KA'KABISH ARCHAEOLOGICAL RESEARCH PROJECT (KARP)

INTERIM REPORT ON THE 2012 FIELD SEASON

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As archaeological work would not be possible without the co-operation of the local people who have as much invested in our work as we do, if not more, we would also like to thank the following individuals: Ben and Margaretha Dyck of the Blue Creek Community for helping with the project logistics both during and between the field seasons; Srs. Blanco, Che, and Magana for allowing access to their land; the ladies of Las Orquideas for keeping us well fed; and all the members of the various communities, Indian Church, Indian Creek, and Shipyard, that provided us with information and assistance in a variety of ways.

CHAPTER 1

OVERVIEW OF THE 2012 RESEARCH AT KA'KABISH

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This volume details the work conducted by the Ka'Kabish Archaeological Research Project (KARP) under the direction of Dr. Helen R. Haines during the 2012 field season. This is the fifth season of archaeological investigations at the site and the third that involved excavation. During the first two seasons (2007 and 2009) the work was restricted to surveying the area and mapping the core zone of the site (Haines 2008a, 2010). The 2010 and 2011 field seasons continued the mapping of the site while at the same time initiated excavation work at key locations to provide data for the formation of a site chronology (Haines 2011, 2012).

The site of Ka'Kabish is located in north-central Belize, close to the sites of Lamanai, El Pozito, and Blue Creek (see Figure 1).The core area of the site was constructed on a limestone ridge, one of several that undulate across this part of north-central Belize (Hammond 1973; Romney et al. 1959). Situated at approximately 17^0 48' 58" north latitude by 88^0 43' 47" west longitude[1] the core area of Ka'Kabish was separated roughly in half by the construction of a road connecting the village of Indian Church to San Filipe (Figure 2). The site sustained damage during the construction of this road and at least one building was allegedly completely destroyed while two other structures, along with a section of the south plaza, are known to have been removed during the brief succeeding use of the site as a quarry for road fill (Guderjan 1996). Using this road as a dividing point the site is broadly referred to in terms of the North Complex and the South Complexes.

Additional damage to the site has been caused by extensive illicit looting operations (see Tremain 2011). Currently the greatest danger to the site is from the encroaching farmland. Much of the cohune palm forest surrounding the site has been cleared for sugar cane, banana, and corn plantations, as well as

[1]This reading was taken from the centre of the road that bisects the site using a Magellan 100 handheld GPS unit.

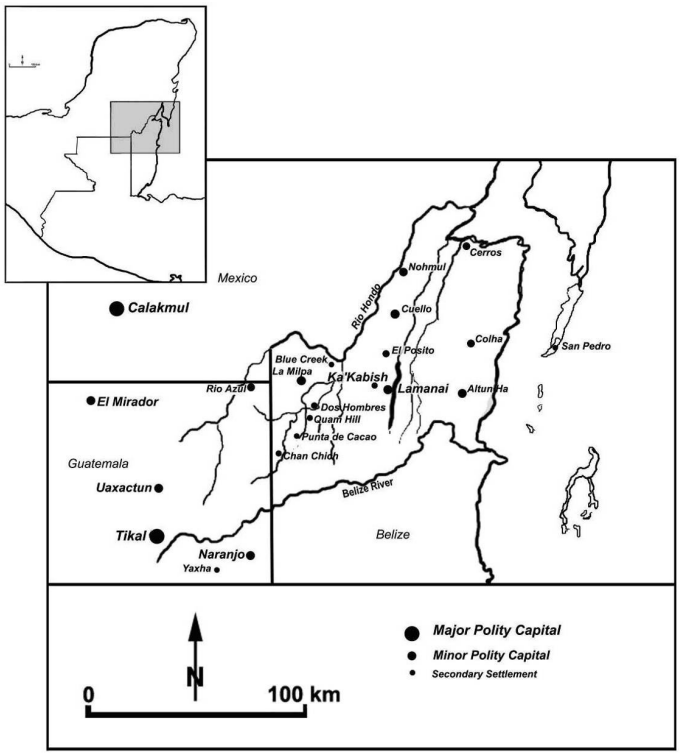

Figure 1. Map of Northern Belize and North-Eastern Guatemala showing location of Ka'Kabish and other key archaeological sites.

Figure 2. Aerial photograph showing location of Ka'Kabish in relation to Lamanai archaeological site and the modern towns of San Felipe and Indian Church.

cattle farming. This situation is undoubtedly exacerbated by the sites' proximity to four growing communities – one in every direction (as seen in Figure 2).

Since its inception, the Ka'Kabish Archaeological Research Project (KARP) has focused largely on mapping the core area of the site, as well as identifying and document the surrounding settlement zone. The latter work has been closely tied to agricultural activity by taking advantage of recently cleared and ploughed lands opened up by Mennonite farmers, or through accessing the recently cleared cane fields adjacent to the site.

The 2012 field season ran from May 11th to June 23rd2012. Following the field work research continued in the lab for an additional week and concluded on June 30th. Areas investigated during the 2012 field season encompassed a series of different locations and included continuing investigations from the 2011 season as well as beginning investigations in new areas of the site. The areas of continuing investigation were the Group D plaza between Structures D-5 and D-9 (Plaza D South) and the settlement zone surrounding the site. The new areas chosen for investigation were Structure D-5 itself and Chultun B-2. Additionally, survey work in the residential settlement area was extended to previously un-recorded periphery zones to the south-west of the site core (see McLellan this volume), while surveying and mapping areas of the areas immediately adjacent to the centre continued to both the west and east of the site (see Jamik this volume). The varied nature of the 2012 season was designed to provide a wide range of information and deliberately intended to cover a broad area of the site rather than a concentrated location. The results of these investigations will be used to further refine the site chronology and define the extent of settlement around the site core.

The most extensive investigations of 2012 were directed at the Group D plaza south of Structure D-5, where three units were excavated concurrently. Investigations in this area began briefly in 2010 with a 2 m x 2 m unit (known as Unit 1) placed south of Structure D-5, east of Structure D-8, and north of Structure D-9. Since excavation of the unit did not progress very far during the 2010 season it was reopened the following year. Despite the lack of progress in this unit, a significant amount of obsidian flakes were recovered from the first two levels alone (Heath 2011).

The cache deposit uncovered in the south wall of the unit in 2011 led to a 2 m x 2 m extension to the south of the unit (known as Unit 2 [see Haines 2011: 15]). The Middle Formative date assigned to the ceramics (Haines and Aimers 2011) drew attention to the potential for this locale being the earliest settled area of the site, and the 2012 excavations sought to follow the spread of this ceramic deposit so as to better understand its function. Thus, in 2012 excavation of Plaza D South was expanded to the west where another 2 m x 2 m unit was opened (known as Unit 3).

The 2012 continuing excavations of Plaza D South (Units 1 and 2) uncovered the most impressive results of the season (and perhaps the most impressive of the excavations at the site thus far).

In the first three weeks of field work excavation continued in Units 1 and 2 but left the southern section of the latter untouched due to the presence of a possible platform structure just below the surface (see Haines 2011 Figure 1-5). Undergraduate student Joshuah Lockett-Harris carefully excavated the already-deep excavation units anxious to discover artefacts of equal importance as those found in 2011, but expecting the unit to reach bedrock before doing so. He was instructed to join student Amanda Sinclair in the adjacent unit upon completion of his task, which was not expected to take long, and assist in the excavation of Unit 3 for the remainder of the field season.

Unbeknownst to all involved, Units 1 and 2 had a much more complex artefact assemblage beneath the previously excavated ceramic deposit. In the second week of the field season the first of many jade artefacts began to be uncovered from these units (see Lockett-Harris Chapter 2 this volume, for use of 'jade' terminology in this volume), surrounded in places by tiny shell bead fragments. The methodological and cautious nature of excavation following these discoveries allowed for the detection and recovery of extremely fragmentary human remains from the carved burial trench at the base of the units. Needless to say, this kept the excavation team occupied until the end of the third week of the field season and it took significantly longer to reach bedrock in the units than initially assumed (the poor weather conditions also slowed progress; heavy rains necessitated the construction of a large tarp over the units, diminishing light levels in this area of the plaza and reducing the speed of excavation).

Alongside the excavation of Units 1 and 2, undergraduate student Amanda Sinclair initiated excavation of Unit 3 in 2012. This unit was opened to the west of the existing units in the aim of following the ceramic deposit spread uncovered the previous year. Similar to the initial stages of excavation in 2010, a large amount of obsidian flakes were recovered from just below the surface level. Large rocks uncovered in the western edge of the unit, in which were found a significant number of flakes, may have been associated with the structural foundations of a platform in which obsidian production was taking place. In conjunction with the removal of these stones to facilitate excavation, a 20 cm bulk wall was left at the eastern edge of the unit so as to ensure no debris fell into the deeper units below.

Though there was no evidence for the continuation of the ceramic deposit to the west of Units 1 and 2, at the end of the third week evidence a 40 cm high platform with three tiers of roughly shaped stone covered in a thick layer of plaster was uncovered in Unit 3 (see Sinclair Chapter 3 this volume). Analysis of ceramics in the layers surrounding the platform indicate a Middle Formative construction date. The unit was covered in tarp and backfilled following this, with the intention of continuing investigations in future years.

In the following three weeks of the field season, undergraduate student Alex Gonzalez excavated the southern portion of Unit 2 in order to trace the architectural platform. The circular arrangement of

stones that had been left in place since 2011 were removed and excavation progressed until the unit reached the same level as Unit 3 where the rounded corner of the platform was revealed (Figure 3). The platform is oriented roughly along cardinal directions although it is unclear in which direction the primary axis is aligned. Work planned for the 2013 field season will, it is hoped, identify the structures alignment.

Excavations in Group D during the 2012 excavation were also initiated at Structure D-5 by Karen Pierce a student at the University of Colorado, Boulder. A unit measuring 2 m x 2 m was placed on the central axis of the south side of the structure (known as Operation 10, Unit 1 [Figure 4]) with the intention of locating the stair. Although large chunks of broken limestone plaster were recovered during the initial stages of excavation, no discernible architectural features were recognized. Upon the removal of many large stones from the second level of the unit a compact plaster surface was discovered (Figure 5). The unit was extended two metres north to continue tracing the surface in the hope that the edge of the building would be revealed. In the second week of excavation evidence for what appeared to be the edge of a stair was revealed and the units were subsequently extended two metres to the east (to form a 2 x 4 metre unit) in the hope of uncovering the stair.

Unfortunately it was later realized that the large tree roots growing across Structure D-5 had displaced much of the outer construction, to the extent that it had become unrecognizable during the process of excavation. It was likely that parts of the unit had circumvented the outer construction layer and had proceeded to remove parts of the inner construction fill in search of the structure. The trees also affected the progress of excavation itself, since a large fallen tree and the remnants of a broken tree stump were situated within the extension of the unit and were causing problems for the excavation team. At the end of the second week of the field season these trees were removed using a chainsaw, which increased the useable space in the unit and allowed excavation to continue without obstruction (see Figure 4).

The damage and confusion caused by the tree roots affected the development and results of excavations at Structure D-5, as did poor weather conditions. What did seem clear at the end of the field season, however, was that evidence for the stair was lacking. Dr. Elizabeth Graham suggested that the lack of facing stones might be the result of them being removed and used in Post-Classic re-occupation of the area (personal communication 2012).

The failure to find a staircase on the south side resulted in the focus of the work being shifted to the north side where a looter's trench penetrated the building along the central axis. It became clear during the course of investigation that the actual entrance to the interior of the building had been much lower originally and the trench had collapsed. Consequently, work in this area (Operation 10, Unit 4) focused on clearing the collapsed material from the outer area of the trench. During this process a plaster floor was encountered below the collapse and it appears that the looters found, and followed this floor to a small step at which point they angled up and into the core of the building. Squished between the

collapsed fill and the floor remnants of what appeared to have been a fruit sack were recovered along with broken sherds from a bi-chrome plate and 2690 pieces of obsidian (83 cores, 731 pieces of debris, and 1876 blades) weighing 1646 grams. We surmised that the material was collected from the cocoon tomb inside the structure (Haines 2008a, 2008b) and transported in the sack. As the material is not sellable it was likely abandoned in the trench and buried when the ceiling fell.

The excavations in Structure D-5, although on initial glance perhaps seemed fruitless, in fact, not only accomplished their objective but also provided additional unexpected information. The excavations on both sides of the structure showed that the building, at least in its final stage, had only one staircase. They also revealed that the building was oriented to the north, facing onto the small courtyard in the north-east quadrant of the Group D plaza. Additionally, while the artefacts recovered cannot be confirmedly tied to the looted tomb, the quantity and quality of the material is in keeping with mortuary materials found elsewhere and suggests that the tomb's occupant was a person of some importance. Moreover, the plate sherds recovered show a high degree of similarity to the plates recovered from the cocoon tomb at Lamanai (Pendergast 1981) although the paste is not the same as the Lamanai plates (Howie personal communication 2012). The similarity in the ceramic styles but variation in their manufacture raises additional interesting questions as to the relationship between these two sites.

