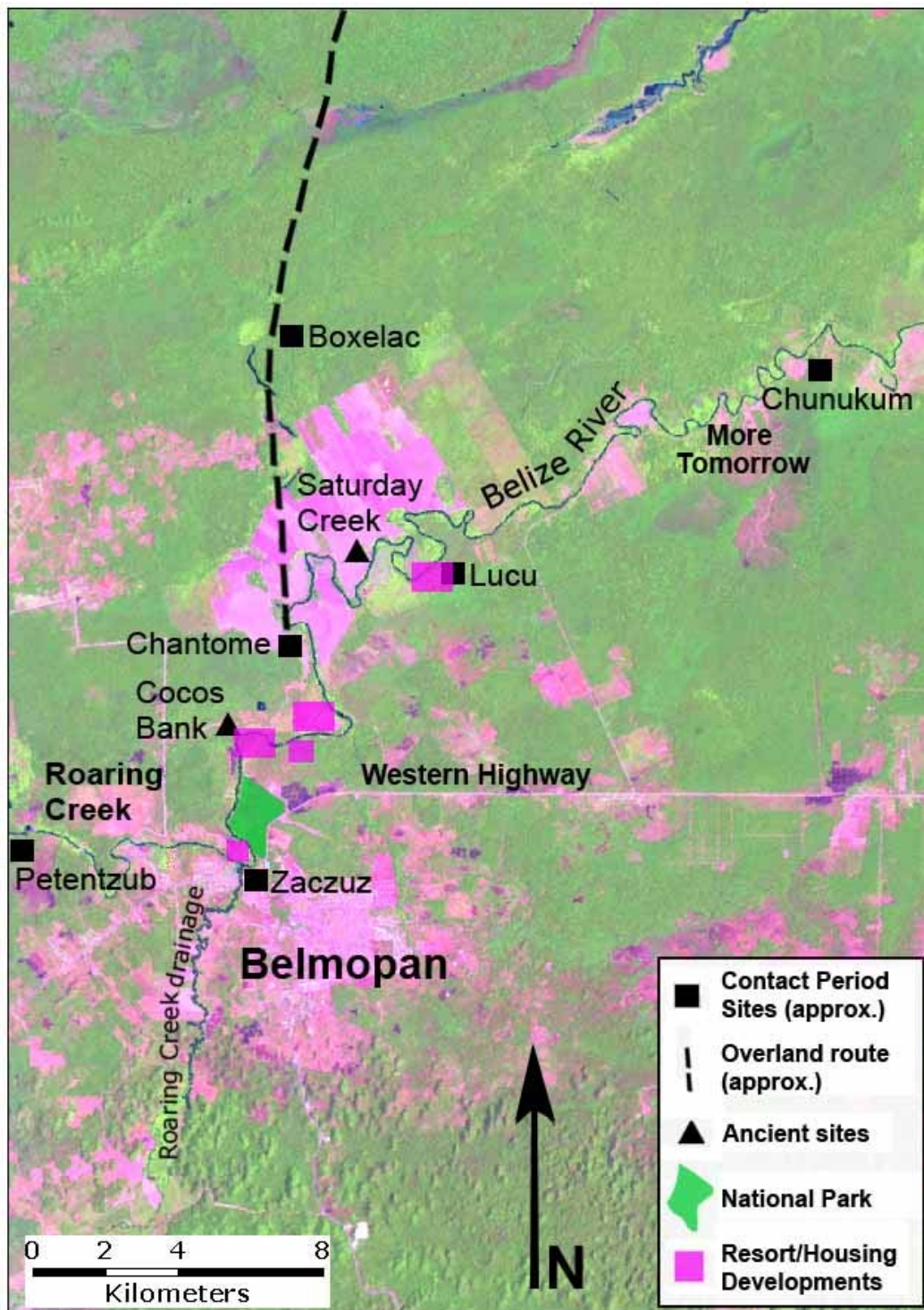


Figure 2. Landsat TM image (March 2000) of the middle Belize River Valley, showing projected location of n-s overland route and sites mentioned in text.

well as Cocos Bank, a small plazuela group about 2km to the southwest (refer to Figure 1; Lucero 1999a, 1999b, and 2002). Considered a secondary center, the Saturday Creek site consists of about 100 mounds and Lucero's archaeological investigations revealed a rich burial assemblage. James Conlin and the late Jennifer Ehret (2002) produced a preliminary ceramic report from the 2001 season that compares the ceramics of Saturday Creek with Gifford's (1976) analysis of the ceramics from Barton Ramie. I build off of this ceramic study, adding my own observations of the Saturday Creek whole vessels that are housed at the Institute of Archaeology and a sample of the ceramic sherds excavated by Lucero that are stored at the Banana Bank Lodge.

Ik'hubil Ceramics

The Saturday Creek ceramics show strong similarities with the Ik'hubil Complex — the Terminal Classic ceramic assemblage that I defined using the Type-Variety classification system for the Sibun Valley, located just to the south of the Belize River valley (Figure 1; Harrison-Buck 2007). Below I describe the primary ceramic types of the Terminal Classic Ik'hubil Complex (see also Harrison-Buck and McAnany 2005 and 2006). The Ik'hubil Complex is defined based on a shared ceramic assemblage found at Saturday Creek and multiple sites found throughout the length of the Sibun Valley. By definition, the Ik'hubil Complex is also a ceramic *sphere* because more than one site shares the primary types of this complex (Walker 1990:56; Willey et al. 1967:292). As Rice and Forsyth (2004:30) note, “variations in [a] sphere's areal extent could reveal the direction and intensity of culture contacts.” In this study, the Type-variety system is used in this way to trace possible spheres of interaction with different areas of Belize. I conclude by discussing the idea of an Ik'hubil Ceramic Sphere, in terms of geographic extent and how it may relate to economic and ritual networks of interaction.

Primary Ceramics Types of the Ik'hubil Complex

What is notable about the Terminal Classic Ik'hubil assemblage is that the most common types typically represent the *least* common types in the late facet of the Spanish Lookout Complex, defined by James Gifford (1976) for the Terminal Classic occupation at Barton Ramie. Belize Red, for example, is a primary ceramic type in the Spanish Lookout Complex but is considered one of the least common types of the Ik'hubil Complex. According to Conlin and Ehret (2002:11) “even more lacking than Belize Red is Mount Maloney Black.” A similar distribution pattern exists for the Ik'hubil Complex in the Sibun Valley — Mount Maloney Black is exceedingly rare. Conlin and Ehret (2002:11) note that at Saturday Creek the “frequencies [of Mount Maloney and Achote Black] are basically reversed from the Barton Ramie frequencies.”



Figure 3. Achote Black: Stamped-Imprinted Variety vessels from (left) Tiger Bay Cave, Sibun Valley and (right) the site of Saturday Creek (photograph by P. A. McAnany and illustration by E. Harrison-Buck)

Achote Black, while not a primary type, is considered a signature of the Ik'hubil Complex, as well as Daylight Orange: Darknight (Figures 3 and 4). Both of these types have a

broad distribution at sites throughout most of Belize, including the Sibun Valley and the site of Saturday Creek. Figure 4 shows an example of a Daylight Orange: Darknight vessel from a Terminal Classic burial deposit found at Saturday Creek. This dish shows a pair of monkeys, which is a frequent motif found on this ceramic type and in the Terminal Classic iconography, in general.



Figure 4. Daylight Orange: Darknight vessel from Saturday Creek (photograph by E. Harrison-Buck)

The outflaring dish form of Daylight Orange: Darknight vessels is similar to Roaring Creek Red vessels. Both Roaring Creek Red and Dolphin Head Red are primary ceramic types of the Ik'hubil Complex. Gifford (1976:227-230, 240-243; Figs. 137-139, 149-151) defined these two types at Barton Ramie, but they are both relatively rare at this site and elsewhere in the Upper Belize Valley compared to other red ware dishes, like Vaca Falls Red and Belize Red (LeCount 2005). At Saturday Creek, Conlin and Ehret also observed this trend—what they called “reversed redware frequencies”, noting the heavier frequencies of Roaring Creek Red and Dolphin Head Red at Saturday Creek with relatively few examples of Belize Red.

Red-necked jars represent another key diagnostic of the Ik'hubil assemblage in the Sibun Valley (Harrison-Buck and McAnany 2006:Fig. 8) and are also reported by Conlin and Ehret as a very common type at the Saturday Creek site (Figure 5). This type is exceedingly rare at Barton Ramie. Conlin and Ehret (2002:12) note that red-necked jars “are as abundant (equally represented) as Cayo Unslipped jars at Saturday Creek.” In the Sibun Valley both are considered primary ceramic

types of the Ik'hubil Complex; quantities of Sibun Red Neck just slightly exceed those of Cayo Unslipped jars at most sites throughout the Sibun Valley.

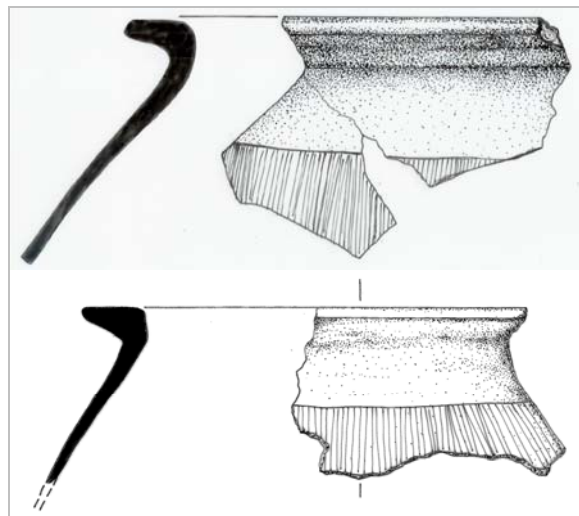


Figure 5. Sibun Red-Neck: Striated Variety Jars from (top) the Sibun Valley and from (bottom) Saturday Creek (illustrations by E. Harrison-Buck).

Another important marker of the Ik'hubil Complex in the Sibun Valley is the Kik Group ceramics, namely Fat Polychrome and Indian Creek Polychrome (Harrison-Buck and McAnany 2006:Figs. 10 and 11). Often eroded, the polychrome designs depict mat motifs, s-, u-, and c-shaped designs, as well as monkey imagery. The basin form and pronounced bolster rim of the Fat Polychrome bare a strong resemblance to the Florescent Medium Puuc and Chichen Slate Ware basins from northern Yucatan (Mock 1994; see Smith 1971). However, the paste characteristics, as well as the quantity and distribution of these northern-style ceramics suggest that most were produced locally. No complete vessels were recovered from the Sibun Valley excavations, only sherd fragments. Likewise, I did not identify any Kik Group ceramics in the whole vessels from Saturday Creek that I examined at the Institute of Archaeology. However, I found an abundance of sherds of this type when I examined a sample of the Saturday Creek assemblage stored at Banana Bank Lodge (Figure 6).

The paste and surface treatment are identical to examples found in the Sibun Valley

and it is possible that they stem from several localized production zones in north-central Belize. Comparative examples have been found at sites surrounding Saturday Creek to the south in the Sibun Valley, to the north at Lamanai (Howie 2006), to the northwest at San Jose (Thompson 1939:124-125, Figs. 59 and 65), to the northeast at Altun Ha (Graham 1987:Fig. 2g) and along the coast of Belize at Northern River Lagoon, Saktunja, and the Salt Creek sites (Mock 1994:106-107 and Fig. 51; Mock 2005:128 and Fig. 7; Masson and Mock 2004: 387 and Fig. 17.7d-e [refer to Figure 1]). According to ceramic reports, Kik Group types do not appear to the west at Barton Ramie and elsewhere in the upper Belize Valley and Peten region. These northern-style ceramics are notably different from the ceramics of the Spanish Lookout Complex and have no known Late Classic precursors in Belize.

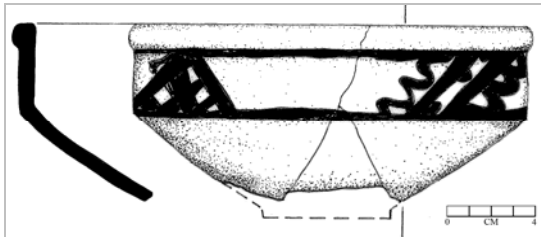


Figure 6. Indian Creek Polychrome (Kik Group) vessel from Saturday Creek (illustration by E. Harrison-Buck).

Geographic Extent of the Ik'hubil Sphere

Based on this comparative review of the Terminal Classic ceramics, I suggest the site of Saturday Creek was not a member of the Spanish Lookout Sphere, defined at Barton Ramie, but may mark the eastern boundary of the so-called Ik'hubil Sphere. Here I outline the geographic extent of the Ik'hubil Sphere in a region of north-central Belize (Figure 7). I have tentatively defined the geographic extent of the Ik'hubil Sphere based on comparisons of ceramic evidence from Saturday Creek, as well as sites in the Stann Creek and Sibun Valleys to the south (Graham 1985 and 1994) and sites to the north, including San Jose (Thompson 1939), Lamanai (Graham 1987), Altun Ha (Pendergast 1990), Chau Hiix (Andres and Pyburn 2004), as well as coastal sites in eastern Belize (Masson and Mock 2004; Mock 2005). Shirley Mock's (1994) ceramic analysis of Northern River

Lagoon or NRL appears to represent the northeastern boundary of the Ik'hubil Sphere, showing a mix of ceramic types from the Ik'hubil and Rancho Spheres. The latter represents a ceramic sphere defined by Duncan Pring (1976) and Diane Chase (1982) for sites in northern Belize, including Nohmul (Chase 1982), Cerros (Walker 1990), and Caye Coco (Masson and Mock 2004).

Economic and Political Networks

These spheres of interaction may represent local interaction networks that were economic in nature, perhaps based on a market exchange system, but these ceramic spheres may also reflect political boundaries. It is notable that the geographic extent of the Rancho and Ik'hubil Ceramic Spheres closely parallel the "native provinces" defined by the Spanish as the political geography in the Maya area at the time of European contact, shown in Figure 1. First mapped out by Roys (1957), these native provinces were later modified somewhat by ethnohistorian Grant Jones (1989:Map 2). He shortened the southern extent of the Chetumal province and added the Dzuluinicob province in this north-central region of Belize based on a careful reading of Spanish Colonial accounts. Jones included Tipu in the Dzuluinicob Province because of its major role during the Spanish Colonial period, but acknowledged the possibility that this site may not have been part of this province in prehispanic times. Here, I have adapted Grant Jones' map and omitted Tipu because prior to the Colonial Period this site appears more closely tied with the Upper Belize Valley (Spanish Lookout Sphere).

Based on the Terminal Classic ceramic distributions, I suggest that the Dzuluinicob province pre-dates the Colonial period and may have existed as early as the Terminal Classic period. Masson and Mock (2004) made a similar suggestion for the Chetumal Province based on a comparative study of Terminal Classic ceramics from the Rancho Sphere found at Caye Coco and other lagoon and coastal sites in northern Belize that are similar to ceramics from Nohmul and Cerros (see also Masson 1997).

The Dzuluinicob state was said to be primarily Yucatecan speakers. Kathryn Reese-

Taylor (2003) suggests that the Peten uplands to the west may represent an ethnically separate region of Ch'olti'an speakers (see also Lacadena and Wichmann 2002; Schele and Freidel 1990) and that both an ethnic and natural boundary exist between this region and the eastern coastal lowlands where Yucatec may have been spoken. She describes this eastern lowland zone as a riverine corridor, including parts of the Three Rivers Region, the New River, and middle and lower Belize River. This eastern lowland region, defined by Reese-Taylor (2003), aligns with the projected area that I define for the Ik'hubil Ceramic Sphere in north-central Belize and it also roughly parallels the political boundaries of the Dzuluinicob Province.

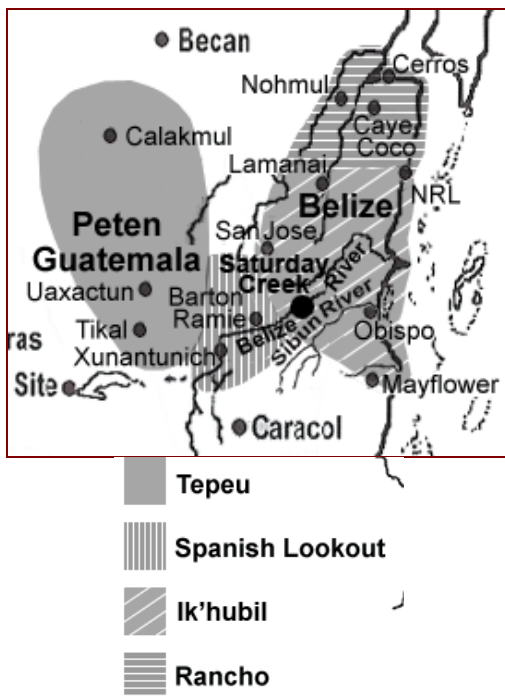


Figure 7. Proposed Ik'hubil Ceramic Sphere (Adapted from Rice and Forsyth 2004:Fig. 3.2).

Terminal Classic Ritual Shrines

If the Dzuluinicob province existed in the Terminal Classic period, as a region of Yucatec speakers it would not be surprising to see Yucatec traits connecting this region with Northern Yucatan. While stylistically resembling forms from northern Yucatán, the Kik Group ceramics have not been reported from sites farther north than Nohmul, Santa Rita, and Cerros in Belize (Chase 1982; Mock

2005:128; Walker 1990). These ceramics represent a signature trait of a local interaction sphere and may mark a discrete economic and politically organized region in central-northern Belize. Yet, the appearance of northern-style attributes in the ceramics of the eastern Lowland zone do seem to signal a shift in political, economic and religious organization across a broader region of the Maya Lowlands by Terminal Classic times. Their appearance overlaps with the influx of other northern Yucatec traits, namely a Yucatec-style ritual shrine complex found not only in the eastern Lowland zone, but across a wide area of the Maya Lowlands. Figure 8 presents a map of the distribution of some of the most well known examples of circular shrines, most of which have been securely dated to the Terminal Classic (Harrison-Buck 2007).

Scholars argue that the circular architectural complex stems from Chichén Itzá, the dominant center in northeastern Yucatán during the Terminal Classic, and when found elsewhere in the Lowlands are indicative of a strong interaction with this northern polity (Kowalski et al. 1994; Ringle et al. 1998). Similar examples of circular shrine architecture dating to the Terminal Classic have been found elsewhere, such as Seibal in Guatemala (Smith 1982), and quite a few have been found at sites in Belize, including Nohmul, Caye Coco, one possibly at Cerros, another in the Rosita Group at Blue Creek, as well as one at San Juan on Ambergris Caye. I investigated three examples of circular shrines in the Sibun Valley at the sites of Oshon, Obispo, and Pechtun Ha (Harrison-Buck and McAnany 2005; Harrison-Buck 2007), and recently Christophe Helmke investigated one at Pook's Hill, a site located on the Roaring Creek Drainage in the mid-section of the Belize River Valley (Helmke 2006). No circular structures have yet been identified at Saturday Creek, but based on the distribution patterns I anticipate that more examples may be found in the mid-to-lower Belize Valley, at sites east of the Roaring Creek drainage. My aim is to survey this area in the future to test this idea. The network of circular shrines in Belize seem to cluster within the boundaries of the Ik'hubil and Rancho Spheres, but are also found across a broad area of the Maya Lowlands by Terminal

Classic times—although primarily in regions that were Yucatec-speaking when the Spanish arrived.

Overall, circular shrines in the Sibun Valley and elsewhere in the Maya Lowlands share strong similarities in design, layout and architectural construction. Figure 9 presents examples from Uxmal in Northwest Yucatan (Kowalski et al. 1994), Obispo in the Sibun Valley (Harrison-Buck 2007), Nohmul (Chase and Chase 1982) in Northern Belize, and the four phases of the Caracol Building at Chichen Itza (Ruppert 1935). Terminal Classic circular structures exhibit architectural traits that are common construction techniques used in northern Yucatán, such as the use of veneer stone blocks, an overhanging cornice, a low plinth, and flagstone flooring (Harrison-Buck 2007).

William Ringle and his colleagues (1998) suggest that the presence of Yucatec circular shrine architecture in the Terminal Classic may relate to the spread of a new religious ideology, stemming from Chichen Itza that was centered on the worship of the feathered-serpent god, Quetzalcoatl. Even without knowing the exact nature of the activities taking place within these structures, the standardized architectural program suggests a central value orientation (or certain way of doing things) that points to a shared social identity (Harrison-Buck et al. n.d.). Undoubtedly, the coastal, riverine and overland networks in north-central Belize would have facilitated the sharing of these ideas over long-distances.

Conclusions

Examining the distribution patterns of the Ik'hubil ceramics along side circular shrine architecture illustrates how local and long-distance interaction networks intersected in the past. The geographic extent of the Ik'hubil Sphere appears to parallel the native Dzuluinicob province and suggests the possibility that this political geography was in place by Terminal Classic times. However, the role of Yucatec superpowers - Chichen Itza and Mayapan—remains unclear and the relationship between political and economic organization and

ritual and religious organization requires further study in Maya archaeology.

Future work in the middle Belize Valley has the potential to reveal key boundaries of social interaction at an important crossroads in Belize. The ceramic evidence suggests that east-west social networks were somehow interrupted at the crossroads of the north-south overland route. Conlin and Ehret (2002:13) concluded that Saturday Creek was a “distinct ‘community’...[with] a lessened degree of affiliation with the rest of the Belize Valley in this eastern zone.” When examined in a broader regional context and compared with the neighboring Sibun Valley, Lamanai and other sites, Saturday Creek appears less “distinct” and isolated and may simply define the western edge of an interaction sphere that perhaps extended throughout the central-northern part of Belize. Importantly, the east-west division suggests the overland route dates to at least the Terminal Classic period. Moreover, the division indicates separate economic markets and perhaps marks broader political and and/or ethnic boundaries between these regions beginning as early as the Terminal Classic and continuing through Colonial times.

Acknowledgments The author wishes to acknowledge the financial support of the Center for the Humanities at the University of New Hampshire. I am grateful to Dr. Lisa J. Lucero and the Institute of Archaeology for granting me permission to study the Saturday Creek ceramics during the summer of 2009 and for their assistance in locating the collections. I thank the staff and directors at the Institute, particularly Dr. Jaime Awe, Dr. John Morris, Dr. George Thompson, Ms. Sherilyne Jones, Mr. Brian Woodye, and the entire organizing committee of the Belize Archaeology Symposium for putting together another successful annual research conference and published proceedings volume. This chapter is written in memory of the late Jennifer J. Ehret.

References Cited

- Andres, C. R. and K. A. Pyburn
2004 Out of Sight: The Postclassic and Early Colonial Periods at Chau Hiix, Belize. In *The*

- Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by A. A. Demarest, P. M. Rice and D. S. Rice, pp. 402-423. The University Press of Colorado, Boulder.
- Chase D. Z.
1982 *Spatial and Temporal Variability in Postclassic Northern Belize*. Ph.D. Dissertation, Department of Anthropology, University of Pennsylvania, Philadelphia.
- Chase, D. Z. and A. F. Chase
1982 Yucatec Influence in Terminal Classic Northern Belize. *American Antiquity* 47: 596-614.
- Conlon, J. M. and J. J. Ehret
2002 Time and Space in the Belize Valley: Results of the Ceramic Frequency of Saturday Creek. *Results of the 2001 Valley of Peace Archaeological Project: Saturday Creek and Yalbac*, edited by L. J. Lucero, pp. 8-17. Report submitted to the Department of Archaeology, Ministry of Tourism and Culture, Belize.
- Gifford, J. C.
1976 *Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley*. Peabody Museum Memoirs, vol. 18. Harvard University, Cambridge, MA.
- Graham, E. A.
1987 Terminal Classic to Early Historic Period Vessel Forms From Belize. In *Maya Ceramics: Papers from the 1985 Maya Ceramic Conference*, edited by P. M. Rice and R. J. Sharer, pp. 73-98. BAR International Series 345(I).
- Harrison-Buck, E.
2007 *Materializing Identity among the Terminal Classic Maya: Architecture & Ceramics in the Sibun Valley, Belize*. Ph.D. Dissertation, Boston University. Boston, MA.
- Harrison-Buck, E. and P. A. McAnany
2005 Terminal Classic Circular Shrines & Ceramics in the Sibun Valley, Belize: Evidence of Northern Yucatec Influence in the Eastern Maya Lowlands. *Research Reports in Belizean Archaeology* 3:287-300.
- 2006 The Classic to Postclassic Transition in the Sibun Valley, Belize: Defining the Terminal Classic Ceramic Assemblage. *Research Reports in Belizean Archaeology* 4:287-299.
- Harrison-Buck, E. E. Spensley, and P. A. McAnany
n.d. Classic Maya Ceramic Hybridity in the Sibun Valley of Belize. In *Hybrid Material Culture: The Archaeology of Syncretism and Ethnogenesis*, Occasional Paper No. 39. Center for Archaeological Investigations, Southern Illinois University, Carbonadale. Under Review.
- Helmke, C. G. B.
2006 A Summary of the 1999–2002 Seasons of Archaeological Investigations at Pook’s Hill, Cayo District, Belize. *Research Reports in Belizean Archaeology* 3:173-191.
- Howie, L.
2006 *Ceramic production and consumption in the Maya Lowlands during the Terminal Classic to Early Post Classic transition: A technological study of ceramics at Lamanai, Belize*. Ph.D. Dissertation, The University of Sheffield, Sheffield, England.
- Jones, G. D.
1989 *Maya Resistance to Spanish Rule: Time and History on a Colonial Frontier*. University of New Mexico Press, Albuquerque.
- Kowalski, J. K., A. Barrera R., H. Ojeda M., and J. Huchim H.
1994 Archaeological Excavations of a Round Temple at Uxmal: Summary Discussion and Implications for Northern Maya Culture History. In *Eighth Palenque Round Table, 1993*, edited M. J. Macri and J. McHargue, pp. 281-296. San Francisco: Pre-Columbian Art Research Institute.
- Lacadena, A., and S. Wichmann
2002 The distribution of Lowland Maya languages in the Classic period. In *La Organización Social Entre los Mayas. Memoria de la Tercera Mesa Redonda de Palenque*, Vol. II, edited by V. Tiesler, R. Cobos, and M. Greene Robertson, pp. 275-314. Instituto Nacional de Antropología e Historia and Universidad Autónoma de Yucatán, México D.F.
- LeCount, L. J.
2005 Continuity and Change in the Ceramic Complex of Xunantunich during the Late and Terminal Classic Period, In *Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands*, edited by S. L. López Varela and A. E. Foias, pp. 93-106. BAR International Series 1447. Archaeopress, Oxford.
- Lucero, L. J.
1999a The Second (1998) Field Season of the Valley of Peace Archaeological (VOPA) Project. Report submitted to the Department of Archaeology, Ministry of Tourism, Belize.
- 1999b The Third (1999) Field Season of the Valley of Peace Archaeological (VOPA) Project. Report submitted to the Department of Archaeology.

- 2002 Results of the 2001 Valley of Peace Archaeology Project: Saturday Creek and Yalbac. Report submitted to the Department of Archaeology, Ministry of Tourism and Culture, Belize.
- Masson, M. A.
1997 Cultural Transformations at the Maya Postclassic Community of Laguna de On, Belize. *Latin American Antiquity* 8(4): 294-316.
- Masson, M. A. and S. B. Mock
2004 Ceramics and Settlement Patterns at Terminal Classic-Period Lagoon Sites in Northern Belize. In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by A. A. Demarest, P. M. Rice, and D. S. Rice, pp. 367-401. University Press of Colorado, Boulder.
- Mock, S. B.
1994 *The Northern River Lagoon Site (NRL): Late to Terminal Classic Maya Settlement, Saltmaking, and Survival on the Northern Belize Coast*. Ph.D. dissertation. The University of Texas at Austin.

2005 Pushing the Limits: Late to Terminal Classic Settlement and Economies on the Northern Belize Coast. In *Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands*, edited by S. L. López Varela and A. E. Foias, pp. 121-133. BAR International Series 1447. Archaeopress, Oxford.
- Pendergast, D.
1990 *Excavations at Altun Ha, Belize, 1964-1970, Vol. 3*. Royal Ontario Museum, Toronto, Canada.
- Pring, D.
1976 Outline of Northern Belize Ceramic Sequence. *Ceramica de Cultura Maya* 9:11-52.
- Reese-Taylor, K.
2003 *The Eastern Riverine Corridor During the Late Classic Period*. FAMSI Report. <http://www.famsi.org/reports/97065/index.html>.
- Rice, P. M. and D. Forsyth
2004 Terminal Classic-Period Lowland Ceramics. In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by A. A. Demarest, P. M. Rice, and D. S. Rice, pp. 43-77. University Press of Colorado, Boulder.
- Ringle, W. M., T. G. Negrón, and G. J. Bey III
1998 The Return of Quetzalcoatl: Evidence for the Spread of a World Religion during the Epiclassic Period. *Ancient Mesoamerica* 9:183-232.
- Roys, R. L.
1957 *The Political Geography of the Yucatan Maya*. Carnegie Institution of Washington Publication 613, Washington.
- Ruppert, K.
1935 *The Caracol at Chichén Itzá, Yucatan, Mexico*. Publication No. 454. Carnegie Institution of Washington, Washington, DC.
- Schele, L. and D. Freidel
1990 *A Forest of Kings: The Untold Story of the Ancient Maya*. William Morrow, New York.
- Smith, A. L.
1982 *Excavations at Seibal: Major Architecture and Caches*. Memoirs of the Peabody Museum of Archaeology and Ethnology Vol. 15, No. 1. Harvard University, Cambridge, MA.
- Smith, R. E.
1971 *The Pottery of Mayapan: Including Studies of Ceramic Material from Uxmal, Kabah, and Chichén Itzá*. Papers of the Peabody Museum of Archaeology and Ethnology Vol. 66. Harvard University, Cambridge, MA.
- Thompson, J. E. S.
1939 *Excavations at San Jose, British Honduras*. Publication No. 506. Carnegie Institution of Washington, Washington, DC.
- Walker, D.
1990 *Cerros Revisited: Ceramic Indicators of Terminal Classic and Postclassic Settlement and Pilgrimage in Northern Belize*. Ph.D. dissertation, Southern Methodist University, Dallas.
- Wiley, G. R., T. P. Culbert, and R. E. W. Adams
1967 Maya Lowland Ceramics: A Report from the 1965 Guatemala City Conference. *American Antiquity* 32:289-315.

10 ARCHITECTURAL HISTORY AND RITUAL PLANNING AT LA MILPA: A RECONSIDERATION

Brett A. Houk and Gregory Zaro

In 2007, we began investigating the Plaza B area at La Milpa, where previous research had been limited to mapping, looters' trench profiling, and test pitting. Previous researchers had tentatively concluded that the architecture in Plaza B was built entirely in the Late Classic and that many of the structures, including Structure 21 (the fifth largest pyramid at the site), may not have been completed at the time the site was abandoned in the Terminal Classic. Our three seasons of investigations, however, have discovered that there is a significant Late Preclassic architectural component at Plaza B and that construction activity continued well into the Terminal Classic period (ca. AD 890–1030), two discoveries that will ultimately require a reexamination of La Milpa's trajectory as a major center. Additionally, our research has demonstrated that the Late Classic version of the plaza was not only completed, but that it was a coherent architectural plan, which incorporated a program of ritual features, including caches and monuments. Our data show that engineering ritual elements to serve as integrating features was an important part of Late/Terminal Classic site planning at La Milpa.

Introduction

The Programme for Belize Archaeological Project (PfbAP), which has operated in northwestern Belize since 1992, recently began investigating La Milpa (Houk and Valdez 2009). Discovered by Sir J. Eric Thompson in 1938, the site was not intensively studied until the 1990s by first the Río Bravo Archaeological Project (Guderjan 1991) and subsequently the La Milpa Archaeological Project (LaMAP) between 1992 and 2002 (Hammond and Tourtellot 2004). Our work, known as the La Milpa Core Project (LMCP), is an element of the more recent PfbAP investigations and has thus far been focused on Plaza B and Courtyard D in a portion of the site that was not intensively studied by previous projects (see Guderjan 1991:17; Hammond et al. 2000:42; Hammond and Tourtellot 2004; Scarborough et al. 1995; Tourtellot 1993).

In this paper, we present previous conclusions regarding the construction history of the site and how they relate to models of the social and political trajectory of La Milpa. We also discuss the LMCP research objectives, summarize our findings, and delve into their implications for understanding the history of La Milpa. Finally, we provide evidence for what we call ritually engineered deposits, which served to symbolically integrate architectural space in the context of the site's dynamic evolution.

Previous Perspectives on the History of La Milpa

La Milpa is the third largest Maya site in Belize and is located within a large forested conservation tract in the northwestern part of the country. The monumental architecture at the site is oriented north-south and roughly divided into northern and southern areas. The Great Plaza and associated structures form the northern area, while Plazas B and C, several courtyards, and the Southern Acropolis comprise the southern area of La Milpa. The two areas are connected by a *sacbe* (Hammond and Tourtellot 2004:292).

Hammond and Tourtellot (2004:289) conclude that La Milpa rose to its greatest height shortly before being abandoned ca. A.D. 830. The visible surface architecture in the Great Plaza dates to the Late/Terminal Classic, although looters' trenches and test pitting, as well as more recent work by Maria Martinez (2009), reveal Late Preclassic and Early Classic antecedents at the northern end of the site. Hammond et al. (1998:833) concluded that the southern plazas, in contrast, were "of Late/Terminal Classic date with little antecedent occupation." Most notably, Hammond and Tourtellot (2004:292) reported that (1) Plaza B's surface was a natural slope lacking floor construction; (2) Structure 21, the fifth largest and only unlooted pyramid at the site, was never completed; (3) a quarry containing stockpiles of limestone rubble blocks northwest of Plaza B

indicates interrupted construction activity in the area toward Plaza A; and (4) the sacbe linking the northern and southern architectural groups may not have been finished.

In general, the results of previous work suggested a nucleated Late Preclassic site with some subsequent Early Classic construction centered on the Great Plaza area (see Hammond and Tourtellot 2004; Tourtellot et al. 2003). It was further argued that late in the site's history, during the reign of Ukay ca. A.D. 780, La Milpa underwent a massive construction boom that saw the remodeling of structures at the northern end, the construction of the southern plazas, and the creation and expansion of the acropolis. All of this activity ended rather suddenly in the ninth century when the site was abandoned, apparently with significant construction left unfinished (Hammond and Tourtellot 2004).

New Research among the Southern Plazas

When we began our research in 2007, we sought to answer some very basic questions concerning the unfinished nature of the plaza, its period of construction, and the occupation/use of surrounding buildings. Moreover, we continue to pursue larger questions concerning royal precinct planning among the ancient Maya, including political, ritual, and practical engineering concerns. Because we were operating under the assumption that the southern plazas were a Late Classic architectural endeavor, free of antecedent construction, we proposed to investigate Plaza B from a site-planning perspective. While many factors influenced the final plan of a Maya settlement, particularly those of ceremonial centers, it is apparent in many cases that symbolic meaning was purposefully embedded within the cultural landscape (Ashmore and Sabloff 2003). The results of our work around Plaza B significantly alter our perception of the historical trajectory of La Milpa, while offering insight into the nature of ancient Maya urban planning.

Plaza B Description

Plaza B is the second largest plaza at La Milpa, measuring 73 m north to south and 100 m east to west. The northern, western, and southern margins of the plaza are defined by range buildings, while Structure 21 dominates the

eastern portion of the plaza (Figure 1). Plaza B's easternmost margin, however, may be defined by Group 100, a small courtyard complex attached to a low platform. A low wall connects the northern range structure with Group 100, effectively defining the northeastern corner of Plaza B. Two previously unreported monuments are also found within the plaza. Altar B-1 is situated roughly equidistant between Structures 21 and 22, while Stela 21 is located in front of Structure 21.

Results of Plaza and Structural Investigations

In the following section we summarize the results of three seasons of research investigating the questions outlined above. Excavations to date (see Figure 1) have largely targeted questions of

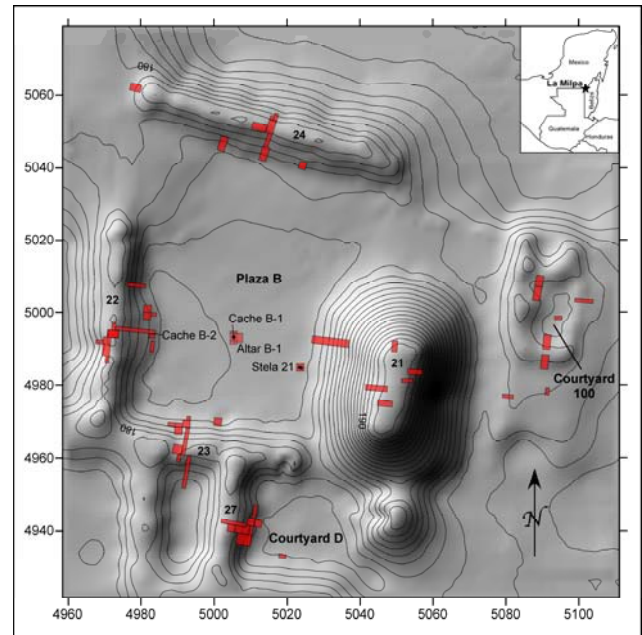


Figure 1. Shaded relief map of Plaza B showing the location of excavations

chronology and construction history to build on the preliminary interpretations put forth by LaMAP researchers (e.g., Hammond and Tourtellot 2004; Tourtellot et al. 2003). In particular, we were interested in determining the degree to which the plaza and adjacent courtyards were “finished” and if the surrounding structures had been in use prior to abandonment.

Structure 22

Structure 22 is a range building defining the western edge of Plaza B at La Milpa. It measures approximately 60 m in length, 12 m in width, and 5 m in height, and its southern end joins Structure 23 to define the southwestern corner of Plaza B (see Figure 1). Excavations on the summit exposed two doorways facing Plaza B: one centrally located doorway and a second located about 4.5 m to the south. When coupled with undulating surface morphology, the spacing of these two doorways suggests there may be a series of five to seven primary rooms and/or entryways across the entire length of the structure. Cut stones consistent with vaulted roof stones were also identified in collapse debris, suggesting the building was corbel vaulted.

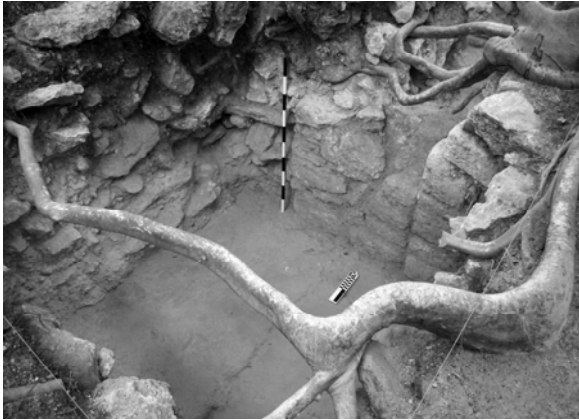


Figure 2. Photograph of Structure 22, facing northwest, showing interior dividing wall (north of the north arrow), doorjamb of eastern wall of room (northeast of north arrow), and plaster lip on bench (10 cm west of north arrow). The vertical scale is resting against collapse debris filling the passage between rooms.

Several internal features were also partially exposed during excavations (Figure 2). Suboperations along the summit area revealed a row of rooms measuring 2–2.5 m wide with a single bench situated just inside the doorways and extending along the back wall of the structure. One interior wall was also identified in excavations, extending from the doorjamb of the southernmost entryway, partially creating separate rooms. The bench passes through the narrow passage along the rear wall, connecting the two rooms. At least one remodeling phase is

evidenced in the southern room. It appears that the entryway floor surface was elevated to the level of the bench, leaving a slight plaster lip across the final surface. The interior wall does not penetrate beneath this modification, suggesting it was constructed either as part of the same renovation or some time later. In either case, Structure 22 had been completed and subsequently underwent at least one renovation during its period of use.

Structure 23

The construction sequence at Structure 23 — what is known so far, at least — is slightly more complicated. Combined with Structure 20, this tandem range building defines the southern margin of Plaza B and measures 45 m long, 14 m wide, and 5 to 7 m high (see Figure 1). Excavations revealed part of a wall buried beneath the Late Classic floor of Structure 23, clearly demonstrating evidence of an earlier construction phase. Furthermore, excavations on the summit of the structure suggest that the rooms were at least partially filled intentionally and that the new summit of the mound was perhaps occupied for a brief period of time. The southern half of the structure is covered in large cobble/small boulder fill, which appears to be an abandoned expansion project. Thus, it appears that Structure 23 has at least two completed construction phases, an incomplete expansion, and a possible short-term occupation on top of the building that may have taken place after the expansion project was abandoned.

Structure 24

Structure 24, the largest range building in Plaza B, defines the northern margin of the plaza and measures 76 m in length, 15 m in width, and about 5 m in height (see Figure 1). Surface morphology and visible stone alignments indicate that this building was a tandem range structure with a 21-m wide central stair and a spine wall extending the length of the building. Each of these observations was corroborated by excavation. Our investigation on the summit area determined the spine wall to be 1.5 m thick, with a central passageway connecting southern and northern rooms. The northern, central room contained a bench, and the exposed floor surfaces indicate several

replastering events, further suggesting a degree of completion and remodeling.

Structure 21

Structure 21, La Milpa’s fifth largest building and largest unlooted structure, is an oddity at the site. Hammond and Tourtellot (2004:292) note that the building “lacks a front stair, masonry facing, and a superstructure, and...appears to have been abandoned unfinished.” This 18 m-high mound measures approximately 52 m long by 30 m wide at the base, while its flat summit measures about 10 by 25 m.

Our primary interest in Structure 21 was to determine if it was truly a Late Classic “unfinished building” or if it contained some older constructions within it. The results of our excavations partially support the arguments put forth by Hammond and Tourtellot (2004). The visible form of Structure 21 does not appear to have been a finished construction—its final phase is essentially a pile of dry-laid fill without any surviving external cladding or prepared surface on the summit. However, beneath the construction fill of the final phase, we encountered a buried building, only 65 cm below the summit surface of Structure 21 (Figure 3). Excavations uncovered the edge of the summit of this buried structure and followed 15 steps down the western face of the building. Another suboperation demonstrated that Structure 21 Sub had a superstructure on its summit, but the building was destroyed in preparation for the unfinished expansion of the platform. An excavation unit on the eastern margin of the summit also exposed a well-preserved terrace face. Given the size of Structure 21 Sub—approximately 17 m high and apparently not much smaller than the final mound - it is plausible that one or more earlier buildings are contained within Structure 21 Sub.

Chronology of Plaza B Structures

Dr. Lauren Sullivan examined ceramics recovered from Structures 21 through 24 excavations. While not plentiful, all ceramics from summit excavations are associated with Tepeu 2-3, circa A.D. 700–850, though all but Structure 21 sherds come from building collapse. Two radiocarbon dates from charred

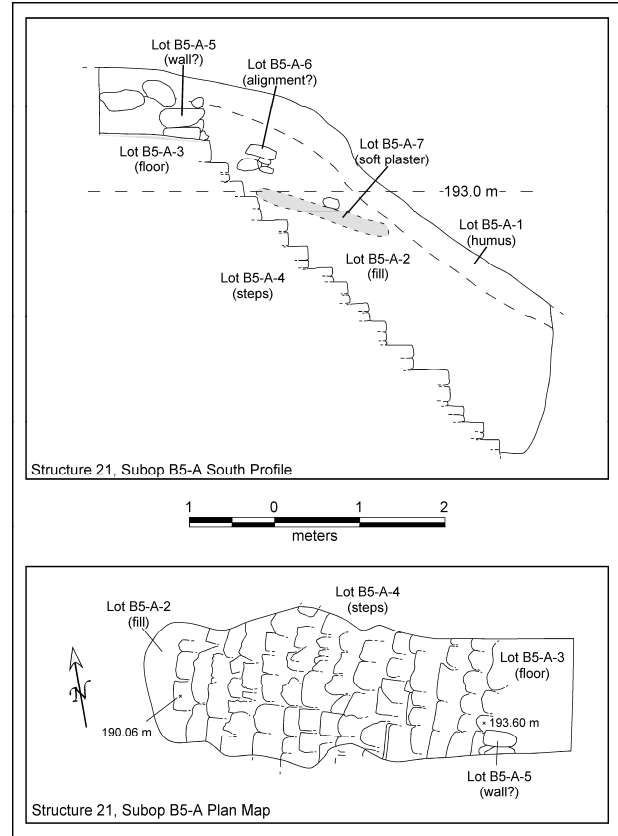


Figure 3. Profile (top) and plan map (bottom) of stairs to Structure 21 Sub exposed in Subop B5-A.

material associated with caches, discussed below, also fall within this general time frame. Thus, the latest phase occupation appears to be associated with the Late/Terminal Classic, but each building shows clear evidence of use and remodeling prior to abandonment.

Courtyard D and Structure 27

Courtyard D is attached to the southern side of Plaza B and measures approximately 25 m north-south by 30 m east-west. Our investigations over the past three seasons in Courtyard D have focused on Structure 27, a small range building on the western side of the courtyard (see Figure 1). In 2007, we initially exposed part of the Late/Terminal Classic stairs to Structure 27 and discovered an extremely well-preserved floor beneath the Late/Terminal Classic construction fill. An expansion of our excavations in 2008 revealed the base of a buried platform. Its morphology along with the quality and thickness of plaster indicates Late Preclassic construction.

In 2009, excavations targeted this buried structure and determined that Structure 27, rather than being a two-component building, had undergone at least six construction phases, with the oldest being the floor initially exposed in 2007 and the youngest being the Late/Terminal Classic range building. At some point in the construction sequence, a portion of the Late Preclassic platform—presumably an inset staircase—was filled in and remodeled on several occasions with battered surfaces (Figure 4). During one of the final episodes of modification to the structure, the builders truncated the top of the Late Preclassic building, which comprised a series of well-preserved tiers. A radiocarbon sample collected in 2009 from below a plaster floor dates this modification to the Terminal Classic period (1070 ± 40 BP; Beta-262890; organic sediment; $\delta^{13}\text{C} = -24.9\%$; cal AD 890–1030 [$p=0.95$]) and extends the construction history of the site approximately a century past previous estimates (e.g., Hammond and Tourtellot 2004). While the size or nature of the Late Preclassic building remain unknown, it is clear that the construction history of this particular building was much more complex than previously suspected.

Ritual Engineering at Plaza B

The final aspect of this paper focuses on evidence for ritual engineering, an element of site planning, during the Late/Terminal Classic period at Plaza B. Difficulty arises when trying to assess the deliberate aspects of site planning when the archaeological record leaves us synchronic expressions of what are perhaps multiple planning agendas across time. Despite the complex construction history evidenced at Plaza B, it is possible to detect planned elements of La Milpa's urban design during the Late/Terminal Classic remodeling or expansion of the plaza. At Plaza B, the Maya used ritually engineered deposits to integrate and link otherwise discrete architectural features (Houk et al. 2009). Our evidence for ritual engineering centers on a pair of caches: Cache B-1 was found beneath the altar in the center of the plaza, while Cache B-2 was found at the base of Structure 22 along the centerline of the structure's stairs (see Figure 1).

Beneath the altar, Cache B-1 consisted of five primary artifact clusters, several broken ceramic vessels, and a range of other materials placed within the plaza construction fill. Included among the artifact clusters was a dense concentration of nearly 5,000 pieces of chert debitage.

Cache B-2 was situated 40 cm beneath the plaza floor at the base of the stairs of Structure 22. As was the case with the sub-altar cache, Cache B-2 was placed within the small cobble subfloor fill. The northern portion of the cache consisted of a wide variety of artifacts loosely clustered in a marly matrix of sediment and small cobbles (Figure 5). Materials recovered include obsidian blades, marine shells and fragments, a non-human long bone fragment, coral, one obsidian eccentric biface, one chert eccentric biface, two *Spondylus* shell pendant fragments, shell beads, jade beads, and fragments of small speleothems. The southern portion comprised two ceramic jars with lids and a smaller number of loose artifacts.

Most notably, ceramic jar-and-lid pairs link these discrete caches. Cache B-1 contained one pair, while two pairs were recovered from Cache B-2. Each jar-and-lid pair consisted of undecorated jars capped by lids incised with a woven mat design (see Figure 5). In the case of Cache B-2, one jar contained an obsidian biface, one un-worked greenstone fragment, shell fragments, and coral. The other jar contained speleothem fragments, un-worked greenstone fragments, and numerous shells and fragments.

Both cache deposits apparently date to the Late-to-Terminal Classic period, based on both absolute and relative dating measures. One charcoal sample recovered from Cache B-1 returned a 2-sigma age range of cal AD 780 to 1000 (1160 ± 40 BP; Beta-251676; charred material; $\delta^{13}\text{C} = -26.6\%$). A charcoal sample from Cache B-2 produced a 2-sigma age range of cal AD 690 to 900 (1240 ± 40 BP; Beta-251675; charred material; $\delta^{13}\text{C} = -27.1\%$). These dates support Lauren Sullivan's ceramic analysis, which identified primarily Tepeu 2–3 sherds from the fill surrounding the caches and a likely Tepeu 2-3 date for the cache vessels themselves.



Figure 4. Photograph of Structure 27 excavations, facing southwest, showing the Late Preclassic floor and platform and later constructions. Note the two sequential battered surfaces in the center of the photograph, possibly filling an inset stair on the Late Preclassic platform

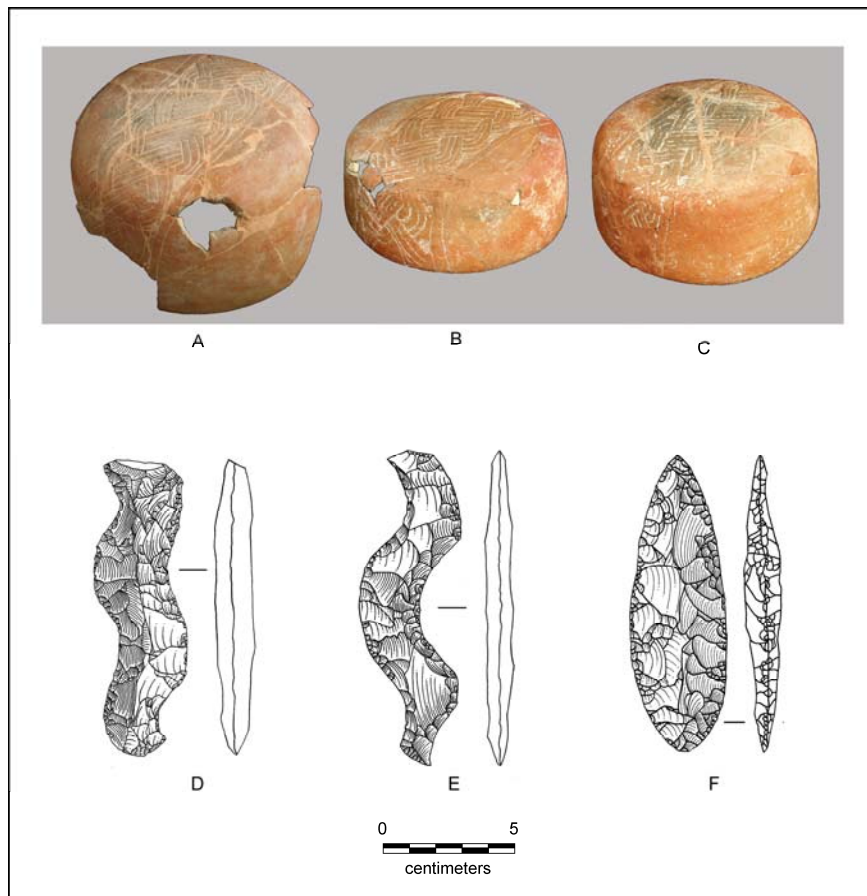


Figure 5. Artifacts from Caches B-1 and B-2: (A) Cache B-1, Lot B1-K-6; vessel diameter is 20.05 cm; (B) Cache B-2, Lot B2-A-6; vessel diameter is 12.91 cm; (C) Cache B-2, Lot B2-A-7; vessel diameter is 12.61 cm; (D) obsidian eccentric from Cache B-2; (E) chert eccentric from Cache B-2; (F) obsidian biface from Cache B-2. Photographs of mat design vessel lids are not to scale. Illustrations by Jenni Gutzeit.

We suggest that the jar-and-lid vessels link the two otherwise discrete deposits contextually and temporally. In other words, we do not believe they were deposited simply to commemorate the immediate monuments with which they were associated—that is, altar B-1 and Structure 22—but rather served to uniquely integrate various elements of the royal precinct into a ritually engineered environment. By employing the term ritual engineering, we are explicitly drawing attention to the interconnectedness of the built environment around La Milpa, and the intentional manipulation of symbolic meaning embedded in architectural space.

Conclusions

To summarize, earlier work pointed to Late Preclassic and Early Classic developments concentrated around the Great Plaza of La Milpa, with a pronounced expansion of the built environment during the Late Classic, including the rapid construction and partial completion of the southern plazas. Previous researchers have linked this construction boom to rapid population growth at the site itself and in the surrounding countryside. Our research over the past three seasons points to a much more complicated, dynamic, and lengthy history of urban construction at La Milpa than previously conceptualized. Our work on Structure 27 demonstrates significant constructions in the area as early as the Late Preclassic with a long tradition of building expansion and remodeling extending well into the Terminal Classic period to (ca. AD 890–1030). Structures 21 and 23 show that the tradition of renovation was ongoing right up to the time when the site was abandoned during the Terminal Classic. Rather than a punctuated population and construction spurt, it now appears that La Milpa went through a more gradual and longer period of architectural growth. However, this growth during the Late Classic shows careful planning, as evidenced by the ritually engineered cache deposits that integrated otherwise discrete architectural features.

Acknowledgments We would like to thank the staff of the Institute of Archaeology for

encouraging and permitting our continued work at La Milpa. Dr. Fred Valdez, Jr., the director of the Programme for Belize Archaeological Project (PfbAP), deserves particular acknowledgment for allowing us to operate under his excavation permit, for facilitating our research, and for tolerating our presence in camp. The data presented here are the results of the hard work of students, staff, and workers associated with the Texas Tech University summer archaeological field school. Without their efforts, we would not have much to say. In particular, we would like to acknowledge the efforts of Débora Trein, who worked many hours in the field and laboratory documenting the two caches discussed in this paper. We would also like to thank all the members of the PfbAP who have contributed to and influenced our research through either direct participation or consultation, particularly Dr. Fred Valdez, Jr., Dr. Lauren A. Sullivan, Norma García Huerta, and Liwy Grazioso. Finally, we thank Jenni Gutzeit for illustrating the artifacts from the caches.

References Cited

- Ashmore, Wendy, and Jeremy A. Sabloff
2003 Interpreting Ancient Maya Civic Plans: Reply to Smith. *Latin American Antiquity* 14:229–236.
- Guderjan, Thomas H.
1991 Investigations at La Milpa. In *Maya Settlement in Northwestern Belize*, edited by T. H. Guderjan, pp. 7–34. Maya Research Program, San Antonio, Texas and Labyrinthos, Culver City, California.
- 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: Collapse, Transition, and Transformation*, 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
1998 No Slow Dusk: Maya Urban Development and Decline at La Milpa, Belize. *Antiquity* 72:831–837.

Hammond, Norman, Gair Tourtellot, III, Gloria Everson, Kerry L. Sagebiel, Ben Thomas, and Marc Wolf
2000 Survey and Excavation at La Milpa, Belize, 1998. *Mexicon* 22(2):38–45.

Houk, Brett A., and Fred Valdez, Jr.
2009 La Milpa and the Programme for Belize Archaeological Project. *Research Reports in Belizean Archaeology* 6:227–233.

Houk, Brett A., Gregory Zaro, and Debora Trein
2009 Evidence for “Ritual Engineering” in the Royal Precinct Plan of La Milpa, Belize. Paper presented at the 74th Annual Meeting of the Society for American Archaeology, Atlanta, Georgia.

Martinez, Maria
2009 The Development and Function of Elite Space at La Milpa, Belize. Paper presented at the 74th Annual Meeting of the Society for American Archaeology, Atlanta, Georgia.

Scarborough, Vernon, L., Matthew E. Becher, Jeffrey L. Baker, Gary Harris, and Fred Valdez, Jr.
1995 Water and Land at the Ancient Maya Community of La Milpa. *Latin American Antiquity* 6:98–119.

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

Tourtellot, Gair, III, 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 Yucatán Peninsula*, edited by L. S. Vernon, Fred Valdez, Jr., and Nicholas P. Dunning, pp. 37–51. The University of Arizona Press, Tucson.

11 ANCIENT MAYA HOUSEHOLD RITUAL IN NORTHWESTERN BELIZE: MEMORY, EXPRESSION, AND IDENTITY

Rissa M. Trachman

Ritual and ideology were noticeably important in the practice of daily life in ancient Maya households of northwestern Belize. Three households were extensively excavated during a recent household investigation in the hinterlands of Dos Hombres. The households, Pak'il Nah, the Dancer Group, and Grupo Agua Lluvia were each investigated and analyzed using a microscale approach. The diversity in expression of household ritual between these households is comparable to the obvious diversity of daily life, as expressed in the material culture found at each. While each household certainly participated in the ritual expression of ancient Maya ideology and religion, each did so in very specific and different ways. Agua Lluvia also practiced dedication rituals in two particular locations that were related to ideological concepts of symbolism, identity construction, and veneration. The evidence for the level of diversity of ritual expression between households in northwestern Belize suggests that ancient Maya households, at least those in the Dos Hombres hinterlands, were not dictated their manner of ritual expression; rather they participated differentially in ritual practice, much the same as the ways in which they participated in ancient Maya society.

Introduction

Ritual practice and the remains that mark them in the archaeological record have at times been considered special behavior that could not be categorized in the same ways that behaviors like those related to production or consumption can be, as normative, concrete, and economically valuable aspects of daily life. Ritual along with the behaviors, meaning, and material culture that accompany them were, however, an important part of life within ancient Maya society in general and ancient Maya households specifically, regardless of the frequency of its practice or the type of ritual practiced at a given moment. The events that ritual mark, life cycle rituals related to age, death of a family member, spouse, or friend, marriage, newly made constructions, death of a construction or an artifact, and ancestor veneration, are all everyday events, events that the ancient Maya would have experienced many times over the life course. Given the ongoing nature of ritual events, occurring repeatedly within a household across the lives of its members, ritual and religion are essentially and integrally a part of daily life.

I conducted the household research discussed in this paper between 1999 and 2003 at three domestic sites in the hinterlands near the site of Dos Hombres, northwestern Belize (Trachman 2007; Trachman 2009). I took a decidedly microscale approach to this research of ancient Maya households, driven by a

concern over the role of households in the social reproduction of ancient Maya society in the eastern Petén. In sum, the end result of the research demonstrated that each of the three households exhibited important differences in architecture, domestic activity, portable material culture, and in both mortuary and non-mortuary ritual. The diversity of material culture and (therefore) associated activities are an important reflection of the ways in which the members of these households expressed their social identity/ies. As I have previously stated (Trachman 2007; 2009), the three households that I investigated all have material culture that can be traced to other sites in the central Maya lowlands. However, there were significant differences in architecture, lithic assemblages, ceramic assemblages, local resource usage, imported goods, as well as the length of occupation and use of space exhibited between these households, which I have also addressed elsewhere (Trachman 2007; 2009). I have posited that the diversity between the households in this study is indicative of the ability of household inhabitants/members to choose the ways in which they participated in the overall customs, practices, and political economy into which they were embedded. This paper will focus on the mortuary and non-mortuary ritual expression found in the material culture of the three households which I believe are also strictly tied to a broader sense of Maya identity, but which also reflect separate group

identities and choices made by household members about the practice of their daily lives.

Theoretical Approach

Many definitions of household have been utilized anthropologically. I have derived my working definition of households based on the previous works of scholars such as Ashmore and Wilk (1988), Julia Hendon (1996), and Henrietta Moore (1988, 1994). The invaluable work of these and many other scholars has contributed to my perspective (see Trachman 2007) of households as dynamic and diverse co-residential groups who act and interact in many ways that are visible materially and symbolically. They also hold and shelter real people who both individually and collectively have direct bearing and relationship to the culture in which they live, and all its various parts— social life, ideology/ies, politics, economy, ritual, identity, and religion(s)— in which they are clearly embedded. Which led me to the concept of ‘daily life’ and my primary research question for this work: How did the ancient Maya of northwestern Belize, act and interact daily with and within their world socially, economically, ritually, and ideologically, and how did they reproduce, change, or otherwise express their identity?

I will rely primarily on the work of Henrietta Moore (1988, 1994) for a theoretical understanding of social reproduction. For Moore (1994: 90), social reproduction moves beyond biological reproduction to the production of individuals who hold particular social identities and are differentiated appropriately. Thus, households, along with other institutions, have an essential role in the production of properly socialized individuals and therefore the reproduction of society.

Social memory is clearly integral to the process of social reproduction, the practice of socialization, or the passing along of particular ideologies, identities, and ritual practices over generations. As Van Dyke and Aycocock (2003:2) have defined it, social memory is the social construction of collective memory, a collective memory that is clearly variable. The diversity of memory/ies is dependent on gender, ethnicity, class, and religion as well as age, leading to the potential of conflicting, or contrasting memories.

As they (Van Dyke and Aycocock 2003:4) have also noted ritual often involves social memory in the recreation or reproduction of symbolic events, veneration, and in the simplest form, the repetitive practice of religious expression through ritual. Ritual and daily practices are also obviously subject to change over time, and therefore the production of memory and the mechanisms by which they are produced must change as well.

In this northwestern Belize household sample, social memory, social reproduction, and ritual expression are all a part of collective identity formation within and between them. The same ritual examples, as have already been presented at this conference for the macroscale segment of Maya society, termination, ancestor veneration, mortuary rites, dedication, and life cycle ritual are all represented in the household sample, but all did not occur simultaneously within a single household from this sample. The deeper implication of this point I will return to.

Ritual Expression at Three Households in NW Belize

The field research took place in the Rio Bravo Conservation and Management Area (RBCMA) in conjunction with the Programme for Belize Archaeological Project (PFBAP) (Figure 1). I chose three households in the settlement near Dos Hombres. The site of Dos Hombres itself is located just below the Rio Bravo Escarpment within the Rio Bravo Embayment (Brokaw and Mallory 1993). Ancient settlement in the area extends in each direction past the limits of the Dos Hombres site proper and includes settlement located on the face of the Rio Bravo Escarpment (Lohse 2001; Trachman 2003, 2007; Walling et al 2005; Walling et al 2006). Both architectural and non-architectural contexts were investigated at each of these household groups in order to acquire as great a range of data as possible including that towards subsistence activities, economic activities, everyday domestic activity such as food preparation, domestic ritual activity, mortuary behavior, and architecture.

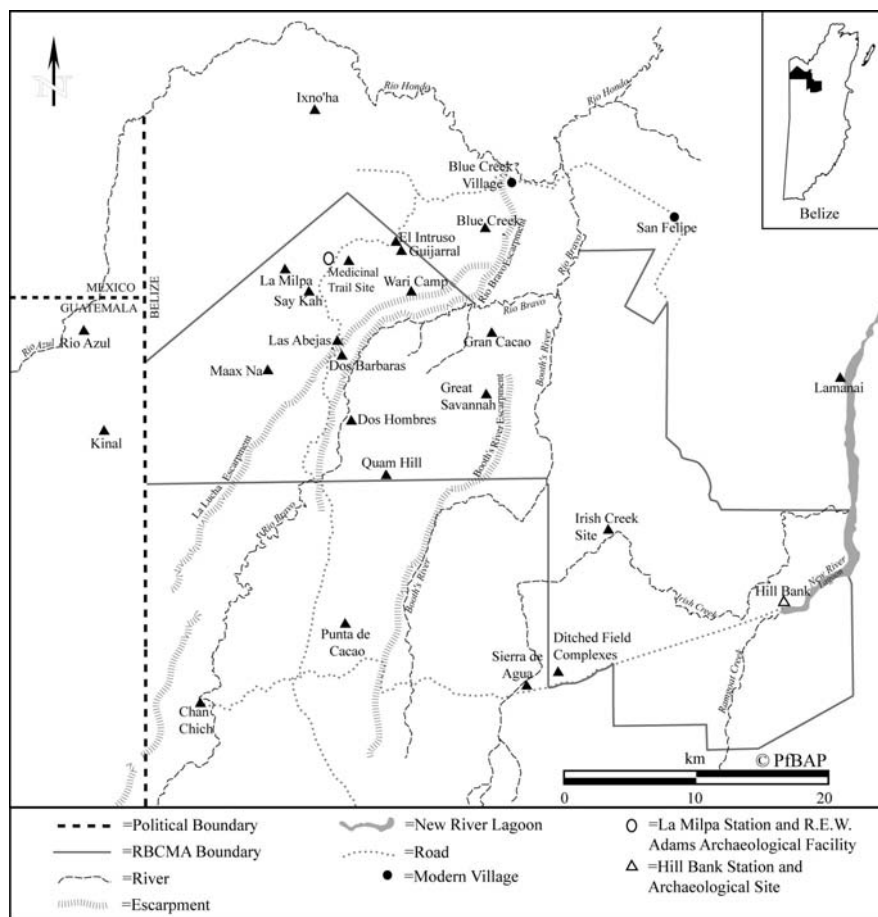


Figure 1. Map of the RBCMA with Dos Hombres noted (©PfBAP, map compiled by Rissa Trachman).

Pak'il Nah

The first of the households, Pak'il Nah household group, is located just over 1 km east of the Dos Hombres center at the transitional margin of a bajo that spans the distance between the two. In general Pak'il Nah was occupied during the Tepeu 2-3 phase of the Late to Terminal Classic Period, A.D. 700–900 as has been defined for northwestern Belize by Sullivan and Valdez (2004:191) and Sullivan and Sagebiel (2003:26).

Pak'il Nah is a plazuela group with three cobble platforms, likely supporting perishable structures, and one masonry vaulted structure (Figure 2). The cobble platforms at Pak'il Nah were actually very similar to many Late to Terminal Classic examples that have been found across northwest Belize with somewhat informal cobble construction. Structure 1, however, is a single roomed rectangular structure oriented

east-west and situated on the southern portion of its rectangular platform. The structure has a north facing doorway and walls of cut stone masonry approximately one meter thick. Masonry vaulted structures such as this are somewhat uncommon amongst domestic groups in the Dos Hombres hinterland (see Aylesworth 2005, Houk 1996, Lohse 2001, Robichaux 1995, Walling et al 2005; Walling et al 2006).

Ritual expression is the material residue of specific activities, and if we are very lucky, a single event. There was an apparent termination of the use life of Structure 1. I excavated approximately 45% of the building, all in the eastern end of the structure.

Structure 1 was covered with what initially appeared to be collapse debris but as the excavations progressed it became clear that the fill inside and covering the building was not

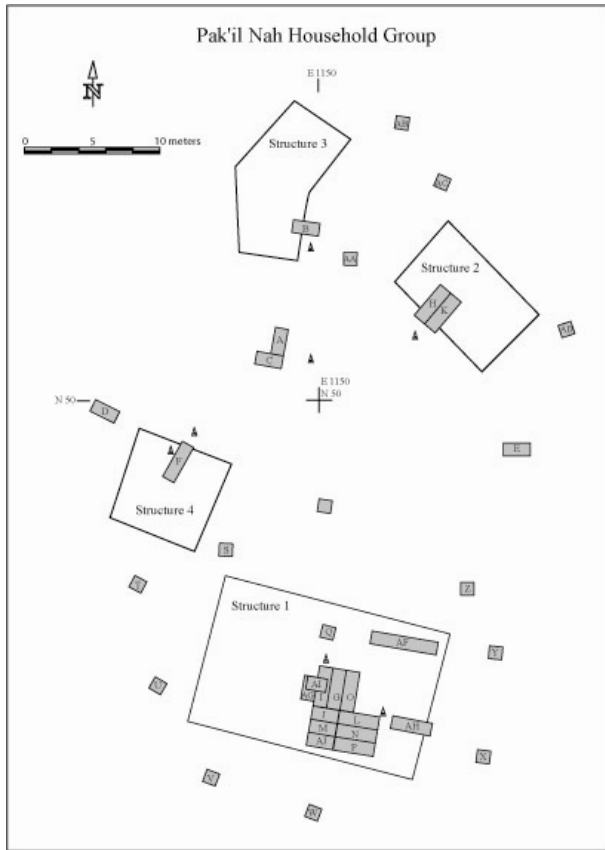


Figure 2. Pak'il Nah household group (illustration by author).

completely the result of collapse. The interior room fill consisted of a high quantity of loose limestone marl, tan in color, which was mixed with cobble and large stones. The same loose marl and cobble fill was also covering the exterior of the structure and was overlying the platform as well. The presence of vault stones in the fill inside the room of the structure indicated the likelihood that the structure had a corbel vaulted ceiling.

Prior to excavating the loose fill inside the room of Structure 1, at the east end, an unusual deposit was encountered in the entryway. The fill was very dense in the doorway opening and directly back from it, inside the room, almost all the way to the south or back wall of the structure. It was a different texture of fill than any inside the room or covering the structure. Though similar in composition to the wall core, plaster, cobble, and gravel, it was white and clearly wet laid. It was also compact, dense, hardened, and very difficult to remove.

Another deposit was discovered inside the structure, specifically within the loose marl fill of the eastern portion of the room. Just 20 cm above the plaster floor the loose marl fill turned grey and it became clear that a burning episode had taken place inside the structure. A discrete deposit of charcoal was uncovered in the center of the eastern portion of the room along with a brown, possibly organic, stain in the soil adjacent to and east of it (Figure 3). More than 637 g of charcoal was collected (Figure 4). A red pigment or ochre was also uncovered at the same level adjacent to and south of the charcoal concentration. The red pigment was spread across an area of approximately 1 x 2 m reaching the south structure wall. Evidence for burning was also present in a discoloration from scorching on the interior stucco of the north wall and part of the east wall. The burning appeared to have been localized to a small discrete area this east end of the room.

Altogether, these deposits indicate an important ritual activity. The deposits of plaster/wet fill in the entryway may be a symbolic deposit representing the sealing off of the doorway or structure related to terminating it. Other deposits like this have sometimes been found in different forms, such as filling the doorway with trash, in terminated structures (see Inomata et al 2002). The loose fill present both inside the room and over the exterior, including on top of the platform of the structure are all the same color texture and composition and likely represents an intentional burying of the structure. The fill laid over the platform was so significant as to have skewed completely the morphology of the mound. Prior to excavation the mound appeared U-shaped. Subsequent to excavations and the discovery of the very intentional burial of the structure it was clear that the basal platform was rectangular and very low while the structure was rectangular and not U-shaped at all (Figure 5).

The symbolic sealing and covering of the structure along with the discrete hearth and red ochre inside the room are good evidence that this structure was terminated in a ritual fashion, deconstructed, sealed off, burned, and buried. The ritual termination of structures (and artifacts) was fairly common among the

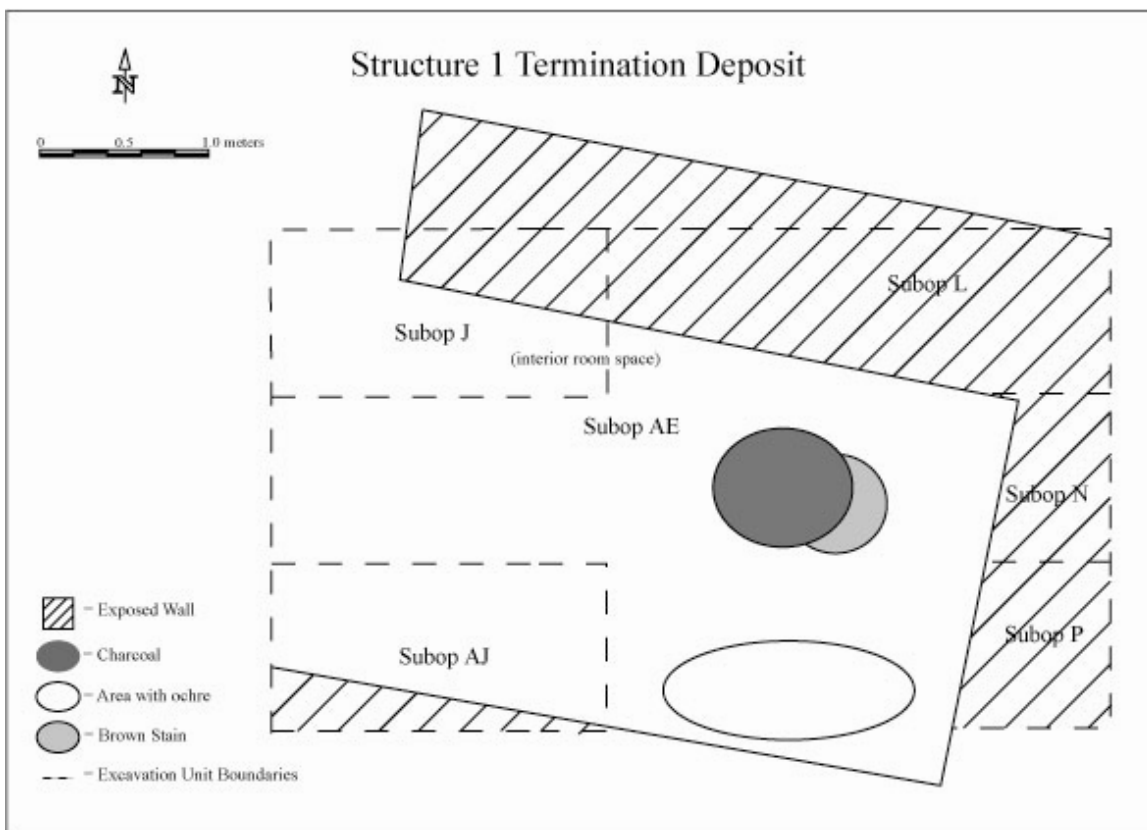


Figure 3: Pak'il Nah Structure 1 termination deposit plan (illustration by author).



Figure 4. Pak'il Nah Structure 1 termination deposit photo (photo by author).

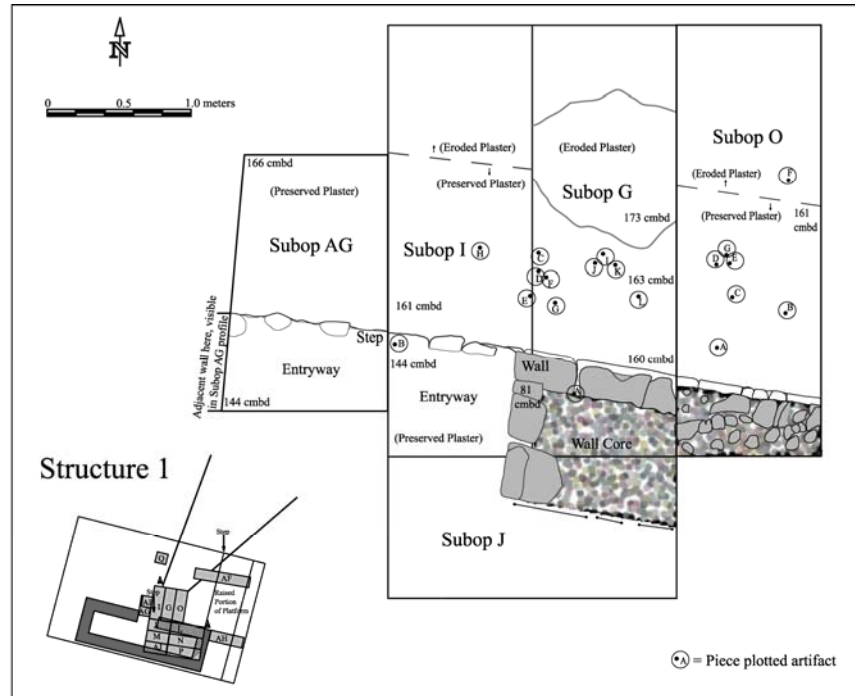


Figure 5. Pak'il Nah Structure 1 profile of fill over basal platform (illustration by author).

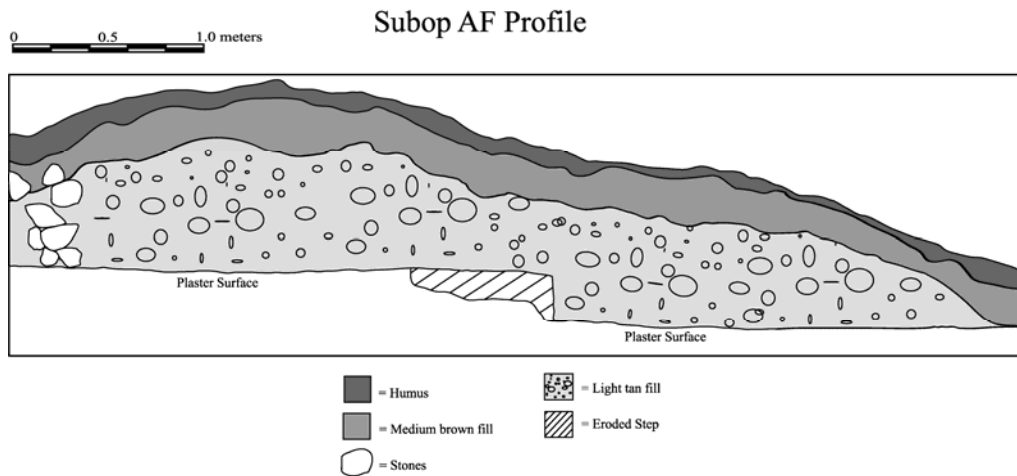


Figure 6. Pak'il Nah Structure 1 termination plan of deposit outside doorway (illustration by author).

Late/Terminal Classic Maya, but was apparently much more common for temples and public structures than houses (see Freidel et al 1998; Mock 1998a, 1998b; Walker 1998). Only a few terminations have been noted in elite households. These were specifically located within civic ceremonial centers (see Garber et al 1998; Freidel et al 1998), which is not the case for the Pak'il Nah household. Structure 1 is the only building at the Pak'il Nah group that had physical evidence of ritual termination.

However, it is highly likely that the entire household was terminated symbolically with this one event. It is also this event along with several other lines of evidence (see Trachman 2007) that led me to connect Pak'il Nah economically and politically with the Dos Hombres polity.

One final note, outside of the Structure 1 entryway, I also documented an artifact deposit in situ there (Figure 6). A number of (N=19) ceramic sherds were found in Subop G, all from

the same vessel. Several sherds (N=8) representing one vessel were also found in Subop I, and the same (N=10) for Subop O. At least three, and possibly four, vessels were represented in these artifact clusters that were piece plotted outside the entryway, as noted by Sullivan (2003). Two bifacial celts, one scraper, and one utilized flake were found and plotted along with the ceramics and found in this same concentrated area on the plaster floor of the platform. I must also point out that the ceramic sherds found in the floor deposit were also associated with sherds, all from the same vessel sprinkled throughout the fill outside the doorway and immediately above the floor deposits.

I erroneously interpreted this particular deposit as unrelated to the ritual in my dissertation. I am now convinced, in fact, that it was a part of the termination of Structure 1. Altogether the termination event consisted of evidence of ritual burning, deconstruction of the roof, sealing of the doorway, a deposit of used items on the exterior surface, and sprinkling of sherds through the fill that finally buried the structure. Interestingly, and seemingly unusual, no other evidence for ritual was encountered at this household.

Dancer Group

The two remaining households (of the three in the sample) are situated on the face of the Rio Bravo Escarpment. The first of these, the Dancer Group household (Figure 7), is located on a residential terrace approximately 1.5 km west of the Dos Hombres site center. One of the smaller household groups in the immediate area of settlement, the Dancer Group was occupied primarily during two different time periods, the Tepeu 2-3 phase (A.D. 700–900) of the Late to Terminal Classic Period with an earlier occupation during the Chicanel phase (400 B.C.–A.D. 250) of the Late Preclassic.

The Dancer Group household built space is comprised by an L-shaped platform courtyard group. The Late to Terminal Classic platform supports two small structures with low stone wall foundations, with perishable walls and roofs. The terminal phase platform is a typical informal cobble construction. I did identify, however, an earlier architectural component in the construction sequence as

evidenced by a buried remnant substructure below Structure 2, and corroborated by stratigraphic chronology.

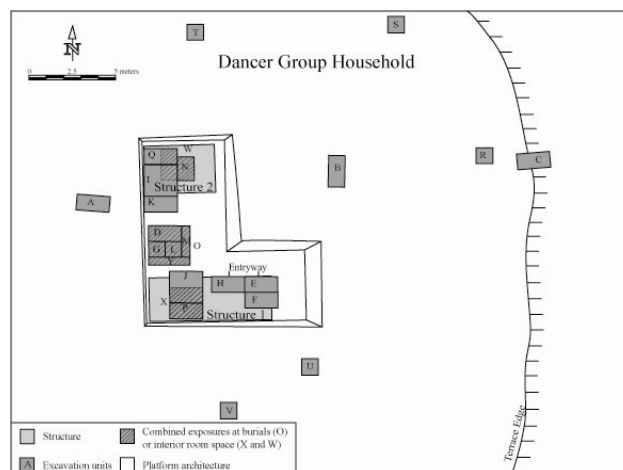


Figure 7. The Dancer Group household (illustration by author).

The chronological sequence at the Dancer Group was also mirrored in the sequence of three sets of multiple burials (or episodes) located under the basal L-shaped platform in the construction fill between the two terminal phase structures. One of these episodes of multiple burials is clearly Tepeu 2-3, while the other two burial episodes, the deepest in stratigraphic sequence, date to the Chicanel phase of the Late Preclassic (Figure 8).

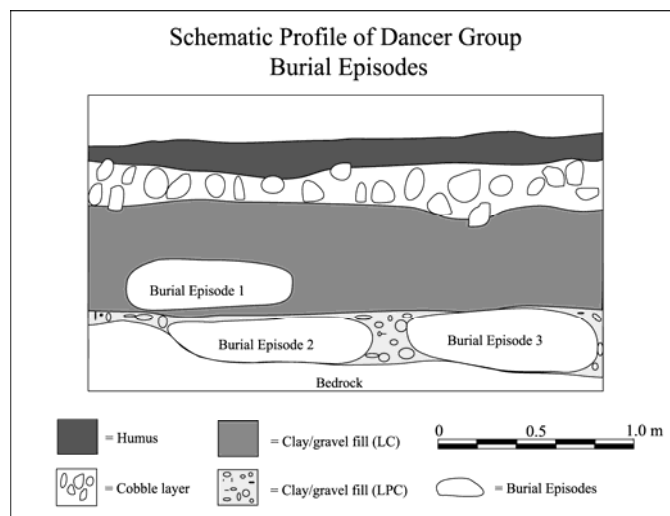


Figure 8. The Dancer Group stratigraphic position burial deposits (illustration by author).

The total number of people represented in the three multiple burial sets or episodes is 13, with a possible 14th individual (see Trachman 2007; Table 1; Figure 9). The individuals buried were both adults and children who ranged in age from as young as 2-4 years to as old as 20-34 years. A number of grave goods were distributed through the three episodes, including eight whole vessels, an engraved shell “dancer,” a bivalve pendant, seven shell tinklers, four greenstone beads, three shell disc beads, and a large chert anvil.

Burial episode 1 is from the Late Classic, dating to the Tepeu 2-3 phase, with two whole vessels associated with it (Sullivan 2003). Skeletal data show that episode 1 has a minimum number of individuals (MNI) of four, classified as: one young adult (possible female), two other adults with no teeth recovered, therefore age was unassigned, and one child approximately 12 years in age ($\pm 2 \frac{1}{2}$ years).