Also accomplished during the 2012 season was an investigation of the ballcourt marker between Structures D-6 and D-7. The marker, roughly one metre in diameter and 50 centimetres thick, is located in the centre of the playing alley (Haines 2008a). Since it had been previously disturbed by looters', who appear to have searched underneath the marker for a cache (no doubt stimulated by the discovery of a rich cache offering underneath the ballcourt marker at Lamanai [see Pendergast1982]), Haines was interested in determining whether or not the marker had been turned over and if there was evidence for a carving on this lower surface. Upon raising the marker high enough from the ground to see underneath with a flashlight, it was discovered that not only was the surface un-carved, but that it was also deeply convex.

Although flat, disc-shaped markers are more common ball court markers with domed-bottoms have been documented at other Maya sites (MacKinnon and May 1991:74). Uncarved markers, while disappointing, are also not unusual, and they have been noted at several sites in the Belize Valley and Vaca Plateau area (Ferguson 1990; Healy 1992; Taschek and Ball 1999).

Figure 3. Middle Formative platform structure in Units 2 and 3, Plaza D South (facing south).

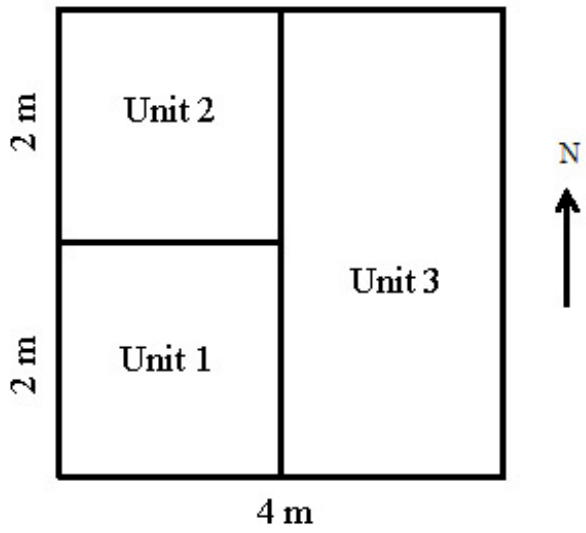

Figure 4. Structure D-5 arrangement of excavation Units 1, 2, and 3.

Figure 5. Structure D-5 excavation unit. The displacement of stone blocks can readily be seen amongst large tree roots, some of which sit atop the plaster surface at the base of the trench.

Outside of Group D, investigations were initiated in Group B during the 2012 season. Having only been subject to a cursory examination during the 2007 mapping season (see Haines 2008a), graduate student Toni Gonzalez sought to improve our understanding of Chultun B-2 by carrying out careful excavation of the contents of the chultun's western chamber (see Gonzales Chapter 5 this volume). Beginning with the removal of debris that had fallen into the un-capped opening (likely removed by looters), excavation progressed to create an even surface by concentrating initially on the high build-up of limestone ceiling fall at the northern section. The resulting sloping surface was soon levelled out, and fragments of human remains began to be uncovered. Future analysis will determine the number of individuals in the chultun, and the results will be presented in Ms. Gonzalez's Master's Thesis. Investigation of the chultun will continue during the 2013 field season, where the nature of the eastern chamber will be determined.

In addition to the excavations in Groups D and B, survey work was carried out by Erik Jamik. With the purpose of creating an extended map of the site core and periphery groups, attention was paid to re-surveying known groups and surveying newly recognised groups to the south and west of the site core. The addition of six new groups demonstrates that Ka'Kabish continues to exceed expectations of size and seemingly regional importance. The three known groups to the north side of the site core, north-west of

Group F, were not mapped due to the large number of new mounds found on the south side of the road. It is hoped these groups can be surveyed and added to the existing site map in coming years.

Investigations of the settlement zone surrounding the site also continued during the 2012 season, building upon previous years' techniques of combining surface survey techniques and test pitting. The investigations were carried out by graduate student Alec McLellan for the third year in a row, who hopes to expand his investigations in the settlement zone for a Ph.D. dissertation. It is hoped that in upcoming years he will return to Ka'Kabish to map the settlement between Ka'Kabish and Lamanai to understand the nature of habitation around, within, and between these two sites.

Overall, the 2012 field season contributed towards our understanding of the earliest occupation at the site, revealing significant information about the Formative period. In addition to a burial with a rich variety of offerings in the plaza area and a burial/s in the chultun, other notable discoveries included several previously unknown residential groups that have extended the site map considerably.

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CHAPTER 2

A PRELIMINARY ANALYSIS OF THE KA'KABISH FAUNAL REMAINS

by Mr. Norbert Stanchly

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Introduction

This report provides summary observations of the preliminary analysis conducted of 1,896 bone, tooth and shell specimens from excavations at Ka'Kabish conducted in 2010, 2011, and 2012, as well as some material collected during the early two survey years (2007 and 2009). Faunal remains were recovered from 55 separate excavation lots. They were found to include both locally available invertebrate and vertebrate taxa as well as several taxa procured from the Caribbean Sea, likely through established trade networks.

Invertebrates include freshwater and marine gastropod and bivalve species. Identified invertebrate species include inland and locally available jute (*Pachychilus* spp.), apple snail (*Pomacea flagellata*), and river clam (*Nephronaias* spp.). Identified marine shell includes queen conch (*Strombus gigas*), fighting conch (*Strombus pugilis*), olive shell (*Oliva* sp.), and thorny oyster (*Spondylus* sp.). The vertebrate remains include mammal, bird, amphibian, reptilian, and cartilaginous fish. Identified taxa include white-tailed deer (*Odocoileus virginianus*), brocket deer (*Mazama* sp.), domestic dog (*Canis lupus familiaris*), armadillo (*Dasypusv novemcinctus*), peccary (Family Tayassuidae), large cat (Family Felidae), large rodent (Order Rodentia, cf. agouti, paca, or pocket gopher), Mexican musk turtle (*Staurotypus triporcatus*), snake (Order Serprentes) and rat or mouse (Family Cricetidae).

The majority of the identified taxa represent food sources for the Ka'Kabish community. Exceptions to this are the single rat or mouse bone, possibly the snake, and the olive and Spondylus shells. Although the conch shells were valued as raw material in the production of artifacts, their meats were likely consumed.

Evidence for crafting is evident in the significant number of worked shell and bone specimens. More specifically, shell beads, mainly crafted from marine species but also from apple snail, jute and river clams, account for 564 specimens, or 29.7% of the faunal assemblage. A single Spondylus shell inlay was also noted. Two bone needles, a partial bone flute, and an ear spool shaped from a shark

vertebra, were also noted. The majority of the worked material was recovered from a single excavation lot associated with Middle to Late Formative contexts.

Methods

Taxonomic nomenclature is based on the following references: for mammals, Emmons (1990) and Reid (1997), shells follow Tucker Abbott and Morris (1995), turtles follow Ernst and Barbour (1989) and Lee (2000), while snakes and lizards follow Lee (2000) and Villa et al. (1988). Fish nomenclature follows Böhlke and Chaplin (1968) and Greenfield and Thomerson (1997). Bone nomenclature (e.g. specimen, element) follows Lyman (1994).

The faunal sample was initially sorted into identifiable and unidentifiable groups. Quantification of the assemblage is presented as the number of identifiable specimens (NISP) and number of specimens (NSp) for unidentified bone. These provide the relative abundance of the identified taxa. Specimens were considered identifiable if they possessed diagnostic morphological characteristics that enabled their identification to zoological class or lower taxon. Bone fragments that could not be sorted to the basic level of zoological class were considered to be unidentifiable. For all identifiable bone and tooth specimens the following observations were recorded when possible: lowest zoological taxon present; element or portion thereof represented and side; age estimates (based on the degree of epiphyseal fusion), and any natural or cultural modifications.

The Faunal Assemblage

Preservation of the faunal material from the site is poor and almost all of the bone exhibits extensive weathering in the form of pitting and exfoliation of cortical bone surfaces. The 1,896 specimens examined for the purposes of this preliminary report include representatives of two invertebrate and five vertebrate zoological classes. Gastropods (univalves) and general molluscs (unidentified gastropod or bivalve) account for the majority of the assemblage (Table 1). A total of 27 specimens (1.4%) could not be identified to zoological class. Of the 1,858 specimens identified to rank of zoological class, a total of 994 specimens could be identified to zoological order or lower rank. Table 2 provides the distribution of all faunal specimens identified to zoological class or lower taxonomic rank.

Zoological Class	NISP	%NISP
Gastropoda (Univalve)	868	46.7
Mollusca (Univalve/Bivalve)	502	27.0
Mammalia (Mammals)	357	19.2
Reptilia	65	3.5
Bivalvia (Bivalves)	38	2.0
Aves (Birds)	27	1.4
Chondriichthyes	1	0.1
Amphibia	1	0.1
Total	**1,858**	**100.0%**

Table 1: Distribution of Faunal Assemblage by Zoological Class

Although the majority of the assemblage consists of molluscs, both worked and unworked, they likely contributed very little in the way of nutrition. Of far greater importance as a food source would be the medium to large mammals. Mammals account for 19% of the identified specimens and several species commonly found in Maya archaeofaunas are noted. These include white-tailed and brocket deer, peccary, armadillo, turtle and large rodents (likely one or more of agouti, paca or pocket gopher).

Domestic dog is also noted, however their inclusion within the faunal assemblage is problematic as dog is represented only by teeth. At least three dogs are present in the assemblage based on the recovery of three lower right first molars. None of the teeth are modified. Because only teeth have been identified to date, we are hesitant to suggest that dog was consumed, even though they are cited as common food sources by many authors. Although the presence of only dental elements may be the result of taphonomic variables, we believe that the absence of even the denser skeletal elements (e.g. carpal or tarsal bones), suggests that they were either not consumed or that post-cranial elements one would normally expect to be found as evidence as food refuse, were discarded elsewhere.

White-tailed deer, brocket deer, and peccary would have provided greater relative amounts of meat than dog, armadillo or large rodent. Two large cat teeth were also noted. These are both partial and are from either a puma or jaguar. One shark vertebra was noted and is a modified specimen, interpreted to be an ear flare, and found in association with a burial. In fact, much of the shell bead assemblage recovered was also associated with this burial.

As this report represents only initial observations based on a preliminary analysis of the Ka'Kabish faunal assemblage, an examination of the spatial and temporal distribution of the faunal material is beyond the scope of this report. However, the majority of the faunal material was recovered from Middle and Late Formative contexts (Helen R. Haines, personal communication 2013). The presence of dog, turtle, deer, peccary, armadillo, rodent, and bird is similar to contemporaneous sites in northern Belize such as Colha (Shaw 1991) and Cuello (Wing and Scudder 1991). More detailed comparisons await additional analysis.

Future analysis of the material will include the completion of the acquisition of primary and secondary zooarchaeological data from the assemblage, and measurements of the shell bead assemblage. Future reporting will also provide a more detailed discussion of spatial and temporal animal use patterning at the site, in addition to more detailed comparison with contemporaneous sites in northern Belize.

Zoological Taxon	Common Name	NISP
Class Gastropoda	Univalves	
Gastropoda sp.	Unidentified marine shell	13
Oliva sp.	Olive snail	1
Pachychilus spp.	Jute	3
Pachychilus glaphyrus	Jute	2
Pomacea flagellata	Apple snail	786
Family Strombidae	True conchs	35
Strombus gigas	Queen conch	1
Strombus pugilis	West Indian Fighting Conch	14
Strombus sp.	Conch	13
Class Bivalvia	Bivalves	
Spondylus sp.	Thorny oyster	6
Nephronaias sp.	Freshwater pearly mussel	22
Family Unionidae	Unionid clams	9
Bivalvia sp.	Unidentified marine bivalve	1
Mollusca	Unidentified univalves/bivalves	502
Class Chondriichthyes	Sharks	1
Class Reptilia	Reptiles	
Staurotypus triporcatus	Giant Mexican musk turtle	3
Order Test dines	Turtles	29
Order Serpents	Snake	33
Class Aves	Birds	
Aves sp.	Unidentified bird	27
Class Mammalia	Mammals	
Dashpots novemcinctus	Nine-banded armadillo	1
?Order Chiropteran	?Bat	1
Canis lupus familiaris	Domestic dog	14
Family Felidae	Cats	2
Order Carnivore	Carnivores	1
Mazama sp.	Brocket deer	4
Odocoileus virginianus	White-tailed deer	5
Family Cervical	Deer	2
Family Tayassuidae	Peccaries	2
Family Cricetidae	Mouse/Rat	1
Order Rodentia	Rodents	4
Mammalia sp.	Unidentified mammal bone	320
Total		**1,858**

Table 2: List of Identified Taxa

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CHAPTER 3

FORMATIVE PERIOD KA'KABISH: A CERAMIC PERSPECTIVE

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Introduction

During the 2012 field season at Ka'Kabish I worked solely in the lab analysing sherds and whole vessels from the lower levels of the central plaza deposit in Group D. I was helped with this analysis during the season and afterwards by Dr. Kerry Sagebiel and Dr. Laura Kosakowsky. The reason for the focus on this particular deposit was to clarify the early occupation at Ka'Kabish, which will add to the corpus of knowledge about the occupational history of the site, through the analysis of the ceramic inventory. Traditional type-variety methods were implemented in the initial phase of sorting and closer diagnostic analysis was then carried out on distinctive pieces. To help determine the nature of the deposit we initiated a 100% artefact collection policy and introduced the weighing of ceramic material this season. The work on this deposit did not finish in the field however as thirty sherds were selected for thin section petrography to answer further questions that arose during the field season.