In addition to the two whole vessels an anthropomorphic engraved shell ornament engraved was recovered (Figure 5). It is likely that the shell ornament was either sewn or strung so that the depicted person’s head was upright. Drill holes were positioned such that hanging the ornament like a pendant would have been awkward and difficult to position upright (Figure 6). It is possible that the anthropomorphic shell ornament was sewn to a piece of cloth, clothing, or blanket.

Two whole vessels were found in association with episode 2 dating to the Chicanel phase in the Late Preclassic (Sullivan 2003). An MNI of three was determined for episode 2, two of which are young adults, and one is a young/middle adult (Saul and Saul 2003). Four greenstone beads were found in association with cranial fragments and the mandible of one of these adults. In addition, a discrete cluster of freshwater mussels *Nephronais* were recovered from this burial.

Episode 3 also dates to the Chicanel phase with four whole vessels recovered (Sullivan 2003), two of these were nested. Episode 3 has the highest MNI with six individuals, consisting of two young adults and four children. One child died at age 2-4, two at age 3-4, and one at age 5-7 (Saul and Saul 2003). A high proportion of grave goods were

recovered in episode 3, likely related to the greater number of people interred. These include one greenstone bead and an array of marine shell artifacts: three small shell disc beads, one irregular shell bead, seven tinklers, a small bivalve (pelecypod) with a drilled hole (Figure 9), a univalve (gastropod) relatively unmodified, and finally a larger bivalve (pelecypod) with at least two holes. The larger bivalve is likely of the genus *Spondylus* and has a natural red band present around its rim. There are at least two drill holes discernable and two engraved lines on the inside of the shell rim (ventral side). The position of the drill holes and engraved marks indicate the likelihood that it did hang as a pendant.

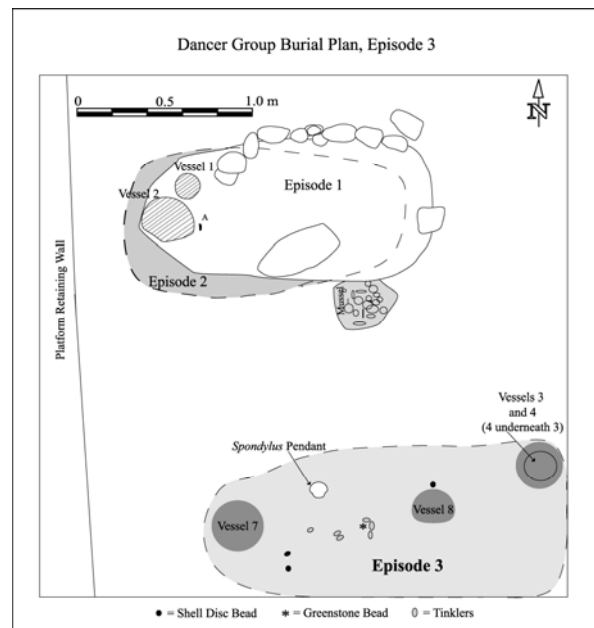


Figure 9. The Dancer Group plan of burial deposits (illustration by author).

Landa (Tozzer 1941:159) documented several life cycle rituals and occasions for the Maya of Yucatan. Two of these include the *ceremony of the occupations* and the *caput sihil*. He noted ornaments worn by children as a result of ritual practice:

They had then this custom in preparing for baptism: the Indian women brought up the children till they were three years old, and in the case of the little boys they used always to put on their heads a little white bead, stuck to the hair on the top of the head. And the little girls wore a thin cord about their loins, very low, and to this

was fastened a small shell which hung just over the sexual parts; and it was thought a sin and a very dishonorable thing to take off these two things from the little girls before their baptism, which was always administered between the ages of three and twelve, and they were never married before being baptized [Tozzer 1941:102].

This “baptism” ceremony Landa (Tozzer 1941:102) referred to as a prerequisite for marriage, was actually called *caput sihil*. Literally translated *caput sihil* means “to be born anew” (Tozzer 1941:102), one reason for the parallel in meaning seen by the catholic priests. It was during this ceremony that the gender symbols of the bead and shell were removed.

One of Tozzer’s footnotes acknowledges that there was some discrepancy in ethnohistoric documents as to what age this ceremony was actually performed. Landa reported that it took place between the ages of three and twelve, while the *Relación* of Motul states it may have taken place at the ages of fourteen to fifteen (Tozzer 1941:102). Regardless, the *caput sihil* was clearly a transitional ceremony. Though when the children emerged they were considered marriageable, according to Landa, they did not often get married right away. Rather they went through another period of preparation. It is important to note that Tozzer’s translation of Diego de Landa’s memoirs are not to be taken as unproblematic or unbiased in nature as is importantly demonstrated in Restall and Chuchiak’s (2002) recent article.

As has been addressed elsewhere (Trachman 2006; Trachman and Valdez 2006) it is tempting to make a direct interpretation of the data from the Dancer Household Group directly from the ethnohistoric record. The practices recorded at the time of Landa’s writing however cannot be taken as direct indicators of a continuity of ancient actions as far back as the Late Preclassic. Further consideration and material evidence are certainly necessary to corroborate the potential interpretation. The goal was to simply suggest a measure of continuity, or the possibility of it, with respect to this specific practice related to socializing the gender of ancient Maya children with verification of additional evidence. By gender, I am referring to the social construction of

biological sex difference in historical context (Gilchrist 1999).

This same form of bivalve pendants have also been documented at the sites of Cuello (Robin 1989; Robin and Hammond 1991; Saul and Saul 1991) and Yaxuna (Ardren 2002; Bennett 1992, 1993, 1994), found clearly associated with children and located at the pelvis. At a glance the comparative data is sparse, but much of the lowland burial data recorded in the early to mid 20th century are problematic (see Trachman and Valdez 2006).

A possible long term continuity of this practice as far back as the Late Preclassic may be surprising. However the recent discovery of the San Bartolo murals by Bill Saturno may shed further light. Taube (2005; see also Taube et al 2004) recently interpreted the murals to have served as the earliest account of the Maya creation myth that was later recorded in the Popol Vuh. The north wall mural, Taube (2005) offers, is the maize god in his resurrection coming out of the flower mountain accompanied by several young women. I have suggested previously (Trachman and Valdez 2006; Trachman 2006) that one of these young women accompanying the maize god depicted on the north wall at San Bartolo is wearing a cord or belt around her waist with a red shell hanging in the front of her pelvis. She could herself have been a young prepubescent female, or she could have been in the performance of a young female, and costumed appropriately as such. Additionally, the shell may be symbolic of her age as well as her gender.

With the overall argument only summarized here in the interest of time, it is interesting that the Dancer Group household not only expressed group or collective identity and ideology in mortuary ritual, but the mortuary rite also reflected living ritual or life cycle ritual, with the presence of this costume element associated with one of the children buried there.

Finally, what is also striking about these burial deposits is the clear and obvious indication of social memory. Either the household was abandoned in the Early Classic and reoccupied, or the Early Classic isn’t clearly visible and the household was continuously occupied. In either scenario, clearly the presence of the Late Preclassic multiple burials

were remembered. So much so, that the Late Classic multiple burial was placed literally directly on top of the Late Preclassic Episode 2. It is also clear that there was remembrance of the earlier Episode's multiple burials, given the placement very near it and additional set of burials, Episode 2.

Grupo Agua Lluvia

The third of the three households, Grupo Agua Lluvia (Figure 10), is located approximately 1.7 km west of the site center, situated on a partially modified knoll extending from the face of the Rio Bravo Escarpment. The evidence for construction sequence indicates that this was a household that grew over time architecturally, occupied as early as the Tepeu 1-2 phase (A.D. 600-800/850) until its abandonment during the Tepeu 2-3 phase (A.D. 700-900).

The plazuela group is comprised of two linear platforms and three small structures around a central open plaza space. Structure 4, a small structure with walls that were partially of stone, was supported by a rectangular basal platform. Structure 3, a Late Classic round structure, had formally constructed walls supported by a round basal platform. Structure 3 also represents the earliest construction efforts at this household as evidenced by the buried plaza floor adjacent and attached to its exterior. Structures 1 and 2 were likely the final construction efforts. Structure 2 is actually an unfinished or partial platform. Some important subsurface features were also investigated at the Grupo Agua Lluvia household, including a possible borrow pit, a chultun, and a domestic water reservoir.

In terms of ritual at the Agua Lluvia household, two types of ritual were present in the excavations, dedication and mortuary. Starting with the mortuary data, a total of one secondary and two primary burials were encountered at the Agua Lluvia household. Burial 1 (Table 2) was discovered under the floor in the western portion of the interior of Structure 4, inside a cist. Since there were no grave goods accompanying the individual in Burial 1, the chronology for it is based on the ceramic sherds in the subfloor fill deposits surrounding the burial. The burial dates Tepeu

2-3 (A. D. 700–900), though there were earlier sherds also mixed in (Sullivan 2003). The individual in Burial 1 was tightly flexed with head South and hips North lying on left side facing west (Saul and Saul 2003).

Burial 2 was also located below the floor of Structure 4. Burial 2 was found below the interior floor of Structure 4 in the easternmost portion of the unit exposing both burials 1 and 2. As such, the chronological assessment is very similar to Burial 1, however there was no cist present for this burial nor any grave goods. It was a primary burial, flexed and lying on her back with head west and hips east (Saul and Saul 2003). The burial was poorly preserved and therefore fragmentary with fragments of cranium and long bones represented.

Burial 3 was a primary cist burial found in the subfloor deposits of Structure 3. The cist had been formed much like that in Burial 1 with large flat stones standing on end oriented vertically for a single course forming the perimeter of the cist except the area around the skull. The cist had a very large capstone on top covering primarily the skull of the individual with three stones placed around the perimeter of the head that were not flat or on end, but rectangular. Again, no grave goods were found in the cist or associated, although a dedication cache was documented under the doorway in close proximity.

The dedication cache of water jars dating Tepeu 1-2 (A. D. 600–800/850) (Sullivan 2003) indicates that Structure 3 dates earlier than the rest of the structures in the Agua Lluvia household group. The burial however dates later as indicated by the only other ceramic material located in this exposure which was in the cist itself and the fill directly above it, dating Tepeu 2-3 (A. D. 700–900). This was the result of an intrusion detectable in the stratigraphy. Both the stratigraphy and the ceramic material indicate that the floor was penetrated well after the structure was built in order to place this primary cist burial.

The person in the Burial 3 cist was biologically sexed as a definite female based on pelvic and cranial morphology corroborated by long bone measurements and density (Saul and Saul 2003). She was a middle adult, 35-50 years

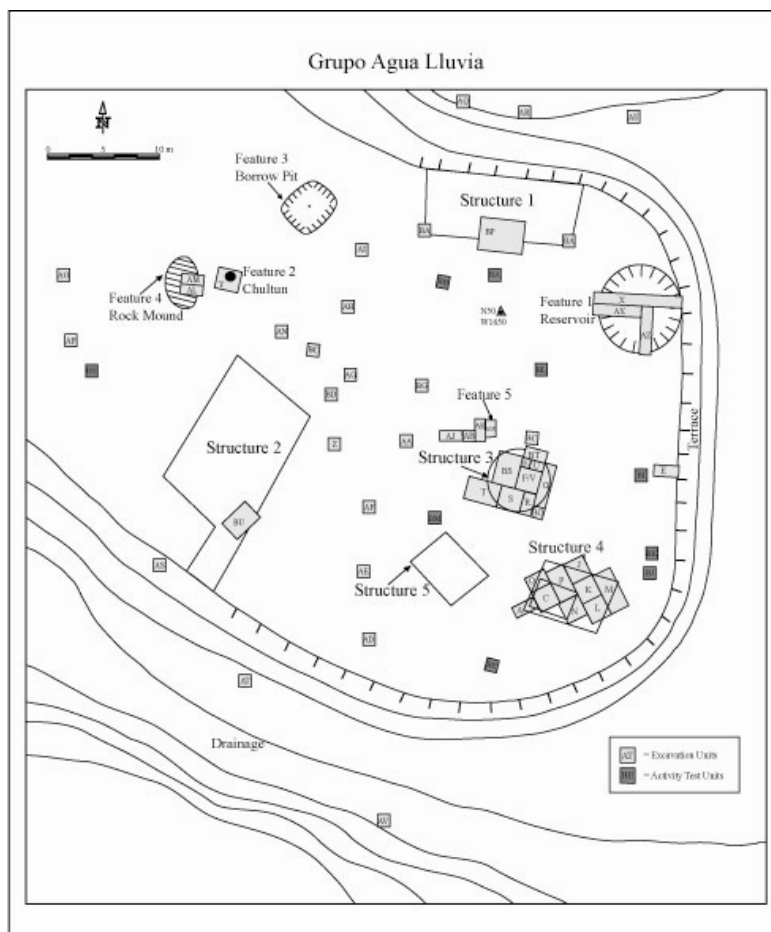


Figure 10. Grupo Agua Lluvia household (illustration by author).



Figure 11. Agua Lluvia reservoir (photo by author).

of age at the time of her death, assessed on the basis of antemortem tooth loss combined with atrophy and resorption of the mandibular bone (Saul and Saul 2003). She was tightly flexed, perhaps bundled, prior to interment. With her head to the south and hips to the north, she faced west positioned on her left side (Saul and Saul 2003). I believe that the use life or function of Structure 3 changed over time from the original domestic structure to a shrine with the placement of the burial.

Non-mortuary ritual at Grupo Agua Lluvia consisted of two caches. First, the cache already mentioned found inside the doorway and under the floor of Structure 3 consisted of two water jars. Both vessels that formed the cache had long since collapsed in place. They were excavated in fragments, but were clearly reconstructable striated water jars dating Tepeu 1-2 (A. D. 600–800/850). No artifacts were found inside or otherwise associated with the two jars, although it does not preclude the possibility that they were originally filled with organic or perishable items as offerings.

The other cache was found in association with the small domestic reservoir. It was positioned in the “entryway” or more specifically the lowest point of altitude on the reservoir rim along the portion of the rim that adjoins the plaza floor (note: the actual lowest point of the rim opposes this point, but does not adjoin the plaza floor) (Figure 11). I had originally proposed that rainwater running across the plaza would enter the reservoir at this point. The cache was located immediately below the plaza adjoining low rim point or “entryway” and was comprised of an incomplete Tepeu 2-3 red slipped plate that was overturned and lying on the bedrock embedded in the plaster of the reservoir lining. Enough plaster had eroded off of the plate to expose it such that it was detected without penetrating the plaster. No other artifacts were found near it or under it. I previously posited a symbolic connection between Structure 3 and the reservoir based on these data presented here. The new data resulting from my summer 2009 investigations may make this connection take on a slightly new configuration and more significant symbolism.

I went back to the group this year to instrument map the topography in around the Agua Lluvia household group, as it related to rainwater runoff from the plaza, and to document an ancient canal excavated into the limestone bedrock nearby. What I found was unexpected and previously undocumented. A system of interconnected reservoirs and canals originates from the “Agua Lluvia” group cascading down slope and away from it. Two large reservoirs with a small reservoir in between empty into a 35 m canal at the bottom which once carried water horizontally along the face of the escarpment. The canal which is connected to these was not the canal I had anticipated documenting, but is some 15 meters down slope of it and approximately 60 m in length. Both canals run perpendicular to the face of the escarpment and it is as yet unclear as to the origin of now designated Canal 2. I am hypothesizing that the system of three reservoirs leading to Canal 1 and originating from the reservoir originally documented at the “Agua Lluvia” household was actually spring fed (which may require a new name for the household group). There is a large natural ravine that would have provided drainage in the rainy season for the area. So water removal would seem unlikely. There are several terraces on this part of the escarpment which at first glance seem to be residential, however, the number of terraces far outnumber the instances of occupation.

I plan to further investigate this extensive water management system beginning next year through excavation, microstratigraphy, chemical analysis of soils, and continued settlement pattern analysis in north of this previously mapped area. I also hope to continue this project by investigating the civic ceremonial center of Dos Hombres in order to better understand the relationship of the microscale to the macroscale towards a multi-scalar analysis and to investigate more thoroughly the role of the Dos Hombres political in the larger northwestern Belize regional settlement. Not only does this full investigation have potential for an understanding the interrelationships of the escarpment community households with the elite Dos Hombres polity, but it also has the great

potential for elucidating the role of Dos Hombres in the region socially, economically, and politically.

Conclusion

Clearly the three households in this investigation exhibit diversity in their architecture and material assemblages, as has been previously documented. In addition, the ritual expression found at each has been documented at sites across the lowlands, domestic and non-domestic. Comparatively within the household sample, there is clear diversity between the forms of ritual practiced at each household. Mortuary ritual, dedication, termination, and life cycle rituals are important to everyday life. The material residues of ritual are also key to how each household conveys its position within the pervading social structure as well as their collective or group identity/ies.

Given the evidence resulting from this household investigation, it is clear that in terms of ritual these ancient households participated in Maya society ritually somewhat fluidly. This is consistent with the interpretations of the material diversity of each household. The level of participation was likely based on a number of considerations including those specific to that household as well as their social positioning, socio-political or community affiliation, available resources, and individual and collective household identity.

Conceptually it implies an interaction between households that exists outside the usual hierarchical assumptions about social organization, one that relied on certain degree of household autonomy or choice related to the individual set of circumstances of each. The picture presented here is one in which the integrated scales of ancient Maya socio-political organization is a complexly ordered yet adaptable set of relationships.

Acknowledgements A very special thank you goes to the Institute of Archaeology (IA) and the National Institute of Culture and History (NICH) for organizing the Belize Archaeology Symposium 2009 as well as providing permission for the household investigations presented here. The research would also not have been possible without the ongoing support

provided by the Programme for Belize Archaeological Project (PFBAP) and Dr. Fred Valdez, Jr. Additional funding was also provided by The University of Texas College of Liberal Arts, Dean Richard Lariviere and former Dean Barbara Myers, along with two years of funds from the UT International Education Fee Scholarship. I would also like to express my gratitude to Lauren Sullivan for her ceramic analyses and Frank and Julie Saul for their osteological analysis. All mistakes, omissions, or issues of clarity are solely my responsibility.

References Cited

- Ashmore, Wendy, and Richard R. Wilk
1988 House and Household in the Mesoamerican Past: An Introduction. In *Household and Community in the Mesoamerican Past*, edited by Richard R. Wilk, and Wendy Ashmore, pp. 1-27. University of New Mexico Press, Albuquerque.
- Aylesworth, Grant R.
2005 *A Science of Networks Approach to Ancient Maya Sociopolitical Organization*. Unpublished Ph.D. dissertation, The University of Texas at Austin.
- Brokaw, Nicholas V. L., and Elizabeth P. Mallory
1993 *Vegetation of the Rio Bravo Conservation and Management Area, Belize*. Manomet Bird Observatory, Manomet, Massachusetts, and the Programme for Belize, Belize City.
- Freidel, David A., Charles K. Suhler, and Rafael Cobos Palma
1998 Termination Ritual Deposits at Yaxuna: Detecting the Historical in Archaeological Contexts. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley Boteler-Mock, pp. 135-146. University of New Mexico Press, Albuquerque.
- Garber, James F., W. David Driver, Lauren A. Sullivan, and David M. Glassman
1998 Bloody Bowls and Broken Pots: The Life, Death, and Rebirth of a Maya House. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley Boteler Mock, pp. 125-134. University of New Mexico Press, Albuquerque.
- Gilchrist, Roberta
1999 *Gender and Archaeology: Contesting the Past*. Routledge, London.

- Hendon, Julia A.
1996 Archaeological Approaches to the Organization of Labor: Household Practice and Domestic Relations. *Annual Review of Anthropology* 25:45–61.
- Houk, Brett A.
1996 *The Archaeology of Site Planning: An Example from the Maya Site of Dos Hombres, Belize*. Unpublished Ph.D. dissertation, The University of Texas at Austin.
- Inomata, Takeshi, Daniela Triadan, Erick Ponciano, Estela Pinto, Richard E. Terry, and Markus Eberl
2002 Domestic and Political Lives of Classic Maya Elites: The Excavation of Rapidly Abandoned Structures at Aguateca, Guatemala. *Latin American Antiquity*, 13(3):305–330.
- Lohse, Jon C.
2001 *The Social Organization of a Late Classic Maya Community: Dos Hombres, Northwestern Belize*. Unpublished Ph.D. dissertation, The University of Texas at Austin.
- Mock, Shirley Boteler (editor)
1998a *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*. University of New Mexico Press, Albuquerque.
1998b The Defaced and the Forgotten: Decapitation and Flaying/Mutilation as a Termination Event at Colha, Belize. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley Boteler Mock, pp. 113–124. University of New Mexico Press, Albuquerque.
- Moore, Henrietta
1988 *Feminism and Anthropology*. University of Minnesota Press, Minneapolis.
1994 *A Passion for Difference: Essays in Anthropology and Gender*. Indiana University Press, Bloomington.
- Restall, Matthew, and John F. Chuchiak IV
2002 A Reevaluation of the Authenticity of Fray Diego de Landa's *Relación de las cosas de Yucatán*. *Ethnohistory* 49(3):651–669.
- Robichaux, Hubert Ray
1995 *Ancient Maya Community Patterns in Northwestern Belize: Peripheral Zone Survey at La Milpa and Dos Hombres*. Unpublished Ph.D. dissertation, The University of Texas at Austin.
- Saul, Julie Mather, and Frank P. Saul
1991 The Preclassic Population of Cuello. In *Cuello: An Early Maya Community in Belize*, edited by Norman Hammond, pp 134–158. Cambridge University Press, Cambridge.
2003 *Interim Osteological Report, Operations 28 and 29*. Manuscript on file, Department of Anthropology, The University of Texas at Austin.
- Sullivan, Lauren A.
2003 Interim Ceramic Analysis Report, Operations 26, 28, and 29. Report on file, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.
- Sullivan, Lauren A., and Kerry L. Sagebiel
2003 Changing Political Alliances in the Three Rivers Region. In *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatan Peninsula*, edited by Vernon L. Scarborough, Nicholas Dunning, and Fred Valdez, Jr., pp. 25–36. University of Arizona Press, Tucson.
- Sullivan, Lauren A., and Fred Valdez, Jr.
2004 Northwest Belize: A Regional Perspective on Cultural History. *Research Reports in Belizean Archaeology* 1: 185–196.
- Taube, Karl
2005 San Bartolo and Sacred Narrative of the Late Preclassic Maya. Paper presented at the 29th Annual Maya Meetings at Texas, Austin.
- Taube, Karl, William A. Saturno, David S. Stuart
2004 Identificación Mitológica de los Personajes en el Muro Norte de la Pirámide de las Pinturas Sub-1, San Bartolo, Petén. In *XVII Simposio de Investigaciones Arqueológicas en Guatemala, 2003*, edited by Juan Pedro LaPorte, Bárbara Arroyo, Héctor L. Escobedo, Héctor E. Mejía, pp. 871–881. Museo Nacional de Arqueología y Etnología, Guatemala.
- Tozzer, Alfred M., (translator and editor)
1941 *Landa's "Relacion de las cosas de Yucatan."* Papers of the Peabody Museum of American Archaeology and Ethnology, vol. 18. Harvard University, Cambridge.
- Trachman, Rissa M.
2003 Household Excavations in the Dos Hombres Settlement Area: 2002 Season Preliminary Report. In *Programme for Belize Archaeological Project: Summary Report of the 2002 Investigations*. Summary report submitted to The Institute of Archaeology, National Institute of Culture and History, Belmopan.

2006 Late Preclassic Gender Ideology: Childhood Socialization at the Dancer Household in Northwestern Belize. *Research Reports in Belizean Archaeology*, 3:101-112.

2007 *Excavated Households Excavated Lives: Social Reproduction, Identity, and Everyday Life for the Ancient Maya in Northwestern Belize*. Unpublished Ph.D. dissertation, The University of Texas at Austin.

2009 Ancient Maya Social Organization: A Multi-Scale Analysis from the Dos Hombres Hinterland, Northwestern Belize. *Research Reports in Belizean Archaeology*, 6:109-117.

Trachman, Rissa M., and Fred Valdez, Jr.

2006 Identifying Childhood among the Ancient Maya: Evidence Toward Social Reproduction at the Dancer Household Group in Northwestern Belize. In *The Social Experience of Childhood in Mesoamerica*, edited by Traci Ardren and Scott R. Hutson, pp. 73–131. University Press of Colorado, Boulder.

Van Dyke, Ruth M., and Susan E. Alcock

2003 Archaeologies of Memory: An Introduction. In *Archaeologies of Memory*, edited by Ruth M. Van Dyke and Susan E. Alcock, pp. 1-13. Blackwell Publishing, Malden, Massachusetts.

Walker, Debra Selsor

1998 Smashed Pots and Shattered Dreams: The Material Evidence for an Early Classic Maya Site Termination at Cerros, Belize. In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by Shirley Boteler Mock, pp. 81–100. University of New Mexico Press, Albuquerque.

Walling, Stanley L., Peter F. Davis, Sandra Dias, and Melissa DeVito

2005 Report of the 2004 Rio Bravo Archaeology Project: Site RB 47: Chawak But'o'ob. In *Programme for Belize Archaeological Project: Report of Activities from the 2004 Season*, edited by Fred Valdez, Jr., pp. 115–144. Occasional Papers, no.4, Mesoamerican Archaeological Research Laboratory, The University of Texas at Austin.

Walling, Stanley L., Peter Davis, Jonathan Hanna, Leah Matthews, Nahum Prasarn, and Christine Taylor

2006 Residential Terracing, Water Management, Matrix Analysis, and Suburban Ceremonialism at Chawak But'o'ob, Belize: Report of the 2005 Rio Bravo Archaeological Survey. In *Programme for Belize Archaeological Project: Report of Activities from the 2005 Season*, edited by Fred Valdez, Jr., pp. 41–88. Occasional Papers, no. 6,

Mesoamerican Archaeological Research Laboratory, the University of Texas at Austin.

12 ***YOU ONLY LIVE TWICE: THE AGENCY OF RITUAL CERAMICS AT LAMANAI***

James Aimers

My work on the ceramics of Lamanai has been focused on classification, chronology, and comparison and as a result I have only rarely discussed the functions and use lives of individual objects. In this paper I examine a selection of Terminal Classic to Late Postclassic ceramics from Lamanai from their point of production, through their use-life (in terms of both their ritual use and possible meanings), deposition, excavation, storage, and display. My discussion is framed theoretically by ideas from material culture studies about “the social lives of things” (e.g., Appadurai 1986, Kopytoff 1988) as well as more recent approaches that consider objects as having forms of agency (especially the work of Alfred Gell). By integrating the analysis of a range of ceramics through time, I hope to elucidate more clearly the ritual activities of “Lameneros” and the central role of objects in the creation of identity. I will argue that the agency of ritual ceramics at and from Lamanai has been continually reincarnated in changing contexts to define the community identity of Lamanai through time.

Introduction

In this paper I discuss the functions and meaning of ritual ceramics at Lamanai with reference to ideas about the social lives and life histories of things as well as approaches that consider objects as having forms of agency. I use an expanded definition of ritual and give some examples of the active roles of ceramics in the creation and maintenance of identity in the past and the present.

Ritual and Agency

When we think of ritual, most of us think of religious ritual, but our secular lives are also quite ritualistic. Think of, for example, the banquet associated with the annual Belize Archaeology Symposium or even the ritualistic nature of many sporting events. Rituals of all sorts have formalized elements which include particular objects used in prescribed ways in particular places at specific times (Bloch 1989). Also important to this paper is the fact that rituals are social acts which say something about the identity of the participants. Victor Turner coined the term “communitas” to refer to the feeling of connectedness and group belonging that people get in rituals of all sorts, whether it is a religious service or a Madonna concert.

The idea that objects have forms of agency has been most forcefully developed in the work of Alfred Gell (e.g., Gell 1988, 1992, 1998). For Gell (1998: 96), “works of art, images, icons, and the like, have to be treated, in the context of an anthropological theory, as person-like; that is, sources of, and targets for,

social agency.” Appadurai and Kopytoff are most closely associated with a life history approach to objects (e.g., Appadurai 1988; Kopytoff 1988). These approaches are not new, however. Myers (2001: 5) has discussed the long history of agency-based approaches in anthropology. Even early discussions of archaeological taxonomy included the use of biological and evolutionary analogies in classification which to some degree approached objects as organisms. As early as 1915 Alfred Kidder (1915; 1917) implied relationships of descent among pottery types, although this view was later roundly rebuked by Brew (1946:53) and the use of anthropomorphic and evolutionary metaphors for understanding material culture went out of fashion for decades.

Recently, however, these analogies have made a comeback in several ways, for example in the increasing influence of evolutionary archaeology (see e.g., Shennan 2002) and in popular, even trendy, ideas that objects have life histories and agency. Predictably, there have been objections. For example, Philip Arnold (2007:110) noted that

...one sees blithe reference in the archaeological literature to the “social life of things” (e.g., Appadurai 1986) as if inanimate objects experienced teenage angst or the heartbreak of psoriasis, I concur with Halperin (1994:110), who reminds us that things do not have a social life; things are used by people in social situations.

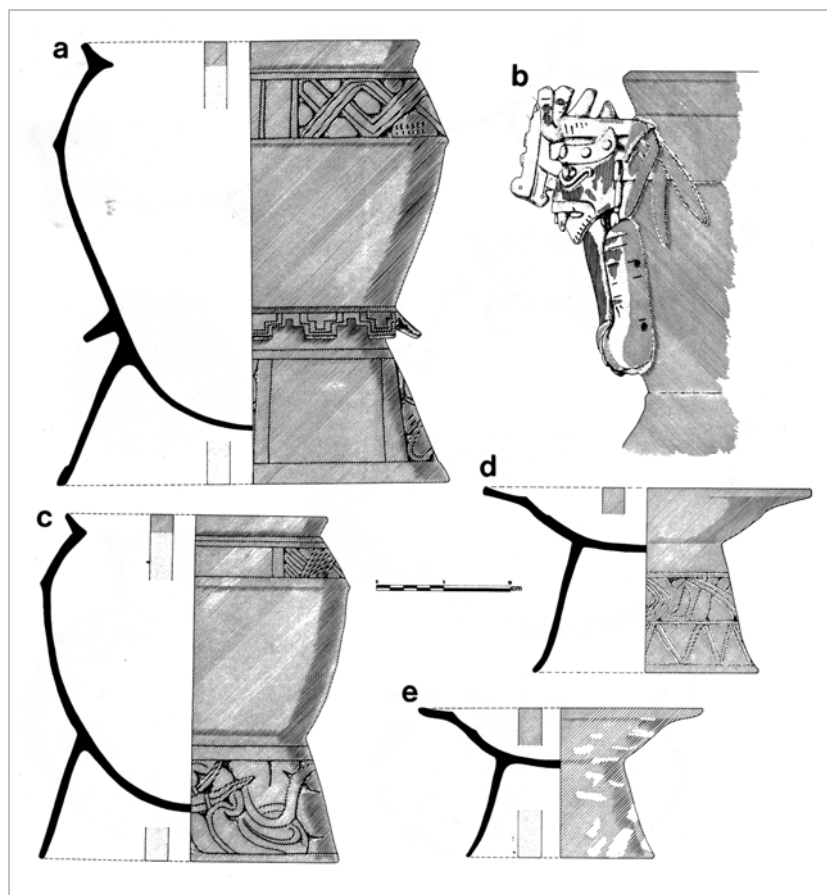


Figure 1: Large jars and high-pedestal dishes (“chalices”) from Lamanai. The closest analogues are with Zakpah Group ceramics from Cerros (Walker 1990). (Illustrations by Louise Belanger from Graham 1987: Fig. 5).

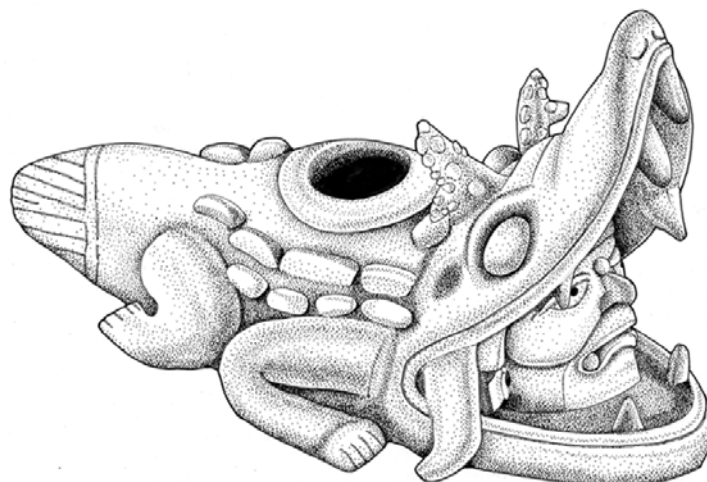


Figure 2: Effigy vessel from Lamanai from a cache in structure N11-4. Closest published analogues are with Cao Modeled from Santa Rita (see Chase and Chase 1988: Fig 5a, 15a, 35). Drawing by Louise Belanger.

For more along these lines see also Steiner (2001:210). These debates are, to me, relatively sterile and exist mostly in the realm of metatheory. Of course objects do not have social lives and they certainly do not reproduce; they are inanimate. Nevertheless, I do think that contemporary approaches which treat objects *as if* they have agency and life histories do add depth to our understanding of ritual at Lamanai.

Large highly-decorated jars and chalices, especially the members of the Z'alal Gouged-incised ceramic system (Figure One) are so closely associated with the site of Lamanai that they are often called "Lamanai-style" although the type name was first assigned at Cerros (Walker 1990). This ceramic system is found along the east coast of the Yucatan peninsula and even inland to Mayapan but at Lamanai it has a distinctively local curvilinear style (see Aimers 2008). Davenport (1988: 106-7) has noted that heavily decorated objects like these are closely associated with ritual: "...aesthetically embellished objects signal ritual contexts and ritual utilization. It is as if a nonmaterial or spiritual dimension is added to an object, committing it to a domain in which social and religious values prevail over economic ones." Similarly, Gell (1992:40) called decoration a "technology of enchantment" which focuses attention on socially important objects. Many of the examples we have from Lamanai were deposited with burials and although we cannot be certain, it is likely that these vessels held offerings of some sort and were used in rituals at the graveside. In the Terminal Classic offerings tended to be of pine, but we do not know yet what was placed in these vessels.

Many of the vessels in Postclassic period burials at Lamanai appear to have been purposely smashed and in this sense they are comparable to the sacrifice of a person or an animal. William Walker (1995:76) has noted that "one can conceive of the ritual sacrifice of an object as a type of exchange technology that harnesses the object's underlying use-life ." Like the flawless young Aztec men reportedly chosen to impersonate the god Tezcatlipoca and then sacrificed after a year of godlike status (Klein and Quilter 2001), these vessels are exceptionally beautiful. Like a sacrificed slave,

a chalice or large jar may have started life as a commodity, but it was "recontextualized" (Thomas 1991) as a "singularity" (Kopytoff 1988) and "enclaved" in a sacred burial (Appadurai 1988:24). The sacrifice of the pot is, like the sacrifice of an individual, a ritual act through which commitment to group identity is demonstrated. Since this vessel is from a burial in the site core, the person surely held some importance in the community, and aspects of personal and family or lineage identity are likely to have been emphasised at burial.

Figure Two shows another iconic artifact from Lamanai, a modelled effigy vessel showing an anthropomorphic figure emerging from a crocodile. As Prudence Rice (1983:867) has noted, reptilian motifs have been found "almost solely on artifacts with a distinctly ritual function" in relation to both religious and political offices, and Pendergast (1981:39) has noted that the crocodile seems to have "enjoyed an exalted status" at Lamanai.

In his work on totemism, Claude Lévi-Strauss (1968, 1971) examined how humans attach meaning to elements of the natural world such as plants and animals and how these in turn provide a structuring order for sociocultural relationships. As he famously noted, plants and animals are associated with groups of people such as clans or lineages not just because they are "good to eat" but because they are "good to think" (Lévi-Strauss 1968:162) as parts of systems of classification. We still use totem-like systems in sports mascots. The Florida Gators would of course exist without their mascot, but their mascot provides an instantly recognizable semiotic peg upon which to hang the varied and often abstract meanings of being a member of the Florida Gator "community" however vague and dispersed that entity may be in reality (including team members and fans of varying levels but also people on the edges of it, or even opposed to it).

Mascots and totems exist and are represented materially because it is much harder to conceive of a group of people without an image of some sort to identify that group. This is what material culture does—it gathers diffuse meanings into an instantly recognizable physical whole. In other words, the communication of

identity is a function of things. Given that we know the name of Lamanai meant “submerged crocodile” and crocodile imagery is found frequently at the site, it seems that the crocodile was used in a totem-like way as an expression of identity at Lamanai.

Performance and Communitas

Musical instruments are also important ritual objects which help create a sense of group identity through performance. Fragments of drums and ocarinas have been found in the site core, including in an extensive midden which may have been associated with feasting. These artifacts are more evidence of Lamanai’s importance as both a commercial and ritual center in the Postclassic. This importance would have been manifest in recurrent domestic and public rituals which celebrated rites of passage for people of all sorts, and fostered communitas with music, food, drink, and dance.

Life, Death, and the Afterlife

Like many musicians, fragile ceramic drums may have lived fast and died young, but in approaching function and meaning in ceramic analysis, we should also think diachronically. For example, in its prime, the function of an ordinary cooking pot was for processing and/or cooking but it could be used for great number of activities from the time of its production to its deposition in archaeological context. For example, a base of a broken pot might have been used as a feeding dish for animals (Deal and Hagstrum 1995:114) while the body may have been used a chicken coop (for a longer discussion of these issues for domestic pottery see Aimers 2010)

Once ceramics are in archaeological context, they are in a sense, dead, but many vessels have use- lives beyond the grave as well. They no longer work in their original context but they are brought back from the underworld to be reincarnated to work in museums. Archaeological objects in museums attain a sacred quality—they signify a distant antiquity that creates an aura around them. The power of these objects is reinforced in many museums by their decontextualized display as singularities behind glass. At Lamanai, this aura emanates beyond the walls of the museum, in that local

people use this power to persuade visitors that they will want to remember or, perhaps more importantly, concretely memorialize their visit to this ancient and powerful place with some sort of material reminder (a slate carving or a t-shirt, for example). Objects of all sorts bought at the site carry, *par por toto*, the meaning of the site to other places.

Unlike souvenirs, however, ancient vessels from Lamanai are not just a representation of Lamanai—they are in fact parts of Lamanai, what Gell (1998:221) has compared to a “distributed person.” There is a reality to our idea of ancient Lamanai that exists with perfect ease in our minds in the absence of the ancient inhabitants themselves, but it is fair to say—in fact so obvious that it barely needs saying—that without the material culture we would have a much more difficult time conceiving of Lamanai even if we had much more information about the people themselves. Artifacts make Lamanai exist for us.

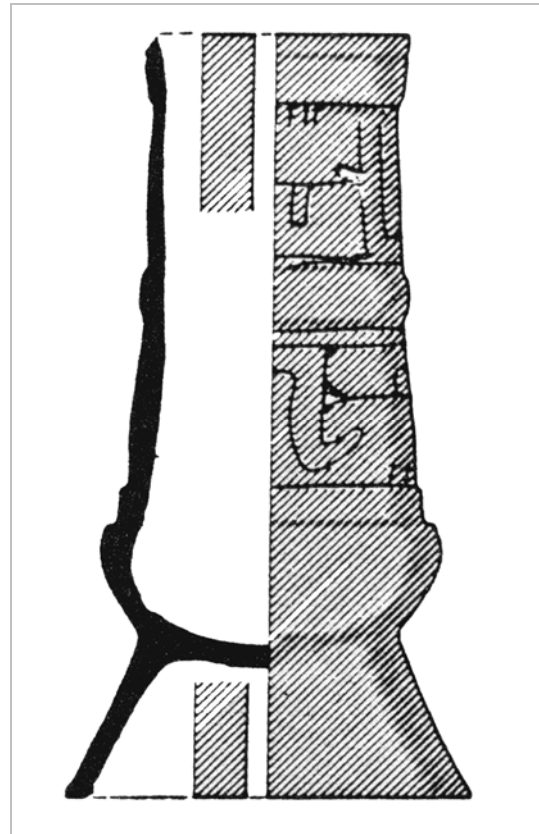


Figure 3: Silho Group Fine Orange Ware Vessel from a burial in Structure N10-1 (drawing by Louise Belanger from Pendergast 1985: Fig. 7.5)

The Foreign Diplomat

Figure Three shows the only Fine Orange vessel yet found at Lamanai. As a member of the Silho Group it was probably “born” somewhere around the Gulf Coast of Campeche or Veracruz and imported to Lamanai. Helms (1993) has written about how foreign objects are often invested with power. It is easy to imagine this vessel being used in a ritual interaction of some sort, perhaps a diplomatic or political one. It may have been a gift from or to someone with real or fictive ties to the Gulf Coast. Its deposition in a rich burial containing 14 other elaborate vessels shows us that foreignness was valuable to powerful people at Lamanai, as it was elsewhere in Mesoamerica.

I have noted on many occasions the great stylistic diversity of the ceramics of Lamanai, and Linda Howie is currently documenting what appears to be even more technological diversity in the pottery, suggesting that even ceramics in the same style were made in a variety of production loci. This means that different potters followed a relatively coherent and at times immediately recognizable set of conventions about how to produce a pot in terms of form, finish, and decoration even if their technological styles varied. Style is a way of doing that says something about relative identity (Wiessner 1990), and thus stylistic consistency is an expression of a widely shared identity. But which identity?

Wells (1998) has discussed the various forms of identity we try to isolate through archaeological objects, including individual identity, gender, status, family, community, and ethnic identity. He notes that ethnic identity has been particularly problematic and I agree. There is no room here for a discussion of the endlessly debated notion of ethnicity, but I will repeat what I have said before (Aimers 2008): the concept of ethnicity is not likely to be much more useful for understanding the ancient Maya than it is for understanding the Maya at conquest. Matthew Restall’s work in particular (e.g., Restall 1998) has shown clearly that when the Spanish arrived the lynchpin of identity for the Maya was not ethnicity but lineage and community affiliation.

For me, what many of these vessels reveal is something more specific than ethnicity: Lamanai’s community identity. Like the more problematic idea of ethnic identity, community identity is not purely personal, it is social, and it links Lamanai to a network along the coasts. Yet it is also distinctively “Lamanero”. In the words of Bentley and Maschner (2001:51), citing Dietler and Herbich (1998), “style, as an outcome of a habitual manufacture process, can determine group identity, rather than the other way around.” So, people in the community of Lamanai made (or acquired) objects, but in a very real sense, the objects of Lamanai made the community.

In an earlier paper (Aimers 2008), I argued that the multiregional origins of the pottery at Lamanai are indicative of the cosmopolitan nature of the site itself which appears to have survived the collapse of many of its neighbours in part due to its strategic location for interregional transport and trade. In fact, we have material and osteological evidence that foreign people probably lived there (White, et al. 2009). All of this suggests a certain amount of tolerance of diversity at the site. I have for a long time seen in this diversity a metaphor for the diversity of contemporary Belize. What is a Belizean is a difficult question in a young nation with a complex history and a diverse population, and how to create a sense of unity in diversity is an issue of more than casual importance to all nations. Its location alone makes it obvious that people of all sorts moved through Lamanai. In this diversity I see yet another opportunity for reincarnation of the objects of Lamanai in the present or the future and in this case, as agents of tolerance from a diverse community from Belize’s distant past.

Conclusions

Rituals occur in all areas of our lives, whether around a dining table or at a funeral. Rituals do not just happen, however. Rituals take place in specific times and places and involve the use of specific things. I have argued here and elsewhere (Aimers 2010) that the objects we use are not merely expressions of various forms of identity, but are active agents in the creation of identity. The creation, acquisition, and display of objects was not just a

by-product of individuals, families, lineages, or the community as a whole - the objects themselves helped bring these social entities into being. Many different types of ceramic objects (compared here to workers, representatives of elite lineages, sacrificial victims, performers, and foreign diplomats) had a role to play in making the community of Lamanai a reality. To me, the objects of Lamanai live more than twice. They had agency in the past, they have agency in the present, and they will continue to have agency after all of us have died.

Acknowledgements The theme of life, death, and reincarnation in this paper is not accidental. As I prepared for my visit to Belize for the 2009 BAS I felt the loss of David “Ciego” Valencio even more acutely than I had upon learning of his death. It is difficult, I realized, for me to think of Belize at all without remembering some experience or another involving him since we met in 1991. In fact, many of the most memorable experiences in my life have been in Belize, and Ciego was often there to share them, especially in the earlier years. In conversations I have had since his death, particularly with Gyles Iannone who knew him so well, I have come to appreciate even more what a truly special man he was. Even on my worst days, Ciego’s distinctively enthusiastic shout of “Leche!” made me laugh, and I hope I can always hear it when I think of him, as I can now. Part of his comic genius stemmed from the fact that he was a deeply empathetic person who loved people and understood them intuitively. Everyone I know loved him back. I feel privileged to have known him, and I miss him.

References Cited

- Aimers, J. J.
2008 Snakes on Planes: Sinuous Motifs in the Art of Lamanai. *Research Reports in Belizean Archaeology* 5:115-123.
2010 La Belle et la Bête: The Everyday Life of Ceramics at Lamanai, Belize. In *Proceedings of the 13th European Maya Conference, Paris December 1-8 2008, Acta Mesoamericana* Vol. 21, edited by P. Nondédéo and A. Breton. Verlag Anton Saurwein, Germany. In Press.

Appadurai, A.

- 1988 Introduction: Commodities and the Politics of Value. In *The Social Life of Things: Commodities in Cultural Perspective*, edited by A. Appadurai, pp. 3-63. Cambridge University Press, Cambridge.
- Arnold, P. J.
2007 Ceramic Production at La Joya, Veracruz: Early Formative Techno Logics and Error Loads. In *Pottery Economies in Mesoamerica*, edited by C. A. Pool and G. J. Bey III, pp. 86-113. University of Arizona Press, Tucson.
- Bentley, R. A. and H. D. Maschner
2001 Stylistic Change as a Self-Organized Critical Phenomenon: An Archaeological Study in Complexity. *Journal of Archaeological Method and Theory* 8(1):35-67.
- Bloch, M.
1989 *Ritual, History, and Power*. Athlone Press, London.
- Brew, J. O.
1946 The Use and Abuse of Taxonomy. In *Archaeology of the Alkali Ridge, Southeastern Utah*, pp. 44-66. Papers of the Peabody Museum of Archaeology and Ethnology Vol. 21, Harvard University, Cambridge.
- Chase, D. Z. and A. F. Chase
1988 *A Postclassic Perspective: Excavations at the Maya Site of Santa Rita Corozal, Belize*. Pre-Columbian Art Research Institute, San Francisco.
- Davenport, W. H.
1988 Two Kinds of Value in the Eastern Solomon Islands. In *The Social Life of Things: Commodities in Cultural Perspective*, edited by A. Appadurai, pp. 95-109. Cambridge University Press, Cambridge.
- Deal, M. and M. B. Hagstrum
1995 Ceramic Reuse Behavior among the Maya and Wanka: Implications for Archaeology. In *Expanding Archaeology*, edited by J. M. Skibo, W. H. Walker and A. E. Nielsen. University of Utah Press, Salt Lake City.
- Dietler, M. and I. Herbich
1998 Habitus, Techniques, Style: An Integrated Approach to the Social Understanding of Material Culture and Boundaries. In *The Archaeology of Social Boundaries*, edited by M. T. Stark, pp. 232-263. Smithsonian Institution Press, Washington.
- Gell, A.
1988 Technology and Magic. *Anthropology Today* 4(2):6-9.

- 1992 The Technology of Enchantment and the Enchantment of Technology. In *Anthropology, Art, and Aesthetics*, edited by J. Coote and A. Shelton, pp. 40-63. Oxford University Press, Oxford.
- 1998 *Art and Agency: An Anthropological Theory*. Oxford University Press, Oxford.
- Graham, E.
1987 Terminal Classic to Early Historic Vessel Forms from Belize. In *Maya Ceramics: Papers from the 1985 Maya Ceramic Conference*, edited by P. M. Rice and R. J. Sharer, pp. 73-98. BAR International Series 345(i), British Archaeological Reports, Oxford.
- Halperin, R. H.
1994 *Cultural Economies: Past and Present*. University of Texas Press, Austin.
- Helms, M. W.
1993 *Craft and the Kingly Ideal: Art, Trade, and Power*. University of Texas Press, Austin.
- Kidder, A. V.
1915 Pottery of the Pajarito Plateau and Some Adjacent Regions in New Mexico. *American Anthropological Association Memoir* 2:407-602.
1917 A Design Sequence from New Mexico. *National Academy of Sciences, Proceedings* 3:369-70.
- Klein, C. F. and J. Quilter (editors)
2001 *Gender in Pre-Hispanic America*. Dumbarton Oaks, Washington D.C.
- Kopytoff, I.
1988 The Cultural Biography of Things: Commoditization as Process. In *The Social Life of Things: Commodities in Cultural Perspective*, edited by A. Appadurai, pp. 64-94. Cambridge University Press, Cambridge.
- Lévi-Strauss, C.
1968 *The Savage Mind*. University of Chicago Press, Chicago.
1971 *Totemism*. Beacon Press, Boston.
- Myers, F.
2001 Introduction: The Empire of Things. In *The Empire of Things: Regimes of Value and Material Culture*, edited by F. Myers, pp. 3-61. School of American Research Press, Santa Fe.
- Pendergast, D. M.
1981 Lamanai, Belize: Summary of Excavation Results, 1974-1980. *Journal of Field Archaeology* 8(1):29-53.
- 1985 Stability through change: Lamanai, Belize, From the Ninth to the Seventeenth Century. In *Late Lowland Maya Civilization: Classic to Postclassic*, edited by J. A. Sabloff and E. W. Andrews V, pp. 223-249. School of American Research, University of New Mexico Press, Albuquerque
- Rice, P. M.
1983 Serpents and Styles in Petén Postclassic Pottery. *American Anthropologist* 85:866-880.
- Restall, M.
1998 *Maya Conquistador*. Beacon Press, Boston.
- Shennan, S. J.
2002 *Genes, Memes, and Culture History: Darwinian Archaeology and Cultural Evolution*. Thames and Hudson, London.
- Steiner, C.
2001 Rights of Passage: On the Liminal Identity of Art in the Border Zone. In *The Empire of Things: Regimes of Value and Material Culture*, edited by F. Myers, pp. 207-31. School of American Research Press, Santa Fe.
- Thomas, N.
1991 *Entangled Objects: Exchange, Material Culture, and Colonialism in the Pacific*. Harvard University Press, Cambridge, MA.
- Walker, D. S.
1990 *Cerros Revisited: Ceramic Indicators of Terminal Classic and Postclassic Settlement and Pilgrimage in Northern Belize*. Unpublished Ph.D. dissertation, Department of Anthropology, Southern Methodist University, Dallas.
- Walker, W. H.
1995 Ceremonial Trash? In *Expanding Archaeology*, edited by J. M. Skibo, W. H. Walker and A. E. Nielsen, pp. 67-79. University of Utah Press, Salt Lake City.
- Wells, P. S.
1998 Identity and Material Culture in the Later Prehistory of Central Europe. *Journal of Archaeological Research* 6:239-298.
- White, C. D., J. Maxwell, D. M. Pendergast and F. J. Longstaffe
2009 Cultural Embodiment and the Enigmatic Identity of the Lovers from Lamanai. In *Bioarchaeology and Identity in the Americas*, edited by K. Knudson and C. Stojonowski, pp. 156-176. Gainesville, University Press of Florida.
- Wiessner, P.
1990 Is There a Unity to Style? In *The Uses of Style in Archaeology*, edited by M. W. Conkey

and C. A. Hastorf, pp. 105-121. Cambridge

University Press, Cambridge.

13 AN INTRODUCTION TO PRE-HISPANIC MUSIC IN THE BELIZE VALLEY: AEROPHONES IN THE ARCHAEOLOGICAL RECORD

Amy Benton

Standardized classification of ancient Maya ceramic aerophones is lacking in literature pertaining to the musical practices of the ancient Maya. In fact, a common classificatory procedure has been to refer to flutes, ocarinas and whistles as the same instrument. It is necessary that archaeologists, ethnomusicologists and archaeomusicologists use musical instrument classification terms and concepts correctly and with consistency. Standardized classification of ancient Maya ceramic aerophones would be beneficial to understanding more about the music that permeated many parts of ancient Maya society, including ritual and religion. Therefore, it is my purpose in this paper to suggest an open-ended typology of ancient Maya ceramic aerophones that uses more explicit criteria for classification. A section documenting the types of aerophones present at Cahal Pech and Blackman Eddy and reviewing the contextual data will follow. The finds reveal a sophisticated knowledge of musical instrument construction and a high degree of creativity.

Introduction

Due to their intangible nature and the lack of written records, the intellectual and aesthetic arts of dance, drama and music are among the least-known aspects of ancient Mesoamerican cultures. Like material art, dance, drama and music can provide key insights into the life and ideology of a culture. Although music is not a new field of study for Mesoamerican anthropologists, it is not as well understood as the many other prehistoric accomplishments that have been unearthed, analyzed and studied from this area. We do know however, through ancient instruments found in archaeological remains and the depictions and portrayals of musical instruments in sculpture, painted vessels and murals, that prehistoric Mesoamericans were a musical people. In fact, from the variety and number of instruments uncovered in excavations at nearly every Maya site, it can be said that Classic Maya music achieved a noteworthy stage of advancement. Since the ancient Maya recorded no known musical compositions, studying the surviving instruments is an imperative first step in understanding their musical world. Whether possessing a function of enhancement for funerary and festive experiences or a spiritual experience in itself, music was an essential and valuable component of Maya ceremonial, ritual and social life. The earliest period in which Maya musical instruments have been documented is the Preclassic or Formative

period. Excavations at Cuello have provided evidence of ceramic flutes, and ocarinas dating back to the Early and Middle Preclassic Periods (900-400 B.C.)(Hammond 1991).

The aerophones are one of three categories of musical instruments that make up the prehispanic musical tradition. According to the classification of Cameron Hideo Bourg, aerophones are instruments that produce “sound by air forced from players’ mouths”(2005:8). Another definition comes from Horbostel and Sachs’ (1914) classification, which defines aerophones as instruments with oscillating air as the sound generator. David Reck defines aerophones as “sound produced by the vibration of an air column, that is, by wind or breath in a tube or across a reed” (1977:88).

The ancient Maya aerophone category is the most commonly excavated; consisting of ceramic ocarinas and flutes, wooden trumpets, conch shell trumpets, bone flutes and reed flutes. Most of our knowledge of the aerophones not made of ceramic or shell comes from Spanish chronicles, the Bonampak frescoes and painted vessels. On the other hand, shell trumpets and ceramic flutes, ocarinas and whistles appear in physical form frequently in archaeological contexts. Ceramic aerophones survive archaeologically because of their durability and are therefore considered as “the most abundant examples of playable instruments of the ancient Maya”(Bourg 2005:10).

In his article titled “Music of the Maya”, Paul Healy described the instruments found from a pair of elite tombs at the site of Pacbitun, Belize. Among the many excavated instruments at this site were a group of five flutes and eight figurine ocarinas in a variety of anthropomorphic and zoomorphic forms, many of which can still be played. In this article, Healy considered the figurine ocarinas as “the largest and artistically most interesting group of instruments” (Healy 1988:26,27).

In his thesis, Bourg asserted, “Examining the archaeological record of excavated aerophones dictates that the ocarina was the most widely employed instrument among the Maya” (Bourg 2005:46). He also stated “These instruments, in my opinion, are the most essential antiquities to recreating the sound of the ancient Maya” (Bourg 2005:58). However, the exact role and significance of the ocarina in the context of Maya music has not been clearly defined. Speculation surrounding this matter has alluded to a variety of explanations, from functioning as children’s toys to satisfying the musical needs of the lower classes. Some scholars have hypothesized that whistles and ocarinas were used for individual rituals, providing families with a simple way of producing music for their small-scale rituals, while tubular flutes were elite musical instruments.

Is there contextual support for these interpretations in the Belize Valley? What can we learn about ancient Maya music from these instruments? What can we learn about ancient Maya culture through music? These are the questions that inspired my research. However, before they could be explored, I found myself asking less inspiring questions like “what exactly is an ocarina?” and “why am I finding multiple definitions for one instrument name?”

Since I began researching the literature on the prehispanic musical tradition, I have noticed inconsistencies in the attempts to explain the difference between ceramic flutes, ocarinas and whistles. Many times they are not clearly defined in a way that uses explicit criteria to separate them. In fact, a common classificatory procedure in the pertinent archaeological literature is to refer to them as the same instrument. I also noticed that what one scholar

would classify as an “ocarina” would be referred to as a “whistle” by another, and vice versa.

The works of Dr. Norman Hammond, Dr. Paul Healy, Samuel Franco Acre and Samuel Martí have concentrated on the instrumentation used by the ancient Maya and have greatly increased our understanding of Maya music. In addition, Cameron Hideo Bourg focused on the archaeological, societal and sonorous aspects of ancient Maya music in his thesis titled *Ancient Maya Music Now with Sound*. Although these scholars have provided a sound foundation for studying the musical world of the ancient Maya, a standardized classification system for ancient Maya ceramic aerophones is lacking in literature concerning the musical practices of the ancient Maya.

The unsystematic use of terms like whistle, ocarina and flute indicates that archaeologists are not in agreement when it comes to their meaning. I am not the first to acknowledge the ambiguity surrounding ancient Maya instrument classification. In his thesis titled “Ancient Maya Music Now with Sound”, Bourg wrote:

The ocarina, as Hammond (1972) and Joyce (1933) point out, has been referred to as whistles in many scholarly publications. [Bourg 2005:10]

Bourg also made a significant observation that:

The erroneous classification of ancient Maya ocarinas hinders my evaluation of the music of this culture because ocarinas differ greatly from whistles. [Bourg 2005:11].

Bourg separated these types by explaining that the term whistle refers to an instrument that can only produce one sound or note, while an ocarina is a sonorous device that has a globular body and is capable of varying ranges of tone and pitch. While I agree with this separation, more explicit criteria need to be considered for a more defined classification.

Theoretical Perspectives

Archaeological discoveries provide evidence that the ancient Maya, like many of the world’s ancient cultures, reproduced the natural sounds around them with artificially made ones. Ethnomusicologists call those objects that are

used to make artificial sounds “sound producing devices”. This term includes both what are commonly called musical instruments as well as sound producing devices that are unknown or obsolete in modern society (Lund 1981: 246). This term is used so that the sound producing devices that are unfamiliar in modern society are not excluded from the corpus of potential musical instruments just because they are not normally seen as such. Therefore, I have adopted the term “sound producing artifacts” to include any artifact that can produce sound, including artifacts that would not be considered “musical” in modern society.

Ideally, we as anthropologists should search for native categories and indigenous terminology and concepts of musical instruments in the field, or in the written language of the culture we are researching. This would be a way to more objectively classify the instruments and avoid the use of traditional European schemes. However, and unfortunately, we have yet to discover any musical compositions and the musical practices of the living Maya today reflect the influences they have endured from Spanish and Christian elements. This is perhaps one of the reasons why there has been this lack of a standard classification system for the most commonly excavated musical instrument category in ancient Maya contexts. Another factor is that scholars have been working in isolation both from each other and from the developments in the classificatory thinking of other relevant disciplines. Therefore, my research has been planned to incorporate pertinent theory and methodology from the diverse field of archaeomusicology.

Archaeomusicology, sometimes called “music archaeology” is the study of music through archaeology. It is the study of music, musical instruments, and music making from archaeological sources (Olsen 2007). The ancient musical instruments and the ancient iconography that depict their use are the archaeomusicologists’ primary sources of material culture. In his article titled “The complementarity and Interdisciplinarity of Archaeomusicology: An Introduction to the Field and this Volume”, Dale Olsen discussed how the discipline of archaeomusicology is

based on “the coming together of many approaches by scholars with diverse backgrounds and research strategies” and defined a methodological model for archaeomusicological inquiry (Olsen 2002: 23, 2007: 11-15). This model, with musical knowledge at its center, includes four methods of analysis: 1) music archaeology 2) music iconology 3) music historiography and 4) music ethnographic analogy. My research focuses on the first of these music-archaeological methods, music archaeology. This method “involves the descriptive and analytical study of the musical-cultural remains of a people” (Olsen 2007:13).

Another method involved in the development of my typological classification system is the science of organology. Organology is the classification of musical instruments. According to Olsen, organology “is one of the most frequently used sciences in archaeomusicology, because musical instruments comprise the largest primary source for the study of ancient musical cultures” (Olsen 2007:12). Although there has been no attempt in archaeomusicology to create a standard classification system or typology of ancient Maya aerophones, the use of organology in the archaeomusicology of ancient music cultures of South America and Mesoamerica has provided useful terms, definitions and organological categories (Olsen 2007, Rawcliffe 1992, 2007; Stockli 2007). These categories derive from the Sachs-Hornostel classification system, which is used almost universally by musicologists and ethnomusicologists today. This system, invented in the early twentieth century, divides all instruments into four broad acoustical categories:

1. *Idiophones: sound produced by the vibration of a solid material, free of any kind of applied tension.*
2. *Membranophones: sound produced by the vibration of stretched skin or membrane.*
3. *Aerophones: Sound produced by the vibration of an air column, that is, by wind or breath forced through a tube or across a reed.*
4. *Chordophones: sound produced by the vibration of stretched strings.*

With the exception of a drum with a stringed component that is depicted on an

ancient Guatemalan Maya vase, the instrumentarium of the ancient Maya consists of idiophones, membranophones and aerophones.

Musicologists and ethnomusicologists divide the aerophones into four classes according to the way sound is produced from them. For example:

- 1) *Reed instruments produce sound by air being forced through or over reeds.*
- 2) *Horns and trumpets produce sound by air forced between the tightened lips of the player.*
- 3) *Free aerophones act directly on the outer air to produce sound.*
- 4) *And flutes produce sound by air that is blown across a sharp edge.*

Based on this system, both the ceramic ocarina and whistle would be forms of flutes since they both produce sound by air that is blown across a sharp edge. This construction is called an edge-tone assembly. It is the part of a flute that changes the player's air stream into a tone. An edge tone is generated when a stream of air vibrates back and forth across a sharp edge, causing the air column or volume of a flute to resonate, producing a sound (Rawcliffe 1992). There are two basic types of edge-tone assemblies found in the Belize Valley, as well as in other archaeological sites throughout Belize. One of these edge-tone assemblies is the blowhole assembly (fig. 1). In this assembly, the open area (aperture) is the blowhole and the lips direct the air stream across it to the far edge of the hole. The other edge-tone assembly is called an air-duct assembly (fig. 2). This assembly has a slot or windway that directs the air stream from the lips of the player across the aperture to an edge. Therefore, according to this organization, a "flute" is any instrument in which a column or volume of air is activated by an edge-tone assembly, either an air-duct or a blowhole. A "whistle" is simply a single-toned flute. In addition to these definitions, a classification system for the variety of aerophones that have been considered by some to be "ocarinas" is necessary. A critical analysis of ancient ceramic aerophones from archaeological sites throughout Belize has augmented these perspectives and facilitated the development of a comprehensive and useful

classification system and typology of Ancient Maya ceramic aerophones.

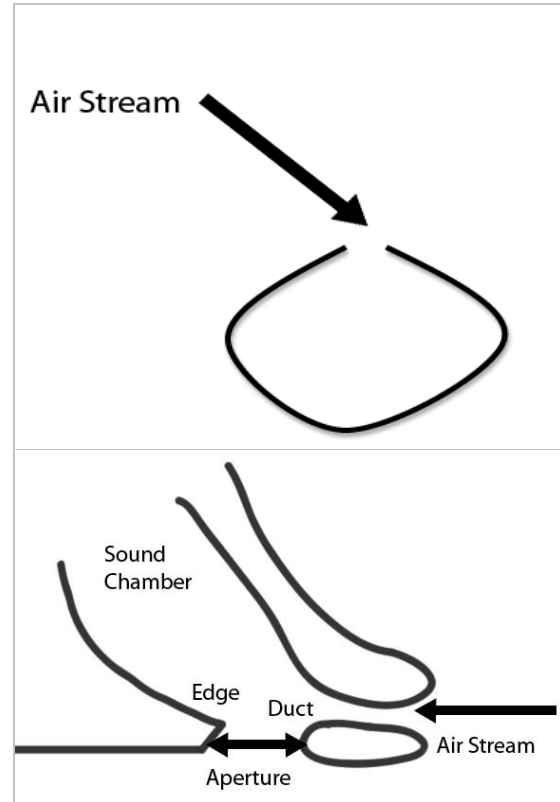


Figure 1 a & B. Edge-tone Assembly: Blowhole. (b) Edge-tone Assembly: Air-Duct.



Figure 2. Whistle from Cahal Pech

Typology

During the month of December 2008, I was given an opportunity to visit the Belize National Collection where I recorded and photographed all of the sound producing artifacts in the collection. In addition, during the summers of 2008 and 2009, I collected data on

Flute Type	Formal Description
Whistle	Closed-ended, single toned flute with an air- duct assembly.
Tubular Flute	A tubular, multi-toned flute, either conical or cylindrical, that has an air-duct assembly.
Vessel Flute	A globular, multi-toned flute. A volume of air is activated by an edge-tone assembly, either an air duct or a blowhole.
Ocarina	A vessel flute with an air-duct assembly.
Rim-blown Vessel Flute	A vessel flute with a blowhole assembly.

Table 1 . Ancient Maya Aerophone Typology

the sound producing artifacts from Blackman Eddy and Cahal Pech, two ceremonial centers in the Belize Valley. From the available data, I have reviewed many sound producing artifacts, the vast majority consisting of a variety of ceramic aerophones. My goal was to secure a basic corpus of ceramic aerophones, broad enough to provide a foundation for further research into the nature, practice and function of these instruments within the music that permeated many parts of ancient Maya society. Furthermore, a typological classification system was derived from observations of patterns occurring in this corpus of ceramic aerophones (Table 1.) Using this classification system, it is possible to conduct a typological analysis of the sound producing artifacts discovered at a site. This stage of analysis would consist of organizing all of the aerophones from a site into flute types based on the presence or absence of the attributes defined in my classification system. In my proposed methodological approach, the sound producing artifacts are subdivided into membranophones, idiophones and aerophones. Aerophones are then subdivided into the five flute types defined in Table 1. If the artifact contains an air-duct assembly, is closed ended and can only produce one note, it should be classified as a whistle (see fig. 3). If the artifact displays an air-duct assembly, produces more than one note and has a tubular shape, it should be classified as a tubular flute (see fig. 4). Any artifact that is globular (vessel-like), multi-toned and has an edge-tone assembly, either an air duct or a blowhole assembly, should be classified as a vessel flute. The vessel flutes that have air-duct



Figure 3. Tubular flute from Cahal Pech

assemblies should be classified as ocarinas (see fig. 5), and the vessel flutes with blowhole assemblies should be classified as rim-blown vessel flutes (also called ductless flutes)(see fig. 6). The artifacts without mouthpieces that display hollow sound chambers and at least one tonal hole should be classified as unidentified vessel flutes since the type of edge-tone assembly is unknown and they cannot be given a subtype (ocarina or rim-blown vessel flute)(see fig. 7). Artifacts which display air-duct assemblies and sound chambers, but have no visible tonal holes and are fragmentary should be classified as unidentified aerophones, since there is no way of knowing whether they used to



Figure 4. Ocarina from Blackman Eddy

be whistles or ocarinas (see fig. 8). Finally, fragmentary artifacts without mouthpieces or tonal holes but do display acute curvature (perhaps indicating that they once had sound chambers and other musical qualities), can be grouped into a category called “unidentified, possible sound producing artifacts” since there is no way of knowing if it was either a whistle or vessel flute (see fig. 9).



Figure 5. Rim-blown Vessel Flute from Cahal Pech

Contextual Information

Since the proveniences of many of the ancient Maya aerophones in the Belize National Collection are not documented, contextual information cannot always be established. However, the successful archaeological investigations at Blackman Eddy and Cahal Pech, two Maya ceremonial centers in the Belize Valley, have yielded a fairly large number of ceramic aerophones. The aerophones at Blackman Eddy and Cahal Pech depict anthropomorphic and zoomorphic forms and show great promise in contributing to our knowledge of these instruments and their place in Maya music.

Intra-Site Distribution at Blackman Eddy

Excavations at the site of Blackman Eddy have yielded two unidentified vessel flutes, three ocarinas and six artifacts that are unidentified, possible aerophones. Four of these aerophones were located in Formative period contexts (fig. 4), two were located in Late Classic contexts and five were located in Terminal Classic contexts (fig. 8). Two of the Formative period artifacts were associated with a special deposit overlying bedrock. This deposit has been designated as having a Terminal Early/Early Middle Preclassic Transition date and appears to have been associated with the earliest apsidal structures at the site (Cochran 2009). One of the Formative aerophones was recovered from the debris of the bulldozer cut. Therefore, the context of this artifact is unknown.



Figure 6. Unidentified Vessel Flute from Blackman Eddy

However, its location and association with Op. 8 suggest that it could have been in the construction fill associated with one of the Middle Formative buildings within the architectural sequence of Structure B1. The last Formative period aerophone was recovered from the removal of the eastern edge of structure B1-13th. It was located in the fill of this Early Middle Formative structure overlying bedrock. One of the Ocarinas at Blackman Eddy was associated with Structure B5, which was a Late Classic elite residential structure. The other Late Classic aerophone was found in the construction fill of structure A7. Four of the Terminal Classic aerophones were recovered from a special deposit in an alleyway between structures B1 and B2. The deposit was interred sometime after structure B1-2nd was no longer in use and before structure B1-1st was constructed. The fifth

Terminal Classic aerophone was associated with a different special deposit in structure B1.



Figure 7. Unidentified Aerophone from Cahal Pech

Intra-Site Distribution at Cahal Pech

Excavations at the site of Cahal Pech have yielded two whistles, one tubular flute, six unidentified vessel flutes, six ocarinas, three rim-blown vessel flutes, two unidentified aerophones, and eight unidentified, possible sound producing artifacts. At the time this paper was written contextual information was available to me for 20 of these 28 artifacts. 11 of these artifacts were found in Formative period contexts, seven were found in contexts which dated to a time between Late and Terminal Classic periods, and two were located in Terminal Classic contexts. One of the whistles, found in a Formative period context, was located in subfloor construction fill of Plaza B. The other was located in a post abandonment ritual deposit of Plaza A (fig. 2). The tubular flute was found inside a terminal phase bench between a narrow doorway connecting the two rooms on the east side of Structure A2, and was associated with Late Classic Pottery (fig 3). Two of the unidentified vessel flutes were located in Formative period contexts, one in the fill of Plaza B, and the other associated with one of Cahal Pech's periphery settlements, Cas Pek. Two of the unidentified vessel flutes were located in contexts that have been dated to a period labeled "Late-Terminal Classic". One

was associated with the Cas Pek settlement and the other was located in the humus and collapsed architectural debris overlying the terminal construction phase of structure A2. Two of the ocarinas were found in Formative period contexts, both located in construction fill levels of Structure B4.

The third ocarina with documented contextual information was located in room 2 of structure A3 and is probably a post abandonment ritual deposit. Two of the rim-blown vessel flutes were found in Formative period contexts of two different periphery settlements of Cahal Pech, Cas Pek and Tolok (fig. 5). The third rim-blown vessel flute with documented contextual information was located in a Late-Terminal Classic period context of Structure A3. The one unidentified aerophone with documented contextual data was located in a Formative Period context of Structure B4 (fig. 7). Two of the unidentified, possible sound producing artifacts were located in Formative period contexts. Both were located in the construction fill of Structure B4. Two others were located in Late-Terminal Classic Period contexts of Structure A2 and A3. The last two were located in Terminal Classic period contexts of Structure A2 and are probably the result of post abandonment ritual activity.



Figure 8. Unidentified, Possible Sound Producing Artifact from Blackman Eddy

Discussion and Conclusion

It is necessary to categorize ceramic aerophones into useful types because of their varying surface, shape and technological characteristics. These varying characteristics need to be considered during the identification process. I believe that a standardized

classification system of these ancient musical instruments would be beneficial to understanding more about the music that permeated many parts of ancient Maya society. Only when we standardize the way we record and classify these instruments will one be able to achieve an accurate representation of the archaeological population. Then, detailed statistical analyses will be more appropriate and we may begin to quantify the variation within the different flute types to look at chronological changes, interworkshop variation and stylistic variations. Furthermore, through an analysis of contextual data, the archaeologist can more accurately use these instruments as indicators of past behavior.

I believe that attempts to create typologies of the ocarina, which is one of five types of flutes, are premature. It is also my belief that we cannot look at these instruments as having different functional classes like we do for ceramic vessels. For example, ceramic vessels are classed according to their function as storage, cooking, serving or ritual vessels. All ceramic aerophones “function” as sound producing objects. However, through a consideration of their morphology and depositional contexts, we can produce interpretations regarding the variety of behavioral realms in which different types of ceramic aerophones function. In other words, relationships between different form classes of ancient Maya aerophones and general usage patterns can be established. This would allow the researcher to use these instruments as indicators of past musical behavior. Once we begin to identify and present these materials in a common way, archaeologists will be able to consider these questions and situate their own material in the broader Maya regional context.

The above-proposed typology was derived from an inclusive and detailed analysis of the observations of patterns occurring in a relatively large sample of ancient Maya aerophones. Through the analysis and typology presented here, it is my hope that archaeologists, ethnomusicologists and archaeomusicologists will be motivated to pay greater attention to ceramic aerophone classification terms and concepts than has characterized archaeological writing in the past.

Acknowledgments I wish to thank the following people: Dr. Jim Garber for inspiring me to present and submit this paper; Dr. Jaime Awe for his assistance with the contextual information from Cahal Pech; Jen Cochran for her assistance with the contextual information from Blackman Eddy; Rafael Guerra and Sherilyne Jones for their assistance in locating and photographing the sound producing artifacts in the Belize National Collection; and John Morris for granting access into the Belize National Collection.

References Cited

- Acre, Samuel Franco
1991 *Music of the Maya*. Guatemala: Casa K'ojom
- Awe, Jaime
1994 “Ritual Religion and Cultural Complexity in the Mid-Formative Belize River Valley”. Trent University. Peterborough, Ontario.
- Bourg, Camerom Hideo
2005 *Ancient Music Now with Sound*. A Thesis. Louisiana: Louisiana State University
- Burkhalter, John h. III and Gillet G. Griffin
2004 *Music from the Land of the Jaguar*. Princeton University Art Museum.
- Hammond, Norman
1975 “Classic Maya Music”. In: Centre of Latin American Studies. Working Papers No. 4. University of Cambridge.
- Hauge, Eleanor
1934 *Latin American Music*. CA: Fine Arts Press
- Henrickson, Elizabeth F. and Mary M. A. McDonald
1983 Ceramic Form and Function: An Ethnographic Search and an Archaeological Application. *American Anthropologist* 85:630-643.
- Hornbostel, Erich M. von, and Curt Sachs.
[1914] 1961. *Systematik der Musikinstrumente: Ein Versuch*. *Zeitschrift für Ethnologie* 45:3-90, 553-90. Translated by A. Baines and K. Wachsmann, under the title “A classification of Musical Instruments.” *Galpin Society Journal* 14:3-29.
- Martí, Samuel
1971 *La Música Precortesiana*. Mexico: Ediciones Euroamericanas. Ed. 1
- 1971 *Music Before Columbus*. Mexico: Ediciones Euroamericanas. Ed. 2

Miller, Mary Ellen

2001 *The Art of Mesoamerica: From Olmec to Aztec*. Thames and Hudson, New York. Pp. 67-77.

Rawcliffe, Susan

2007 "Eight West Mexican Flutes in the Fowler Museum" in *The World of Music*. 49(2):45-65

1992 "Complex Acoustics in Pre-Columbian Flute Systems". 35-63

Reck, David

1977 *Music of the Whole Earth*. New York

SECTION TWO: GENERAL RESEARCH PAPERS



14 A CONSIDERATION OF THE SPATIAL ARRANGEMENT OF SETTLEMENT GROUPS AND TERRACES IN CONTRERAS, MINANHA, BELIZE

Carmen A. McCane, Scott A. Macrae and Gyles Iannone

Even though the extent of “greater Minanha” has not yet been defined, early investigations indicate that many of the surrounding valleys and hilltops were home to the people and communities that helped sustain Minanha’s Late Classic royal court. More specifically, Contreras is a one kilometer square zone located approximately one kilometer southeast of Minanha’s epicenter and is situated a densely terraced valley with an abundance of archaeological remains. In 2006, Phase II investigations began in Contreras which have focused on examining the composition of this peripheral settlement community. As a result, for the past four field seasons, reconnaissance, excavations within the settlement groups, and the mapping of the terraces have been completed in order to reexamine the organization of these aforementioned anthropogenic features. More specifically, this research is aimed at exploring settlement patterns and terrace construction, both temporally and spatially, of the Contreras inhabitants through excavations and by integrating spatial statistics and GIS. Lastly, these investigations were designed to both complement and expand upon previous investigation in Minanha’s epicenter by examining the collapse sequence from the standpoint of a peripheral support population.

Introduction

Minanha is a medium sized center located within the North Vaca Plateau of west-central Belize, near the Guatemalan border. The center is situated almost equidistant between two of the major power houses in the ancient Maya world, Caracol and Naranjo (Figure 1). Minanha was first documented in 1922 when a *chiclero* came across the ruins while searching for chicle trees (Iannone 2004:3). Five years later in 1927, the British Museum mounted an expedition to map the site and carry out test excavations (Joyce et al. 1927). In 1997 Trent University’s Social Archaeology Research Program was asked by the Government of Belize to relocate the site, and assess the potential for carrying out an archaeological project there. Unfortunately, it soon became clear that the site was incorrectly marked on the government map; however, in May of 1998, the site was eventually relocated.

Community Archaeology at Minanha

In the summer of 1999 a long-term research project was initiated at Minanha. In 2006, Phase I investigations were completed at Minanha, those focused on extensive excavations within Minanha’s epicenter, the royal court complex. The Phase I investigations provided a view of the rise and fall of the Minanha city-state from the view point of Minanha’s royal court (Figure 2). Phase II

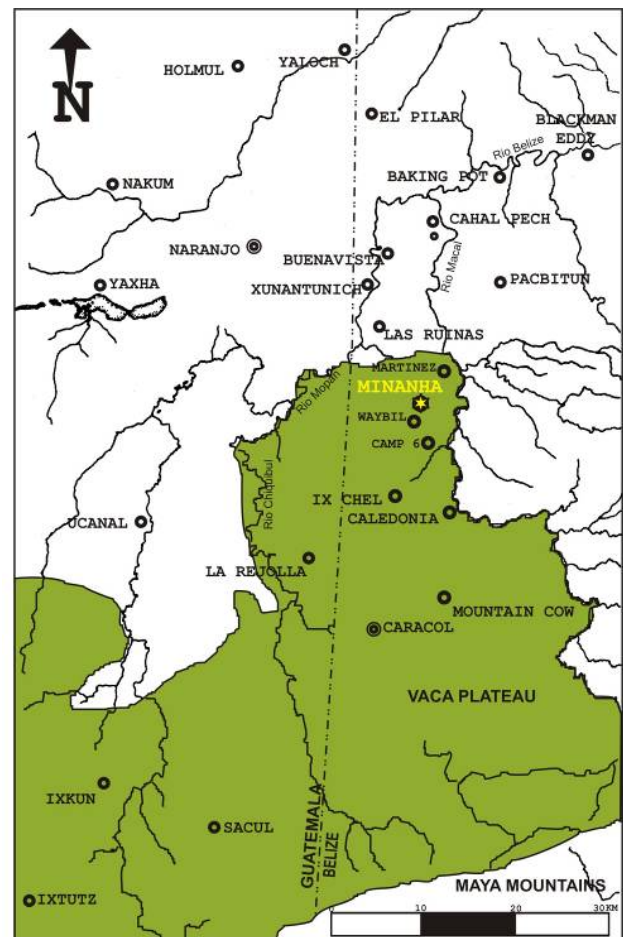


Figure 1. Regional Map Showing the Location of Minanha

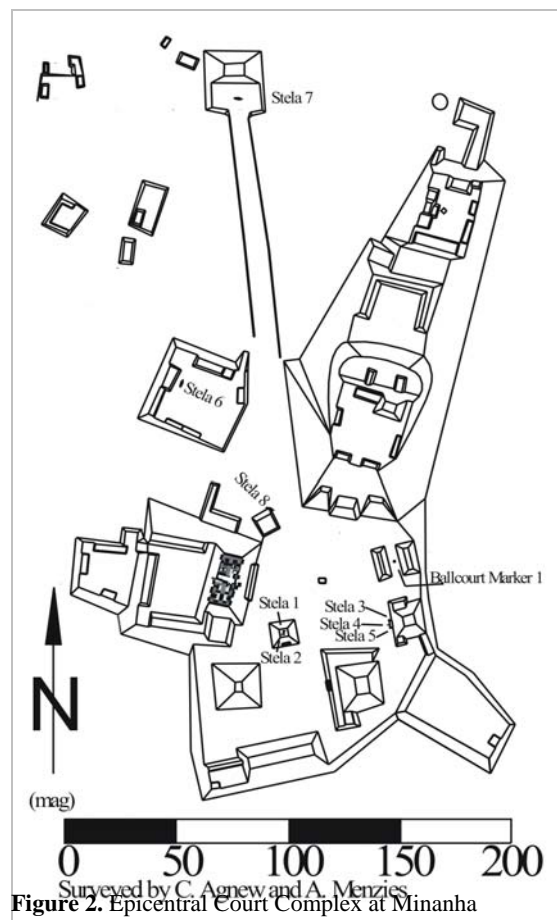


Figure 2. Epicentral Court Complex at Minanha

investigations which began in 2006, focused on the composition of two settlement zones, the Site Core and Contreras Zones, which are of varying distances from Minanha's epicenter (Figure 3). The Phase II investigations in the Site Core Zone and in the Contreras Zone were designed to both complement, and expand upon, the previous investigations in Minanha's epicenter. Specifically, they were aimed at examining the rise and fall of the Minanha city-state from the perspective of the support population. Archaeologists investigating the ancient Maya cannot rely on interpretations derived only from the epicentral court complexes, nor from the sole examination of the peripheral settlement zones. Rather, as Iannone (2006:18) suggested at the onset of the Phase II investigations, an "archaeology of community," which combines the two perspectives, must be completed (see also Yaeger and Canuto 2000:10-11). The Phase II investigations had three broad goals: 1) *to compare the settlement densities and composition of two settlement*

zones of varying distance from the Minanha epicenter; 2) to excavate a stratified sample of settlement units in both study zones; and, 3) to map the large-scale ancient Maya terrace agricultural system associated with one of the settlement zones. This paper will discuss the research conducted in association with the Contreras settlement zone, along with its associated terrace agricultural system.