Research Questions

The overarching research question for my project is: What trends can be identified in the early ceramic inventory from Ka'Kabish in terms of chronology, socio-cultural identity and socio-cultural change? This can be further subdivided into five questions:

- When was Ka'Kabish first occupied?
- Do the ceramics give us an indication of who first settled the area and/or where they came from? (That is, are the same kinds of ceramics present elsewhere within or outside of the region at an earlier date, and does this tell us anything about 'ethnic' or cultural affiliation of the earliest settlers?)
- Does the ceramic inventory reflect connections with other regions?
- What was life like at Ka'Kabish as reflected in ceramics?

- Social hierarchy or status? (as seen in style; painting; decoration; ornamentation; origin of ceramic clays or slips or paints; context)
- Food-getting and processing systems? (as seen in shape; form; function; paste materials; evidence of cooking; residues)

Through type-variety analysis and a focus on form I hope to answer these questions. Closer inspection of the pastes of some of the unusual sherds and of the abundant red slipped sherds through thin section petrography will help to determine whether the ceramics are local variants of a Formative Period type and what kind of interaction the inhabitants of Ka'Kabish had with the wider Maya world in the Formative Period.

Method

Excavations at Group D plaza south began late in the 2010 field season and as a result did not progress very far. Excavations continued in the 2011 field season but were not completed (by that I mean reaching bedrock) due to the huge amount of ceramics uncovered in the final weeks of the excavation and poor weather conditions. The excavation was re-opened in 2012 with a 3 x 2 m trench with an aim of reaching bedrock. Excavation during this field season was carried out with geological rock hammers and trowels. All soil from the excavation was sieved through 1/4 inch mesh. The collection policy was slightly altered in the 2012 field season and 100% artefact retrieval was initiated, even for deposits that were mixed, to enable the interpretation of the nature of the deposit. Ceramics were brought into the lab upon level closures and were allotted a lot number which was written in sharpie (permanent marker) on the two tags on the finds bags (the lot list is now in a central Excel database with previous years' lot allocations).

The ceramics were washed and laid out to dry in metal mesh trays. All diagnostic sherds (for example rimsand highly decorated pieces) were labelled with white nail polish and the lot number written on with a black fine sharpie. Eighty percent of the non-diagnostic sherds were also labelled. All sherds were then counted and weighed. This information was then recorded on the central KKB (Ka'Kabish) artefact counts and weights Excel database.

The next stage of analysis was initial sorting. The ceramics from a layer were laid out on a white folding table and the non-diagnostic sherds were separated from the diagnostic sherds. Non-diagnostic sherds were unslipped or severely eroded body sherds. These were counted and recorded on the KKB ceramic sherd form (as provided by Dr. Kerry Sagebiel 2012) and then re-bagged and stored in zinc boxes. The diagnostics, which were rim sherds, base sherds and sherds with distinctive surface treatment, were then further subdivided. This was initially based on style, with a focus on decoration and slip

characteristics. These were then recorded on the KKB ceramic sherd form detailing the type, form and amount of sherds.

Following this cataloguing process, each diagnostic was examined in detail following the KKB diagnostic sherd form (as provided by Dr. Kerry Sagebiel 2012). When a large group of diagnostics of one particular type occurred sherds of unusual form were analysed following the diagnostic sheets, and a sample of the most common forms were also further analysed. The diagnostic sheets involved considering the vessel form, curvature, rim form, lip form, lip thickness, wall thickness, neck height, rim diameter, portion of rim present, interior and exterior surface treatment and Munsell colour, inclusion types, size, density and degree of sorting and roundness, core size and colour, paste Munsell colour and any further comments. Rim profiles for every diagnostic sherd that was further analysed were drawn and photographs with a scale were taken.

As well as looking closely at material for the 2012 season, I looked again at the deposit from the 2011 season that overlay the 2012 materials to ascertain a deeper understanding of the chronology and nature of the deposit as a whole. Aimers (2011) had already analysed this material in the type-variety format and the purpose of my analysis was not to question his but to look deeper at the types he already established and provide a more in-depth analysis of paste and form with description and rim profiles. It was also to deepen my own knowledge of this early material.

As suggested by Aimers (2011), I followed the type definitions of Cuello set out by Kosakowsky (1987) very closely. In a similar way to Aimers' (2011) systems approach, I have sherds 'Consejo Red' for example where it is most similar to the description set out by Kosakowsky (1987). However there was great difficulty defining varieties so at this stage varieties were not designated. I also worked alongside Dr. Kerry Sagebiel in the lab for the duration of my analysis and therefore we consulted regularly about type designation; on cases where we were unsure of the type designation we would describe the sherd rather than try to 'fit' the sherd to a ready established type.

Deposits Analysed

As mentioned above, the focus of my analysis was the Group D plaza south excavations (see Figure 1 for location within the site core). The most abundant and interesting finds came from lot 438, which was located in the lowest layer, just before reaching bedrock, of Operation 8 Unit 2. Therefore I will focus my attention on this deposit for this report.

This Lot contained 3,138 sherds and the only complete vessel from this year's excavation in the plaza deposit. Within the deposit types were identified that had been established in the later overlaying plaza levels of Lots 353 and 282 by Aimers in 2011, as well as new types identified this year. The majority of diagnostic sherds in this deposit are red slipped ceramics; this is reflected in other Formative

Period deposits such as at Cuello (Kosakowsky 1987). The two red slipped types I originally identified during the season were of the Consejo group, the Consejo Red type (Swasey/Bladen Ceramic Complexes at Cuello) and of the Sierra group, of the Sierra Red type (Lopez to later Cocos Ceramic Complex at Cuello). The percentage of Consejo Red sherds compared to the Sierra Red sherds is substantially higher in this deposit compared with the overlying Lot 353. I also noted that the Sierra Red sherds from this deposit had distinctively different forms from the overlying layers—rather than the abundance of out-curving dish forms found in Lot 353 and 282, there is a higher percentage of jar forms represented. As I reflected on the type of these red slipped sherds that I originally thought were Sierra Red I noticed that the jar forms seemed to have a thicker, darker and waxier slip with a pinker paste than other Sierra Reds found in the later overlying levels, which made me think they may indicate an earlier type. After consultation with Dr. Laura Kosakowsky (personal communication 2013) over email she also noted that these sherds were of a darker colour and this indicates that they probably belong in the Joventud Group rather than the Sierra; the Joventud group is in the Lopez- Mamom ceramic complex at Cuello, making it Middle Formative Period rather than the Late Formative Period.

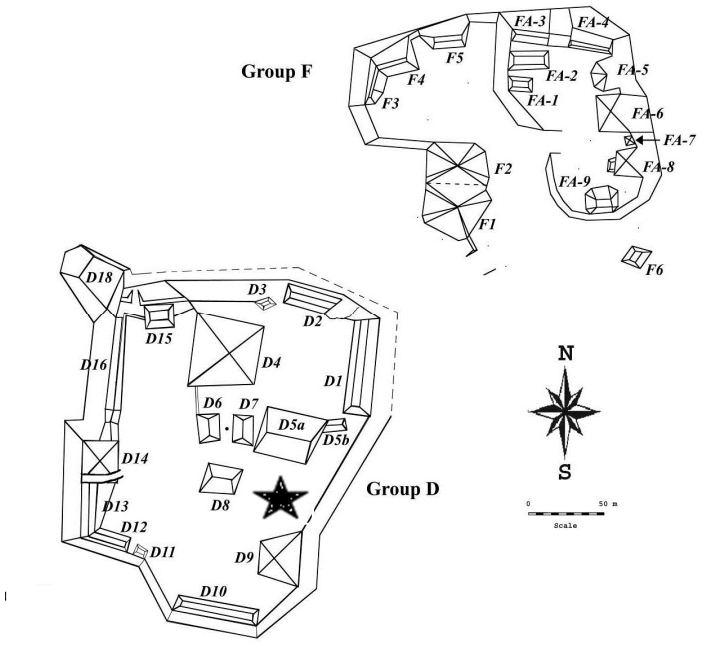

Figure 1. Ka'Kabish Site Core with location of Group D Plaza South excavation.
Group D Plaza South Operation 8 Unit 2 Level 16 (Lot 438)

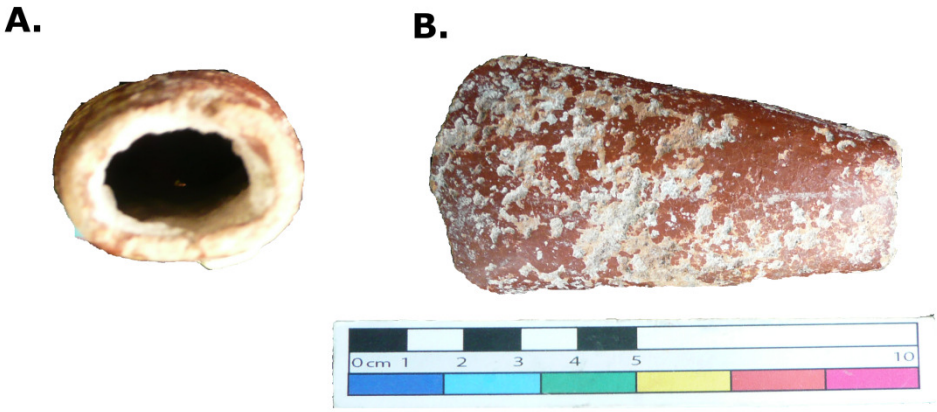

Figure 2. A. Ovate cross section through Joventud Group spout in Lot 438. B. Top view of same spout with scale.

Figure 3. Guitara Incised sherd from Lot 438 with "double-line break motif" on top of the interior rim.

On closer inspection, other sherds from this deposit which I originally noted as the later Sierra Group sherds may be earlier too. For example, a complete spout in the collection which I originally designated as Sierra Red is ovate shaped in cross section (see Figure 2) and this is noted by Kosakowsky (1987: 43) as being indicative of the Mamom Ceramic Sphere. These shaped spouts appear on Joventud Red Type: Palmasito Variety at Cuello in the Lopez Ceramic Complex (Kosakowsky 1987: 43). Another reason to think this deposit contains Lopez Ceramic Complex types is the relative abundance of incised red slipped ceramics with the "double-line break motif" which is characteristic of the Guitara Incised Type at Cuello (Kosakowsky 1987: 44 [Figure 3]). Originally I lumped these incised red slipped pieces into the Laguna Verde type but the earlier identifying attribute of the motif makes me think this is also part of the earlier Lopez Ceramic Complex. Through email correspondence with Dr. Kosakowsky I detailed my observations that these Sierra Red and Laguna Verde pieces may likely belong in the Joventud Group and she confirmed this, stating that the ovate spouts, darker red slip and double-line break motif commonly begins in Mamom and therefore it is likely these pieces do belong to the Joventud Group. She also noted after seeing Jpeg images of some of the sherds in question that flaring sided dishes with everted rims are also important indicators of the Middle Formative Period and there are a number of Guitara Incised pieces that fit this description. However there may still be Sierra Red Group pieces in this deposit as there were a few dish/plate sherds that were reminiscent of the Sierra dish/plate examples from the higher levels.

This lot also contained unusual pieces that were hard to place within an established type. I tended to assign them to a group, for example 'Consejo Group', and then describe the main features such as 'Consejo Red Chamfered'. There were a number of sherds that seemed to have an ash paste, which is different to the rest of the deposit and also unusual for Northern Belize. Examples of these ash pastes were taken for thin section petrography and a more in-depth discussion of this is detailed below in the '***Further Research'*** section. Pieces that I was particularly interested in seeing if they had counterparts at other sites in Belize I took along to the BAS 2012 Symposium to show to Dr. Kosakowsky. She placed the 'Consejo Red Chamfered' sherds into the Bladen Ceramic Complex due to the form with direct rims and rounded lips. Again, some of Sierra Group designations turned out to be earlier pieces and Dr. Kosakowsky noted a piece that I previously thought was an unusual Sierra Red-and-cream was actually a Muxanal Red-on-cream that belongs to the Lopez Ceramic Complex. Dr. Kosakowsky also identified some pieces that may have been Ramgoat Red which originally was established by Pring (1977) but merged with the Consejo group by Kosakowsky (1987) at Cuello. Ramgoat Red is different from the Consejo Red as it lacks a white underslip; the pieces Dr. Kosakowsky identified as Ramgoat Red were pieces I originally thought may have been a Chicago Orange due to the more orangey slip but this may be due to the lack of underslip.