The research design, for the Phase II study at Minanha was formulated so as to emulate the methods employed by the neighboring Xunantunich Archaeological Project (XAP), directed by Richard Leventhal (University of Pennsylvania) and Wendy Ashmore (University of California, Riverside) (Iannone 2006). This was for three primary reasons. First, Xunantunich exhibits a developmental sequence similar to Minanha's, and it is of comparable size and complexity. Secondly, at both centers a concerted effort was made to conduct detailed investigations were carried out in both the epicenter and in the periphery. Lastly, the researchers involved with XAP have produced a multitude of publications by which comparative examinations can be made. The terrace survey design also followed methods employed at Xunantunich. For example, in the most basic sense, terraces are retaining walls built of stacked stones running perpendicular to the slope of the hillside to retain and increase the depth of soil, regulate and distribute water, and enhance the nutritional value of the soil, they can be classified into several different types that exploit various topographical situations and involve different construction methods. The different construction methods have been noted in the past and used to group terraces into "sets" which have been classified as "individual terraces (that) are roughly parallel and collectively appear to manage the same immediate topographic setting." (Ashmore et al. 1994:259). At Xunantunich, Neff (2008:63-66) created a classification scheme based on terrace characteristics, association to other terraces and to structures. This classificatory model was followed at Minanha, although it was slightly tailored for the Contreras Valley.

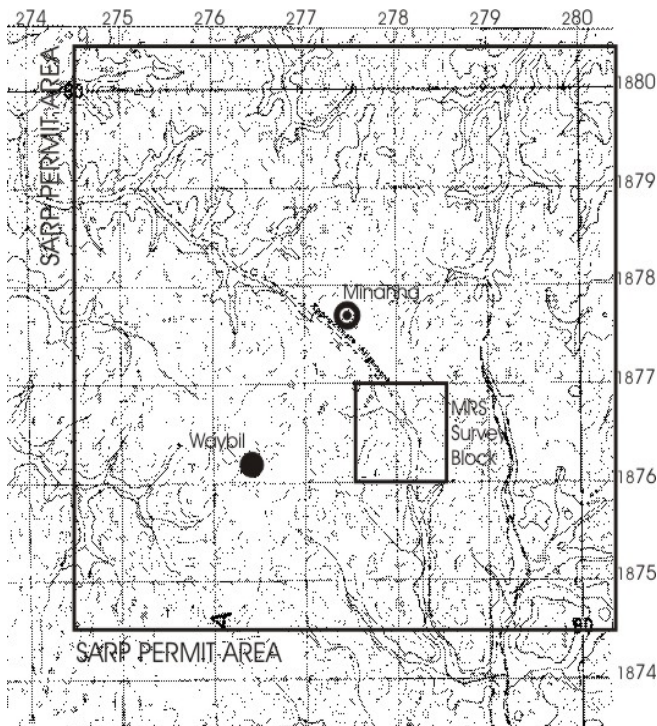


Figure 3. Location of Phase II Settlement Study

The Contreras Valley is located approximately one kilometer south of the Minanha epicenter, and was chosen as one of the two Phase II settlement areas because it was considered to have once been a diverse segment of the greater Minanha community, particularly because it is a densely terraced valley with an abundance of archaeological remains (Figure 4). Contreras is bounded on the north, east and west by sloping hillsides which offered its inhabitants an ideal location for the placement of terraces, which are easily observed throughout the valley. In addition to the terraces, settlement groups of various sizes are distributed across the landscape. Over the past four field seasons, reconnaissance, excavations within the settlement units, and the mapping of the terraces in Contreras have been completed in order to examine the temporal and spatial organization of these anthropogenic features. The settlement in Contreras will be discussed first followed by a discussion of the agricultural terrace system.

Settlement in the Contreras Valley

The settlement units in Contreras range in composition from single, isolated mounds to organized orthogonal units consisting of multiple structures. These settlement groups have been organized into seven types based on the Xunantunich Archaeological Project's classification scheme (Table 1). The seven different group types are based on number of structures, formal arrangement, and height of structures present in the settlement units. Differences in the characteristics of the aforementioned classification scheme are assumed to have social implications. Originally, a 20% random sample of these units was generated to determine which units would be subject to excavations. The sample was stratified based on the settlement types, so that it would accurately reflect the settlement group frequencies for the population. However, after more reconnaissance in Contreras, and the eventual discovery of more settlement units, it was determined that a 15% stratified random sample of these units would have to be a sufficient in terms of generating a representative sample of the settlement community. There are 98 known settlement units in

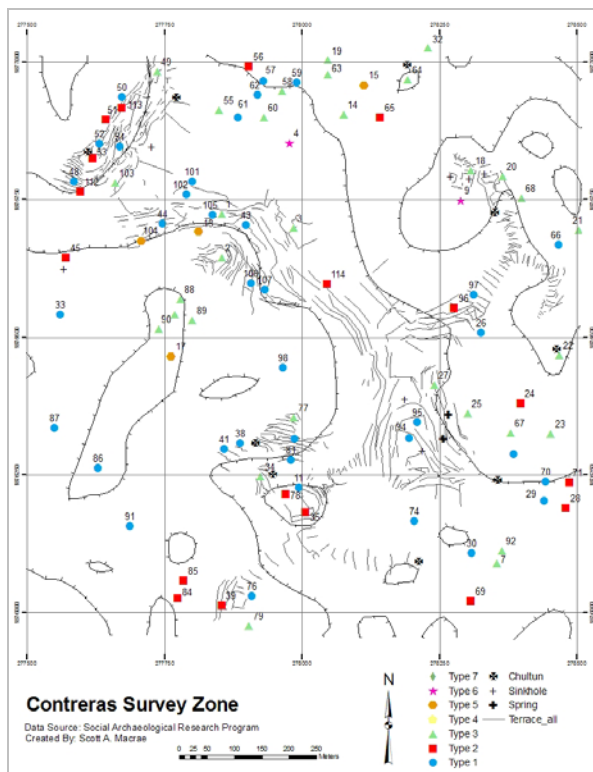


Figure 4. Contreras Survey Zone.

Contreras Valley

Spatial Arrangement of Settlements Groups at Mininha

MINANHA PHASE II SETTLEMENT STUDY: CONTRERAS ZONE				
Type	Total # in Zone	Identified Settlement Units Within the Contreras Zone	Total # in 15% Sample	Randomly Selected Settlement Units
I: isolated mound (less than 2 m high)	45	MRS10, MRS11, MRS26, MRS29, MRS30, MRS33, MRS36, MRS37, MRS38, MRS40, MRS41, MRS42, MRS43, MRS44, MRS48, MRS50, MRS52, MRS54, MRS57, MRS59, MRS61, MRS62, MRS66, MRS70, MRS73, MRS74, MRS76, MRS86, MRS87, MRS91, MRS94, MRS95, MRS97, MRS98, MRS101, MRS102, MRS105, MRS106, MRS107, MRS108, MRS109, MRS110, MRS111, MRS115, MRS116	6.8	MRS11, MRS36, MRS43, MRS57, MRS61, MRS86
II: 2-4 mounds (informally arranged; all less than 2 m high)	18	MRS24, MRS28, MRS35, MRS39, MRS45, MRS51, MRS53, MRS56, MRS65, MRS69, MRS71, MRS78, MRS84, MRS85, MRS96, MRS112, MRS113, MRS114	2.7	MRS78, MRS85, MRS96
III: 2-4 mounds (orthogonally arranged; all less than 2 m high)	29	MRS1, MRS2, MRS3, MRS7, MRS14, MRS16, MRS18, MRS19, MRS20, MRS22, MRS23, MRS25, MRS27, MRS34, MRS49, MRS55, MRS58, MRS60, MRS63, MRS64, MRS67, MRS68, MRS77, MRS81, MRS88, MRS89, MRS90, MRS92, MRS103	4.3	MRS2, MRS22, MRS63, MRS89
IV: 5 or more mounds (informally arranged; all less than 2 m high)	0	none	0	none
V: 5 or more mounds (at least 2 arranged orthogonally; all less than 2 m high)	4	MRS13, MRS15, MRS17, MRS104	0.6	MRS15
VI: 1 or more mounds (at least 1 being 2-5 m high)	2	MRS9, MRS4	0.3	MRS4
VII: 1 or more mounds (at least 1 being higher than 5 m)	0	none	0	none
TOTALS	98		14.7	15

COMPARISON OF UNIT-TYPE DISTRIBUTIONS BY ZONE (Count)

Count of Unit Type	Unit Type						
	I	II	III	V	VI	VII	Grand Total
Contreras	47	17	28	4	2	0	98
Epicenter	2	0	5	2	3	2	14
Site Core	10	6	18	3	2	0	39
Grand Total	59	23	51	9	7	2	151

COMPARISON OF UNIT-TYPE DISTRIBUTIONS BY ZONE (Percentage)

Count of Unit Type	Unit Type						
	I	II	III	V	VI	VII	Grand Total
Contreras	48.0%	17.3%	28.8%	4.1%	2.0%	0.0%	100.0%
Epicenter	14.3%	0.0%	35.7%	14.3%	21.4%	14.3%	100.0%
Site Core	25.6%	15.4%	46.2%	7.7%	5.1%	0.0%	100.0%
Grand Total	39.1%	15.2%	33.8%	6.0%	4.6%	1.3%	100.0%

Contreras, compared to 14 settlement units in the epicentral zone, and 39 in the site core zone (Table 2). Of the 98 settlement units in Contreras, 64.3% of them are either of the Type I or Type II variety, which indicates that most of the units are made up of a limited number of buildings and are informally arranged. Within the epicentral zone, only 14.3% of the settlement units are of the Type I or Type II variety, and in the site core zone 41% of the settlement units are of the Type I or Type II variety. Additionally, only 35.7% of the settlement units in Contreras are formally arranged, while 85.7% of the settlement units in the epicenter are formally arranged, and 59% of the settlement units in the site core are formally arranged. For the larger and more formal settlement units in the Contreras Valley, Iannone et al (2006:121) have hypothesized that these units may represent long-standing rural families. They also suggest that many of the solitary mounds represent special function or field buildings. In summation, as you move away from the epicenter, the density of the settlement units increases, but their formal arrangement decreases.

Preliminary ceramic analysis from the excavated settlement units indicates that the Contreras valley was inhabited from at least the Late to Terminal Preclassic all the way through the Terminal Classic. Therefore, there was a population residing in the Contreras Valley settlement zone long before the establishment of the royal court and Minanha and a population was able to keep persist in the valley after the fall of the royal court.

It was initially thought that the hilltops in Contreras were “prime locations” for the more formally arranged settlement units because the inhabitants would have had a commanding view of the Contreras Valley when outside of the buildings. Additionally, it was believed that single isolated mounds and “less organized” groups would be located at lower elevations. Thus, a chi-square goodness of fit test was conducted to test these hypotheses. A chi-square goodness of fit was selected as an appropriate test because the comparison desired examines how two nominal variables are related, in this case testing to see if differences exist

between group type (1 through 7) and elevation (low, middle, high). The relationship between group types and elevation was found to be statistically insignificant (calculated chi-square = 6.92; critical chi-square = 15.507, $p = 0.05$). Therefore, elevation may not have had any impact over where the residents chose to reside, and some other variable (e.g., agricultural potential) may have been the primary determinant. Additionally, Average Nearest Neighbor analysis was conducted in ESRI's ArcMap as a preliminary investigation of the distribution of settlement groups in Contreras. The results are as follows: the calculated R-statistic was 0.99. Since the R-value is smaller than 1.00 it indicates that the settlement groups in Contreras are dispersed randomly across the one kilometer square survey area. In reality, however, spatial settlement arrangements can rarely be described via the three “traditional” idealized states of point distributions: random, clustered, or dispersed. More specifically, the analysis of spatial settlement patterns should be sympathetic to the fact that several diverse, small-scale patterns may exist within a study area, and that different types of patterning often exist at different scales. In other words, nearest neighbor analysis may overlook more complex spatial patterns because it is sensitive at only one scale (Conolly and Lake 2006:162-164). Further, the underlying spatial process may not be homogenous over the study region in regard to the point distribution being analyzed. Therefore, in the future, a Ripley's K-statistic will be conducted in ArcMap on the Contreras data to evaluate if clustering is present and, if so, to assess its magnitude; these results will enable us to depict the randomness of the settlement groups over different spatial scales.

Lastly, Iannone et al. (2006) reported that a majority of the settlement groups in Contreras are situated on the terraced hillside as opposed to the valley bottom. This type of settlement patterning may be indicative of a conscious effort on the part of the Contreras residents not to build on the rich soils of the valley bottom because these areas would have been the most fruitful agricultural lands. This

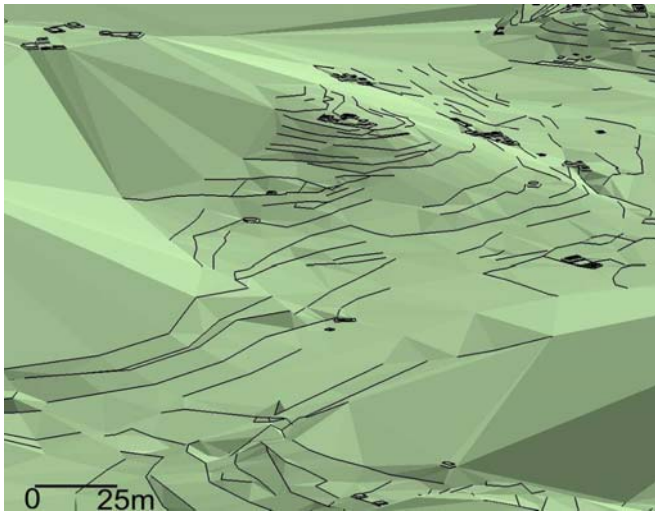


Figure 5. Contour Terraces in Contreras, Mininha.

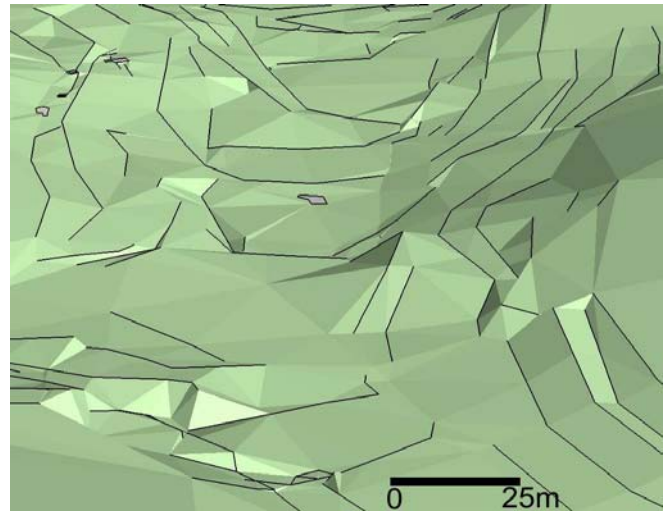


Figure 6. Linear Terraces in Contreras, Mininha.

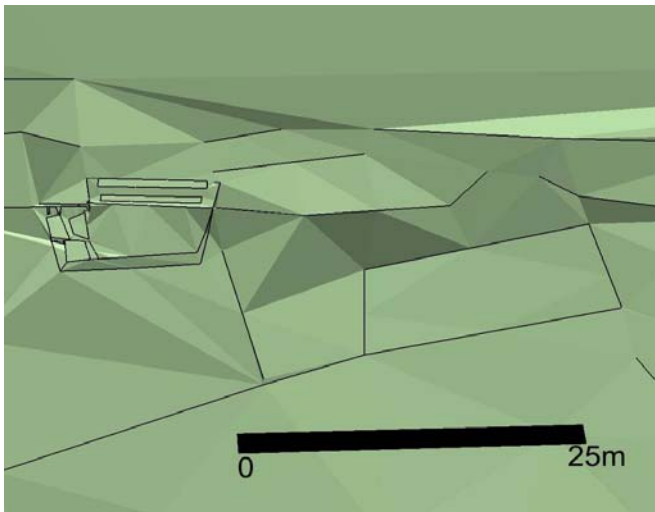


Figure 7. Box Terraces in Contreras, Mininha.

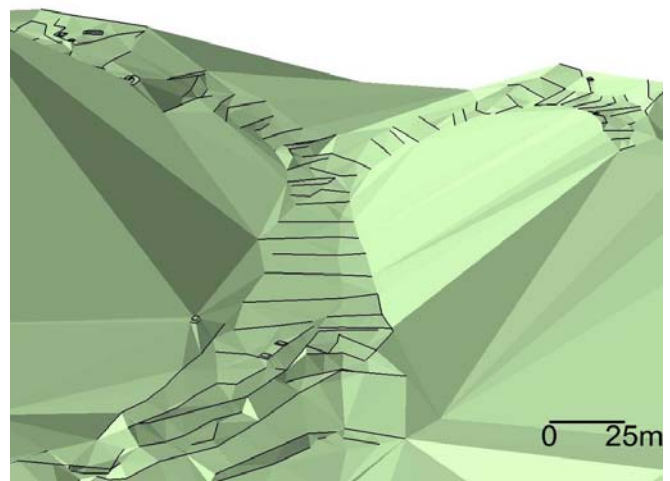


Figure 8. Cross-Channel Terraces in Contreras, Mininha.

may explain why, while the results are not significant, there is some clustering present on the hillsides.

We have just provided you with a brief overview of what the settlement in the Contreras Valley is like with respect to the spatial distribution and with respect to compositional settlement in the site core and epicentral zones. Now, it is time to examine the Contreras Valley agricultural terrace system in more detail.

Contreras Agricultural Terrace System

Examining the relic agricultural terrace systems and the culturalized landscape found in the Contreras Valley has provided us with

avenues into understanding both the socio-political and socio-economic organization of the valley. The Contreras valley terrace survey was carried out over the last four years. The survey was oriented towards examining a sample of terraces from the varying topographic situations found throughout the valley. This was accomplished with a small team of surveyors, a GPS, and a theodolite.

As previously mentioned, the terraces have been classified into sets using the same typology employed by the Xunantunich project (Ashmore et al. 1994:259). Contour terraces are the most common, known to vary in length and follow the topography of the hill slopes (Beach

et al. 2002:386). Within the Contreras Valley, they are found prolifically along the twisting slopes of the interfluvial residual hills and the primary valley (Figure 5). Linear terraces are placed independent of contours, and have been observed to run up and down slopes between terrace systems to create lattice-like patterns, or perpendicular to contour terraces to create vast level fields (Demarest 2004:138; Kunen 2001:326; Treacy and Denevan 1994:98-100) (Figure 6). Box terraces or rectangular terraces are found on moderate flat land, in close association with residential complexes (Beach et al. 2002:386; Dunning and Beach 1994:58; Kunen 2001:326) (Figure 7). These are uncommon or easily hidden in or erased from the landscape, and few examples exist within the Contreras Valley (Beach et al. 2002:386). This set also includes many terraces that are not strictly box terraces, but rather terraces exhibiting extreme complexity in close association with settlement units. Cross-channel terraces, also known as weir or check dams, are usually short and tall, and are found in the smaller subsidiary valleys between the residual hills, running perpendicular to gullies, drainages, and other locations that exhibit constricting topography (Kunen 2001:326; Treacy and Denevan 1994:96) (Figure 8). These are often found running perpendicular to contours (Kunen 2001:326; Treacy and Denevan 1994:96). Foothlope terraces are found at the base of steep slopes that exhibit very little to no terraces (Beach et al. 2002:387; Dunning and Beach 1994:59-60; Kunen 2001:327; Treacy and Denevan 1994:100-101) (Figure 9). They are rare within Contreras Valley as hills rarely get steep enough to be suitable for contour terracing. The goals of foothlope terraces are to control erosion and collect the runoff thereby creating large, flat, plots of land below the hill slopes (Beach et al. 2002:387; Kunen 2001:327). The aforementioned five terrace types, with their specific topographic locations, provide an empirical way to group them. The issue that arises, however, is whether these sets reflect any degree of differing social organization, or simply the environmental situation?

Terraces are found abundantly throughout the Contreras Valley and they were built in all locations conducive to terrace

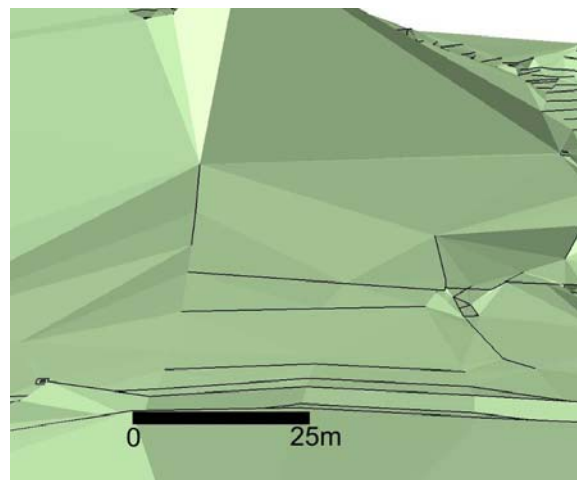


Figure 9. Foothlope Terraces in Contreras, Minanha.

farming. Within the surveyed area there are a total of 458 terraces covering 36.5 hectares of land. These data are indicative of the high density of terraces in the valley (Figure 10). Several of the terraces span great distances, 10 of which are over 100 m in length and one that is 217 meters long. The terraces also exhibit great uniformity, which is supported by the ability to classify the terraces into clear “sets”. In several cases longer terraces are incorporated into several different “sets”, which effectively changes their classification. It is also apparent that a few areas in close proximity to settlements exhibit a significant increase in the frequency and complexity of terraces. These terraces often transcend both terrace typology and slope characteristics. This has produced an interesting mix, with the construction of some large-scale terrace networks that extend beyond individual households and terrace “sets”, along with others that are likely reflective of more intensive, small-scale household systems.

The construction method of terraces has also been examined in our Phase II study at Minanha. Excavations have revealed that there were two types of terrace walls constructed; single and double-walled terraces (Pollock 2006:187). These terrace walls were found to utilize the natural step-like nature of the limestone bedrock to reduce labor (Pollock 2006:222-223). The natural bedrock outcrops

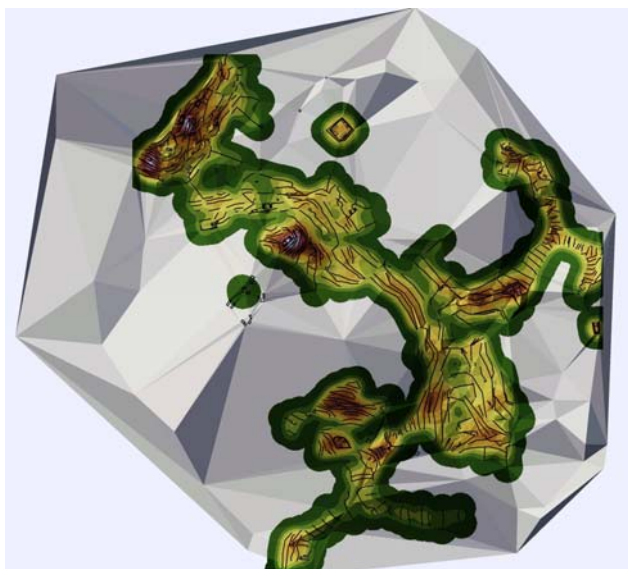


Figure 10. Terrace Density in Contreras, Minanha.

found within the Contreras Valley were also used. The individuals building the terraces were taking advantage of these formations by either starting or ending on the bedrock outcrops, which incorporated them into the overall design. This further reduced the labor needed for both construction and maintenance. One final observation was noted on the construction of the Contreras Valley terrace system. Throughout the valley there were varying levels of terrace quality. High quality terraces are found in close proximity to certain settlement units, sometimes linking groups and key agricultural plots together (Macrae et al. 2008). In contrast, low quality terraces serve to articulate the high quality terraces in many cases, creating convex platforms (Macrae et al. 2008). Unfortunately, this observation will remain purely speculative unless extensive terrace excavations are undertaken.

Agricultural terraces have been notoriously difficult to date. Within the Contreras Valley we have been lucky in the fact that three of our settlement excavations have uncovered underlying terrace constructions. These underlying terraces have been dated to as early as the Late Preclassic. When combined with our settlement data, we hypothesize that there was a small population of agriculturalists using and constructing these terraces during the Late Preclassic. During the Late Classic, with

the establishment of the royal court at Minanha, the Contreras Valley saw a significant settlement increase in conjunction with the development of the vast terrace system. This is substantiated by the degree of incorporation between the visible terraces and the majority of settlement groups dating to this time period. Then, during the Terminal Classic—with the collapse of the royal court and subsequent depopulation in the epicenter—the settlement in Contreras also saw a gradual decline; but, several of the larger settlement groups established during the Early Classic in Contreras continued to be occupied into the Terminal and Early Postclassic periods.

In broader terms, the primary goal of the survey has been to explore the socio-political and socio-economic organization behind the construction and maintenance of the Contreras Valley terrace systems. In the Maya lowlands there is considerable variability in the timing, scale, spatial patterning, and forms of terrace field systems. This is thought to reflect differences in the social-political organization of agricultural production and intensification at different centers. Traditionally, this data has been used to interpret terrace systems as being the result of centralized, decentralized, or more recently, heterarchical socio-political organization.

A centralized development is an intensive, top-down approach to community growth reflecting a hierarchical process, and interpreted as evidence of the direct involvement of political elites in the organization and control of surplus (Demarest 1994:146). Decentralized growth is a bottom-up, non-hierarchical process based on individual farming households, lineages, or communities that involve the local control and development of extensive agricultural systems (Beach et al. 2002:386; Demarest 1994:146). Heterarchical organization exists in the middle ground, incorporating aspects of both hierarchical and non-hierarchical social organizations (Crumley 1995:3; Scarborough et al. 2003:xiv). Social structures defined as heterarchical are more reflective of the complex organization, adaptability, and flexibility of typical human societies (Crumley 1995:3; Scarborough et al. 2003:xiv). This complex management system works on all levels of society, from agricultural production, to

settlement organization, to social structuring, involving both vertical and horizontal power relationships (Crumley 1995:3; Potter and King 1995:17). Horizontal relations include societal elements perceived to be unranked and equivalent to each other (Crumley 1995:3; Potter and King 1995:17). Vertical relations occur on a tiered, ranked organization. Heterarchical social organization networks assume different roles of ranking depending upon their context of use (Crumley 1995:3; Potter and King 1995:17). This flexibility makes elements within society unrankable in comparison to each other, or when ranking is possible; the ability to be ranked in a variety of different ways is retained based on participation in individual systems (Brumfiel 1995:3,15).

The results from the terrace survey in, Contreras Valley, suggests aspects of centralized and decentralized organization. The uniformities found within the terrace construction, organization, and typology is suggestive of a well-founded knowledge of the principles of terrace construction. The interconnectivity with surrounding terrace systems, high number, and the protracted length of several of these terraces, suggests a level of interaction that extends beyond the household, and involves a large-scale construction method. These characteristics point towards a centralized organization of the terrace systems. Evidence for higher terrace densities, complexity, and quality within close proximity to settlement units suggests a piecemeal process of construction, and decentralized development. The practicality exhibited in the labor saving methods, such as incorporating natural features into terrace construction also suggests an intrinsic knowledge of the local topography and the fluvial and sediment deposition processes. These lines of evidence point towards decentralized organization of the construction and maintenance of the intensive agricultural terrace systems. Overall this blending of characteristics suggests a mix of both centralized and decentralized organization. This is why it is important to consider the heterarchical approach. However, one question remains: What does the heterarchical classification of the intensive terrace systems of Minanha mean to the interpretation of the ancient Maya of the Contreras Valley, and Minanha?

Conclusions

Over the past four years of research in the Contreras Valley, we have generated a number of intriguing insights. For one, the Contreras Valley was inhabited much longer than originally anticipated – it was originally occupied as early as the Late to Terminal Preclassic, and continued to be occupied through the Terminal Classic and possibly even into the early Postclassic period. Some of the larger, more complex settlement units in the Contreras Valley were inhabited for the entire time span. The success of these groups is likely tied to the Principle of First Occupancy, their control of improved land, and proximity to perennial springs. In terms of other observations, the settlement in Contreras is “less formal” when compared to what was found in the epicentral and site core survey zones. Nevertheless, the Contreras community itself was still quite diverse – it was clearly home to a vast range of peoples with varying roles and statuses. With respect to preliminary spatial analyses, it appears as if elevation did not have significant impact over where the residents chose to reside, and some other variable, or variables may have been the primary determinants -- such as agricultural potential, proximity to springs, etc. Preliminary global spatial analysis suggests that the settlement units in the Contreras Valley are dispersed randomly across the 1 square kilometer. Still, the settlement will need to be examined on a more localized scale so that any sort of clustering on the hillsides or near the springs can be identified.

From our terrace survey within the Contreras Valley we have learned 1) our research has provided independent confirmation that, as has been found elsewhere in the Maya Lowlands, the inhabitants of the Contreras Valley began using agricultural terraces at a very early date, to help support a developing community, likely sometime in the Late to Terminal Preclassic; 2) the inhabitants of the Contreras Valley had a well found knowledge of terrace construction resulting in uniform terrace “sets”; 3) the terrace systems within the Contreras Valley exhibit characteristics of both decentralized and centralized socio-political

organization, which suggests a heterarchical organization.

This paper has outlined the goals and some of the results of the Phase II research in the Contreras Valley. These investigations continue to provide a wealth of evidence concerning the peripheral community of Minanha; however, further analyses will help shed light on our understanding of this community and the issues which affected it during its lifetime.

Acknowledgements First and foremost, we would like to thank the Institute of Archaeology in Belize for their continued support of our ongoing research at Minanha. Additionally, we would like to thank the following funding agencies for their financial support of this research presented herein: the Social Sciences and Humanities Research Council of Canada, and the University Research Council at the University of Cincinnati. Lastly, we would like to thank all of the students, staff, and Belizean assistants on the North Vaca Archaeology Program along with our greater Belizean family. This paper is dedicated to the late David “Ciego” Valencio, thank you for all your years of commitment to Belizean archaeology and for being a great friend... you are missed.

References Cited

Ashmore, Wendy, Samuel V. Connell, Jennifer J. Ehret, Chad H. Gifford, L. Ted Neff, and John C. Vandenbosch
1994 The Xunantunich Settlement Survey. In *Xunantunich Archaeological Project: 1994 Field Season*, edited by Richard Leventhal, pp. 248-288. Xunantunich Archaeological Project, Los Angeles.

Beach, Timothy, Sheryl Luzzadder-Beach, Nicholas P. Dunning, Joe Hageman, and John Lohse
2002 Upland Agriculture in the Maya Lowlands: Ancient Maya Soil Conservation in Northwestern Belize. *The Geographical Review* 92(3):372-397.

Brumfiel, Elizabeth M.
1995 Heterarchy and the Analysis of Complex Societies: Comments. In *Heterarchy and the Analysis of Complex Societies*, edited by Carole

L. Crumley, Robert M. Ehrenreich, Janet E. Levy, pp. 125-131. American Anthropological Association, Virginia, Arlington.

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

Conolly, James, and Mark Lake
2006 *Geographical Information Systems in Archaeology*. Cambridge University Press, Cambridge.

Demarest, Arthur
2004 *Ancient Maya: The Rise and Fall of a Rainforest Civilization*. Cambridge University Press, Cambridge.

Dunning, Nicholas P., and Timothy Beach
1994 Soil Erosion, Slope Management, and Ancient Terracing in the Maya Lowlands. *Latin American Antiquity* 5(1):51-69.

Iannone, Gyles
2004 The Search for the “Place without Water”. Paper presented at the 2nd Annual Belizean Archaeology Symposium, Belize City, Belize.

Iannone, Gyles
2006 Detailed Description of the Proposed Phase II Research. In *Archaeological Investigations in the North Vaca Plateau, Belize: Progress Report of the Eighth (2006) Field Season*, edited by Gyles Iannone, Jeffrey Seibert, and Jason Seguin, pp. 12-26. Social Archaeology Research Program, Trent University, Peterborough, Ontario.

Iannone, Gyles, Jesse Phillips, and Carmen McCormick
2006 Community Archaeology at Minanha: Some Preliminary Musings on the 2006 Field Season. In *Archaeological Investigations in the North Vaca Plateau, Belize: Progress Report of the Eighth (2006) Field Season*, edited by Gyles Iannone, Jeffrey Seibert, and Jason Seguin, pp. 115-127. Social Archaeology Research Program, Trent University, Peterborough, Ontario.

Joyce, T. A., J. Cooper Clark, and J. E. S. Thompson
1927 Report on the British Museum Expedition to British Honduras, 1927. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 57:295-323.

Kunen, Julie L.
2001 Ancient Maya Agricultural Installations and Development of Intensive Agriculture in NW

- Belize. *Journal of Field Archaeology* 28(3/4):325-346.
- Macrae, Scott A., Adam Pollock, Elizabeth Webb, and Henry Schwarcz
2008 Investigations of the Agricultural Terracing Surrounding the Ancient Maya Centre of Minanha, Belize. Paper presented at the 2008 Annual Meeting of the Society for American Archaeology, Vancouver, Canada.
- Neff, Theodore L.
2008 *A Study of Agricultural Intensification: Ancient Maya Agriculture Terracing in the Xunantunich Hinterland, Belize, Central America*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Pennsylvania, Philadelphia.
- Pollock, Adam
2006 *Investigating the Socio-Economic and Socio-Political Organization of Intensive Agricultural Production at the Ancient Maya Community of Minanha, Belize*. Unpublished Master Thesis, Department of Anthropology, Trent University, Peterborough, ON.
- Potter, Daniel R., and Eleanor M. King
1995 A Heterarchical Approach to Lowland Maya Socioeconomies. In *Heterarchy and the Analysis of Complex Societies*, edited by Carole L. Crumley, Robert M. Ehrenreich, Janet E. Levy, pp. 17-32. American Anthropological Association, Arlington, VA.
- Scarborough, Vernon L.
2003 *The Flow of Power: Ancient Water Systems and Landscapes*. School of American Research, Sante Fe.
- Treacy, John M., and William M. Denevan
1994 The Creation of Cultivable Land through Terracing. In *The Archaeology of Garden and Field*, edited by N. F. Miller and K. L. Gleason, pp. 91-110. University of Pennsylvania Press, Philadelphia.
- Yaeger, Jason and Marcello A. Canuto
2000 Introducing an Archaeology of Communities. In *The Archaeology of Communities: a New World Perspective*, edited by Marcello A. Canuto and Jason Yaeger, pp. 1-15. Routledge, London.

15 ***PRELIMINARY INVESTIGATIONS OF THREE CAVES SITES IN THE PERIPHERY OF PACBITUN, BELIZE***

Terry G. Powis

Excavations at Pacbitun have been undertaken since the mid-1980s. Over these past 25 years, Paul Healy and colleagues have focused their work primarily on the site core. Settlement studies did take place, but were limited to testing house mounds within two kilometers of the epicenter. As a result, our knowledge of the periphery of Pacbitun, extending beyond this limit, is poor. The Pacbitun Preclassic Project set out to remedy this, in part, by examining some of the caves sites located in the periphery of Pacbitun. To date, twelve caves have been identified around Pacbitun. One of them, Actun Petz, is the only one to have been investigated archaeologically. In the summer of 2009, three of these caves were investigated. The focus was on mapping, recording, and photographing the artifactual and architectural remains located inside each cave.

Introduction

Over the past decade, a number of caves have been investigated in western Belize, primarily by the Western Belize Regional Cave Project (Awe et al. 2005; Awe and Lohse 2007, Griffith 1998; Helmke 1999; Ishihara 2000; Lohse et al. 2006; Moyes 2002; Moyes et al. 2009). The project, led by Dr. Jaime Awe, has systematically explored, mapped, and intensively excavated a number of caves in this region, including Actun Tunichil Muknal, a cave well-known for its whole pottery vessels, burials, and carved slate stelae. With the exception of this single project, few caves in western Belize have been thoroughly explored. Western Belize has an abundance of caves, but relatively few archaeological investigations have taken place. Reasons for this may be the financial cost, accessibility, and/or the physicality needed to work in such an environment.

Situated between the ancient Maya site of Pacbitun, located on the southern rim of the Belize Valley, and the modern Maya village of San Antonio, there are 12 unnamed caves that have never been archaeologically investigated. While all of the caves are located on private property, many have already been entered by collectors, looters, and tourists.

One of the main goals of the Pacbitun Preclassic Project is to investigate caves located in the periphery of the site. This research program is designed to complement the settlement studies conducted by Dr. Paul Healy in the mid-1980s (Healy 1990; Healy et al.

2007). In his settlement survey, Healy identified a “downtown” Epicenter (0.5 sq km) at the heart of the site, surrounded by a Core Zone (1 sq km) which, in turn, is surrounded by the Periphery Zone (an additional 8 sq km)” (Healy et al. 2007:17). They recorded 330 mounds within the periphery of the site. While Healy was aware of a number of caves in the area his research was centered on the excavation of the mounds recorded during the settlement survey, not on the investigation of caves (Paul Healy, personal communication, 2009). However, this does not provide a complete picture of occupation in the periphery of the site. The investigation of the cave sites must be considered if we want to correctly interpret the nature and extent of settlement in and around Pacbitun.

In the summer of 2009, the Pacbitun Preclassic Project initiated a program focused on investigating the cave sites located in the periphery of Pacbitun. All of them are located more than three kilometers from the Core Zone, but each of them is still situated within the eight kilometer Periphery Zone identified by Healy and colleagues (Healy et al. 2007). The primary objectives of the 2009 field season were to: 1) ascertain the types of activities that may have occurred within the caves; 2) enhance our knowledge of the role of caves at the regional level (i.e., the Belize Valley); and 3) determine whether there were temporal, social, and regional differences in the use of caves in the Maya Lowlands. These investigations will be compared with data from other caves in the area in an effort to determine whether there are any

inter-regional similarities or differences in cave artifact assemblages, art, architecture, and, ultimately, function. This regional approach to the study of caves will provide a more accurate picture of the temporal and spatial use of caves by the ancient Maya.

Cave Descriptions

In 2008, the author was approached by Mr. Alfonso Tzul of San Antonio Village. Mr. Tzul owns the land that Pacbitun and the caves are located on. At the time, he expressed concern over the looting of the caves on his property, some of which contained human remains and whole pottery vessels. Mr. Tzul encouraged the author to fully explore, map, and intensively investigate each of these caves. In the summer of 2009, preliminary investigations began at three caves: Actun Merech, Actun Petz, and Tzul's Cave (Figures 1 and 2). The field work included detailed mapping (floor plans) of activity areas and chambers with cultural remains in order to examine the contextual distribution of particular artifacts, monuments, art, and human and animal remains. The caves and their contents were photographed and illustrations were made of all cave art, including carvings, paintings, and footprints. Artifactual materials and human and animal remains were also analyzed.



Figure 1. View of the foothills of the Mountain Pine Ridge showing the locations of Actun Merech, Actun Pech, and Tzul's Cave.

Actun Merech

Preliminary survey of Actun Merech (Lizard Cave) was made in June, 2009 by the author, accompanied and assisted by staff, students, and Tzul Family members. The cave is

located about three kilometers to the southwest of Pacbitun. Actun Merech is a dry cave with nine identifiable rooms or chambers (Rooms A-I). The cave measures approximately 50 meters long and is L-shaped. The entrance to the cave is situated near the summit of a steep hill (west face), which is part of the foothill formation of the Mountain Pine Ridge, with the cave facing west toward Tutu Creek. It is located 370 meters above sea level (masl). At the base of the hill is a natural spring, which has been modified by the ancient Maya. There is clear evidence of a stone wall made of roughly-hewn slate blocks encircling the edge of the spring.

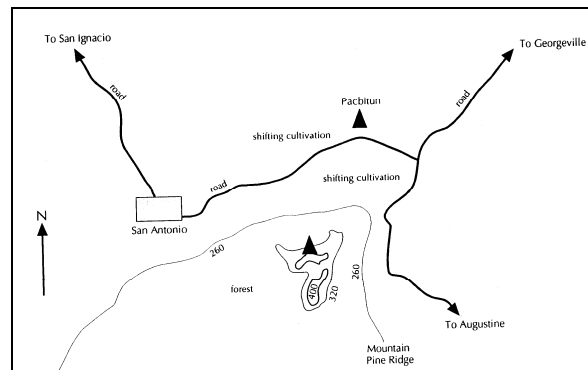


Figure 2. The location of Actun Pech to the south of Pacbitun (after Healy et al. 1996:Figure 1). Actun Merech and Tzul's Cave are both situated on adjacent hilltops to the west of Actun Pech.

The mouth of the cave is relatively large, measuring approximately three meters in diameter (Figure 3). Upon walking into the entrance (Room A), which is similar looking to a large modern-day foyer, the next three rooms (Rooms B-D) become very restrictive, only large enough to accommodate one person to enter at a time (Figures 4 and 5). From Room D to Room E, one must descend steeply about two meters. In contrast to the Rooms B-D, Room E is relatively large and spacious, with a domed ceiling with a height of about six meters. There appeared to be evidence of burning on the ceiling, but further inspection is needed to verify this statement. The room itself can accommodate a number of people at any one time. There are numerous horizontal formations along the walls of this room. These small ledges protrude out approximately 30 cm from the walls and extend



Figure 3. View of the entrance to Actun Merech, Cayo District, Belize.

down from the ceiling to the floor. Only a few Late Classic pottery sherds (mostly Cayo Unslipped rim sherds) were found on the ledges. Moving southwest in the cave, one passes through three more small, restrictive rooms (Rooms F-H). Room G is unique within the cave in that there are two small openings at either end of the room. In cross-section, these openings look like a pair of binoculars (see Figure 4), becoming slightly larger (and circular) as one descends deeper into each one. The opening on the north side has a vertical depth of about 15 meters. At the bottom of this hole, we encountered a few pottery sherds and animals bones. No human remain were found. The bottom of the south opening was never reached as we ran out of rope at 25 meters. We intend to return in the summer of 2010 to determine the depth of this opening, as well as to recover any cultural items that may have been thrown or placed into it.

Room I, at the back of the cave, represents another large and open chamber. Like Room G, there are a series of horizontal

formations in this room. A few Late Classic rim sherds (from ollas) were encountered on one of these ledges. While no other pottery was encountered in this room, we were told by one of the residents of San Antonio Village that this back room once contained three intact Late Classic period vessels, including one red slipped cylindrical jar, one red slipped deep bowl, and one polychrome dish. They were removed sometime in the late 1960s.

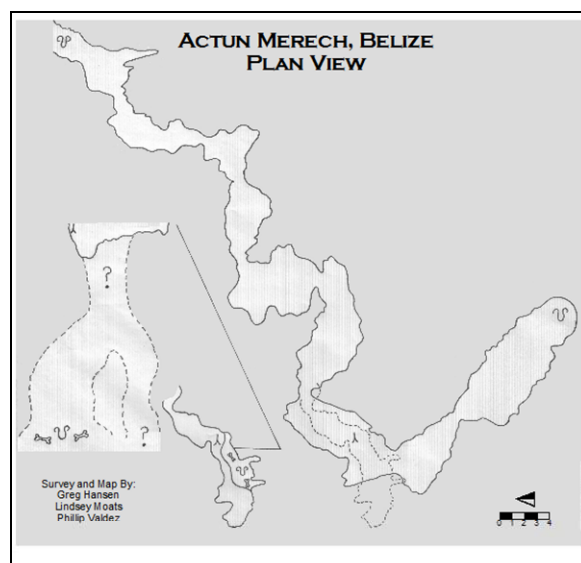


Figure 4. Plan view of Actun Merech, Cayo District, Belize

Actun Pech

In 1995, Actun Pech (Tick Cave), formerly known as Actun Petz, was preliminarily surveyed by Paul Healy, Jim Conlon, and Rhan-Ju Song (Healy et al. 1996). It is the only cave that Healy and his colleagues investigated in the Periphery Zone (Figure 6). The cave was revisited in the summer of 2009 in order to determine whether any looting had occurred since the original survey was conducted nearly fifteen years ago. Given the revisit, only a brief overview of the cave is provided here (see Healy et al. 1996 for a full description). This overview is followed by recent observations made inside Actun Pech.

Actun Pech is a small, dry cave situated on top of a steep hill directly next to (or east of) the hill on which Actun Merech is located. This

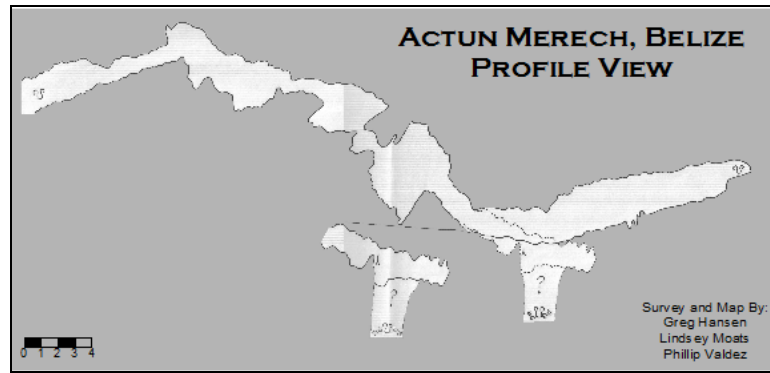


Figure 5. Northeast-Southwest profile of Actun Merech, Cayo District, Belize

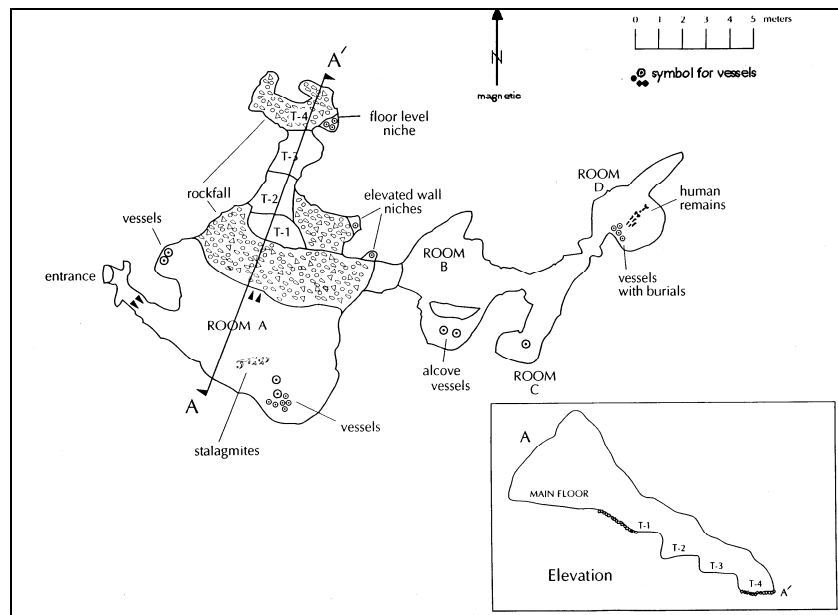


Figure 6. Plan and profile of Actun Pech (after Healy et al. 1996:Figure 2).

cave is at an elevation of 345 masl. It is about 25 meters long, oriented east-west, and is divided into four chambers (Rooms A-D) (Healy et al. 1996:139). Twenty-three whole and partial pottery vessels (including 16 ollas) were found throughout the cave, dating in age from the Late Preclassic (ca. 100 BC) to the Terminal Classic (ca. AD 900) (Healy et al. 1996:143-146). Human remains (four adults, one sub-adult, and one child) were found on the floor of Room D, the deepest and easternmost chamber of the cave. The bones were well-preserved and found largely in correct anatomical position (Healy et al. 1996:146). The human remains were located adjacent to a number of whole and broken pottery vessels (e.g., Alexanders Unslipped, Garbutt Creek Red, Mount Maloney Black,

Roaring Creek Red, Zubin Red), dating to the Late-to-Terminal Classic periods.

During the revisit to Actun Pech in the summer of 2009, it was observed that a gate had been erected over the cave entrance (Figure 7). The gate was put up a few years ago when the Tzul Family had noticed that some looting had occurred at the cave site. The gate has been effective in deterring individuals from removing any further cultural material. Upon entering the cave, Rooms B-C appeared not to be affected by the looting. However, in Room D it was immediately observed that the human remains had been disturbed from their *in situ* position (Figure 8). No bones were missing, but they did seem to be more jumbled than previously observed. It also appeared that fewer pottery vessels were present in Room D. The list of

vessel types from the 1995 survey still needs to be compared to the 2009 assemblage, but from a preliminary examination no ceramic types dating to the Late Preclassic period were identified in this room.



Figure 7. View of gated entrance to Actun Pech, Cayo District, Belize.



Figure 8. View of human remains during the 2009 revisit to Actun Pech, Cayo District, Belize.

Tzul's Cave

Tzul's Cave is a long, narrow cave situated on top of a steep hill directly next to (or west of) the hill on which Actun Pech is located. It sits at an elevation of 259 masl. The cave is located about 70 meters from Tutu Creek and it measures approximately 35 meters in length and is shaped like the letter "V". There are six rooms (Rooms A-F) in this cavern. The entrance to the cave is large enough to walk through (Figure 9), but abruptly descends vertically onto a small terrace. Room A, oriented north-south, is the longest and narrowest in the cave (Figures 10 and 11). No artifacts were found in this room.

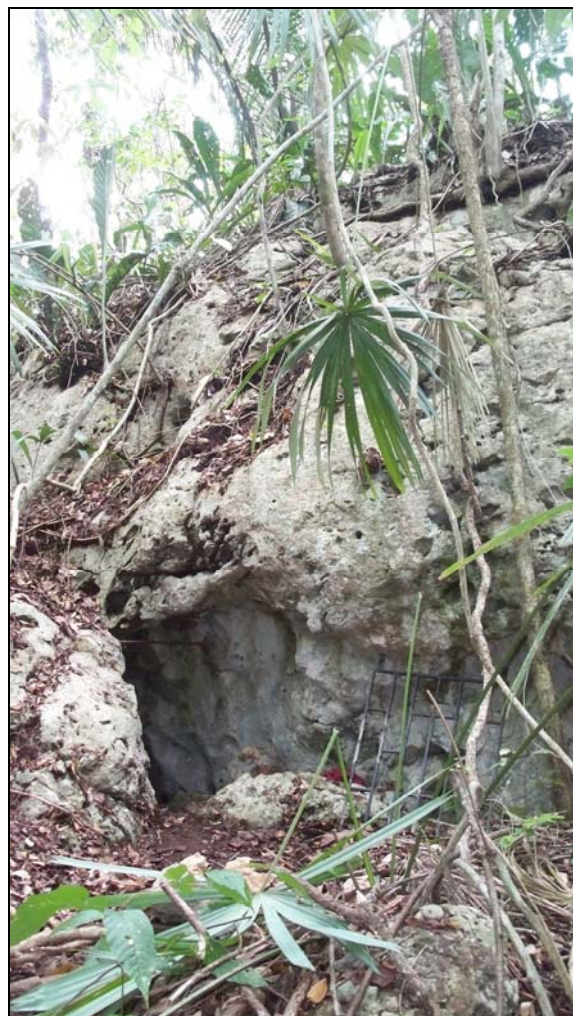


Figure 9. View of entrance to Tzul's Cave, Cayo District, Belize.

The smallest room in the cave, Room B, connects the entrance to Room A. It contained some sizable Late Classic rim sherds. Room C is relatively spacious compared to Rooms A and B. There are a number of sizable niches in this room, which contain rim sherds. Room C was sealed at the west end by a circular piece of slate about 50 cm in diameter (see Figure 10). This slate slab was placed to block entry from Room C into Room D. The actual diameter of the opening from Room C to Room D was much larger than the slate slab. As a consequence, a small wall, one meter high, was built beneath the orifice inside Room D. The construction of the wall narrowed the opening between the two rooms allowing the slate slab to be mortared in place. Similarly, a slate slab was also used to block entry from Room D into Room F;

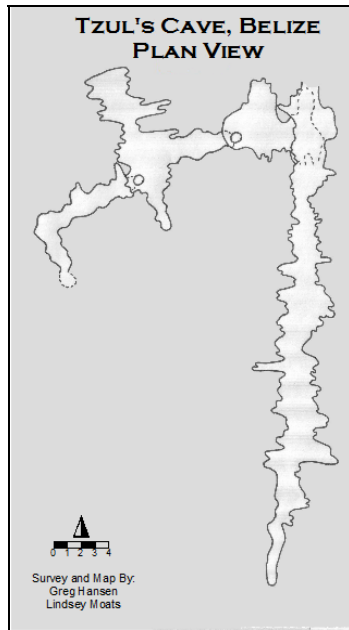


Figure 10. Plan view of Tzul's Cave, Cayo District, Belize.



Figure 11. Profile view of Tzul's Cave, Cayo District, Belize.

however, no wall construction was evident inside Room F. In Room D, there is a small alcove which contained a few complete serving dishes as well as broken olla sherds. To the north of Room D is Room E. At the back (north end) of the room is a cache of 13 complete pottery vessels, all dating to the Late Classic period. Given the restricted access to these

vessels, no ceramic type names have yet to be assigned.

Summary and Conclusions

In sum, three caves were investigated during the 2009 field season at Pacbitun. Two of the three caves, Actun Merech and Tzul's Cave, had never been investigated archaeologically. Actun Pech (formerly Actun Petz) was initially surveyed in 1996, but was revisited by the Pacbitun Preclassic Project in order to determine whether any looting had occurred since its original investigation in the mid-1990s. Each cave occupies its own hilltop location in the periphery of the site core. Generally speaking, they are small, dry, subterranean caves with multiple rooms or chambers. Numerous whole and broken pottery vessels were identified in each of the caves, dating primarily to the Late Classic period. Only Actun Pech contained human remains. The bone material was found on the surface of this cave. Architectural modifications were present only in Tzul's Cave, whereby a wall was constructed to help seal Room D off from the other rooms in the cave. Slate slabs were then placed at each end of this room to block or prevent entry. In 2010, investigation will continue in each of these three caves. The goal will be to conduct in-depth ceramic analysis of the pottery. To date, only a cursory examination has been conducted in Actun Merech and Tzul's Cave. While a ceramic study was completed on the pottery found in Actun Pech, a re-examination is needed because some looting has occurred over the past ten years. It is unclear which pots remain in the cave and which ones have been removed by looters. A re-examination of the skeletal remains found in Room D is also required.

Acknowledgements I would like to express my gratitude to the Institute of Archaeology in Belize, especially Drs. Jaime Awe and John Morris, for their support of the Pacbitun Preclassic Project (PPP). Fieldwork at Pacbitun in 2009 was supported by the Department of Geography and Anthropology at Kennesaw State University. I would also like to thank Mr. Alfonso Tzul, the landowner, who graciously allowed us to excavate on his private land. The excavations at Pacbitun would not have been possible without the hard work and dedication of

my staff (Liz Thurston, Cat Robertson, Kong Cheong, Greg Hansen, Lindsey Moats, and Chris McDevitt), students (Jason Brooks, Daniel Hoover, Laura Lund, Sam Meade, Hope Morris, Kelly Ozmer, Kim Vandenberg, Brittany Wallace, Adam Ward, and Alexis Wittke), and my local field assistants (Phillip Valdez, Oscar Mai, Javier Mai, Marlon Mai, Abdel Cowo, Jose Bacab, Peter Jones, Everaldo Tut, and Diego Tzul). I would like to express my gratitude to Bobbi Hohmann and Kong Cheong for reviewing an earlier draft of this manuscript.

References Cited

Awe, Jaime, Cameron Griffith, and Sherry Gibbs
 2005 Cave Stelae and Megalithic Monuments in Western Belize. In *The Maw of the Earth Monster: Mesoamerican Ritual Cave Use*, pp. 223-249, edited by James Brady and Keith Prufer. University of Texas Press, Austin.

Griffith, Cameron
 1998 Excavations and Salvage Operations in Actun Tunichil Muknal and Actun Uayazba Kab, Roaring Creek Valley, Belize. In *The Western Belize Regional Cave Project: A Report of the 1997 Field Season*, edited by Jaime Awe, pp.39-70. Department of Anthropology, Occasional Paper No. 1. University of New Hampshire, Durham.

Healy, Paul F.
 1990 Excavations at Pacbitun, Belize: Preliminary Report on the 1986 and 1987 Investigations. *Journal of Field Archaeology* 17(3): 247-262.

Healy, Paul F., Rhan-Ju Song, and James M. Conlon
 1996 Actun Petz: Preliminary Survey of a Cave Near Pacbitun, Belize. In *Belize Valley Preclassic Maya Project: Progress Report of the 1995 Field Season*, ed. by P. Healy and J. Awe, pp.139-152. Occasional Papers in Anthropology No. 12. Trent University, Peterborough, Ontario.

Healy, Paul F., Christophe G.B. Helmke, Jaime J. Awe, and Kay S. Sunahara
 2007 Survey, Settlement, and Population History at the Ancient Maya Site of Pacbitun, Belize. *Journal of Field Archaeology* 32(?): 17-39.

Helmke, Christophe G.B.
 1999 Exploration and Investigations of the Sinkhole Tunnels, Actun Tunichil Muknal, Belize. In *The Western Belize Regional Cave Project: A Report of the 1998 Field Season*, edited by Jaime Awe, pp.146-165. Department of Anthropology, Occasional Paper No. 2.

University of New Hampshire, Durham.

Ishihara, Reiko
 2000 An Investigation of the Ancient Maya Ritual Cave Activity at Actun Chechem Ha, Cayo District, Belize. Unpublished Honors Thesis, University of Tsukuba.

Lohse, Jon, Jaime Awe, Cameron Griffith, Robert Rosenswig, and Fred Valdez Jr.
 2006 Preceramic Occupations in Belize: Updating the Paleoindian and Archaic Record. *Latin American Antiquity* 17(2):209-226.

Moyes, Holley
 2002 The Use of GIS in the Spatial Analysis of an Archaeological Cave Site. *Journal of Cave and Karst Studies* 64(1):9-16.

Moyes, Holley, Jaime Awe, George Brook, and James Webster
 2009 The Ancient Maya Drought Cult: Late Classic Cave Use in Belize. *Latin American Antiquity* 20(1): 175-206.

16 ***SOCIAL AND ECONOMIC DYNAMICS AT BUENAVISTA DEL CAYO DURING THE LATE AND TERMINAL CLASSIC PERIODS***

Jason Yaeger, Meaghan Peuramaki-Brown and Bernadette Cap

The Mopan Valley Archaeological Project seeks to understand the social, political, and economic dynamics of the Mopan valley of western Belize in light of the competition between the valley's major political centers and the valley's changing natural environment. Since 2007, the project has investigated the Buenavista del Cayo East Plaza to evaluate the hypothesis that it served as the site's marketplace. The results of shovel testing, remote sensing, extensive excavations, microartifact analysis, and soil chemistry analysis are all consistent with the marketplace hypothesis during the Late Classic period. It has also surveyed and tested the settlement zone immediately south of the site's monumental core. The sites discovered include housemounds, terraces, check-dams, and a possible administrative group. The materials recovered show a range of socio-economic positions, from quite poor to quite wealthy. Testing suggests that the population reaches its maximum in the early part of the Late Classic period, declines slightly later in that period, and then drops. In this paper, we integrate data recovered from these two lines of inquiry in 2008 within a larger synthetic discussion of the site's changing social and economic organization in the Late and Terminal Classic periods.

Introduction

The Mopan Valley Archaeological Project seeks to understand the social, political, and economic dynamics of the Precolumbian Maya polities the Mopan valley of western Belize. It places special emphasis on the complex interrelationships between those dynamics on the one hand, and the competition between the valley's major political centers and the valley's changing natural environment on the other. Since 2007, the project has focused its energies on two particular programs of investigation.

Our study of the East Plaza at Buenavista del Cayo (hereafter referred to simply as Buenavista) has sought to evaluate whether it served as a marketplace for the polity. A central marketplace would not only provide an efficient mechanism for producers to sell their wares to consumers, but it would provide a potential source of income for the site's leaders (Pyburn 2008). Thus, the existence of a marketplace would have important implications for inter-household and inter-community economic dynamics within the polity, as well as for the relationships between the polity's leaders and their subjects.

Complementing this research in Buenavista's site core, our survey and excavations in a settlement zone immediately south of Buenavista have sought to document socio-economic heterogeneity among the polity's residents, with special attention to the different ways in which families of distinct

socio-economic positions were implicated in the polity's rise and decline.

Identifying Buenavista's Marketplace

One issue that is critical for our understanding of Classic-period socio-economic dynamics is the nature of Maya exchange relationships, particularly whether some exchange took place in centralized marketplaces. We have hypothesized that Buenavista's East Plaza (Figure 1) was a primary marketplace in the Late Classic. A marketplace would have been an efficient mechanism for bringing together producers and consumers from the polity's densely settled and diverse hinterland. Previous identification of production areas for both utilitarian and prestige goods (Ball 1993; Taschek and Ball 1986), the polity's environmental diversity, and the density of hinterland settlement (Peuramaki-Brown 2007, 2008) all suggest that the Buenavista polity could have supported and benefited from a marketplace. Bernadette Cap began investigating the possibility that the East Plaza was a marketplace in 2007 as part of her dissertation research. The results of that season's fieldwork supported that hypothesis (Cap 2007; Yaeger et al. 2009), as did the research we conducted in 2008, as discussed below.

Because it is challenging to identify marketplaces archaeologically we have established a set of empirically testable correlates of marketplace activities and appropriate methods to test for their presence.

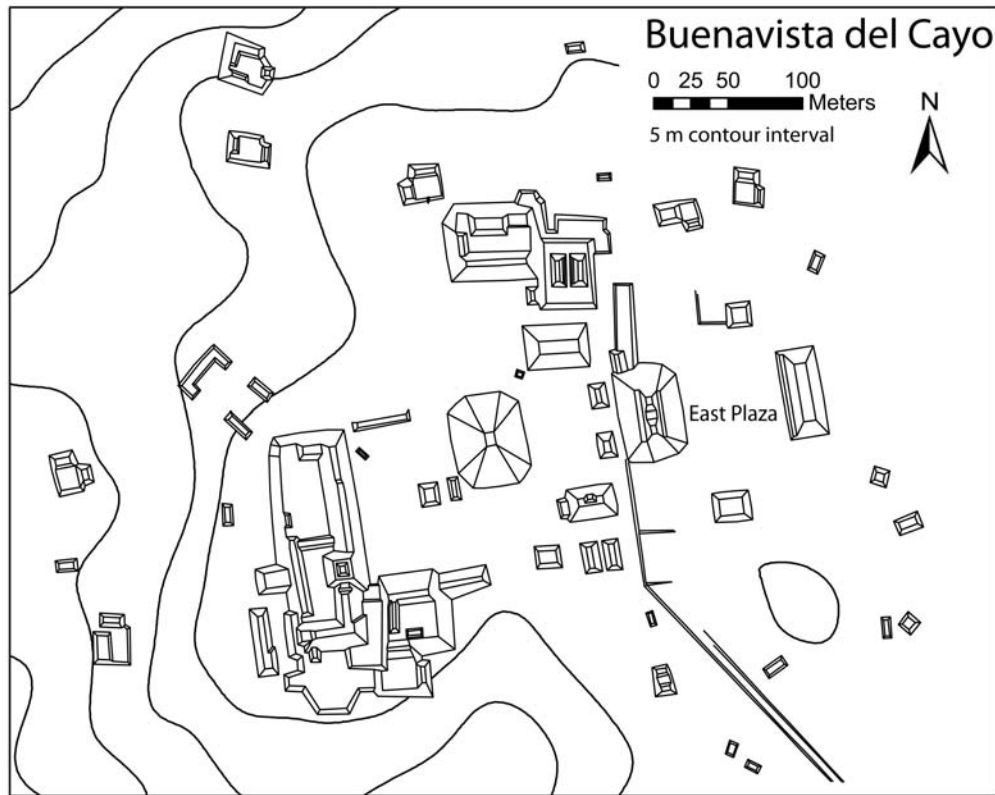


Figure 1. Buenavista del Cayo site core (after Ball and Taschek, personal communication).

The correlates reflect activities that created the physical structure of a marketplace and that are directly related to economic transactions therein. We have outlined these correlates in detail elsewhere (Yaeger et al. 2009: Table 1), and they include remnants of stalls, discrete concentrations of goods by material type, and debris from small scale production of lightweight materials. We believe one of the most convincing lines of evidence of a marketplace is the spatial segregation of objects by material type in association with architectural features suggestive of vendor stalls.

Our methodology includes a combination of remote sensing, systematic shovel testing, and horizontal exposure of targeted areas. Laboratory analysis includes examination of both macro- and microartifacts. The latter are particularly important, as the sweeping and maintenance of marketplaces generally removes larger artifacts. Microartifacts tend to be pushed into the ground surface and thus remain in the location of primary deposition (Gifford-Gonzalez et al.

1985). We also are using soil chemistry testing to identify activity areas.

Shovel test data indicate that several areas of the plaza were built up with a 10 cm thick layer of limestone gravel and cobbles. This layer tends to be found in the center of the plaza and along its southern and northern edges (Figure 2). Horizontal exposure of four areas confirms that these cobbles are modest architectural features. In the southern sector of the plaza, the cobble layer represents a formal platform that was constructed in the Middle Preclassic. In the central and northern sectors of the plaza, our preliminary assessment is that the cobble layer represents a Late Classic plaza surface rather than individual platforms. The presence of daub suggests that wattle-and-daub structures were built on this surface. Microartifact analysis is currently underway to determine if the daub is found in concentrations suggestive of individual stalls.

Our analysis of the recovered artifacts is not yet complete, but we have preliminarily identified that some material types are

differentially distributed in specific sectors of the plaza. The shovel test data show that high frequencies of ceramics are associated with the structures forming the edges of the East Plaza. One exception is a dense concentration in the center of the plaza where there is also an east/west trending rock alignment (Figure 2). The distribution of lithic artifacts differs from that of ceramics, with further differentiation of stone and chert artifacts. The shovel test data show that chert artifacts are concentrated in the northeast zone of the plaza, whereas obsidian is found almost exclusively in the northwest sector (Figure 2). Horizontal exposures in these two areas provide more detailed information.

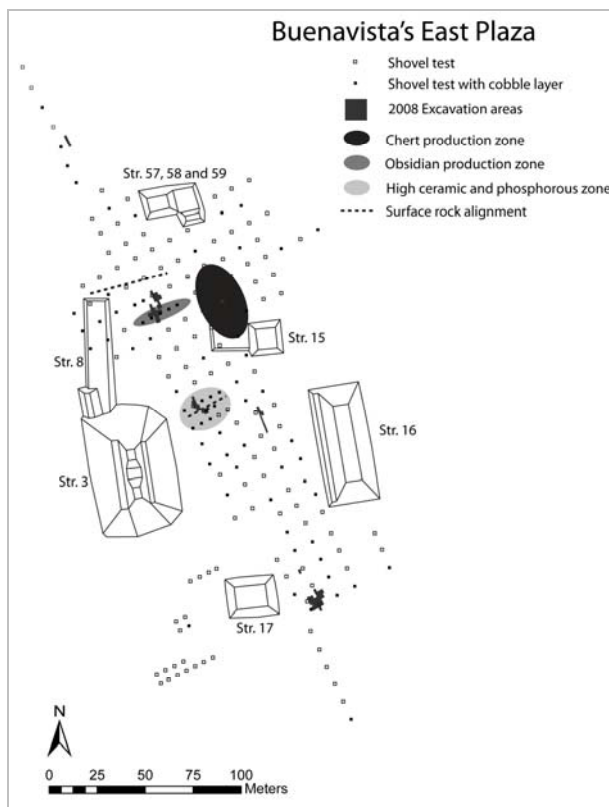


Figure 2. Activity patterns in the East Plaza.

Chert production debris is found in a dense concentration approximately 20 m by 30 m in area. This deposit was first identified and excavated by Ball and Taschek's Mopan-Macal Triangle Archaeological Project (Kelsay 1985) and further analyzed in a recent Master's thesis by Joseph Reith (2003). Reith (2003) concluded that the deposit was created by the production of stone tools used in a woodworking workshop in

this sector of the plaza.

To gather more information about the deposit, we placed a 1 x 2 m unit near its center. Our excavations show it to be 15 cm thick with a density of over 330,000 lithic artifacts per cubic meter. Theresa Heindel at the University of Wisconsin-Madison is analyzing the materials for her senior thesis (Heindel 2008). Her analysis of over 18,000 chert artifacts from a column sample reveals a predominance of flakes related to end-stage production of bifaces and other formal tools. Some flakes show polished and abraded arrises, indicating the resharpening of worn tools. The paucity of flakes related to the early stages of production and the low number of broken bifaces suggests the craftspeople were experienced knappers who brought nearly finished tools to this location to finish here.

West of the chert production zone is the obsidian blade production zone. The obsidian assemblage of 440 artifacts is dominated by broken blade sections. We also recovered several by-products of core rejuvenation, including small blades and flakes, as well as platform tablets that represent the end-life of a blade core. The deposit is low in density compared to obsidian workshops identified in other Maya sites (e.g., Hintzman 2000; Neiven 1976), a fact that could be due to more frequent cleaning of the plaza surface or less production occurring in this locus, as one would expect of occasional production occurring only during market days. In addition to its significance for identifying a marketplace, from the obsidian blade production data we can infer far-reaching trade relationships with either directly or via travelling merchants.

An additional line of evidence we are employing to identify distinct activity areas in the East Plaza is soil chemistry. Phosphorous (P) is one of the most common chemicals used in archaeological studies because it can indicate the general intensity of use, particularly of organic materials, in a particular space (Eidt 1977; Hassan 1978). Most goods within an ancient marketplace would have been composed of organic materials, and we would expect to observe higher concentrations of P in areas where organic materials were present and lower values where inorganic materials predominated.

We analyzed soil from each of the 189 shovel tests excavated in the East Plaza using a weak acid extraction method on an inductively coupled plasma optical emission spectrometer for levels of P as well as 11 other elements.

Results of the soil testing indicate both high and low concentrations of P in different sectors of the East Plaza. In the chert production area P levels are very low due to the dominance of inorganic materials involved in this activity. The highest levels of P are found in the center of the plaza near the concentration of ceramics and rock alignment mentioned above (Figure 2). The central area of the plaza appears to have been a locus of activity, but limited excavations and low numbers of diagnostic artifacts prevent detailed interpretations of the specific kinds of activities that took place. The chemistry indicates that they more frequently involved organic materials than other sectors of the plaza. A possible marketplace-based interpretation is that this area could represent the location of food vendors.

We initially hypothesized that Buenavista's East Plaza was a marketplace because of its large size, accessibility, and location within the larger site plan. The separation of artifacts by material type in the East Plaza in addition to the evidence of end-stage production of easily portable items, such as knapping tools, chert performs and obsidian cores, meets our expectation of the structure of a marketplace and the kinds of activities that would take place there.

The data recovered from the past two field seasons provide multiple lines of evidence that support our hypothesis. As our artifact and soil chemistry analyses progress, we hope to be able to identify more activity areas.

Documenting Socio-Economic Complexity in Buenavista's Settlement

Another key component of MVAP is the investigation of a zone of settlement immediately south of the Buenavista epicenter (Figure 3). The zone is approximately 0.35 square km, consisting of a ridge delineated by seasonal streams to the north and south, beginning at an ancient causeway to the east and running west to the Mopan River. These boundaries nicely demarcate the zone for

archaeological survey and may define one or more ancient communities. The investigation of this zone forms the base of Meaghan Peuramaki-Brown's dissertation research, which examines the roles of group agency and household identities in the rise and decline of Buenavista and other social processes, through an analysis of household and community biographies (Peuramaki-Brown 2009).

The 2008 investigations advanced the goals initiated during the 2007 season (Peuramaki-Brown 2007; Yaeger et al. 2009): (1) reconnaissance to relocate structures mapped by the Mopan-Macal Triangle project (Ball and Taschek 2004); (2) re-survey of the area to identify additional settlement traces not on existing maps; and (3) testing of mapped groups to gain occupational and architectural information. These data permitted the development of a strategy for extensive excavations in the 2009 and 2010 field seasons. In addition, a new goal was added for the 2008 season: (4) to conduct ground penetrating radar, magnetic susceptibility, and conductivity analysis in a zone of apparently empty space between several residential groups by Bryan Haley of the University of Mississippi.

Survey in 2007 and 2008 identified 30 sites, both single mounds and patio groups, in addition to terraces and check dams (Peuramaki-Brown 2007, 2008). This likely does not represent all settlement in the zone, as excavations have demonstrated that Classic-period architecture can be invisible at surface. House platforms two courses high sometimes are identifiable only by a few stones protruding above the ground surface. In contrast, a Preclassic platform was still a mound at ground surface. These findings have allowed us to tailor our survey and testing strategies to the local conditions, and also led us to initiate remote sensing survey in 2008 with ground-truthing in 2009 (Hudacin and Peuramaki-Brown 2009).

There is a notable gap in settlement near the middle of the survey area, where the ridge narrows and begins to drop down toward the Mopan (Figure 3). This gap creates two clusters of residential sites and may also represent two separate communities of daily interaction. Site density for the entire survey area is roughly 85 sites per square km, and it is greatest on the flat

top of the ridge represented in Cluster 1, the eastern cluster. This is expected, as it occupies the flattest, highest, and hence, most desirable area of land on the ridge. Mounds here exhibit the earliest founding dates and longest occupations (based on testing), often with multiple, expanding phases of construction. This suggests the operation of what Patricia McAnany (1995) terms the “Principle of First Occupancy,” also noted at the nearby settlement of San Lorenzo (Yaeger 2000). In contrast, households with the shortest occupation, often established quite late in settlement history, occupy the presumably less desirable slopes of the ridge.

Our survey revealed few multi-mound sites organized around patios, as fully 93 percent of the sites consisted of one or two low mounds as classified using the Xunantunich Settlement Survey typology (Table 1). These results are similar to other upper Belize River valley regions, and contrast strongly with regions beyond the valley (Peuramaki-Brown and Hoggarth 2009). However, horizontal excavations during the 2009 season have demonstrated that typological assessments based on surface survey can be inaccurate in this area, as they may not take into account very low platforms that are effectively invisible on the surface. This will be considered in future study. For example Site 006, mapped in 2007 as a single mound on an elevated platform, is now known to consist of three low structures organized around an elevated patio based on more extensive horizontal excavations in 2009.

Our test excavations have focused on Cluster 1, and they revealed that architecture generally consists of platforms composed of limestone and chert boulder construction cells, filled with dry alluvial cobbles, dirt, and redeposited midden, with exterior faces composed primarily of cut limestone blocks, as is typical of other sites in the Belize valley. Perishable superstructures are ubiquitous, indicated by the daub encountered at all sites. Although most mounds measure less than two meters in height, differences in construction quality and volume are significant. These differences appear to correlate with socio-economic status as reflected in artifact assemblages and spatial location, a common

association within the agrarian societies of Mesoamerica (Smith 1987).

It is notable that each of the two clusters in the zone contains one larger site that consists of multiple large mounds. These may represent community-focused and/or administrative sites that were venues for activities that served to unite the community and tie it to the larger polity. In Cluster 1, this site is Site 007, which saw its principal occupation during the height of the Buenavista polity in the Early Classic and early Late Classic (LCI) periods. Only one structure in the group may have been occupied into the late Late Classic (LCII) period. This timing, along with the architectural style and artifacts recovered, such as green obsidian, may reflect a direct link between this complex and the residents of the polity’s epicenter. This site will be the focus of extensive horizontal excavations during the 2009 and 2010 seasons.

The site chronologies resulting from fuller testing will prove useful in characterizing the rise and decline of Buenavista from the view of settlement residents and their communities. Based on the testing data to date, all residences are occupied at the latest by LCI period, and most continue into LCII, coinciding broadly with the peak of activity and eventual decline at Buenavista as suggested by Ball and Taschek’s (2004) excavations. Households arriving in the area during the Preclassic period appear to have established their residences on the preferred upper shelf of the ridge, and they present the longest histories of occupation. In one Preclassic mound in this area, the burial of a skull of a child roughly four years of age (Burial 350/1, see Figure 4) and a four-footed vessel tentatively identified as Hillbank Red type (Gifford 1976: 101-104) within its shallow fill suggests its occupants sought to establish rights to this region. “Skull caches” like these are commonly encountered in Preclassic contexts in the Maya lowlands (Krejci and Culbert 1995; Welsh 1988: 64-80). Finally, households founded later, during the Early Classic and Late Classic periods, are located most often on the slopes of the ridge, suggesting that the favorable land was occupied by that time.

Residents of Cluster 1 appear to represent diverse socio-economic strata, based on architectural investment and the cultural

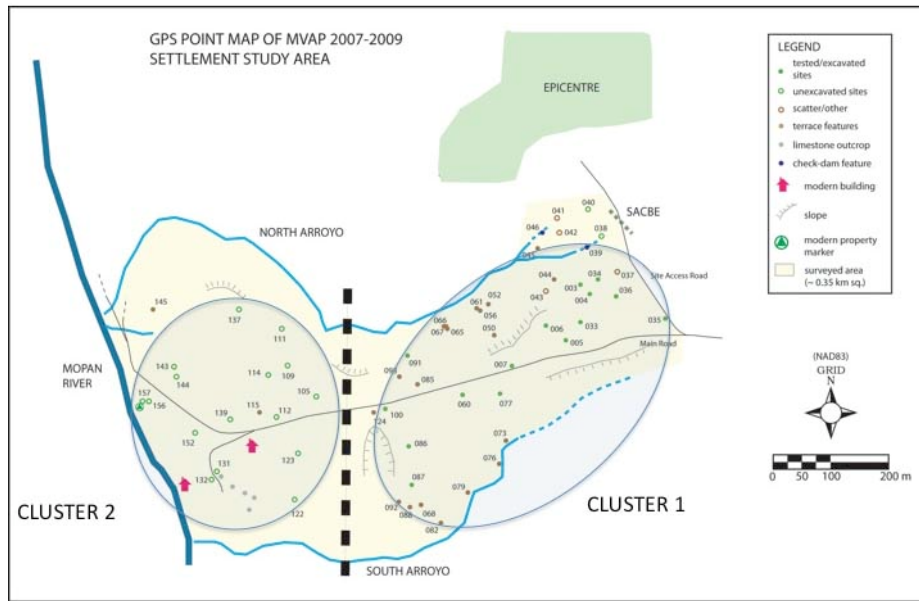


Figure 3. Map of settlement study area, showing two clusters.

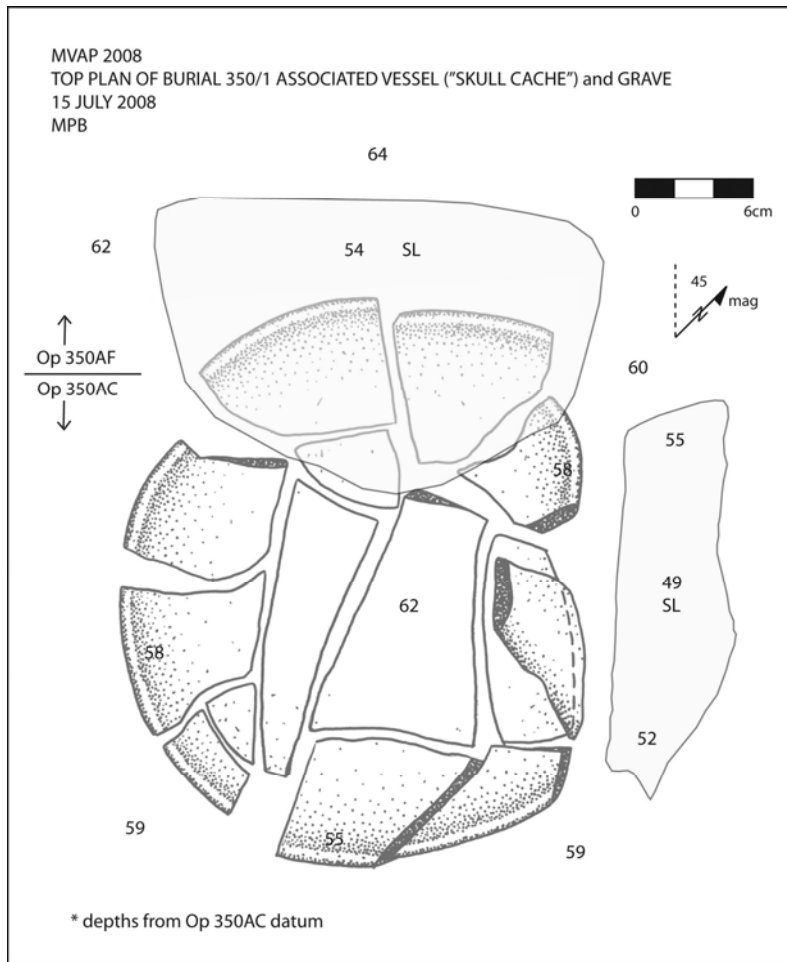


Figure 4. Plan of Burial 350/1. "SL" indicates soft limestone slabs.

Settlement Unit Type	Number	% of Total
I: isolated mound (less than 2 m high)	20	67.0%
II: 2-4 mounds (informally arranged; all less than 2m high)	6	20.0%
III: 2-4 mounds (orthogonally arranged; all less than 2m high)	2	6.5%
IV: 5 or more mounds (informally arranged; all less than 2m high)	0	0.0%
V: 5 or more mounds (at least 2 arranged orthogonally; all less than 2 m high)	0	0.0%
VI: 1 or more mounds (at least 1 being 2-5m high)	2	6.5%
VII: 1 or more mounds (at least 1 being higher than 5m)	0	0.0%
TOTAL	30	100.0%

Table 1. Classification of residential sites surveyed south of Buenavista, employing the Xunantunich Settlement Survey typology.

materials they used. This is an important consideration, given that mound heights rarely exceed one meter. Artifacts recovered from the sites in Cluster 1 suggest this area was the scene of various ubiquitous domestic activities, including agricultural pursuits, food preparation and serving, craft activities, and ritually focused activities. The presence of clay-lined firing chambers and other enigmatic firing features of unknown purposes suggest the possibility of various forms of household craft specialization in this area as well. Further artifact analysis and extensive horizontal excavations at many of the sites in 2009 and 2010 will allow for a more in-depth understanding of such activities. Together they will permit a richer understanding of life in this zone of Buenavista's settlement prior to and during the rise and fall of Buenavista and the broader region.

Summary

The rich body of data collected by the Mopan-Macal Triangle Project, the Xunantunich Archaeological Project, and the Mopan Valley Archaeological Project allow us to reconstruct the history of the Buenavista polity and the changing roles of hinterland households and communities in that polity's development with ever higher resolution. Although many details remain to be clarified, the data from Peuramaki-Brown's investigations currently suggest that as Buenavista grew during the Preclassic period (Ball and Taschek 2004), people established homes on the flat, desirable land around the site.

The descendents of some of these early founding families came to be the wealthiest families in their communities, probably by strategically deploying local resources that they claimed as descendents of the area's first inhabitants. As the polity's population grew, new families settled on less favorable slopes.

By the early Late Classic period, demographic, economic, and political conditions within the polity were apparently conducive to the establishment of a marketplace in the East Plaza, which Cap has demonstrated was transformed to that end at this time. The opportunities presented by a marketplace would have fostered occupational differentiation and wealth accumulation in hinterland households throughout the polity, a pattern tentatively confirmed by Peuramaki-Brown's on-going excavations. The marketplace would have presented Buenavista's leaders with a new opportunity to accumulate wealth through taxation. It is during this same early Late Classic period that we find hints of an increasingly complex political structure in the form of a larger complex in each settlement cluster that seems to be administrative in nature. Whether these were the result of local developments or facilities mandated by Buenavista's leaders, they point to the need for new venues for interactions that tied the growing polity's rulers and their subjects together. Although our research is in its early stages, our findings to date point to the productivity of an interpretive framework that views past social

dynamics as the product of the strategies and decisions made by all polity residents, whether commoner householders or the polity's elite.