The only complete vessel from this deposit was a Consejo Red slightly flaring bowl with a direct rim and rounded lip (see Figure 4). A carbon sample was taken from inside the vessel which has returned a date of 799-511 BC. This date straddles the dates given for the Bladen and Lopez Ceramic Complexes at Cuello listed by Aimers in the 2011 Ka'Kabish Interim report (information he gathered from Kosakowsky and Pring [1998]). The form of the vessel fits well with Bladen descriptions of the Consejo Red type and the slip and paste also seem to fit well with Bladen than the thick waxy reds of the Joventud group in the Lopez Ceramic Complex. However, the interesting attribute of the vessel is the exterior vertical incising that occurs continuously around the vessel from lip to base; other pieces in the deposit also have this attribute. The decoration does not fit exactly with examples of the Barqudier Grooved-Incised from Cuello (Kosakowsky 1987: 26) and therefore seems to be a different incised Consejo Red type. The radiocarbon date is close to the date from the cache vessels in the overlying levels of the Group D plaza south deposit which gave a date of 760-400 BC (Haines 2011: 10).

Compared with Cuello there seems to be significantly fewer orange slipped sherds within this deposit. A few rims were noted as Chicago Orange but this is speculative at this stage. There also seems to be a lack of any orangey paste ceramics in this deposit; a few eroded body sherds were quite orangey in paste but since they were not diagnostic it is very difficult to say if they belonged to any established type. A few black slipped sherds were present in this deposit which I identified as part of the Chunhinta Group and this was later confirmed by Dr. Kosakowsky (personal communication 2012). Please see Appendix A for a full list of types from Lot 438 (but please note that this is the original list from the field and the Joventud Group ceramics still need amending).

Further Research

Thirty sherds were exported from Ka'Kabish to University College London for petrographic thin section analysis; a deeper analysis using thin section petrography will provide a detailed description of the raw materials that were used to form the clay that made the vessel. Three sherds were selected for analysis due to their unusual fabric composition compared with other ceramics from the deposit. These three sherds may contain ash as an inclusion or temper within the ceramic fabric. This is interesting because, as noted above, ash tempered fabrics are not commonly found in Northern Belize (Jones 1986: 54-55). At Ka'Kabish during the 2010 excavations in Plaza D one sherd from Lot 4 (below humus layer and above Plaza D-VIII) was found to be ash tempered. This sherd dated the layer to the Late Classic period (Tremain 2011: 110).

The discovery of these possible ash tempered sherds within a Formative Period deposit is interesting since it raises questions as to how volcanic ash came to be in an area so far from any volcanic ash sources. Ash tempered ceramics do occur in Formative Period ceramics in the Upper Belize Valley,

for example at the sites of Blackman Eddy (Garber et al 2004: 15) and Cahal Pech (Brown 2007). These sites have been linked stylistically in regard to similar motifs and elements on incised type ceramics (Garber et al 2004: 17), yet these motifs are not represented in the Swasey ceramics of Cuello in Northern Belize (Garber et al 2004: 17). When an example of this ash tempered ceramic was shown to Dr. Kosakowsky and Dr. Jaime Awe they believed the paste may be of Belize Valley origin but the style was distinctly Northern Belize of Swasey ceramics and in particular that of the Consejo type (personal communication 2012) (see Figure 5.A.).

Though uncommon, sherds with ash tempering do occur in Northern Belize. Three sherds with ash tempering have been recovered from the site of San Estevan dating to the Swasey/Bladen Early Middle Formative Period layers at the site (Hardy 2006). Two of the sherds are black dish/bowls that seem to have no type comparisons and one is a red dish/bowl that is a local variant of Petteville Red-and-cream (Hardy 2006: 43-44). It is obvious though from the limited examples of their occurrence that ash tempered ceramics are still rare in this period in Northern Belize. Therefore, it will be interesting to note the correlation between the tempering and the types with this tempering to see if there is a correlation. Figures 5.B, C and D depict the examples taken for thin section analysis. The similarity between the three are that they are red slipped and have secondary decoration. B. and C. are both of the same form, a bowl, but it is unfortunately difficult to tell what form the Barquedier Grooved-incised (Figure 5d) is because it is a body sherd.

Figure 4. Complete Vessel from Lot 438. Consejo Red Striated.

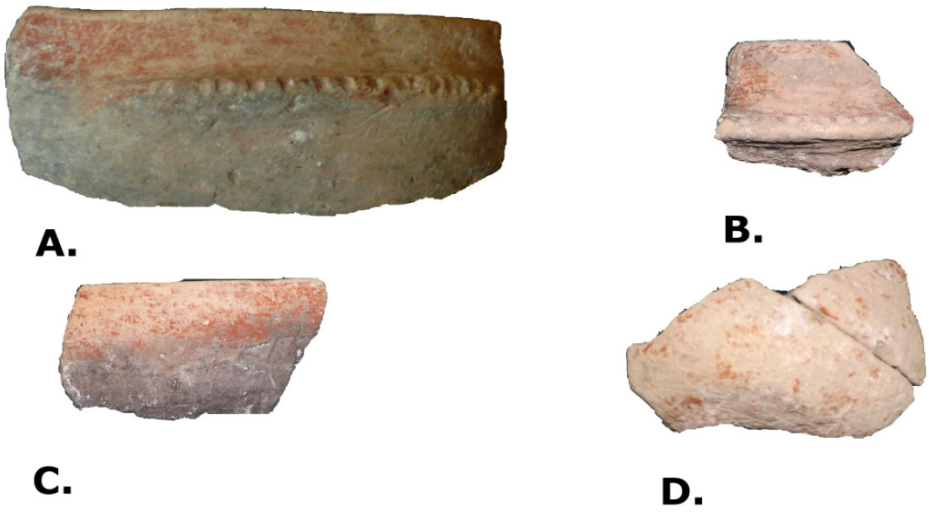

Figure 5. A. Ash tempered ceramic from Lot KKB 438 known as Unknown Red- and-reduced Punctated. B. Ash tempered ceramic from Lot KKB 438 known as Unknown Red- and-reduced Modelled- and-punctated. C. Same as A. but example taken for thin section. D. Barquedier Grooved- incised ash paste.

The other sherds taken to London for analysis were also from Lot 438. Prior to analysis they were considered to be Consejo Red, Sierra Red and Laguna Verde incised types. As mentioned above, on closer inspection and on reflection the Sierra Red and Laguna Verde Incised may actually belong to the Joventud Group. The sherds were originally selected because it became apparent to me during the 2012 field season that some pieces were more 'transitional' and did not fit neatly into the Northern Belize type groupings set out by Kosakowsky (1987) at Cuello. Some Consejo Red pieces seemed to contain grog temper (crushed pottery) which is not normally associated with this type but is seen in the Sierra Group. This line of enquiry can still be followed even though the Sierra Group sherds may belong to the Joventud Group because Joventud Red and Guitara Incised also contain grog and therefore the Consejo Red sherds may still be 'transitional' to Joventud Red. This may point to transitional phases at the site and the adoption of new techniques of paste preparation whilst still using previous styles of forming and decoration. Another reason to pursue thin section petrography is that it will help to establish whether the vessels were made locally or not (provenance) and how the vessels were formed (technology) (Quinn 2013: 7). It is important to answer these questions to help us form a holistic view of the occupants of Ka'Kabish in the Formative Period. The results of this thin section petrography will be presented in my Master's thesis for the Institute of Archaeology, University College London, later this year (2013).

Conclusions

The ceramics from the lowest levels of the plaza deposit are crucial to understanding early occupation at the site of Ka'Kabish. The presence of later Joventud Red sherds and possibly the few Sierra Red sherds means that at least some of this deposit dates to the later Lopez and Chicanel ceramic complexes of the Middle to Late Formative Period. The abundance of Consejo Red sherds and early black types such as Chunhinta Black indicate that there was a vast amount of earlier Swasey/Bladen ceramic complex material in this deposit too. This season I did not manage to identify any sherds that appear only in the Swasey ceramic complex, unlike last year when Aimers (2011) identified Backlanding Incised pottery which appears solely in the Swasey complex. All the Consejo Red sherds I identified had rounded lips and this is more indicative of the Bladen complex, whereas the Swasey complex has a high percentage of square lips (Kosakowsky 1987: 15). It therefore seems that the majority of material belongs to the Bladen complex. For future research direct comparisons with other Formative Period assemblages will be most helpful in refining the types set out above and will aid with possibly establishing Ka'Kabish types and varieties. A closer analysis of the forms and types of vessels represented in the deposit will be discussed in more detail in my Master's thesis submitted later this year.

Acknowledgments

I would like to thank Dr. Helen Haines for giving me the opportunity to work with such amazing material for my Master's thesis and for helping me with interpreting the archaeology. I would also like to thank Dr. Kerry Sagebiel for her tremendous insight and for her patience with me in the lab. Thank you to Dr. Elizabeth Graham for supervising me throughout my Master's and Undergraduate degree and for all the input and insight for this thesis. Thank you to Dr. Laura Kosakowsky who kindly answered my questions on Formative Period ceramics and helped me anyway she could. Also thank you to Dr. Patrick Quinn for helping me prepare thin sections and for your invaluable knowledge of petrography you have bestowed upon me. Finally, thank you to all the people of Indian Village that housed, fed, and worked with us while we are in the field and the fellow staff and students on the project for providing great moral support and friendship.

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Appendix A. List of Types from Lot 438, the Variety for all are "Unspecified"
(Please note this is the original list from the field that will be altered due to the re-assessment of the Joventud Group)

LOT	TYPE	VESSEL PART (Rim, Body)	VESSEL FORM (bowl, plate, jar)	SHERD COUNT
438	Consejo Red	Rim to Base	Bowl	2
438	Consejo Red	Rim	Bowl	2
438	Consejo Red	Rim	Bowl	1
438	Consejo Red	Body	Unknown	1
438	Consejo Red Incised with modelling	Rim to Base	Bowl	3
438	Consejo Red Incised	Body	Unknown	1
438	Sierra red and cream unspecified	Rim to base	Dish	3
438	Laguna Verde Incised	Body	Unknown	11
438	Laguna Verde Incised	Body	Unknown	5
438	Laguna Verde Incised	Body to Base	Unknown	2
438	Laguna Verde Incised	Basal break	Unknown	5
438	Laguna Verde Incised	Rim	Jar	13
438	Laguna Verde Incised	Rim to Base	Dish	1
438	Laguna Verde Incised	Rim	Dish	1
438	Laguna Verde Incised	Rim	Dish	12
438	Laguna Verde Incised	Rim	Bowl	4
438	Laguna Verde Incised	Rim	Dish/ Plate	16
438	Laguna Verde Incised	Rim	Too small	6
438	Consejo Red Vertical Grooving	Rim	Bowl	2
438	Consejo Red Vertical Grooving	Body with part base	Unknown	1
438	Barquedier Grooved-incised?	Body with part base	Jar?	1
438	Barquedier Grooved-incised?	Body	Unknown	10
438	Consejo Red Chamfered	Rim to Base	Bowl	2 fit
438	Consejo Red Chamfered	Rim to Base	Bowl	7 fit
438	Consejo Red Chamfered	Rim to Base	Bowl	3 fit
438	Consejo Red Chamfered	Body	Unknown	4
438	Consejo Red Modelled	Rim	Bowl	2
438	Similar to Tierra Mojada Resist orange and buff resist, incised exterior.	Rim	Bowl (Tecomate?)	1
438	Unknown red and reduced modelled and punctated	Rim	Bowl	4
438	Unknown red and reduced modelled and punctated	Rim	Bowl	3
438	Unknown red and reduced modelled and punctated	Rim	Dish	1