Acknowledgements This research was undertaken with the financial assistance of the National Science Foundation, Social Sciences and Humanities Research Council of Canada, the Samuel J. and Connie Frankino Charitable Foundation, the Department of Archaeology of the University of Calgary, and the University of Wisconsin. In Belize, we received support and guidance from the staff of the Belize Institute of Archaeology, in particular Dr. Jaime Awe and Dr. John Morris. We extend a special thank you to the staff, students, and crew of the Mopan Valley Archaeological Project, the Juan family, Erva and Landy Espot, and Julie Hogarth.

References Cited

- Ball, Joseph W.
1993 Pottery, Potters, Palaces, and Politics: Some Socioeconomic and Political Implications of Late Classic Maya Ceramic Industries. In *Lowland Maya Civilization in the Eighth Century AD*, edited by Jeremy A. Sabloff and John Henderson, pp. 242-272. Dumbarton Oaks, Washington, DC.
- Ball, Joseph W. and Jennifer T. Taschek
2004 Buenavista del Cayo: A Short Outline of Occupational and Cultural History at an Upper Belize Valley Regal-Ritual Center. In *The Ancient Maya of the Belize Valley: Half A Century of Archaeological Research*, edited by James F. Garber, pp.149-167. University of Florida Press, Gainesville.
- Cap, Bernadette
2007 Investigations in Buenavista del Cayo's East Plaza. In *The Mopan Valley Archaeological Project Report: Results of the 2007 Season*, edited by Jason Yaeger. Report submitted to the Institute of Archaeology, National Institute of Culture and History, Belize.
- Eidt, Robert C.
1977 Detection and Examination of Anthrosols by Phosphate Analysis. *Science* 197: 1327-1333.
- Gifford-Gonzalez, Diane P., David B. Damrosch, Debra R. Damrosch, John Pryor, and Robert L. Thunen
1985 The Third Dimension in Site Structure: An Experiment in Trampling and Vertical Dispersal. *American Antiquity* 50: 803-818.
- Hassan, Fekri A.
1978 Sediments in Archaeology: Methods and Implications for Paleoenvironmental and Cultural Analysis. *Journal of Field Archaeology* 5:197-213.
- Heindel, Theresa
2008 Buenavista Lithic Deposit, in Association with East Plaza Investigations: Op 351 and Op 352. In *The Mopan Valley Archaeological Project Report: Results of the 2008 Season*, edited by Jason Yaeger. Report submitted to the Institute of Archaeology, National Institute of Culture and History, Belize.
- Hintzman, Marc W.
2000 Scarce-Resource Procurement and Use: The Technological Analysis of an Obsidian Blade Workshop in the Lowlands of Belize. Unpublished Master's Thesis, Department of Anthropology, University of California-Riverside.
- Hudacin, Bailey, and Meaghan Peuramaki-Brown
2009 Lower Strata Households and the "Invisible Mound": GPR and Ground-Truthing in the Maya Lowlands of Belize. Paper presented at the 2009 Chacmool Archaeological Conference, Calgary, Alberta.
- Kelsay, Richalene
1985 A Late Classic Lithic Finishing Station at Buenavista, Belize. Paper presented at the 50th Annual Meeting of the Society for American Archaeology, Denver.
- Krejci, Estella and T. Patrick Culbert
1995 Preclassic and Classic Burials and Caches in the Maya Lowlands. In *The Emergence of Lowland Maya Civilization: The Transition from the Preclassic to the Early Classic*, edited by Nikolai Grube, pp.103-116. *Acta Mesoamerican* 8. Verlag Fleming, Hildesheim.
- McAnany, Patricia A.
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.
- Neivens, Mary
1976 An Obsidian Workshop at El Pozito, Northern Belize. In *Maya Lithic Studies: Papers from the 1976 Belize Field Symposium*, Vol. 4, pp. 137-149. Center for Archaeology, San Antonio.
- Peuramaki-Brown, Meaghan
2007 Settlement Survey and Testing. In *The Mopan Valley Archaeological Project: Results of the 2007 Field Season*, edited by Jason Yaeger, pp. 11-43. Report submitted to the Institute of Archaeology, National Institute of Culture and

History, Belize.

2008 Settlement Survey and Testing. In *The Mopan Valley Archaeological Project: Results of the 2008 Field Season*, edited by Jason Yaeger. Report submitted to Institute of Archaeology, National Institute of Culture and History, Belize.

2009 Households and Centre Decline: An Object Biography Approach. Paper presented at the 2009 Chacmool Archaeological Conference, Calgary, Alberta.

Peuramaki-Brown, Meaghan, and Julie Hoggarth

2009 Ancient Maya Settlement in the Belize River Valley: A Comparative Perspective from Baking Pot and Buenavista del Cayo. Paper presented at the 2009 Annual Meeting of the Canadian Archaeological Association, Thunder Bay, Ontario.

Pyburn, K. Anne.

2008 Pomp and Circumstance before Belize: Ancient Maya Commerce and the New River Conurbation. In *The Ancient City: New Perspectives on Urbanism in the Old and New World*, edited by Joyce Marcus and Jeremy A. Sabloff, pp 247-272. School of Advanced Research Press, Santa Fe.

Reith, Joseph C.

2003 SDEP-1, Buenavista del Cayo, Belize: Functional Significance and Socioeconomic Implications of an Unusual Deposit of Chipped-Stone Microliths from a Classic Maya Center in Central Western Belize. Unpublished Masters Thesis, Department of Anthropology, San Diego State University.

Smith, Michael E.

1987 Household possessions and wealth in agrarian states: implications for archaeology. *Journal of Anthropological Archaeology* 6:297-335.

Taschek, Jennifer T. and Joseph W. Ball

1986 Guerra: A Late Classic Suburban Paraje of Buenavista del Cayo, Belize. Paper presented at the 51st Annual Meeting of the Society for American Archaeology, New Orleans.

Welsh, W.B.M.

1988 *An Analysis of Classic Lowland Maya Burials*. BAR International Series 409, Oxford.

Yaeger, Jason

2000 *Changing Patterns of Social Organization: The Late and Terminal Classic Communities at San Lorenzo, Cayo District, Belize*. Ph.D. dissertation, University of Pennsylvania. UMI, Ann Arbor.

Yaeger, Jason, Bernadette Cap, and Meaghan Peuramaki-Brown

2009 The 2007 Field Season of the Mopan Valley Archaeological Project: Investigations in Buenavista del Cayo's East Plaza and Nearby Settlement. *Research Reports in Belizean Archaeology* 6: 209-216. National Institute of Culture and History, Belmopan, Belize.

17 **BEYOND THE BAKING POT POLITY: CONTINUING SETTLEMENT RESEARCH IN THE UPPER BELIZE RIVER VALLEY**

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

In the 2007 field season, the Belize Valley Archaeological Reconnaissance project (BVAR) commenced its second phase of settlement survey in the Belize River Valley, building upon the pioneering settlement research undertaken by Gordon Willey in 1956 and continuing the BVAR survey conducted by Jim Conlon in the 1990's. This paper discusses the results of settlement research at Baking Pot within the context of the project's regional approach to settlement analysis in the greater Belize Valley.

Introduction

Although the study of settlement variation across sub-regions of the Maya lowlands is not a new theoretical paradigm, it is these studies which often yield significant new information on the widespread variability in Maya society, particularly in regard to commoner, elite, and royal activities and interactions. In the 1950s, it was Gordon Willey's pioneering study at Barton Ramie which shifted the focus from large monumental centers and elite-centric views of ancient Maya culture to smaller centers in order to understand the non-elite segment of society (Willey et al. 1965). This study further highlighted the value of utilizing a regional approach in the comparison of centers and their peripheral settlements at various scales in the political spectrum. Willey's seminal research focused on several sites in the Belize Valley, including Barton Ramie, Baking Pot, Melhado, Floral Park and Spanish Lookout. In the decades following Willey's pioneering work, archaeological research has continued in the Belize Valley, often focusing on the monumental epicenters and their surrounding settlements. While the social, political and economic organization of these sites is coming into focus, the dynamics of inter-site relationships continues to be dominated by an elite-centric focus based on epigraphic records and monumental architecture. In conjunction with the latter, our study hopes to demonstrate that regional settlement-based research agendas offer another opportunity to examine the relationship between settlement patterns and hierarchical political organization and for determining what factors may have

influenced how people organized themselves across the landscape.

Similar approaches were applied by the Xunantunich Settlement Survey and by subsequent projects that examined the minor and major centers in the periphery of that center (Ashmore et al. 1994). Additionally, Ford and Fedick's (1992; Ford 1987, 1992) surveys from the Belize River into the limestone foothills to the north explored the relationship between settlement and environment, adding to our knowledge of broader settlement patterns in the region. In comparison, and with the exception of Willey's earlier settlement analysis, very little research which transcends single sites has been conducted downriver from the confluence of the Mopan and Macal rivers. This area, which lies east of San Ignacio, has been heavily impacted by recent agricultural activity and ranching. While this modern activity threatens the archaeological resources in the area, the clear-cutting of vegetation has exposed a great expanse of the upper Belize Valley, facilitating the exploration and recording of prehistoric features. The utilization of block survey across large areas, as opposed to transect surveys, provides optimal conditions for our research for it enables the identification of a fuller range of settlement scales above the level of house groups (cf. de Montmollin 1988).

Current research by the Belize Valley Archaeological Reconnaissance project also continues to apply a regional approach to the analysis of settlements in this area. Our long-term goal is to link the Cahal Pech survey with that of Baking Pot, continuing downriver all the way to Roaring Creek. As Chase and Garber (2004: 11) have noted, 'the true value of the

Belize Valley archaeological data lies in the continued, incrementally additive regional research that has ensued in this location since Willey's Barton Ramie Project in the 1950's. BVAR's research is continuing in this spirit, working to merge survey areas from other projects, as well as working collaboratively to understand broader settlement patterns in the valley. Our current settlement research has two primary goals. The first seeks to understand the spatial and diachronic relationship between the Baking Pot monumental core and its epicentral and peripheral settlements. The second interest focuses on the relationship of sites in the greater Belize Valley in an effort to better understand the ancient sociopolitical landscape of this sub-region of the Maya lowlands.

Baking Pot

The site core of Baking Pot is located in the Cayo District of western Belize, on the southern bank of the Belize River, approximately 10 kilometers east of the modern town of San Ignacio (Figure 1). As one of the upper-level centers in the Belize Valley, Baking Pot was continuously occupied from at least the Middle Preclassic period into the Middle Postclassic, reaching its apogee in the Late Classic (Audet and Awe 2004; Helmke and Awe 2008b). Early excavations in the monumental epicenter were initially conducted by various projects (Ricketson 1929; Bullard & Bullard 1965; Willey et al. 1965), and later resumed by the BVAR project (see Helmke & Awe 2008 for a full site bibliography). In the 1950's Gordon Willey conducted the first settlement survey and mapping of Baking Pot, and also made a series of test excavation of some of the house mounds (Willey et al. 1965). The first phase of settlement research at Baking Pot by the Belize Valley Archaeological Reconnaissance (BVAR) project, directed by Jaime Awe, began in 1992 with James Conlon initiating the first of seven seasons of a settlement survey that focused on the residential areas to the east (North Caracol Farms) and southwest (Bedran Group) of the site's epicenter (Conlon 1993, 1995, 1997; Conlon and Ehret 2000, 2001). From the onset, these investigations served to demonstrate that

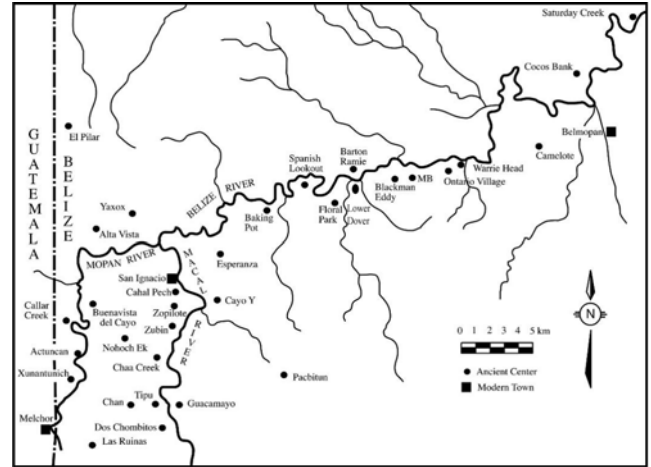


Figure 1. Regional map of the Belize Valley (modified from Iannone 2002).

there was some variability in domestic and community organization at the site.

The second phase of settlement research by BVAR began in 2007 and implemented a community-scale approach to investigate changes in domestic and settlement organization. Prior to this second survey, the site was subdivided into several quadrants and then clusters in order to encompass the epicentral settlement, those house groups that are located immediately around the monumental epicenter, and the peripheral settlements (Figure 2). A description of the settlement clusters is provided below. Based on distribution patterns, we noted that the density of house mounds tends to drop off at approximately 1.5 kilometers from the monumental site core. Thus, a 9 km² (with the central grid-square enclosing the monumental epicenter) was established in order to provide spatial segregation for future excavation and sampling programs (Hoggarth et al. 2008). This will ensure that surface collections and test excavations provide a broad sample of different spatial categories at Baking Pot. This research also aims to collect a 20 percent sample of house groups in the 9 km² area associated with the epicenter of Baking Pot, followed by more extensive excavation of select house groups.

Baking Pot Epicentral Settlement

As indicated above, we sub-divided the epicentral settlement of Baking Pot into eight settlement clusters (A to H) that are bounded

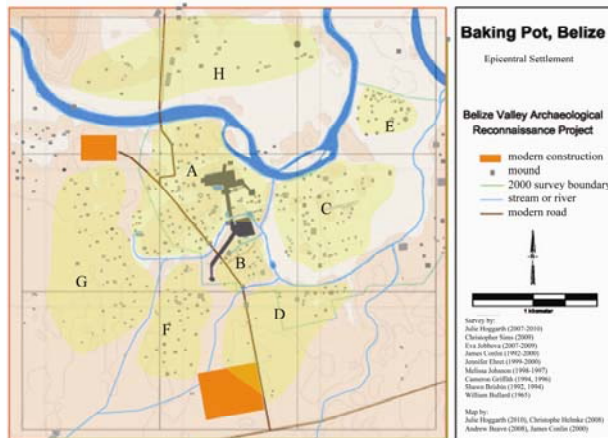


Figure 2. Epicentral settlement clusters at Baking Pot (Map by Julie Hoggarth, 2010).

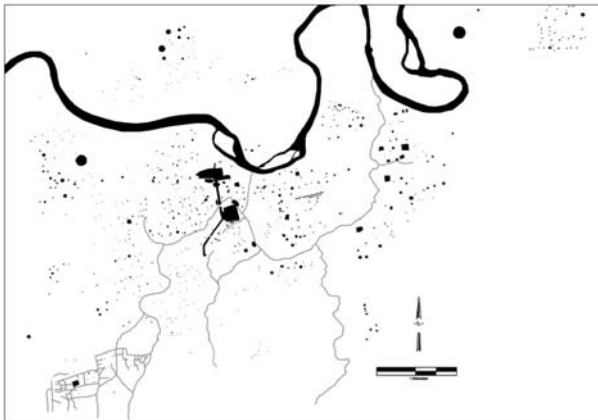


Figure 3. Settlement surrounding Baking Pot (Map by Jobbová and Bevan, 2009).

and defined by intermittent streams or low-lying terrain (Figures 2 and 3). These settlement clusters are slightly different than those established by Conlon and Ehret (2001: Figure 2), as it excludes North Caracol Farm to the east. The latter, as well as the Bedran group to the west and the settlement cluster at the edge of the north-western quadrant, are designated as peripheral settlement groups of Baking Pot (Hoggarth 2009). These peripheral settlement groups include minor centers within the hypothesized territory of the Baking Pot polity. They are generally located between three and five kilometers from the monumental epicenter of Baking Pot. This separation of epicentral and peripheral settlements will allow us to compare settlement variation in and around the site in the future. The data collected so far indicates that

settlement density drops off approximately 1.5 to 2 kilometers outward from the site epicenter (Figure 4).

Epicentral settlement cluster A consists of the settlement immediately surrounding the monumental epicenter, and is concentrated primarily to the west and north of the site core (Figure 2). This settlement cluster is bounded by the Belize River to the north, the intermittent stream bordering the northern portion of Group B to the south, and the same stream which runs to the west where it forms an aguada. This settlement cluster consists of 120 mounds, with only 15 percent of the mounds arranged in some informal pattern (Table 1). Cluster B is a smaller cluster located south of Group B, and is bounded by the monumental epicenter (including the southern *sacbe*) to the north, and an intermittent stream to the south. On the western end, this cluster is spatially separated from Cluster F by a 150 meter wide area which appears to be devoid of mounds. This cluster consists of 35 mounds, of which 26 percent (9 totals) were arranged around informal groups. Cluster C is located to the east of the monumental epicenter, and is bounded by intermittent streams to the south and west, Garbutt Creek to the east, and the Belize River to the north. Unlike many of the dry streams that run throughout Baking Pot, Garbutt Creek is a perennial stream which originates in the foothills to the south. Cluster D is located south of Cluster B and C, bounded by the intermittent stream to the west and north and Garbutt creek to the east. No natural features exist to the south of Cluster D, although the topography rises slightly, and mound density drops off completely.

Cluster E, which Conlon named “Northeast Baking Pot” is situated northeast of Cluster C. It is bounded by the Belize River on the west, north, and east. No mounds are present in approximately 250 meters that separates Cluster C and E. The cluster consists of 33 mounds, of which 5 are grouped (15 percent). Cluster F is located south of Cluster A, and west of Structure 190, the southern causeway termini structure. It is bounded on the north, west and south by intermittent streams and is separated from Cluster B by an area that has no visible mounds. There are 40 mounds in

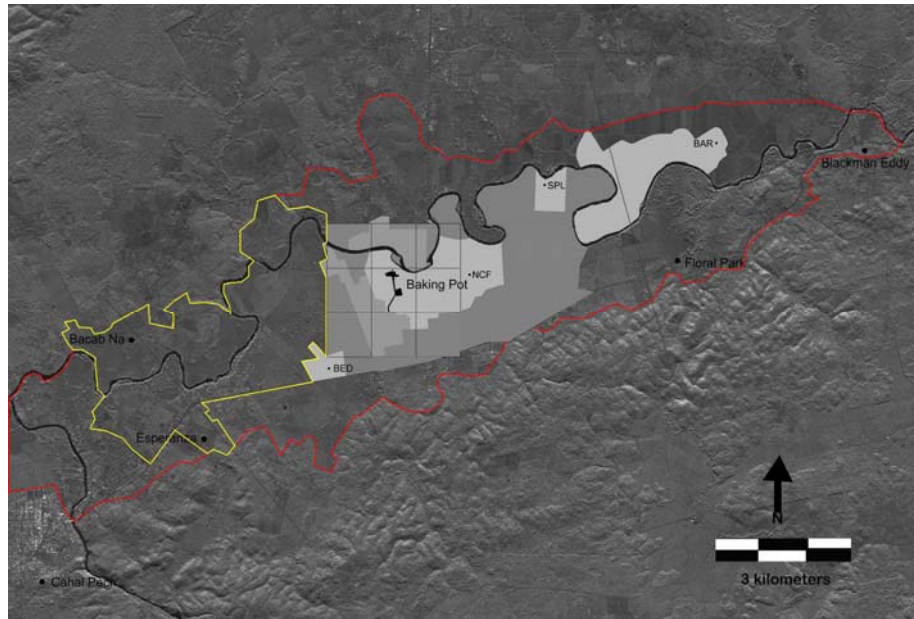


Figure 4. Survey boundaries of the BVAR regional survey (Map by Christophe Helmke 2008, modified by Julie Hoggarth 2009). Light grey areas represent previous surveys by Willey et al. (1965) and Conlin & Ehret (2001). Dark grey areas represent 2007-2008 survey areas. Yellow boundaries represent extent of 2009 survey, while red boundaries show the extent of areas that will be surveyed by the end of the 2010 field season.

	BKP Epicentral Settlement								BKP Periphery			Minor centers	
	A	B	C	D	E	F	G	H	NCF	BD R	NWB	SPL	BTR
Mounds	120	35	65	27	33	40	51	37	51	18	44	84	262
Singular	100	26	47	20	28	33	44	27	42	14	37	74	213
%	83	74	72	74	85	83	86	73	82	78	84	88	81
Grouped	20	9	18	7	5	7	7	10	9	4	7	10	39
%	17	26	28	26	15	17	14	27	18	22	16	12	19

Table 1. Mound totals and proportions for Baking Pot (BKP) Epicentral and Peripheral settlement, compared to the minor centers of Spanish Lookout (SPL) and Barton Ramie (BTR).

this cluster, of which 7 (17 percent) are grouped. Cluster G is the western-most cluster, and it is the least bounded by natural features. It is separated from Clusters A and F by an intermittent stream to the east and as mound density drops off at the edges of the 9 km² area, mounds along the edges of this cluster are considered peripheral settlements (Figures 2 and 3). The cluster consists of 51 mounds, of which 7 (14 percent) are grouped. Cluster H is the northern-most settlement cluster and is located

on the northern bank of the Belize River, approximately 1 kilometer from the site core. The reason why there may not be any mounds directly across the river from the site core is because this kilometer wide terrace of the river is prone to seasonal flooding. Cluster H consists of 37 mounds, 10 of which are grouped (27 percent). Several of the mounds in Cluster H are very large, and are reminiscent of the mounds at North Caracol Farm. Despite this similarity, it was decided to keep this cluster within the

Epicentral Settlement of Baking Pot, but with the recognition that its separation from the site core by the Belize River and low lying terrace may have led to a divergence in the normal settlement pattern.

Overall, epicentral settlement at Baking Pot is comprised of 408 mounds spread over 9 km². At its apogee, we estimate that epicentral Baking Pot would have had a population of approximately 2,040 people. This estimate is based on a ratio of 5 individuals per mound but does not include the residential areas associated with the palace complex in Baking Pot's monumental epicenter. Our survey further noted that the pattern in the epicentral settlement is highly skewed towards large singular mounds, representing approximately 80 percent of mounds at the site (Table 1). Overall, singular mounds range from 72 to 86 percent within the settlement clusters. Clusters A, F and G, which are all on the western section of the site, exhibit the highest percentages of singular mounds (ranging from 83 to 86 percent singular mounds). The only other cluster with a proportion of singular mounds this high is Cluster E, located in the northeastern portion of the site. The remaining areas, Clusters B, C, D, E and H contain between 72 to 74 percent of singular mounds. These clusters appear to be more spread out and the increased proportions of grouped mounds may be associated with access to larger amounts of land immediately available for cultivation. As the ceramic analysis for the epicentral survey is currently underway, we are unable to fully discuss any changing demographic patterns at the site at this point, including how the population expanded through time. These results will be elaborated in future publications.

In contrast to epicentral settlements, those in peripheral zones are more dispersed. North Caracol Farm (NCF) is located approximately two kilometers to the east of epicentral Baking Pot, and further separated from the site core by Garbutt creek (Figure 3). There are 51 mounds in this settlement cluster, in which 9 (18 percent) are grouped. The sizes of the mounds tend to be larger (in both size and height) than those in epicentral Baking Pot, although they are comparable to Cluster H. To the west of epicentral Baking Pot, the Bedran

group consists of 18 mounds, of which 4 are grouped (22 percent). There is another small

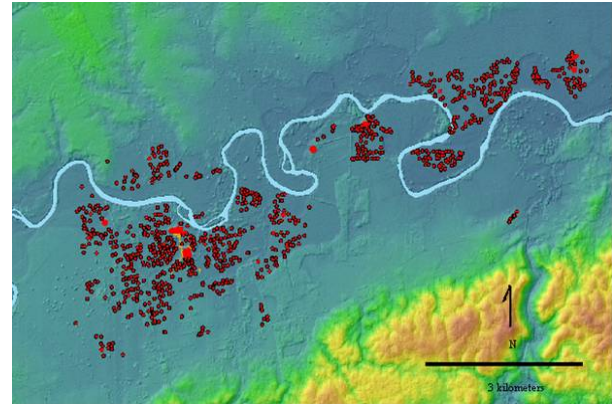


Figure 5. Regional view of settlement at Baking Pot, Spanish Lookout, and Barton Ramie (Map by Eva Jobbová and Andrew Bevan, 2009)

settlement cluster to the north of Bedran that we refer to as the Naxima group. The latter consists of 9 structures. Between and around the Bedran and Naxima groups we have identified a series of canals that may have been used to control flooding in this area during the rainy season, or as part of ditched field system of agriculture.

The Northwest cluster (NWB) consists of 44 mounds, 7 of which are grouped (16 percent). Overall, both North Caracol Farm and the Northwest cluster are similar in their proportion of singular mounds (82 and 84 percent) to the western section of epicentral Baking Pot. Interestingly, the Bedran cluster exhibited more similarity (78 percent of singular mounds) with the more spread-out sections of epicentral Baking Pot. The prominence of the ditched fields within this cluster also suggests that the agricultural use of the terrain may have influenced this difference. Fewer natural features tend to differentiate areas surrounding the peripheral settlement clusters, although Garbutt creek separates North Caracol Farm from the epicentral settlement. Despite this difference, Baking Pot's peripheral settlement exhibits many of the same characteristics as its epicentral settlement.

Regional Survey

At the regional level, the research focused on how settlement variation at Baking Pot fits into the wider settlement patterning

along the Belize River. At the same time we hoped to examine the possible implications of this data in terms of the social and political relationships of Baking Pot with surrounding communities. In addition, this research seeks to assess the role of Baking Pot within the political hierarchy of the Belize Valley, and to gain a better perspective on the relationship between settlement and political dynamics. For example, as the Belize Valley Archaeological Reconnaissance project has conducted research at both Baking Pot and Cahal Pech, major differences in the distribution of settlements are readily apparent between the two centers. At Cahal Pech, settlement is typically organized into formally arranged patio groups of several structures. In contrast, the settlements at Baking Pot tend to be more dispersed and less formally arranged, with fewer plazuela groups than at Cahal Pech (Hoggarth 2009). This observation highlights the need to explore these differences. Since Baking Pot and Cahal Pech are only about 10 kilometers apart, it will be interesting to determine how settlement changes eastward down the Belize River, what may have influenced these differences, and whether buffer settlements midway between the centers exhibit any specific patterns.

During the 2007 and 2008 seasons, mapping of the 9 km² area surrounding the epicenter of Baking Pot was completed. The first phases of the broader survey sought to connect the BVAR settlement survey with Willey's survey of Spanish Lookout and Barton Ramie further east and downriver. Survey continued in 2009, from the western border of the Baking Pot epicenter area to the west, extending past the minor center of Esperanza, and north of the river to include Bacab Na, and east of Baking Pot connecting the BVAR survey with the Spanish Lookout and Barton Ramie surveys conducted by Willey.

Results of the 2008 Season

By the end of the 2008 field season, the BVAR survey managed to link several minor centers (Barton Ramie, Spanish Lookout, North Caracol Farms, Bedran) with the Baking Pot site core. This area totals approximately 22 km² of continuous settlement (Figure 4). Results of this research indicate that the density of settlement at

Baking Pot gradually drops off to the east, particularly as one nears Garbutt creek. It then increases again in the form of large mounds associated with the North Caracol Farm settlement area (Conlon and Ehret 2000, 2001; Jobbová 2009). As survey progressed eastward within the North Caracol Farm area, the mounds became progressively smaller in size until they completely disappear (Jobbová 2009). Despite intensive survey, no mounds were discovered in the area immediately east of North Caracol Farm. The absence of mounds continues until one approaches the vicinity of Spanish Lookout. During our survey we noted that this area has been severely impacted by modern human activity, making ancient Maya settlements difficult to identify. The abrupt end of settlements to the south of Spanish Lookout may therefore be the result of this modern activity rather than a true reflection of prehistoric settlement patterns.

Spanish Lookout consists of 84 mounds, of which 74 (88 percent) are single mounds. This proportion is higher than the proportion of single mounds near the Baking Pot site core, but not too different from Cluster G in the western section of the site. Unlike the Baking Pot epicentral area, there are relatively few topographic or natural features which separate clusters of settlement around Spanish Lookout. Settlement in the southern portion of this site is on slightly higher ground, while mounds in the western cluster are spatially segregated from the rest of the site.

In 2008 our survey also reached Barton Ramie, allowing us to incorporate Willey's previously surveyed area into our data set. Settlement at Barton Ramie is organized into 9 clusters, including the Ox-bow section of the river to the south (Willey et al. 1965). Willey's survey recorded a total of 262 mounds spread across approximately 2 square kilometers of land along the Belize River. Of these 262 mounds, 39 (19 percent) were grouped mounds. This type of distribution and density is similar to the western portion of the epicentral settlement at Baking Pot. It is also similar to North Caracol Farm and the Northwest peripheral cluster at Baking Pot. Additional comments on Barton Ramie, particularly in terms of its relation to a newly reported site (Lower Dover) located near

the confluence of Barton Creek and the Belize River is elaborated in the 2009 survey section of this paper.

GIS and Statistical Analysis

As part of our research, Eva Jobbová utilized GIS and statistical analysis to better understand the spatial patterning of settlements between Baking Pot, Spanish Lookout, and Barton Ramie (Jobbová 2009). With regard to intra-regional implications, we hope to understand how the settlement pattern at Baking Pot fits into wider settlement patterns of the greater Belize River Valley.

Architectural alignment was one of the criteria that we used to compare and understand settlement organization at Baking Pot, Spanish Lookout, and Barton Ramie. The monumental architecture in the epicenter of the site of Baking Pot appears to be aligned with the cardinal directions, skewed by between 7° west of north to about 12° west of north. Statistical significance of the relationship between the directions of house mounds and the cardinal directions (skewed by 10° west of north) was confirmed through regression analysis, and additional analyses explored house orientation with bearings of 7° and 12° in attempt to see if there is a difference in the strength of the relationship between house mounds in the different parts of the site and their respective alignments to 7°, 10° and 12° west of north. Based on a chi-square test and the nature of the relationship from regression analysis, it appears that 10° west of north is the most determining local orientation for house mound distribution in the area east and west of the monumental center and the same results were obtained for Baking Pot as a whole.

The neighboring minor sites of Spanish Lookout and Barton Ramie were also analyzed and the same pattern as Baking Pot was found to apply to the site of Spanish Lookout, but not to the site of Barton Ramie. Based on Willey's map, settlements at Barton Ramie can be divided into three sections. One section that we refer to as the Oxbow, is relatively secluded from the rest of the site. Interestingly, this area is also organized differently from the rest of the Barton Ramie site, and more similar in organization to that of Spanish Lookout (and the settlement

north of the Belize River at Baking Pot). To test this hypothesis, the same analysis for each individual site was conducted for the central settlement cluster at Barton Ramie. The next combination analyzed the Baking Pot, Spanish Lookout, and the Ox Bow part of Barton Ramie. Results of the analysis for the central part of Barton Ramie suggests that there is not a significant relationship between the directions of house mounds and cardinal directions skewed by 10 degrees west of north. On the other hand, the results for the other combinations which separate the Ox Bow section of the site show a significant relationship and all of these parts of the sites seem to share the same pattern, where 10° west of north is determining orientation for house mound distribution.

Results of the 2009 Season

In 2009 the survey coverage extended west-ward from Baking Pot, including the area around Esperanza, and across the north bank of the Belize River to include the settlement surrounding Bacab Na. The latter allowed us to link the BVAR's survey with Anabel Ford's BRASS project transects that extended from this site northward. Our survey also expanded the settlement analysis of the area to the west and north of Bacab Na (Figures 4 and 5). Due to lack of time, we were unable to link this survey area with the area north of Baking Pot that we surveyed in 2007 and 2008. This will be one of the areas which will be mapped in the 2010 field season. In 2009 we also reconnoitred the limestone foothills to the south of Baking Pot in an effort to identify sites and other cultural features (such as limestone quarries) in this area. During this reconnaissance, two new sites were discovered, including a cave and a small surface site. The cave was located approximately 1 kilometre south of the Bedran Group, or about half a kilometre southwest of the Running W Farm headquarters. Further reconnaissance of these sites is planned in the future, and survey transects will connect these sites with the BVAR regional survey. By the end of the 2009 season, the BVAR regional survey had covered nearly 40 square kilometers of continuous territory along the Belize River, and had connected several other areas that had been previously surveyed by other projects.

Although the analysis and classification of settlement from the 2009 season is on-going, the block survey revealed several interesting patterns. Moving west from Baking Pot, mound density diminishes significantly, with only small clusters of a few housemounds present. The Bedran group, located just outside of the boundary of epicentral settlement, includes 18 mounds, with four orthogonally arranged around a formal patio. This group was extensively excavated as part of Conlon's settlement research, and later compared to the Atalaya group, located within the epicentral settlement (Conlon & Moore 2002). To the west of the Bedran group, there are a few interspersed mounds, with another cluster centered around the Esperanza group (Sims in press). North of the Esperanza Group and the western highway, several isolated mounds were identified and it is quite probable that many other housemounds in this region have been destroyed by modern developments in Esperanza Village. Across the north bank of the river from Esperanza, isolated mounds increase in frequency as one moves eastward towards Bacab Na.

Following the 2009 field season, we were informed of a large site in Unitedville. Located on the property of the Lower Dover field station, the epicenter of the site consists of two groups of monumental architecture that are connected by a causeway. The monumental epicenter is similar in organization to Baking Pot and Cahal Pech, although it is slightly smaller in size. The location of the site, approximately six kilometers east of Baking Pot and about four kilometers west of Blackman Eddy, is inconsistent with Driver and Garber's (2004) linear political model for the Belize Valley, which posits that large centers are positioned approximately 10 kilometers apart, with smaller centers at their midpoints. Initial exploration of the site in 2009 indicates that Barton Ramie and Floral Park are part of the settlement associated with Lower Dover's monumental epicenter. In view of the above, previous assumptions and classifications of some sites in the Belize Valley will need to be modified. Investigations at the site, which will begin in 2010 as part of Patrick Wilkinson's doctoral research, will help to determine the role and position of Lower Dover in the political spectrum of the greater Belize

River Valley. By the end of the 2010 field season, Lower Dover will also be incorporated within the BVAR's regional settlement survey.

Conclusions

Our extensive survey of the upper Belize River Valley, particularly the area between Cahal Pech and Barton Ramie, allows us to examine settlement variability along the Belize River and its implications for the social and political relationships of the polities within this region. With regard to intra-site organization, we hope to achieve a better understanding of how large and small centers in the Belize Valley were related, and whether the settlement patterns here compares with that of other sites in the area.

The present results of this analysis reveal several tentative but interesting patterns. First, the data indicates that there is definitely some degree of settlement variability among the sites in the valley. For example, the settlements around Baking Pot, Spanish Lookout, and Barton Ramie are predominantly represented by large single mounds with only few arranged around formal patio clusters. In contrast, peripheral settlements around Cahal Pech tend to be smaller but are much more commonly organized in formal patio groups. Between Baking Pot and Cahal Pech, settlement is mixed between formal and informal groupings and this is particularly evident around Bacab Na and Esperanza, midway between the two major centers. At Spanish Lookout and Barton Ramie, it appears that the Baking Pot pattern, of informally arranged, dispersed clusters of settlement predominates with large singular mounds being more common. The pattern of predominantly singular mounds, ranging from 72 to 86 percent of the total mounds at sites in and around Baking Pot indicates a consistent pattern which drastically contrasts with settlement at many sites in the Maya lowlands.

To provide a more thorough picture of settlement in the valley, future comparisons of settlement patterns in the region will include Cahal Pech, Esperanza, Bacab Na, Buena Vista and Xunantunich. Regional comparisons are needed in order to explore the broad range of settlement variability in the greater valley, as well as in adjacent areas such as Caracol and the

Vaca Plateau. Settlement patterns around Caracol have been well documented, and recent LIDAR radar is facilitating detailed settlement research in this region (Chase & Chase 2009). As more systematic collaboration continues in the valley, and projects extend their survey boundaries, broader patterns of settlement organization and variability for the Belize Valley will be understood. Current results from BVAR's regional settlement research show significant variation in settlement across the landscape. With the addition of this research, new questions begin to emerge, particularly in regards to hierarchical political organization in the region. Were Spanish Lookout and the Ox Bow part of Barton Ramie subordinate to Baking Pot, or does their close proximity to Lower Dover suggests that they were under the latter's influence? These questions cannot be answered on the basis of the results from this study alone, and future survey and excavations at Lower Dover should shed more light on these issues.

References Cited

- Ashmore, Wendy, Samuel V. Connell, Jennifer J. Ehret, Chad H. Gifford, L. Theodore Neff, and Jon C. VandenBosch
 1994 The Xunantunich Settlement Survey. In *Xunantunich Archaeological Project: 1994 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 248-289. Institute of Archaeology, Belmopan.
- Audet, Carolyn M and Jaime J. Awe
 2004 "What's Cooking at Baking Pot: A Report of the 2001 to 2003 Seasons." *Research Reports in Belizean Archaeology*, Vol. 1: 49-59.
- Bullard, William R., Jr. & Mary Ricketson-Bullard
 1965 *Late Classic Finds at Baking Pot, British Honduras*. Art and Archaeology Occasional Paper, No. 8. Royal Ontario Museum, Toronto.
- Chase, Arlen F. and Diane Z. Chase
 2009 *Continued Investigations of Residential Complexes in and near Caracol's Epicenter: 2009 Field Report of the Caracol Archaeological Report*. Report presented to the Belize Institute of Archaeology, Belmopan, Belize.
- Chase, Arlen F. & James F. Garber
 2004 "The Archaeology of the Belize Valley in Historical Perspective." *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*, edited by James F. Garber, pp. 1-14. University Press of Florida, Gainesville.
- Conlon, James M.
 1993 The 1992 Season of Investigations at Baking Pot: On the Outside Looking In. in J. Awe (ed.) *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1992 Field Season*, Peterborough: Department of Anthropology, Trent University, pp. 173-177
- Conlon, James M.
 1995 The Final Frontier: Settlement Survey at the Ancient Maya Site of Baking Pot. In J. M. Conlon and J. J. Awe (eds.), *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1994 Field Season, Volume 2*. London: Institute of Archaeology, University College London, pp. 81-102
- Conlon, James M.
 1997. An Analysis of Ancient Maya Consumption Requirements and Agricultural Production Potential at Baking Pot, Belize. In J. M. Conlon and J. J. Awe (eds.), *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1996 Field Season*. Peterborough: Department of Anthropology, Trent University, pp. 7-20.
- Conlon, James M., Powis, T., and Hohmann, R.,
 1994 Ruler or Ruled? Status, Land Tenure, and Nucleated Settlement in the Western Periphery of Baking Pot, Belize. In J. M. Conlon and J. J. Awe (eds.), *Belize Valley Archaeological Reconnaissance Project: Progress Report of the 1993 Field Season*. London: Institute of Archaeology, University College London, pp. 224-262.
- Conlon, James M. and Awe, J. J.
 1995 Estimates of Population and Agrarian Potential for the Ditched Field Irrigation System at Baking Pot, Belize. In J. M. Conlon and J. J. Awe (eds.), *Belize Valley*

- Archaeological Reconnaissance Project: Progress Report of the 1994 Field Season, Volume 2.* London: Institute of Archaeology, University College London, pp. 63-80.
- Conlon, James M. and Ehret J. J.
2000 Ancient Maya Settlement at Baking Pot, Belize: Results of the Continually Expanding Survey Program in the Search for the End of the Final Frontier. In J. M. Conlon and J. J. Awe (eds.), *The Western Belize Regional Cave Project: A Report of the 1999 Field Season*. Durham: Department of Anthropology, Occasional Paper No. 3, University of New Hampshire, pp. 43-54.
- Conlon, James M. and Ehret, J. J.
2001 Ancient Maya Settlement at Baking Pot, Belize: Final Results of the North Caracol Farm Survey Program. In J. M. Conlon and J. J. Awe (eds.), *The Western Belize Regional Cave Project: A Report of the 2000 Field Season*. Durham: Department of Anthropology, Occasional Paper No. 4, University of New Hampshire, pp. 301- 308.
- Conlon, James M & Alan F. Moore
2002 "Identifying Urban and Rural Settlement Components: An Examination of Classic Period Plazuela Group Function at the Ancient Maya Site of Baking Pot, Belize." *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Ianonne & Samuel. V. Connell, pp. 59-70. Regents of the University of California.
- de Montmollin, Olivier
1988 Settlement Scale and Theory in Maya Archaeology. In *Recent Studies in Pre-Columbian Archaeology*, edited by Nicholas J. Saunders and Oliver de Montmollin, pp. 63-104. BAR International Series 431. British Archaeological Reports, Oxford.
- Driver, W. David & James F. Garber
2004 "The Emergence of Minor Centers in the Zones between Seats of Power." *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*, edited by James F. Garber, pp. 287-304. University Press of Florida, Gainesville.
- Ford, Anabel
1987 *Summary Report on the Belize River Archaeological Settlement Survey, Field and Laboratory Research 1983-1987*. Department of Anthropology, University of California Santa Barbara. Copy on file at the Institute of Archaeology, Belmopan.
- 1992 *Organization and Integration among Communities, Centers, and Regions: Hierarchical Organization of the Maya of the Belize River Area Summary Report on Intensive Excavations of the BRASS Project 1990-1992*. Department of Anthropology, University of California Santa Barbara. Copy on file at the Institute of Archaeology, Belmopan.
- Ford, Anabel & Scott Fedick
1992 "Prehistoric Maya Settlement Patterns in the Upper Belize River Area: Initial Results of the Belize River Archaeological Settlement Survey." *Journal of Field Archaeology*, Vol. 19 (1): 35-49.
- Helmke, Christophe and Jaime Awe
2008^a Organización territorial de los antiguos mayos de Belice Central: confluencia de datos arqueológicos y epigráficos. *Mayab*, No. 20:65-91.
- 2008b New Site Description and Structure Designations of Baking Pot, Belize. *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2007 Field Season*, edited by Christophe Helmke and Jaime J. Awe, pp. 81-102. Belize Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Hoggarth, Julie A.
2009 Settlement and Community Organization in the Classic to Postclassic Transition: Research Methodology and Aims of the 2007 to 2010 Settlement Research at Baking Pot, Belize. *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2008 Field Season*, edited by Julie A. Hoggarth and Jaime J. Awe. Belize Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Hoggarth, Julie A., Eva Jobbová, Christophe Helmke and Andrew Bevan
2008 Settlement Survey at Baking Pot, Belize: Results Of The 2007 Season. *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2007 Field Season*, edited by Christophe

Helmke and Jaime J. Awe, pp. 157-187.
Belize Institute of Archaeology, National
Institute of Culture and History, Belmopan.

Jobbová, Eva

2009 Comparative Settlement in the Central
Belize Valley: GIS Analysis of Baking Pot,
Spanish Lookout and Barton Ramie. *The
Belize Valley Archaeological
Reconnaissance Project: A Report of the
2007 Field Season*, edited by Julie A.
Hoggarth and Jaime J. Awe. Belize Institute
of Archaeology, National Institute of
Culture and History, Belmopan.

Ricketson, Oliver G.

1929 *Excavations at Baking Pot, British
Honduras*. Contributions to American
Anthropology and History,

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

1965 *Prehistoric Maya Settlements in the
Belize Valley*. Papers of the Peabody
Museum of Archaeology and Ethnology,
No. 54. Harvard University, Cambridge.

18 THE MILPA CYCLE AND THE MAKING OF THE MAYA FOREST GARDEN

Anabel Ford and Ronald Nigh

The traditional Maya milpa has been widely misunderstood. A multicrop polyculture system cycles through stages that are skillfully managed towards regenerating a useful repertoire of plant habitats. Starting with a maize field that includes some 30 cultigens, the succeeding stages purposely favor first short-lived then long-lived perennials represented in the dominant species of the Maya forest. The Lakandon example demonstrates how the cycle begins with cutting the woody plants to produce fuel for a hot burn that is known as slash-and-burn. Then it cycles from a maize dominated field into a diverse hardwood forest based on skilled planting and selecting. The well-adapted strategy evolved to provide subsistence at every stage of landscape regeneration from the sun exposed open clearings to the shaded closed forest canopy. The economic plants that make the Maya forest today owe their presence to the pernicious human process of selection that has endured over the millennia.

Introduction

It is generally believed that the time between the domestication of crop plants and the adoption of an agrarian lifestyle was a short transition period, as the obvious advantages of agriculture would have been evident to early cultivators. Yet this does not appear to be the case, at least for Mesoamerica and in the Maya area. The 'transition stage' was quite long, more than 2,000 years, and judging from the steady expansion of archaeological habitation sites, was a very stable socio-ecological formation. During the millennia of intimacy not only were people and cultures profoundly influenced by the forest, but human practice began to shape the forest environment as well. This dialogue is evoked in the description of kanaan k'ax, a Yucatec term meaning 'owned' or 'managed forest' that, when used by contemporary Maya forest gardeners, implies both learning and stewardship (Barrera Vásquez 1980, McAnany 1995, Tzul 2001).

Plant domestication and even serious horticulture, such as forms of milpa, were practiced by the middle Holocene inhabitants of the lowland forests, long before the advent of sedentary agricultural villages (Smith 1998). Pollen evidence of maize cultivation begins to provide a recognizable signal in the sediment cores from the Archaic period only to become prominent in the Preclassic (Pope et al 2001), despite the highly degradable nature of maize pollen (Bryant 2003). Yet it is unlikely that these early horticulturalists as well as later agriculturalists, lacking steel tools, engaged in widespread forest clearance (Denevan 1992).

Their adaptation was a gradual intensification (Johnston 2003). The Maya forest is as much a part of the archaeology of the Maya as the sites themselves. It was created with the development of the milpa (Ford and Nigh 2009).

The Milpa Cycle

The Maya forest is an anthropogenic landscape (Atran 1993) that developed as a result of generations of environment management responsive to critical human needs and sustainability during the precipitation chaos that marked the millennium after 4,000 ya (Hodell et al. 2008; Haug et al. 2001). The principal tool of the Mesoamerican and Maya agrarian system is commonly known as the milpa (Wilken 1987). The product of the long adaptation to the tropical forest of Mesoamerica beginning in the Archaic, the milpa is widely misrepresented. It is the milpa cycle that is the axis of the resilient Maya natural resource management system (Altieri 2002; Ford and Nigh 2009; Teran and Rasmussen 1994).

The milpa system is associated with the Mesoamerican smallholder. Among traditional farmers, it is a polyculture based on maize and intercropped with plants taken from a repertoire of over 70 crop species domesticated in Prehispanic times. The Maya milpa entails a rotation of annual crop with a series of managed and enriched intermediate stages (Table 1) culminating in the reestablishment of the forest on the once-cultivated parcel (Hernández Xolocotzi, Bello Baltazar, and Levy Tacher

1995, Nations and Nigh 1980, Terán and Rasmussen 1994).

From our perspective, the adaptation and resilience of the forest garden-milpa cycle (Figure 1) provides insight into the development of the ancient Maya landscape (Ford and Nigh 2009). The milpa was the core of the innovative Maya forest garden that underwrote the development of the ancient Maya. Understanding the Mesoamerican milpa as a basic component of the forest garden is essential. The foundation was created in the Archaic and the development of its adaptive qualities occurred under the duress of climate change (Hodell et al. 2008; Haug et al. 2001) as it evolved as a sustaining system (Ford and Nigh 2009), imminently conducive to intensification based on skill and labor (cf. Bray 1994).

The interdependence of Maya milpa agriculture with the tropical forest is largely misunderstood. We can gain some insight to this issue by examining a recent ethnographic example of the Lakandon from Chiapas. The Maya undoubtedly employed a wide variety of farming systems, as they do today. We are not suggesting that, for example, the Lakandon milpa is general model of ancient Maya subsistence. We are suggesting, however, that it illustrates the kind of sophisticated cultural engagement with the forest environment characteristic of many Mesoamerican adaptive management systems (Nigh 2008; Toledo et al. 2003).

The Lakandon rainforest is currently home to some 500,000 indigenous people largely of Maya ancestry. The Lakandon are the smallest of the Maya groups, but have the longest history of occupation of the lowland forest. The traditional Lakandon subsistence strategy is one of multiple land use, in which several ecological zones were managed and exploited concurrently.

In addition to milpas and homegardens around the Lakandon house site, regenerating forest derived from agriculture, mature forest, as well as aquatic and semi-aquatic areas were exploited. While these regenerating and forest zones have been perceived as abandoned, examining this subsistence system in detail reveals the enormous diversity of plant and animal resources utilized by the Lakandon

(Durán Fernández 1999, Levy Tacher et al. 2002, Nations and Nigh 1980, Nigh 2008).

Lakandon men traditionally dedicated the greater part of their days to milpa work, in addition to hunting and gathering forest resources. Women and children helped during periods of high labor demand such as harvest, as is common in other parts of Mesoamerica. Such dedication to milpa work allowed diversification and productivity rarely noted for this agricultural system recent times. This provides us with a unique contemporary example of what Wilken (1971) called the “high-performance milpa,” a form likely to have been far more commonly practiced in densely occupied ancient Mesoamerica.

The impact of Lakandon Maya management practices on regenerating forest, however, is where the true subtlety of the system is revealed. Lakandon Maya farmers chose cultivation sites surrounded by forest to maintain a source of mature forest seeds for succession. The result of this practice combined with intensive daily weeding of the cropping area, was a careful control of the soil seed bank oriented towards achieving rapid forest regeneration (Nigh 2008).

Careful weed management extended the useful life of the field for annual crop production, allowing five to eight years of high-yield continuous cropping (Figure 2A), while less-intensive milpas in this region today under conventional weeding or herbicide treatment can be planted for a maximum of three years running before being overwhelmed by herb and shrub competition (see Johnston 2003).

Weeding practices also resulted in a more judicious use of fire, avoiding negative effects on soil ecology (cf. Gleissman et al. 1981). By contrast, in the conventional, or less-intensive milpa widely practiced by contemporary farmers the entire field is weeded in a single effort lasting several days on two or three occasions during the cultivation cycle. Weeds are allowed to proliferate after the last cleaning as the maize crop grows to harvest stage, which means that the vegetation must be cleared and burned over the entire field in preparation for the next planting cycle.

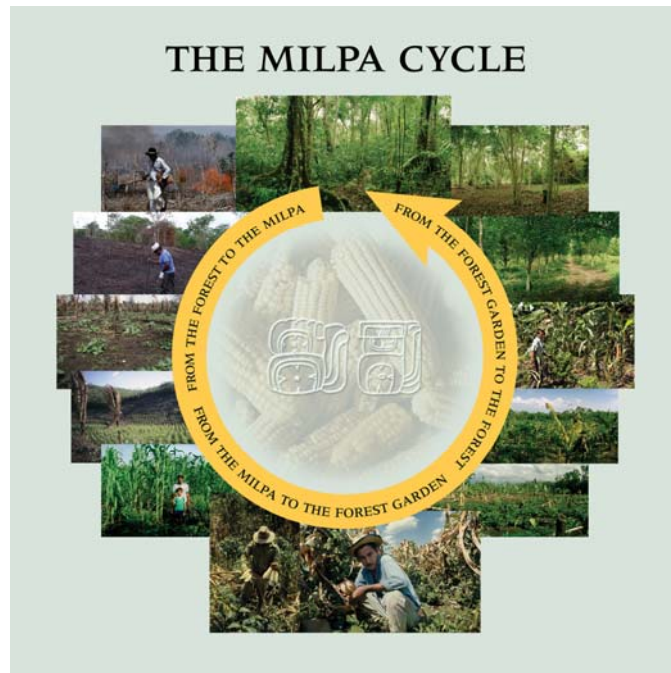


Figure 1. The Milpa Cycle



Figure 2. The Staged Sequence of the Milpa Cycle. (a) Stages 1 & 2~ open multi-culture maize field; (b) Stages 3 & 4 ~ long lived perennial succession; (c) Stages 5 ~ mature perennial harvests

In traditional milpa, epitomized by the Lakandon practice, however, small piles of weeds and crops residues were burned periodically throughout the year, and the ashes spread about the field. A hot burn over the entire field occurred only once in the five to eight year cultivation cycle, when the primary vegetation is cleared to initiate cropping. Most weeds pulled or cut were not burned at all, but left in the field to decompose. These practices provided a continuous supply of labile organic matter and biochar and resulted in a highly enriched anthropogenic soil observed on Lakandon fields (cf. Wilken 1987), similar in some ways to the terra preta of the Amazon (Glaser et al. 2001, Peterson, Neves, and Heckenberger 2001). This is a system typically called slash-and-burn, but is really select-and-grow, so essential to the establishment of the forest garden.

Control of the seed bank has a profound effect on the successional processes that follow the end of the cycle of maize cultivation (Figure 2B & C). Academics and others usually describe the stages of succession on agricultural fields, especially in the tropics, as periods of ‘abandonment’ after cultivation. The idea is that the farmer simply lets his fields rest, allowing the natural processes of regeneration to restore fertility. This description is far from the truth. For the Lakandon Maya, the phases that follow cultivation received attention equal to that of the milpa and gainsays the notion of ‘abandoned’ fields.

According to forest ecologists, processes of secondary forest succession develop as an ordered series of stages that can be identified by the functional relations of woody species (Chazdon 2008). The Lakandon recognize and name these stages and the associated functional groups. Successional communities on traditional Lakandon fields have a species composition that is more similar to the original rainforest than on those that derive from contemporary milpa practices (see Table 1). Thus, forest recovery is hastened under traditional management (Nigh 2008).

Lakandon farmers dispersed seed of balsa (*Ochroma pyramidale*), in order to create thick stands of this fast-growing, short-lived canopy tree (Levy Tacher and Golicher 2004).

This species has been used by generations of Lakandon farmers to reduce the forest regeneration period, replenishing soil organic matter and enhancing weed control. Perhaps a dozen other trees were also managed for their beneficial effects on soil fertility (Levy Tacher 2000). Through these means, the Maya obtained a selection of species of interest to humans during the process of forest regrowth.

As the Lakandon example illustrates, Maya milpa cycle is a complex multicropping system built around the rotation of maize fields with secondary stages of forest. Forest regeneration and succession is managed, tree species are selected—eliminated, planted or encouraged to grow—so that composition is affected and the trajectory of regeneration is directed to desired states of economic and cultural utility. The milpa is a central tool in the creation, development, and maintenance of the forest garden (Teran and Rasmussen 1994, Ford and Nigh 2009).

Implications

An understanding to the Lakandon system and the importance of the milpa cycle in the management of the Maya forest provides insights into the nature of Archaic mobile horticulturalists. These early cultivators would have employed and expanded small clearings in the forest, observing and eventually intervening in the processes of forest succession, similar to the Lakandon system discussed above. Other tools were available to the early forest gardeners, the precursors of what we know would become sophisticated forms of silvicultural and agroforestry practices by indigenous peoples throughout the Neotropics (Peters 2000). These systems left their imprint on the forest long after the management activities have been abandoned (Campbell et al. 2006).

An example is the pet kot, a form of forest modification practiced until recently by the Yucatec Maya and first described by Gómez Pompa and colleagues (1987). The pet kot is a tall, managed stand created in niches in the forest that contrast greatly with surrounding lower deciduous vegetation. Pet kot may arise from old fields or simply from special attention

Milpa Stages	Dominant Plants/Preparation plants of the Milpa Cycle-Forest Garden <i>bold indicates wind pollination</i>
Stage 1-2 1-3 yrs 3-7 yrs	Open milpa: ~30 cultigens selected from ~ 70 spp, including maize , squash, beans, tomato , macal, chili, herbs . Also major families: Ambrosia , Compositae , Amaranthaceae , Cecropia , Trema , Mimosa , Cyperaceae , Melastomataceae , Poaceae , Asteraceae , Urticaceae , Euphorbiaceae , Palms; Coppiced bushes and trees to re-sprout; as well as short lived perennials; Seedling fruit trees for Stage 3-4
Stage 3-4 7-15 yrs 15-30 yrs	Long lived Perennials ~ Fruit trees: <i>Annona muricata</i> L., <i>Sabal morrisian</i> Bartlett, <i>Attalea cohune</i> C., <i>Ceiba pentandra</i> L., <i>Ananas comosus</i> (L.) Merr., <i>Bursera simarouba</i> (L.), <i>Opuntia cochenillifera</i> (L.) P. Mill, <i>Pachyrhizus erosus</i> (L.), <i>Carica papaya</i> L., <i>Cecropia peltata</i> L., <i>Calophyllum brasiliense</i> Cambess, <i>Bucida buceras</i> L., <i>Cucurbita pepo</i> L., <i>Cnidioscolus chayamansa</i> McVaugh, <i>Manihot esculenta</i> Crantz, <i>Acacia cornigera</i> (L.) Wild, <i>Enterolobium cyclocarpum</i> (Jacq.) Griseb. , <i>Quercus oleoides</i> Schltl. & Cham. , <i>Persea Americana</i> P. Mill, <i>Byrsonima crassifolia</i> (L.) Kunth, <i>Guarea glabra</i> Vahl, <i>Brosimum alicastrum</i> Sw., <i>Pimenta dioica</i> (L.) Merr., <i>Psidium guajava</i> L., <i>Hamelia patens</i> Jacq., <i>Simira salvadorensis</i> (Standl.), <i>Talisia oliviformis</i> Radlk., <i>Manilkara zapota</i> (L.) van Royen, <i>Pouteria sapota</i> (Jacq.) Moore & Stearn, <i>Guazuma ulmifolia</i> Lam. Seedling long lived perennial hardwoods interspersed with fruit trees for Stage 5 Hardwoods shade fruit trees in later stages
Stage 5 Harvest & ready for Stage 1	Closed Canopy well managed forest ~ Kanan Kaax <i>Spondias mombin</i> L., <i>Aspidosperma cruentum</i> Woodson, <i>Attalea cohune</i> C. Mart, <i>Cryosophila stauracantha</i> (Heynh.) R. Evans, <i>Sabal morrisian</i> Bartlett, <i>Bursera simarouba</i> (L.), <i>Licania platypus</i> (Hemsley) Fritsch, <i>Lonchocarpus castilloi</i> Standley, <i>Piscidia piscipula</i> (L.) Sarg, <i>Zuelania guidonia</i> Britton & Millsp., <i>Swietenia macrophylla</i> King, <i>Brosimum alicastrum</i> Sw, <i>Alseis yucatanensis</i> Standley, <i>Simira salvadorensis</i> (Standl), <i>Talisia oliviformis</i> Radlk, <i>Pouteria reticulata</i> (Engl.), <i>Pouteria campechiana</i> (Kunth) Baehni, <i>Manilkara zapota</i> (L.) van Royen, <i>Vitex gaumeri</i> Greenman

Table 1: Dominant Plants of the Milpa Cycle showing the Biodiversity at Each Stage of the Cycle

given to favorable sites by continual enrichment with new species. Many are species common to local home gardens such as *Brosimum*, *Spondias*, *Pithecellobium*, *Malmea*, *Bursera*, and *Sabal*. In similarly enriched areas around cenotes, Gómez Pompa's team observed cacao trees of a variety found commonly far to the south in Chiapas (Gomez Pompa et al. 1990). These microenvironments create their own water regime, producing more humidity and mist than unmanaged areas.

Such forest modification practices would have preceded established agriculture. When wet forests retreated to the most humid areas in response to periodic region-wide climatic drying, a condition that occurred cyclically in Maya history (Ford and Nigh 2009), patches of modified and enriched forest created by the Maya would have served as species-rich refugia, and sources of seeds for the future. Foragers enhanced fertile microniches and created enriched forest patches around campsites or as areas of valuable resources to be revisited on a seasonal basis (cf. Steward 1930).

Lakandon farmers are by no means unique in employing these agroforestry techniques. Such sophisticated agroforestry systems have been documented for all the Americas (Alcorn 1990, Toledo et al. 2003).

The Lakandon milpa and pet kot are but two examples of the processes that probably arose during the 'long transition' as the Mesoamerican mixed cultivation and foraging smallholder ecological culture was established in Mesoamerica (Gomez Pompa and Kaus 1999, Peters 2000). Eventually a true agrarian society emerged from this ecological matrix with increasing dependence on settled agriculture. This system imposed a domesticated landscape that transformed the forest into cultural feature cultivated by the Maya (Fedick 2010). The creation of the Maya forest garden is the result of an accumulated investment and intensification of milpa cycle and other agroforestry systems.

Conclusion

The agroforestry management of the milpa cycle is a resource management system that is initiated in closed-canopy forest when

clearings were opened by natural processes of tree falls and hurricanes as well as with cutting tools and fire, the fundamental abilities that came to the Americas across the land bridge. Landscape knowledge of the tropical Maya forest was cumulative over at many millennia. The adaptation incorporated the selection for useful plants and the development of domestic crops that were suited to the environment.

The Lakandon example shows that annual cropping is practiced where fields are visually dominated by maize in the first years, but these fields include many types of companion crops selected from over dozens of cultigens, many that have been cultivated for more than five millennia. The milpa includes its own ecology that deters pests, enhance soil nutrients, and maintain moisture of the soil. The selection of trees and bushes for succession begins at the earliest phase of planting and it is this intensity that determines floral composition that has become the Maya forest. In the act of enrichment selecting and planting in the phases of succession, the Maya shape the forest to their needs and create the forest garden.

The Maya forest, thus, is the result of plant selection and the skills of smallholder farmers engaged with a variable environment and the local landscape (Griffith 2000). Traditional Maya farming, still practiced today, represent investment in the conservation of the landscape, from the soil to the trees, promoting biodiversity and animal habitat essential to the sustainability of the subsistence system. The ancient and contemporary Maya rely on gradient of intensity of agroecological systems. Milpa cycle itself admits of degrees of intensification depending on the amount of labor devoted to the various phases of the cultivation and successional cycle. Where urban demand increased, the system was intensified with the input of labor and skill.

The dynamic result is a resilient system that builds a diversified mosaic landscape. Plants of economic importance to the Maya dominate the milpa cycle at all the successive stages of managed forests. This flexible and adaptive system coevolved with the development of the tropical forest when the ancestral Maya became familiar with the landscape and are conserving the Maya forest as a garden today.

References Cited

- Alcorn, J. B.
1990 Indigenous Agroforestry Strategies Meeting Farmers' Needs. In *Alternatives to Deforestation: Steps Toward Sustainable Use of the Amazon Rain Forest*, edited by A. B. Anderson, pp. 141-148. Columbia University Press, New York.
- Altieri, M. A.
2002 Agroecology: the Science of Natural Resource Management for Poor Farmers in Marginal Environments. *Agriculture Ecosystems & Environment* 93:1-24.
- Atran, S.
1993 Itza Maya Tropical Agro-Forestry. *Current Anthropology* 34(5):633-700.
- Barrera Vásquez, A.
1995 *Diccionario Maya*. 3. ed. Editorial Porrúa, México, D.F.
- Bray, F.
1994 Agriculture for Developing Nations. In *Scientific American*, pp. 18-25. vol. 271.
- Bryant, V.
2003 Invisible Clues to New World Plant Domestication. *Science* 229:1029-1030.
- Campbell, D. G., A. Ford, K. Lowell, J. Walker, J. K. Lake, C. Ocampo-Raeder, A. Townesmith and M. Balick
2006 The Feral Forests of the Eastern Petén. In *Time and Complexity in the Neotropical Lowlands*, edited by C. Erickson and W. Baleé, pp. 21-55. Columbia University Press, New York.
- Chazdon, R. L.
2008 Chance and determinism in tropical forest succession. In *Tropical Forest Community Ecology*, edited by W. P. Carson and S. A. Schnitzer. Blackwell Publishers, Oxford, UK.
- Denevan, W. M.
1992 Stone vs Metal Axes: The Ambiguity of Shifting Cultivation in Prehistoric Amazonia. *Journal of the Steward Anthropological Society* 20(1 and 2):153-165.
- Durán Fernández, A.
1999 *Estructura y etnobotánica de la selva alta perennifolia de Nahá, Chiapas*, Universidad Nacional Autónoma de México.
- Fedick, S. L.
2010 The Maya Forest: Destroyed or Cultivated by the Ancient Maya. *PNAS* 107(3):953-954.

- Ford, A. and R. Nigh
 2009 Origins of the Maya forest garden: Maya resource management after the Holocene thermal maximum. *Journal of Ethnobiology* 29:213-236.
- 2009 Origins of the Maya Forest Garden: Maya Resource Management. *Journal of Ethnobiology* 29(2):213-236.
- Glaser, B., L. Haumaier, G. Guggenberger and W. Zech
 2001 The 'Terra Preta' phenomenon: a model for sustainable agriculture in the humid tropics. *Naturwissenschaften* 88:37-41.
- Gleissman, S., E. M. García and A. Amador
 1981 The ecological basis for the applications of traditional agriculture in the management of tropical agroecosystems. *Agroecosystems* 7:173-185.
- Gómez-Pompa, A., M. Aliphath Fernández and J. Salvador Flores
 1990 The Sacred Cacao Groves of the Maya. *Latin American Antiquity* 1(3):247-257.
- Gómez-Pompa, A., J. S. Flores and V. Sosa
 1987 The "Pet Kot": A Man-Made Tropical Forest of the Maya. *Interciencia* 12(1):10-15.
- Gómez-Pompa, A. and A. Kaus
 1999 From prehispanic to future conservation alternatives: lessons from Mexico. *Proceedings of the National Academy of Sciences* 96:5982-5986.
- Haug, G. H., K. A. Huguen, D. M. Sigman, L. C. Peterson and U. Rohl
 2001 Southward Migration of the Intertropical Convergence Zone through the Holocene. *Science* 293(5533):1304-1308.
- Hernandez Xolocotzi, E., E. B. Baltazar and S. L. Tacher
 1995 La Milpa En Yucatán: Un Sistema De Producción Agrícola Tradicional 1. Two vols. Colegio De Postgraduados, Montecillo, México.
- Johnston, K. J.
 2003 The intensification of pre-industrial cereal agriculture in the tropics: Boserup, cultivation lengthening, and the Classic Maya. *Journal of Anthropological Archaeology* 22(2):126-161.
- Levy Tacher, S. I.
 2000 *Sucesión causada por roza-tumba-quema en las selvas de Lacanhá Chansayab, Chiapas.*, Colegio de Postgraduados.
- Levy Tacher, S. I., J. R. Aguirre Rivera, M. M. Martínez Romero and A. Durán Fernández
 2002 Caracterización del uso tradicional de la flora espontánea en la comunidad lacandona de Lacanhá, Chiapas, México. *Interciencia* 27(10):512-520.
- Levy Tacher, S. I. and J. D. Golicher
 2004 How predictive is traditional ecological knowledge? The case of the Lacandon Maya fallow enrichment system. *Interciencia* 29(9):496-503.
- McAnany, P. A.
 1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. 1st ed. University of Texas Press, Austin.
- Nations, J. D. and R. Nigh
 1980 The Evolutionary Potential of Lacandon Maya Sustained-Yield Tropical Forest Agriculture. *Journal of Anthropological Research* 36(1):1-30.
- Nigh, R.
 2008 Trees, fire and farmers: Making woods and soil in the Maya forest. *Ethnobiology* 28(2):231-243.
- Peters, C. M.
 2000 Precolumbian Silviculture and Indigenous Management of Neotropical Forests. In *Imperfect Balance: Landscape Transformations in the Precolumbian Americas*, edited by D. L. Lentz, pp. 203-223. Columbia University Press, New York.
- Peterson, J. B., E. G. Neves and M. J. Heckenberger
 2001 Gift from the past: Terra preta and prehistoric Amerindian occupation in Amazonia. In *Unknown Amazon*, edited by C. McEwan, pp. 86-105. British Museum, London, UK.
- Pope, K. O., M. E. D. Pohl, J. G. Jones, D. L. Lentz, C. von Nagy, F. J. Vega and I. R. Quitmyer
 2001 Origin and Environmental Setting of Ancient Agriculture in the Lowlands of Mesoamerica. *Science* 292:1370-1373.
- Smith, B. D.
 1998 Origins of Agriculture: Enhanced: Between Foraging and Farming. *Science* 279(5357):1651-1652.
- Steward, J.
 1930 Irrigation without agriculture. *Michigan Academy of Science, Arts and Letters* 12:149-156.
- Teran, S., C. H. Rasmussen and O. M. Cauich
 1998 Las Plantas de la Milpa entre los Mayas: etnobotánica de las plantas cultivadas por los campesinos mayas en las milpas del noroeste de Yucatan, Mexico. Fundacion Tun Ben Kin, A.C., Yucatan, Mexico.

Toledo, V. M., B. Ortiz Espejel, L. Cortés, P. Moguel and M. d. J. Ordoñez

2003 The multiple use of tropical forests by indigenous peoples in Mexico: a case of adaptive management. *Conservation Ecology* 7(3):9 [online].

Tzul, A.

2001 *1st Meeting of Farming Communities in the Maya Forest for the Design of an Agroforestry Model - El Pilar: Retrieving Old Traditions*. Help for Progress.

Wilken, G. C.

1971 Food-Producing Systems Available to the Ancient Maya. *American Antiquity* 36(4):432-448.

1987 *Good Farmers: Traditional Agricultural Resource Management in Mexico and Central America*. University of California Press, Berkeley, CA.

19 MARINE SHELL USE FROM STRUCTURE B1 AT BLACKMAN EDDY, BELIZE: A DIACHRONIC PERSPECTIVE

Jennifer L. Cochran

This paper examines the marine shell artifacts recovered from Structure B1 at the site of Blackman Eddy, Belize. The goal of this study was to evaluate marine shell use at the site through a diachronic perspective. The long cultural history of Structure B1, coupled with the presence of marine shell artifacts associated with all construction phases, provided an excellent opportunity to examine continuity and discontinuity within the shell assemblage over time. The use of typological and taxonomic analyses aided in evaluating shell types in the assemblage and species utilization at the site. A contextual analysis provided important information of both use and deposition of the shell artifacts. Worked shell and shell debitage were examined in this study. Examining these categories together helped to identify several interesting patterns, including evidence for Middle Preclassic shell artifact production, the importance of marine shell, in either finished and/or raw form, in early ritual activity at the site, and changes in artifact types through time.

Introduction

Marine shell artifacts have been documented as an important commodity in the Maya Lowlands from the terminal Early Preclassic to the Colonial period. Although this material culture category has been identified as an important long-distance trade item, few systematic studies have been formally conducted on marine shell. Notable exceptions include the work at Cahal Pech, K'axob, and Pacbitun where researchers focused on issues such as production and the use of marine shell in mortuary contexts. Marine shell research at these, and several other sites, has documented considerable variability in marine shell species and artifact types through time. Contextual data from the Belize River Valley suggests that worked shell artifacts were often placed in special deposits dating as early as the terminal Early Preclassic. Lacking from these studies, however, is an assessment of the deposition and use of marine shell from a diachronic perspective, as well as a detailed analysis of marine shell debitage through time. Recent investigations at the site of Blackman Eddy identified both worked shell artifacts and marine shell debitage in special deposits such as caches, burials, and problematic deposits spanning approximately 2,000 years. These new data have important implications regarding the role of marine shell in ritual activities through time.

The site of Blackman Eddy, located in the Cayo District of western Belize, is situated immediately off the Western Highway on a small ridge overlooking the modern village of

Blackman Eddy (Garber et al. 2004) (Figure 1). Unauthorized bulldozing activities in the 1980s cut Structure B1 in half revealing numerous construction phases. More than a decade of research on Structure B1 has provided evidence of an architectural sequence spanning from the terminal Early Preclassic to the Terminal Classic (1200 BC-AD 900). The long cultural history of Structure B1, coupled with the presence of marine shell artifacts associated with all construction phases, has provided an excellent opportunity to identify and evaluate the general trends of marine shell use through time.

Results of the Typological Analysis

A total of 718 shell artifacts from Structure B1 were evaluated in this study. All marine shell artifacts were placed into one of two broad categories: 1) worked shell, and 2) debitage. Fragments of shell debitage represent 86.6 percent of the assemblage recovered from Structure B1, while worked shell artifacts comprise the remaining 13.4 percent of the assemblage. The worked artifact category was divided into three types; beads, pendants, and adornos. Each type was further divided into subtypes based upon distinct characteristics. The debitage category was evaluated and divided according to shell fragments. More than 97 percent of the identifiable shell debitage assemblage consists of marine gastropod fragments therefore, most of the shell part designations reflect that of a gastropod. A detailed view of all terms and descriptions discussed in the typological, taxonomic, and

contextual sections this paper can be found in Cochran 2009.

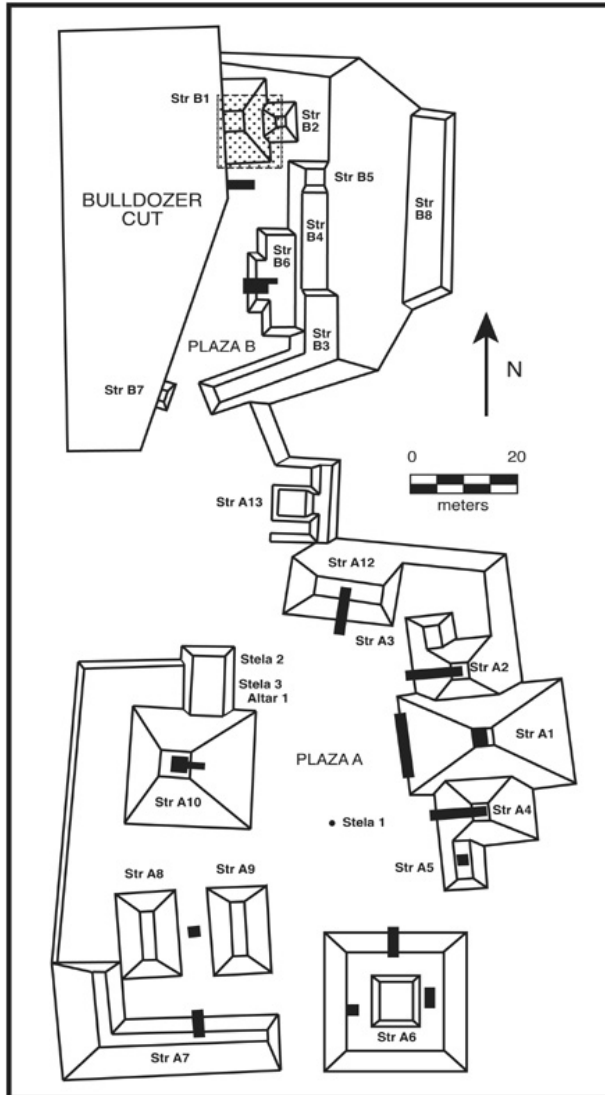


Figure 1. Blackman Eddy Site Core

Worked Shell

Beads were the most common worked shell artifact type recovered from Structure B1 comprising 76.0 percent of the worked shell assemblage. Two main bead subtypes were identified within the assemblage: 1) disk-shaped and 2) irregular (Figure 2). Irregular beads are the most common bead subtype identified in the Blackman Eddy assemblage. Of the 73 beads recovered from Structure B1, more than half, 58.9 percent, were classified as irregular beads. The irregular beads from Blackman Eddy show considerable variation in shape, diameter, and

thickness, however, an examination of the lateral edges of this bead subtype show that 82 percent of irregular beads have smoothed margins, suggesting that these represent finished products. Irregular beads in this assemblage appear to be manufactured from gastropod fragments with *Strombus* sp. (cf. *S. puligis*) being the preferred species. Many parts of the gastropod were selected for irregular bead manufacture including the body, lip, shoulder, and spire shell portions.

Disk-shaped beads represent 30.1 percent of the bead assemblage. Due to intensive modification of this subtype species, identification was difficult to assess. However, analysis suggests that the selection of shell part used during manufacture of this subtype was restricted to gastropod body fragments. The remaining 11.0 percent of the bead assemblage represent beads designated as subtype unspecified. This was due to artifact preservation or artifact availability. Several beads were poorly preserved or broken, which made a subtype designation difficult.

The frequency of shell pendants identified within the shell assemblage was substantially lower than that for shell beads, comprising only 16.1 percent of the total worked shell assemblage. Pendants show greater variation in both artifact subtype and species type than do bead subtypes (Figure 3). Pendant subtypes present in the assemblage include carved and cut, modified gastropod shell, modified pelecypod shell, and tinkler artifacts.

The most commonly identified pendant subtype identified at Blackman Eddy was the tinkler. These artifacts comprise 62.5 percent of the total pendant assemblage. All tinklers from Blackman Eddy were manufactured from *Oliva* sp. gastropods. At least one specimen retained enough morphological characteristics to identify it as being manufactured from an *Oliva reticularis* gastropod. The tinkler assemblage consisted of four complete, three broken, and three unfinished pendants. All of the broken tinklers exhibited a manufacture failure at or near the perforation for suspension. Unfinished tinklers in the assemblage exhibited spire removal; however, they lacked complete perforations.

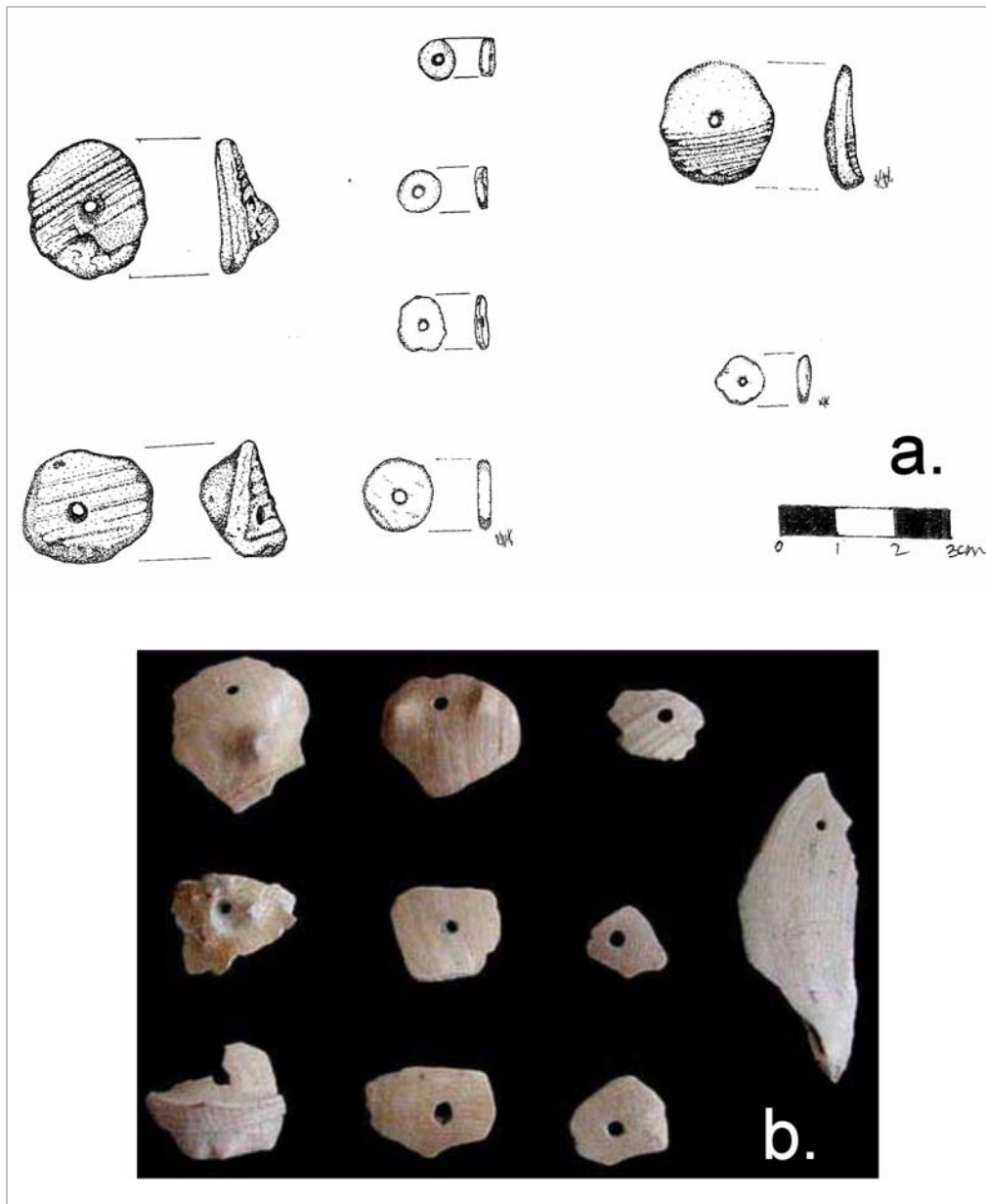


Figure 2. Bead Subtypes from Blackman Eddy: a) Disk and b) Irregular.

Adornos represent the third worked artifact type identified at Blackman Eddy. The adorno type represented the lowest frequency of worked shell artifacts recovered from the site, yet, they revealed the most variation with respect to subtype. The subtypes found at Blackman Eddy include, earflares, inlays, labrets, notched disks, and rosettes (Figure 3). Each of the subtypes identified in the assemblage was represented by only one or two artifacts. All of these artifacts were extensively worked removing much of the

diagnostic features necessary for species identification.

Debitage

Columella fragments were the most commonly recovered debitage fragments, representing 39.5 percent of the debitage assemblage. Body fragments represented 23.8 percent of the assemblage. Smaller percentages of outer lip, shoulder, and spire fragments also were present in the assemblage. The fact that all

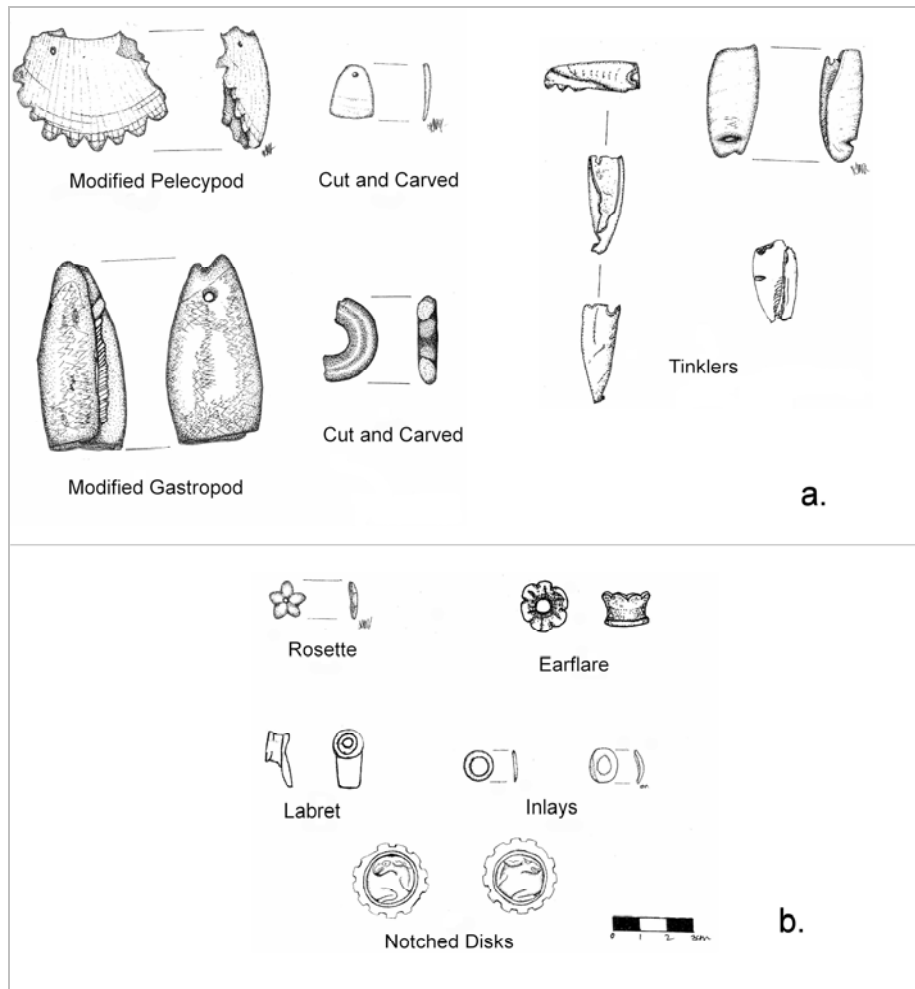


Figure 3. a) Pendant Subtypes and b) Adorno Subtypes from Blackman Eddy.

gastropod shell parts were present in the assemblage suggests that these shells were being imported into the site whole and then worked into formal artifacts. One percent of the debitage assemblage was represented by partial gastropods with manufacturing evidence present. Only three pelecypod (bivalve) fragments and one scaphopod (tusk) fragment were identified from Structure B1.

Results of the Taxonomic Analysis

Taxonomic analysis of the marine shell artifacts from Structure B1 revealed that a variety of taxa were utilized at Blackman Eddy. Evidence suggests that at least nine genera and seven species were present in the assemblage. Most of the assemblage, 87.1 percent, could be placed in the genus *Strombus*. Within this genus, at least 16.3 percent of the specimens could be

identified as *Strombus puligis*. Specimens of adult *Strombus gigas* were present in much smaller frequencies representing only 0.7 percent of the assemblage. One immature or juvenile example of *S. gigas* was represented in the assemblage by a spire fragment.

All of the remaining varieties of identifiable taxa make up only 3.5 percent of the Structure B1 assemblage. These include *Busycon spiratum*, *Conus* sp., *Dentalium* sp., *Melongena melongena*, *Oliva* sp., *Oliva reticularis*, *Pleuroploca gigantea*, *Spondylus* sp., and *Turbinella angulata*. Many of these taxa were represented by only one specimen. For the remaining 9.5 percent of the shell assemblage, species identification could not be determined due to extensive modification and/or preservation issues. These specimens were designated as unidentified marine gastropod,

unidentified marine pelecypod, or unidentified marine shell.

Results of the Contextual Analysis

Two broad contextual types were used to evaluate the changes in marine shell use through time at Blackman Eddy. The two categories created were: 1) special deposits, and 2) construction fill. Special deposits represent burials, caches, problematical deposits and ritual deposits. Construction fill represents all building materials from all architectural phases within Structure B1. The percent of the marine shell assemblage from Structure B1 identified was 20.3 percent in special deposits while 79.1 percent of the assemblage recovered was identified in construction fill. A contextual designation was not assigned to the remaining percent of the shell assemblage due to provenience uncertainties.

The recovery of shell debitage in special deposits was concentrated to the Middle Preclassic, with the highest frequencies found in the Early Middle Preclassic/ Late Middle Preclassic transition. The largest frequencies of both worked shell (beads) and shell debitage recovered from construction fill contexts were identified in the Early Middle Preclassic. By the time of transition between the Early Middle Preclassic and Late Middle Preclassic, frequencies of worked shell and shell debitage in special deposits and construction fill have a near even distribution.

Shell debitage identified in construction fill contexts dramatically declines by the Late Middle Preclassic to Late Classic and is only represented by 12 pieces for those combined periods. Like that seen with the shell debitage, the frequency of worked shell artifacts recovered declines by the Late Middle Preclassic to the Late Classic period. Finished, whole pendants and adornos represent the worked shell artifact type in special deposits for these later periods, while beads (in any form) and broken pendants were only recovered from construction fill contexts.

Discussions

The earliest occupation at Blackman Eddy has been dated to the transition between the terminal Early Preclassic and Early Middle

Preclassic (Garber et al. 2004). The earliest buildings found within the Structure B1 sequence (Structures B1-8th to B1-12th) were thought to be the remains of domestic dwellings (Brown 2003:100; Brown and Garber 2005:40). These structures appear to have been razed or partially destroyed in antiquity and were identified by the remains of posthole patterns carved into bedrock (Brown 2003). There was very little intact fill associated with these early domestic dwellings. Despite this, marine shells were found associated with these buildings. The shell artifacts included finished beads, unfinished beads, and debitage. One special deposit, a dedicatory cache, contained 12 pieces of debitage and a chocolate pot vessel (Brown, personal communication 2007). A second special deposit containing several pieces of carved greenstone, ceramic figurine fragments, a uniface, hammerstones, chert flakes, a quartz crystal, incised ceramic sherds, freshwater shells, carbon, and four fragments of marine shell debitage also was encountered (Garber et al 2002). These were the earliest offerings found at the site and it is interesting that marine shell debitage was intentionally placed within them. This pattern of using marine shell debitage as well as worked marine shell in special deposits continues throughout the Early Middle Preclassic and Late Middle Preclassic as well. This indicates that the use of shell as raw material was an important component in this offering.

It also appears that by the terminal Early Preclassic/ Early Middle Preclassic transition, the early occupants of the site were involved in marine shell production of some nature. The combination of finished and unfinished beads in association with marine shell debitage and worn chert drills provide evidence that early inhabitants were producing shell beads rather than just importing them into the site at this early time (Cochran 2005). Although the majority of marine shell beads, debitage and chert drills (Yacubic 2006) were recovered from the two public buildings (Structures B1-6th and B1-7th) overlaying these early domestic structures, it appears that these artifacts were scooped up from nearby middens associated with the early domestic dwellings and dumped into the buildings as part of the construction fill.

The construction fill from these early public structures consisted mainly of a wet-laid midden-like fill with pockets of dry-laid fill used to buildup the core of these structures. Unlike the dry-laid fill, the wet-laid fill consisted of an artifact-rich matrix consistent with the matrix associated with the domestic structures. Even though production locale was not directly identified at the site, the high percentage of marine shell beads, debitage, and chert drills found within this fill most likely reflects activities of production associated with the earlier domestic structures.

Recent work at the sites of Pacbitun and Cahal Pech revealed that the manufacture of marine shell artifacts during the Middle Preclassic was most likely organized at the household or cottage-level industry (Hohmann 2002). Evidence from these sites suggests that marine shell beads were being produced locally. The marine shell assemblages from these sites are quite similar to the early assemblage from Blackman Eddy, suggesting that household production was common in the Belize River Valley during the Middle Preclassic.

The most commonly identified specimens in the Early Middle Preclassic assemblage represented *Strombus* sp. It is important to note that while the bulk of the assemblage was designated as *Strombus* sp., the majority of the specimens appear to closely resemble *Strombus puligis* or immature *Strombus gigas* gastropods. The abundance of these types of shells in the Blackman Eddy assemblage suggests that these specimens may have been preferred since their small size makes them easier to work on and transport. Evidence of bead manufacture from large, thick-walled shells, like *Pleuroploca gigantea* adult *Strombus gigas*, *Turbinella angulata*, was identified in very low frequencies at the site. These shells can grow large and thick, making them bulky and difficult to work on. Again, this seems to suggest that while these thick-bodied shells were utilized, they were not preferred. During the Middle Preclassic, the use of small to medium thin-walled *Strombus* sp. (cf. *Strombus puligis*) gastropods during shell artifact manufacture seems to be a common pattern at several Belize sites, including Cahal Pech (Hohmann 2002), Chan Noohol (Keller 2008) Colha (Driess 1994),

Cuello (Hammond 1991) K'axob (Isaza Aizpurua 1997:66) and Pacbitun (Hohmann 2002:116).

The greatest amount of species variation for any one period was identified during the transition between Early Middle Preclassic and Late Middle Preclassic, however the predominate species was represented by *Strombus* sp. Many of these species were being used to manufacture pendants. Aside from three unfinished pendants recovered in the assemblage, it was difficult to determine if pendants and adornos were being produced locally at the site. The majority of the pendants in the assemblage had little modification to their original shell form. A minimal amount of production evidence would have been apparent, therefore, making it difficult to determine if they were modified before or after the shells entered the site.

By the Late Middle Preclassic to the Late Classic, there was a clear reduction in the volume of marine shell debitage recovered from the site. This reduction in debitage coupled with the appearance of more extensively worked artifacts makes it more difficult to examine the types of species being utilized at this time. It does appear, though, that worked artifacts were no longer restricted to *Strombus* sp.

The use of *Spondylus* sp. does not appear in the assemblage at Blackman Eddy until the Late Classic, and was only represented by one specimen. As Freidel et al. (2002: 44) suggest, *Spondylus* shell may have been a symbol of power and prestige used by early kings in the Maya Lowlands. Whole and worked *Spondylus* shells have been identified in elite burial contexts and displayed in Classic period iconography. This shell species has been found at several sites in the Maya Lowlands as early as the Late Preclassic. In the Classic period, large quantities of *Spondylus* sp. identified in elite contexts suggest that this species was readily accessible by the elite at those sites. Moholy-Nagy (1994,1997) identified a large special deposit of *Spondylus* sp., debitage during the Early Classic at Tikal. She suggested that this deposit demonstrated elite control over production and use of *Spondylus* material since special deposition of the debitage kept the raw material to limited distribution. If this is the

case, then smaller Classic period sites, like Blackman Eddy, with less ability to control the acquisition and distribution of highly prized goods, like *Spondylus*, may not have been able to acquire this highly favored commodity, thus reflecting its limited distribution in the assemblage.

Marine shell in both the worked and debitage forms appears to have some symbolic importance during the Middle Preclassic at Blackman Eddy. As discussed above, both worked shell (beads) and shell debitage were placed in special deposits during the Early Middle Preclassic and Late Middle Preclassic periods. High densities of shell debitage were found in special deposits that were interpreted to be the remains of communal feasting events. It appears that marine shell, in any form, was an important component within communal rituals and may have symbolically represented water (Cochran 2008). Objects of marine origin were often placed in offerings dating to the Classic period, as a cosmological reference to the primordial sea (Freidel et al. 1993).

Keller (2008) has also identified the presence of worked marine shell and shell debitage in caches and burials at Chan Noohol, dating to the Middle, Late, and Terminal Preclassic. She suggests that the type of shell items recovered from these special deposits at Chan Noohol may represent “the construction and negotiation of a shared identity, rather than the manipulation of personal identities” (Keller 2008). The worked shell and shell debitage identified within communal ritual feasting events at Blackman Eddy during the Middle Preclassic may represent a similar example of community identity.

By the Late Middle Preclassic to the Late Classic virtually all evidence of marine shell bead production has disappeared in construction fill contexts. Marine shell beads were the predominant worked type during the Middle Preclassic period; yet, they were extremely rare in the later periods. In fact, they all but drop out of the record by the Late Middle Preclassic period and are replaced by pendants and adornos. This may reflect a shift in preference of worked shell objects by the occupants of the site, or equally plausibly, bead production was no longer occurring anywhere

near the later B1 structures. During the Late Preclassic time period (and into the Classic) the site of Blackman Eddy had transformed tremendously with the addition of monumental architecture and large plazas. The only domestic structures (elite residences) within the site core at this time were located quite a distance away in Plaza A and excavations did not uncover any evidence of shell production. It is also important to note that the material used for construction fill for the later buildings was mainly a dry-laid rubble fill that did not contain much cultural material. Any midden material added to this fill would most likely have been gathered close by and reflected the activities of the buildings. Therefore, the lower densities of marine shell beads and debitage might not reflect a shift in use patterns, but rather a sampling issue. Finally, it is possible that the reduction in the presence of shell beads may be attributed to changes in the acquisition of this long-distance trade item. At Pacbitun, substantially higher volumes of marine shell beads were recovered from Late Middle Preclassic deposits than in the Early Middle Preclassic (Hohmann 2002:188). It appears that production intensification may have been occurring at this site. It could be that by the Late Middle Preclassic, certain sites may have had differential access to marine shell goods explaining the reduction of this material at other sites, like Blackman Eddy. However, further research of Middle Preclassic shell artifact production locales in the region is needed to better address this possibility.

The discontinuity of worked shell types through time is interesting. Pendants do not appear in the Structure B1 assemblage until the transition between the Early Middle Preclassic and Late Middle Preclassic. Their highest frequencies were during this transition period; however, they were found in later periods as well. Tinklers were the most common pendants identified at the site. Iconographic images on carved monuments from the Classic period display tinklers attached to belts and loincloths as important elements of ritual regalia (Jones and Swatterwaithe 1982; Spinden 1957). It is possible that these artifacts may have served a similar function. The remaining pendants in the assemblage consist of two cut and carved pendants, three gastropod pendants, and a

pelecypod pendant. As Taschek (1994) mentions, pendants are differentiated from beads by their size and suspension type and can be strung either singularly or in a series. Given the size of the pendants recovered from Structure B1, it is possible that these artifacts represented the central elements when strung either around the neck or elsewhere. These larger elements would have been more prominently displayed than beads and could have played an important role as status symbols for emerging elites to set themselves apart from others within the community.

At K'axob, Izasa Aizupura and McAnany (1999) note a shift from the use of beads to more elaborate shell artifacts (including pendants) in Late Preclassic burials. They suggest that in Middle Preclassic burials, it was the quantity of shell beads as grave offerings that "indicate the varieties of identities of varying status that existed" (Izasa Aizupura and McAnany 1999:125). By the Late Preclassic, however, more elaborate artifacts such as pendants and tinklers replaced shell beads to "diacritically mark positions of status and authority" (Izasa Aizupura and McAnany 1999:125). It is possible that the shift seen from beads to pendants at Blackman Eddy, though represented earlier than at K'axob, may represent a similar scenario. These data coupled with the findings from Blackman Eddy may demonstrate that the low volumes of more elaborately worked shell compared to shell beads suggests that their procurement, use, and circulation might have not been available to all members in the community.

An interesting pattern emerges when the context of pendants and adornos is examined. Whole pendants were predominately found in special deposits, while broken or unfinished pendants were found primarily in construction fill context. Marine shell adornos, first appearing in the Early Classic with highest frequencies in the Late Classic, were restricted to special deposits. All adornos in the assemblage represent whole artifacts. This artifact type represented the smallest sample recovered, yet; they have the greatest variation with respect to artifact subtype. These artifacts have unique, elaborate designs suggesting that considerable time, effort and skill was placed into the creation

of these objects. Like pendants, this suggests these artifacts may have been regarded as symbols of power and authority. However, the elaborate characteristics and small sample size of adornos suggest they may have been more powerful symbols of authority or rank than pendants. Adornos were never found together with pendants or beads in Classic period deposits at Blackman Eddy. This may suggest that the acquisition and use of these items may have been restricted to the most elite members of the community.

By the Late Preclassic, there was a change in ritual behavior identified at the site (Brown 2003). Communal ritual deposits (like feasting events), associated with public structures, are replaced by smaller, discrete deposits placed within pyramidal structures. Unlike in the Middle Preclassic, the discrete nature and seclusion of these special deposits in the later periods suggest that the whole community probably did not participate in these events. The quantities and types of shell artifacts in these deposits reflect this change. Beads and large quantities of shell debitage were no longer being placed in these deposits. Only pendants or adornos, represented by one or two pieces, were being included in ritual events. This suggests that quality, rather than quantity, may have played an important role. As I mentioned earlier, this also suggests that more elaborate artifacts might have been linked to certain high-status individuals rather than the community as a whole. Marine shell as a raw material is still important, but artifact form plays a much larger role in ritual activity.

Conclusions

This paper examined the marine shell artifacts recovered from Structure B1 at the site of Blackman Eddy, Belize. Typological and taxonomic analyses provided useful information on the types of artifacts used and the species utilized at the site. Two categories were identified in this assemblage, 1) worked shell artifacts and 2) shell debitage. An analysis of both worked shell artifacts and shell debitage was important to this study as it provided information about the use and significance of each category in the past. A contextual analysis helped to identify patterns of use and deposition.

Examining the contextual designations of all marine shell artifacts recovered provided information about the use life of the artifacts themselves and the value of these artifacts to the ancient inhabitants. Finally, a diachronic perspective was used to examine the results of the typological, taxonomic, and contextual analyses to identify changes in shell use patterns over a 2,000-year period. The examination of the dataset diachronically allowed for the recognition of patterns of continuity and discontinuity within the assemblage.

Acknowledgements I would like to thank Dr. Jaime Awe, Dr. John Morris, and the rest of the staff at the Institute of Archaeology for all their continued support and encouragement, as well as the opportunity to present this research at the 2009 Belize Archaeology Symposium. A special thank you goes to Kimberly Kersey for her time spent on the artifact illustrations presented in this paper. I would like to express my gratitude to Dr. James F. Garber for providing me many excellent field opportunities with the Belize Valley Archaeology Project (BVAP) and permission to access the dataset used in this study. Finally, I would like to thank M. Kathryn Brown for her gracious role as an advisor and mentor. She has invested many hours guiding me through the complex stratigraphy and excavations of Structure B1 and provided me with much needed writing advice, editorial assistance, and overall encouragement toward the completion of this study. Analysis of the marine shell artifacts for this project was partially funded by the Liberal Arts Dean's Excellence Award for Graduate Student Research from The University of Texas at Arlington.

References Cited

- Brown, M. Kathryn
 2003 Emerging Complexity in the Maya Lowlands: A View from Blackman Eddy, Belize. Unpublished Ph.D. dissertation, Southern Methodist University
- Brown, M. Kathryn and James F. Garber
 2005 The Development of Middle Formative Public Architecture in the Maya Lowlands: The Blackman Eddy, Belize Example. In *New Perspectives on Formative Mesoamerican Cultures*. Edited by Terry G. Powis: 39-50, BAR International Series 1377.
- Cochran, Jennifer L.
 2009 A Diachronic Perspective of Marine Shell Use from Structure B1, Blackman Eddy, Belize. Masters Thesis. University of Texas, Arlington. University Microfilms, Ann Arbor.
- 2008 A Contextual Analysis of Marine Shell at Blackman Eddy, Belize. Paper presented at the 73rd Annual Meeting of the Society of American Archaeology, Vancouver, Canada.
- 2005 The Role of Marine Shell Production during the Early and Middle Preclassic at the Site of Blackman Eddy, Belize. In *The Belize Valley Archaeological Project: Results of the Field Season*, edited by James F. Garber. Manuscript on file, Institute of Archaeology, Belmopan Belize.
- Driess, Meredith L.
 1994 The Shell Artifacts of Colha: The 1983 Season. In *Continuing Archaeology at Colha, Belize*. Edited by Thomas R. Hester, Harry J. Shafer, and Jack D. Eaton, pp.187-197. *Studies in Archaeology* 16. Texas Archaeological Research Laboratory, University of Texas, Austin.
- Freidel, David A., Linda Schele, and Joy Parker
 1993 *Maya Cosmos: Three Thousand Years on the Shaman's Path*. William and Morrow, New York.
- Freidel, David A., Kathryn Reese-Taylor, and David Mora Marín
 2002 The Origins of Maya Civilizations: The Old Shell Game, Commodity, Treasure, and Kingship. In *Ancient Maya Political Economies*, edited by Marilyn Masson and David A. Freidel: 41-86. Altamira Press, Walnut Creek, CA.
- Garber, James F., M. Kathryn Brown, Jaime J. Awe, and Christopher J. Hartman
 2004 Middle Formative Prehistory of the Central Belize Valley: An Examination of Architecture, Material Culture, and Sociopolitical Change at Blackman Eddy. In *The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research*, edited by James F. Garber, pp. 25-47. University Press of Florida, Tallahassee.
- Garber, James F., Christopher J. Hartman, and M. Kathryn Brown
 2002 The Kanocha Phase (1200-850 B.C.) on Structure B1: Results of the 2001 Field Season at Blackman Eddy. In *The Belize Valley Archaeology Project: Results of the 2001 Field Season*, edited by James F. Garber, M. Kathryn Brown, and Christopher J. Hartman, pp. 42-75.

- Manuscript of file, Institute of Archaeology, Belmopan, Belize.
- Hammond, N.
1991 Archaeological Investigations at Cuello: 1975-1987. In *Cuello: An Early Maya Community in Belize*, edited by N. Hammond, pp. 8-22. Cambridge University Press, Cambridge.
- Hohmann, Bobbi
2002 Preclassic Maya Shell Ornament Production in the Belize Valley, Belize. Ph.D. dissertation, University of New Mexico, Albuquerque. University Microfilms, Ann Arbor.
- Isaza Aizpuruia, Ilean Isel
1997 Shell Working and Social Differentiation at the Formative Village of K'axob. Unpublished Master's Research paper. Department of Archaeology, Boston University, Boston.
- Isaza Aizpuruia, Ilean Isel, and Patricia McAnany
1999 Adornment and Identify: Shell ornaments from Formative K'axob. *Ancient Mesoamerica* 10:117-127.
- Jones, C., and L. Satterwaite
1982 *The Monuments and Inscriptions of Tikal: The Carved Monuments*. Tikal Report No. 33. The University Museum. University of Pennsylvania, Philadelphia.
- Keller, Angela, H.
2008 Chan Shell Collection: Creating Identity within Shell. Paper presented at the 73rd Annual Meeting of the Society of American Archaeology, Vancouver, B.C.
- Moholy-Nagy, Hattula
1997 Middens, Construction Fill, and Offerings: Evidence for the Organization of Classic Period Craft Production at Tikal, Guatemala. *Journal of Field Archaeology* 24(3): 293-313.
- 1994 Tikal Material Culture: Artifacts and Social Structure at a Classic Lowland Maya City. Ph.D. dissertation, University of Michigan, Ann Arbor, University Microfilms, Ann Arbor.
- Spinden, H.J
1957 *Maya Art and Civilization*. Falcon's Wing Press, Colorado.
- Taschek, Jennifer T.
1994 *The Artifacts of Dzibilchaltún, Yucatan, Mexico: Shell, Polished Stone, Bone, Wood, and Ceramics*. Middle American Research Institute Publication 50. Tulane University, New Orleans.
- Yacubic, Matthew P.
2006 The Chipped Stone Tool Industries of Blackman Eddy, Belize. Unpublished MA thesis, Department of Anthropology, Brigham Young University

20 MORE THAN MEETS THE EYE: CERAMIC PRODUCTION AND CONSUMPTION AT LAMANAI, BELIZE, DURING THE POSTCLASSIC TO SPANISH COLONIAL PERIODS

Darcy L. Wiewall and Linda Howie

Over the past two decades, conventional perceptions of Postclassic Maya society emphasizing a trajectory of “decline, decadence, and depopulation” have been reformulated, acknowledging the abundant evidence of community stability that accompanies changes in the material record. Recent research on patterns of ceramic production and consumption at Lamanai, Belize, is contributing to our knowledge of local complexity, through a focus on household and community level economic patterns. This paper examines the stylistic, technological and provenance relationships of the pottery comprising different assemblages dating to the Terminal Postclassic to Spanish Colonial periods. The focus is on continuity and change in local approaches to pottery manufacture, patterns of use and deposition, the identification of non-local pottery, and its implications for regional interaction between communities. Our approach to analysis integrates macroscopic methods and microscopic scientific techniques with contextual information, permitting a more holistic reconstruction of human activities and behaviors involving ceramics and, thereby, strengthening inferences regarding ancient Maya social, political and economic systems. This on-going research is producing a host of new information on ceramic continuity and change for the Postclassic period, yielding new insight into local craft practices and the development of local pottery-making traditions.

Introduction

As part of our continuing effort to evaluate the impact of Spanish colonialism on the Maya, it is essential that we understand the nature and meaning, in behavioral terms, of variation in material culture items that they produced at this time. When considering pottery assemblages, constituting a category of material culture that almost always predominates site inventories, there are many fundamental issues that still require further investigation. These include: (1) how and where different stylistic and functional categories of pottery were produced, (2) how they were obtained, (3) how they were used in different social contexts, and (4) what role they played in everyday Maya life. A central purpose of the present study is to assess the impact of Spanish Colonial influence on domestic life at the urban center of Lamanai, by examining continuity and change in patterns of pottery production and consumption during the Terminal Postclassic to Early Spanish Colonial period. This study builds upon previous work on the Terminal Classic to Spanish Colonial ceramic sequence at Lamanai (e.g., Graham 1987; Howie 2006; Pendergast 1981), delineating the general stylistic and provenance (origin of manufacture) characteristics of the pottery recovered from four Terminal Postclassic to Early Spanish Colonial house lots

situated on the periphery of the site’s central precinct.

Our concern in this paper is characterizing local production and household consumption patterns as reflected in the pottery assemblages examined. We are by no means suggesting that these patterns hold true for other sites, for the time period in general at Lamanai, or even for other social contexts within the community there – this remains to be investigated in the future. As the term is used here, *production patterns* relates to variability in the way in which pots are made or the technical procedures employed in creating a pottery vessel – i.e. the vessel forms produced using a particular paste recipe or combination of raw material ingredients and their specific morphology, decorative treatment and firing - rather than the specific organizational form of production (e.g. *sensu* Rice 1987:168). Similarly, *consumption patterns*, as it is used here, concerns the range and relative frequency of different categories of pottery, defined stylistically, functionally, or in terms of their origin of manufacture, that occur within different depositional contexts, as opposed to depositional patterns relating to the presence/absence and condition of different stylistic (or functional) categories of vessels (see Howie 2006 for a more detailed discussion of these distinctions). Distributional patterns are

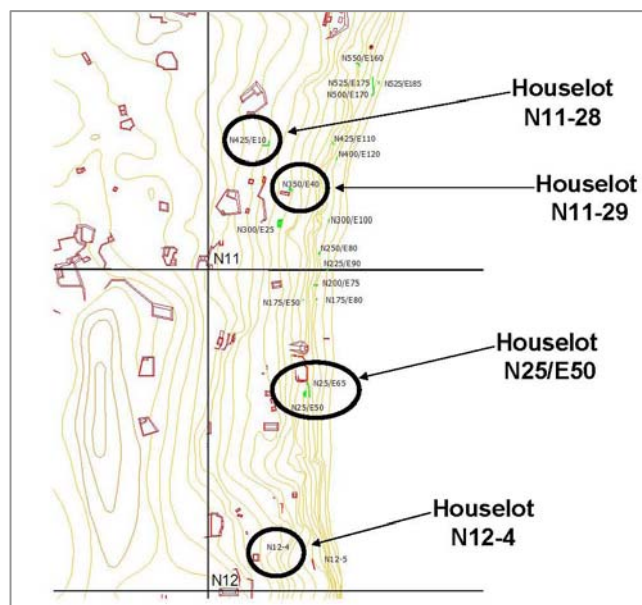


Figure 1: Lamanai Site Map with the four residential houselot areas

also an integral part of ceramic economic systems. In this study, however, we are not concerned with identifying the mechanisms by which pottery may or may not have moved around the landscape. Rather, we are interested in distinguishing between local versus non-local pottery in order to investigate whether different households within the Lamanai community had access to and chose to acquire vessels that were manufactured elsewhere. Our rationale is that by focusing on these distinctions, the nature of production and consumption behavior could be studied directly, by enabling an accurate reconstruction of local patterns, as concerns to the contexts examined, and, thereby, generating some basic information about local and regional patterns of distribution. Furthermore, the definitive information gained about local pottery production at Lamanai, provides valuable insight into the nature of the socio-economic relationships that existed between Lamanai and other Maya communities during this time period. For the purposes in the present paper, we focus on defining and examining general-level patterns relating to observed variation within and among household pottery assemblages dating to the Terminal Postclassic to Early Spanish Colonial period. Our specific objectives are threefold: (1) to examine the significance of stylistic and compositional variation within and among the

household pottery assemblages examined, (2) to investigate the continuity of local manufacturing traditions into the Spanish Colonial period, based on those well-defined for the Late Classic to Early Postclassic period (Howie 2006), and (3) to examine how local patterns of pottery production and consumption might have been affected by the intrusion of Spanish colonization.

The Pottery Assemblage

The pottery assemblage that forms the basis of this study comprises ceramic material recovered from four residential houselot areas (Figure 1). The material was primarily recovered from controlled unit excavations of residential sheet middens arising as short-lived depositional accumulations, but also includes material from household floors and walls, and from “outside” spaces in domestic courtyards.

Prior to the ceramic analysis, these four residential areas were determined to span the Late Postclassic to Spanish Colonial periods based on the analyzes of other excavated materials, residential architecture and radio-carbon dated materials (Wiewall 2009) and previous investigations at Lamanai (e.g., Graham 1987; Pendergast 1981, 1993). Ceramics are the backbone of assessing chronological relationships. In this regard, it was anticipated that the ceramics would provide a more finite temporal framework in which to investigate the nature of continuity and change in ceramic styles according to surface treatment, vessel morphology and vessel paste. Unfortunately, there were no distinct stratigraphic relationships between the lots from within each house lot. There are, however, differences between the houselot assemblages which allow for a discussion of temporal relationships among the houselots.

Methodological Approach

The methods of analysis and description employed in the macroscopic study of stylistic variability within the household pottery assemblages closely follows that devised by Howie (2006) in her study of technological variation within the Terminal Classic to Early Postclassic ceramic assemblage at Lamanai. This approach represents a significant departure

from standard practices associated with the Type-Variety system. Within the Type-Variety scheme, most conventional *type* descriptions for groups of 'like' pottery are based on the visual characteristics of whole vessels — surface finish and decorative attributes and vessel form. Due to the fragmentary condition of the Lamanai pottery and the complete absence of whole or even partial vessels, both identification and description of the different vessel groups was based on information retrievable from sherds. In addition, all of the sherd assemblages examined were dominated by coarse-textured sherds (fragments of utilitarian coarse ware vessels) that typically were not painted, had no apparent slip or wash, and/or were poorly preserved. These characteristics precluded a strict application of Type-Variety System for both sorting/grouping and description, especially since attributes of surface treatment could not be used uncritically in the identification/separation of different pottery types. Accordingly, it was necessary to adopt means of sorting and grouping that could be applied to all sherds, regardless of preservation differences, and considered technological as well as standard stylistic attributes relating to vessel surface treatment and morphology. Beyond the identification of basic shape classes, sherds were differentiated morphologically based on specific attributes such as rim and lip form and the presence/absence and stylistic characteristics of features such as appendages (feet, handles and bases) and ridges and flanges. Sherds were differentiated and grouped on technological grounds based on an assessment of macroscopic paste attributes using standard geological comparative charts for characterizing clay and the abundance, sorting, and size of inclusions. At the macroscopic level, variation in paste attributes may reflect differences in raw material ingredients and firing methods, reflecting potential technological and/or provenance differences that can be further investigated at a higher level of resolution using scientific techniques.

Only diagnostic sherds such as rims, bases, appendages, and body sherds displaying distinctive morphological features (e.g. a ridge, flange or appendage attachment) were examined in establishing vessel groups. Vessel counts for

each group were determined only after a concerted effort was made to identify mendable sherds deriving from the same vessel. For form categories represented by more than one anatomical element (e.g. rims and feet), counts were most often based on rim sherds.

Once vessel groups had been established and documented, a subset of sherds representing different individual vessels and capturing the range of variation observed within each houselot assemblage in the way of surface treatment, morphological and macroscopic paste attributes was selected for detailed compositional analysis using thin section petrography. The thin sections were prepared from cross-sectional samples according to standard procedures and were examined under a polarizing microscope at various magnifications. Whitbread's (1989, 1995) system for the discrimination and description of ceramic fabrics according to the geological and physical characteristics of their raw material ingredients and the paste preparation techniques employed in their manufacture was used to examine variability among and within houselot assemblages relating to differences in vessel provenance and paste technology. Direct comparisons were made between the houselot pottery thin sections and fabric groups defined for the Terminal Classic to Early Postclassic ceramic assemblage (Howie 2006) in order to investigate continuity in local manufacturing traditions and the potential origin of non-local fabric types. Non-local fabrics within the houselot samples were identified based on their geological inconsistency with raw material resources available in the immediate vicinity of Lamanai (i.e. within 3km of the central precinct). Potential raw material resources used in local pottery production are described in detail in Howie (2006).

General Ceramic Patterns

The sherd assemblages examined in this study derive primarily from residential middens and include a total of 31,931 sherds (Wiewall 2009). Of these, 2031 had diagnostic attributes, permitting reasonably accurate determinations of vessel form and associated stylistic characteristics. Approximately 25% of the diagnostic sherd assemblage was the focus of detailed macroscopic analysis, a body of

material that includes 506 sherds (Table 1) and a minimum of 355 individual vessels. The majority of vessels (N=140) derive from houselot N25/E50. A total of 104 vessels derive from houselot N12-4, whereas the assemblages recovered from houselots N11-28 and N11-29 yielded a total of 94 and 17 individual vessels, respectively (Table 2).

A breakdown of the surface treatment categories that were differentiated, organized according to the types of vessel forms they include, and their occurrence within each houselot assemblage is presented in Table 3. As can be observed, pottery dating to this time period exhibits considerable stylistic variation, with several qualitatively different slips (at least four) and washes (at least three) represented, and at least seven different general rim form categories that comprise at least 23 distinguishable types, based on their specific morphological characteristics. A total of four general shape classes are represented - jar, dish/bowl (including tripod forms), plate/lid and censer - with multiple form types occurring within each shape class.

Utilitarian Coarse Ware Vessels

This component of the diagnostic sherd assemblage includes coarse-pasted, utilitarian vessels that were primarily used in activities associated with the storage and preparation of food (Table 4). These vessels comprise just over half (54.18%) of the diagnostic sherd assemblage, with a minimum number of 240 vessels represented (67.61% of the vessel total). Not surprisingly, utilitarian vessels were recovered from all four houselot areas. The majority of the vessels within this general functional class are jars (54.58% [N=131]). Dishes and bowls are also well represented, comprising 39.17% (N=94) of all utilitarian vessels and three different forms were encountered - rounded, out-curving and in-curving - with in-curving bowls being the most common. Plates/lids are comparatively rare within the assemblage, comprising just 5.83% (N=14) of this functional class, and only one example of a comal was encountered, at houselot N25/E50 (Table 1 and 2).

The majority of utilitarian vessels (88.33%; N=212), are unslipped and have buff-

colored, fairly smoothed surfaces. Pastes are comparatively coarse-textured and 'white-flecked' exterior surfaces are characteristic. The vessel walls are thin, but well-made and strong, in that they are not easily broken. Vessels exhibiting additional surface finishing, such as the application of a wash or slip to the exterior surface, are comparatively rare within this functional category. Washes, either black, orange or opaque buff in color, are most common and, on the rare slipped examples, the slip is red to orange-red in color, lacks luster and is uneven across the surface. The only utilitarian vessels with any other sort of 'decorative' surface treatment are 'sack-shaped' jars, with tall out-curving necks and parenthesis, T-shaped, and groove-hooked rims, which commonly have often multiple groove-incisions encircling the rim to neck area (Table 4). This jar style, along with bowls and dishes that have similarly shaped rims and comparable body and paste characteristics, are typical of the early Spanish Colonial Yglesias Phase of occupation at Lamanai, as has been described and discussed previously by Graham (1987:93).

Fine Ware Serving Vessels

This component of the assemblage generally includes vessels with comparatively fine-textured pastes that have a comparatively high quality slip, when identifiable. Most of these vessels likely functioned at table wares used for serving food and drink. Also included in this general functional category are censers, of which only small fragments were recovered (described below), that were used in ritual. Fine serving ware vessels comprise 45.82% (N=203) of the diagnostic sherd assemblage and a minimum of 115 individual vessels is represented (32.39% of the vessel total). The large majority of these vessels (77.39%; N=189) are dishes or bowls, with tripod forms (N=94) being the most abundant (Table 4). Jars comprise nearly 20% (N=20) of serving ware vessels and comparatively rare vessel forms include plates/lids and censer fragments (Table 1 and 2). The dish/bowl category includes rounded, out-curving and in-curving forms, with rounded bowls being the most common. The most common tripod bowl form has a rounded bottom and out-curving upper sides that rise from a

	N25/E50	N12-4	N11-28	N11-29	Total by form	% of form within ware	% of ware for assemblage
Coarse ware							
jars	57	44	28	2	131	54.58%	
dish/bowl	26	15	41	12	94	39.17%	
plate/lid	10	3	1	0	14	5.83%	
comal	1	0	0	0	1	0.42%	
Total Coarse ware	94	62	70	14	240	100.00%	54.18%
Fine ware							
jar	18	2	0	0	20	9.85%	
dish/bowl	9	16	7	1	33	16.26%	
plate/lid	0	0	1	0	1	0.49%	
tripod vessels	28	41	24	6	99	48.77%	
Spanish	16	0	2	0	18	8.87%	
Chen mul	12	14	4	2	32	15.76%	
Total Fine ware	83	73	38	9	203	100.00%	45.82%
Sub-total					443		
British Ceramics*	63	0	0	0	63		
Grand Total Raw Counts					506		
** included in grand total raw count of sherds, but not in % of ware. No further analysis completed.							

Table 1: Raw Counts of Diagnostic Ceramic Sherds

	N25/E50	N12-4	N11-28	N11-29	Vessel Totals	Vessels Totals (%)	% Vessel within ware
Coarse ware							
jars	57	44	28	2	131	36.90%	54.58%
dish/bowl	26	15	41	12	94	26.48%	39.17%
plate/lid	10	3	1	0	14	3.94%	5.83%
comal	1	0	0	0	1	0.28%	0.42%
Totals	94	62	70	14	240	67.61%	100.00%
% coarse ware by house lot	67.14%	59.62%	74.47%	82.35%			
Fine ware							
jar	18	2	0	0	20	5.63%	17.39%
dish/bowl*	25	40	21	3	89	25.07%	77.39%
plate/lid	0	0	1	0	1	0.28%	0.87%
Spanish	3	0	2	0	5	1.41%	4.35%
Totals	46	42	24	3	115	32.39%	100.00%
% fine ware by house lot	32.86%	40.38%	25.53%	17.65%			
Grand Total	140	104	94	17	355	100.00%	
*highest number of element for tripod bowl/dish to determine frequency							

Table 2: Vessel Frequencies by Houselot

Surface treatment		Form	N25/E50		N12-4		N11-28		N11-29		Whole Assemblage			
			Count	%	Count	%	Count	%	Count	%	Totals by surface treatment	Totals by Surface Treatment (%)	Total by Form	% Form within Surface Treatment
Monochrome Red		Jars	6	13.0%	0	0.0%	0	0%	0	0%			6	16.7%
		Dish/bowl	2	4.3%	2	4.8%	0	0%	0	0%			4	11.1%
		Tripod Bowl	5	10.9%	17	40.5%	4	16.7%	0	0%			26	72.2%
		Total	13	28.3%	19	45.2%	4	16.7%	0	0%	36	10.1%		
Monochrome Red-orange		Jars	4	8.7%	0	0.0%	0	0.0%	0	0%			4	16.7%
		Dish/bowl	2	4.3%	2	4.8%	0	0.0%	0	0%			4	16.7%
		Tripod Bowl	3	6.5%	5	11.9%	7	29.2%	0	0%			15	62.5%
		Plate/lid	0	0%	0	0%	1	4.2%	0	0%			1	4.2%
		Total	9	19.6%	7	16.7%	8	33.3%	0	0%	24	6.8%		
Monochrome Orange-red		Jars	2	4.3%	0	0%	4	16.7%	0	0%			6	60.0%
		Dish/bowl	3	6.5%	1	2.4%	0	0%	0	0%			4	40.0%
		Total	5	10.9%	1	2.4%	4	16.7%	0	0%	10	2.8%		
Monochrome Brown		Jar	1	2.2%	0	0%	0	0%	0	0%			1	25.0%
		Dish/bowl	0	0%	0	0%	1	4.2%	0	0%			1	25.0%
		Tripod Bowl	0	0%	1	2.4%	1	4.2%	0	0%			2	50.0%
		Total	1	2.2%	1	2.4%	2	8.3%	0	0%	4	1.1%		
Unslipped		Jars	4	8.7%	0	0%	0	0%	0	0%			4	9.8%
		Jars -- Spanish	3	6.5%	0	0%	2	8.3%	0	0%			5	12.2%
		Dish/bowl	2	4.3%	12	28.6%	0	0%	0	0%			14	34.1%
		Tripod Bowl	9	19.6%	2	4.8%	4	16.7%	3	100%			18	43.9%
		Plate/lid	0	0%	0	0%	0	0%	0	0%			0	0%
		Total	18	39.1%	14	33.3%	6	25.0%	3	100%	41	11.5%		
Total Fine ware			46	100%	42	100%	24	100%	3	100%	115	32.4%		
Grand Total			140		104		94		17		355	100%		

Table 3: Ceramic Surface Treatment Distributions by Vessel Form and Houselot

medial to basal ridge, incipient flange or flange that occurs at the juncture of the walls and bottom (Table 4). When a ridge is present it is either notched or has vertical incisions, and flanges are notched to fully segmented. Tripod feet vary in form, being oven-shaped, globular, cylindrical or conical, with rounded, triangular or slit-type vents, respectively. Tripod dishes/bowls are most often slipped on the interior surface and on the exterior to just above the basal flange and, with the exception of two feet recovered from houselot N12-4, foot supports tend to unslipped (Table 4).

The majority of the fine serving vessels (approximately 31%) are red slipped. Vessels with a red-orange slip are the next most abundant, followed by vessels with a more orange colored slip (orange-red). Brown-slipped vessels form a rare surface treatment category, and the general quality, appearance, luster and feel of the slip is comparable to that typical of Yucatecan slate ware (Figure 2).

The 'unslipped' fine ware category, representing 35.65% (N=41) of this component of the assemblage, includes many eroded sherds for which it was impossible to determine with confidence the presence/absence of a slip (Table 3). We have chosen to include a category of vessels with plain, smoothed surfaces, however, since there were several sherds that most definitely were unslipped but still had a smooth surface finish. These examples appear simply to be unslipped versions of conformal slipped serving ware vessels.

The censer category includes appliqué or hand-modeled fragments with varying morphologies that most likely derive from effigy censers comparable to those typical of the Chen Mul Modeled System (see Milbrath et al. 2008). There were 32 of these fragments recovered, however, they were not included in the vessel totals because it was impossible to determine how many different censers were represented.

While Olive jars are considered a ubiquitous feature of Spanish colonial sites, only 18 sherds representing five vessels were recovered (Table 4). According to Goggin's (1960:10, 24-30), Olive Jar specimens from N11-28 and N25/E50 bracket the Early-style (A.D. 1500-1580) while the single 'doughnut-necked' rim from N25/E50 represents the



Figure 2: Examples of non-local 'slate ware' vessels

Middle-style (post-1562-1750), which corresponds to previous identifications for the site (Pendergast 1991). In both houselot assemblages these Spanish Olive jars are associated with Yglesias phase tripod vessels that have a medial ridge or 'incipient flange' and either bulbous or tapered shaped feet with either ovoid or slit vents.

Compositional Variation within the Pottery Assemblage

The petrographic study of the houselot pottery involved 215 vessels, representing 60% of the total number of individual vessels recovered. Since the central objective of the study was to examine compositional variability across the range of stylistic variation observed both within and among the four houselot assemblages, this large sample size is a direct reflection of the high level of variability in vessel surface treatment and morphological attributes that occurs. The diversity observed within the various stylistic and functional categories of vessels comprising the assemblage, as a whole, is mirrored in the compositional data. A total of 11 general paste/fabric 'classes' were differentiated based on their mineralogical, textural and other compositional characteristics and, the majority of these comprise multiple compositionally distinct groups of fabrics. The different fabric/paste classes can be considered to reflect different paste recipes or approaches to paste-making involving the use of particular kinds of raw material ingredients as opposed to other potential choices – e.g. the use of crystalline calcite or grog (crushed pottery) for temper or a sandy clay vs. a non-sandy one.

N11-28



Utilitarian Yglesias phase style jar with characteristic groove incision



Slipped fine/serving ware tripod bowl fragments showing lower portion of body wall with a segmented flange, incipient notched flange or ridge



Tripod bowl feet

N25/E50



Utilitarian Yglesias phase style jar with characteristic groove incision



Slipped fine/serving ware tripod bowl fragments showing lower portion of body wall with a segmented flange, incipient notched flange or ridge



Tripod bowl feet

N12-4



Spanish Olive jars



Slipped fine/serving ware tripod bowl fragments showing lower portion of body wall with a segmented flange, incipient notched flange or ridge



Tripod bowl feet

Table 4: Pottery recovered from different houselots

These distinctions reflect differences in practise which may or may not coincide with differences in the provenance or origin of manufacture of the associated pottery. The fabric groups within these general classes of fabrics most often reflect natural geological differences in the specific raw material ingredients used (the

clay or the added temper) and, accordingly, distinctions relating to their provenance or origin on the landscape.

Fabric Group	Inclusions (in order of abundance)	Distinguishing Features	Paste Technology	Associated Provenance
Coarsely Crystalline Calcite Tempered (Calcite A in Howie 2006)	calcite, quartz, cc-fc calcite mosaics R-VR =- micrite, pqtz, chalcedony, chert	- angular, rhombic to irregular-shaped fragments of calcite - rare to very rare micrite and calcite mosaics	a calcareous clay, containing few siliceous inclusions tempered with colourless, coarsely crystalline calcite	similarities to clays that form directly below the ground's surface at Lamanai
Finely Crystalline Calcite Tempered (Calcite C in Howie 2006)	calcite, fc-cc calcite mosaics, qtz, micrite VR = pqtz, chal, chert	- bimodal (calcite predominates lower mode) - grainy appearance (discrete calcite grains dominate the matrix) - common mosaics of finely to coarsely crystalline calcite Very few to rare micrite lumps	a calcareous clay containing discrete calcite grains, and lesser quantities of other minerals, tempered with and finely to coarsely crystalline calcite	similarities to clays at the site that are associated with weathering limestone
Grog-Tempered (Grog-Mixed Carbonate Class in Howie 2006)	micrite, quartz, cc-fc calcite mosaics, pqtz, chalcedony, chert, limestone frags. VR=feldspar, amphibole, shell	- common grog inclusions - co-occurrence of grog lumps of micrite and fragments and mosaics of crystalline calcite - comparatively fine-textured - distinctive firing horizons and commonly optically inactive to slightly active	a calcareous clay tempered with grog and varying amounts of sascab and crystalline calcite. The comparatively fine texture of the groundmass indicates a careful or more rigorous processing of raw materials.	connections to Yalbac clays, both those that form directly below the ground's surface and those associated with horizons of weathering limestone, as well as Filipe Subsuite clayey soils associated with wash deposits of Pleistocene alluvium situated on the north side of the site
Sandy Clay (Quartz Sand Class in Howie 2006)	quartz, pquartz, chert, feldspar (alkali and plagioclase) VR= sandstone, micrite, olivine, clinopyroxene, shell, amphibole, gypsum, calcite	- predominant siliceous inclusions occurring together with igneous-related accessory minerals - very rare, and predominantly absent carbonate inclusions	sandy low to non-calcareous clay, possibly tempered with sand in some cases.	Consistent with clayey soils that form in association with deep deposits of Pleistocene alluvium situated directly east of Lamanai, across the New River Lagoon (Boom Subsuite soils)
Sascab Tempered (Sascab-Quartz A in Howie 2006)	quartz, micrite, calcite, pquartz R-VR= chert, chalcedony, feldspar (alkali and plagioclase), amphibole, clinopyroxene, shell, oolites	- dominant to common rounded quartz inclusions - frequent to few lumps of micrite - very rare amphibole, clinopyroxene and feldspar	a sandy calcareous clay, tempered with sascab	similarities to clay associated with wash deposits of Pleistocene alluvium situated north of the site, adjacent to Barber Creek (Filipe Subsuite). The sascab temper is compositionally and visually identical to cretaceous limestone related deposits southwest of Lamanai

Table 5: Petrographic, technological and provenance characteristics of local fabric types previously identified at Lamanai. Connections to specific Soil Suites and Soil Sub-Suites, are based on descriptions in King et al. (1994). Abbreviations used refer to: abundance - R = rare; VR = very rare; calcite modifiers (following Folk 1976) - cc = coarsely-crystalline; fc = finely-crystalline; mc = microcrystalline; Inclusions - pqtz = polycrystalline quartz; frags = fragments

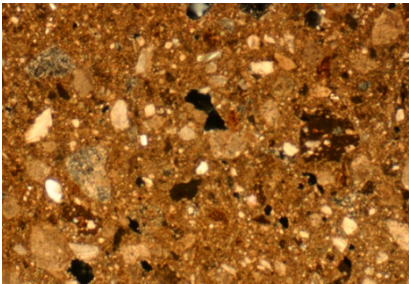
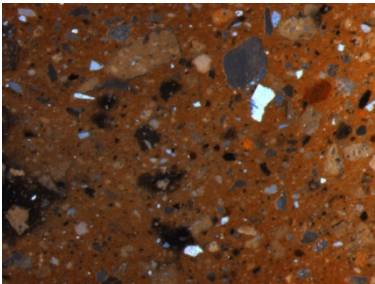
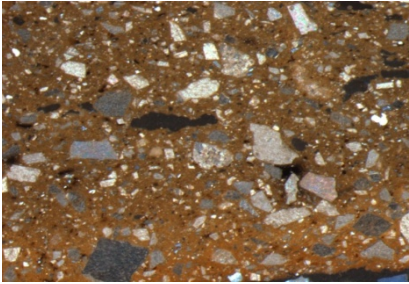
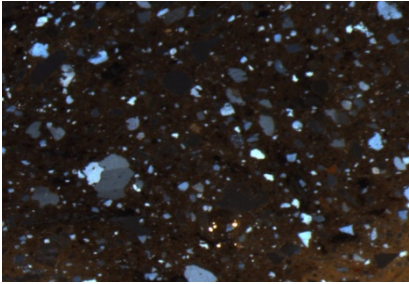
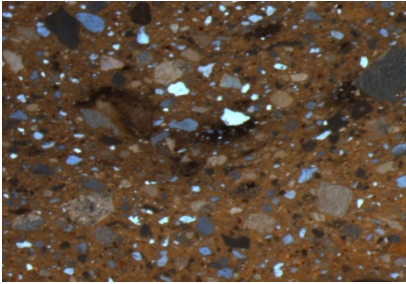
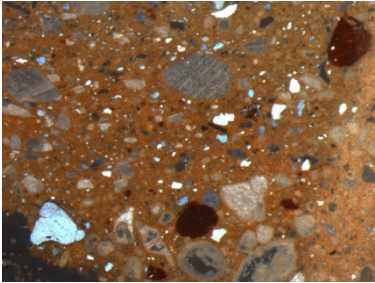
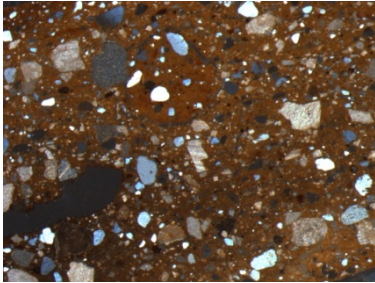
Fabrics corresponding to known local fabric types identified by Howie (2006)		
		
Early Postclassic grog-tempered fabric from a tripod bowl with a segmented basal flange	Terminal Postclassic-Early Spanish Colonial grog-tempered fabric from tripod bowl with a basal ridge	
		
Coursely crystalline calcite tempered fabric	Sandy clay	Sascab tempered fabric
New local fabric type comprising a sandy clay containing distinctive ferromanganiferous concretions and clay pellets tempered with carbonate rock temper		
		
Light-colored fabric with angular quartz	Dark-colored fabric with rounded quartz	

Table 6: Local fabric types, their distinguishing characteristics and their houselot associations.

Local Pottery

Among the 16 general classes of fabrics that were discriminated, six are geologically consistent with raw material resources available in the immediate vicinity of Lamanai, suggesting that the associated vessels were produced by local potters working within the community at Lamanai or in the surrounding area. A local provenance is virtually a certainty for all but one of these fabric types since they correspond to local fabric groups identified and described by Howie (2006) in her study of the Terminal Classic to Early Postclassic pottery assemblage at Lamanai. In fact, in most cases, the fabrics

deriving from the houselot pottery are virtually indistinguishable from examples deriving from vessels dating to earlier time periods. The characteristics of these known local fabric types are summarized and shown in Tables 5 and 6.

A major implication of the occurrence of these previously recognized fabric types in Late Postclassic and Spanish Colonial period vessels is that it demonstrates a strong continuity in not only one, but multiple local approaches to pottery manufacture, in terms of the use of particular and distinct sets of raw material ingredients. The persistence of these different paste recipes over a 600 year period can be

considered to reflect the maintenance of traditions of manufacture, as concerns raw material selection and paste preparation techniques, by multiple groups of potters working in the immediate vicinity of Lamanai. Of particular significance, is that the evidence indicates the transmission of specific realms of technical and environmental knowledge and pottery-making know-how over multiple generations of potters. These approaches to paste preparation continued to be followed while other aspects of craft practice, such as the creation of vessel forms with specific morphological characteristics and the use of particular surface treatment and finishing techniques, changed over time.

The remaining class of 'local' fabrics has been tentatively ascribed a local provenance since there is no geological basis for suggesting otherwise. The raw material ingredients involved are mineralogically consistent with rock and clay resources known to occur in the Lamanai area, and there are no obvious differences in other textural, physical or compositional characteristics that would suggest that they derive from non-local sources. The distinctive characteristic shared by all the fabrics within this class is the clay component, which can be described as a sandy clay containing common rounded to sub-angular inclusions of quartz and calcite, distinctive ferromanganiferous nodules (FeMn-nodules) and clay pellets. The occurrence of the clay pellets, the abundance of the FeMn-nodules and the consistent co-occurrence of these two features are characteristics that clearly distinguish these fabrics from the other fabric types observed, both local and non-local, as well as local clay resources that have been sampled and analyzed to date. Taken together, these characteristics are suggestive of a mature clay that would form in low-energy, subsurface contexts, inland and away from waterways. The absence of appreciable quantities on fine calcite grains, indicates that the clay did not form in association with horizons of weathering limestone and, thus, is not associated with outcropping or subsurface deposits of sascab. Further, the abundance of FeMn-nodules may suggest a soil enriched in these minerals, perhaps through chemical and formation

processes associated with groundwater flow. The five subgroups comprising this class fabric type reflect observed variation with regard to the following characteristics:

1. The physical properties of the calcite inclusions dominating the coarse fraction - e.g. size of terminal grades or crystals comprising the parent rock. The predominance of angular inclusions and the bimodality of some fabrics suggest that at least some of the calcite inclusions in these fabrics represent a tempering material that was intentionally added to the base clay. The differences observed in the physical properties of the calcite temper reflect natural differences in the parent rock from which the temper derives. This parent material includes finely crystalline calcite, coarsely crystalline calcite and limestone with a sparitic cement. Although they are mineralogically equivalent, these carbonate rocks look very different. For example, nodules of coarsely crystalline calcite are semi-translucent and have a distinctive 'blocky' structure, whereas finely crystalline calcite is white and has a 'sugary' appearance and texture. The sub-groups distinguished based these compositional differences, therefore, reflect the use of visually different sources of carbonate temper.
2. The roundness (degree of angularity or roundness) and relative abundance of the quartz inclusions present. Two subgroups of fabrics were distinguished on this basis. One is characterized by a predominance of rounded quartz inclusions and, the other, by a predominance of angular quartz inclusions. These differences may well relate to natural variation in the clay selected for use, especially if it occurs over a wide geographic area. This kind of compositional variation results when clay formation occurs within different specific environmental contexts within the same geological zone.
3. The color of the clay matrix as relates to differences in firing atmosphere - i.e. reducing or oxygen depleted, which produces a dark-colored matrix; and oxidizing or oxygen rich, which produces a lighter colored matrix. A subgroup of fabrics with a characteristic dark brownish black clay matrix produced through firing in a reducing atmosphere was distinguished on

this basis. These fabrics also exclusively contain coarsely crystalline calcite temper.

The variation that occurs within this class of fabrics, therefore, relates to three main factors: (1) the specific type of carbonate rock used for temper, (2) the specific locality from which the base clay was extracted and (3) differences in firing practises. From a behavioural perspective, the use of slightly different raw material ingredients may relate equally to potters' preferences or their differential access to specific kinds of raw material ingredients, either due to availability or among different producers. Differences in firing, however, are more reflective of specific preferences or ways of going about firing pottery vessels. Microtemporal variation in craft practise may also be a contributing factor.

Several different stylistic types of pottery appear to have been produced using this compositionally distinctive base clay. These vessels also had a range of intended functions. Utilitarian forms include unslipped Yglesias Phase style jars, with and without groove-incision on the rim area, unslipped strap-handled jars, unslipped out-curving jars with a bolstered rim and unslipped rounded and in-curving bowls. Serving ware vessels include red to orangish-red slipped tripod bowls with a notched medial ridge and red-slipped rounded bowls with different rim forms. Other vessels are more closely associated with ritual practice, such as unslipped frying pan censers and Chen Mul Modeled style effigy censers.

If the clay component of these fabrics does in fact represent a local clay resource, it can be considered to reflect the use of a new raw material resource by local potters - a source or deposit that had not been used previously, and most certainly not before the Middle Postclassic period. Given that the petrographic variation observed appears to relate to differences in paste preparation and firing practices, and that a range of different pottery styles were produced using this clay, there seems to be some suggestion that the clay resource in question was used by multiple potters or groups of potters. The implication is that this was a shared resource that was used by people who made pottery in slightly different ways and produced vessels that

not only looked different, but were intended for different uses.

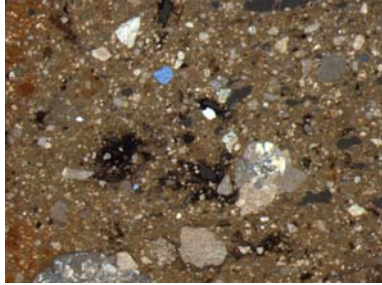
Pottery acquired from local producers occurs in all households and all six fabric classes also occur in each case. Local pottery represents over 85% of the analyzed sample and in all households it forms the large majority of the assemblage.

Non-local pottery

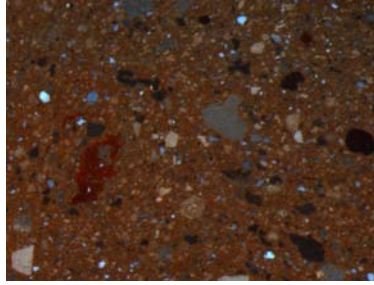
The petrographic analysis has also revealed several, compositionally distinct, fabric types that are geologically incompatible with raw material resources available in the area surrounding Lamanai. These vessels can be considered to derive from production localities situated at some distance from Lamanai. In many cases, these non-local fabric types are represented by a single sample. Since each of them is petrographically distinctive in its own right, it is suggested that they derive from different points of origin. Some of these fabric types represent different, geographically separated manufacturing areas, as indicated by their geology, while others appear to reflect different manufacturing conventions or the use of different raw material resources that occur within the same broad geological zone.

The provenance associations of the different non-local fabric types are presented in Table 7. As can be observed, the non-local pottery recovered from the four houselots predominantly derives from manufacturing areas situated within northern Belize and the Yucatan Peninsula of Mexico, and from multiple localities within this general geographic region. Geological linkages to production localities situated within both coastal and inland areas are indicated, and inland areas include the interior region of northern Belize bordering and west of the New River drainage system, areas adjacent to the Caribbean coast in eastern and northeastern northern Belize that are underlain by dolomite and dolomitic limestone, and possibly, interior regions of the Yucatan Peninsula. In addition, at least one vessel, a storage jar recovered from houselot N12-4, has geological connections to the Maya Mountains area, as indicated by the presence of

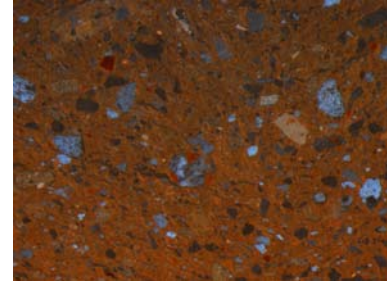
Interior region of northern Belize: indicated by the presence of with carbonate inclusions geologically consistent with Paleocene to Eocene formations that occur in this regions, as well as other mineralogical characteristics



Limestone temper, distinctive organic staining and void lining possibly relating to the addition of an organic temper
In houselot N25

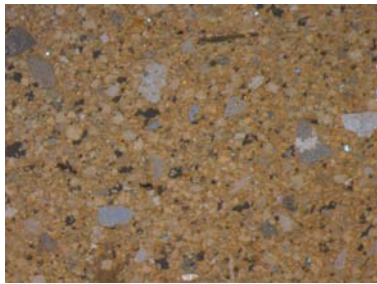


Tempered with sascab and fc-calcite
In houselots N11-28 & N11-16

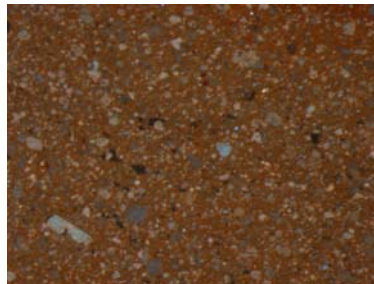


Sandy clay tempered with grog
In houselot N11-28

Inland areas adjacent to the eastern and northeastern coast of northern Belize: indicated by the presence of dolomite and dolomitic grain and mosaics. Geological linkages to Tertiary formations containing dolomite and dolomitic limestone that occur in this geographic area.



Poorly-sorted, comparatively and coarse-textured
In houselots N12-4 & N11-16

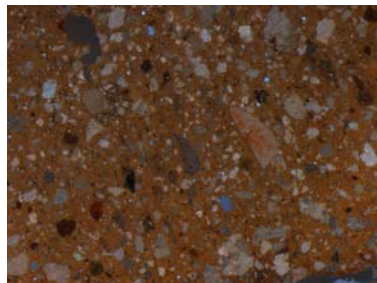


Poorly sorted, higher clay content
In houselot N11-28



Well-sorted, fine-textured, higher rock content (clay matrix contains abundant discrete dolomitic grains)
In houselots N25 & N11-28

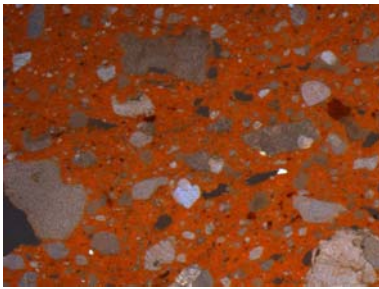
Inland areas of the Yucatan Peninsula? The presence of medium crystalline calcite links these fabrics to types previously described in Howie (2006) that are associated with Terminal classic slate ware vessels, presumably deriving from the northern lowland region. A direct geological connection to formations in this area has not been established due to the lack of comparative geological information and samples, including well-known pottery types presumed to have been produced there



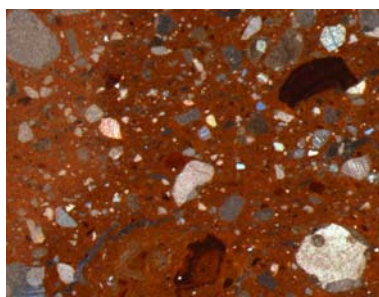
Tempered with medium crystalline calcite and grog
In houselot N11-16

Table 7: Non-local fabrics, their distinguishing characteristics and their houselot associations organized according to provenance (origin of manufacture). In each case, the different fabrics reflect different manufacturing localities with particular geological zones.

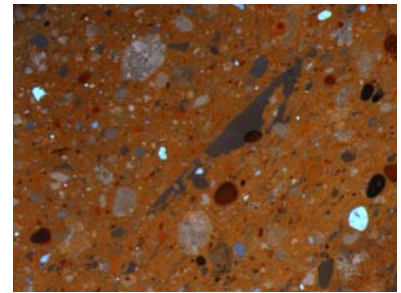
Coastal areas of northern Belize, extending into the southern Yucatan Peninsula: indicated by the presence of carbonate sand predominantly comprising rounded inclusions of calcite and micrite, including typical crypto-crystalline grains



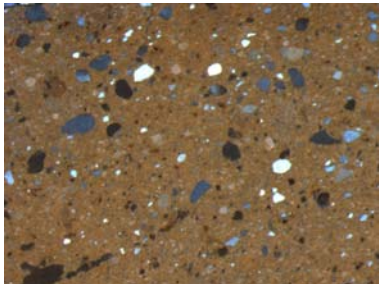
CC-calcite temper, rare quartz
In houselot N12-4



Coarse-textured, bimodal size distribution of inclusions, with the upper mode comprising rounded inclusions of cc-calcite and micrite and distinctive amorphous concentration features: tempered with carbonate sand
In houselot N25

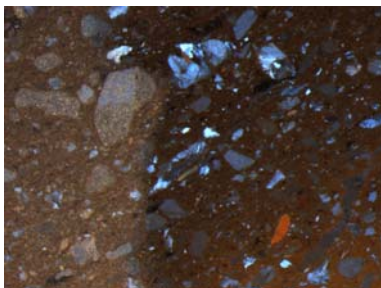


Sandy clay containing common Fe-Mn nodules
In houselot N12-4



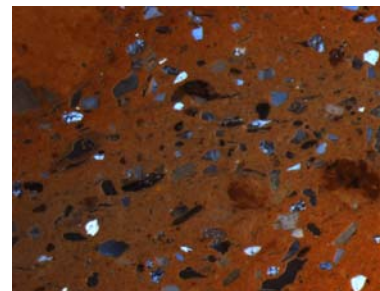
Sandy clay with common rounded quartz inclusions
In houselot N11-28

Maya Mountains: indicated by the presence of metamorphic rock fragments



Metamorphic rock fragments and associated mineral terminal grades
In houselot N12-4

Spain: indicated by exclusive occurrence in Spanish olive jars



Common pyllite inclusions, well sorted, optically inactive clay matrix indicating high firing temperature
In houselot N25

Table 7 (continued): Non-local fabrics, their distinguishing characteristics and their houselot associations organized according to provenance (origin of manufacture). In each case, the different fabrics reflect different manufacturing localities with particular geological zones.

metamorphic rock fragments in the associated fabric. The provenance of the fabric type containing phyllites, being exclusively associated with olive jars, is undoubtedly Spain, although a specific region within Spain remains to be determined through comparison with olive jar fabrics of known origin. Also noteworthy, is that all of the olive jar fragments that were analyzed have the same fabric, indicating they derive from a single manufacturing locality or area within Spain.

Non-local pottery is comparatively rare within the houselot assemblages, including a total of just 18 vessels out the 215 that were analyzed. In all but four cases, the non-local vessels are either dishes or bowls. Both slipped and unslipped stylistic types are represented, as are a range of different forms (e.g. rounded, incurving and out-curving), including tripod bowls. All four houselot assemblages contain a least one of these non-local serving vessels. The remaining four vessels containing non-local fabrics are stylistically different storage jars and all of these jars were recovered from houselot N12-4. It is impossible to know if these jars were desired as products in and of themselves, or for their contents. Whatever the case might have been, the fact that N12-4 is the only houselot from which foreign-made storage jars were recovered, indicates a significant difference in household consumption patterns, relating to either differential access to certain products or individual household tastes or preferences.

Conclusions

The analysis of the pottery recovered from the different house lots indicates more continuity than change, as concerns local patterns in the production and consumption of pottery items during this transitional period. Furthermore, it confirms that Terminal Postclassic-Early Spanish Colonial pottery production at Lamanai is a continuation of long-lived manufacturing traditions; distinct ways of making pottery that transcend the impact of Spanish colonialism. Even though non-local pottery is comparatively rare, its presence suggests that Lamaneros had some access to pottery that was being produced outside of the

local area, albeit in small quantities. This analysis has contributed to all three of our objectives, as stated in the introduction, and has provided a wealth of new data and by extension, generated new avenues for future research. Here we highlight findings that relate to continuity, heterogeneity, Spanish impact, and potential regional connections.

Yglesias phase style vessels encompass the most commonly encountered pottery in the household contexts examined. These vessels comprise over 80% of the Terminal Postclassic-Spanish Colonial ceramic inventory and, overall, exhibit the range of stylistic variation discussed by Graham (1987). Our study of the house lot pottery has further expanded our understanding of the range of variation that characterizes Yglesias Phase pottery styles. The range and frequency of different functional categories of vessels recovered from each houselot suggests that households engaged in a broadly similar array of daily domestic activities involving pottery. Consumer tendencies or preferences and patterns of day-to-day practice remain strikingly consistent over time in that the basic ceramic requirements for daily activities do not change. Across households, these activities appear to have been fundamentally similar. Yet, as discussed, there are some differences in the proportions of specific kinds of pottery vessels, as well as in the occurrence of non-local vessels and where they were produced. Interestingly, vessel styles characteristic of the preceding Cib Phase of occupation at Lamanai are conspicuously absent in the household contexts examined, occurring in only one of the houselot assemblages.

One of the most significant results of this study is that it has revealed that Terminal Postclassic-Spanish Colonial patterns of pottery production at Lamanai represent a continuation of well-established and long-lived traditions of manufacture. The persistence of several different paste recipes over at least a 600 year period demonstrates a strong continuity in not only one, but multiple local approaches to pottery manufacture, in terms of the use of particular and distinct sets of raw material ingredients, as well as the transmission of this knowledge over multiple generations of potters. Furthermore,

local production flourishes during this time period, as reflected in the amount and range of stylistic and functional categories of locally-made vessels used by different households. Not only are potters alive and well during this transitional period, but there is no indication that these local crafting activities were seriously impacted by the arrival of the Spanish.

This general pattern of sustained ceramic heterogeneity at Lamanai presents a direct contrast to the trend toward increasing uniformity over time in Postclassic ceramic groups that has been observed at a number of Postclassic Maya Lowland sites. Others have observed that by the Late Postclassic period: 1) the macroscopic paste attributes of vessel bodies become increasingly homogenous, 2) there is greater pan-regional similarity in vessel forms, and 3) that the quality of vessels generally increases, as reflected in the hardness and fine-texture of pastes. Viewed as constituting an overall trend towards standardization of stylistic and technological characteristics of pottery, a direct link to the development of an increasingly mercantile-oriented economy and attendant modes and patterns of production has been emphasized, following the model proposed by Sabloff and Rathje (1975).

Comparative information on the effects of Spanish administration on indigenous craft production is scarce but, in general, researchers have recognized an overall decline in craft specialization and in product standardization. For example it has been suggested that the amount of fine-pasted wares produced decreases greatly or that they generally disappear, that slipped vessels become less frequent and that pastes become less 'standardized' or homogenous as well (Kepecs 1999). This general trend of decline in quality, especially as concerns surface finish, has also been observed for Aztec and Inca pottery of the Spanish era (Rice 1987:103). In contrast, the picture that emerged at Lamanai is one of comparative stability, which is undoubtedly rooted in the continuation of well-established crafting activities. In part, this decidedly different local pattern may also relate to the geographic distance of Lamanai from major Spanish colonial administrative centers.

The non-local pottery recovered from the four houselots predominantly derives from manufacturing areas situated within northern Belize and the Yucatan Peninsula of Mexico, and from multiple localities within this general geographic region. The connection between one household and pottery producers in the Maya Mountains area is also interesting. The identification of pottery made elsewhere in all four households suggests that many, if not all Lamaneros had at least some access to these foreign products. It also may be significant that, stylistically speaking, Yglesias phase style jars with groove-hooked rims have ties to contemporaneous pottery styles typical in northern Yucatán, as seen in the groove-hooked rims that occur on Unslipped Yuncu utilitarian vessels (Kepecs 1999: Figure 7.4). A comparative compositional study with the northern lowland pottery would help to clarify the nature and meaning of this modal stylistic similarity, in behavioral terms.

Studies of Late Postclassic Maya pottery have not specifically focused on investigating variation in technological and provenance characteristics of vessels and the interplay between these and stylistic patterns. As this study has shown, there is more variation present than meets the eye, and that understanding the nature and meaning of this variation is fundamental to the reconstruction of local and regional patterns economic activity and interaction. Inter-site and regional level studies that integrate archaeometric techniques can contribute not only to our understanding of basic production patterns, but also of the nature and extent of exchange and emulation spheres and networks, as well as attendant infrastructural characteristics. The idea that Late Postclassic ceramic assemblages comprise mass-produced pottery that was widely traded needs to be tested empirically through archaeometric studies of technological and provenance variation at both the local and regional levels and for assemblages dating to the Late Postclassic, Terminal Postclassic and Spanish eras. Such studies will also enable us to identify and evaluate instances of continuation or disruption in local production and consumption patterns as they relate to Spanish impositions.

Acknowledgements The authors would like to thank the Institute of Archaeology for granting the research permits to the Lamanai Archaeological Project which enabled us to conduct this collaborative research. We are particularly grateful to Elizabeth Graham for her continued enthusiastic support and encouragement of our research ideas. We extend much heartfelt thanks to our field and laboratory assistants: Jorge Vasquez, Geovanni Arevalo, Ventura Juarez, Jose Vasquez, Oscar Ruano, Nadia Cherest and “The Lab Girls” – Brenda Arevalo, Leslie Arevalo, Beatrice Corado, Sandra Garcia, Areli Ramos, Rutilia Useda, and Rosibel Useda; without their assistance none of this would have been possible. There are many others who contributed to the successful completion of this research and to whom our thanks is due: Jaime Awe, John Morris, the staff at the Institute of Archaeology, and our American, Canadian, and Belizean project colleagues. Funding for this project was provided by the National Science Foundation Doctoral Dissertation Improvement Award (#0432267), American Association of University Women, Women in Coalition, Department of Women’s Studies, University of California at Riverside, and The Social Sciences and Humanities Research Council of Canada.

References Cited

- Graham, Elizabeth
 1987 Terminal Classic to Early Historic Period Vessel Forms from Belize. In *Maya Ceramics: Papers from the 1985 Maya Ceramic Conference*, edited by Prudence M. Rice and Robert J. Sharer, pp. 73-98. BAR International Series 345, Oxford.
- Howie, Linda A.
 2006 *Ceramic Production and Consumption in the Maya Lowlands During the Classic to Postclassic Transition: A Technological Study of Ceramics at Lamanai, Belize*. Unpublished Ph.D. Thesis, Department of Archaeology. University of Sheffield, Sheffield.
- Goggin, John M.
 1960 *The Spanish Olive Jar: An Introductory Study*. Yale University Publications in Anthropology, No. 62. Department of Anthropology, Yale University, New Haven.
- Kepecs, Susan
 1999 *The Political Economy of Chikinchel, Yucatán, Mexico*. Ph.D. dissertation, University of Wisconsin-Madison, Madison. University Microfilms, Ann Arbor.
- Milbrath, Susan, with Jim Aimers, Carlos Peraza Lope, Lynda Florey Folan
 2008 Effigy Censers of the Chen Mul Modeled Ceramic System and their Implications for Late Postclassic Maya Interregional Interaction. *Mexicon* XXX (5):93-96.
- Pendergast, David M.
 1981 Lamanai, Belize: Summary of Excavation Results, 1974-1980. *Journal of Field Archaeology* 8:29-53.
- 1993 Worlds in Collision. In *The Meeting of Two Worlds: Europe and the Americas 1492-1650*, edited by Warwick Bray, pp. 105-144. Oxford University Press, Oxford.
- Rice, Prudence M.
 1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.
- Sabloff, Jeremy A., and William L. Rathje
 1975 The Rise of a Maya Merchant Class. *Scientific American* 233:72-82
- Whitbread, I. K.
 1989 A Proposal for the Systematic Description of Thin Sections Towards the Study of Ancient Ceramic Technology. In *Archaeometry: Proceedings of the 25th International Symposium*, edited by Y. Maniatis, pp. 127-138. Elsevier, Amsterdam.
- 1995 *Greek Transport Amphorae: A Petrological and Archaeological Study*. The British School at Athens Fitch Laboratory Occasional Paper 4. The Short Run Press, Exeter.
- Wiewall, Darcy L.
 2009 *Identifying the Impact of the Spanish Colonial Regime on Maya Household Production at Lamanai, Belize During the Terminal Postclassic to Early Colonial Transition*. Ph.D. dissertation, University of California, Riverside. University Microfilms, Ann Arbor.

21 **CURRENT RESEARCH IN NORTHWESTERN BELIZE IN 2008 AND 2009**

*Thomas H. Guderjan, Jason W. Barrett, and Timothy Beach et al.**

The Blue Creek Archaeological Project is a multi-national, multi-institutional, inter-disciplinary effort in its 19th year. Our current efforts are focused on modeling Maya cities and their Political Economies, events and processes of abandonment, and agricultural systems of the ancient Maya. We are also now working with innovative approaches to digital data recording and management systems. This report summarizes our fieldwork in northwestern Belize during 2008 and 2009 at the Maya centers of Blue Creek, Bedrock, Nojol Nah and Grey Fox as well as ongoing research in wetland agricultural settings.

Introduction

The Blue Creek Archaeological Project was initiated in 1992 and is now in its third phases or research. The first phase---the project's first ten years---was focused upon understanding the structure and functional interaction of the components of an ancient Maya city in northwestern Belize. While such goals are never truly fully met we did accomplish a great deal and the results of that work have been summarized several times (ie, Guderjan 2007). During the second phase of research at Blue Creek, a new director took the project into new directions and realms. Currently, we in the fifth year of the third phase, marked by building upon the initiatives of the past and working to expand our understanding of the Maya past. This third phase continues the project's expansion beyond the site of Blue Creek and into new research domains and directions.

The goal of this brief report is to summarize the fieldwork accomplished in the past two years and is a sequel to our previous two-year report (Guderjan, et al., 2010) and the senior author's recent discussion of the research domains into which our work is organized (Guderjan 2009; Guderjan, et al., 2008). These will only be mentioned briefly here to place our field activities into a larger context.

Research Domains

1. Modeling Maya cities and their Political Economies.

Much effort over the past decade has been organized around understanding the spatial arrangement of Blue Creek and how its components were integrated (Guderjan 2007;

Guderjan, Baker and Lichtenstein 2003; Guderjan, Lichtenstein and Hanratty 2003; Guderjan and Hanratty 2006; Lichtenstein 2000). Blue Creek consists of numerous residential components each with its own distinct nature. Not all of these components have yet even been identified but we have intensively investigated 8-10 of them (Figure 1). These residential groups exhibit vastly more diversity and complexity than would be expected of an undifferentiated mass of commoners. Most importantly, the internal stratification and differential access to exotic goods, etc. within each component indicate that each had its own internal mode of local leadership and that those modes were not identical in each component (Guderjan 2007).

2. Collapse: The End of the World as They Knew It!

In recent years, archaeologists have been assembling new and robust data regarding the end of the Maya Classic period, such as the 2009 Belize-based symposium at the Society for American Archaeology meeting and related publications (ie, Yaeger and Hoddell 2008). Blue Creek offers a rich database and an opportunity to better understand the events and processes leading to its abandonment (Guderjan, et al., 2009). For example, we can document processes in the Late Classic period such as population growth and residential expansion into locations with increasingly poor agricultural potential, such as U Xulil Beh (Guderjan 2007; Guderjan et al., 2009).

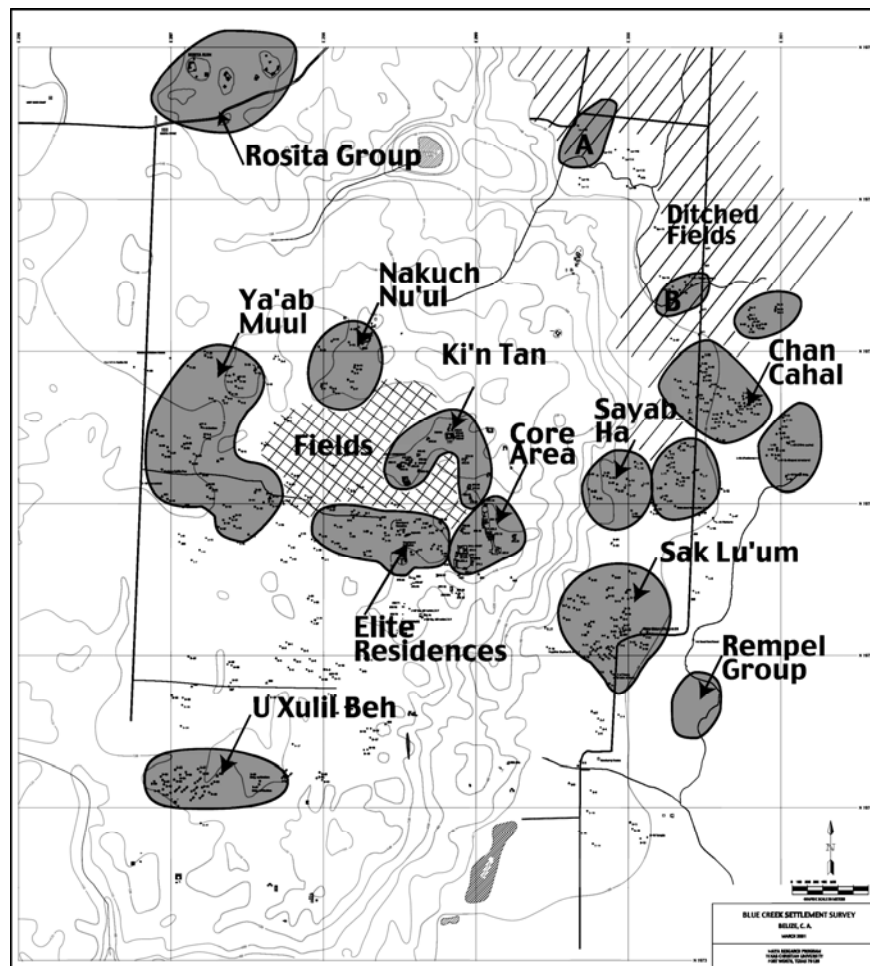


Figure 1. Map of components of Blue Creek.

3. Agricultural Systems

Since the discovery of ditched agricultural systems at Blue Creek in 1996, we have invested considerable energy into better understanding their nature including their functions, dating, what crops were grown (i.e., Baker in press; Beach, et al., 2009). As agriculture is so closely tied to economics, these studies complement and impact all other aspects of our research at Blue Creek.

4. Innovations in Digital Data Recording and Management Systems

During the past two years, we have undertaken innovative approaches to data recording and management. We are implementing a Geographic Information Systems data management system into which all site, structure, excavation, and analyses data are being stored in an easily retrievable manner. The

GIS will also be used for analytic approaches to landscape archaeology in our study area and beyond. More unusually, we are experimenting with high quality digitizing of architecture, artifacts, and features with the aim of providing ourselves and the Institute of Archaeology with tools for management, conservation and research not only in our study area but throughout Belize.