438	Unknown red and reduced modelled and punctated	Body	Unknown	7
438	Unknown red and reduced modelled	Body	Unknown	1
438	Unknown eroded chamfered	Rim	Bowl	1
438	Unknown red on cream modelled	Body	Bowl?	1
438	Consejo Red striated	Rim	Bowl	8
438	Consejo Red striated	Body	Unknown	2
438	Consejo Red striated	Complete Vessel	Bowl	
438	Consejo Red	Rim	Small but probably a dish.	1
438	Consejo red	Body and part of base	Too small to be analysed	1
438	Consejo Red Punctated	Rim	Bowl	6
438	Consejo Red Punctated	Rim	Bowl	1
438	Sierra maroon and cream incised	Base	Unknown	15
438	Matamore Reverse Incised	Rim and Body	Dish	2 fit
438	Matamore Reverse Incised	Body	Unknown	1
438	Matamore incised	Rim to base	Dish	2 fit
438	Matamore incised	Body	Probably Dish	2 fit
438	Matamore incised	Base	Unknown	1
438	Matamore incised	Body	Probably Dish	1
438	Matamore incised	Rim	Dish	1
438	Matamore incised	Rim	Plate?	1
438	Matamore incised	Rim	Probably Plate	1
438	Deprecio Incised	Rim	Bowl	1
438	Deprecio Incised	Body	Unknown	1
438	Deprecio Incised	Body	Unknown	1
438	Deprecio Incised	Rim	Bowl	1
438	Chunhinta Black	Rim	Bowl	1
438	Chunhinta Black	Body	Unknown	2 fit.
438	Chunhinta Black/Polvero	Body	Unknown	1
438	Sierra maroon and cream (not incised)	Base	Unknown	5
438	Sierra? Pink interior and reduced exterior	Rim	Dish	2
438	Sierra Red and cream	Base	Unknown	16
438	Consejo-red punctated	Rim	Bowl	2
438	Consejo Red	Body	Unknown	187
438	Consejo Red	Body	Unknown	265
438	Consejo Red	Rim	Too small to be analysed	34
438	Consejo Red	Rim	Bowl	113
438	Consejo Red	Rim	Too small to be analysed	33
438	Consejo Red	Rim	Bowl	94
438	Consejo Red	Base	Unknown	23

438	Consejo Red	Base	Unknown	23
438	Consejo Red	Handle	Jar?	1
438	Consejo Red	Rim to base	Bowl	3 pieces fit
438	Consejo Red - modelled	Body	Unknown	1
438	Consejo Red - modelled	Rim	Too small to be analysed	1
438	Laguna Verde Incised-maroon	Rim	Dish	3
438	Laguna Verde Incised-maroon	Rim	Plate?	2
438	Laguna Verde Incised-maroon	Body	Unknown	1
438	Sierra Red- variety unspecified (maroon)	Base	Unknown	11
438	Sierra Red- variety unspecified (maroon)	Body	Unknown	8
438	Sierra Red- variety unspecified (maroon)	Rim	Too small to be analysed	1
438	Consejo Red- Burnt	Base	Unknown	2
438	Consejo Red- Burnt	Body	Unknown	12
438	Pital Cream	Body	Unknown	18
438	Orange-buff resist (Tierra Mojada resist?)	Body	Bowl	2
438	Pital Cream	Rim	Plate?	2
438	Pital Cream	Base	Unknown	3
438	Pital Cream	Rim	Bowl?	3
438	Flor Cream- Incised	Body	Unknown	1
438	Flor Cream	Body	Unknown	1
438	Chicago Orange (Tiger Buff?)	Neck?	Jar?	1
438	Sierra red and black	Body	Unknown	1
438	Sierra red	Body	Jar	116
438	Sierra Red	Base	Unknown	20
438	Sierra Red	Body	Unknown. Probably Dish	218
438	Sierra Red	Base	Unknown	18
438	Sierra Red	Body	Unknown	129
438	Sierra Red	Rim	Plate/dish	2
438	Sierra Red	Rim	Dish	1
438	Sierra Red	Rim	Too small to be analysed	5
438	Sierra Red	Rim	Too small to be analysed	7
438	Sierra Red	Rim	Bowl	2
438	Sierra Red	Rim	Jar	6
438	Sierra Red- perhaps resist?	Rim and body	Jar	2
438	Sierra Red	Rim	Dish/plate	12
438	Sierra Red	Neck/shoulder join	Jar	11

438	Laguna Verde Incised-modelled	Body	Jar?	1
438	Sierra Red	Spout	Chocolate pot	6
438	Sierra Red	Base to body	Jar	2
438	Unknown red and black modelled	Body	Unknown	2
438	Chicago Orange?	Spout	Chocolate pot?	2
438	Aguacate Orange?	Partial vessel	Bowl	5
438	Aguacate Orange?	Base to body	Probably part of above vessel	1
438	Chicago Orange	Rim	Bowl	1
438	Chicago Orange	Body	Unknown	11
438	Chicago Orange/Tiger Buff	Spout	Chocolate pot?	1
438	Aguacate orange?	Base to body	Probably Bowl?	3
438	Aguacate Orange?	Rim	Bowl	2
438	Eroded Consejo ash	Body	Unknown	33
438	Consejo Red (ash)	Base	Unknown	9
438	Consejo Red (ash)	Body	Unknown	22
438	Eroded incised	Rim	Bowl	3
438	Eroded incised	Body	Unknown	2
438	Eroded	Foot	Unknown	1
438	Eroded	Rim	Bowl	6
438	Eroded Consejo ash?	Rim	Bowl	1
438	Very eroded Consejo?	Rim	Bowl	13
438	Barquedier Grooved-incised	Body	Unknown	3
438	Barquedier Grooved-incised	Rim	Bowl	2
438	Barquedier Grooved-incised	Rim	Too small to be analysed	1
438	Barquedier Grooved-incised	Rim	Bowl	1
438	Eroded possibly incised Consejo Group	Rim	Too small to be analysed	1
438	Copetilla Unslipped	Possibly Handle	Jar?	1
438	Eroded	Rim to base	Bowl	2
438	eroded	Rim	Jar	2
438	Eroded	Rim	Too small to be analysed	9
438	Eroded	Rim	Possibly Bottle	1
438	Eroded incised	Rim	Possibly Tecomate	1
438	Eroded incised	Rim	Bowl	1
438	Eroded incised	Body	Unknown	6
438	Eroded	Base	Unknown	11
438	Copetilla Unslipped?	Base	Unknown	6
438	Copetilla Unslipped?	Body	1 piece large jar?	15
438	Eroded Chicago Orange?	Body	Unknown	44
438	Eroded burnt?	Body	Unknown	105
438	Eroded	Body	Unknown	719

438	Eroded	Body	Unknown	6
438	Eroded	Body	Unknown	1
438	Eroded Consejo Red	Body	Unknown	85
438	Eroded Consejo Red	Body	Unknown	45
438	Flor Cream?	Body	Unknown	3
438	Aguacate Orange?	Body	Unknown	7

CHAPTER 4

MIDDLE FORMATIVE 'FOUNDATIONS' IN GROUP D: BURIED PLATFORM, MORTUARY OFFERINGS, AND RITUAL PARAPHERNALIA

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Introduction

Excavations within the South-Plaza of Group D at Ka'Kabish in previous years have revealed a substantial sequence of plaza floor surfaces and cultural deposits, denoting a long history of use and renovation with the earliest levels yielding pottery types datable to 800-600 BC (Aimers 2011) and an associated radiocarbon date of 760-400 BC (Haines 2011). Investigations during the 2012 field season continued the excavation of units started in previous seasons with the intent of reaching the lowest floor surface and recovering all cultural material above bedrock, thus determining the earliest occupational horizon of this area of Group D. Work within the South-Plaza of Group D during the 2012 field season consisted of continued excavations in Units 1 and 2 (north) and Unit 2 (south), as well as the commencement of excavations of an adjacent unit to the west of Unit 2 which was designated Unit 3. Units 1 and 2 were initially laid out in 2010 and 2011, respectively, in a north-south alignment, and are located in the approximate center of the South-Plaza of Group D between Structures D-5 and D-9 (Figure 1). All excavations undertaken with the South-Plaza of Group D during the 2012 season have been designated as Operation 8.

Ceramic evidence uncovered in the excavations of Unit 1 and 2 (north) during the 2011 field season demonstrated that the central area of the South-Plaza of Group D was subjected to an active ritual agenda during the Middle Formative period (Haines 2011). The focus of investigations within Units 1 and 2 (north)during the 2012 field season was to complete excavations of the succession of plaster floors and concentrations of Middle Formative (800-600 B.C.) ceramics first encountered in 2011 (see Aimers 2011) down to bedrock, in order to further ascertain the character of the ritual activities evinced in the material traces encountered and further refine the chronological sequencing of the earliest occupations of this area of the site (Haines personal communication 2012).

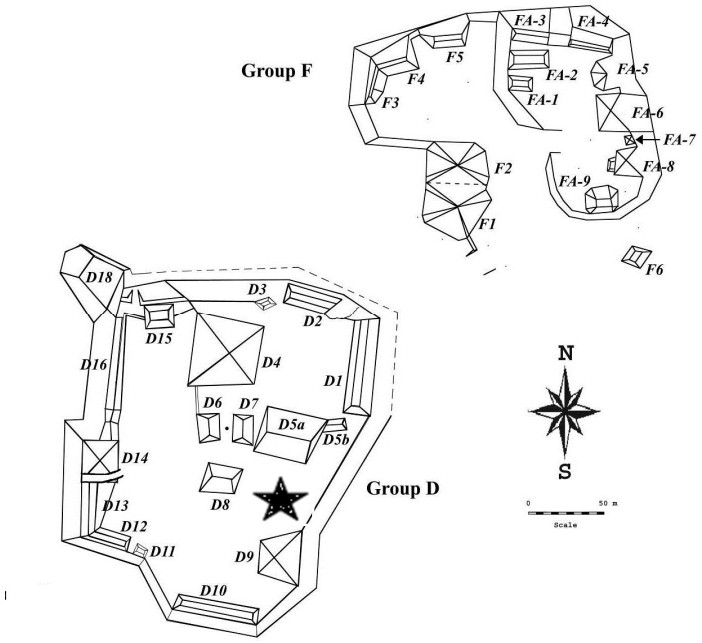

Figure 1.Map of Ka'Kabish site core indicating location of excavations in Group D South Plaza

Description

Unit 1 was first opened in the summer of 2010 and excavated from the 12th to the 14th of July, when inclement weather necessitated the termination of work. Unit 1 was then reopened in 2011, and excavated from the 19th to the 24th of May. Excavations of Unit 1 were placed on hiatus when a cache of complete ceramic vessels were encountered in the south wall of the unit (Haines 2011). In order to further explore this ceramic deposit, another unit was initiated directly to the south and designated as Unit 2. This unit was excavated from the 27th of May to the 2nd of June 2011. However, almost immediately after Unit 2 was opened a semi-circular building foundation was encountered that necessitated splitting Unit 2 into a northern half, to be excavated, and a southern half, to be left for future investigation. Consequently, the northern half of Unit 2 was excavated down to the same horizontal plain as Unit 1 by the end of the 2011 season. More concentrations of ceramics corresponding to the fill level excavated between Floors 3 and 2 (see Figure 2), which produced the cached 'lip to lip' vessels in Unit 1, were encountered in the excavation of Unit 2 (north) including a 'chocolate pot' and an extensive ceramic midden (Haines 2011). Poor weather conditions once again shut down work and the unit could not be excavated to bedrock by the end of the 2011 season.

Since the excavation of Units 1 and 2 (north) had to be terminated before the units had been excavated down to bedrock, excavations of these two units was recommenced in 2012. Upon the

completion of this task between the 15th and 30th of May 2012, excavation of the southern portion of Unit 2 was reinitiated on June 5th (continuing efforts from 2010 and 2011) and pursued through to the June 9th. However, due to the nature of the architectural deposits encountered in the southern half of Unit 2 it was not possible to complete the excavation of this unit down to bedrock during the 2012 season.

Excavations of Units 1 and 2 (N-S integrated), undertaken during the 2010, 2011, and 2012 field seasons have revealed a chronological history for the South-Plaza of Group D stretching back to the Middle Formative period (800-600 BC) (Haines 2011). Excavations of Unit 1, and the northern portion of Unit 2, during the 2010 and 2011 seasons, extended down from the surface humus layer to the fill level above Floor 1 (D-III) (see 2). Excavation of the remaining levels down to sterile bedrock was then completed during the first portion of the 2012 season. During the second half of the 2012 season excavations in the southern half of Unit 2 revealed a buried building/platform associated with Floor 2, before excavations were halted.