Fieldwork - Blue Creek-Rosita Group

In 2008 and 2009, fieldwork was directed at three residential components, Rosita (Figure 2), Chum Balam-Nal and U Xulil Beh. Rosita is an elite residential component of Blue Creek located approximately 2 kilometers northwest of Plaza A (Guderjan 2007; Lichtenstein 2002; Preston 2007). Previous excavations at Rosita focused on two large patio groups and how the Terminal Classic residents responded to the collapse of power and authority

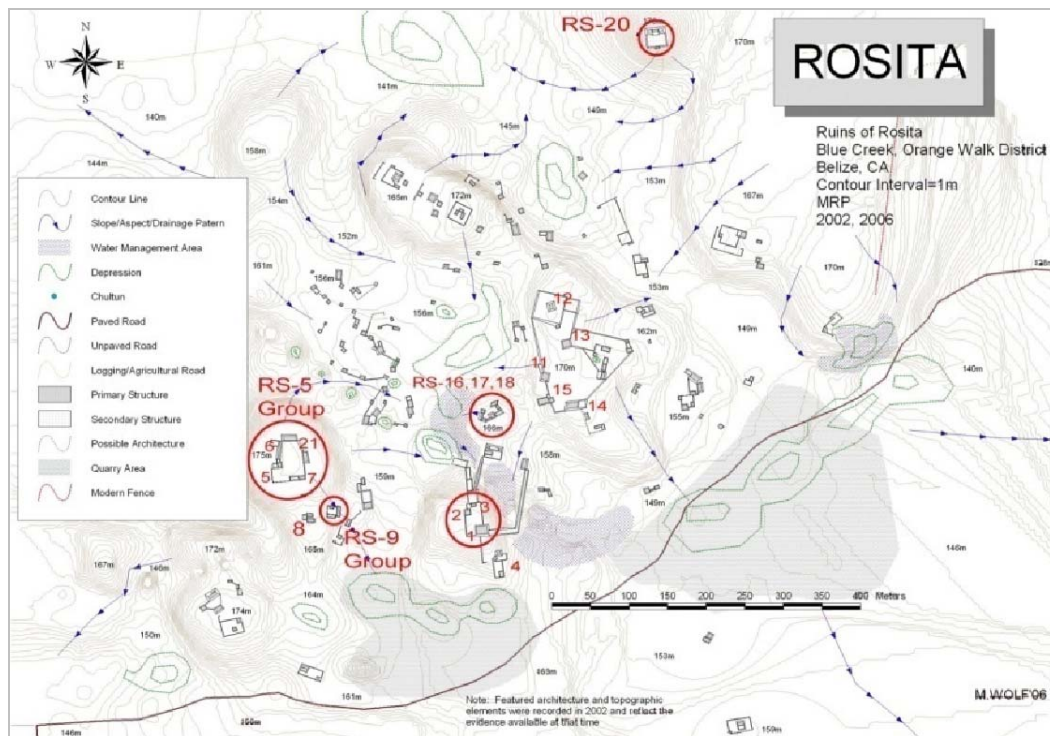


Figure 2. Map of the Rosita group.

in the central precinct and abandonment of the nearby elite residences (Preston 2007). Prior to our investigations, the project had undertaken significant work on Structure RS-20, a large range building facing a large platform on top of the highest hill in the Rosita complex. Unfortunately, the report of those excavations was highly ambiguous, lacking maps and illustrations. Consequently, we elected to re-excavate this structure to better understand its form and function.

Structure RS-20 functioned as the central place for the Rosita group. Such central places within residential components have been identified elsewhere at Blue Creek (Guderjan 2007), such as at the elite Kin Tan group (Hanratty 2008) and even small, non-elite groups such as Chan Cahal (Giacometti 2002). It was constructed in at least three main phases and a minimum of two minor phases. Phase I was completed in the Late Preclassic, Phase II during the Early Classic, and Phase III during the Late Classic. During the Late Preclassic and Early Classic, RS-20 was actually two buildings that were merged in the final, Late Classic expansion (Figure 3). In its final form, RS-20 faced south

looking out over a platform measuring 35 by 25 meters and oriented east west. RS-20 was a single monumental structure measuring at least 35 meters west to east, most probably closer to 40 meters, and 13 meters north to south, 2.5 – 3.5 m tall, and oriented 8° north of west.



Figure 3. Corridor between Early Classic versions of RS20.

Blue Creek-Chum Balam-Nal

The public plazas or central precinct of Blue Creek is located at the crest of the Bravo

Escarpment overlooking the large scale, wetlands agricultural systems at the base of the escarpment. The escarpment zone itself is heavily forested with rugged terrain and our surveys were unfortunately terminated in 1997 with the loss of the life of our senior surveyor. In 2009, we restarted this work to locate and map all definable structures and features and to undertake strategic excavations aimed at understanding relationships between these residences and the central precinct as well as to monitor the events related to abandonment of Blue Creek. Chum Balam-Nal (CBN) is a residential group one kilometer south of the central precinct in the escarpment zone. CBN contains at least two large courtyard groups, a patio group, a large artificial linear structure (over 60 meters in length) and many small structures as well as more than 15 chultuns, check dams, at least reservoir, a modified rock shelter, and artificial terraces.

During the 2009 field season Tim Preston and Greg Mastropietro conducted stripping operations on the CBN-13 Courtyard group, formerly known as the SHB Courtyard (Guderjan 2007). CBN-13 consists of five structures arranged in a closed square. Four additional structures lie outside the courtyard, but in close enough proximity to be considered part of the overall group. The courtyard interior measures 12.5 m (N-S) x 16.5 m (E-W). Three structures are arranged in a “U” shape open to the east and the escarpment edge. The remaining structures are arranged in an “L” shape and close off the courtyard to the east. The courtyard interior could only be accessed from two locations. The main access is by a large passage open to the north and the second access is to the south. This is a stairway that exits the courtyard and onto a lower platform on which rest three four associated structures. Excavations indicated that both CBN-1 and CBN-13 were initially constructed in the Late Preclassic-Early Classic Transitional period (AD 100/150-250) and expanded during the Early Classic period. To date, we have found no deposits relating to the abandonment of Blue Creek such as those found in the central precinct and Kin Tan (Guderjan, et al. 2010) as we had hoped. Excavations at Chum Balam-Nal, however, are planned to continue for several more years.

Blue Creek-U Xulil Beh

U Xulil Beh is located approximately 2 kms southwest of the central precinct and appears to represent a Late Classic population expansion into marginal areas (Guderjan 2007). The group was originally found, named and tested by Robert Lichtenstein (2002). U Xulil Beh is located on a flat ridge bounded on three sides by steep slopes into deep drainages and contains only marginally productive land (Figure 4).

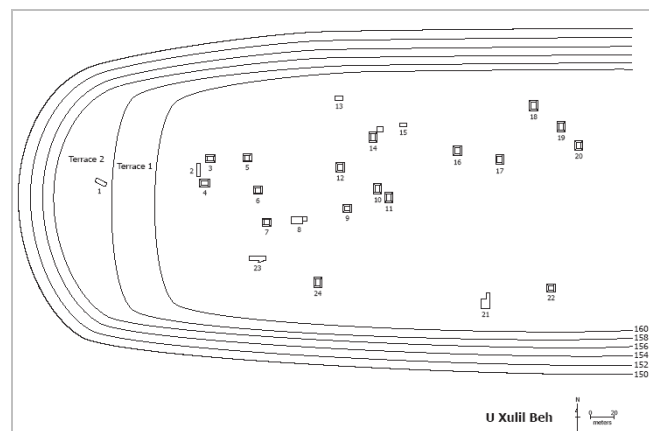


Figure 4. Map of U Xulil Beh

Trenches were dug into two terraces on the west end of U Xulil Beh and we confirmed these to be very small-scale agricultural terraces retaining less than 20 cms thick of topsoil. Biosilicates were well-preserved and assemblages include palms (*Attalea butyracea*, *A. cohune*, *Cryosophila stauracantha*, *Geonoma interrupta*, *Reinhardtia gracilis*, *Roystonea regia*, *Sabal mauritiiformis* and *S. yapa*) which may have been cultivated for oil or used as thatch fronds. High frequencies of nodular spheres diagnostic of Marantaceae show that at least one species in this family of herbaceous plants was cultivated or managed such as *P. pruinosa* (platanillo) and *S. hjalmarssonii* (wild banana) which produce large leaves that may have been used as wrappers/disposable plates. The paucity of grass phytoliths shows that the terraces were generally weed free and well managed. These data reinforce our interpretation that U Xulil Beh is an example of Late Classic population expansion into marginal areas with limited resources. The major issue we have not yet

resolved is whether U Xulil Beh's inhabitants were migrants into Blue Creek or the result of locally expanding populations.

Fieldwork at Bedrock-Aak Witz

In 2008, Pieta Greaves conducted excavations at Aak Witz, a well preserved elite courtyard approximately 500 meters west of the Bedrock site's central precinct. Bedrock was originally located and mapped by Guderjan and some excavations were conducted in the plaza by Mongelluzza (2002). Additionally, Jason Barrett has conducted excavations of Sotohab, a group of residences and stone tool workshops approximately 1 km. east of Bedrock's main plaza (Barrett 2005). Our 2008 excavations were intended to seek intact terminal deposits that would aid in better understanding the processes of abandonment. Since Aak Witz was largely unimpacted by recent agricultural practices, we hoped to find evidence such as terminal deposits on the exterior of buildings. This was not the case and our important discoveries at Aak Witz would be of a very different nature.

We completely exposed three buildings at Aak Witz, leaving the fourth for future investigation. All masonry construction was well dated to the Late Classic period, AD 600-850 and while abandonment related data were not found on the exterior of the buildings as hoped, such data were found in the *chultun* discovered in front of Structure A. Here we encountered the entrance to a filled *chultun*, which we opened and cleared. The *chultun* entrance was north of and centered in front of Structure A, but the *chultun* was shoe-shaped, with the major lobe to the east. The chamber was 1.95 m tall and 4.7 m E-W and 3.55 m N-S with a 1.5 m deep and 63 cms wide shaft. Following Brady (1997, 2004), we view this as an artificial cave or entrance to *xibalba*. The most important feature in the chamber is a stela/altar complex situated along the north wall (Figure 5). The altar is a cut limestone block measuring 39cm in circumference and 19cm tall. The stela is shaped limestone block lying behind the altar 98cm by 62 cm wide the bottom one-third tapers to a point. It probably stood vertically, but appears to have fallen over and leans against the chamber wall. The stela was most likely constructed within the chamber, taking in its size in relation

to the entrance (stela 62cm vs. entrance 63cm), the logistics of moving it from outside into the chamber seem unlikely. Such sacred features are often found in natural caves (McNatt 1996, Moyes 2006) and Prufer notes the role that caves play in afterlife rituals (Prufer 2005:215).

In addition to the important ritual and abandonment data discovered in the *chultun*, we discovered a source for highly detailed, Early Classic, environmental and subsistence data. Prior to the construction of the Late Classic masonry buildings, the hilltop was already intensively occupied, and a 2-3 meter deep midden was deposited on the east side of the hill. The Late Classic buildings were subsequently built on top of the midden, sealing and preserving the materials incredibly well. Then, the *chultun* was dug in front of Structure A and its chamber extended to the east. The original excavation of the chamber extended eastward beyond the limit of the natural hill and into the Early Classic midden, leaving us with a large, highly stratified, well preserved, two meter deep profile. Our initial tests indicate the micro-floral, faunal and artifactual materials are extremely well preserved. Well-preserved biosilicates include cultigens include *Phaseolus* (bean), *Zea mays* (maize), and *Cucurbita* (squash). Currently, the *chultun* and midden have been resealed by closing the chamber with logs and plastic sheeting in preparation for a highly controlled excavation to extract environment and subsistence data.

Fieldwork at Nojol Nah

Nojol Nah is located near the far northwestern corner of Belize adjacent to approximately the very large bajo that occupies that corner of the country extending several miles into Mexico. The site was first identified in 2004 when a new logging road exposed a large deposit of lithic manufacturing debris. Hundreds of broken chert cobbles were strewn across the plowed surface of the bajo, illustrative of the land form's potential value as a quarry locality for lithic raw materials. Initial excavations at the production platform uncovered a substantial amount of stone tool manufacturing debris on the platform surface, including both production forms and used those that had been used and rejuvenated



Figure 5. Stela-alter complex in artificial cave at Aak Witz.

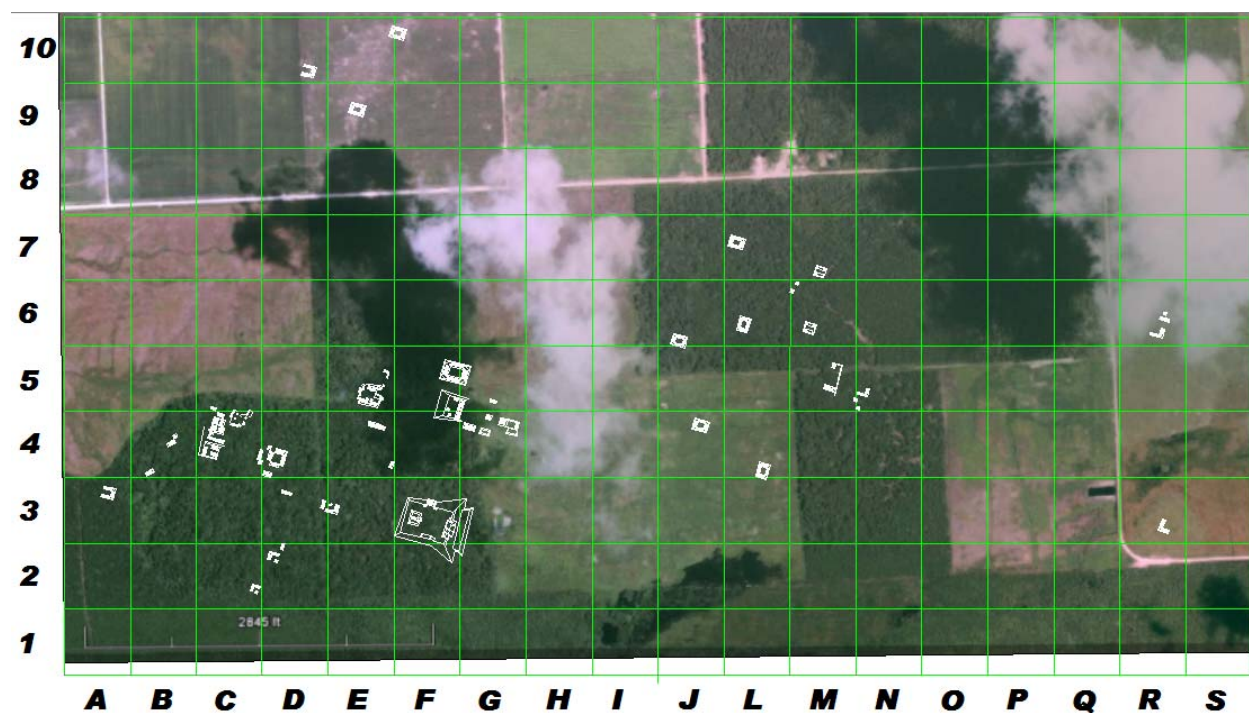


Figure 6. Aerial view of Nojol Nah with planview of buildings superimposed.

(Barrett 2005). Activity originated at the platform during the Late Preclassic period based on ceramic associations, with the apogee of workshop activity and architectural construction occurring during the Early Classic. Terminal occupation deposits predominantly date to the Terminal Classic.

Since 2008, excavations at Nojol Nah by Jason Barrett, Bruce Dickson and Bill Brown have been designed to explore the two primary architectural groups (Figure 7). These excavations focused on recovering chronologically sensitive data and developing an understanding of site development through time through architectural analysis. Excavations in

2008 were located at structures 3F1, 4C1, 4C2, 4C4, and 4C6 (Casa de los Muertos). Excavations in 2009 continued at buildings 3F1 and 4C6 and were initiated at the Group 5E palace complex. Additionally, Marc Wolfe began the process of making a highly detailed map of Nojol Nah in 2009.

Buildings in the Casa de los Muertos, the 4C architectural group have yielded the remains of 24 human burials. With the possible exception of two burials that appear to have been emplaced after the abandonment of Building 4C6, each was interred in subfloor cavities below room floors, doorways, or benches. Building 4C6 yielded an abnormally high number of burials (18), and may have functioned as a lineage dedicatory structure. Few burials yielded grave offerings, with small items of carved shell and obsidian blades being the most frequently identified artifacts identified in burial contexts.

Interestingly, children and young adolescents were abnormally represented in buildings 4C1 and 4C2. Of the seven individuals identified between the two buildings, six were below the age of fourteen. Abandonment of architectural group 4C was associated with a Terminal Classic on-floor deposit located at building 4C4, along the centerline of the architectural cluster, and a second deposit at the west end of building 4C6. In general, however, few artifacts were discovered in floor contexts associated with building interiors. This suggests that the area's abandonment was likely a slow, protracted process rather than one performed with haste or urgency. This abandonment pattern markedly contrasts with that observed at Group 5E, the palace complex excavated during the 2009 field season.

Excavations at the Group 5E palace complex focused primarily on Structures 5E1, 5E2, and a multi-chambered *chultun*, although minor exploratory excavations were undertaken at Structure 5E4. In contrast to the 4C architectural group, the 5E palace complex yielded a substantial number of artifacts in primary floor contexts, suggesting that abandonment was hastily performed and immediate. The primary structure (5E1), positioned at the north end of the plazuela,

exhibited several complete manos, metates, and grinding stones, a stone pestle, a ground stone paint pot, several obsidian blades, a conche shell flute, multiple ceramic vessels (all smashed from roof collapse), and numerous lithic bifaces. Complete manos, metates, and stone bifaces were also found in buildings 5E2 and 5E4. The large metate discovered in Building 5E2 was found resting on three stones arranged in a triangular pattern, symbolic of the Maya place of creation. Also of interest, the large, multi-chambered *chultun* extends partially under Structure 5E2 and exhibits several internal features that suggest that it may have functioned as a sweat bath.

Excavations at Structure 3F1 during 2008 and 2009 have focused on exposing the terminal surface on the east side of the building, as well as documenting the architectural features observed on the monumental stair set and the small shrine located at the building's apex. Structure 3F is the largest overtly ceremonial structure at the site. The top shrine was looted sometime prior to 2004, disturbing a modest tomb. In general, very little looting has been observed at the site. Although much analysis remains, it appears as though the majority of Structure 3F was constructed during the Early Classic period. Very little of the structure has been penetrated to date, and little can be said about the sequences of architectural construction. However, while the building exhibits several typical features of royal construction, such as centerline niches, there has been no wealth items found in association with such cache areas.

Fieldwork at Grey Fox

Like Nojol Nah, Grey Fox is located on the eastern edge of Bajo Grande which covers the northwestern corner of Belize and extends well into Mexico. Grey Fox is located approximately 2 kms northeast of Nojol Nah and was originally located by an MRP team approximately 10 years ago. Numerous efforts to relocate the site had failed, but in 2009 a team led by Marc Wolfe and Kim Cox succeeded in finding the site and undertaking a large scale mapping project.

Fieldwork in Birds of Paradise fields

Beneath and east of the Bravo Escarpment are large expanses of ancient ditched fields. Soon after being located by the senior author, initial investigations were conducted by Jeff Baker (Baker in press). This work was followed by long-term investigations led by Tim Beach and Sheryl Luzzadder-Beach (Beach et al. 2009; Guderjan, et al. 2009). While Classic period agricultural practices taxed productivity in the uplands due to erosion and possibly nutrient depletion, the lowlands experienced the converse problem—deposition of large amounts of sedimentation alluvium that had eroded from the watershed and evaporate formation from the extremely hard groundwater. Recent work has defined a sequence of deposition in the lowlands pertinent to this discussion (Beach et al. 2008). *Stage 1* (2500–600 BC) represents a period with relatively stable ground surfaces on which Maya agriculture began and a water table approximately 2 metres lower than today. *Stage 2* represents aggradations of eroded soils from the uplands. *Stage 3* (AD 120–700) represents the increasingly rapid aggradations from upland erosion and especially gypsum precipitation. This material is as much as 2 metres thick covering as many as 10–15 square kilometres. *Stage 4* marks the construction of a massive network of ditches into the Stage 3 materials. We frame the date of this construction as being more recent than the sediments it intruded into (300 BC – AD 700) and later than the earliest dates from the sedimentary infilling of these ditches (*Stage 5*: AD 870–1010).

Importantly, a wide range of economically important crops – not all of them foods– were grown in these fields. Studies by Steven Bozarth (i.e., 2009) show considerable pollen and phytolith evidence for cultivation of fruit trees, including breadnut (*Brosimum alicastrum*), craboo or cha (*Byrsonima* species), caimito, agya, or sebul (*Chrysophyllum* species), chicle macho, chiquibul or chicle (*Manilkara* species), Cacao (*Theobroma cacao*) or mountain cacao (*T. bicolor*), and avocado (*Persia*). At least one species of Marantaceae, probably platanillo (*Pleiostachya pruinosa*) or wild banana (*Stromanthe hjalmarssonii*) was grown for large leaves used as food wrappers and

disposable plates. Additionally, maize (*Zea mays*) and sweet potato (*Ipomoea*) pollen were found.

The construction of the network of agricultural ditches that extends 1–2 kilometres eastward from the base of the Bravo Escarpment, and for many kilometres along the escarpment, was most likely not driven by intensification of agriculture but renewal of what were probably pre-existing agricultural lands. These had been buried by alluvial aggradations at the same time that the water table was rising. This rising water table would have the effect of keeping these wetlands wet. These drainage ditches were dug to control the moisture levels in the agricultural plants' root zones. Again, we see the construction of these as human responses to declining productivity and environmental stresses of excessive gypsum and soil burial.

In 2006 we made the remarkable discovery of a uniquely well-preserved field house near the juncture of two of the agricultural ditches in the Birds of Paradise fields (Guderjan, et al. 2010). This was radiometrically dated to approximately 1100AD and forced us to begin to re-evaluate our understanding of the use of the wetlands fields as well as the abandonment and Postclassic occupation of the area. In 2008, we were funded by the National Geographic Society to undertake excavations of the fieldhouse, but our efforts were terminated by two tropical storms that inundated the Birds of Paradise fields with more than two meters of water. These excavations were, however, completed in 2009.

We found that wood preservation was good only where uprights fell into the boggy sediments of the adjacent ditch and poor on the field surface itself. Nevertheless, the distribution of daub clearly substantiated that this was a pole-and-thatch structure. Tim Preston's report on the excavation is forthcoming and we plan to undertake a large-scale subsurface testing program to determine if other such structures exist.

GIS Data Management System

Archaeological excavation is also a destructive process. During the past several decades, many large-scale, long-term archaeological projects have provided increasingly important data bases that offer

scholars the opportunities to better understand the Maya and the human past. However, the curation and archiving of data from such project is so problematic that we now have a crisis of data management. Since there has been continuity in project direction, staffing, curation, and protocols, Blue Creek gives us the opportunity to design and build a database that will facilitate data management and enable scholars and others to easily access and query the database. Our approach to doing so is to create a Geographic Information System capable of having all data from our work integrated into it. We began this effort in 2007 but moved rapidly forward in 2009 with the integration of much of our spatial data with those produced by our colleague, Ivan Sprajc, to the west of us in Mexico (Sprajc 2008). Our goal is to make the Blue Creek data easily accessible for research and education by scholars and the general public.

Digital Imaging Project

In addition to using GIS to manage data from the project, we are also engaged in innovative efforts to apply digital technologies to archaeological data-artifacts, features and architecture. His effort is being led by Robert Warden, director of the Center for Heritage Conservation at Texas A & M University. The primary objectives of this effort are to identify critical variables to control field conditions when documenting in-situ for the use of the following instruments: Laser Scanner, Structured Light 3D Scanner, Photogrammetry, and total station surveying; to identify appropriate field methods that respond to identify critical variables for each of the instruments listed above, and to evaluate the value of utilizing technologies for field recording of archaeological data.

Summary

As this report is a brief summary of many complex aspects of our efforts in northwestern Belize, it is, by its nature, abbreviated and incomplete. However, it is our intent to offer the opportunity to the readers to understand the nature and directions of our various efforts prior to publication of more detailed and intensive treatments of our research.

*This paper had multiple authors:

Thomas H. Guderjan, Jason W. Barrett, Timothy Beach, Steven Bozarth, William T. Brown, Bruce Dickson, Pieta Greaves, Sheryl Luzzadder-Beach, Tim Preston, Stephen Reichardt, Robert Warden, and Marc Wolf.

Space limitations prevented us from listing all authors in the title page.

References Cited

- Baker, Jeffery
 In press Wetland Investigations at Blue Creek: The Early Years (1996-2000), in *At The Escarpment's Edge: Papers on the Archaeology of Blue Creek, Belize*, edited by Thomas H. Guderjan. British Archaeological Reports.
- Barrett, Jason W.
 2004 *Creating hierarchy through entitlements: Inequality in lithic resources among the ancient Maya of Blue Creek, Belize*. Ph.D. dissertation, Department of Anthropology, Texas A & M University, College Station.
- Beach, T., Luzzadder-Beach, S., Dunning, N., Cook, D.
 2008 Human and natural impacts on fluvial and karst depressions of the Maya Lowlands. *Geomorphology* :1/2: 301-331.
- Beach, Timothy, Sheryl Luzzadder-Beach, Steve Bozarth, Nicholas Dunning, John Jones, Jon Lohse, Sarah Millsbaugh, and Tripti Bhattacharya
 2009 A Review of Human and Natural Changes in Maya Lowlands Wetlands over the Holocene. *Quaternary Science Review* 28:1-15.
- Bozarth, Steven R.
 2009 Analyses of Biosilicates and Particulate Charcoal at U Xulil Beh, Bedrock and Blue Creek, pages 141-149 in *Seventeenth Sojourn: The 2008 Season of the Blue Creek Archaeological Project*, edited by Thomas H. Guderjan, Jason Barrett, and Tim Preston. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize by Maya Research Program, Fort Worth, Texas.
- Brady, James E.
 1997 Settlement Configuration and Cosmology: The Role of Caves at Dos Pilas. *American Anthropologist* 99, 3: 602- 18.
- Brady, James E.
 2004 Constructed Landscapes: Exploring the Meaning and Significance of Recent Discoveries of Artificial Caves. *Ketzalcalli* 1:2-17.

- Giacometti, Antoine
2002 *The Role of Plaza Complexes in Hinterland Settlements at the Maya Site of Blue Creek, Belize*. MA Thesis, Institute of Archaeology, University College-London.
- Guderjan, Thomas H.
2007 *The Nature of an Ancient Maya City: Resources, Interaction and Power at Blue Creek, Belize*. University of Alabama Press, Tuscaloosa.
2008 Current Research Domains at Blue Creek. *Research Reports in Belizean Archaeology* 5:281-298
- Guderjan, Thomas H., Jeffery Baker & Robert Lichtenstein
2003 Environmental and Cultural Diversity at Blue Creek. *Heterarchy, Political Economy and the Ancient Maya*, pages 77-91, edited by Vernon Scarborough, Fred Valdez, Jr. and Nicholas Dunning. University of New Mexico Press, Albuquerque.
- Guderjan, Thomas H., Jason Barrett and Tim Preston
2009 *Seventeenth Sojourn: Report of the 2008 Season of the Blue Creek Archaeological Project*. Senior editor with. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize, Maya Research Program, Fort Worth, Texas.
- Guderjan, Thomas H., Timothy Beach, Steve Bozarth, Colleen Hanratty, Sheryl Luzzadder-Beach, and Timothy Preston
2010 New information about the Demise of a Maya City: Fieldwork at Blue Creek, Belize, 2006 and 2007. *Mexicon*.
- Guderjan, Thomas H., Timothy Beach, Colleen Hanratty, Sheryl Luzzadder-Beach, Tim Preston and Steve Shaw
2008 *Blue Creek Archaeological Project; Report of 2007 Fieldwork*. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize, Maya Research Program, Fort Worth, Texas.
- Guderjan, Thomas H., Timothy Beach, Sheryl Luzzadder-Beach, Steve Bozarth
2009 Understanding the Causes of Abandonment in the Maya Lowlands. *Archaeological Review of Cambridge* 24:2:99-122.
- Guderjan, Thomas H. and C. Colleen Hanratty
2006 A Thriving Non-Royal Lineage at Blue Creek: Evidence from a Sequence of Burials Caches and Architecture. *Acta Mesoamericana* 19.
- Hanratty, C. Colleen
2008 Excavations at Kin Tan, 2007 Blue Creek Archaeological Project: Report of 2007 Fieldwork, by Guderjan, Thomas H., Timothy Beach, Sheryl Luzzadder-Beach, C. Colleen Hanratty, Tim Preston, and Steve Shaw. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize by Maya Research Program, Fort Worth, Texas.
- Lichtenstein, Robert
2000 Settlement Zone Communities of the Greater Blue Creek Area. Occasional Paper 2. Maya Research Program, Texas Christian University, Fort Worth.
- McNatt, Logan.
1996 Cave Archaeology of Belize. *Journal of Cave and Karst Studies* 58(2):81-99.
- Mongelluzza, Ryan
2002 2001 Season Report of Test Pitting at Bedrock Core and the Rempel Mound in *Blue Creek Regional Political Ecology Project: 2001 and 2002 Research Summaries*, edited by Jon Lohse. Submitted to the Institute of Archaeology, Government of Belize by Maya Research Program, Fort Worth, Texas
- Moyes, Holley
2006 *The Sacred Landscape As A Political Resource: A Case Study Of Ancient Maya Cave Use At Chechem Ha Cave, Belize, Central America*. Ph.D. Dissertation, Department of Anthropology, State University of New York at Buffalo.
- Preston, Tim
2007 Examining Power Heterarchies within an Ancient Maya Community. MA Thesis, Department of Anthropology, San Francisco State University.
- Prufer, Keith M.
2005 Shamans, Caves, and the Roles of Ritual Specialists in May Society. In: J. E. Brady and K. M. Prufer, eds. *In the Maw of the Earth Monster: Mesoamerican Ritual Cave Use, Linda Schele Series in Maya and Pre-Columbian Studies*, Pp. 186-222. University of Texas Press, Austin.
- Šprajc, Ivan
2008 *Reconocimiento arqueológico en el sureste del estado de Campeche, México: 1996-2005*. BAR International Series 1742. Archaeopress, Oxford, England.
- Yaeger, Jason and David A. Hodell
2008 The Collapse of Maya Civilization: Assessing the Interaction of Culture, Climate and Environment. In Sandweiss, D., and Quilter, J. (eds), *El Nino: Catastrophism and Culture Change in Ancient America*. Dumbarton Oaks, Washington D.C.

22 SETTLEMENT AND SOCIETY AT UXBENKÁ: THE UXBENKÁ ARCHAEOLOGICAL PROJECT SURVEY

Ethan K. Kalosky and Keith M. Prufer

Over the past three years, the Uxbenká Archaeological Project has undertaken extensive field work investigating the distribution of non-elite settlement associated with secondary Classic period polity of Uxbenká, located in the Toledo District of southern Belize. This article presents the initial results of our ongoing survey of the Uxbenká landscape, with specific attention paid to our methodologies, preliminary interpretations, and the overarching questions that are guiding our research. Uxbenká was the earliest and longest occupied political center in the poorly studied region of southern Belize. As such, our investigations at this site have the potential to yield valuable information regarding the role of Uxbenká in the greater sociopolitical sphere of the Classic period Maya Lowlands, as well as significant data on the internal interactions between non-elite households and the Uxbenká community as a whole. The information we have thus far collected from survey and excavation suggest that Uxbenká is an important site due to its early Late Preclassic occupation, its position along a natural corridor linking the central Lowlands to the Caribbean coast, and its highly dispersed settlement pattern that is seemingly unique to this area.

Introduction

In 2008, the Uxbenká Archaeological Project initiated an extensive systematic survey of the landscape surrounding Uxbenká, a small Maya political center located in southern Belize (Figure 1). Previous field seasons concentrated excavations primarily in the site core and in nearby households in an attempt to achieve a better understanding of the site's development within the broader context of regional chronologies. This research showed that Uxbenká was the earliest complex polity in southern Belize and one of the longest occupied. It was settled during the Late Preclassic, and by the Early Classic Uxbenká had emerged as the preeminent political center in the region displaying the standard hallmarks of Classic period social complexity, including monumental architecture, public spaces, carved stone monuments, differentiated residential architecture, elaborate burials, and ancestor veneration. Only in the Late Classic did other political centers appear on the landscape of southern Belize, namely Lubaantun, Nimli Punit, and Pusilhá. These comparative data suggest to us that Uxbenká is an excellent site to investigate the emergence, maintenance, and decline of social complexity in this poorly studied region of the ancient Maya lowlands.

This paper reports on our current understanding of the settlement system at Uxbenká, and discusses directions for future research. The distribution of household

complexes across the landscape at Uxbenká is atypical in that it reveals a very dispersed residential settlement pattern. Furthermore, we have observed that households are not hierarchically arranged around the site core. Rather, larger residential compounds are found at varying distances from the civic-ceremonial center. This internally heterarchical arrangement suggests that loci of economic and political power were distributed across the prehistoric landscape of Uxbenká, rather than concentrated within the associated elite architecture that comprises the site core.

Below, we discuss the importance of settlement studies in understanding ancient social organization, and summarize previous research into Maya settlement organization in different ecosystems in the Maya Lowlands. We then discuss our current understanding of the Uxbenká residential pattern in the context of regional growth and development, including a discussion of the methodologies we have adopted for working in the region of southern Belize. Finally, we conclude with a discussion of our current interpretations regarding settlement and land-use decisions and the development of social differentiation at Uxbenká.

Maya Settlement Studies

Settlement studies provide a window into how hierarchy, landscape, resources, and human decision making interoperate in the archaeological past. Spatial and temporal shifts

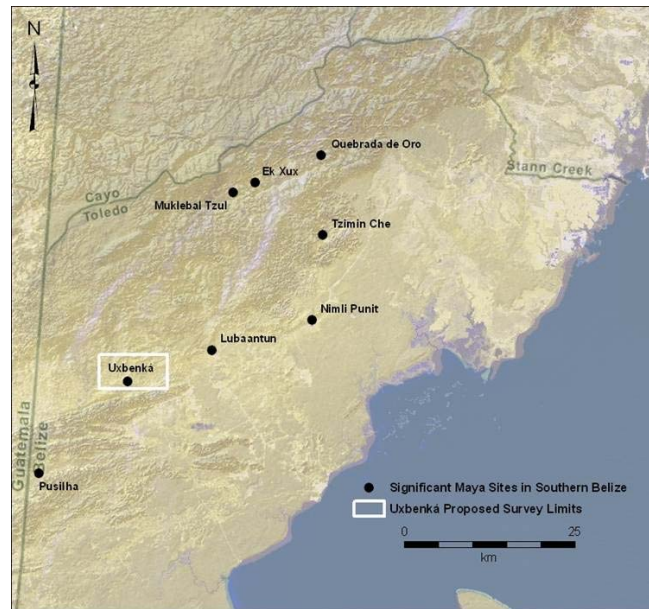


Figure 1. Location of Uxbenká and Other Significant Sites in Southern Belize and Eastern Guatemala.

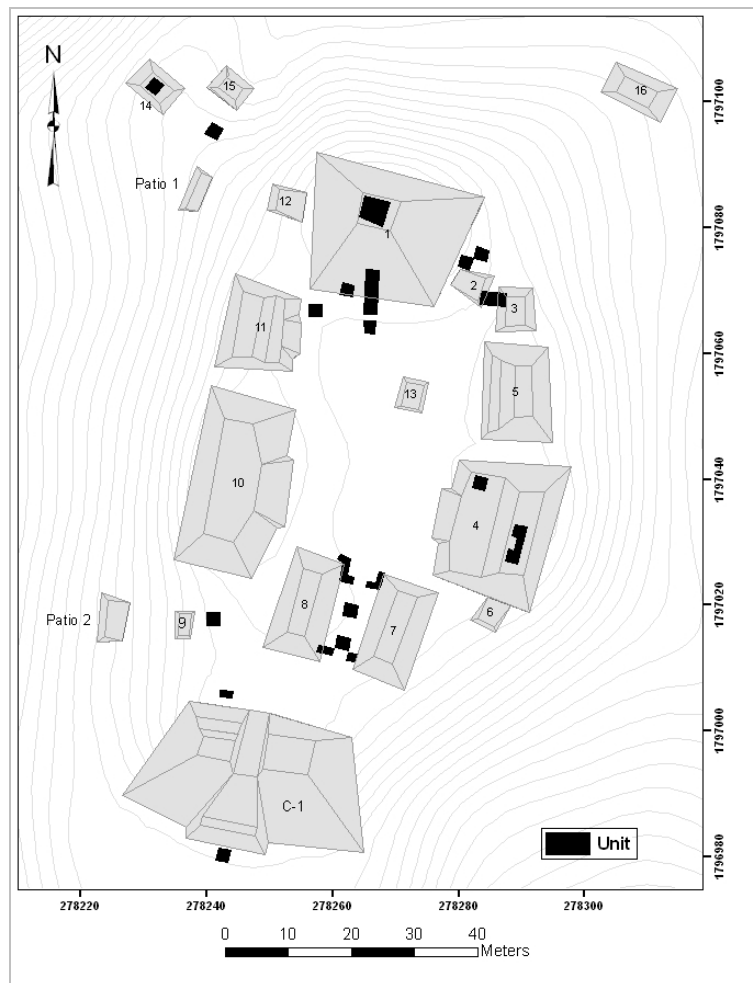


Figure 2. Uxbenká Site Core – Group B with associated excavation units

in household location are likely to reflect significant changes in social organization (Ashmore 2007; Ashmore and Willey 1981; Willey 1953). While such changes could result from any number of natural or cultural transformations (Schiffer 1976), they ultimately indicate fundamental alterations in the decision-making strategies of households. Importantly, households are believed to be the fundamental social unit in prehistoric complex societies, including the Classic period Maya (Ashmore 1981; Lohse and Valdez 2004; Wilk and Ashmore 1988). Furthermore, non-elite households comprised the majority of the ancient Maya population, and constitute the seemingly endless array of archaeological remains found throughout the Maya Lowlands. Examining the distribution of households across a landscape, and how that distribution changed over time, can allow us to achieve a better understanding of both social and natural (i.e., climatic and ecological) factors that influenced household decision-making strategies in the past. Ultimately, such studies can produce more refined pictures of prehistoric societies and their relationships with the landscapes they occupied.

The pioneering efforts of Gordon Willey (1953) and his survey in the Viru Valley of Peru laid the initial foundations for settlement research. Willey's work in Peru inspired similar regional-scale surveys elsewhere, but produced a particularly resounding impact on archaeology in Maya Lowlands. The earliest survey work in the Maya region was conducted in association with excavations at large civic-ceremonial centers such as Tikal and Copan (Fash 1983; Puleston 1983) and throughout the Belize River valley (Willey et al. 1965). These efforts altered the then-current understandings of Maya settlement and subsistence patterns by demonstrating higher-than-expected population densities primarily comprised of non-elite agriculturalists. This discovery challenged earlier models which posited a subsistence base of shifting slash-and-burn agriculture centered on maize production. Archaeologists began recognizing that swidden agriculture could not support the high populations indicated by the density of settlement across the lowlands (Fedick 1996). After acknowledging the

seemingly endless distribution of household remains across the jungles of Belize and Guatemala, settlement studies and investigations of Maya subsistence patterns quickly increased in popularity.

Since the 1990s work in the Maya Lowlands generally, and in Belize specifically, has contributed significantly to our current understanding of Classic period Maya settlement organization and subsistence. Large portions of the Belize River valley have been surveyed and mapped over the last two decades (Ashmore 1995, 1996; Robin 1996, 1997; Robin et al. 2002; Yaeger 2000, 2003). The research undertaken in this region by Wendy Ashmore, Cynthia Robin, and Jason Yaeger has been highly influential in drawing attention to the importance of non-elite households (Yaeger and Robin 2004). Wide variability in the size and organization of domestic units indicates that the notion of a homogenous group of ancient Maya "commoners" is far more complex than previously thought. In combination with other archaeological investigations throughout the Belize River valley and its surrounding hinterlands (cf. Garber 2004; Iannone 2003, 2004; Iannone and Connell 2004), these studies indicate that shifts in community organization, reflected by spatiotemporal changes in settlement patterns, occurred across multiple scales between individual households, local ceremonial centers, and regional political powers. Similar understandings have been drawn from work conducted in northwest Belize, particularly at sites like Colha (Buttles 2004; King 1994; King and Potter 1994) and La Milpa (Hammond and Tourtellot 2003; Tourtellot et al. 2003) where significant portions of the landscape have been surveyed beyond the ceremonial cores. Importantly, all of these studies demonstrate a heterarchical distribution of wealth, power, and prestige markers occurring at the fundamental social unit of the household.

Compared to other areas, southern Belize remains one of the most poorly understood regions of the Maya Lowlands, particularly in terms of settlement systems. In part, this may be the result of the relative inaccessibility of the area; until the 1960s it

could only be reached by boat or foot. Due to its relative inaccessibility historically, it was assumed that throughout much of the Classic period it was also a marginal region. The region as a whole is geographically circumscribed, bounded to the east by the Caribbean Sea, to the north by inhospitable pine barrens, to the west by the Maya Mountains, and to the south by swampy river basins. While it is located along a frontier of the Maya Lowlands, it connects several important trade routes including access from the Caribbean Sea to the southern Petén (Hammond 1978; McKillop 2005). Southern Belize experienced its peak of development between A.D. 400-900, likely as a result of intensifying economic interactions with other portions of the lowlands. Importantly, the region possesses extremely productive agricultural soils (Wright et al. 1959) and a range of mineral and botanical resources from the Maya Mountains that are not found elsewhere in the Maya Lowlands (Dunham and Prufer 1998; Graham 1984).

As mentioned previously, Uxbenká appears to be the earliest occupied site in the region, with evidence for Late Preclassic settlement derived from buried soils near the site core. The only other nearby site with evidence for Late Preclassic or Early Classic occupation is Ek Xux, located within the eastern flanks of the Maya Mountains along the Bladen branch of the Monkey River. Until c. A.D. 550, southern Belize remained sparsely populated. After this time, the region was rapidly filled with settlement, including 10 monument-bearing polities. The most famous of these are Lubaantun, Pusilhá, and Nimli Punit. Hammond's (1975) early work at Lubaantun suggests a founding date around A.D. 730. At Pusilhá, excavations by the British Museum (Joyce 1929), Leventhal (1990, 1992) and Braswell (Bill and Braswell 2005) suggest that the site was founded during the sixth century AD. Nimli Punit bears inscriptions which indicate a short occupation span for this site occurring between A.D. 711 and A.D. 830 (Grube et al. 1999). During the early occupation of this region (c. A.D. 350-600), artifact styles suggest economic and political ties between southern Belize and the southeastern Peten, likely along natural corridors ideal for trade.

This may have shifted during the latter part of the Late Classic, as epigraphic evidence points to stronger links with sites located in the southeast periphery, such as Copan and Quirigua (Grube et al. 1999; Braswell et al. 2005; Wanyerka 2009). During its Late Classic peak, southern Belize experienced significant population growth and settlement expansion. Several political centers possessing impressive public architecture and glyph-bearing monuments appeared across the landscape. By the ninth century, however, the region was in decline and many of these centers were abandoned.

Of all the sites in southern Belize, Uxbenká is perhaps the most atypical. First, the Preclassic occupation of the site predates most political centers in the region by several centuries (Prufer 2005). Whereas other polities rapidly appeared on the landscape during the latter portion of the Late Classic and were quickly abandoned, Uxbenká established itself as an important political center by the Early Classic (Figure 2). Second, compared to other centers in southern Belize, Uxbenká possesses a dispersed settlement pattern which we will discuss in more detail below. At Lubaantun, Nimli Punit, and Pusil Ha, settlement appears to be consolidated around the civic-ceremonial cores, and rapidly decreases with distance from the site core, a pattern we do not observe at Uxbenká. Third, Uxbenká is located on some of the most fertile agricultural soils throughout the Maya Lowlands. As evidenced in the modern Maya agricultural economy, these lands are ideal for growing cacao, an economically and ideologically important crop to the ancient and modern Maya. Cacao is best suited for a few select regions of Mesoamerica, which suggests that it may have played an important role as a trade commodity towards the early establishment and maintenance of Uxbenká's political and economic power. Lastly, Uxbenká is located in the center of a natural corridor linking the Caribbean coast to the southern Peten. Bounded to its immediate south by an east-west ridge of rugged karst hills, and to its immediate north by the foothills of the Maya Mountains, Uxbenká is strategically situated to take advantage of interregional trade.

For these reasons, we feel that Uxbenká is an ideal site to study the establishment, maintenance, and decline of heterarchical political and economic organization within the broader context of Classic period Maya society. Our ongoing research has focused on building an accurate chronology for the development of the Uxbenká site core and its surrounding settlements. Furthermore, we believe that a detailed examination of changing settlement dynamics throughout Uxbenká's history will yield valuable information regarding the processes by which social inequality emerges in the prehistoric complex societies such as the Classic period Maya. Over the past three years we have been increasingly focusing our field work on a combination of intensive excavations, in both the site core and surrounding settlement groups, and extensive systematic survey of Uxbenká's landscape. In the following section, we report on the preliminary results of this ongoing research with specific reference to the survey data we have collected, and the methodologies by which we have collected it.

The Uxbenká Settlement Survey

Beginning in 2008 we have expanded our investigations at Uxbenká into the site's periphery through a combination of extensive landscape survey and settlement excavations. Like any archaeological survey, the primary goal of the Uxbenká settlement survey is to understand the distribution of non-elite settlements across both space and time. This research is being conducted under the theoretical framework of Human Behavioral Ecology (HBE) in an attempt to better understand more complex issues occurring across the Uxbenká landscape. The flexible, multivariate approach favored by HBE facilitates the development of dynamic models relating interaction between a complex suite of variables including ecology, demography, and individual or household decision-making processes. The formulation and application of such models to lowland Maya archaeology has received little attention, but holds great potential for improving our understanding of ancient Maya settlement patterns, land-use decisions, and social interaction, and how these interact with independent variable such as local ecology,

environmental resources, and climate change. By grounding our research under the framework of HBE, we aim to better understand: (1) factors that influenced the settlement locations favored by ancient Maya households at Uxbenká; (2) the impact of demographic growth on settlement decisions; (3) potential sources for variation in the longevity, size, and material wealth of households; and (4) the diachronic relationship between land-use, demographic growth, and emerging complexity throughout the occupation of Uxbenká.

Currently, we are engaged in a survey of significant portions of a 50 km² area centered on the Uxbenká site core, though the settlement system may be considerably larger. The terrain on which Uxbenká and its associated settlements are located consists of steeply sloped hills and ridges existing atop a shallow substrate of mud and siltstone bedrock. Soils form from decaying mudstones which are exposed during agricultural clearing. To examine the distribution of household remains across this landscape, we are employing a novel survey methodology that we have developed and refined over the last five years. Most of the area under investigation is located on lands of the Mopan Maya village of Santa Cruz. Employing traditional slash-and-burn agricultural techniques, the farmers of Santa Cruz clear large portions of the landscape on an annual basis for the planting of milpas. This provides us with an excellent opportunity to survey areas of the landscape with relative ease, acquiring near 100% surface visibility in the process (Figure 3). Additionally, due to the quality of the soils in this portion of Toledo District, the fallow cycle lasts approximately five years, meaning that most portions of the landscape will have been slashed, burned, and exposed throughout this interval. In 2009, 15 families from Santa Cruz collaborated to chop and burn a 65 acre parcel of land we had not previously surveyed. With such large tracts of land cleared of vegetation, the identification of household remains and other archeological features can be obtained with relative ease.

To initiate our surveys, we make qualitative observations on the location of milpas from strategic vantage points throughout Uxbenká, and employ farmers from Santa Cruz

to guide us to those locations. Upon encountering a milpa, we walk across the cleared area, conducting surface reconnaissance for any observable features, mainly architectural mound groups and agricultural terraces. In some instances, farmers will not clear hilltop locations since susceptibility to wind damage renders these areas less than ideal for growing corn. When we encounter uncleared hilltops, we typically cut short brechas through the bush in an attempt to identify any structures. If we do find structures, we then clear the hilltop more thoroughly to better expose the architectural remains.



Figure 3: Large milpa demonstrating high surface visibility across Uxbenká landscape

Any features we encounter are mapped using a Leica GPS System 1200. This highly sophisticated machinery provides three-dimensional accuracy within a range of 1-2 cms. The Leica System 1200 consists of two components, a GPS base station and a GPS rover (Figures 4a and 4b). Each day, the GPS base station is set up over a permanent datum with known coordinates, where it collects satellite data on its static location. These data are then sent to a radio transmitter and broadcast across the landscape. The rover component has its own GPS antenna, from which it collects spatial data on its non-static location. It also possesses a radio receiver which receives the data broadcast from the base station. The internal software on the rover then processes this information in real-time to correct its own location, thus providing highly precise spatial data on its location. Since line-of-sight is not necessary for this system to operate, we can move across the landscape with

extreme efficiency, collecting precise data within a range of 4 km.

Apart from mapping architecture and any other features we encounter, we also map the edge of the milpas we survey. These data are imported as shapefiles into Arc GIS software and overlaid upon a Digital Elevation Model (DEM) to determine which portions of the landscape have been surveyed. The DEM we are using was derived from a British aerial survey conducted in the 1950s. Unfortunately it possesses only a 30 m resolution and thus is not very accurate. We are in the process of acquiring stereoscopic IKONOS satellite imagery and aerial LIDAR data for a 100 km² area around Uxbenká which will allow us to more accurately model the landscape and settlements with a high resolution DEM freeing up resources to strategically sample from different household remains.

To date we have surveyed a total 2.0 km² in a little more than two field seasons (Figure 5). During the 2008 field season, we identified and surveyed 12 settlement groups with a total of 113 structures. In 2009, we identified and mapped an additional 38 structures in 9 settlement groups. Though somewhat more ambiguous than the “mound-group” designations used in the Belize Valley and elsewhere, the settlement group is our primary collective unit of analysis. A settlement group is defined as a structure or group of contiguous structures all located on a single isolated landform. We interpret a series of mound-groups distributed across a ridge or hilltop as representing the household remains of an extended kin group. A good example of this is Settlement Group 25, which consists of 36 structures grouped into four plazuelas, all located on a curvilinear ridge approximately 1.5 km southeast of the Uxbenká site core (Figure 6). The ridge on which SG-25 is located has four knolls, upon which each of the plazuelas is located. These plazuelas feature the largest architectural components of the settlement group, with smaller, isolated structures distributed on topographic saddles between the knolls.

The settlement pattern we observe at Uxbenká appears to be uncharacteristically dispersed for the Maya Lowlands generally, and



Figure 4a. Leica GPS System 1200 Base Station; (4b) Leica GPS System 1200 Rover

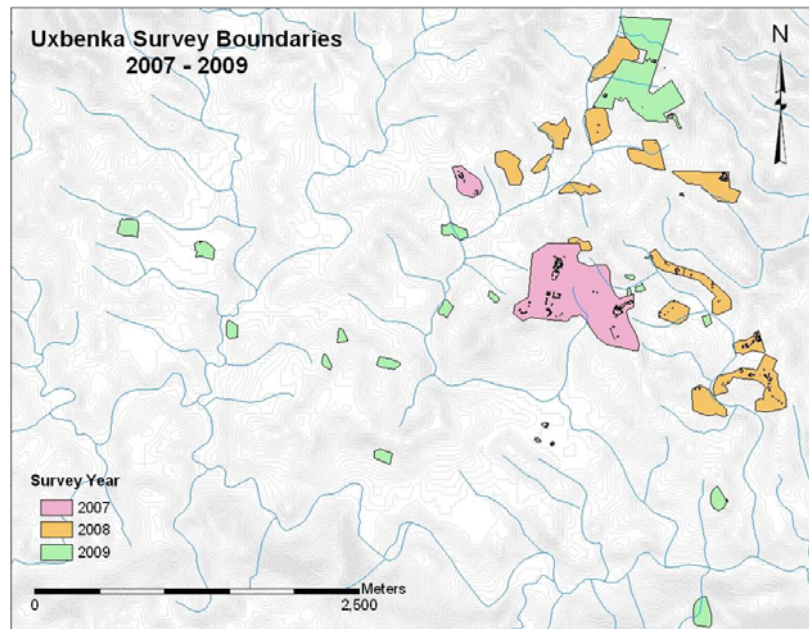


Figure 5. Portions of the Uxbenká Landscape Surveyed in 2007, 2008, and 2009

for the region of southern Belize specifically (Ashmore 1981; Hammond 1975; Leventhal 1990, 1992). All the architecture we have thus far identified and mapped has been located along hilltops and ridges. We have found no household remains along hill-slopes or bottomlands. In part, the steepness of the terrain may have played a role in discouraging settlement along

hill-slopes. Likewise, during the present-day rainy seasons, bottomlands are frequently inundated with water, suggesting that such areas may have been unsuitable for prehistoric settlement. Using the modern Mopan Maya farmers of Santa Cruz as an ethnographic analogy, we believe that Classic period farmers at Uxbenká were likely farming the hillsides

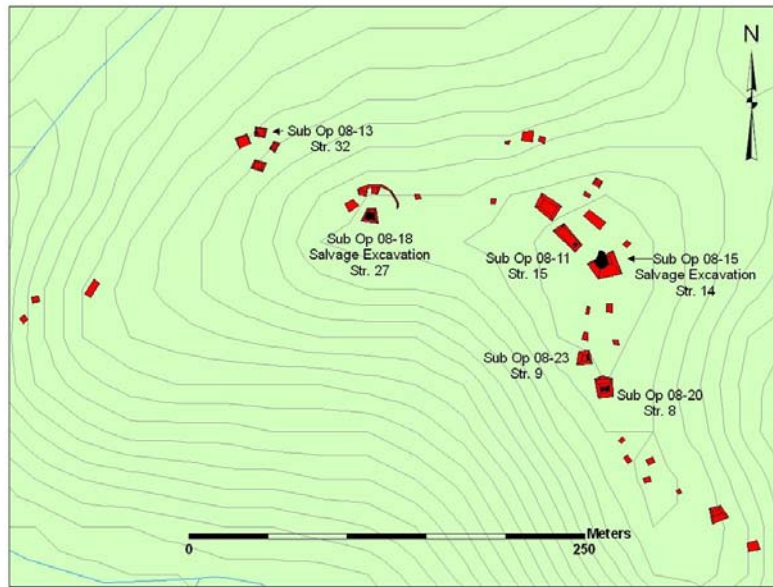


Figure 6. Settlement Group 25 and associated excavation units

immediately surrounding their settlements (Culleton 2008, 2009), based in part on the quality of soils and the continuous cultivation by modern farmers of the same fields for several years with no loss in productivity. Soil nutrients are replenished by the highly friable mud and siltstone bedrock that decays rapidly when exposed through clearing and erosion of topsoils. This type of soil formation is unusual for the Maya Lowlands where most soils are formed from decaying biomass or alluvial runoff. The productive potential of this soil may in part explain the general lack of agricultural features we have encountered. While there is some indication that hill-slopes were modified in what may be some form of terracing, these features are not nearly as numerous or as formal in their construction as terraces found in other areas of Belize such as the Upper Belize River Valley (Dunning 1996; Fedick 1996; Wyatt 2005). As a result of these observations, we feel that soil quality (in terms of agricultural potential) likely played a significant role in influencing household decisions regarding settlement location.

SG-25 is the largest settlement group we have thus far encountered on our survey. However, we have found other settlement groups which feature large, formally arranged architectural components, such as SGs 23, 24,

28, and 35. These more formal settlement groups tend to feature use of what is colloquially referred to as the southern Belize façade, in which hilltops are faced with stones to visually enhance the apparent size of the architectural group. Within the settlement groups, this strategy is perhaps most evident at SG-28, which features a stone façade surrounding the uppermost buildings (Figure 7). We have also observed this pattern in the Uxbenká site core, specifically in Groups B, C, and D which evidence substantial modifications to the natural landscape (e.g., the flattening of hilltops and ridges) and possess stone faces extending several meters downslope along natural hill-sides. Interestingly, these larger settlement groups appear to all occur relatively equidistant from the site core, ranging in distance from 1.4 km to 2.0 km. Closer to the site core, we are finding single isolated structures or small, informally arranged mound-groups (Figure 8). These remains may represent ancillary buildings such as field houses. Alternatively, this pattern may simply be a result of our current sample size, but it may also indicate a buffer zone around the site core in which large settlement groups are absent. Future research will address these hypotheses. At present, however, we feel confident in saying that wealth differences between settlement groups, measured in terms of

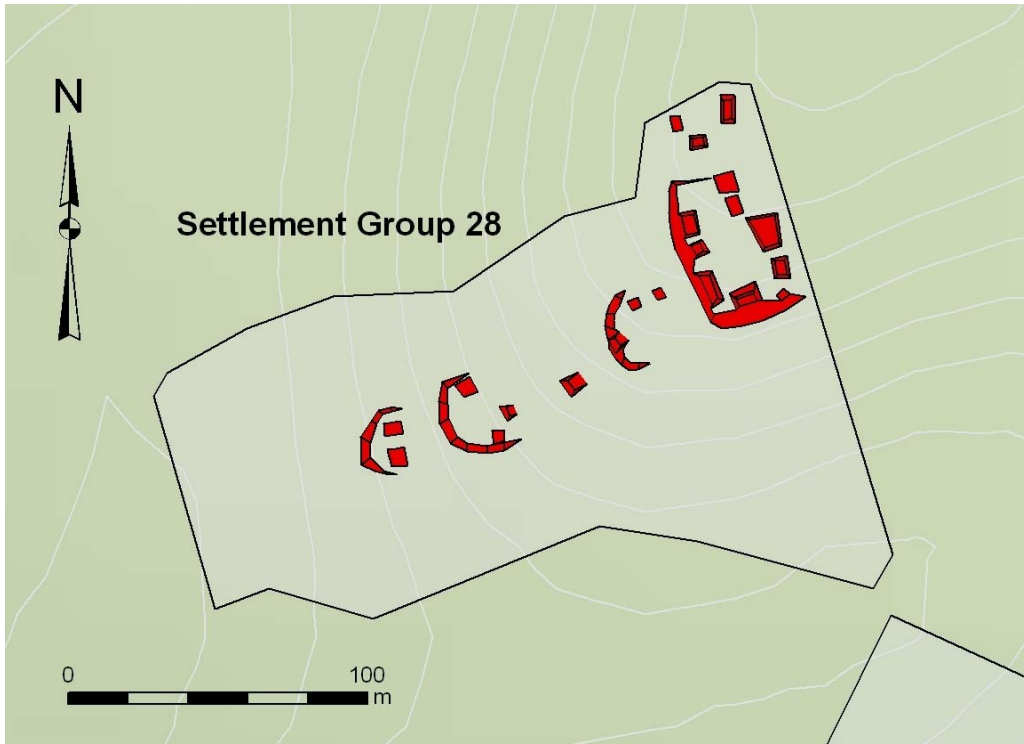


Figure 7. Settlement Group 28, featuring use of the “Southern Belize Façade”

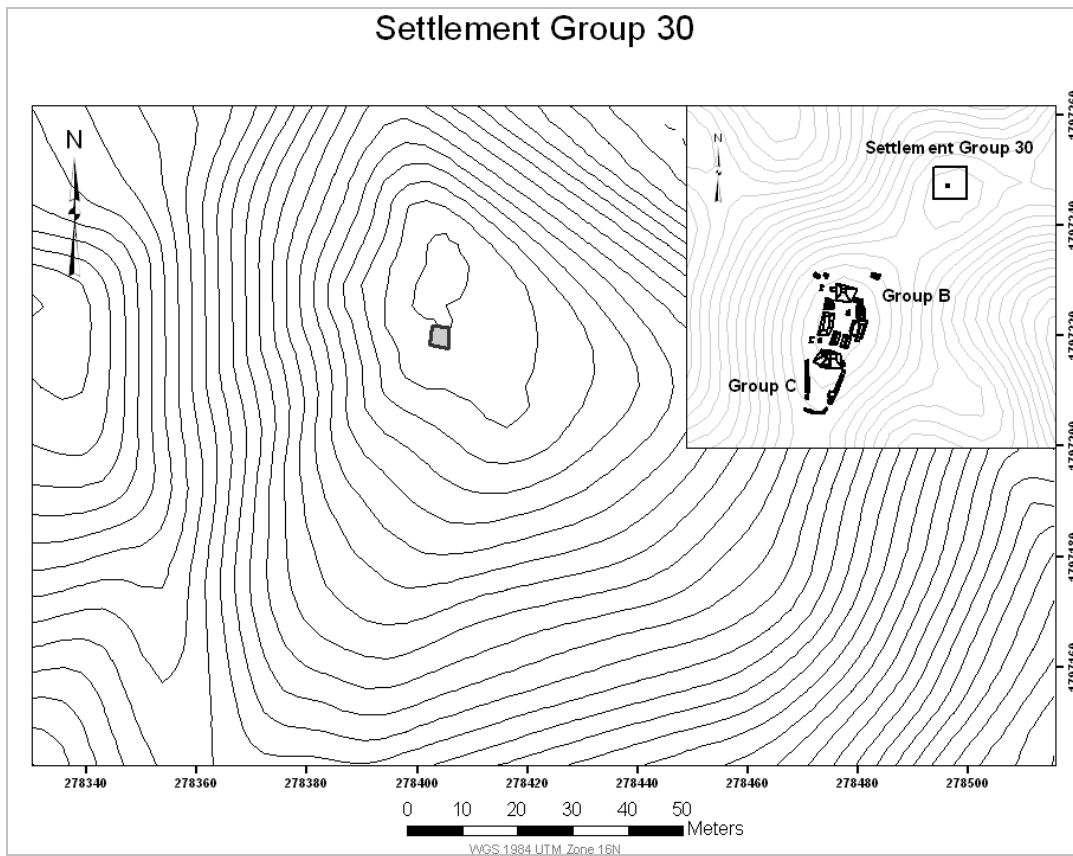


Figure 8. Settlement Group 30, a single isolated structure near the site core.

confident in saying that wealth differences between settlement groups, measured in terms of architectural size and number of buildings, indicate that social status was distributed across the site. In other words, higher status households did not situate themselves immediately adjacent to the Uxbenká site core, which would have represented the social and ideological nexus of power. Instead, the highest status households we have thus far identified are in some cases located over a mile from the site core. This suggests to us that direct economic or kin-based connections to Uxbenká's political elite may not have acted as the primary means by which households accrued wealth and social status.

To date we have placed excavations in 25 structures from 11 settlement groups. Most of these structures appear to be the remains of residential domiciles, possessing the full suite of domestic debris including ceramics, lithics, hammer-stones, obsidian blades, manos and metates. The primary differences we are observing between settlement groups, however, are not in the material remains themselves, but rather appear in the architectural techniques used to construct these buildings. Many of the buildings we encounter have been heavily looted. While this is unfortunate in and of itself, it has provided us with an opportunity to quickly observe the stratigraphy of these structures and their construction styles. These observations, combined with excavations in both looted and un-looted structures, suggest substantial differences between settlement groups that may be indicative of wealth, social status and/or occupational duration.

As an example of this, Settlement Group 25 possesses some of the largest architectural components thus far identified outside of the Uxbenká site core. Structure 14 measures over 3.5 meters tall, and was constructed using large, tabular conglomerate rocks. It is difficult to tell whether the structure was faced or not. However, we did encounter the intact walls of a superstructure. Likewise, Structure 9 in SG-25 also possessed a large looted tomb with very formal construction. Similar tombs have been found in SGs- 23, 24, 28, 36, and other settlement groups we have identified but have not yet mapped. These settlement groups appear

to have been well established by the time of their abandonment, featuring large buildings arranged into formal plaza groups. The number of structures associated with these settlements, as well as the size of the individual architectural components, suggests significant differences in the distribution of wealth across the Uxbenká hinterlands. Furthermore, we are observing wealth differences within settlement groups which we are tentatively interpreting as evidence of nested hierarchy within the settlement pattern at Uxbenká. Returning again to Settlement Group 25, the largest structures are arranged into plazuelas located upon small knolls. These plazuelas themselves are surrounded by smaller structures located down slope in topographic saddles between the knolls. We feel these smaller structures likely represent the residences of less wealthy kin related by more distant descent to earlier occupants of SG-25. They may have served as attendants to their relatives, who themselves acquired increased wealth through ancestral ties to the original occupants of the settlement group.

The style of architecture seen at SG-25 and other settlement groups (i.e., large, formally organized buildings with deeply constructed tombs that would have required large amounts of labor investment) is easily contrasted to that of smaller settlement groups such as SGs 30, 31, 32, and 39. At these locations, we are finding what appear to rapidly constructed buildings with short occupation spans. Structures were frequently built directly on top of mud and siltstone bedrock, and for the most part possess no intact architectural features. At these locations, no plaster floors have been preserved, no burials or burial chambers have been encountered, and no definable features have been found. The small size of these structures, their very ephemeral nature, and a general lack of higher status artifacts and features suggests to us that these buildings represent the residential remains of less-wealthy farmers. Furthermore, we predict that these smaller settlement groups with more ephemeral structures indicate a Late Classic population expansion of relatively short duration coinciding with the appearance of other significant nearby politic centers such as Lubaantun, Nimli Punit, and Pusilhá. Indeed,

radiocarbon assays recovered from settlement contexts beyond the site core place initial occupation of ephemeral settlement groups firmly in the Late Classic (SG 38: AD 566-640; SG 39: 580-650).

Conclusions

The Uxbenká hinterlands feature a diversity of settlements which indicate significant differences in material wealth and social status with and between settlement groups. Many of the highest status settlement groups are located over 1.0 km from the site core, with smaller, lower status settlement groups located closer to the site core. This distribution suggests to us that many households derived portions of their material wealth and social status from sources other than the elite political rulers of Uxbenká. We feel that differential soil productivity across the landscape may have played a role in establishing incipient hierarchies of power in the hinterlands. Additionally, we predict that other factors may have been significant in influencing household determinations of settlement location. These include elevations of the landforms on which settlements are located, slope degree and slope aspect, distance to permanent sources of water, and viewshed to the site core and other ideologically charged features of the landscape. Additional settlement survey will allow us to more accurately assess potential strength of these variables in regards to differences between settlement location and household wealth.

We believe that incipient wealth differences were established during the Early Classic development of Uxbenká. By the Late Classic, these manifested themselves in the form of heterarchical relations of power between settlement households and Uxbenká's rulers. We argue that population growth and the arrival of new polity's on the southern Belize landscape likely had a profoundly transformative impact on Uxbenká's settlement, allowing high status occupants of the hinterlands to further consolidate wealth, status, and power by forcing new arrivals to more marginal portions of the landscape. Our future research efforts will continue to address these hypotheses, leading to a more detailed understanding of the social

process that unfolded across the Classic period landscape of Southern Belize.

Acknowledgements We would like to thank Dr. Jaime Awe, Dr. John Morris, and the staff of the Belize Institute of Archaeology and the National Institute of Culture and History for the opportunity to present our current research findings at Uxbenká. We would also like to thank the National Science Foundation, the Alphawood Foundation, and the University of New Mexico for their financial support for our ongoing research. Brendan Culleton and Margaret Reith provided invaluable feedback on this paper. We would also like to thank Claire Ebert, our resident GIS specialist, for producing all of the images included in this paper. Lastly, we would like to thank the Uch'benka K'in Ahaw Association and the community of Santa Cruz for their invaluable assistance in the field, and all members of the 2007, 2008, and 2009 Uxbenká Archaeological Project.

References Cited

- Ashmore, Wendy
 1981 Some of Issues of Method and Theory. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp.37-69, University of New Mexico Press, Albuquerque.
- 1995 Settlement Archaeology at Xunantunich, 1995. In, *Xunantunich Archaeological Project: 1995 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 10-25. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- 1996 Settlement Archaeology at Xunantunich, 1996. In, *Xunantunich Archaeological Project: 1996 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 17-27. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- 2007 *Settlement Archaeology at Quiriguá, Guatemala*. Quiriguá Reports, Vol. 7. University Museum Monograph, No. 126. Museum of Archaeology and Anthropology, University of Pennsylvania, Philadelphia.
- Ashmore, Wendy and Gordon R. Willey
 1981 A Historical Introduction to the Study of Lowland Maya Settlement Patterns. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 3-18. University of New Mexico Press, Albuquerque.

- Bill, Cassandra R. and Geoffrey E. Braswell
2005 Life at the Crossroads: New Data from Pusilhá, Belize. In *Research Reports in Belizean Archaeology 2: Papers of the 2004 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 301-312. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Braswell, Geoffrey E., Christian M. Prager, Cassandra R. Bill, and Sonja A. Schwake.
2005 The Rise of Secondary States in the Southeastern Periphery of the Maya World: A Report on Recent Archaeological and Epigraphic Research at Pusilha, Belize. *Ancient Mesoamerica* 15(2):219-233.
- Buttles, Palma
2004 The Importance of Colha in Belize Archaeology. In *Research Reports in Belizean Archaeology: 1. Archaeological Investigations in the Eastern Maya Lowlands; Papers of the 2003 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 281-294. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Culleton, Brendan J.
2008 Potential Soil and Water Conservation Features at Uxbenká. In *Uxbenká Archaeological Project: Report of the 2007 Field Season in the Toledo District, Belize*, edited by Keith M. Prufer, pp. 54-58. Report on file with the Belize Institute of Archaeology, Belmopan.
- 2009 Geoarchaeological Investigation and Chronology of Buried Soils and Cultural Features in the Site Core (Sub Ops 08-1 and 08-3) at Uxbenká. In *The Uxbenká Archaeological Project: Report of the 2008 Field Season*, edited by Keith M. Prufer, pp. 86-104. Report on file with the Belize Institute of Archaeology, Belmopan.
- Dunning, Nicholas P.
1996 A Reexamination of Regional Variability in the Prehistoric Agricultural Landscape. In *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*, edited by Scott L. Fedick, pp. 53-68. University of Utah Press, Salt Lake City.
- Fash, William L. Jr.
1983 *Maya State Formation: A Case Study and Its Implications*. Unpublished Ph.D. Dissertation, Department of Anthropology, Harvard University, Cambridge.
- Fedick, Scott L.
1996 *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*. University of Utah Press, Salt Lake City.
- Garber, James F. (editor)
2004 *The Ancient Maya of the Belize Valley*. University Press of Florida, Gainesville.
- Grube, Nikolai, Barbara Macleod, and Phil Wanyerka
1999 A Commentary on Hieroglyphic Inscriptions of Nimli Punit, Belize. Research Reports on Maya Writing, No. 41. Center for Maya Research, Washington, D.C.
- Hammond, Norman and Gair Tourtellot III
1975 *Lubaantun: A Classic Maya Realm*. Monographs, No. 2, Harvard University, Peabody Museum of Archaeology and Ethnology, Cambridge.
- 1978 Cacao and Cobaneros: An Over-land Trade Route between Maya Highlands and Lowlands. In *Mesoamerican Communication Routes and Culture Contacts*, edited by Thomas A. Lee, Jr. and Carlos Navarrete, pp. 19-26. New World Archaeological Foundation Papers, No. 40. Brigham Young University, Provo.
- 2003 Viewsheds and Watersheds: Topography and Cosmology in the Planning of the Classic Maya Cityscape of La Milpa, Belize. In *Espacios Mayas: Usos Representaciones Creencias*, edited by Alain Breton, Aurore Monod Becquelin, and Mario Humberto Ruz, pp. 93-110. Universidad Nacional Autonoma de Mexico, Mexico
- Iannone, Gyles
2003 Rural Complexity in the Cahal Pech Microregion: Analysis and Implications. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 13-26. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- 2004 Problems in the Definition and Integration of "Minor Centers" in Maya Archaeology with Reference to the Upper Belize Valley. In *The Ancient Maya of the Belize Valley*, edited by James F. Garber, pp. 273-286. University Press of Florida, Gainesville.
- Iannone, Gyles and Samuel V. Connell (editors)
2003 *Perspectives on Ancient Maya Rural Complexity*. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Joyce, Thomas K.
1927 Report on British Museum Expedition to British Honduras, 1927. *Journal of the Royal Anthropological Institute* 59.
- King, Eleanor M.
1994 Preliminary Report on the Colha Settlement Survey: The 1983 and 1984 Seasons

- In *Continuing Archeology at Colha, Belize*, edited by Thomas R. Hester, Harry J. Shafer and Jack D. Eaton, pp. 17-24. Texas Archeological Research Laboratory, University of Texas, Austin.
- King, Eleanor M. and Daniel Potter
1994 Small Sites in Prehistoric Maya Socioeconomic Organization: A Perspective from Colha, Belize. In *Archaeological Views from the Countryside*, edited by Glen M. Schwartz and Steven E. Falconer, pp. 64-90. Smithsonian Institution Press, Washington, DC
- Leventhal, Richard
1990 Southern Belize: An Ancient Maya Region. In *Vision and Revision in Maya Studies*, edited by Flora S. Clancy and Peter D. Harrison, pp. 125-141. University of New Mexico Press, Albuquerque.
1992 The Development of a Regional Tradition in Southern Belize. In *New Theories on the Ancient Maya*, edited by Ellen C. Danien and Robert J. Sharer, pp. 145-154. The University Museum, University of Pennsylvania, Philadelphia.
- Lohse, Jon C. and Fred Valdez, Jr. (editors)
2004 *Ancient Maya Commoners*. University of Texas Press, Austin.
- McKillop, Heather
2005 *In Search of Maya Sea Traders*. Texas A&M Press, College Station.
- Prufer, Keith M.
2005 The Early Classic in Southern Belize: A View from Uxbenká and Ek Xux. In *Research Reports in Belizean Archaeology 2: Papers of the 2004 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 169-178. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Puleston, Dennis E.
1983 Settlement Survey of Tikal. *The Tikal Report, No. 13*. William R. Coe and William A. Halivand, eds. University Museum Monograph, 48. University of Pennsylvania Press, Philadelphia.
- Robin, Cynthia
1996 Xunantunich Rural Settlement Project, 1996. In, *Xunantunich Archaeological Project: 1996 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 151-171. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
1997 Xunantunich Rural Settlement Project, 1997. In, *Xunantunich Archaeological Project: 1997 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 146-155. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Robin, Cynthia, William D. Middleton, Santiago Juarez, and Mary K Morrison
2004 Surveying an Agrarian Community: the 2002 Season at the Chan Site. In *Research Reports in Belizean Archaeology 1: Archaeological Investigations in the Eastern Maya Lowlands; Papers of the 2003 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 37-48. Institute of Archaeology, National Institute of Culture and History, Belmopan
- Schiffer, Michael B.
1976 *Behavioral Archaeology*. Academic Press, New York.
- Tourtellot, Gair III, Gloria Everson, and Norman Hammond
2003 Suburban Organization: Minor Centers at La Milpa, Belize. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 94-107. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Wanyerka, Phillip
2009 Classic Maya Political Organization: Epigraphic Evidence of Hierarchical Organization in the Southern Maya Mountains Region of Belize. Unpublished Ph.D. Dissertation. Department of Anthropology, Southern Illinois University, Carbondale.
- Wilk, Richard R. and Wendy Ashmore (editors)
1988 *Household and Community in the Mesoamerican Past*. University of New Mexico Press, Albuquerque.
- Willey, Gordon R.
1953 *Prehistoric Settlement Patterns in the Virú Valley, Peru*. Smithsonian Institution Bureau of American Ethnology No. 155. United States
- Willey, Gordon R. (editor)
1956 *Prehistoric Settlement Patterns in the New World*. Viking Fund Publications in Anthropology No. 23. Wenner-Gren Foundation for Anthropological Research, New York.
- Willey Gordon R., William R. Bullard Jr., John B. Gloss and James C. Grifford
1965 *Prehistoric Maya Settlement Patterns in the Belize Valley*. Papers of the Peabody Museum of American Archaeology and Ethnology No. 54. Harvard University, Cambridge.

- Wyatt, Andrew R.
2005 Excavations On Agricultural Terraces: Results of the 2004 Field Season at Chan, Belize. In *The Chan Project 2004 Field Season*. Report on File with the Belize Institute of Archaeology, Belmopan.
- Yaeger, Jason
2000 Social Construction of Communities in the Classic Maya Countryside. In *The Archaeology of Communities: A New World Perspective*, edited by Marcello Canuto and Jason Yaeger, pp 123-142. Routledge Press, London.
2003 Small Settlements in the Upper Belize River Valley: Local Complexity, Household Strategies of Affiliation, and the Changing Organization. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 42-58. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Yaeger, Jason and Cynthia Robin
2004 Heterogenous Hinterlands: The Social and Political Organization of Commoner Settlements near Xunantunich, Belize. In *Ancient Maya Commoners*, edited by Jon C. Lohse and Fred Valdez, Jr., pp. 147-174. University of Texas Press, Austin.
1996 A Reexamination of Regional Variability in the Prehistoric Agricultural Landscape. In *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*, edited by Scott L. Fedick, pp. 53-68. University of Utah Press, Salt Lake City.
- Fash, William L. Jr.
1983 Maya State Formation: A Case Study and Its Implications. Unpublished Ph.D. Dissertation, Department of Anthropology, Harvard University, Cambridge.
- Fedick, Scott L.
1996 The Managed Mosaic: Ancient Maya Agriculture and Resource Use. University of Utah Press, Salt Lake City.
- Garber, James F. (editor)
2004 The Ancient Maya of the Belize Valley. University Press of Florida, Gainesville.
- Grube, Nikolai, Barbara Macleod, and Phil Wanyerka
1999 *A Commentary on Hieroglyphic Inscriptions of Nim Li Punit, Belize*. Research Reports on Maya Writing, No. 41. Center for Maya Research, Washington, D.C.
- Hammond, Norman and Gair Tourtellot III
1975 Lubaantun: A Classic Maya Realm. Monographs, No. 2, Harvard University, Peabody Museum of Archaeology and Ethnology, Cambridge.
- 1978 Cacao and Cobaneros: An Over-land Trade Route between Maya Highlands and Lowlands. In *Mesoamerican Communication Routes and Culture Contacts*, edited by Thomas A. Lee, Jr. and Carlos Navarrete, pp. 19-26. New World Archaeological Foundation Papers, No. 40. Brigham Young University, Provo.
- 2003 Viewsheds and Watersheds: Topography and Cosmology in the Planning of the Classic Maya Cityscape of La Milpa, Belize. In *Espacios Mayas: Usos Representaciones Creencias*, edited by Alain Breton, Aurore Monod Becquelin, and Mario Humberto Ruz, pp. 93-110. Universidad Nacional Autonoma de Mexico, Mexico
- Iannone, Gyles
2003 Rural Complexity in the Cahal Pech Microregion: Analysis and Implications. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 13-26. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
2004 Problems in the Definition and Integration of "Minor Centers" in Maya Archaeology with Reference to the Upper Belize Valley. In *The Ancient Maya of the Belize Valley*, edited by James F. Garber, pp. 273-286. University Press of Florida, Gainesville.
- Iannone, Gyles and Samuel V. Connell (editors)
2003 *Perspectives on Ancient Maya Rural Complexity*. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Joyce, Thomas K.
1927 Report on British Museum Expedition to British Honduras, 1927. *Journal of the Royal Anthropological Institute* 59.
- King, Eleanor M.
1994 Preliminary Report on the Colha Settlement Survey: The 1983 and 1984 Seasons In *Continuing Archeology at Colha, Belize*, edited by Thomas R. Hester, Harry J. Shafer and Jack D. Eaton, pp. 17-24. Texas Archeological Research Laboratory, University of Texas, Austin.
- King, Eleanor M. and Daniel Potter
1994 Small Sites in Prehistoric Maya Socioeconomic Organization: A Perspective from Colha, Belize. In *Archaeological Views from the Countryside*, edited by Glen M. Schwartz and Steven E. Falconer, pp. 64-90. Smithsonian Institution Press, Washington, DC

- Leventhal, Richard
1990 Southern Belize: An Ancient Maya Region. In *Vision and Revision in Maya Studies*, edited by Flora S. Clancy and Peter D. Harrison, pp. 125-141. University of New Mexico Press, Albuquerque.
- 1992 The Development of a Regional Tradition in Southern Belize. In *New Theories on the Ancient Maya*, edited by Ellen C. Danien and Robert J. Sharer, pp. 145-154. The University Museum, University of Pennsylvania, Philadelphia.
- Lohse, Jon C. and Fred Valdez, Jr. (editors)
2004 Ancient Maya Commoners. University of Texas Press, Austin.
- McKillop, Heather
2005 In Search of Maya Sea Traders. Texas A&M Press, College Station.
- Prufer, Keith M.
2005 The Early Classic in Southern Belize: A View from Uxbenká and Ek Xux. In *Research Reports in Belizean Archaeology 2: Papers of the 2004 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 169-178. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Puleston, Dennis E.
1983 Settlement Survey of Tikal. The Tikal Report, No: 13. William R. Coe and William A. Halivand, eds. University Museum Monograph, 48. University of Pennsylvania Press, Philadelphia.
- Robin, Cynthia
1996 Xunantunich Rural Settlement Project, 1996. In *Xunantunich Archaeological Project: 1996 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 151-171. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- 1997 Xunantunich Rural Settlement Project, 1997. In *Xunantunich Archaeological Project: 1997 Field Season*, edited by Richard M. Leventhal and Wendy Ashmore, pp. 146-155. University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Robin, Cynthia, William D. Middleton, Santiago Juarez, and Mary K Morrison
2004 Surveying an Agrarian Community: the 2002 Season at the Chan Site. In *Research Reports in Belizean Archaeology 1: Archaeological Investigations in the Eastern Maya Lowlands; Papers of the 2003 Belize Archaeology Symposium*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 37-48.
- Institute of Archaeology, National Institute of Culture and History, Belmopan
- Schiffer, Michael B.
1976 *Behavioral Archaeology*. Academic Press, New York.
- Tourtellot, Gair III, Gloria Everson, and Norman Hammond
2003 *Suburban Organization: Minor Centers at La Milpa, Belize*. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 94-107. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.
- Wanyerka, Phillip
2009 *Classic Maya Political Organization: Epigraphic Evidence of Hierarchical Organization in the Southern Maya Mountains Region of Belize*. Unpublished Ph.D. Dissertation. Department of Anthropology, Southern Illinois University, Carbondale.
- Wilk, Richard R. and Wendy Ashmore (editors)
1988 *Household and Community in the Mesoamerican Past*. University of New Mexico Press, Albuquerque.
- Willey, Gordon R.
1953 *Prehistoric Settlement Patterns in the Virú Valley, Peru*. Smithsonian Institution Bureau of American Ethnology No. 155. United States
- Willey, Gordon R. (editor)
1956 *Prehistoric Settlement Patterns in the New World*. Viking Fund Publications in Anthropology No. 23. Wenner-Gren Foundation for Anthropological Research, New York.
- Willey Gordon R., William R. Bullard Jr., John B. Gloss and James C. Grifford
1965 *Prehistoric Maya Settlement Patterns in the Belize Valley*. Papers of the Peabody Museum of American Archaeology and Ethnology No. 54. Harvard University, Cambridge.
- Wyatt, Andrew R.
2005 Excavations On Agricultural Terraces: Results of the 2004 Field Season at Chan, Belize. In *The Chan Project 2004 Field Season*. Report on File with the Belize Institute of Archaeology, Belmopan.
- Yaeger, Jason
2000 Social Construction of Communities in the Classic Maya Countryside. In *The Archaeology of Communities: A New World Perspective*, edited by Marcello Canuto and Jason Yaeger, pp 123-142. Routledge Press, London.

2003 Small Settlements in the Upper Belize River Valley: Local Complexity, Household Strategies of Affiliation, and the Changing Organization. In *Perspectives on Ancient Maya Rural Complexity*, edited by Gyles Iannone and Samuel V. Connell, pp. 42-58. Monograph 49, University of California, Los Angeles, Costen Institute of Archaeology, Los Angeles.

Yaeger, Jason and Cynthia Robin

2004 Heterogenous Hinterlands: The Social and Political Organization of Commoner Settlements near Xunantunich, Belize. In *Ancient Maya Commoners*, edited by Jon C. Lohse and Fred Valdez, Jr., pp. 147-174. University of Texas Press, Austin.

23 **SEA-LEVEL RISE AND INUNDATION OF THE CLASSIC MAYA PAYNES CREEK SALT WORKS: EVIDENCE FROM MARINE SEDIMENT**

Heather McKillop, E. Cory Sills, Jessica Harrison

*A column of sediment was recovered and studied from below the seafloor adjacent to the K'ak' Naab' salt works, in Paynes Creek National Park, in order to evaluate if the site's buildings were elevated above the water or if they were on dry land that subsequently became inundated. Actual sea-level rise and subsidence of the land were considered. The sediment was recovered in 10 cubic cm samples and subjected to loss-on ignition, which indicated high organic matter. Identification of the organic matter under a microscope indicated the organic matter was *R. mangle*, which forms under conditions of actual sea-level rise. Cracks in the K'ak' Naab' canoe paddle from alternating dry and wet conditions in antiquity, along with other archaeological evidence and the sea-level data support the interpretation that K'ak' Naab' was dry land during the Classic period when the salt works were constructed.*

Introduction

A mangrove peat bog below the sea floor in a large salt-water lagoon system in Paynes Creek National Park, Belize provided excellent preservation of Classic Maya wooden architecture (McKillop 2005a; Figure 1). Underwater survey conducted between 2004 and 2008 resulted in 4000 mapped building posts at a total of 103 underwater sites (McKillop 2006, 2007a, 2007b, 2008, 2009; Sills 2007; Somers 2007). The buildings were part of a massive salt industry that supplied salt to nearby inland cities where this basic biological necessity was in short supply (McKillop 2002). Were the buildings elevated above the water on platforms as is common in some coastal areas? Alternatively, were the sites on land that was submerged by sea-level rise or subsidence, a common occurrence in low-lying coastal areas worldwide? If the sites were inundated, was submergence a rapid event from tectonic activity or was there a slow process of sea-level rise and subsidence over hundreds or thousands of years? Is there any evidence that the ancient coastal Maya impacted the physical landscape? In order to evaluate the ancient natural landscape of the Paynes Creek underwater sites, we report the recovery and analysis of marine sediment from below the seafloor associated with the Classic Maya wooden architecture near the K'ak' Naab' site, an underwater Maya site where an ancient canoe paddle was discovered (McKillop 2005a). Our findings provide new insights on the Late Classic landscape of the Paynes Creek salt works.

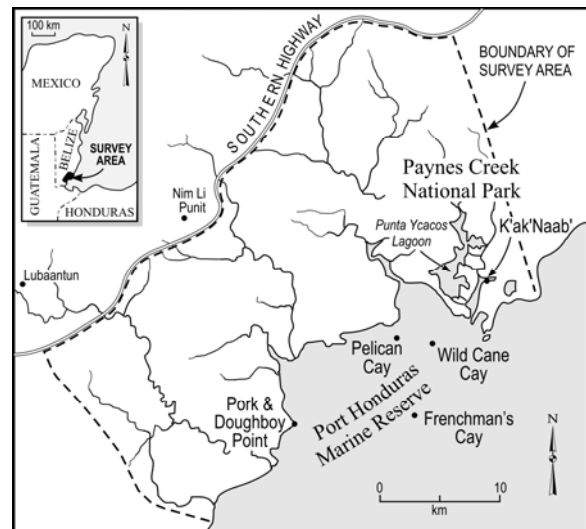


Figure 1. Map of the South Coastal Belize Research Area Showing Sites Mentioned in the Text. (Drawing by Mary Lee Eggart, Louisiana State University).

Previous Underwater Archaeology in the Maya Area

Underwater sites are common in the Maya area (Andrews and Coreletta 1996), although most underwater archaeology focuses on cenotes and shipwrecks (Leshikar-Denton and Luna Erreguerena 2008) instead of inundated land sites (McKillop 2002; Somers and McKillop 2005). Excavations commonly are abandoned when the water table is reached at coastal sites in Belize and the Yucatan of Mexico (McKillop 2002: 136-137). Research in the coastal region of southern Belize underscores the benefits of archaeological research at inundated sites.

Previous archaeological research in Port Honduras Marine Reserve (Figure 1) documented Classic Maya sites on the offshore cays and coastline partially or fully below sea level (McKillop 1995, 2002, 2005b; McKillop et al. 2004; McKillop and Winemiller 2004). At the trading port of Wild Cane Cay, the Classic period midden deposits are below the water table (McKillop 2002, 2005b). A significant part of the Classic period site is offshore and buried below the seafloor, as demonstrated by a program of offshore shovel tests (McKillop 2002: Figure 5.3). Excavations were carried out in 20 cm levels to a maximum depth of one meter below the seafloor. The excavations indicated the Classic Maya site of Wild Cane Cay was approximately 10 acres in size, which was reduced by sea-level rise and shoreline erosion to its modern size of 3 ½ acres (McKillop 2002: Figure 5.4). Radiocarbon dating indicates sea-level rise of at least one meter since the end of the Classic period in the region (McKillop 2002: Figure 5.9).

Settlement on Wild Cane Cay increased with the expansion of circum-Yucatan canoe trade after the Classic Maya collapse in the southern Maya lowlands (McKillop 1995, 1996, 2002, 2005b). Midden accumulation and construction of coral architecture kept pace with rising seas. Although the Early Postclassic midden deposits at Wild Cane Cay were submerged during the rainy season, most of the coral architecture remained above the water table. The clearing of mangroves on Wild Cane Cay associated with historic settlement beginning in the late nineteenth century further contributed to shoreline erosion. Following the abandonment of the historic settlement, mangroves took hold offshore and protected the shoreline from further erosion. In the absence of continued midden accumulation, sea-level rise will eventually submerge the remaining dry land of Wild Cane Cay, as a natural process of mangrove island formation (McKillop 2002: Figure 5.9).

In contrast to the scenario at Wild Cane Cay where anthropogenic factors of midden accumulation and coral architectural construction ameliorated the deleterious effects of rising seas on the island, the nearby community on Pelican Cay was abandoned at

the end of the Classic period (McKillop 2002: 156-159, Figure 5.6). With the lack of midden accumulation in the Postclassic, the sea reclaimed the island. Red mangroves (*Rhizophora mangle*) encroached on the site, accumulating mangrove peat among the roots. The Classic period site on Pelican Cay is buried below 40 cm of mangrove peat and covered by living mangroves. The entire island is slightly below sea level, with no surface evidence of an ancient Maya settlement, which was only discovered by shovel testing (McKillop 2002; Figure 5.5). The scenario at Pelican Cay underscores the likelihood that Classic Maya settlement lies buried below mangroves elsewhere on the low-lying mangrove coastline and offshore cays in Belize.

Underwater Sites in Paynes Creek National Park

Regional survey on the coast and cays of the Port Honduras Marine Reserve indicated that Late Classic Maya sites were up to 1.5 meters below modern sea-level, both on land and in offshore areas of sites, such as at Pork and Doughboy Point (McKillop 2002: 160, Figures 5.7, 5.9), Wild Cane Cay (McKillop 2002: 147-154), and Frenchman's Cay (McKillop 2002: 154-156; McKillop and Winemiller 2004). Sea-level rise also is documented from excavation of burials below the water table on land and offshore below the seafloor at the Classic Maya trading port of Moho Cay, located farther north along the coast in the mouth of the Belize River (McKillop 2004).

With this knowledge, survey was extended to shallow water where there was no land, on the assumption that we might find sites if sea level was lower in the Late Classic. Systematic boat survey traversing Punta Yacos Lagoon in Paynes Creek National Park led to the discovery of three underwater sites: Stingray Lagoon, David Westby, and Orlando's Jewfish sites, which were underwater with no dry land area (McKillop 1995, 2002: 29-50). Comprehensive underwater survey in 2004 led to the discovery of underwater sites with wooden posts protruding from the seafloor, as well as a canoe paddle at the K'ak' Naab' site (McKillop 2005a). Site maps revealed the



Figure 2. Briquetage on the Seafloor, Paynes Creek National Park. (Photo by Heather McKillop).

footprint of buildings defined by the pattern of vertical posts extruding from the seafloor. In some cases, the rectangular shapes of buildings of various sizes were clear (McKillop 2009). The seafloor at the underwater sites was littered with “briquetage”- broken pots from boiling brine in vessels over fires to make salt (McKillop 2002: 51-72, Figures 3.2-3.21; Figure 2).

Environmental History from Marine Sediment

The underwater setting of the Late Classic architecture and associated briquetage remains perplexing. The wooden building posts that protruded from the seafloor were preserved in a peat bog, but information was lacking on the formation of the peat bog in relation to the sites, the species composition of the peat and its depth, and the location of land at the time of occupation of the sites. A test probe carried out between sites 14 (K’ak’ Naab’) and 15 in 2004 revealed that peat extended from the seafloor to the 4.3 m maximum depth of the probe (McKillop 2005a). This depth of peat was not surprising since other researchers have found a Holocene record of as much as 9 m of peat on the limestone bedrock in the southern barrier reef lagoon (Macintyre et al. 1995; McKee and Faulkner 2000; Woodroffe 1995).

In order to begin answering questions about the sediment history in relation to the underwater sites, we excavated a column of sediment from beside, K’ak’ Naab,’ near the 2004 test probe (Figure 3). Named the K’ak’

Naab’ core, the sediment column was cut from the peat in 10 cm levels. The maximum depth was 1.5 m below the seafloor. The marine sediment was packed in cling wrap and Ziploc bags by 10 cm levels (with arrows indicating orientation) and exported to Louisiana State University for study. We report loss-on ignition, sediment analysis, radiocarbon dating, and study of artifact contexts. Other analyses, including analysis of the abundant pollen and wood, are in progress.

Loss-on Ignition of K’ak’ Naab’ Sediment

Loss-on ignition was conducted to determine the amount of organic matter in the K’ak’ Naab’ sediment. Loss-on ignition was run for every sample collected, for a total of 15 samples. Overall, the organic content of the sediment from the K’ak’ Naab’ column is high, with an average of 65% (Figure 4). The lowest level for organic material is level 1 (1-10 cm), which is 50% organic material. The organic content is high and consistent with other peat sediment deposits on the cays of Belize (McKee et al. 2007; McKee and Faulkner 2000).



Figure 3. View of Underwater K’ak’ Naab Site. (Photo by Heather McKillop).

Microscopic Identification of Sediment

Organic material was sorted from the sediment under magnification to identify the species composition of the peat. Objectives included determining whether the sediment consisted of mangrove peat accumulated in a marine setting under pressure of rising seas. Alternatively, was there evidence of terrigenous

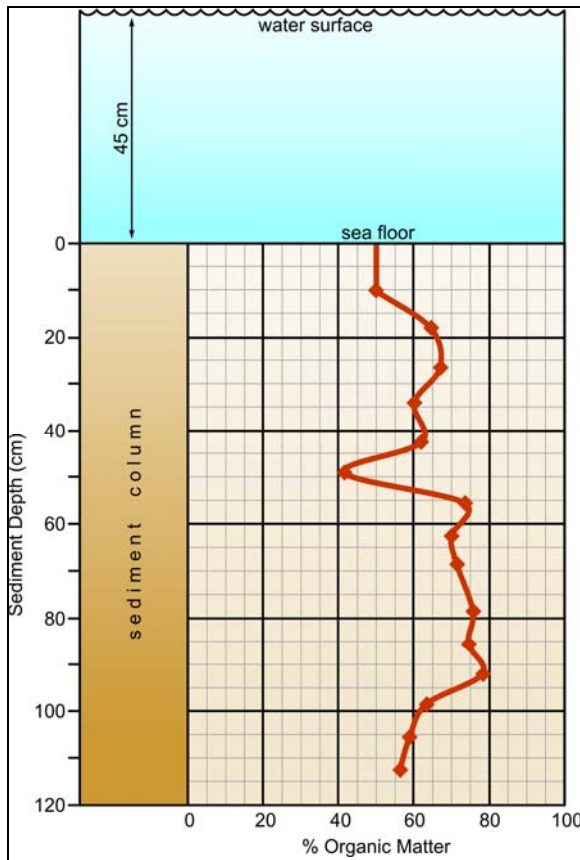


Figure 4. Profile Drawing of K'ak' Naab' Sediment Column Showing Percent Organic Matter of the Marine Sediment. (Drawing by Mary Lee Eggart).

soil indicating dry land in the area? One cubic cm of sediment was selected from levels 1, 2, 3, 4, 8, 11, and 12. The samples were rinsed through a 1 mm sieve and placed in a Petrie dish in water under a microscope. The sediment was examined and then sorted for coarse roots, small roots, leaves, and wood. Analysis of the morphology of the sediment examined under a microscope indicates that the peat is composed primarily of *R. mangle* roots. This finding indicates the landscape in the immediate area of the Paynes Creek salt works was a mangrove swamp dominated by *R. mangle* throughout the entire sequence represented in the sediment core. Furthermore, the environmental setting of the Paynes Creek underwater sites was subject to actual sea-level rise, as evidenced by the solid record of mangrove peat, which is deposited as *R. mangle* keeps pace with rising seas (McKee and Faulkner 2000; Woodroffe 1995).

Sea-Level Rise and Inundation of the Salt Works

The depths of radiocarbon-dated sediment layers below sea level were used to evaluate the timing and rate of sea-level rise. Radiocarbon samples were submitted to date the top and bottom of the sediment as well as several intermediate layers of the sediment. The samples consisted of small *R. mangle* roots sorted under a microscope. Modern studies of mangrove ecology demonstrate that small mangrove roots accumulate at the ground surface and have minimal vertical movement in mangrove peat, in contrast to the large mangrove roots that can permeate deeper into the sub-surface sediment (McKee and Faulkner 2000).

The Paynes Creek sediment core shows a radiocarbon dated 4000-year record of vegetation changes mirroring the rise and fall of the Paynes Creek salt works (Table 1). A sample from 75.2cm below water surface dates to 920 ± 40 BP (Cal AD 1020-1200). Three other samples consisted of small *R. mangle* roots sorted from 10 cm levels. The deepest level, 149.4-159.4cm below water, dates to $4140 \text{ BC} \pm 40$ BP. The uppermost sediment level, 45-55cm below water, dates to 850 ± 40 BP (Cal AD 1060-1080 or 1150-1270). This date overlaps with a date from 55-63 cm below water at 750 ± 40 BP. The depth of radiocarbon-dated deposits in the K'ak' Naab' sediment core measures a 4000-year record of actual sea-level rise (Table 1). Sea level was rising before the Early Classic Maya settlement, as indicated by the 26.6 cm of peat from the base of the core to the beginning of the Early Classic levels. The rate of sea-level rise must have slowed down, or even reversed, if dry land was available for construction of the Classic Maya buildings. The ground surface at the beginning of the Early Classic settlement was at least 132.7 cm below modern sea level, as indicated by the depth of radiocarbon-dated material below water surface (1580 ± 40 BP/ Cal AD 410-590; Table 1). If the structures were built on dry land and at least minimally above water, sea-level rise since the Early Classic period was likely greater¹ The end of Late Classic settlement is 75.2 cm below modern sea level. During the Classic period settlement, sea level raised a total of 57.7 cm. The continued deposition of mangrove peat after the

Radiocarbon age	Calibrated, 2 sigma C14 Date	Depth from seafloor	Depth from water surface
850 +/- 40 BP	Cal AD 1060-1080, Cal AD 1150-1270	0-10 cm	45-55cm
750 +/- 40 BP	Cal AD 1220-1300	10-18 cm	55-63cm
920 +/- 40 BP	Cal AD 1020-1200	30.2 cm	75.2cm
1580 +/- 40 BP	Cal AD 410-590	87.7 cm	132.7cm
4140 +/- 40 BP	Cal BC 2840-2820, Cal BC 2670-2470	104.4-114.4cm	149.4-159.4cm

Table 1. Depths and Dates for K'ak' Naab' Settlement Core.

Maya sites were abandoned marks an additional 30.2 cm increase in actual sea level.

Using mangrove peat to calculate the rate of sea-level rise (see Toscano and Macintyre 2003) reveals fluctuations in the rate over time and suggests that subsidence occurred. The rate of sea-level rise from 4140 BP to 1580 BP (2560 years) was 0.010 cm per annum, surprisingly low. The rate of actual sea-level rise during the 660 year Maya settlement was .087 cm per annum. The rate of sea-level rise in the 300 years of the Early Postclassic was .01 cm per annum, an increase in the rate compared to the Classic period. The 45 cm water depth to the top of the sea floor occurred some time after the Early Postclassic. Owing to the lack of peat deposits after the Early Postclassic, a working hypothesis is that rapid sea-level rise drowned mangroves in Late Postclassic and left the salt works underwater. Using the 45 cm water depth to the seafloor, the rate of sea-level rise from the end of the Early Postclassic to the present (A.D. 2000) is .06 cm per annum.

Archaeological Evidence of Ancient Landscape Changes

Archaeological evidence supports the interpretation that the Paynes Creek salt works were built on dry land that subsequently was inundated by sea-level rise. Piece plotting of 506 artifacts on the seafloor at the K'ak' Naab' site revealed that briquetage was widespread on the seafloor except inside the structures (McKillop 2007a). Evidently salt production was indoors and the work area was kept clean. The widespread presence of charcoal along with briquetage, including a large hearth at Stingray

Lagoon (McKillop 1995, 2002:38), underscores the in-situ location of the ancient salt production. The absence of wooden floors, which would have been preserved in the peat bog, adds further evidence that the salt works were not elevated over the water, but instead were constructed on dry land that subsequently became inundated. The placement of lines of palmetto palm posts at the periphery of many sites may have been carried out to keep out rising seas, in an effort to reclaim land - an effort that ultimately was unsuccessful.

Examination of the K'ak' Naab' paddle following conservation² revealed the paddle was in a context of alternating wet and dry conditions in antiquity. The paddle was recovered at the edge of the site in a matrix of peat, with a portion of the blade protruding from the peat into the silt formed a lens between 10 and 20 cm on the sea floor. Curvilinear incisions from worms eating the wood along the edge of the paddle blade indicate where the blade had protruded from the sea floor (Figure 5). Cracking on the shaft and blade of the paddle is visible macroscopically as short, vertical incisions (Figure 5). The cracking occurred in antiquity as a result of alternating wet and dry conditions. Made from Sapodilla wood, which sinks, the paddle may have sunk in intertidal water or on land at the edge of the site. Following abandonment of the K'ak' Naab' salt works, the paddle was in shallow water covered by *R. mangle*, which buried the paddle with mangrove peat. This interpretation is supported by the radiocarbon-dated peat deposits from the K'ak' Naab' sediment column that indicate actual sea-level rise in the Early Postclassic

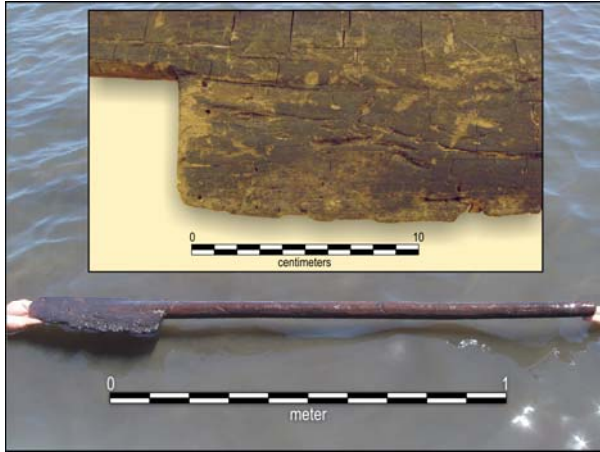


Figure 5. K'ak' Naab' Canoe Paddle, With Insert Showing Ancient Cracks. (Photos by Heather McKillop).

(Figure 4, Table 1). Rapid sea-level rise in the Late Postclassic drowned the *R. mangle* and flooded the site, an interpretation supported by the cessation of peat development in the K'ak' Naab' sediment column after the Early Postclassic (Figure 4, Table 1).

Discussion and Conclusions

Study of a sediment column from beside the K'ak' Naab' underwater Maya salt works in Paynes Creek National Park was carried out to evaluate if the salt works were elevated on platforms above the water or if sea-level had risen and submerged salt works that were on dry land. A column of sediment was cut from the sea floor in 10 cm levels to 150 cm and transported to Louisiana State University for study. Radiocarbon dates on the top and bottom layers indicated the sediment included a 4,000-year environmental record. Three additional radiocarbon samples provided dates on intermediary sediment layers. Loss-on ignition of samples from each level indicated high organic content of the sediment. Microscopic examination of the organic content under magnification revealed the organic content was roots and leaves of *R. mangle*, that forms under conditions of actual sea-level rise, when red mangroves keep pace with rising seas. There was no evidence of terrigenous soil, suggesting that the location of the sediment column - between K'ak' Naab' and site 15, was water.

The radiocarbon dated mangrove peat indicates K'ak' Naab' and other nearby salt

works were constructed on land, which was subsequently inundated by actual sea-level rise. The seafloor by the K'ak' Naab' sediment column was 45 cm below the water in 2007 when we recovered the sediment. The ground surface at the beginning of the Early Classic construction of the salt works was at least 132.7 cm below modern sea level. For the salt works to be on dry land, sea level must have been lower (to account for daily and monthly tidal variations of 50 cm and the fact that *R. mangle* grows on inundated land).

Archaeological evidence suggests that the nearby K'ak' Naab' site was land that became inundated after the salt work was abandoned. The widespread occurrence of submerged Classic period sites in nearby Port Honduras Marine Reserve support the view that the Paynes Creek salt works were on land as well. The Classic community on Pelican Cay was inundated and lies buried below *R. mangle* peat. The Classic community at Wild Cane Cay was inundated, but the Postclassic community fared better, with midden accumulation and construction of coral architecture keeping pace with sea-level rise, at least for the Postclassic.

If the Paynes Creek salt works had been elevated on platforms above the water, there would be wooden floors, which we did not find. Instead, we found wooden posts marking the outlines of buildings. The cracking on the K'ak' Naab' canoe paddle indicates it was in an alternating wet and dry environment in antiquity. The paddle was recovered at the edge of the K'ak' Naab' salt work sites. The paddle may have been in an intertidal zone, subject to alternating wet and dry conditions, where *R. mangle* subsequently took hold, building peat, and burying the paddle. The findings from the K'ak' Naab' sediment column analyses supports the interpretation that actual sea level rose about 60 cm during the Classic period (Figure 4, Table 1). After the abandonment of the salt works at the end of the Classic period, sea level rose an additional 75 cm. The deposition of 30 cm of mangrove peat demonstrates there was actual sea-level rise (as opposed to subsidence) during the Early Postclassic. Subsequent flooding of the salt works may have been rapid sea-level rise that drowned the *R. mangle* and/or subsidence.

Additional sediment columns or cores are needed both at sites and between them to clarify the location of land and water during the Classic period use of the Paynes Creek salt works.

¹ The area is subject to micro-tidal variation of about 50 cm, which also needs to be factored into estimates of sea-level rise.

²The paddle was conserved by C. Wayne Smith and Helen Devereux at the Conservation Lab, Dept of Anthropology, Texas A & M University, using the polymer process (Smith 2003).

References Cited

- Andrews, Andrews P. and Robert Corletta, R.
1995 "A Brief History of Underwater Archaeology in the Maya Area." *Ancient Mesoamerica* 6: 101-117.
- Leshikar-Denton, Margaret and Pilar Luna Erreguerena (eds)
2008 *Underwater and Maritime Archaeology in Latin America and the Caribbean*. Left Coast Press, Walnut Creek, CA.
- Macintyre, Ian G., M. M. Littler, and D. S. Littler
1995 *Holocene History of Tobacco Range, Belize, Central America*. Atoll Research Bulletin 430, Smithsonian Institution, Washington, D.C.
- McKee, K.L., D.R. Cahoon, and I.C. Feller
2007 Caribbean mangroves adjust to rising sea level through biotic controls on change in soil elevation. *Global Ecology and Biogeography* 16: 545-556.
- McKee, K.L. and P.L. Faulkner
2000 Mangrove peat analysis and reconstruction of vegetation history at the Pelican Cays, Belize. *Atoll Research Bulletin* 468: 46-58.
- Heather McKillop
1995 "Underwater Archaeology, Salt Production, and Coastal Maya Trade at Stingray Lagoon, Belize." *Latin American Antiquity* 6:214-228.
1996 "Ancient Maya Trading Ports and the Integration of Long-Distance and Regional Economies: Wild Cane Cay in South-Coastal Belize." *Ancient Mesoamerica* 7:49-62.
2002 *Salt, White Gold of the Ancient Maya*. University Press of Florida, Gainesville.
2004 "The Classic Maya Trading Port of Moho Cay." In *Archaeology of the Upper Belize Valley*, edited by James Garber, Pp. 257-272. University Press of Florida, Gainesville.
- 2005a "Finds in Belize Document Late Classic Maya Salt Making and Canoe Transport." *Proceedings of the National Academy of Sciences*. 102: 5630-5634.
2005b *In Search of Maya Sea Traders*. Texas A & M University Press, College Station.
2006 "Underwater Maya: New Finds from Paynes Creek National Park in 2004." *Research Reports in Belizean Archaeology* 3: 247-255.
2007a GIS of the Maya Canoe Paddle Site, K'ak' Naab.' FAMSI Research Reports <http://www.famsi.org/reports/05032/index.html>
2007b "Ancient Mariners on the Belize Coast: Salt, Stingrays, and Seafood." *Belizean Studies* 29(2): 15-28.
2008 "One Hundred Salt Works! The Infrastructure of the Ancient Maya Salt Industry." *Research Reports in Belizean Archaeology* 5: 251-260.
2009 *Underwater Maya: Ancient Maya Wooden Architecture and the Salt Industry*. Book manuscript under contract, University Press of Florida, Gainesville. McKillop, Heather, Aline Magnoni, Rachel Watson, Shannon Ascher, Bryan Tucker, and Terance Winemiller
2004 "The Coral Foundations of Coastal Maya Architecture." *Research Reports in Belizean Archaeology* 1: 347-358.
- McKillop, Heather and Terance Winemiller
2004 "Ancient Maya Environment, Settlement, and Diet: Quantitative and GIS Analyses of Mollusca from Frenchman's Cay." In *Maya Zooarchaeology*, edited by Kitty Emery, pp. 57-80, Cotsen Institute of Archaeology, University of California-Los Angeles.
- Sills, E. Cory
2007 The Architecture of Ancient Maya Saltmaking: Distribution and Analysis of Preserved Wooden Posts at the John Spang Site in Paynes Creek National Park, Belize. M.A. Thesis, Dept of Geography and Anthropology, LSU, Baton Rouge.
- Smith, C. Wayne
2003 *Archaeological Conservation Using Polymers: Practical Applications for Organic Artifact Stabilization*. Texas A & M University Press, College Station.

Somers, Bretton

- 2007 Spatial Analysis of the Preserved Wooden Architectural Remains of Eight Late Classic Maya Salt Works in Punta Ycacos Lagoon, Toledo District, Belize. PhD Dissertation, Dept. of Geography and Anthropology, LSU, Baton Rouge.

Somers, Bretton and Heather McKillop

- 2005 "Hidden Landscapes of the Ancient Maya on the South Coast of Belize." *Research Reports in Belizean Archaeology* 2: 91-300.

Toscano, Marguerite A. and Ian G. Macintyre

- 2003 "Corrected Western Atlantic Sea-Level curve for the Last 11,000 years based on Calibrated ¹⁴C Dates from *Acropora Palmata* framework and Intertidal Mangrove Peat." *Coral Reefs* 22:257-270.

Woodroffe, Colin D.

- 1995 Mangrove Vegetation of Tobacco Range and Nearby Mangrove Ranges, Central Belize Barrier Reef. Atoll Research Bulletin 427, Smithsonian Institution, Washington, D.C.

24 THE ARCHITECTURE OF SALT PRODUCTION AT THE JOHN SPANG SITE, PAYNES CREEK NATIONAL PARK, BELIZE

E. Cory Sills and Heather McKillop

*Archaeological investigations were undertaken at the John Spang site, a Late Classic Maya salt works in Punta Ycaos Lagoon, Paynes Creek National Park, and southern Belize. The field survey mapping yielded 149 wooden architectural posts preserved below the sea floor in mangrove peat. The wooden architecture is associated with the infrastructure of salt production and distribution. The wooden architecture, artifact boundaries, and site boundaries were mapped and combined in a GIS to evaluate the spatial patterns. The post patterns at the John Spang site resemble the data (rectangular structures) in Robert C. Wauchope's 1938 *Modern Maya Houses*. Variations exist between the past and present in regards to site layout and post dimensions.*

Introduction

Research at the John Spang Site, a Late Classic (A.D. 600-900) underwater Maya site in Paynes Creek National Park, Belize, includes study of the patterning and significance of wooden posts in terms of salt architecture and salt production (Figure 1). Although organic artifacts are rarely preserved in the tropical soils of the Maya area, remains of perishable wooden structures have been found at a number of sites, including Cerén (Sheets 2002), preserved by volcanic eruption. Postmolds are known from a variety of ancient Maya sites. However, the Paynes Creek sites have the actual posts and not their decayed remains, due to the preservation of ancient wood in a peat bog below the seafloor. The Paynes Creek sites have yielded the only ancient Maya wooden architecture discovered in the Maya area (McKillop 2005; Sills 2007; Somers 2007). In this paper, we report fieldwork at one of the Paynes Creek underwater sites, the John Spang site, and evaluate the patterning of wooden posts with reference to modern Maya wooden architecture, including structures associated with the salt industry in Mesoamerica.

Studies of modern Maya buildings can provide useful analogies for interpreting ancient Maya pole and thatch architecture. Wauchope's (1938) study of Maya house types provides models for evaluating the wooden architecture at the John Spang Site. Wauchope visited towns and villages in the Yucatan of Mexico, Guatemala, and Belize to study how the modern Maya at that time built their wooden houses, storerooms, and miscellaneous house plot



Figure 1. Map of Maya Area Showing the Location of the John Spang Site in Paynes Creek National Park, Belize (Map by Mary Lee Eggart, Louisiana State University)

buildings. His study was conducted to provide data to compare with archaeological data of house formations. Wauchope assumed the premise that continuity exists between modern Maya houses and the remnants of houses found at archaeological sites. Our study at the John

Spang site provides a test of Wauchope's assumption.

Wauchope's (1938: Figure 6) study includes four different house construction shapes, including rectangular, square houses, flattened end, and apsidal houses. Mainposts, or load bearing posts, for all four construction types range from 12 to 18 centimeters (cm) in diameter. Wall poles range from four to eight cm in diameter. Walls are sometimes absent for temporary shelters or storehouses. Walls either abut the ground surface or are imbedded into the ground. Wauchope (1938:30) notes, "regardless of the ultimate plan of the house (rectangular, square, apsidal), mainposts are set up in the ground in such a position that lines were drawn between adjacent posts, the space thus enclosed would be rectangular." Walls are either aligned with main posts are supported by pole plates that rest on the ends of the crossbeams. Walls that are aligned with the main posts usually contribute to the support of the roof. Compared to houses, there is more variability in size, shape, and construction of non-dwelling buildings such as kitchens, storehouses, and temporary shelters.

Wauchope (1938:117) observed that some items in the interior of the dwellings are embedded in the floor. The fireplace is situated on a platform whose legs are embedded in the floor of Maya kitchen structures in Guatemala. Metates can be placed either on the ground or placed on troughs with the legs of the trough embedded into the ground.

Moore and Gasco's (1990) findings from interviews suggest that different parts of pole and thatch structures deteriorate and are replaced at different times in modern villages in coastal Chiapas, Mexico. The palm thatching usually needs to be replaced every five to six years, whereas the rafters and crossbeams every six to 10 years. The main posts, usually made from more durable wood, determine the life of the building. Moore and Gasco (1990:207) note that "the type of wood used for upright posts is a major factor in the length of time a house is occupied." Some wood can last twenty years.

Investigations at the John Spang Site

Fieldwork was carried out at the John Spang salt work in 2006 as part of the "Mapping

Ancient Maya Architecture on the Sea Floor" project (Sills 2007). The John Spang Site is an underwater site in Punta Ycacos Lagoon, a large salt-water lagoon (Figure 2). Wooden architecture associated with the ancient Maya salt industry is preserved in mangrove peat below the sea floor (Figure 3). The wood is preserved because of the peat, an anaerobic sediment. The John Spang Site was discovered in March 2006 due to a low pressure system that decreased the sea-level during low tide and exposed portions of the site. The site is accessible only by boat and is located in the western arm of the Punta Ycacos Lagoon. The field equipment was then transported on a PRS (Portable Research Station) to the site. A datum was established in this area of the lagoon near a grove of red mangroves to map the site. The initial reconnaissance survey yielded the discovery of 23 wooden posts and artifacts associated with saltmaking.



Figure 2. Photo of the John Spang site. (Photo by H. McKillop).

Between March and April the team conducted a 100 percent systematic survey on RFD's (Research Flotation Devices). A flotation survey was preferred over a more traditional pedestrian survey because it minimized the disturbance to the site and allows for greater coverage while searching for wooden posts. During this portion of the investigations a site marker was placed in a centrally located area and marked with a ¼-inch PVC pipe. GPS coordinates for the site were taken from this marker.



Figure 3. Wooden Post Preserved Underwater at the John Spang site (Photo by H. McKillop).

A systematic flotation survey was conducted across the site (Figure 4). The field crew lined up parallel to each other, shoulder to shoulder, on our flotation devices and moved across the site. Our hands are placed flat on the surface of the peat feeling for wooden posts, artifacts, and other cultural material. Metal survey flags were used to mark posts, artifact boundaries, and diagnostic artifacts. All of the wooden posts flagged during the survey were labeled and measured.



Figure 4. Flotation Survey at the John Spang site (Photo by H. McKillop).

Mapping of the site was accomplished using a total station and a prism stadia rod. After mapping at the site was completed, the data were downloaded into the GIS program Intergraph GeoMedia® for observation and study of spatial patterns and distribution of the wooden posts.

Using this geospatial software allows the team to create spatial queries and spatial overlays to compare the distribution of posts, as well as, comparisons of post sizes. Viewing the artifact boundaries that were mapped allows assumptions to be made regarding initial site size and the spatial relationship among artifacts and the wooden architecture.

The systematic flotation survey revealed 149 wooden posts (Figure 5). The posts were recorded as hardwood or palmetto palm, pending species identifications. The hardwoods are hearty solid wood, whereas the pimenta posts are fragile. Often, the pimenta are hollow due to decay, which leaves only the shell of the bark to note its presence. The 149 mapped wooden posts included 100 vertical hardwoods, 40 vertical palmetto palm posts, six horizontal hardwood posts, and three horizontal palmetto palm posts. The length of the vertical wooden posts was unknown since no excavation of the posts was undertaken during this stage of the research. Excavation of the wooden posts would have hastened their deterioration because the peat acts as a preservative keeping the posts intact whereas excavation would have exposed the wood to the air and consequent decay.

Mapping of the posts and artifacts on the seafloor revealed the aerial extent of the site to be 80 meters (m) north to south and 50.6 m east to west. By viewing the spatial layout of the site, initial observations can be presented. Overall, the mapped wooden posts at the John Spang Site have a northwest to southeast alignment. Seven or more groupings of wooden posts can visually be observed at the site. These groupings are separated by spaces where no wooden posts were found. Even though no wooden posts were discovered in these areas artifacts are located in these spaces. The hardwood post diameters range from 3 to 18 cm with a mean of nine cm. The diameters recorded for palmetto palm posts range from five to eight cm.

The analysis of hardwood post diameters show the Paynes Creek Maya at the John Spang site had a “mental template” of post diameters for construction. Over half of the hardwood posts fall between eight and 14 cm in diameter. Only four hardwood posts were within 14 to 18 cm in diameter. There was a

preference for post diameters between the ranges of five to 14 cm in diameter at the John Spang Site. On the other hand, larger diameter posts were rare at the site.

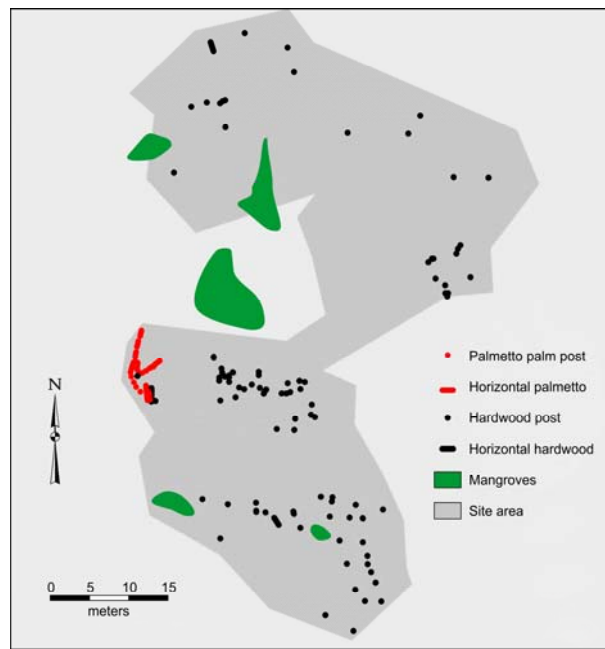


Figure 5. Map of the John Spang site (Map by E. Cory Sills enhanced by M.L. Eggart)

Discussion

What is the significance of the distribution of wooden posts at the John Spang Site in terms of ancient Maya wooden architecture? Are these houses as described by Wauchope (1938) or are some of them outbuildings? Are they specialized structures to support salt production? If they are buildings, were structures arranged over the landscape to form plazuela groups?

The size of buildings varies within the Maya area. Wauchope (1938) describes various house shapes, sizes, and materials used in the construction of houses and miscellaneous houseplot buildings. Outbuildings are smaller than houses in domestic dwellings. According to Wauchope (1938), post diameters for mainposts should fall within a range of 12 to 18 cm in diameters. The hardwood posts at the John Spang Site do not conform to Wauchope's observations. Instead, there is a greater range of what was preferred for mainposts at the John Spang site. Perhaps the smaller posts were utilized because the structures were not built to

last as long as household dwellings. Larger species of hardwoods may not have been as abundant in the past as smaller trees or, perhaps the ancient Maya preferred smaller sizes of posts depending on the availability of hardwoods. There is a clear separation spatially between the hardwood and palmetto palm posts. The palmetto palm posts are only found in the central western portion of the site. The spatial distribution between these two preliminary classifications of posts can be interpreted as serving two different functions. Based on the results at the John Spang Site, there may be a variety of sizes and shapes of structures. However, the systematic flotation survey revealed an abundance of briquetage, indicating the structures were all used in salt production. Modern studies of saltmaking suggest that the wooden structures at the site could have been used in the salt production process and not specifically as buildings (Andrews 1983; Good 1995; McKillop 2002, 2005; Parsons 2001; Reina and Monaghan 1981; Williams 1999).

Based on the ethnographic and archaeological literature, there is a diversity of structures and spatial layouts at salt making sites. However, the same concepts of harvesting the soil and brine, leaching the soil, boiling the water, and preparing the salt are found at the majority of saltmaking sites using the sal cocida or briquetage method. Although the same methods were employed, variability exists in the structures used to carry out the process related to saltmaking. Even at individual saltmaking sites and amongst those in close proximity variation occur in the placement and spatial distribution of buildings and saltmaking apparatuses. Reina and Monaghan (1981) describe platforms housed inside buildings at Sacapulas, in Guatemala. Outside of the buildings are large vessels for holding and leaching salt laden soil. McKillop (2005) mentions exterior walls of a rectangular wooden building at the saltmaking site of Chak Sak Ha Nal in Paynes Creek National Park, in Belize. Williams (1999) describes structures used in the salt production process for leaching and canoes used to dry out the brine to obtain salt. Good (1995) mentions platforms for leaching. Various other modifications to the environment can be found at saltmaking sites, such as, drying pans made from soil or posts,

and retaining walls (Andrews 1983). Other landform modifications include, dams or impoundments that have been recorded in the archaeological record at salmaking sites at Salinas de los Nueve Cerros in southern Guatemala and at El Salado, in Veracruz, Mexico (Dillon et al. 1998; Santley 2004). The results of the systematic flotation survey and mapping conducted at the John Spang site reveal wooden architecture associated with the ancient Maya salmaking industry in the Late Classic period.

Lines of palmetto palm posts are somewhat of an enigma. Forming a backward y shape located in the western portion of the John Spang site they are divided from the central portion of the site by an absence of artifacts (Figure 6). Although the palmetto palm lines do not form enclosed areas, they could have formed a holding area for brackish salt water from which the water is then collected to be placed within an apparatus on which to leach the soil, or a land retaining wall. Based on ethnographic correlates these palmetto palm post lines could have formed salt pans or retaining walls to hold saline enriched water for processing.

The evidence at the site suggests that salt was made using the briquetage technique. However, the sal solar method could also have been taking place. The palmetto post lines do not conform to Andrews (1983) descriptions of salt pans in the Yucatan as being “shallow rectangular pans located on the shores of the lagoons”. Majority of archaeological and ethnographic salt making accounts indicate that the briquetage technique and the sal solar method do not occur at the same time. This is not true in all cases in antiquity. Dillon et al. (1998) hypothesized the possibility of a combination of both techniques occurring in southern Guatemala. Here, salt was primarily made using the briquetage technique but due to the presence of a salt flat the salt could have also been harvested during the dry season.

Plazuela groups, the basic unit of Maya architecture, are not visible at the John Spang Site. This suggests that the site’s alignment was not similarly designed as historic and modern domestic house sites. The absence of a plazuela group indicates that not all structures built by the ancient Maya are designed with the same basic

principle of a central courtyard. Other possibilities regarding the alignment of the wooden architecture at Site 72 suggest the structures were erected during one occupation or the structures were aligned to follow a remnant shoreline to the west in the lagoon.

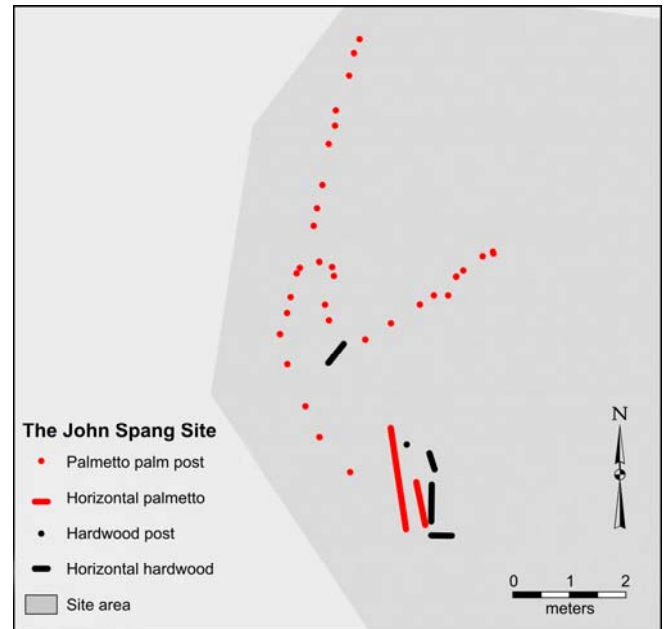


Figure 6. Map of Lines of Palmetto Palm Posts at the John Spang site (Map by E. Cory Sills enhanced by M. L. Eggart).

Conclusions

The discovery of salt production sites, as well as, infrastructure associated with salt production in Paynes Creek National Park, southern Belize, indicates that salt was a substantial trade commodity (McKillop 1995, 2002, 2005). Trade routes have been documented for salt production from ethnohistoric and archaeological evidence (Andrews 1983). Salt would have been needed to supplement the diet of the ancient Maya. Also, salt could be used for tanning hides, as a preservative for meat and seafood, and for ritual and medicinal uses (Andrews 1983).

The various shapes and techniques, described by Wauchope (1938), are useful in determining the shape of the possible buildings. There are rectangular shaped buildings as described by Wauchope. However, the size of the buildings and structures at the John Spang Site show variability. Analysis at this site

also shows that although there is continuity from the past to the present in regards to shapes, hardwood post sizes and the sizes of structures were variable in the past as they are in the present.

Acknowledgements Archaeological research in 2006 was made possible by a permit from the Belize government Institute of Archaeology to H. McKillop, who gratefully acknowledges Dr. Jaime Awe, Dr. John Morris, and the staff at the Institute of Archaeology. The research is based upon work supported by the National Science Foundation under Grant 0513398 to H. McKillop. We appreciate the help and support of project team members who participated in the fieldwork at the John Spang Site, including Amanda Evans, Mark Robinson, Bretton Somers, and John Young. Many Belizeans, particularly in Punta Gorda, made this project possible. We are most grateful to Tanya Russ and John Spang, our hosts for the project and who provided many insights and much encouragement. We are grateful to the Toledo Institute for Development and the Environment, including its Director, Celia Mahung.

References Cited

- Andrews, Anthony P.
1983 *Maya Salt Production and Trade*. Tucson, University of Arizona Press.
- Good, Catharine
1995 Salt Production and Commerce in Guerrero, Mexico: An Ethnographic Contribution to Historical Reconstruction. *Ancient Mesoamerica* 6:1-14.
- Love, Michael Dillon, Brian & Kevin Pope
1998 An Ancient Extractive Industry: Maya Saltmaking at Salinas de Las Nueve Cerros, Guatemala. *Journal of New World Archaeology* 7(2-3): 37-107.
- McKillop, Heather I.
1995 Underwater Archaeology, Salt Production, and Coastal Maya Trade at Stingray Lagoon, Belize. *Latin American Antiquity* 6:214-228.
- 2002 *Salt: White Gold of the Maya*. University Press of Florida, Gainesville.
- 2005 Finds in Belize Document Late Classic Maya Salt Making and Canoe Transport.

Proceedings of the National Academy of Sciences 12:5630-5634.

- 2007 2007a GIS of the Maya Canoe Paddle Site, K'ak' Naab.' FAMSI Research Reports <http://www.famsi.org/reports/05032/index.html>
- Moore, Jerry D., and Janine L. Gasco
1990 Perishable Structures and Serial Dwellings from Coastal Chiapas: Implications for the Archaeology of Households. *Ancient Mesoamerica* 1:205-212.
- Parsons, Jeffrey R.
2001 *The Last Saltmakers of Nexquipayac, Mexico: An Archaeological Ethnography*. Ann Arbor, University of Michigan.
- Reina, Ruben E., and John Monaghan
1981 The Ways of the Maya: Salt Production in Sacapulas, Guatemala. *Expedition* 23:13-33.
- Santley, Robert S.
2004 Prehistoric Salt Production at El Salado Veracruz, Mexico. *Latin American Antiquity* 15:199-221.
- Sheets, Payson, editor
2002 *Before the Volcano Erupted: The Ancient Cerén Village in Central America*. University of Texas Press, Austin.
- Sills, E. Cory
2007 The Architecture of Ancient Maya Saltmaking; Distribution and Analysis of Preserved Wooden Posts at the John Spang Site in Paynes Creek National Park, Belize. Master's thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge, Louisiana.
- Somers, Bretton M.
2007 Spatial Analysis of the Preserved Wooden Architectural Remains of Eight Late Classic Maya Salt Works in Punta Ycacos Lagoon, Toledo District, Belize. Ph.D dissertation, Department of Geography and Anthropology, Louisiana State University, Baton Rouge, Louisiana.
- Wauchope, Robert
1938 *Modern Maya Houses, A Study of Their Archaeological Significance*. Washington, D.C., Carnegie Institution of Washington.
- Williams, Eduardo
1999 The Ethnoarchaeology of Salt Production at Lake Cuitzeo, Michoacan, Mexico. *Latin American Antiquity* 10:400-414.

25 **BIRTHPLACE OF A NATION: THE ARCHAEOLOGY OF ST. GEORGE'S CAYE, BELIZE**

James F. Garber, Jaime J. Awe, and Lauren A. Sullivan

St. George's Caye played a vital role in the history and development of Belize as an independent nation. Until the 1800's, the island served as the first capital of Belize and today it continues to be featured on the Belize five-dollar bill. The Battle of St. George's Caye on September 10, 1798 also represents the end of Spain's attempts to conquer the territory that is now known as Belize. Although this battle happened over 200 years ago it still plays an important role in Belizean culture, as exemplified during the annual September Celebrations when people all over the country honor the Battle St. George's Caye. While much has been written about the history of St. George's Caye, little archaeological research has actually been conducted on the island. It is for all these reasons that the authors began to conduct archival research and interviewing landowners as part of an archaeological project that focuses on the historic significance of St. Georges Caye.

Introduction

St. George's Caye is one of hundreds of islands off the coast of Belize that are part of a large reef system, the second largest in the world. Although St. George's Caye is small, its position and shape caused it to play a predominant role in the early history of the English settlement that was to become known as Belize. The reef system forms an offshore barrier that protects the coast. Because of the difficulties of navigation, these waters provided safe haven for merchants, buccaneers, and pirates that sailed the Caribbean. To access the mainland and harbors at the mouths of the rivers, one must navigate narrow passages through the reef and then follow a complex system of channels. To reach the Belize River, the country's main river system, one must pass by St. George's Caye, thus it is a strategic location guarding the port (Figure 1). Additionally, the Caye is crescent shaped making it ideal for careening ships on its leeward side (Figure 2).

The 1600's – Early History and Initial English Settlement

By the mid 1600s English pirates, buccaneers, and merchants were sailing the waters off the coast of Belize. Although the Spanish had settled areas to the north, west, and south, they did not attempt to establish a settlement in Belize. In 1677 Spanish Fray Jose Delgado and a small party were passing through Belize on their way to Bacalar and were captured by English pirates along the coast a few miles south of Belize City. They were taken to the English leader, the infamous pirate,

Bartholomew Sharpe who was temporarily headquartered on St. George's Caye (Delgado 1677; Thompson 1988:41). The priest and his party stayed on the Caye for a while, were treated well, and then taken to the north and released unharmed.

During the late 1600's English woodcutters, or Baymen as they are known, settled on St. George's Caye and at the mouth of the Belize River. The settlement that eventually becomes known as Belize has no official name at this time but appears in the various records as: English Settlement on the Bay of Honduras; English Settlement at the mouth of the River Walix; Settlement of English Woodcutters in the Bay of Honduras; English Settlement of Honduras; and The Bay Settlement.

Origin of the Name Belize

The beginnings of the Settlement on the Bay and the origin of the name "Belize" have been the subject of discussion and debate since the first written history of the Settlement (1826 Honduras Almanak). At times these debates have "stuck to the facts" and at others have strayed into the realm of legend. Listed here are the various spellings and dates for the variations of the name Belize (Figure 3): Balis (1677) in Fray Jose Delgados's journey to Bacalar; Bullys (1705) in a letter from John Fingas to the Council of Trade; Bellese (1720) in a report of Captain Nathan Uring's voyage to Belize; Valis (1724) Report in Madrid of the number of English settlers; Valiz (1783) in Spanish map

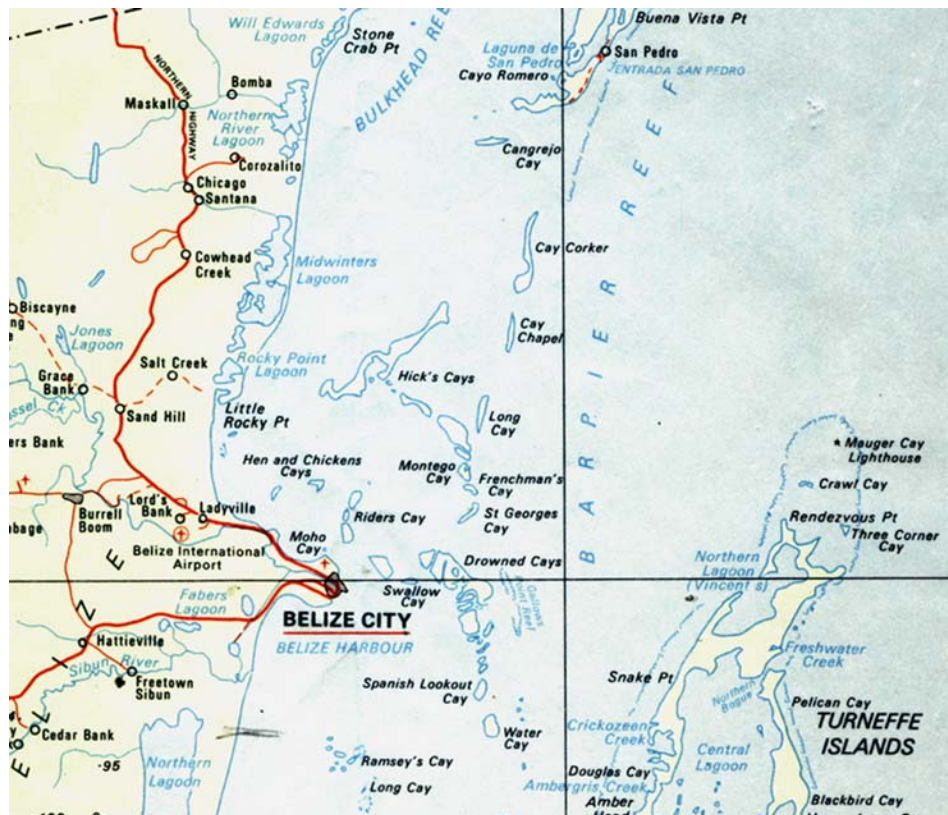


Figure 1. Area map – Belize City and Cayes



Figure 2. Satellite photo of St. George's Caye

showing “Rio de Valiz /Yngles River Bellese”; Balleze and Bellese (1786) on map made by “a Bay Man” showing area allotted to Great Britain for the cutting of Logwood (Figure 4); Walix (1786) on Spanish map showing logwood area occupied by the English settlers; Wallix (1790) from a map by Rafael Llobet (map is labeled in Spanish); Belize (1790) in letter from Peter Hunter (Superintendent of the Bay Settlement) to Baltasar Rodruguis.

The “Wallace” Hypothesis

The notion that the name Belize came from someone named Wallace, Wallace, or Willis is first reported in the 1827 Honduras Almanak. Below is a passage from Sir John Burdon’s *Archives of British Honduras* published in 1931 that summarizes these claims.

“In the 1827 Almanak the credit for discovering the mouth of the River Belize and making it his place of retreat is given to Wallace, a Lieutenant amongst the Buccaneers, from whose name ‘Belize’ is said to be derived. The 1839 Almanak gives the founder as the Scotch Corsair chief Wallace, native of Falkland in Kinross-shire, who, after being driven from Tortuga, erected huts and a fortalice at the spot called after him by the Spaniards ‘Wallis’ or ‘Balis’.

Bridges (1828) states that Willis, the notorious Buccaneer and ex-Governor of Tortuga, was the first Englishman to settle on the river, to which he gave his name. He dates this 1638, the year in which the Spaniards drove the Buccaneers out of Tortuga. Bancroft, ‘History of Central America,’ gives Peter Wallace, with 80 men, as the first settlers at Belize River. And finally, Francisco Asturias (1925) a Guatemalan historian, states that the Settlement was founded by Wallace, formerly Raleigh’s First Lieutenant and right hand man, who, he says, is supposed to have first reached Belize in 1617.” (Burdon 1931:2-3).

It is important to point out that a number of modern professional historians have noted that no documents dating to the 1600s have been referenced or produced to substantiate the claim that someone named Wallace, Wallace, or Willis was in Belize at this time.

The “Maya” Hypothesis

Starting in the 1950s several researchers have suggested that the name Belize has its origins in the Mayan language. A. H. Anderson, the first archaeological Commissioner of British Honduras suggests that the word Belize is a derived from the forgotten Maya name for the river (Anderson 1958:35). Sir J. Eric Thompson, noted Mayanist, states that Beliz in Yucatec Maya signifies muddy or muddy water (Thompson 1988:43 original manuscript presented to Belize 1970). Assad Shoman (1994) suggests the words Belakin (land towards the sea), Baltiz (land of the Itza) or Beliz (muddy waters). And finally, Emory King (1999) reports Belikin meaning land of muddy water.

It is important to note that the *Diccionario Maya Cordemex*, by far the most thorough dictionary of Yucatec Maya, does not list Beliz, Belakin, Baltiz, or Belikin. Maya words are composed of phonemes (vowel consonant combinations) and each can carry several meanings. Within the *Cordemex* dictionary one of the many meanings for “be” is muddy water and “bel ha” means canal or aqueduct. There is, however, no historical record of the Maya referring to the Belize area by any of these names.

The “African” Hypothesis

David Hernandez (1990) suggests that the name Belize is an example of linguistic convergence in that slaves who came from the Cabinda Province of Angola were already familiar with the name as there is a river and village named Belize in that locale. The main problem with this hypothesis is that most enslaved Angolans were taken to Brazil by the Portuguese and hard evidence for their presence in Belize is lacking.

The “Bullys River - Rogues Point” Hypothesis

In a 1705 report to the Council of Trade in London, John Fingas notes the “River of Bullys” where the English load their logwood. A 1786 map of the Bay Settlement shows the present day location of Government House as “Rogues Point”. Emory King (1999:9-10)

implies that Rogue and Bully are approximate synonyms. Here again, however, King's hypothesis based purely on conjecture.

<i>Balis</i>	1677	<i>Valer</i>	1783
<i>Bullys</i>	1705	<i>Walio</i>	1785
<i>Bellee</i>	1720	<i>Wallio</i>	1790
<i>Ualis</i>	1724	<i>Belize</i>	1790

Figure 3. Variations of "Belize"

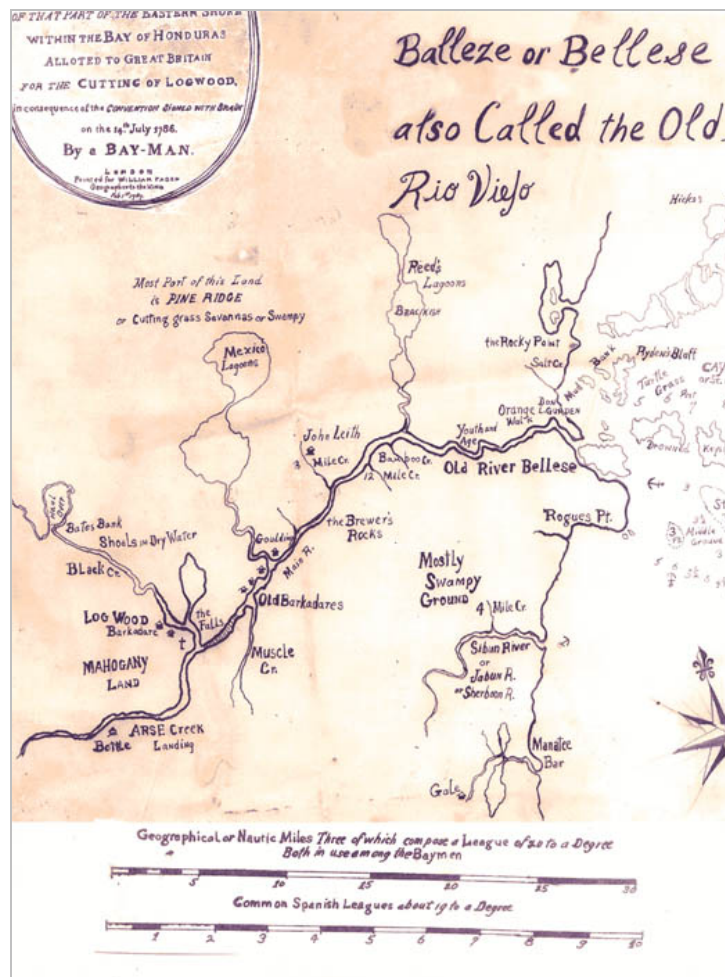


Figure 4. 1786 Logwood cutting treaty map made by a "Bay Man"

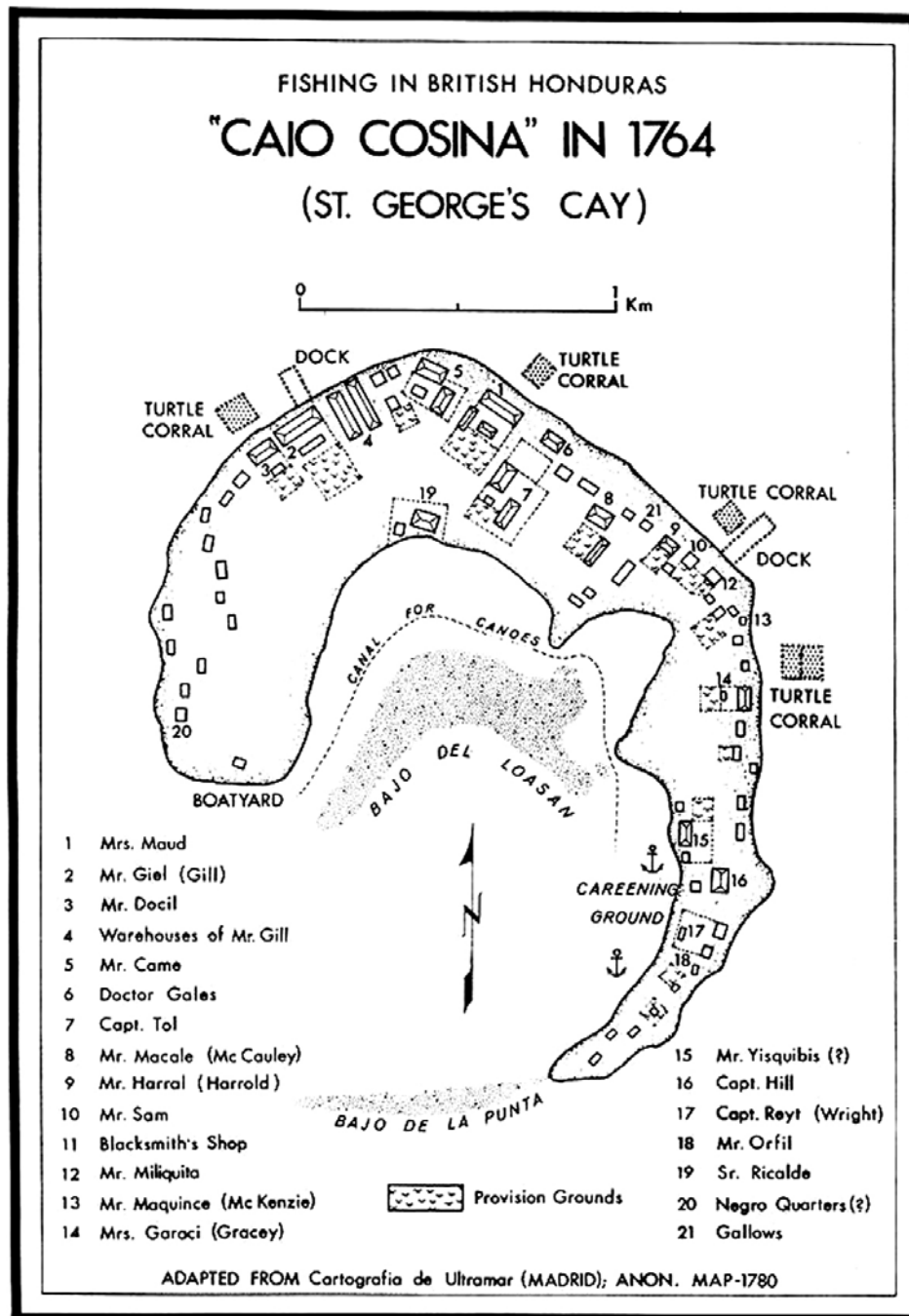


Figure 5. 1764 Spanish map of St. George's Caye (Cayo Cosina)

The "Spanish" Hypothesis

It is interesting to note that scholars have sought the origins for the word Belize in English, Mayan, and African languages. No published sources that we are aware of have suggested the origin to lie in the Spanish language. This is ironic for several early Spanish maps show Spanish names for

numerous locations within Belize. A search of an 18th century dictionary revealed an interesting possibility (Nuevo Tesoro Lexiconografico de la Lengua Espanola -1739). The word "valiza" (pronounced "baliza" and spelled "baliza" in later dictionaries) is a nautical term that refers to a marker placed by a canoe, or launch at the entrance of ports so that ships can enter by not

touching shoals or shallows. In more recent dictionaries, the word “valais” refers to lumber.

1764 Map Names	Burnaby's Code Signers
Mr. Giel	Nehemiah Gale
Capt. Reyt	William Wyatt
Mr. Orfil	John Oliver
Mr. Harrol	James Ferrall
Mr. Yisquibis	D. Fitzgibbons
Mr. Come	Benjamin Bascome
Mr. Sam	Andrew Slumen
Mr. Ricalde	Thomas Roblie
Mr. Tol	William Dal
Mrs. Maud	John Maud
Capt. Hill	Mary Wil

Table 1. Possible matches between 1764 map and 1765 signers of Burnaby's Code

Either of these meanings would be appropriate. The first would be a logical nautical notation and the second would be a reasonable reference to the river mouth as it is clear from several sources that forest products were loaded at this location.

Throughout the 1600s English mariners (pirates, buccaneers, merchants) were sailing the waters off Belize and would have made landings on the cayes or mainland. However, we should note that most modern historians have rejected claims of English settlement in Belize prior to 1670 due to lack of evidence. We find it interesting that two of the earliest references to the River, “Balis” (Spanish reference in 1677) and “Bullys” (English reference in 1705) are the closest in spelling and pronunciation to “Belize” than many of the variations that follow in subsequent decades. No doubt the debate will continue as to the origin of the name Belize but we hope that the information listed above will be help to promote more objective discussion.

Burnaby's Code – Belize's First Constitution

The 1700s witnessed continuous struggles between Britain and Spain. Spain claimed sovereignty over Belize but at times granted logging rights to English cutters. The English settlers were not permitted to have plantations or establish a government. In 1765

Admiral Burnaby was sent from Jamaica (by orders from London) to the settlement to look into disputes between the English woodcutters and the Spanish to the north in what is today Mexico. While at St. George's Caye, the Baymen had Admiral Burnaby put into the King's English the code of law they had been operating under. This code was in part based on the democratic principles of pirate law of the sea. It became known as “Burnaby's Code” and was signed on April 9, 1765 on St. George's Caye by 85 Baymen including two women. Burnaby's Code served as the Belize's constitution from 1765 until 1862 when it became a British Colony (British Honduras).

A Spanish map of St. George's Caye from 1764 shows the location of properties, houses, gallows, etc (Figure 5). The English names of property owners are shown, but it is written by someone who only spoke Spanish, thus the names are awkward and misspelled. Interestingly, this map was made one year before the signing of Burnaby's Code and thus several of the signers should be shown on the map. As far as we know, no historians have ever made this connection. By comparing the awkward / misspelled names on the map with the list of those who signed Burnaby's Code, we have been able to make several matches and are now able to locate the houses and properties of

several of Belize's founding fathers and mothers (Table 1).

The Battle of St. George's Caye – The Fight for Independence

Although Burnaby's Code provided the basis for law and order in the settlement, it did not resolve the disputes with Spain. In 1779 the Spanish captured St. George's Caye and took approximately 350 of its inhabitant's prisoner. Most, or possibly all, of those that were not taken prisoner fled the settlement. The prisoners were taken to Fort Bacalar (near Chetumal Mexico) and then marched to Merida, Yucatan. From there they were taken to Havana and imprisoned until their release in 1783. The settlement and the Cayes were eventually reoccupied by the Baymen. Tensions between Spain and Britain continued and it became clear that Spain intended to invade and retake the Bay Settlement. Remembering the horrors of imprisonment from the previous invasion, the Baymen assembled to make a decision as to whether they should evacuate or fight. In the largest public meeting held in the settlement up to that point the vote was taken. Fifty-one voted to evacuate and sixty-five voted to stay and fight. The deciding votes to stay and fight were cast by fourteen freed slaves (Burdon 1931:25), most from the Belize River village of Flowers Bank.

In late August 1798, the Spanish assembled a sizeable flotilla to re-take Belize. It consisted of 31 warships, 2000 troops, and 500 sailors. The Baymen defenses, meager by comparison, consisted of one British warship, the HMS Merlin; two private sloops, the Towser and the Tickler; two private schooners, the Swinger and the Teaser; and seven small gunflats. By all accounts, the Baymen were outgunned and out-manned. Between September 3-10, 1798 the Spanish made several advances on St. George's Caye. Their final advance was made on September 10. The battle lasted approximately 2 ½ hours after which the Spanish fleet sailed off in defeat (Burdon 1931:27-28). It was Spain's last attempt to take Belize by force. Although outgunned and outmanned the Bayman defenses won out due to superior leadership, strategy, and knowledge of the shallow water and channels. The Spanish suffered from poor leadership, inadequate

knowledge of the channels and shoals, poor strategy, and illness (yellow fever and the flux had swept through the Spanish force).

Conclusion

The Battle of St. George's Caye forever changed the path of Belizean history. The self-governing settlement attracted groups of various ethnicities that, even today, give Belize a multicultural feel which distinguishes it from surrounding countries. It is our hope to recover and document the archaeological remains associated with events before and after the historic battle. The project will include continued archival research, documenting artifacts collected by landowners, excavations, as well as underwater archaeology.

Acknowledgments We are grateful to Ms. Diane Haylock, President of NICH, and the Institute of Archaeology for their support and encouragement to initiate this project. We also thank Captain Nicolas Sanchez of Belize City who provided us historical data and insights on the early history of Belize. Last but not least we wish to thank John and Linda Searle for their hospitality and immeasurable logistical support of this endeavor.

References Cited

- Anderson, A. H.
1958 *A Brief Sketch of British Honduras*.
Printing Department, British Honduras.
- Asturias, Francisco
1925 *Belice*. Discurso del Dr. Francisco Asturias, Sociedad d Geographia y Historia de Guatemala.
- Bridges, Rev. George W.
1828 *The Annals of Jamaica*, vols. I and II.
John Murry, London.
- Burdon, John A.
1931 *Archives of British Honduras*, Volume 1. Sifton Praed and Co. Ltd, London.
- Delgado, J.
1677 *Memoria de los parajes y rios que ay desde el pueblo de San Miguel Manche hasta los indios Ahizaes, el camino y indios*. Ms. in the Bibliotheque Nationale de Paris.

Diccionario Maya Cordemex 1980

Hernandez, David

- 1990 The Name Belize: An Example of Afro-Caribbean Convergence. In *SPEARreports* 6. Third annual studies on Belize conference. Cubola Publications, Belize.

Honduras Almanak

1826, 1827, 1829, 1839

King, Emory

- 1999 *The Great Story of Belize*, vol. 1. Tropical Books, Belize.

Nuevo Tesoro Lexiconografico de la Lengua Espanola

1739

Shoman, Assad

- 1994 *Thirteen Chapters of a History of Belize*. Angelus Press, Belize.

Thompson, Sir J. Eric

- 1988 *The Maya of Belize: Historical Chapters Since Columbus*. Benque Viejo del Carmen, Belize. Cubola Productions.

25 **BIRTHPLACE OF A NATION: THE ARCHAEOLOGY OF ST. GEORGE'S CAYE, BELIZE**

James F. Garber, Jaime J. Awe, and Lauren A. Sullivan

St. George's Caye played a vital role in the history and development of Belize as an independent nation. Until the 1800's, the island served as the first capital of Belize and today it continues to be featured on the Belize five-dollar bill. The Battle of St. George's Caye on September 10, 1798 also represents the end of Spain's attempts to conquer the territory that is now known as Belize. Although this battle happened over 200 years ago it still plays an important role in Belizean culture, as exemplified during the annual September Celebrations when people all over the country honor the Battle St. George's Caye. While much has been written about the history of St. George's Caye, little archaeological research has actually been conducted on the island. It is for all these reasons that the authors began to conduct archival research and interviewing landowners as part of an archaeological project that focuses on the historic significance of St. Georges Caye.

Introduction

St. George's Caye is one of hundreds of islands off the coast of Belize that are part of a large reef system, the second largest in the world. Although St. George's Caye is small, its position and shape caused it to play a predominant role in the early history of the English settlement that was to become known as Belize. The reef system forms an offshore barrier that protects the coast. Because of the difficulties of navigation, these waters provided safe haven for merchants, buccaneers, and pirates that sailed the Caribbean. To access the mainland and harbors at the mouths of the rivers, one must navigate narrow passages through the reef and then follow a complex system of channels. To reach the Belize River, the country's main river system, one must pass by St. George's Caye, thus it is a strategic location guarding the port (Figure 1). Additionally, the Caye is crescent shaped making it ideal for careening ships on its leeward side (Figure 2).

The 1600's – Early History and Initial English Settlement

By the mid 1600s English pirates, buccaneers, and merchants were sailing the waters off the coast of Belize. Although the Spanish had settled areas to the north, west, and south, they did not attempt to establish a settlement in Belize. In 1677 Spanish Fray Jose Delgado and a small party were passing through Belize on their way to Bacalar and were captured by English pirates along the coast a few miles south of Belize City. They were taken to the English leader, the infamous pirate,

Bartholomew Sharpe who was temporarily headquartered on St. George's Caye (Delgado 1677; Thompson 1988:41). The priest and his party stayed on the Caye for a while, were treated well, and then taken to the north and released unharmed.

During the late 1600's English woodcutters, or Baymen as they are known, settled on St. George's Caye and at the mouth of the Belize River. The settlement that eventually becomes known as Belize has no official name at this time but appears in the various records as: English Settlement on the Bay of Honduras; English Settlement at the mouth of the River Walix; Settlement of English Woodcutters in the Bay of Honduras; English Settlement of Honduras; and The Bay Settlement.

Origin of the Name Belize

The beginnings of the Settlement on the Bay and the origin of the name "Belize" have been the subject of discussion and debate since the first written history of the Settlement (1826 Honduras Almanak). At times these debates have "stuck to the facts" and at others have strayed into the realm of legend. Listed here are the various spellings and dates for the variations of the name Belize (Figure 3): Balis (1677) in Fray Jose Delgados's journey to Bacalar; Bullys (1705) in a letter from John Fingas to the Council of Trade; Bellese (1720) in a report of Captain Nathan Uring's voyage to Belize; Valis (1724) Report in Madrid of the number of English settlers; Valiz (1783) in Spanish map

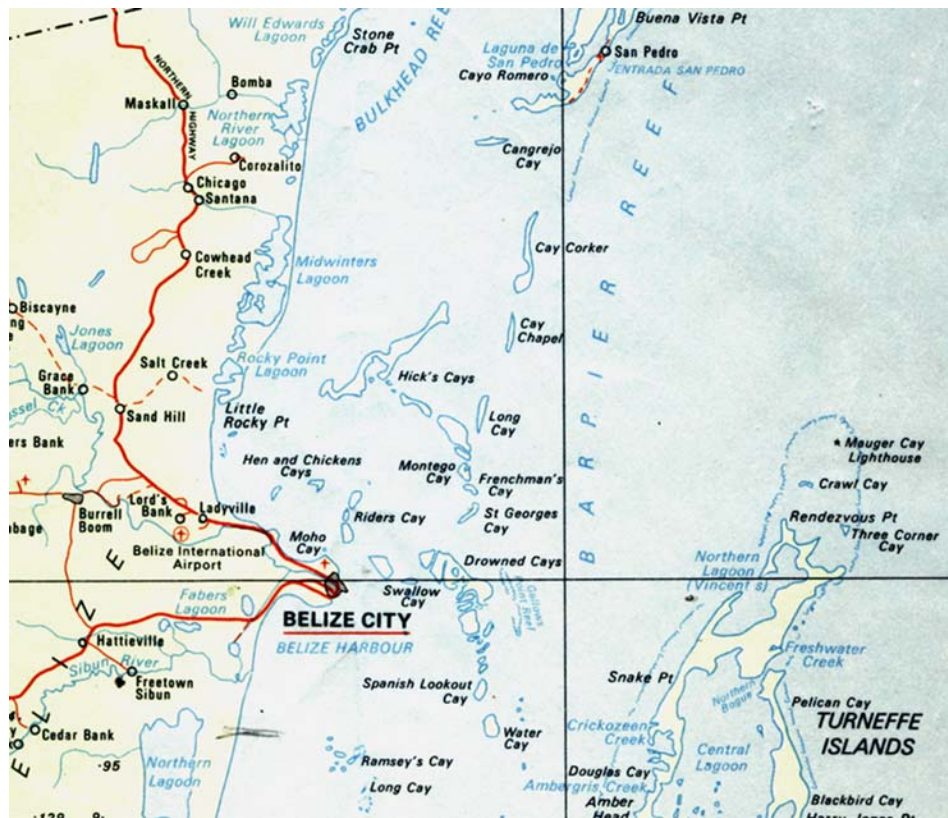


Figure 1. Area map – Belize City and Cayes

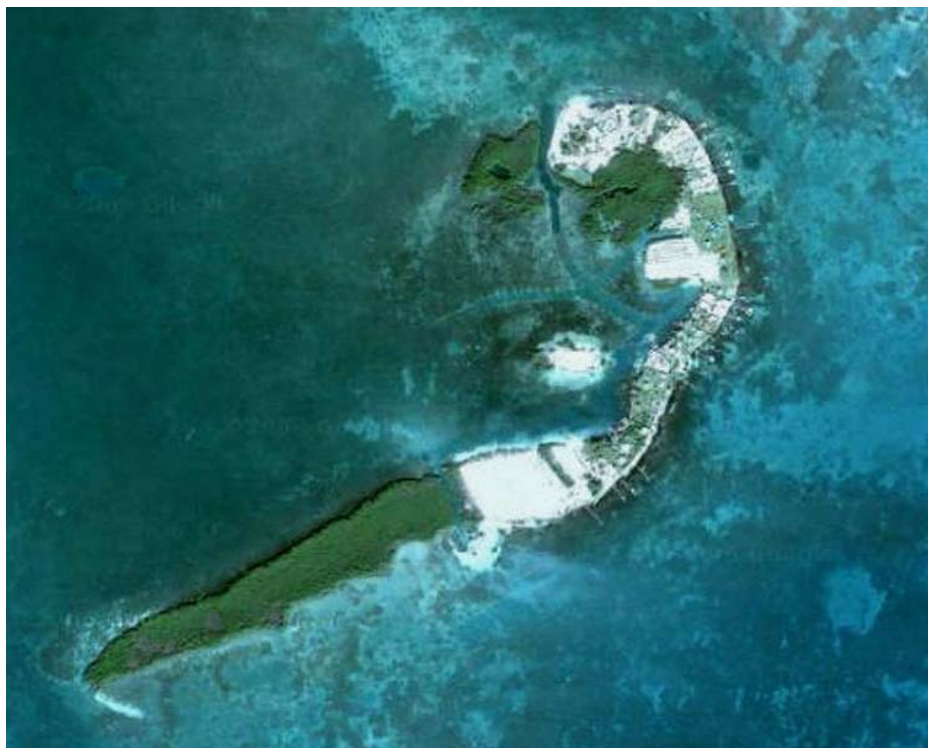


Figure 2. Satellite photo of St. George's Caye

showing “Rio de Valiz /Yngles River Bellese”; Balleze and Bellese (1786) on map made by “a Bay Man” showing area allotted to Great Britain for the cutting of Logwood (Figure 4); Walix (1786) on Spanish map showing logwood area occupied by the English settlers; Wallix (1790) from a map by Rafael Llobet (map is labeled in Spanish); Belize (1790) in letter from Peter Hunter (Superintendent of the Bay Settlement) to Baltasar Rodruguis.

The “Wallace” Hypothesis

The notion that the name Belize came from someone named Wallace, Wallace, or Willis is first reported in the 1827 Honduras Almanak. Below is a passage from Sir John Burdon’s *Archives of British Honduras* published in 1931 that summarizes these claims.

“In the 1827 Almanak the credit for discovering the mouth of the River Belize and making it his place of retreat is given to Wallace, a Lieutenant amongst the Buccaneers, from whose name ‘Belize’ is said to be derived. The 1839 Almanak gives the founder as the Scotch Corsair chief Wallace, native of Falkland in Kinross-shire, who, after being driven from Tortuga, erected huts and a fortalice at the spot called after him by the Spaniards ‘Wallis’ or ‘Balis’.

Bridges (1828) states that Willis, the notorious Buccaneer and ex-Governor of Tortuga, was the first Englishman to settle on the river, to which he gave his name. He dates this 1638, the year in which the Spaniards drove the Buccaneers out of Tortuga. Bancroft, ‘History of Central America,’ gives Peter Wallace, with 80 men, as the first settlers at Belize River. And finally, Francisco Asturias (1925) a Guatemalan historian, states that the Settlement was founded by Wallace, formerly Raleigh’s First Lieutenant and right hand man, who, he says, is supposed to have first reached Belize in 1617.” (Burdon 1931:2-3).

It is important to point out that a number of modern professional historians have noted that no documents dating to the 1600s have been referenced or produced to substantiate the claim that someone named Wallace, Wallace, or Willis was in Belize at this time.

The “Maya” Hypothesis

Starting in the 1950s several researchers have suggested that the name Belize has its origins in the Mayan language. A. H. Anderson, the first archaeological Commissioner of British Honduras suggests that the word Belize is a derived from the forgotten Maya name for the river (Anderson 1958:35). Sir J. Eric Thompson, noted Mayanist, states that Beliz in Yucatec Maya signifies muddy or muddy water (Thompson 1988:43 original manuscript presented to Belize 1970). Assad Shoman (1994) suggests the words Belakin (land towards the sea), Baltiz (land of the Itza) or Beliz (muddy waters). And finally, Emory King (1999) reports Belikin meaning land of muddy water.

It is important to note that the *Diccionario Maya Cordemex*, by far the most thorough dictionary of Yucatec Maya, does not list Beliz, Belakin, Baltiz, or Belikin. Maya words are composed of phonemes (vowel consonant combinations) and each can carry several meanings. Within the *Cordemex* dictionary one of the many meanings for “be” is muddy water and “bel ha” means canal or aqueduct. There is, however, no historical record of the Maya referring to the Belize area by any of these names.

The “African” Hypothesis

David Hernandez (1990) suggests that the name Belize is an example of linguistic convergence in that slaves who came from the Cabinda Province of Angola were already familiar with the name as there is a river and village named Belize in that locale. The main problem with this hypothesis is that most enslaved Angolans were taken to Brazil by the Portuguese and hard evidence for their presence in Belize is lacking.

The “Bullys River - Rogues Point” Hypothesis

In a 1705 report to the Council of Trade in London, John Fingas notes the “River of Bullys” where the English load their logwood. A 1786 map of the Bay Settlement shows the present day location of Government House as “Rogues Point”. Emory King (1999:9-10)

implies that Rogue and Bully are approximate synonyms. Here again, however, King's hypothesis based purely on conjecture.