Methodology

Unit 1 consisted of a 2 m x 2 m excavation grid, while Unit 2 was initially a 2 m x 2 m unit that was split into a northern and southern portion, and excavated separately due to the presence of a semi-circular foundation buried just below the surface (Figure 3). During the 2012 season Units 1 and 2 (north), were first excavated as an integrated 2 m x 3 m unit, then expanded to the south to become a 2 m x 4 m unit. Unit 3 was initially a 2 m x 2 m unit that was split into a northern and southern portion when a buried structure was encountered in the final levels excavated during 2012 (see Sinclair, this volume). A baulk-wall of 20 cm in width was maintained between Units 2 and 3 as a safety precaution to minimize debris falling onto workers excavating the lower levels of Unit 2, and to maintain the stratigraphic

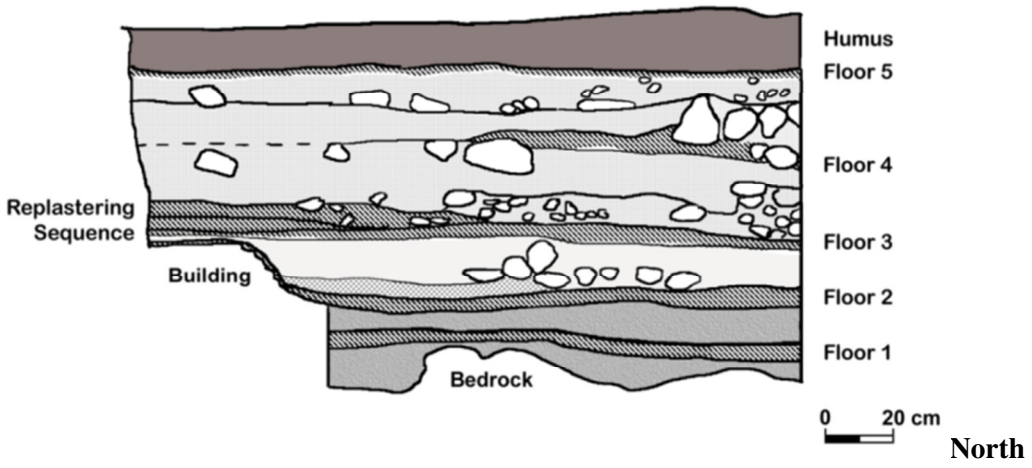

Figure 2. Profile of West Wall, Unit 2 (N-S integrated) and Unit 1, Op 8 (figure by Haines 2012)

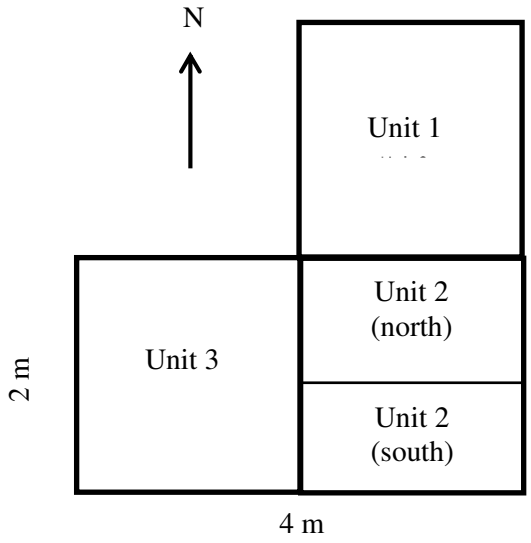

Figure 3. Outline of excavated units in Group D, showing division of unit 2 into a northern and southern section.

integrity of cultural material in both Units. All elevation measurements were recorded with a dumpy level set up above a known datum point.

A full collection strategy was employed throughout the excavation, particularly for ceramic material (see Gomer, this volume), using a ¼ inch screen. Some material was sorted by hand when high concentrations of small artefacts, such as shell beads, were encountered. Excavation was undertaken predominantly with trowels, though dental picks, brushes, and other small implements were also utilized when cached offerings and human remains were encountered. All materials recovered from a particular level were bagged respectively and each was given a corresponding LOT number (KKB #), so as to keep associated, but distinct, cultural materials in relation to each other. All mapping was completed using a grid system of controlled points, tape measures, line-levels, rulers, and plumb bobs. All plan and profile maps were drawn at the scale of 1:20, and included depictions of all relevant features, caches, and artefacts. Levels were excavated stratigraphically, based upon changes in the matrix of the soil, artefactual composition, or architectural elements, rather than by arbitrary depths or quadrants. All 'Jades'* excavated from Units 1 and 2 (north) were illustrated, measured, and weighed, while a select sample of the shell beads were also recorded in such a fashion.

* It should be noted that the artefacts described in this chapter are referred to as 'jade' because the chemical minerals they were manufactured from are unknown. This follows the common usage of the term throughout Mesoamerica and Lower Central America, wherein 'jade' refers to a concept and includes jadeite and all other forms of greenstone. Future studies of the mineral compositions of the

assemblage of jades recovered from Units 1 and 2 (north) during 2012 at Ka'Kabish should be better able to identify the specific mineral matrix of each individual artefact.

Group D South-Plaza Units 1 and 2 (north): Excavation

The 2012 excavations of Units 1 and 2 (north) commenced with the removal of the back-fill from the previously excavated levels of the units, and the tarp that had been placed over the termination level from 2011 was carefully removed. The grey clay-like matrix (D-III) beneath was then excavated across both units to reveal a plaster floor (D-II) stretching across both units. Once plaster Floor 1 (D-II) was removed from both Units , through slightly differing excavation techniques depending on the material encountered, the grey clay-like fill (D-I) beneath was excavated down to the undulating surface of the bedrock below (see 2).

D-III: Fill Above Floor 1 (KKB 416)

The grey clay-like soil of D-III stretched the length and breadth of Units 1 and 2 (north), and was composed of the remaining material that excavators during the 2011 field season had been unable to remove, due to the poor weather conditions, from beneath Floor 2 (see Figure 2). The matrix of D-III contained a high volume of well-preserved diagnostic sherds in the southern half of Unit 2 (north), some showing signs of carbon scorching, as well as a moderate/small amount of obsidian, shell, and stone debitage. Excavations of D-III were terminated across both Units when plaster Floor 1 (D-II) was encountered. The plaster surface of Floor 1 (D-II) was preserved to a slightly higher elevation in the southeast quadrant of Unit 1, and the interface between the fill of D-III and the white plaster surface of Floor 1 (D-II) had many ceramic sherds embedded in it, which correspond to Middle Formative (800-600 BC) types encountered in previous layers excavated in 2011 (Aimers 2011).

D-II: Floor 1 (KKB 417 and 466)

The white plaster surface of Floor 1 (D-II) covered the entire area exposed by the excavations of Units 1 and 2 (north) and likely represents a substantial plaza floor. The floor was first excavated in Unit 2 (north) but the matrix consisted of an indistinguishable interspersion of white plaster with fine grey soil that made discerning the interface between Floor 1 and the fill (D-I) beneath initially quite difficult. Later review of the west profile in the southwest quadrant of Unit 2 (north) revealed that this area of Floor 1 (D-II) was actually composed of a sequence of tightly compacted re-plastering events, consisting of thin layers of white plaster separated by interstices of fine grey soil (Haines personal communication 2012). While excavating through the matrix of D-II in Unit 2 (north) we encountered a partially preserved semi-circular alignment of stones embedded within the plaster that when removed seemed to be roughly circumscribing an extensive ceramic midden in the fill (D-I) beneath, some sherds of which showed evidence of carbon scorching on their exteriors.

Before the surface of Floor 1 (D-II) was removed from Unit 1, we noticed the rough weathered surface of a rock protruding slightly from the topmost layer of plaster preserved in the southwest quadrant of the unit. . Excavations through the surrounding white matrix revealed this stone to be set upright, almost as if it intentionally placed as a marker, running through the successive layers of plaster composing Floor 1 (D-II) and into the fill (D-I) beneath (see Figure 4, 5 and 7).

When the white plaster matrix of D-II was removed from the entire surface of Unit 1 and 2 (north), it was apparent that the plaster sat almost directly on top of relatively flat limestone bedrock in the eastern half of Unit 1, with only a thin layer of fill separating them (D-I), and the bedrock in the western half of both units undulated in a series of deep crevasses and shallow declivities (see Figure 5).

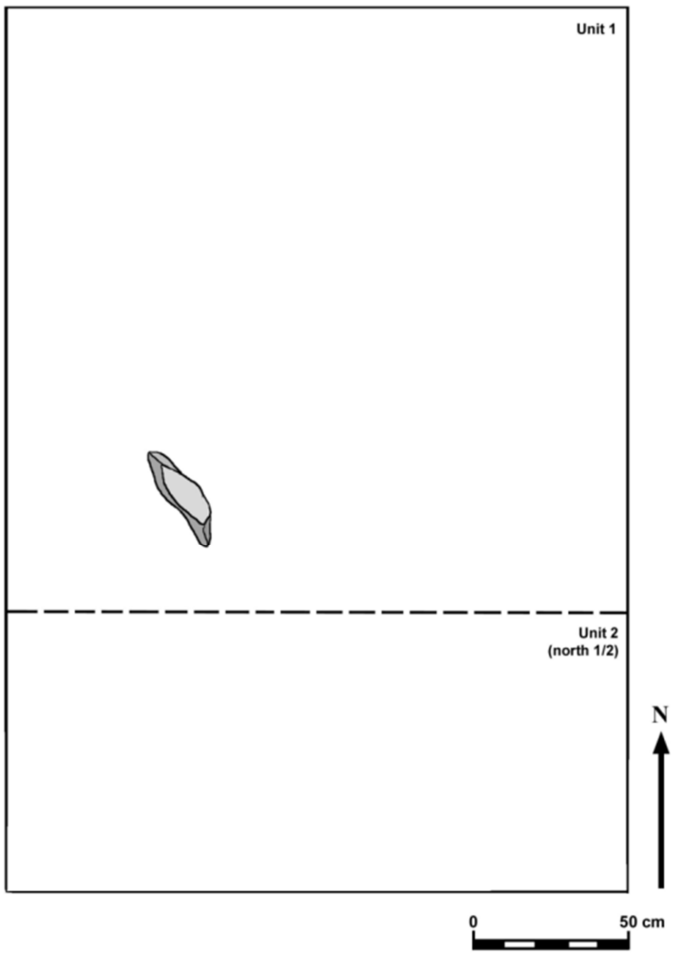

Figure 4. Plaster floor 1 (D-II) with upright stone marker (mapped by Lockett-Harris, inked by Haines)

D-I: Fill Between Floor 1 and Bedrock (KKB 430, 472 and 480)

Beneath the sequence of highly compacted re-plastering events that comprised the white plaster matrix of Floor 1 (D-II) lay a level of fine grey clay-like fill that provided a flat sub-surface for the floor above. As the matrix of D-I was excavated it was revealed that the fine soil used as fill for the overlying floor had been deposited into a series of crevasses and declivities in the bedrock, along with an extremely high-concentration of fragmentary and intact ceramics in the southwest quadrant of Unit 2 (north). Selective excavation techniques allowed us to ascertain the interface between the fill matrix of D-I and the undulating surface of the bedrock, in areas where the bedrock was preserved to a higher elevation. This allowed us to follow the interface down into lower elevations to reveal the morphology of the bedrock beneath D-I.

As we revealed the undulating surface of the bedrock laying below the fill of D-I it became increasingly apparent that the concentration of ceramics (including a complete Consejo vessel with associated material which provided a radiocarbon date of 799-511 BC cal. [see Figure 7]), which we were encountering in the southwest quadrant of Unit 2 (north) were associated with the crevasses and declivities that we subsequently encountered in the bedrock below. Excavations below the concentration of ceramics in Unit 2 (north) revealed a number of declivities and a deep circular pit containing what would prove to be mortuary offering caches consisting of hundreds of shell beads and multiple worked jade pieces, including a Parrot Spoon Pendant, also known as an "Olmec Spoon", (see Figure 9 [Healy and Awe 2001]),and a number of natural and lightly-worked river pebbles clustered around a small piece of glistening material, which could be a chunk of speleothem. Since they have been recovered from burials and caches elsewhere in the Maya Lowlands, the recovery of a speleothem from the cache within Unit 2 (north) is possible (Karen Bassie-Sweet, personal communication 2013).