<i>Balis</i>	1677	<i>Valer</i>	1783
<i>Bullys</i>	1705	<i>Walio</i>	1785
<i>Bellee</i>	1720	<i>Wallio</i>	1790
<i>Ualis</i>	1724	<i>Belize</i>	1790

Figure 3. Variations of "Belize"

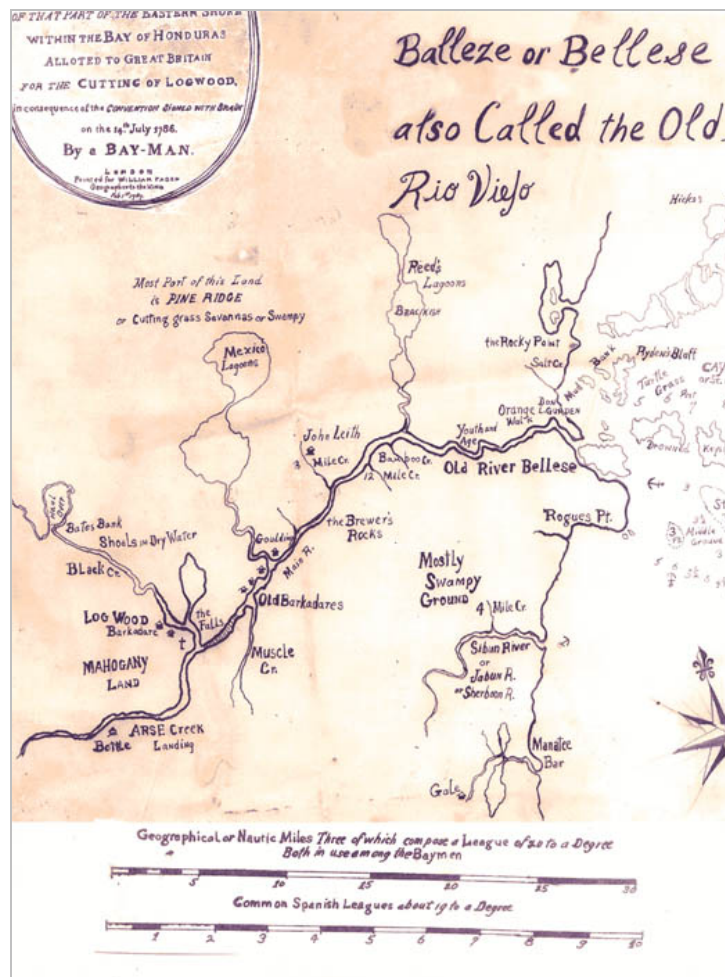


Figure 4. 1786 Logwood cutting treaty map made by a "Bay Man"

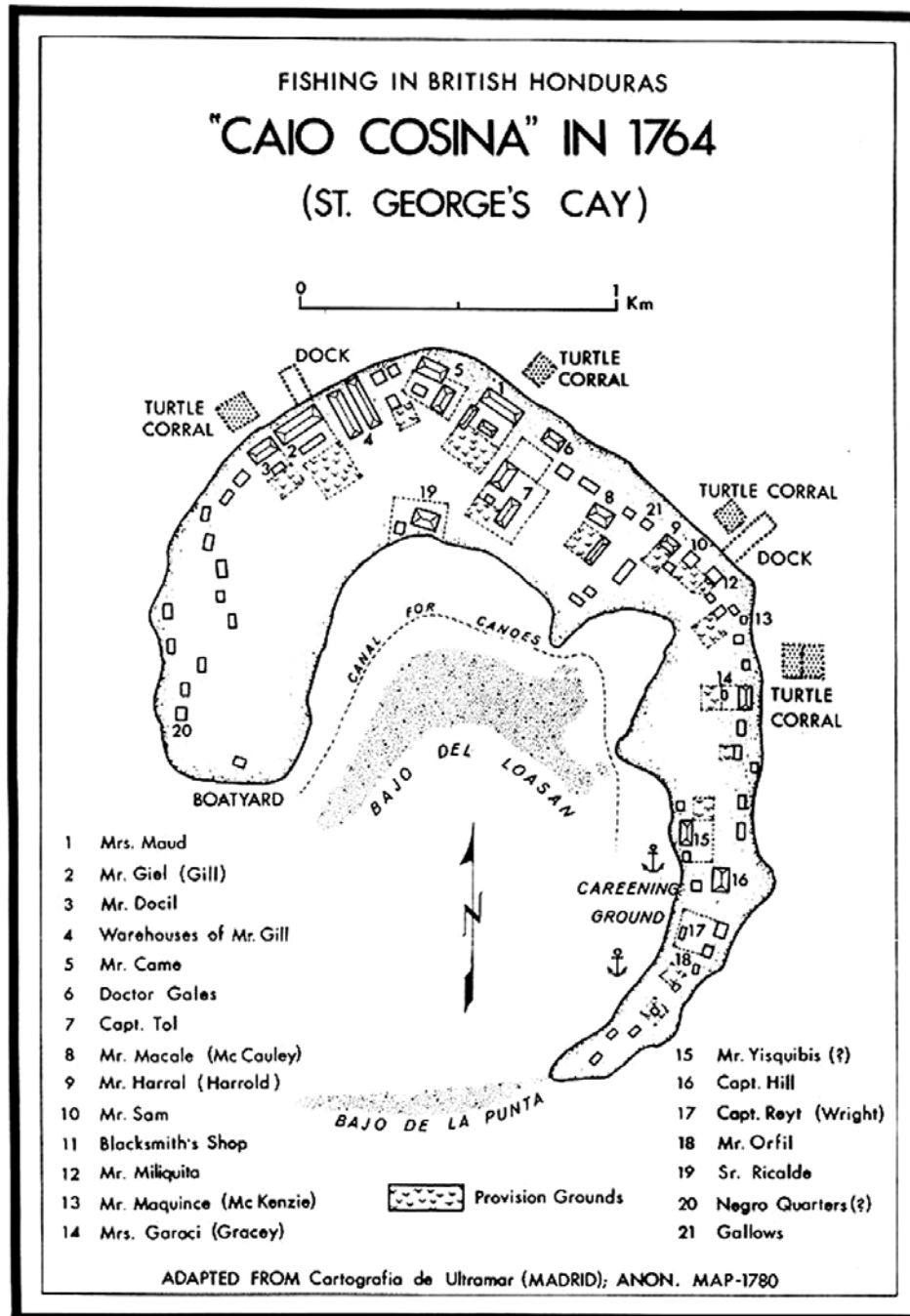


Figure 5. 1764 Spanish map of St. George's Caye (Cayo Cosina)

The "Spanish" Hypothesis

It is interesting to note that scholars have sought the origins for the word Belize in English, Mayan, and African languages. No published sources that we are aware of have suggested the origin to lie in the Spanish language. This is ironic for several early Spanish maps show Spanish names for

numerous locations within Belize. A search of an 18th century dictionary revealed an interesting possibility (Nuevo Tesoro Lexiconografico de la Lengua Espanola -1739). The word "valiza" (pronounced "baliza" and spelled "baliza" in later dictionaries) is a nautical term that refers to a marker placed by a canoe, or launch at the entrance of ports so that ships can enter by not

touching shoals or shallows. In more recent dictionaries, the word “valais” refers to lumber.

1764 Map Names	Burnaby's Code Signers
Mr. Giel	Nehemiah Gale
Capt. Reyt	William Wyatt
Mr. Orfil	John Oliver
Mr. Harrol	James Ferrall
Mr. Yisquibis	D. Fitzgibbons
Mr. Come	Benjamin Bascome
Mr. Sam	Andrew Slumen
Mr. Ricalde	Thomas Roblie
Mr. Tol	William Dal
Mrs. Maud	John Maud
Capt. Hill	Mary Wil

Table 1. Possible matches between 1764 map and 1765 signers of Burnaby's Code

Either of these meanings would be appropriate. The first would be a logical nautical notation and the second would be a reasonable reference to the river mouth as it is clear from several sources that forest products were loaded at this location.

Throughout the 1600s English mariners (pirates, buccaneers, merchants) were sailing the waters off Belize and would have made landings on the cayes or mainland. However, we should note that most modern historians have rejected claims of English settlement in Belize prior to 1670 due to lack of evidence. We find it interesting that two of the earliest references to the River, “Balis” (Spanish reference in 1677) and “Bullys” (English reference in 1705) are the closest in spelling and pronunciation to “Belize” than many of the variations that follow in subsequent decades. No doubt the debate will continue as to the origin of the name Belize but we hope that the information listed above will be help to promote more objective discussion.

Burnaby's Code – Belize's First Constitution

The 1700s witnessed continuous struggles between Britain and Spain. Spain claimed sovereignty over Belize but at times granted logging rights to English cutters. The English settlers were not permitted to have plantations or establish a government. In 1765

Admiral Burnaby was sent from Jamaica (by orders from London) to the settlement to look into disputes between the English woodcutters and the Spanish to the north in what is today Mexico. While at St. George's Caye, the Baymen had Admiral Burnaby put into the King's English the code of law they had been operating under. This code was in part based on the democratic principles of pirate law of the sea. It became known as “Burnaby's Code” and was signed on April 9, 1765 on St. George's Caye by 85 Baymen including two women. Burnaby's Code served as the Belize's constitution from 1765 until 1862 when it became a British Colony (British Honduras).

A Spanish map of St. George's Caye from 1764 shows the location of properties, houses, gallows, etc (Figure 5). The English names of property owners are shown, but it is written by someone who only spoke Spanish, thus the names are awkward and misspelled. Interestingly, this map was made one year before the signing of Burnaby's Code and thus several of the signers should be shown on the map. As far as we know, no historians have ever made this connection. By comparing the awkward / misspelled names on the map with the list of those who signed Burnaby's Code, we have been able to make several matches and are now able to locate the houses and properties of

several of Belize's founding fathers and mothers (Table 1).

The Battle of St. George's Caye – The Fight for Independence

Although Burnaby's Code provided the basis for law and order in the settlement, it did not resolve the disputes with Spain. In 1779 the Spanish captured St. George's Caye and took approximately 350 of its inhabitant's prisoner. Most, or possibly all, of those that were not taken prisoner fled the settlement. The prisoners were taken to Fort Bacalar (near Chetumal Mexico) and then marched to Merida, Yucatan. From there they were taken to Havana and imprisoned until their release in 1783. The settlement and the Cayes were eventually reoccupied by the Baymen. Tensions between Spain and Britain continued and it became clear that Spain intended to invade and retake the Bay Settlement. Remembering the horrors of imprisonment from the previous invasion, the Baymen assembled to make a decision as to whether they should evacuate or fight. In the largest public meeting held in the settlement up to that point the vote was taken. Fifty-one voted to evacuate and sixty-five voted to stay and fight. The deciding votes to stay and fight were cast by fourteen freed slaves (Burdon 1931:25), most from the Belize River village of Flowers Bank.

In late August 1798, the Spanish assembled a sizeable flotilla to re-take Belize. It consisted of 31 warships, 2000 troops, and 500 sailors. The Baymen defenses, meager by comparison, consisted of one British warship, the HMS Merlin; two private sloops, the Towser and the Tickler; two private schooners, the Swinger and the Teaser; and seven small gunflats. By all accounts, the Baymen were outgunned and out-manned. Between September 3-10, 1798 the Spanish made several advances on St. George's Caye. Their final advance was made on September 10. The battle lasted approximately 2 ½ hours after which the Spanish fleet sailed off in defeat (Burdon 1931:27-28). It was Spain's last attempt to take Belize by force. Although outgunned and outmanned the Bayman defenses won out due to superior leadership, strategy, and knowledge of the shallow water and channels. The Spanish suffered from poor leadership, inadequate

knowledge of the channels and shoals, poor strategy, and illness (yellow fever and the flux had swept through the Spanish force).

Conclusion

The Battle of St. George's Caye forever changed the path of Belizean history. The self-governing settlement attracted groups of various ethnicities that, even today, give Belize a multicultural feel which distinguishes it from surrounding countries. It is our hope to recover and document the archaeological remains associated with events before and after the historic battle. The project will include continued archival research, documenting artifacts collected by landowners, excavations, as well as underwater archaeology.

Acknowledgments We are grateful to Ms. Diane Haylock, President of NICH, and the Institute of Archaeology for their support and encouragement to initiate this project. We also thank Captain Nicolas Sanchez of Belize City who provided us historical data and insights on the early history of Belize. Last but not least we wish to thank John and Linda Searle for their hospitality and immeasurable logistical support of this endeavor.

References Cited

- Anderson, A. H.
1958 *A Brief Sketch of British Honduras*.
Printing Department, British Honduras.
- Asturias, Francisco
1925 *Belice*. Discurso del Dr. Francisco Asturias, Sociedad d Geographia y Historia de Guatemala.
- Bridges, Rev. George W.
1828 *The Annals of Jamaica*, vols. I and II.
John Murry, London.
- Burdon, John A.
1931 *Archives of British Honduras*, Volume 1. Sifton Praed and Co. Ltd, London.
- Delgado, J.
1677 *Memoria de los parajes y rios que ay desde el pueblo de San Miguel Manche hasta los indios Ahizaes, el camino y indios*. Ms. in the Bibliotheque Nationale de Paris.

Diccionario Maya Cordemex 1980

Hernandez, David

- 1990 The Name Belize: An Example of Afro-Caribbean Convergence. In *SPEAR* Reports 6. Third annual studies on Belize conference. Cubola Publications, Belize.

Honduras Almanak

1826, 1827, 1829, 1839

King, Emory

- 1999 *The Great Story of Belize*, vol. 1. Tropical Books, Belize.

Nuevo Tesoro Lexiconografico de la Lengua Espanola

1739

Shoman, Assad

- 1994 *Thirteen Chapters of a History of Belize*. Angelus Press, Belize.

Thompson, Sir J. Eric

- 1988 *The Maya of Belize: Historical Chapters Since Columbus*. Benque Viejo del Carmen, Belize. Cubola Productions.

26 THE RITUAL “TERMINATION” OF ROYAL RESIDENTIAL COURTYARDS DURING THE TERMINAL CLASSIC PERIOD: IMPLICATIONS FOR UNDERSTANDING ANCIENT MAYA SOCIETAL STRUCTURE, AND THE TERMINAL CLASSIC “COLLAPSE”

Gyles Iannone

A number of researchers have recently argued that Lévi- Strauss’ “house society” model is applicable to the ancient Maya. Although it is too vague to serve as the panacea to all our interpretive problems, current excavations in Belize have highlighted a pattern of destruction and/or ritual termination of royal residential courtyards at the outset of the Terminal Classic period which provides support for the underlying foundations of this construct. It is concluded that no inherent contradictions emerge if we emphasize the centrality of the “house” in conjunction with the more widely accepted city-state model. The data also suggest that the infamous Maya “collapse” was, first and foremost, a significant political truncation that ushered in a series of major socio-political and socio-economic transformations.

Introduction

The pivotal association between the Maya and their residences has recently been underscored by a number of scholars through their application of Lévi-Strauss’ (1982, 1987) “house society” model (e.g., Braswell 2001:319-320, 327; Canuto and Fash 2004:67-68; Gillespie 2000a, 2000c; Hutson et al. 2004; Iannone 2002; Inomata and Houston 2001:9-10; Manahan 2004; Ringle and Bey 2001; Sharer and Golden 2004:28-29). According to Lévi Strauss (1982:174), a “house” is “a corporate body holding an estate made up of both material and immaterial wealth, which perpetuates itself through the transmission of its name, its goods, and its title down a real or imaginary line, considered legitimate as long as this continuity can express itself in the language of kinship and affinity and, most often, in both.” This frequently cited definition has its problems, not the least of which is the fact that it is rather vague (Houston and McAnany 2003:37). “House societies,” by this definition, are indistinguishable from any society where corporate groups are common social units (see Hayden and Cannon 1982; Weber 1947). This weakness has recently been addressed by scholars who have emphasised the importance that residential architecture holds with respect to the recognition of a “house society” (Gillespie 2000b; Inomata and Houston 2001:9). To quote Gillespie (2000b:46), “...a major shortcoming of Lévi-Strauss’ explication of house societies was

that he failed to examine the house itself, both as an architectural unit and as a locus of social interaction in multiple dimensions.” She argues further that we need to give “primacy to the orientations, behaviours, and ideas associated with the physical house...the people and the physical house must be investigated on the same terms...”. In other words, in “house societies,” the social “house” and the architectural house are inextricably linked to form a “house” identity (see comments in Carsten and Hugh-Jones 1995:2-3, 20-21; McAnany and Plank 2001; Ringle and Bey 2001; cf. Traxler 2001:48, 67; Webster 2001:146). A logical corollary of this is that the success of the social “house” should be reflected in its architectural counterpart (see Carsten and Hugh-Jones 1995). From an archaeological perspective, this means that the myriad of expansions and elaborations that were often made to residential courtyards and their associated buildings, and the placement of caches and interment of ancestors in association with these architectural modifications, have the potential to inform us about the changing fortunes of the corresponding social “house” (Gillespie 2000a:477).

THE EVIDENCE FOR ANCIENT MAYA “HOUSE SOCIETES”

Recent studies have striven to identify “houses” in various parts of the world (e.g., Joyce and Gillespie 2000), including

Mesoamerica, where the Nahua (Aztecs) *calpolli*, or "big house," and *tecalli*, or "lord house," have been cited as examples (Braswell 2001:317; Chance 2000; Houston and McNany 2003:37; Sandstrom 2000). For the Maya, there is both linguistic and epigraphic evidence to suggest that royal and noble households were sometimes referred to as "houses" (Carmack 1981; Gillespie 2000a:477; Houston 1998:521; Inomata and Houston 2001:10; Ringle and Bey 2001:290-294; Stuart 1998:376). Specifically, it has been argued that the terms *naah*, or "house," and *y-otoot/otooch*, meaning "a possessed house," were at times also used to refer to the social "house" (Gillespie 2000a:477; Houston and McNany 2003:37; Ringle and Bey 2001:291). Examples of this include the K'iché Maya use of the terms *nimja*, or "big house," as a possible label for a noble "house," or *nijaib*, meaning "people of the great houses" (Braswell 2001:319-320; Carmack 1981:159-160, 192, 288; Gillespie 2000a:470, 477; Houston and McNany 2003:37). Houston (1998:521) has also discussed an inscription from Tamarindito which appears to state that the parents of a ruler were derived from different *naah*. Beyond these examples, however, linguistic and epigraphic references to social "houses" are conspicuously rare, a fact which is clearly problematic given the posited importance that such residential "corporate" groups would have held for the ancient Maya (Houston and McNany 2003:37).

Unfortunately, the archaeological evidence for the existence of ancient Maya "houses" is equally sparse. However, this has the potential to change as archaeologists begin to focus more attention on isolating the material correlates of these social units (see Gillespie 2000c). For example, Ringle and Bey (2001: 294-296) have used architectural iconography to support the presence of royal houses at Uxmal. They have also suggested that the enlargement of "palace" architecture throughout the northern Yucatan during the Late Classic period may signify the growing importance of noble "houses." Data such as these are intriguing, but they have also led to the second major criticism of the "house society" model, which revolves around the fact that, in many of its initial applications, the emphasis has been exclusively on "noble houses," with little consideration of

whether "houses" were found throughout Maya society (Houston and McNany 2003:37; Watanabe 2004:164). Those levelling this criticism stress that it is incumbent upon archaeologists to prove the latter before the "house society" model can be considered viable.

In considering this point, it is important to draw attention to the fact that there is some evidence to support the idea that "houses" were ubiquitous in the Maya world. On the most basic level, it is almost universally accepted that residential groups were the fundamental building blocks of ancient Maya society. Supporting evidence for this assertion has emerged from numerous archaeological projects. For example, the results of their many years of research at Caracol have led Chase and Chase (2004:139) to conclude "that the residential group constituted a basic physical and organizational feature of Classic Maya society." Ringle and Bey (2001:298) concur, arguing that, "in looking at Maya political organization and site planning, there does appear to be a strong tendency to promote low-level, house – or household-based institutions and architecture to levels increasingly higher in the hierarchy." The question remains, however: Does the primacy of the residential group also imply the presence of "houses" as defined by Lévi-Strauss?

The evidence that McNany (1993, 1995:122-123) marshals to support her concept of "heterogeneous households," including their diverse makeup, corporate nature, and penchant for ancestor veneration rituals, echoes what we might expect in a "house society." The corporate qualities of residential groups have also been highlighted by Chase and Chase (2004). These researchers have suggested that the inhabitants of residential groups controlled economic production at Caracol. Elsewhere, at Chunchucmil, Hutson et al. (2004) have documented the presence of multi-family residential compounds with shared patios and eastern ancestor shrines, all enclosed by low stone walls. They posit that although the inhabitants of each bounded compound had a "distinct group identity," the occupants of each residential group were also internally ranked vis-à-vis each other (Hutson et al. 2004:89). Hutson et al. conclude that: "Although ancestors were crucially important [to these residential



Figure 1. Map of the Maya subarea showing the centers mentioned in the text.

groups]...we feel that they should be understood not as anchors in the reckoning of exclusive descent lines but as resources engaged in an inclusive web of relations – as part of an estate around which campaigns of affiliation were mobilized through practice.” In other words, Hutson et al. argue that their data supports the “house society” model, as opposed to one grounded in the tenets of lineage theory.

THE DEMISE OF THE ROYAL “HOUSES”: EXAMPLES FROM BELIZE

The data presented above, although limited in nature, does lend some support to the idea that ancient Maya society was comprised of a myriad of “houses” that were both heterarchically and hierarchically organized in relation to each other (Gillespie 2004; see also Sanders and Webster 1988:524; Webster 2001:132, 144). Nevertheless, I do agree with Elizabeth Graham’s (personal communication, 2007) assertion that the “the house society”

concept gains its greatest efficacy if we highlight certain criteria from Lévi-Strauss’ original definition – such as the importance of holding an estate, and passing on a name and/or title. To do so would mean acceptance of the idea that “houses” would have only existed within the noble strata of ancient Maya society. This would seem to be consistent with the linguistic and epigraphic data presented above. It would also invalidate the need to prove that “houses” were present throughout the settlement hierarchy to confirm the usefulness of the overall concept. Having, I hope, established the potential viability of the “house society” concept, I now wish to shift my attention to the upper tier of the noble “house” hierarchy. Specifically, I wish to present archaeological data from Belize that appears to reflect the ritual termination of royal residential courtyards, or “palaces,” during the Terminal Classic period (750-1050 A.D). This data will be presented in support of the house society model.

The Infilling of Royal Palaces

Minanha

The first case study I wish to discuss derives from my own research at Minanha, located in the north Vaca Plateau of west-central

Belize (Figure 1). Of particular importance to the present discussion is Group J, the royal residential courtyard located at the southern end of Minanha's palace acropolis (Figure 2). This highly restricted courtyard was built atop a ca. 13 m high sustaining platform, and consisted of a ca. 8.5 m high pyramidal shrine with rounded terrace corners and a stucco frieze (Structure 38J-2nd), a flat-topped performance platform (39J-2nd), a formal, vaulted entrance with narrow (<2.0 m wide) wing-rooms on either side (Structure 35J-2nd), and a vaulted throne room that likely also served as the principal sleeping quarters (Structure 37J-2nd). Adjacent to this royal residential courtyard, to the north, is a small group (Group K) which, based on its vernacular architecture and domestic artifact inventory, probably functioned as a servant's area (Slim 2004).

The event that is most pertinent to the topic at hand is the infilling and apparent symbolic termination of the Minanha royal residential courtyard sometime in the early part of the 9th century A.D. (Iannone 2005). This infilling was carried out in a very careful, and non-violent, manner. First, all of the floors and stair surfaces were swept clean. These features were subsequently covered by a 10-20 cm thick lens of finely sorted sediments. A layer of limestone boulders were then carefully laid down on top of this "cushioning" deposit. After this, the various vaulted rooms were filled from the inside, so as to preserve them intact. Finally, once the architectural features were protected in this manner, approximately 5.00 m of clean, boulder-sized (>25.6 cm), limestone fill was deposited within well-built construction pens to form the sustaining surface for a new, comparatively low status, residential courtyard. In summary, this construction event served to conceal all of the architectural components associated with the Late Classic royal residence – with two exceptions: 1) the upper 3.70 m of the large pyramidal structure (38J-2nd) was reused in the subsequent construction phase (i.e.,

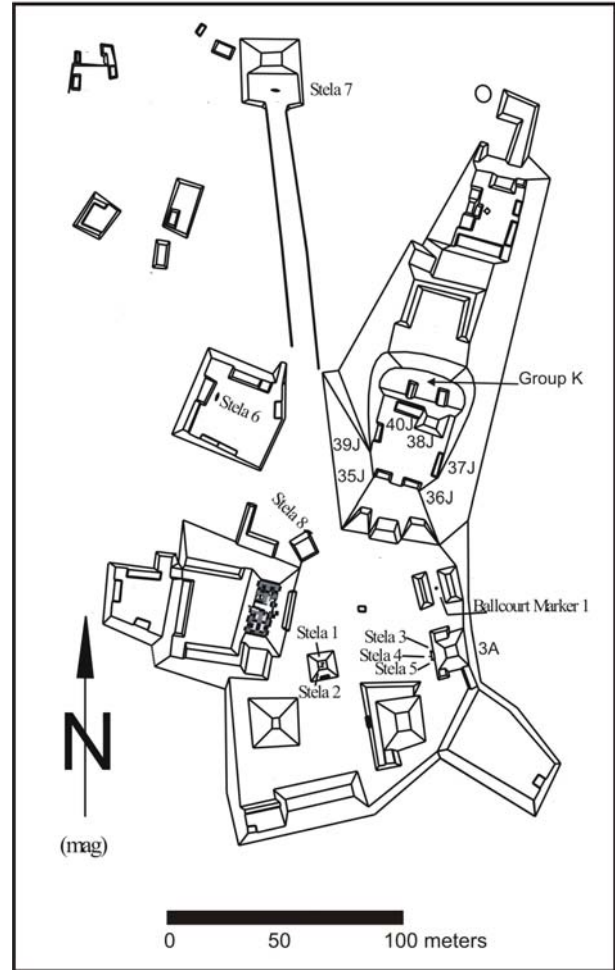


Figure 2. Map of the Minanha epicentral court complex showing the location of Group J.

the upper two terraces of the building and its summit were employed as 38J-1st); and, 2) the servant's area to the north (Group K), which was left uncovered, although access to it was closed off. The latter indicates that the primary concern of those responsible for this infilling event was the concealment of those features that were most intricately tied to the royal residence (i.e., Group J; see Figure 3).

In assessing the significance of the Minanha infilling event, it is important to keep in mind that the abandonment and infilling of elite courtyards was a common practice amongst the ancient Maya (Elizabeth Graham, personal communication 2006; Traxler 2001). However, it is also clear that the Minanha event is distinctive in a number of ways: 1) this infilling occurred during the early part of the Terminal Classic period, a time when many royal

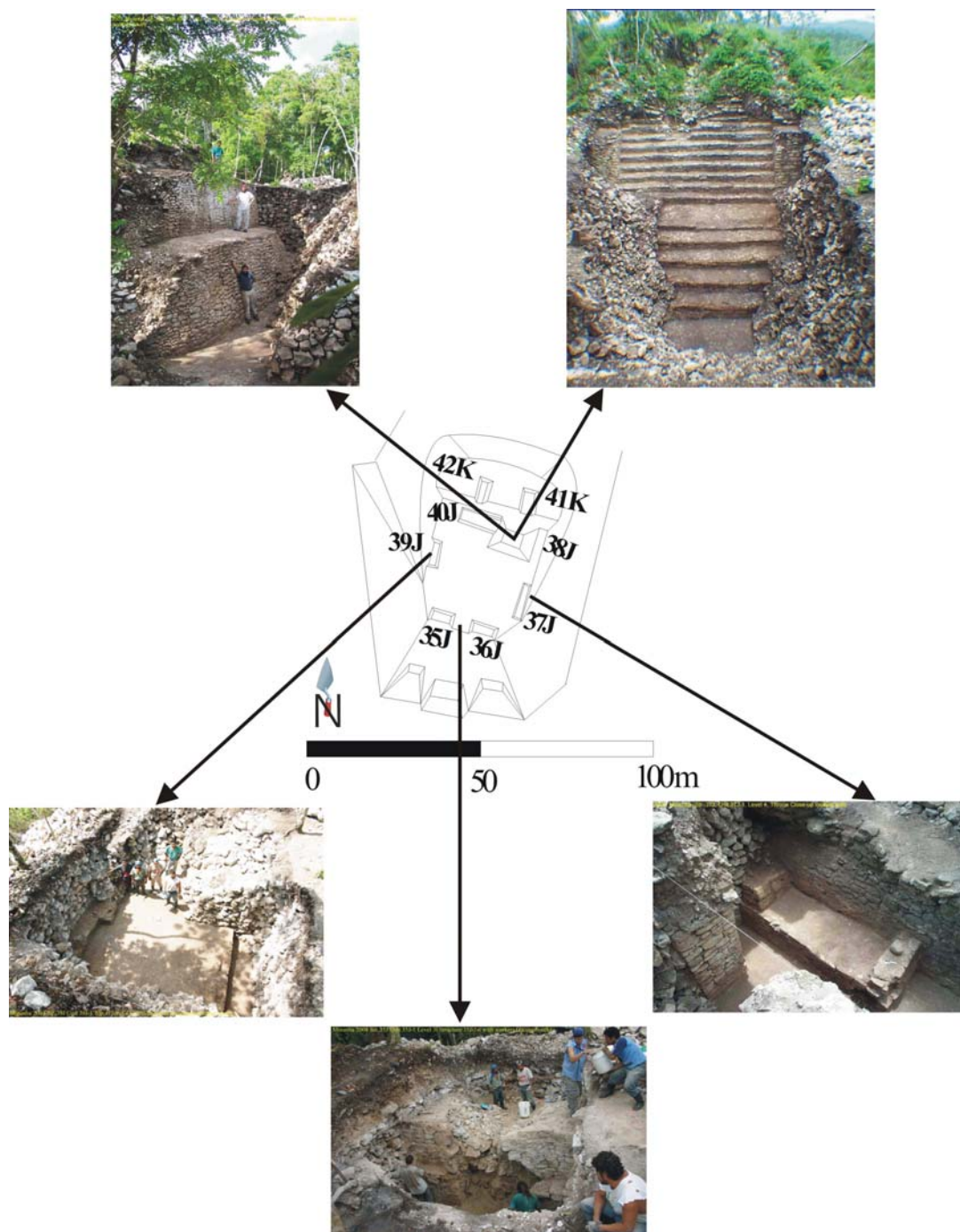


Figure 3. Group J plan showing examples of the buried penultimate architecture.

dynasties were beginning to lose their grip on power; 2) unlike those infilling events dating to earlier time periods, the infilling of the Minanha courtyard did not coincide with the construction of a new royal residence at that specific locus, or anywhere else within the court complex – this

implies that the infilling coincided with the demise of royal rule at Minanha; 3) the infilling did not correspond with total abandonment of the center and its adjacent territory – rather, it signified the emergence of a very different kind of Terminal Classic community; 4) the infilling

represents a well-planned building event that was not left “unfinished”; it skilfully incorporated earlier architecture in its final plan (i.e., the new courtyard surface corresponded with one of the 38J-2nd terrace surfaces – allowing the new 38J-1st pyramidal shrine to maintain its architectural proportions; the terminal architecture also used earlier walls as footings); 5) the amount of labor that was required to infill the courtyard – particularly the extra effort made to fill the vaulted rooms in a manner that maintained their structural integrity – belies the comparatively small-scale, vernacular architecture that was erected in association with the new courtyard surface (i.e., why put so much effort into the infilling, and then erect extremely small, perishable buildings overtop of the ornate masonry structures associated with the palace?); 6) there does not appear to have been any attempt made to infill, or incorporate, the adjacent service patio (Group K) – on one hand this emphasized that the royal residential courtyard was the primary focus of the infilling, but on the other it also served to limit the overall size of the terminal courtyard that replaced it; and, 7) the infilling was carefully orchestrated – there was very little burning or razing of the buried buildings. In fact, the only contemporaneous destructive activities appears to have been aimed at the breaking of some stelae monuments in the main plaza, partial dismantling of the upper platform associated with the 39J-2nd performance platform, strategic collapse of the uppermost vault components associated with the 37J-2nd throne room (only the upper portion that extended above the new courtyard surface, the rest of the room had been filled from the inside), and the tearing down of the stucco frieze associated with the royal residential courtyard’s pyramidal shrine – and the subsequent scattering of its fragments throughout the fill deposit.

What remains to be determined is what motivated this infilling event, and who may have carried it out. Table 1 provides a critical evaluation of some of the more plausible explanations, which include: 1) The infilling represents a construction project that was halted abruptly when the royal family fled the center; 2) The infilling was a result of warfare; 3) The infilling represents a ritual caching event carried

out by the ruling family prior to fleeing the center, but in anticipation of returning to reclaim their “throne”; 4) The infilling represents a complex event stimulated by external antagonists (e.g., Caracol or Naranjo), but carried out by local laborers sympathetic to their deposed ruling family; 5) The infilling represents the actions of a disgruntled support population, headed by leaders of some of Minanha’s long-standing heterogenous households, who felt that their kings had failed to live up to their part of the social contract (i.e., the King’s role was to guarantee prosperity). As indicated in Table 1, the latter two theories seem to hold the most explanatory potential. What remains to be determined is whether other centers exhibit similar ritual “termination” events that date to the same time, as this would suggest a broader pattern of contemporaneous socio-political truncation?

La Milpa

The Minanha infilling episode is not unique. Similar events have been documented at La Milpa. Here, excavations by Norman Hammond and his colleagues (Hammond 1999a; Hammond and Thomas 1999) have uncovered evidence for two infilling events associated with what appear to have been two separate royal residential courtyards (see discussion in Hammond 1999b:13). The first example derives from Structure 38, located in the center of La Milpa’s “palace acropolis” (the South Acropolis). Excavations here uncovered a throne room in which the painted throne had been deconsecrated through defacement and incense burning in order to remove its “spiritual power.” Following this, the room had been packed with rubble as part of an infilling event which is described as having been conducted with “care and ceremony.” Subsequently, a new floor surface was constructed above the throne room, but this construction seems to have been part of an unfinished building program aimed at expanding the royal acropolis.

The second example of infilling derives from Structure 65, a stucco frieze adorned building located on the south side of a separate royal residential courtyard (Courtyard 151), situated to the west of La Milpa’s palace acropolis. This structure had one construction

Hypothesis	Supporting Evidence	Negating Evidence
The infilling represents a construction project that was halted abruptly when the royal family fled the center.	1) no replacement for the infilled royal residential courtyard was constructed at Minanha, suggesting that no royal family inhabited the center following the infilling event; 2) there is some <u>limited</u> evidence for the expected termination rituals (e.g., some destruction of 39J-2nd, and destruction of the 38J-2nd stucco façade).	1) there was no cutting of caches and/or burials into earlier floors, only <u>limited</u> dismantling of earlier architecture, and no burning and/or deposition of broken artifacts generally associated with termination rituals; 2) normal construction procedures were not followed (e.g., they did lay down cushioning sediments, carefully place large fill materials, and build strong construction pens, but vaults were, for the most part, not collapsed); 3) from the outset, the construction project appears to have been aimed at creating a smaller, not a larger courtyard, and one that was also less self-sufficient in terms of its functions (the overall square footage is substantially less, and the servant's area is no longer functional); 4) the end of the infilling was not haphazard, and the new residential courtyard appears to have been constructed with little delay (e.g., earlier walls were used as footings for new building platforms, and the terrace surface of the 38J-2nd temple was used as the new courtyard surface; this allowed the resulting 38J-1st temple to maintain its architectural proportions).
The infilling was a result of warfare.	There is some evidence for purposeful destruction (some dismantling of 39J-2nd, destruction of the 38J-2nd stucco façade, and the possible breakage of the stelae in front of the Structure 3A eastern shrine in the main plaza).	1) the evidence for purposeful destruction is, for the most part, <u>limited</u> to some of the key symbolic and/or historical elements closely associated with the Minanha rulers (e.g., the 38J-2nd stucco façade and the stelae in front of the Structure 3A eastern shrine); 2) the infilling was carefully done, and more labour intensive than it needed to be (e.g., the laying down of cushioning sediments, careful placement of the large fill materials, well built construction pens, and filling vaulted rooms from the inside, rather than collapsing them); 3) we are currently unable to articulate "Minanha" with any known center in the epigraphic record, and thus it is impossible to connect the infilling event with a known historical conflict.
The infilling represents a ritual caching event carried out by the ruling family prior to fleeing the center, but in anticipation of returning to reclaim their "throne".	The courtyard does appear to have been "enshrined" through the careful infilling event.	1) some earlier caches seem to have been emptied (suggesting that there was no plan to return); 2) the 38J-2nd façade, and likely the stelae in front of the 38J-2nd eastern shrine, were destroyed (these would have been key historic elements related to the royal family's pedigree, and it is likely that they would have wanted to preserve these items).
The infilling represents a complex event stimulated by external antagonists (e.g., Caracol or Naranjo), but carried out by local laborers sympathetic to their deposed ruling family.	All the evidence for the existence of a Minanha royal family is obliterated, but the courtyard itself is at least partially enshrined, in a reverential manner, through the careful infilling event.	We are currently unable to articulate "Minanha" with any known center in the epigraphic record, and thus it is impossible to connect the infilling event with a known historical conflict.
The infilling represents the actions of a disgruntled support population, headed by leaders of some of Minanha's long-standing heterogenous households, who felt that their kings had failed to live up to their part of the social contract (i.e., the King's role was to guarantee prosperity).	Specific signifiers of the existence and legitimacy of the Minanha royal family are obliterated (e.g., stelae, facades), but given its symbolic power as a ritually constituted place, the courtyard itself is at least partially enshrined, in a reverential manner, through the careful infilling event.	

Table 1. Critical evaluation of the explanations for the infilling of Minanha's royal residential courtyard.

phase, and it was apparently “deliberately filled in.” This infilling again served to cover a room with a painted throne, the throne’s side-arms having been deliberately “torn away” prior to burial. The throne itself was similar in style to the example uncovered in Structure 38.

In summary, not only are the La Milpa infilling events focused on what appear to have been royal, or minimally sub-royal, residential courtyards with frieze adorned buildings and throne rooms – as in the Minanha example, but they also seem to have been conducted in a comparable manner, and with similar intent. Like Minanha, these infilling events also coincide with the onset of a period of dramatic socio-political downturn at La Milpa, which occurred within the early part of the Terminal Classic period. To quote the investigators: “...the burial of the painted thrones was deliberate and ceremonious” (Hammond 1999a:15), and these events signify “...complex shifts of power at La Milpa in the decades before the sudden abandonment of the massive royal construction program on the South Acropolis, and of the city itself” (Hammond and Thomas 1999:16; emphasis mine).

Lamanai

To the east of La Milpa, at Lamanai, a similar Terminal Classic infilling event has been documented by Elizabeth Graham (Graham 2004). The focus here was the Ottawa Group – another likely candidate for a royal residential courtyard. Sometime during the early part of Terminal Classic period the masonry buildings associated with the Late Classic courtyard were partially razed, stucco friezes were destroyed, and the courtyard itself was infilled with dry-stone boulders in preparation for construction of a new, lesser status, courtyard comprised of buildings of primarily perishable construction. This infilling episode coincided with a burning event which is considered to have been ritual in nature, rather than the result of “hostile action” (Graham 2004:236). In the end, the Lamanai infilling event shares many characteristics with what has been documented for Minanha and La Milpa, not the least of which is the fact that this infilling once again took place within the early part of the Terminal Classic period. Similarly, this infilling episode did not coincide with total

abandonment of the center. Rather, it signified the ritual termination of a royal residential courtyard at a time when this center was about to enter a period of decline, at least in socio-political terms.

Termination through Ritual Artifact Deposits

Dos Hombres and Chan Chich

I now wish to shift the focus to another type of Terminal Classic termination event that also appears to be focused on royal, and/or sub-royal, residential courtyards, but which is not nearly as dramatic as the infilling episodes discussed above. In north-western Belize, Brett Houk (Adams et al. 2004:337-339; Houk 1996, 2000; Houk et al. 1999; Sullivan et al. 2006) has documented the deposition of thick “midden-like” deposits at the entrance to an elite residential courtyard at Dos Hombres, and on the steps of two palace structures at Chan Chich. Deposits of this type were not found in association with other civic-ceremonial architecture at these centres. Rather, they appear to have been specifically intended to block entrance to the elite residential courtyards. The investigators conclude that the location of these artifact dumps, the presence of exotic items, and the lack of what might be considered true refuse – such as faunal remains – implies that these were not middens per se, but rather “ritual termination deposits.” With respect to the arguments advanced in this paper, it is significant that the researchers suggest that these deposits were “directed at terminating not a structure or courtyard but the elite inhabitants” themselves (Adams et al., 2004:338).

Intriguingly, similar deposits have also been documented in other parts of north-western Belize, at centers such as Blue Creek (Guderjan et al. 2003:40; Hanratty 1998), and possibly Punta de Cacao (Guderjan et al. 1991). Adams et al. (2004:339) conclude that the “widespread occurrence [of these termination rituals] argues for a pan-regional, calamitous event that marked the destruction of southern elite culture in a short period of time” (see also Houk 2000:147; cf. Sullivan et al. 2006; emphasis mine).

The Razing and/or Burning of Palace Architecture

Finally, I wish to briefly mention another ritual practice that may fit within a continuum of termination events focused on royal residential compounds during the early part of Terminal Classic period. These events involve the wilful razing and/or burning of royal palaces, as has been documented in Belize, at centers such as Colha, and possibly Xunantunich (LeCount et al. 2002:44; Mackie 1985:48-49; Valdez and Buttles 2006), as well as outside of Belize, at centers such as Altar de Sacrificios, Becan, Palenque, Tonina, Dos Pilas, Copan, and Aguateca (Inomata et al. 2001; Inomata and Traidan 2003:162-163; Valdez and Buttles 2006; Webster 2000:75). As in the aforementioned examples, some of these destruction episodes were accompanied by the deposition of thick artifact dumps containing a myriad of exotic items (e.g., at Aguateca; see Inomata and Traidan 2003:162-163). Significantly, most of these destruction events are again exclusive to royal residential courtyards (Valdez and Buttles 2006). In other words, in most cases “comparable” termination deposits are not found in association with other civic-ceremonial architecture at the centers in question (Inomata et al., 2001:303; Inomata and Traidan 2003:162-163). Given its dramatic character, this particular type of termination practice has traditionally been interpreted as the result of ritual destruction carried out by marauding enemies (Inomata et al. 2001:296; Inomata and Traidan 2003:163; Webster 2000:75, 113). In the case of Aguateca, Inomata et al. (2001:303) conclude that: “By desecrating the royal palace, the invaders may have intended to terminate the political and religious authority of the defeated dynasty.” Here I would simply like to highlight the fact that it is equally plausible that, in some cases, dissatisfied community members carried out the ritual destruction.

CONCLUSIONS

In conclusion, this paper has discussed a series of patterned early Terminal Classic rituals focused on terminating elite residential courtyards. The central location and restricted access characteristics of these courtyards, along with the throne rooms and stucco friezes

exhibited by many of them, suggest that most were in fact royal palaces. The data presented here also indicates that there was a continuum of potential termination rituals associated with these palaces, including: 1) the use of ritually charged artifact dumps to close off access to the courtyard; 2) the actual infilling of the courtyard in its entirety; and, 3) the razing and burning of the architectural elements associated with the courtyard. In most cases a combination of these three ritual practices is evident. Significantly, these termination rituals did not coincide with the abandonment of the entire community. Rather, the emphasis was specifically on physically and symbolically deactivating the royal residential courtyard. I argue that, to date, this data set provides the best supporting evidence for the house society model.

I also posit here that, if one accepts that the success of the social “house” is reflected in the physical house – as the house society model implies, the ritual termination of these royal palaces indicates that the Terminal Classic collapse was not a bottom-up process – as has been suggested by some (Gill 2000). Rather, it was a period of balkanization that began at the top, and which was often first signified by a momentous socio-political truncation that proceeded any type of community-wide population decline and/or abandonment. These termination events are important, therefore, because they do not necessarily signify the abrupt downfall of a community in its entirety, but rather the emergence of a very different type of late Terminal Classic/early Post-classic society.

The most intriguing aspect of this data set revolves around the question of who was responsible for these termination events. Were they initiated by the royal family itself, prior to abandoning, or fleeing, their seat of power? Were they carried out by disgruntled community members in efforts to de-sanctify the most potent locus of royal power following removal of an “ineffectual” ruler (e.g., Valdez and Buttles 2006)? Or, were they instigated by external forces in efforts to deconsecrate the focal point of a competing, or subsidiary, royal court as part of a larger game of power politics (Inomata et al. 2001:303; Inomata and Houston 2003:162-163)? The precise motivations for

these termination events will continue to be hard to ascertain. However, if we are able to gain some knowledge of the agency surrounding these rituals we will obviously generate a more nuanced understanding of the factors surrounding the fall of these royal "houses." Such insights will clearly have broader impact as we continue to ponder the complex series of events that resulted in the ancient Maya "collapse."

In closing, it is imperative to address one final criticism of the house society model – namely that, even if one emphasizes the importance that the physical house plays within a house society, some still contend that the model has limited heuristic value because it amalgamates societies with highly variable degrees of socio-political complexity – from the Nu-Chah-nulth of the Northwest coast to the Classic period city-states of the Maya (Chase and Chase 2004:145; Houston and McNary 2003:37). In response to this, I would stress that the house society model implies similarities in social organization – specifically, it assumes that "houses" are the primary building blocks of society – but it does not require that the political characteristics of these societies are identical, or even similar. This stance is consistent with how we have traditionally envisioned "corporate groups," in a general sense, within our analyses of various societies, past and present (e.g., Hayden and Cannon 1982; Weber 1947). For this reason, I see no contradiction in the argument that the Classic period Maya were organized into a series of competing city-states, each of which was made up of a myriad of noble "houses" exhibiting varying degree of wealth, prestige, and political authority.

Acknowledgements I am particularly thankful for the ongoing financial assistance provided by the Social Sciences and Humanities Research Council of Canada, and Trent University. The Institute of Archaeology in Belize, particularly Jaime Awe and John Morris, have been incredibly supportive of our research at Minanha over the past twelve years. Many thanks! My gratitude is also extended to the various staff and students of the Social Archaeology Research Program (SARP). Finally, this paper has benefited from stimulating discussions, and/or

data sharing, with Elizabeth Graham, Norman Hammond, Fred Valdez, Jaime Awe, John Morris, James Garber, Heather McKillop, Jason Yaeger, Colleen Hanratty, Eleanor Harrison-Buck, Shirley Mock, and Paul Healy. Any factual errors or interpretive weaknesses that remain in the final project are fully attributable to the author.

References Cited

- Adams, R. E. W., H. R. Robichaux, Fred Valdez, Jr., Brett A. Houk, and Ruth Mathews
2004 Transformations, Periodicity, and Urban Development in the Three Rivers Region. In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by Arthur A. Demarest, Prudence M. Rice, and Don S. Rice, pp. 324-341. University Press of Colorado, Boulder.
- Braswell, Geoffrey E.
2001 Post-Classic Maya Courts of the Guatemalan Highlands: Archaeological and Ethnohistorical Approaches. In *Royal Courts of the Ancient Maya, Vol. 2: Data and Case Studies*, edited by Takeshi Inomata and Stephen D. Houston, pp. 308-334. Westview Press, Boulder.
- Canuto, Marcello A., and William L. Fash, Jr.
2004 The Blind Spot: Where the Elite and Non-Elite Meet. In *Continuities and Changes in Maya Archaeology: Perspectives at the Millennium*, edited by Charles W. Golden and Greg Borgstede, pp. 51-75. Routledge, New York.
- Carmack, Robert M.
1981 *The Quiche Mayas of Utatlan*. University of Oklahoma Press, Norman.
- Carsten, Janet, and Stephen Hugh-Jones
1995 Introduction: About the House – Lévi-Strauss and Beyond. In *About the House – Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 1-46. Cambridge University Press, New York.
- Chance, John
2000 Descent and the Nahua Noble House. *American Anthropologist* 102:485-503.
- Chase, Diane Z., and Arlen F. Chase
2004 Archaeological Perspectives on Classic Maya Social Organization from Caracol, Belize. *Ancient Mesoamerica* 15:139-147.
- Joyce, Rosemary A., and Susan D. Gillespie (editors)
2000 *Beyond Kinship: Social and Material Reproduction in House Societies*. University of Pennsylvania Press, Philadelphia.

- Gill, Richardson B.
2000 *The Great Maya Droughts*. University of New Mexico Press, Albuquerque.
- Gillespie, Susan D.
2000a Rethinking Ancient Maya Social Organization: Replacing ALineage@ with AHouse.@ *American Anthropologist* 102:467-484.
2000b Lévi-Strauss: Maison and Société à Maisons. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 22-52. University of Pennsylvania Press, Philadelphia.
2000c Maya “Nested Houses”: The Ritual Construction of Place. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 135-160. University of Pennsylvania Press, Philadelphia.
2004 Beyond Kinship: Approaches to the House. *Anthropology News* 45(5):21.
- Guderjan, Thomas H., Michael Lindeman, Ellen Ruble, Froyla Salam, and Jason Yager
1991 Archaeological Sites in the Rio Bravo Area. In *Maya Settlement in Northwestern Belize: The 1988 and 1990 Seasons of the Río Bravo Archaeological Project*, edited by Thomas H. Guderjan, pp. 55-88. Maya Research Program, San Antonio.
- Guderjan, Thomas H., Robert J. Lichtenstein, and C. Colleen Hanratty
2003 Elite Residences at Blue Creek, Belize. In *Maya Palaces and Elite Residences: An Interdisciplinary Approach*, edited by Jessica J. Christie, pp. 13-45. University of Texas Press, Austin.
- Graham, Elizabeth A.
2004 Lamanai Reloaded: Alive and Well in the Early Postclassic. In *Research Reports in Belizean Archaeology, Volume 1*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 223-241. Institute of Archaeology, NICH, Belize.
- Hammond, Norman
1999a AA Pillar of State... Majestic, Though in Ruin@: The Royal Acropolis of La Milpa. *Context* 14(1):11-15.
1999b A Maya Throne Room at La Milpa. *Pre-Columbian Art Research Institute Newsletter* 28:12-13.
- Hammond, Norman, and Ben Thomas
1999 Another Maya Throne Room at La Milpa. *Context* 14(1):15-16.
- Hanratty, C. Colleen
1998 Excavations in the Structure 37 Courtyard, Blue Creek, Belize. Paper presented at the 63rd annual meeting of the Society for American Archaeology, Seattle.
- Hayden, Brian, and Aubrey Cannon
1982 The Corporate Group as an Archaeological Unit. *Journal of Anthropological Archaeology* 1:132-158.
- Houk, Brett A.
1996 *The Archaeology of Site Planning: An Example from the Late Classic Maya Site of Dos Hombres, Belize*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Texas, Austin.
2000 Life, the Universe, and Everything: Re-evaluating Problematic Deposit 2 from Dos Hombres, Belize. In *The 1998 and 1999 Seasons of the Chan Chich Archaeological Project*, edited by Brett A. Houk, pp. 141-150. Mesoamerican Archaeological Research Laboratory, University of Texas, Austin.
- Houk, Brett A., Owen ford, and Amy E. Rush
1999 Fear and Loathing in Northwest Belize. Paper presented at the 64th annual meeting of the Society for American Archaeology, Chicago.
- Houston, Stephen D.
1998 Finding Function and Meaning in Classic Maya Architecture. In *Function and Meaning in Classic Maya Architecture*, edited by Stephen D. Houston, pp. 519-538. *Dumbarton Oaks*, Washington, D.C.
- Houston, Stephen D., and Patricia A. McAnany
2003 Bodies and Blood: Critiquing Social Construction in Maya Archaeology. *Journal of Anthropological Archaeology* 22:26-41.
- Hutson, Scott R., Aline Magnoni, and Travis W. Stanton
2004 House Rules? The Practice of Social Organization in Classic-period Chunchucmil, Yucatan, Mexico. *Ancient Mesoamerica* 15:75-92.
- Iannone, Gyles
2002 Fall of the House of Minanha: A Case of Late Classic Political Disruption in West Central Belize. Paper presented at the 67th annual meeting of the Society for American Archaeology, Denver.
2005 The Rise and Fall of an Ancient Maya Petty Royal Court. *Latin American Antiquity* 16:26-44.

- Inomata, Takeshi, and Stephen D. Houston
2001 Opening the Royal Maya Court. In *Royal Courts of the Ancient Maya, Vol. 1: Theory, Comparison, and Synthesis*, edited by Takeshi Inomata and Stephen D. Houston, pp. 3-23. Westview Press, Boulder.
- 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 by Jessica J. Christie, pp. 154-183. University of Texas Press, Austin.
- Inomata, Takeshi, Daniela Triadan, Erick Ponciano, Richard Terry, and Harriet F. Beaubien
2001 In the Palace of the Fallen King: The Royal Residential Complex at Aguateca, Guatemala. *Journal of Field Archaeology* 28:287-306.
- LeCount, Lisa J., Jason Yaeger, Richard M. Leventhal, and Wendy Ashmore
2002 Dating the Rise and Fall of Xunantunich, Belize. *Ancient Mesoamerica* 13:41-63.
- Lévi-Strauss, Claude
1982 *The Way of the Mask*, translated by S. Modelski. University of Washington Press, Seattle.
1987 *Anthropology and Myth: Lectures, 1951-1982*, translated by R. Willis. Basil Blackwell, Oxford.
- Mackie, Euan W.
1985 *Excavations at Xunantunich and Pomona, Belize, in 1959-60*. BAR International Series 251, Oxford.
- Manahan, T. Kam
2004 The Way Things Fall Apart: Social Organization and the Classic Maya Collapse of Copan. *Ancient Mesoamerica* 15:107-125.
- McAnany, Patricia A.
1993 The Economics of Social Power and Wealth Among Eighth-Century Maya Households. In *Lowland Maya Civilization in the Eighth Century A.D.*, edited by Jeremy A. Sabloff and John S. Henderson, pp. 65-89. Dumbarton Oaks, Washington, D.C.
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Texas Press, Austin.
- McAnany, Patricia A., and Shannon Plank
2001 Perspectives on Actors, Gender Roles, and Architecture at Classic Maya Courts and Households. In *Royal Courts of the Ancient Maya, Vol. 1: Theory, Comparison, and Synthesis*, edited by Takeshi Inomata and Stephen D. Houston, pp. 84-129. Westview Press, Boulder.
- Ringle, William W., and George J. Bey III
2001 Post-Classic and Terminal Classic Courts of the Northern Maya Lowlands. In *Royal Courts of the Ancient Maya, Vol. 2: Data and Case Studies*, edited by Takeshi Inomata and Stephen Houston, pp. 266-307. Westview Press, Boulder.
- Sanders, William T., and David Webster
1988 The Mesoamerican Urban Tradition. *American Anthropologist* 90:521-546.
- Sandstrom, Alan R.
2000 Toponymic Groups and House Organization: the Nahuas of Northern Veracruz, Mexico. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 53-72. University of Pennsylvania Press, Philadelphia.
- Sharer, Robert J., and Charles W. Golden
2004 Kingship and Polity: Conceptualizing the Maya Body Politic. In *Continuities and Changes in Maya Archaeology: Perspectives at the Millennium*, edited by Charles W. Golden and Greg Borgstede, pp. 23-50. Routledge, New York.
- Stuart, David
1998 "The Fire Enters His House:" Architecture and Ritual in Classic Maya Texts. In *Function and Meaning in Classic Maya Architecture* edited by Stephen D. Houston, pp. 373-425. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Sullivan, Lauren A., Brett A. Houk, and Fred Valdez, Jr.
2006 The Terminal classic in the Three Rivers Region. Paper presented at the 4th annual Belize Archaeology Symposium, Belize City, Belize.
- Traxler, Loa
2001 The Royal Court of Early Classic Copan. In *Royal Courts of the Ancient Maya, Vol. 2: Data and Case Studies*, edited by Takeshi Inomata and Stephen Houston, pp. 46-73. Westview Press, Boulder.
- Valdez, Fred, Jr., and Palma Buttles
2006 Terminal Classic Events: Colha, Belize and the Central Maya Lowlands. Paper presented at the 4th annual Belize Archaeology Symposium, Belize City, Belize.
- Watanabe, John M.
2004 Some Models in a Muddle: Lineage and House in Classic Maya Social Organization. *Ancient Mesoamerica* 15:159-166.

Weber, Max

1947 *The Theory of Social and Economic Organization*. Translated by A. R. Henderson and Talcott Parsons. William Hodge and Company Limited, London.

Webster, David

2000 The Not So Peaceful Civilization: A Review of Maya War. *Journal of World Prehistory* 14:65-118.

2001 Spatial Dimensions of Maya Courtly Life. In *Royal Courts of the Ancient Maya, Vol. 1: Theory, Comparison, and Synthesis*, edited by Takeshi Inomata and Stephen D. Houston, pp. 130-167. Westview Press, Boulder.

27 **LESSONS LEARNED: EVALUATING THE KNOWLEDGE BELIZEAN STUDENTS HAVE ABOUT ARCHAEOLOGY, HISTORY, AND THE ANCIENT MAYA**

Alicia Beth Ebbitt McGill

In a world where community-based archaeology, archaeology outreach, and heritage education are becoming increasingly popular, and even an archaeology permit requirement in some countries, it is important to examine the different ways certain concepts are taught to students and adults. Additionally, for successful engagement and collaboration with different groups through archaeological practice, we need to consider the ideas students and teachers already have about history and heritage and how they consume, interpret, and transform information about history they gather from a variety of sources. Young Belizeans are surrounded by Maya sites in their physical environment and recognize that these sites are important tourist attractions. Understanding how a group of Belizean students interact with sites, value cultural resources, and what knowledge they already have about heritage and archaeology may reveal more engaging ways to involve school students and the general public in learning about history, cultural heritage, and archaeology. This paper is based on ethnographic research conducted in Government Schools in two rural Kriol communities in Belize. I discuss research findings about student knowledge and learning and some misconceptions about archaeology and the ancient Maya. I conclude with a discussion about the potential implications of the kinds of knowledge students develop.

Introduction

In a world where community-based archaeology, archaeology outreach, and heritage education are becoming increasingly popular all over the world (and even required for archaeology research permits in some countries), it is important to examine the different ways certain concepts related to these issues are taught to students and adults. Additionally, for successful engagement and collaboration with different groups through archaeological practice, we need to learn about the ideas students and teachers already have about history and heritage and how they consume, interpret, and transform information that they gather from a variety of sources. Young Belizeans are surrounded by Maya sites in their physical environment and are often reminded that these sites are important tourist attractions. Understanding how Belizean students interact with sites, how they value cultural resources, and what knowledge they already have about heritage and archaeology may reveal more engaging ways to involve school students (as well as the general public) in learning about history, cultural heritage, and archaeology. I believe that expanding our knowledge about varied values and ideas about cultural resources is an ethical obligation and may lead to better interactions with different groups, the development of more effective educational materials, and better understanding

of how archaeology impacts the development of young citizens. This work may even enhance archaeological practice overall by creating more inclusive interpretations of the past and may help us to inhibit and respond to misinterpretations about history, archaeology, and culture. This is especially important in a young post-colonial nation like Belize with a diverse ethnic composition, complicated cultural history, and national, local, and global interest in its cultural resources.

This paper is based on ethnographic dissertation research conducted in Government Schools in two rural Kriol communities in Belize. Both communities are located near Maya archaeological sites, however only one village has witnessed and participated in a 20-year long archaeological research project that included outreach and education. I chose to work in Belizean Government Schools for my dissertation on student learning about history and heritage because of the recent efforts to incorporate African and Maya history into social studies classes in primary schools and because schools are a great environment for learning about how young citizens think and learn about heritage. In this paper I discuss preliminary research findings, some of the ways students learn about history and archaeology in Belize, and some of their misconceptions about archaeology and the ancient Maya. I conclude

the paper with a discussion about the potential implications of the kinds of knowledge students have developed.

Research Agenda and Contextual Background

In the fall of 2009, I began 10 months of ethnographic research in two small Kriol villages in North-Central Belize. Aware of the long history of archaeology in Belize, community involvement in archaeology in Crooked Tree Village, and national initiatives to incorporate African and Maya history into schools, I set out to determine how teachers, students, and community members respond to, interpret, and transform messages about history, culture, and archaeological heritage in formal and informal educational contexts. I am interested in how people (especially youth) construct knowledge and identities and the ways individuals negotiate ideologies and respond to structural constraints (e.g. Coe 2005; Holland et al. 1998; Rubin 2007), and developed three main research questions: 1) How do national education initiatives and local research related to history, heritage, and culture influence students' and teachers' knowledge production in two different Belizean communities? 2) Do teachers and other community leaders manipulate ideas about history to fulfill community needs and combat inequalities and hegemonic national ideologies that privilege certain histories? 3) How do communities think about and connect with local cultural and historical resources? I wanted to learn more about how teachers and students deal with the complex web of issues related to history, culture, and heritage and how education and knowledge construction about these issues intersect with broader national and global concerns related to citizenship, racial and ethnic politics, and economic development.

This research is an interdisciplinary critical ethnography of education (crossing the fields of education, cultural anthropology, and archaeology). The research is comparative, taking place in two demographically similar Kriol communities: Crooked Tree and Biscayne Village. In my work, I am examining the teaching/learning and social contexts, or "educational ecology," surrounding historical and cultural understanding in these villages.

Levinson et al. (2007:4) use the term "educational ecology" to describe "a web of complex, cross-cutting activities and contexts through which individuals and organizations attempt to "teach" [citizens], even as they "learn" to adapt to [citizens'] needs." In Belize, social actors and curriculum designers suggest that learning about the nation's past and cultural heritage is integral to its future development (e.g. Cal 2004). Schools, national curriculum, archaeological sites, tourist propaganda, and local beliefs about histories and ethnic groups in the country make up part of the "educational ecology" of ideas about history and culture in Belize. Through this "educational ecology," I believe students and teachers learn implicit and explicit messages about the values and uses of history and the roles of different ethnic groups in society, development, and national identity. In this paper I focus on student knowledge about archaeological practice in Belize.

I chose to work in Crooked Tree due to the 20-year relationship between the village and the nearby Chau Hiix Archaeological Project and because citizens consider the Chau Hiix site a community resource, though they are not related to the Maya. In addition to conducting years of archaeological research, the Chau Hiix Project has organized educational activities including school visits, open houses, and information booths at local festivals. To account for influences of archaeology on student learning and knowledge, I also collected comparative data from Biscayne, a village also near Maya sites, but with little previous interaction with archaeologists. Most people in the villages are Kriol (descendants of Europeans (specifically British settlers), free Africans, and African slaves). Both communities are small and have government schools.

Much of my work is focused on children's voices and perspectives. As cultural agents, children create significant ideas about the world around them and their position in it. In schools, cultural information about what is important in society and different groups' status is transmitted to children. However, children are not passive receptacles of knowledge. They consume, negotiate, and appropriate information in creative and innovative ways (Corsaro 2005; Graue and Walsh 1998; Vygotsky 1978). By

including children in research we can better understand how they consume and transform information and how major issues such as globalization, consumerism, and societal change influence the creation of knowledge (Willis 1981).

Existing (national and local) constructions of heritage, ethnicity, and race in history education surely influence the development of young citizens in different countries. Students and teachers are constricted and influenced by structural, economic, racial, and ethnic inequalities (Rubin 2007:450). It is important to understand how those issues impact youth, teacher, and community actions and ideas about heritage and history. We need to consider the role children play as future citizens in society and the power of effective and engaged archaeology education.

Many cultural and historical factors impact how history is taught and interpreted by Belizeans. Belize is an ethnically diverse nation with a rich heritage. As a young postcolonial nation, Belizeans are still defining their national identity. The African and Maya History Project (AMH) is a recent heritage revitalization education initiative in Belize that highlights African and Maya civilizations and promotes multi-vocality, something absent from colonial education (Ashcraft and Grant 1968; Bolland 2003). Archaeological research is an important locus for history education in Belize as well due to the prevalence of sites and interest in promoting these resources. However, the majority of archaeological research focuses on Maya history and students have many misunderstandings about racial, ethnic, socio-economic, diversity in Belize.

I began my research with idealistic ideas about non-descendant communities connecting with local heritage (like Maya sites) and community members' ideas about the value of knowledge about the past. I thought that "concepts of heritage" would be integrated into education programs and student learning. I quickly learned that the communities I worked with do not consider nearby Maya sites part of their heritage or community identity and the extent of formal education related to history, prehistory, and culture is quite limited. As I observed school practice and talked to a variety

of school actors, I became more focused on the broader racial, ethnic, class, national, and global politics related to education and heritage. I began to consider the implications of limited and biased knowledge about history, misunderstandings about cultural groups, and concerns about youth on the development of young citizens and their interactions with people who are different from them (Haug 1998; Rubin 2007; Yon 2000).

Research Design and Data Set

To understand the social reality of students in Crooked Tree and Biscayne and answer my research questions, a variety of methods were used including (but not limited to) interviews and participant observation. I spent the majority of my time (4-5 days a week) in two different upper-level grades (Standards IV and V) in the Crooked Tree and Biscayne primary schools and spent the rest of my time conducting interviews with teachers, community members, and other social actors. A total of 69 students agreed to participate in my project. I used several activities to gather information about student knowledge about archaeology, history, and the ancient Maya.

The first activity I did with the students was to have them draw pictures of archaeologists. I wanted to learn about their ideas about what archaeologists look like, what kinds of tools they use, the work they do, and where they work. Many archaeology education projects focus on dispelling myths and stereotypes about archaeological practice. Identifying the kinds of ideas and misconceptions Belizean students already have about archaeology may provide valuable information for future archaeology education efforts in Belize. To determine students' general knowledge of Belizean history, cultural diversity, and archaeology at the beginning of the year, I also conducted semi-structured interviews with questions on these topics. To diversify my data collection, I combined the interviews with various other activities which will be analyzed and discussed in future work. At the end of the year, particularly talkative students were interviewed a second time to evaluate some of the knowledge they gained over a year of social studies education and to

learn more about their perspectives on racial and ethnic issues in the country and certain issues they thought were significant to youth (e.g. development, crime, education).

Participant observation enables researchers to collect varied data, formulate good interview questions, and address research questions in different ways. To discover *what* and *how* students learn about history and culture in schools, and to see how teachers incorporate ideas about heritage into their classes, I spent about two days a week at each school observing and participating in social studies classes, school events, and activities. The year also involved two fieldtrips—one to the Belize Museum and a visit to the Maya archaeological site of Lamanai.

Themes in Student Knowledge

In the following sections I discuss some of the way students learn about archaeology, history, and culture in different contexts in Belize. Additionally, I reveal some of the themes in student knowledge about archaeology that I identified in preliminary data analysis. I discuss students' general contact with archaeological sites, how students visualize sites and archaeological settings, and their ideas about archaeologists and archaeological practice. This knowledge will help future archaeologists dispel myths and misconceptions about archaeology and history and use more engaging ways to promote accurate images of archaeology.

Learning about History and Archaeology in Belize

There are a variety of sources of knowledge about history, archaeological practice, and the ancient Maya in formal and informal contexts throughout Belize. Students in Belize can learn about archaeology, the ancient Maya, and national history at archaeological sites, through local archaeological research, at museums and cultural centers, and in school. Maya archaeological sites are a large attraction for tourists and Belizeans and archaeotourism is a significant component of Belize's economy. Additionally, many archaeological research projects are conducted every year and archaeologists working at some of these sites interact with the general public by employing community members and through public

archaeology activities. The Institute of Archaeology carries out a variety of outreach activities throughout the year including classroom visits, presentations at festivals, and the Annual Belize Archaeology Symposium, which is open to the public. Finally, African and Maya history and information about the diversity of ethnic groups and history of Belize are part of the curricular requirements for Belizean primary schools. Significant interest exists in Belize to expand education about history and culture in schools because imagery and information about the past play important roles in defining national identity. Likely, student knowledge is also influenced by community member ideas about the uses, and importance of cultural resources.

History, culture, and archaeology are important to Belizeans, but these subjects are a small component of the overall primary education. In the classes I observed, students only had one or two social studies classes a week and Belizean history was a small part of the complete social studies unit. Additionally, a significant focus in primary education in Belize is on the Primary School Examination (PSE) which plays an important role in determining what kinds of high school education opportunities will be available to graduating primary school students. Social studies is only one section of the PSE and there are only a few questions about archaeology within this section. Because this is a "high stakes" test, there is a lot of pressure for teachers to "teach to the test". Additionally, the formal resources for teaching archaeology in primary schools are limited. Many teachers told me they are interested in archaeology, history, culture, and the ancient Maya but they do not feel they have informative or interactive tools for incorporating these subjects into their classes. The way students learn about culture in schools can be problematic as well (Haug 1998). Students learn about different ethnic groups in Belize, but they are taught that culture is made up of a set of characteristics and facts about groups. They learn that "dress + food + dance = culture" and that individuals neatly fit into contained categories. These definitions about culture do not enable students to understand cultural complexities and diversity and changes in

cultures over time. Instead of learning that culture is fluid and complicated, students learn a static version of culture which makes it difficult for students to express their own cultural practices and fully appreciate diversity around them.

Even though education about culture, history, and more specifically archaeology may be limited in Belizean schools, it is important to examine the content that is included and/or excluded. Social studies education related to history, culture, and identity may have hidden or overt messages related to assimilation, “who belongs” within a society and how young citizens should contribute to social, political, and economic development (Luykx 1999; Stevick and Levinson 2007; Yon 2000). These issues may have significant impacts on the identity construction and development of young citizens.

Student Knowledge about Archaeology in Belize

Many students I worked with had visited nearby archaeological sites (such as Altun Ha) with family and friends, which is a great way for students to participate in active learning about archaeology and the ancient Maya. Additionally, the Biscayne School has planned several trips to Belizean sites including: Lamanai, Caracol, and La Milpa. The Crooked Tree children live near the Chau Hiix site and many of their parents and relatives have worked at the site. The Chau Hiix Archaeological Project has sponsored multiple Open-Houses and even a school field trip so many of the Crooked Tree students recalled visiting “Chau Hiich” [sic]. In total, over half of the students had visited an archaeological site. When I asked students to tell me about their trips to the sites they had visited they fondly recalled seeing “Maya Mountains,” ruins, and stelae.

As I discussed above, I carried out a variety of activities to learn more about the kinds of knowledge students have about archaeology, history, and the ancient Maya. The data I gathered includes approximately 100 student interviews, over 60 student renditions from about five different kinds of activities as well as hundreds of pages of observation notes on classroom activities and general student comments. I am still in the process of transcribing interviews and analyzing data, but

have chosen to focus on some themes and findings based on student interviews and their drawings of archaeologists conducting archaeological work.

Student Drawings

I collected a total of 63 drawings of archaeologists from students: 21 from Biscayne students and 42 from Crooked Tree students (Figures 1 and 2). For this activity students were asked to draw what they thought an archaeologist looked like, what kinds of clothes they wear and tools they use, the places where they work, and the kinds of objects they find. Overall, Crooked Tree students seemed to have more complex ideas about archaeological practice than Biscayne students. Considering the long history of the Chau Hiix Archaeological Project, this is not surprising. Biscayne students had trouble figuring out what to draw, they had fewer objects and activities in their drawings, and there was less range in the kinds of things they included when compared with the Crooked Tree students. Repetition in some of the drawings may be accounted for by students working together or copying ideas from neighbors in the classroom. Several Biscayne students drew Maya people doing different activities. They drew things like Maya people farming, cooking, and colorful Maya clothing. I think these students were influenced by their ideas about modern Maya people. In general, all of the students were confused about the differences between contemporary and ancient Maya peoples and some students even confused archaeologists with Maya peoples in their interviews and drawings.

Archaeological Setting

Students are struck by the monumentality of archaeological sites and many of them said that their favorite part of visiting sites is climbing to the top of the ruins. In their drawings, 17% of all students drew mountains or mounds and 46% drew pyramids. Many students did not place their archaeologist in any kind of setting. Only 13 (of 21) students at Biscayne drew archaeologists in some sort of setting. The settings that Biscayne students drew include: mountains, pyramids, houses, and thatch huts.



Figure 1. Biscayne Standard IV student drawing of an archaeologist.

The most popular settings in their drawings were pyramids (48%) and thatch huts (20%). There was significantly more variety in the settings that Crooked Tree students drew and more students (39) drew archaeologists in settings. Crooked Tree student drawings included: mountains, caves, pyramids, museums, labs, houses, and tombs and the most popular settings in their drawings were pyramids (45%), caves (29%), mountains (24%), and museums (14%). I think that mountains were more popular in the drawings done by Crooked Tree students because many of these students had been to the Chau Hiix site where none of the structures are consolidated so the ancient Maya buildings look like steep mountains with trees sticking out of the sides and tops.

The data suggests that students are interested in the monumentality of archaeological sites in Belize, but also that this monumentality limits their conceptions of where archaeologists work and what they do. Students should learn archaeologists are not only interested in elite structures and lives but also in the daily lives of people in households, could

study the material culture of any ethnic groups in Belize, and that archaeologists work more often in libraries and labs than in the field. Additionally, limited knowledge about archaeological research on the ancient Maya may affect student ideas about their own cultural histories. When I asked students if there were archaeological sites other than Maya sites in Belize or if there are Kriol sites most of them said “no”. In fact, a prominent scholar of Kriol culture and language in Belize was even struck by my suggestion that the descendants of contemporary Kriol peoples could have left behind interesting artifacts. He said to me, “What would they dig up?” I think diversifying student understanding about archaeological practice will increase student interest in history, expand cultural understanding and appreciation, and enhance student pride about their own cultural history. Recent efforts to begin historical archaeology in Belize are a positive step in this direction.

What Do Archaeologists Find?

Students have a variety of ideas about the kinds of objects archaeologists find. Some students have accurate ideas about artifacts and talk about how archaeologists find evidence of ancient Maya culture and daily life like pieces of clay pots, stone tools, and animal bones while other students talked about archaeologists digging for treasures like jade and gold. Preliminary analysis suggests that students who have had more contact with archaeological research were less likely to suggest that archaeologists dig up treasures. Treasure, jewelry, or jade made up 28.5% of the artifacts in the Biscayne drawings while only 11% of the artifacts drawn by Crooked Tree students. On the other hand, in the Biscayne drawings only one student drew pottery, while 31 students at Crooked Tree drew pottery. Some Crooked Tree students have screened soil and seen and touched broken pottery and tools at the Chau Hiix site. In regards to other artifacts, at the Biscayne School, only 10 students drew artifacts, but amongst those that did, they included: treasure, jewelry, jade, pottery, rocks, modern artifacts, clothing, and money and the most popular artifact was clothing (29%).



Figure 2. Crooked Tree Standard V student drawing of an archaeologist.

The students (37) drew artifacts, including: treasure, jewelry, pottery, silverware, stone-tools, rocks, modern artifacts, crowns, clothing, weapons, and food. The most popular objects in their drawings were: pottery (74%), silverware (19%), rocks (17%), and modern artifacts (14%). Interestingly, while none of the Biscayne students drew bones, there were 55 different representations of bones (30 were human bones including skulls and fully articulate skeletons) in the Crooked Tree students' drawings and 93% of the students drew bones of some kind. Although I find this difference striking, I am not sure why it exists. In the past, there have been displays of animal bones at Chau Hiix, which could have influenced students' ideas about archaeologists digging bones. Or the prevalence of bones in Crooked Tree drawings could be because

students heard stories about some of the people who worked at Chau Hiix excavating skeletons.

Students had varied ideas about what archaeologists do with the things they find. Most of them responded either that "[archaeologists] put them up" or take them to a museum, but a few students talked about archaeologists keeping objects for themselves. It is great that students understand that many objects end up on display and in museums, but potentially concerning if students think about archaeology as untouchable, inaccessible, and object-oriented.

Most students recognized that archaeologists need permission to conduct the work they do in Belize, but they were unsure who they needed permission from. Most students thought archaeologists need permission from the government (including national and local government ranging from the Prime

Minister to the village chairman) and landowners. Many adult villagers were also confused about the logistics and legality of archaeological practice and site development and some people had unrealistic expectations about how much control individual villagers and archaeologists have over work at archaeological sites. It may be important for future archaeologists to resolve these misunderstandings, especially in relation to the potential benefits that archaeologists and the government gain from archaeological research and sites.

What do Archaeologists look like and what do they use?

I was pleased that many of the students drew female archaeologists. At Biscayne, eight students drew female archaeologists, three drew male archaeologists, six drew a figure of indistinguishable sex, and four did not draw an archaeologist at all. At Crooked Tree, 18 students drew male archaeologists, 10 drew female archaeologists, six students drew archaeologists of both sexes, five drew individuals of indistinguishable sex, and three students did not draw any archaeologists. To me this demonstrates the power and potential of diversity in archaeology outreach. Students draw and think about what they see and by providing them with diverse role models in archaeology perhaps they will even consider themselves as future archaeologists.

Many students thought there are Belizean archaeologists in Belize, but could not identify one. They were proud that foreign archaeologists come to study *their* history. One student said, "When you visit Belize and you want to learn about *our* history and archaeology, they have the Belizean archaeologists who, told you, about stuff and take you to see for yourself"

Although many students had an idea that archaeologists work at ruins and dig up objects to learn about the past, most students did not have complex ideas about the steps involved in the archaeological process. Only five Biscayne students (24%) depicted archaeologists conducting any kind of activity and only 18 (43%) of the Crooked Tree students drew an archaeologist doing something and every Crooked Tree student showed an archaeologist

digging. Students need to understand that archaeology is more than just digging so they can see that archaeology is not just about artifacts, but it is a science in which archaeologists are test hypotheses, answer questions, and tell stories with the things they find. Overall, Crooked Tree students seemed to have a more accurate idea about the kinds of tools that archaeologists use and the kinds of work that they do in the field. Most students thought that archaeologists work in the field. None of the Biscayne students included labs or museums in their drawings and two of them drew some sort of house. The numbers were slightly higher for Crooked Tree students where six students drew museums, one drew a lab, and eight drew some a house or place on site to store artifacts, but some were not sure what archaeologists did at these places. The accurate lab activities students mentioned included: counting, measuring, and testing objects as well as putting objects back together.

Although students were not always sure what archaeologists do, almost all of the students drew some kind of tool in their pictures. Twenty students at Biscayne drew tools including: hammers, digging implements, brushes or brooms, gloves, gardening tools, machetes, buckets, and cameras. Out of these, the most popular tools were the digging implements (71%), hammers (62%), machetes or tools for chopping and cutting (57%), and brushes/brooms (33%). Thirty-Seven of the Crooked Tree students included tools in their drawings: hammers, digging implements, brushes, chisels, gloves, gardening tools, screwdrivers, chopping tools, flashlights or headlamps, posthole diggers, buckets, guns, tables, helmets, cameras, and phones. The most popular tools were digging implements (79%), hammers (24%), tables (17%), and brushes (17%). Again there was more variety in the Crooked Tree drawings.

Concerns and Implications of Student Knowledge

Ideally, archaeological practice is a balancing act combining the interests, needs, and concerns of a variety of groups. This can include but is not limited to foreign and national archaeologists, community members, teachers,

and students. Combining multiple interests and needs can be difficult, but I believe that developing an understanding of student learning and knowledge construction can help reach multiple goals. Overall, the students I worked with had limited ideas about the complexities of archaeological practice and the kinds of questions archaeologists are interested in. Archaeologists need to understand that knowledge about archaeology is not necessarily going to be a priority of teachers, students, and community members. Once we understand the kinds of interests, knowledge, and misconceptions young people have about archaeology and history we can work towards designing more engaging materials that challenge and dispel misunderstandings and stereotypes. Additionally, it is important for archaeologists to try and understand the broader social, economic, and racial impacts the knowledge of young Belizean citizens might have on national and global issues.

For example, limited social studies education overall and essentialist teaching about culture can lead to confusion and stereotypes about different cultural groups. When culture is taught as a static and unchanging set of characteristics and practices held by different groups of people students become confused about different ethnic groups and even lump all people who are different and unfamiliar into the same group.

Maya-centered tourism and archaeology undoubtedly influence student knowledge and interpretations about the past. Students' ideas about what is "significant" about the past and who the past is for can be influenced by tourism as well. As I mentioned before, recent foci on historic archaeology in Belize is great step towards diversifying student knowledge and understanding about the value of different histories in Belize.

It is also important to consider the needs and concerns of local educators when designing learning materials and evaluating the results of archaeology education. Many teachers I talked to in Belize are overwhelmed by the extensive amount of information they are supposed to cover in their classrooms and are unsure how to incorporate new curricular materials into their classrooms. Several interested and enthusiastic

teachers told me they just do not feel properly equip to teach about archaeology, history, the ancient Maya in their classrooms.

Preliminary analysis of school children's drawings and ideas revealed important implications about knowledge about history and archaeological practice in Belize. Further work has the potential to change how students learn about the past, archaeology research, and even contemporary cultural diversity. An ideal goal of successful archaeology education in Belize is raising awareness and appreciation of different cultures and histories and involving multiple groups in archaeological practice. The ways archaeologists interact with local populations and the ways Belizeans manage cultural resources has changed drastically over the last 20 years in Belize to be more applied and inclusive. Understanding the ways multiple people experience and interpret the past is part of the responsibility archaeologists have to local communities. As indicated by the quote below from a government official, these concerns have already been addressed by Belizean social actors and archaeologists and will continue to influence archaeological research and education in Belize in the future: "I would want them [the Belizean public] to become more aware, more informed, and start to appreciate and respect the ancient Maya and our culture. It's all part of our culture. Instead of just saying 'oh it's a bunch of old rocks and clay pots.' That's always the ultimate goal."

Acknowledgement The research for this paper was funded by a Wenner-Gren Foundation Dissertation Fieldwork Grant to conduct ethnographic research in Belize during the 2008-2009 year. Support for data organization, analysis and write-up was provided by an Indiana University, College of Arts and Sciences Dissertation Year Research Fellowship for the 2009-2010 Academic Year. The work conducted in Belize was done under a Permit to Conduct Social and Cultural Research in Belize from the Institute of Social and Cultural Research. This project (Project # 05-9849) was also approved by the Indiana University Institutional Review Board and all research participants provided the researcher with consent (for youth, parents also

provided consent) to use their comments and work in presentations and publications.

This work would not have been possible without continuous support and encouragement from the students and staff at the Crooked Tree and Biscayne Village Government schools as well as numerous community members in both of these villages.

Additionally, I would like to thank the Institute of Archaeology for inviting me to present the results of this research at the Seventh Annual Belize Archaeology Symposium and for inviting me to contribute this paper to the 2010 Research Report in Belizean Archaeology.

References Cited

- Ashcraft, Norman and Cedric Grant
1968 The Development and Organization of Education in British Honduras. *Comparative Education Review* 12(2):171-179.
- Bolland, O. Nigel
2003 *Colonialism and Resistance in Belize: Essays in Historical Sociology*. Cubola Productions, Belize City.
- Cal, Angel
2004 *Belize: Maya Civilization: Student's Handbook (Primary School – Upper Division)*. Center for Multi-cultural Studies and University of Belize Press, Belmopan.
- Coe, Cati
2005 *Dilemmas of Culture in African Schools: Youth, Nationalism, and the Transformation of Knowledge*. The University of Chicago Press, Chicago.
- Corsaro, William
2005 *The Sociology of Childhood*. 2nd ed. Pine Forge Press, Thousand Oaks.
- Graue, Elizabeth M. and Daniel J. Walsh
1998 *Studying Children in Context: Theories, Methods, and Ethics*. Sage Publications, Thousand Oaks.
- Haug, Sarah W.
1998 Ethnicity and Ethnically “Mixed” Identity in Belize: A Study of Primary School-Age Children. *Anthropology and Education Quarterly* 29(1):44-67.
- Holland Dorothy, William Lachicotte Jr., Debra Skinner, and Carole Cain
1998 *Identity and Agency in Cultural Worlds*. Harvard University Press, Cambridge.
- Levinson, Bradley A.U., Judson Everitt, and Linda C. Johnson
2007 *Integrating Indiana's Latino Newcomers: A Study of State and Community Response to the New Immigration*. Center for Education and Society Working Paper Series: Working Paper #1, 2007.
- Luykx, Aurolyn
1999 *The Citizen Factory: Schooling and Cultural Production in Bolivia*. State University of New York Press, Albany.
- Rubin, Beth C.
2007 “There’s Still Not Justice”: Youth Civic Identity Development amid Distinct School and Community Contexts. *Teachers College Record* 109(2):449-481.
- Stevick, Doyle and Bradley Levinson (editors)
2007 *Reimagining Civic Education: How Diverse Societies Form Democratic Citizens*. Rowman and Littlefield Publishers, Lanham.
- Vygotsky, Lev
1978 *Mind in Society*. Harvard University Press, Cambridge.
- Willis, Paul
1981 *Learning to Labor: How Working Class Kids Get Working Class Jobs*. Columbia University Press, New York.
- Yon, Daniel A.
2000 *Elusive Culture: Schooling, Race, and Identity in Global Times*. State University of New York Press, Albany.