Once excavations of D-I in Unit 2 (north) had been completed down to 'sterile' bedrock a very interesting and distinct morphology was revealed to have been carved into the relatively soft limestone bedrock. This consisted of a series of small declivities (containing offerings), one of which had an associated capstone, a pit (containing an even higher concentration of offerings), and a deep recessed area (in which small sherds of non-diagnostic bones fragments were recovered) which looked as if it continued north towards the 'marker stone' (see Figure 5). Excavations then focused on revealing the morphology of the bedrock to the north, in Unit 1, by following the undulating interface down into the lower fill layers of D-I. As we excavated into the grey clay-like matrix of D-I we noticed that the bedrock had been roughly carved into a trench along a precise north-south axis, stretching roughly 182 cm in length and 42 cm in width. Another deep pit was located in alignment with the southern pit evinced in

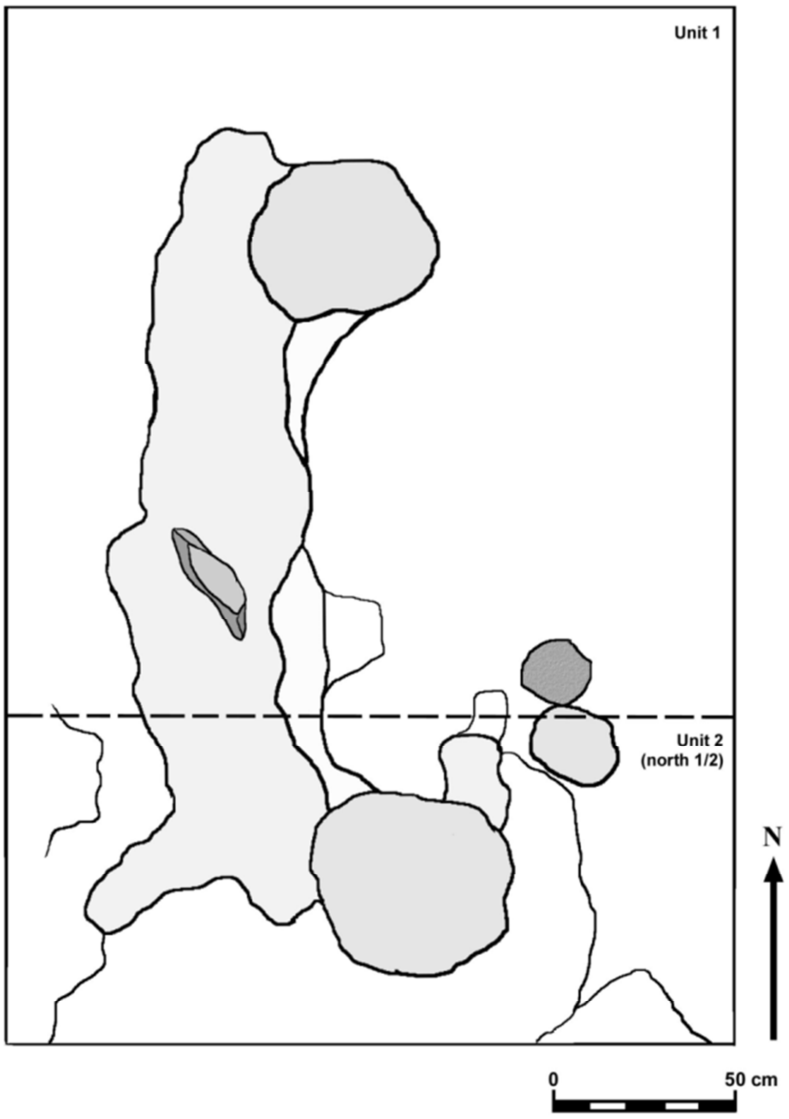

Figure 5. Plan map of trench, 'marker' stone, matching offering pits, and cache hole with associated capstone. The trench was roughly carved into limestone bedrock to receive burial and cached offerings (mapped by Lockett-Harris, inked by Haines).

Unit 2 (south), lying just to the east of the northern extent of this trench, to the form of an extremely peculiar pattern (see Figure 5).

However, the southern pit (revealed in excavations of Unit 2 [north]) exhibited a number of associated declivities, including one hole with a corresponding small capstone (that had been carved out of the same limestone as the bedrock itself), which the northern pit (Unit 1) lacked (see Figure 5). Also, while both pits contained caches of shell beads, the northern pit proved to be devoid of the high concentrations of finely worked jade pieces recovered from the southern pit (see Figure 7).

Figure 6. 'Marker stone' (photography courtesy of Haines).

Excavations around the 'marker stone' (see Figure 5), first encountered in the surface of Floor 1 (D-II) , revealed that it was larger than initially assumed due to the fact that the base, which lay deep within the north-south oriented trench cut in the bedrock, was much wider than its pinnacle (see Figure 6 and 7).

As the matrix of D-I was removed from around the 'marker stone' and the rest of the associated trench we began encountering an increasing frequency of human teeth and small fragments of bone. Excavation to the base of the trench uncovered further concentrations of bone sherds and human teeth, as well as a number of jade objects— especially beneath the marker stone. Once the stone was removed and the lowest levels of the trench were reached we encountered a number of poorly preserved, but nonetheless distinguishable, human long bones (see Figure 7). Fragments of bone, a number of fully rooted human teeth, and another beautiful jade piece were also recovered from the northern portion of the trench in Unit 1, though of a lesser concentration than associated with the 'marker stone' (see Figure 7). On the basis of this evidence, we determined the contents of the trench to be a human burial with associated funerary offerings.

The dampness of the grey clay-like soil matrix of D-I, coupled with the age of the burial (radiocarbon evidence from the contents of an associated ceramic vessel provide a date of 799-511 BC cal), exacerbated its deterioration and contributed to the relative difficulty of the exhumation. Once the burial remains had been removed from the trench, which had been carved into the bedrock to receive it, and the northern offering pit was cleared, bedrock had been revealed across the breadth and width of Units 1 and 2 (north). Thus, the initial goal in reopening the units in 2012 was completed and it allowed us to terminate work within the units and prepare for backfilling.

Middle Formative Burial and Ritual Offerings

The initial purpose of the continued excavations of Units 1 and 2 (north) throughout the first half of the 2012 field season was to reach bedrock, and thus discern the earliest occupational phase present within the central area of the South-Plaza of Group D. When our excavations breached the surface of the earliest floor renovation sequence within the Units (i.e. Floor 1, see Figure 2) and we began excavating into the earliest cultural deposits present above bedrock we encountered an extensive ceramic midden, a number of beautifully worked jade pieces, hundreds of finely manufactured shell beads, and a human burial marked by a distinct upright stone (see Figure 7). The most peculiar aspect of the burial and associated offering caches is the fact that that they were excavated from a number of shallow declivities, consisting of two deep matching pits and an approximately human-sized trench that seems to have been roughly carved into the bedrock in order to house them (see Figure 5 and 7). The caches of jade items and shell beads were recovered in clusters from the declivities and matching pits located to the north and south of the burial, as well as in the burial trench itself (see Figure 7).

D-I: Ceramic Midden

The initial evidence indicating that we had unearthed a ritually oriented cultural deposit in the fill (D-I) beneath Floor 1 (D-II) was the high concentration of diagnostic and partial ceramic vessels that were encountered in the southwest quadrant of Unit 2 (north). This deposit, appearing to be a ceramic midden, was located mainly in the matrix above the southern offering pit and the southernmost extent of the burial trench (see Figure 7) though it was not associated directly with the human remains because it was at a slightly higher elevation. As we excavated through the ceramic midden a complete vessel that had been placed in an inverted orientation above the approximate center of the southern offering pit was encountered (see Figure 7). A sample of charcoal recovered from the contents of the vessel has since been radiocarbon dated to 799-511BC cal. This complete vessel has been identified as representing Consejo form, paste, and slip, with vertical striations decorating the exterior (Haines personal communications 2012, and Gomer this volume).). Though the ceramic materials composing the Unit 2 (north) midden were also present in the lower matrix of D-I, containing the jade pieces and the shell bead caches, they

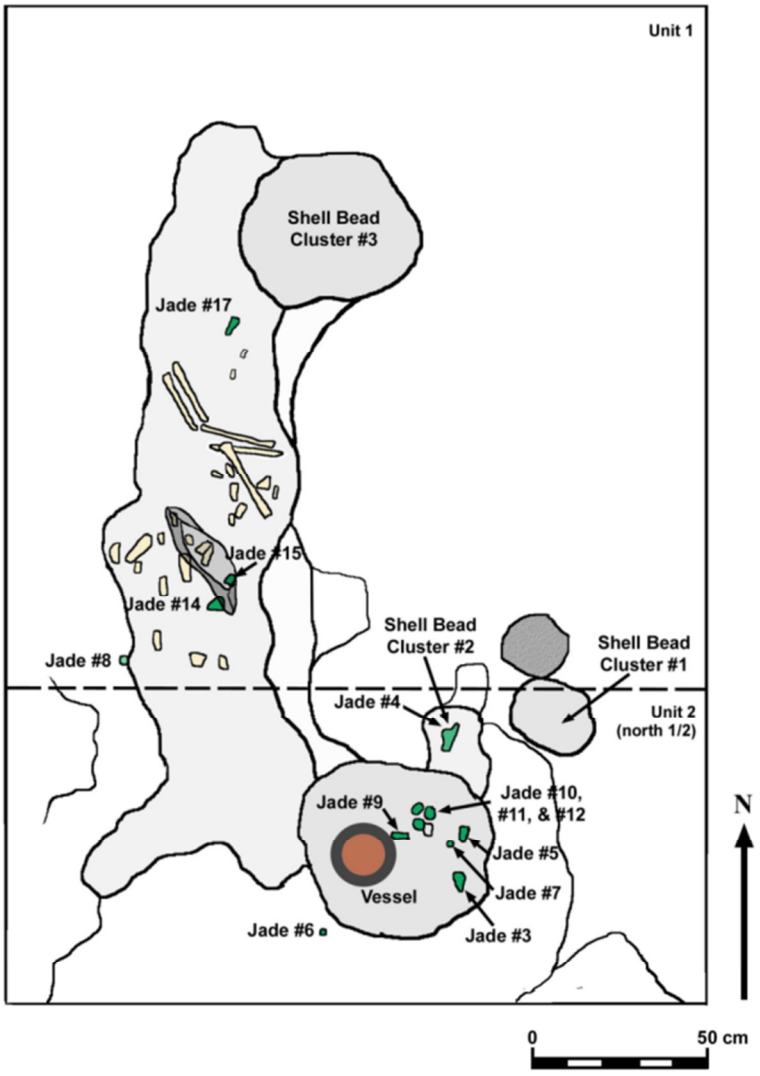

Figure 7. Location of burial, Consejo Vessel, shell bead clusters, and jades within carved bedrock features (mapped by Lockett-Harris, inked by Haines).

occurred in much higher frequency, and in larger, more intact pieces, in the upper layers. Ceramic material was recovered from throughout the entire fill level of D-I, in both Units 1 and 2 (north), but nowhere else did it reach the concentrations present in the upper layers of Unit 2 (north). For a more comprehensive review of the extensive ceramic assemblage recovered from within the matrix of D-I see (Gomer this volume).

Figure 8. Consejo Red-Slipped Striated Vessel (photograph courtesy of Haines).

D-I: Jade Artefacts

As we excavated below the ceramic midden comprising the upper layers of D-I in Unit 2 (north) we began to encounter an increasing number of finely carved and highly polished jade objects, often times in direct association with clusters of shell beads. The first two jade objects encountered (a tubular bead and a bead shaped like a 'jaguar claw') were recovered from soil removed from the upper layers of the southern offering pit during screening (Jades #1 and 2) and the third was a 'Olmec Blue' celt that was found placed in an upright orientation against the south wall of the southern offering pit (Jade #3). With the discovery of Jade #4, an intricately carved Parrot Spoon Pendant (see Figure 9), the association between the roughly circular declivities present in the bedrock, the jade objects, and the high concentrations of shell beads became clear: the jade was situated in a small niche off the main offering pit, nestled amongst a bed of loosely articulated beads.

The fifth and seventh jade objects (Jade #5 and 7) were excavated from the southern offering pit, while the sixth and eighth (Jade #6 and 8) were recovered from small niches in the southern and western walls of the burial trench, respectively. The ninth jadeite artefact (Jade #9), an extremely thin and translucent dark-green plaque, was oriented vertically in the center of the southern offering pit. Just to the northeast of Jade #9, still within the confines of the offering pit, a number of white and green-flecked stones were recovered (Jades #10, 11, and 12). These stones were clustered around a small glistening

Figure 9. Parrot Spoon Pendant (Jade #4, photography courtesy of Haines).

piece of possible stalactite/stalagmite (exact mineral composition yet to be determined), and encased in a dark patch of soil (a sample of which was taken for future analysis). The identification of these particular pieces as 'Jades' is based mainly upon their situation within the ritually saturated deposits of D-I and their greenish-colour, rather than upon their mineral composition(which is also yet to determined). Once the matrix of D-I had been excavated to bedrock across the width of Unit 2 (north), and all jade objects, shell bead clusters, and ceramic deposits were recovered, excavation of the burial trench and the northern offering pit was commenced (see Figure 7). As we excavated around and below the 'marker stone,' we not only encountered an ever-increasing amount of bone fragments as we neared bedrock but we also encountered two seemingly worked stone objects (Jades #13 and 14) of the same undetermined composition as Jades #10, 11, and 12. Also associated with the burial 'marker stone' was a small apple-green jade pendant (Jade #15) shaped (somewhat) like the distal phalanx bone of a human finger, with laterally bored perforations at the bulbous end(which had been broken). The sixteenth jadeite object encountered, a pale milky-turquoise celt with the width end broken off (Jade #16), and the fifth associated directly with the burial trench thus far, was recovered from the screen rather than *in situ.* The seventeenth jade artefact (Jade #17) excavated from the fill of D-I was removed from the northern portion of the burial trench and seems to be composed of a similar mineral matrix as Jade #16. This final jade artefact

excavated from the burial and associated offering caches was a fat-needle shaped pendant with a perforation at the wide end and sparkling silvery flecks visible throughout its pale-turquoise composition (please refer to Figure 7 of this chapter for the locations of the jade artefacts in relation to the carved bedrock niches, declivities, matching pits, and the burial trench in which they were deposited).

Shell Beads Clusters

While excavating the fill level of D-I in Units 1 and 2 (north) we recovered shell beads from throughout the entire matrix, though nowhere were the concentrations as dense as within the declivities associated with the southern and northern offering pits (Clusters #1, 2 and 3). We began to recover shell beads from the screen almost as soon as excavation into the southern offering pit and associated declivities began, though as we neared bedrock the concentrations became dense enough that we could begin to excavate these tiny beads *in situ*. It soon became apparent that many of the shell beads we were encountering were much smaller than the ¼ inch screens we were initially using (some beads measured as little as 3 mm by 1 mm), thus we started to employ a visual sorting process of the soil removed from within the clusters of beads and eventually employed the entire South-Plaza crew in this endeavor.

The first bead shell cluster (Cluster #1) was located to the northeast of the south offering pit within a small round declivity in the bedrock. This declivity soon revealed itself to be of human construction when an associated capstone was encountered lying on the surface of the bedrock, just to the northwest of the declivity. This capstone was composed of the same limestone material as the bedrock itself, and was thus likely carved out of the bedrock to form the hole within which shell bead Cluster #1 was deposited. It is interesting to note that the capstone was not recovered from on top of the declivity. The beads recovered from Cluster #1 were all quite small, and were of quite high quality.

While excavating around the northern lip of the south offering pit a small shallow declivity was encountered running to the north. Upon further investigations it was revealed that this declivity not only housed another cluster of shell beads (Cluster #2), but also the Parrot Spoon Pendant (see Figure 8). The Pendant was recovered laying nestled amongst an enveloping cluster of shell beads, some showing loose articulation, in a general north-south orientation with its 'face' side pointing towards the west (see Figure 7). All of the shell beads recovered from Cluster #2 were of extremely high quality, with the smallest as little as 3 mm by 1 mm.

Though the northern offering pit did not produce the same wealth of jade artefacts as the southern offering pit or the burial trench, it nonetheless contained a relatively high concentration of worked shell beads. It was also interesting to note the different morphological composition of the shell beads contained within the northern versus the southern offering pits. For, though the northern pit contained a relatively high frequency of finely worked shell beads, it also produced a much higher frequency of more roughly

worked shell beads than the southern pit, which looked as if they had been manufactured by boring a perforation through a broken piece of shell. The lack of jade objects in the north offering pit, coupled with the difference in the composition of the shell bead clusters suggests that there may have been a difference in the ritual activities or offerings in northern and southern pits. (see Figure 7 for the locations of the shell bead clusters [Cluster #1, 2, and 3] in relation to the carved bedrock niches, declivities, pits, and the burial trench in which they were deposited).

Almost all the shell beads recovered from the matrix of D-I had been manufactured by creating a tiny perforation by bi-conically boring with a micro-drill from either side. It is also worth noting that some 'beads' recovered from the fill of D-I, though not in direct association with any of the shell beads clusters, appeared as if they had been manufactured from plaster or some other chalky material. Future analysis of these peculiar beads should shed light on their composition.

Group D South-Plaza Unit 3: Excavation

Investigations within the central area of the South-Plaza of Group D, during the first portion of the 2012 field season, also consisted of the excavation of a unit directly to the west of Unit 2, designated Unit 3. A 20 cm bulk-wall was maintained between Units 2 and 3, as a safety precaution, and in order to maintain spatial provenience between the units and facilitate backfilling of Units 1 and 2. The research interests motivating the excavation of Unit 3 were focused upon correlating the sequence of plaster floors making up the construction history of the plaza (see Figure 2), and determining if the concentrations of broken and cached vessels encountered beneath Floor 3, in Units 1 (south) and 2 (north) (see Figure 2), were present in the same frequencies to the west.

Once Unit 3 had been excavated to a level corresponding to Floor 3 in Units 1 and 2 (north) (see Figure 2), the discovery of a buried platform/structure foundation necessitated the splitting of the unit into a northern and a southern half. Further excavations of the northern portion of Unit 3 revealed that the buried structure seems to rest upon a surface lying on roughly the same horizontal plain as Floor 2 (see Figure 2). The excavation of Unit 3 was halted before the unit was taken down to bedrock and it is the intention of the principal investigator of the site to continue investigations within this area in future field seasons. For further information regarding the excavation of Unit 3 see Sinclair, Chapter 5 this volume.

Group D South-Plaza Unit 2 (south): Excavation

Investigations within the central area of the South-Plaza of Group D continued during the second portion of the 2012 season with the reopening of Unit 2 (south) from 2010. Work on the southern portion of Unit 2 was initially terminated in 2010 due to the presence of a semi-circular alignment of stones indicating a possible buried platform within the first few levels excavated. Thus, subsequent

investigations during 2010 and 2011 focused on Unit 1 and the northern section of Unit 2. Excavations during the second portion of the 2012 field season began with removal of the stones of this possible structure foundation and continued with excavation to a similar level as that reached by Unit 3 earlier in the season.

With the discovery of a buried structure in the southern half of Unit 3, which was located on a similar horizontal plain with levels from Units 1 and 2 (north) that has produced dated material belonging to the Middle Formative (800-600 BC) (Aimers 2011 and Haines 2011), it became pertinent to determine if the foundations continued to the east under Unit 2 (south). In order to ascertain the building foundation's articulation with the ceramic midden discovered between Floors 3 and 2, and with the burial and cached offerings located beneath Floor 1 in Units 1 and 2 (north), the southern portion of Unit 2 was excavated down to a similar horizontal plain. Excavations of Unit 2 (south) revealed a corresponding sequence of plaza floor construction events as had already been evinced in Unit 2 (north) and Unit 1. It also revealed the top surface of the building foundation on a similar plain as Floor 3, as encountered in Unit 3 . Unit 2 (south) was then once again split into a northern and a southern portion, with the north excavated down to the next floor surface (Floor 2), and the south left for future study.

The northern portion of Unit 2 (south) was excavated down to the surface of Floor 2, revealing that the structure curved towards the southwest. Excavations in front the buried structure's foundations revealed that the face of the structure in this area was coated with a hard stucco decoration, possibly a "mask," that may have been melted over time. The matrix of the fill encountered in front of the corner of the building, between Floors 3 and 2 , varied from the west to the east, with the remains of apple shells, part of a calabash gourd, and a burnt layer of ash, possible representing feasting in front of the corner of the platform . Carbon recovered from the burnt layer containing this possible evidence of feasting was dated to 753-388 BC cal, thus further corroborating a Middle Formative (800-600 BC) occupation of the central area of the South-Plaza of Group D.

It was not possible to excavate Unit 2 (south) down to sterile bedrock during the 2012 field season due to the architectural feature encountered, thus it is the intention of the principal investigator to continue investigations of this buried Middle Formative (800-600 BC) platform in future field season .

Observations

Interpreting the wealth of contextual information recovered from the excavations of Units 1 and 2 (north), Unit 2 (south), and Unit 3 in the central area of the South-Plaza of Group D at Ka'Kabish, especially concerning the earliest Middle Formative (800-600 BC) levels of occupations, is at this point still in its infancy, though a number of highly enlightening observations can be made.

1) The sequence of floors and construction events revealed in excavations of the South-Plaza of Group D from 2010 to 2012 resembles those encountered in excavations from the North-Plaza of Group D during 2010, which uncovered cultural material and a series of plaza floor construction episodes spanning from the Terminal Classic (AD 800-900) back to at least the Late Formative period (400-100 BC) (Tremain 2010). However, excavations conducted during the summer of 2012 has built upon evidence initially uncovered in 2011 (Haines 2011), demonstrating that the earliest cultural levels present in the South-Plaza consist of Middle Formative (800-600) deposits, which stretch the occupational history of the central area of the South-Plaza of Group D beyond the Late Formative (400-100 BC) dates evinced in the North-Plaza .

2) Evidence corresponding to a Middle Formative (800-600 BC) occupational horizon present within the central area of the South-Plaza of Group D was initially unearthed in excavations of Units 1 and 2 (north), during the 2011 field season (Haines 2011). The discovery of two caches of complete and partial vessels in the fill level between Floors 3 and 2 in Units 1 and 2 (north) (including a chocolate pot and two vessels that had been deposited in a 'lip to lip' orientation), as well as an extensive ceramic midden in Unit 2 (north) dating to the Middle Formative (800-600 BC) (Haines 2011), was further corroborated during the 2012 field season by the discovery of a buried structure foundation lying on a similar horizontal plain in both Unit 3 (south), and Unit 2 (south).

3) Evidence unearthed in excavations of Units 2 (south), and Unit 3 during the 2012 season has revealed the presence of the buried foundation of a structure or platform. Subsequent investigation of the west wall profile of the integrated Units 1 and 2 (north and south), reveals the top surface of this buried structure to lie on a similar horizontal plain as Floor 3 , while the base of the foundation seems to align with the surface of Floor 2 . The construction sequence represented in the western profile of Units 1 and 2 suggests that Floor 3 was likely constructed when the building was buried. Thus, the artefacts recovered in previous year's excavations of corresponding levels in Units 1 and 2 (north), such as the 'chocolate pot' and ceramic midden (Haines 2011), likely correspond with the construction event that buried the structure present in Unit 2 (south), and culminated in the laying of Floor 3. Due to the ceramics evidence recovered between Floors 3 and 2 during 2011, which have been dated to the Middle Formative (Aimers 2011), coupled with an associated radiocarbon date of 760-400 BC (Haines 2011), we can tentatively date the burial of this structure to the Middle Formative (800-600) or the late Middle Formative (600-400 BC) . Material extracted from the burnt horizon above Floor 2 has been radiocarbon dated to 753-388 BC cal, thus further

corroborating evidence that this structure was in use at some point during the Middle Formative (800-600 BC) to the late Middle Formative (600-400 BC) periods.

4) The high concentrations of ceramics within the midden present in Unit 2 (north), and the full cached vessels in both Units 1 and 2 (north), suggests that the construction event that buried the building was likely accompanied by feasting and ritual activities centered around the interment of the full vessels, especially the 'lip to lip' vessels.

Further evidence for feasting was unearthed when excavations encountered a concentration of apple shells, a piece of a calabash gourd, and a layer of burnt ashy material from in front of the corner of the platform, located just above the surface of Floor 2. This evidence, unearthed from levels just above Floor 2 , from directly in front of the corner of the buried building in Unit 2 (south), further supports the feasting hypothesis

5) Excavations of Units 1 and 2 (north) focused on the earliest plaza floor construction event (Floor 1/D-II) and the sub-floor fill beneath (D-I), which rested directly on top of the undulating limestone bedrock below. It was interesting to note that the pinnacle surface of the burial 'marker stone' (see Figures 6 and 7) was not only just visible within the top layer of plaster preserved in Floor 1 , but that it seems to exhibit signs of worn breakage and weathering that the deeper-buried surfaces of this extremely distinct stone are noticeable missing . When we breached the surface of Floor 1 in the southwest quadrant of Unit 2 (north), and subsequently examined the profile of the plaster revealed in the western baulk-wall, it was discerned that this area of Floor 1 was actually composed of a sequence of tightly compacted re-plastering events. What this sequence of re-plastering events implies for the marker stone and its articulation with the surface of Floor 1 is that the pinnacle of this burial marker was likely visible in the earliest re-plastering events evinced in the western profile, and was only fully covered in the final plastering events before the fill of D-II was deposited to form the foundations for Floor 1 (D-I). Upon close inspection of the pinnacle of the 'marker stone' it can be seen that the weathering and wear present supports this interpretation of the marker's visibility during a period of the use-life of Floor 1.

6) While exhuming the human remains located in the burial trench, concentrated mainly in the southwest quadrant of Unit 1, we located a number of adult human teeth within the upper layers of the matrix of D-I, as well as a small frequency of undiagnostic sherds of bone. The teeth were distributed across a good proportion of the length of the trench, initial causing us a great deal of confusion. Further excavations within the burial trench revealed an increasing frequency of fragmentary pieces of human bone the closer we came to the bedrock at the base of the trench. When we reached the lowest layers of the matrix of D-I within the burial trench

we found that a number of long bones had been laid almost directly on the base of the trench. None of the long bones we excavated were in anatomical articulation with each other, though they had obviously been placed in alignment with each other. Due to the lack of articulation displayed by the long bones, coupled with the dispersion of the teeth throughout the upper layers of the trench fill (D-I), it was surmised that the burial interred within the bedrock trench was secondary in nature . This interpretation suggests that the remains were either subjected to a process of decarnation, or had been exhumed from a previous interment and then reinterred in the trench. The skull must have been placed on top of the bundled remains, which due to depositional and taphonomic processes of decay and settling had fragmented and then migrated throughout the upper matrix of D-I . The physical skeletal remains recovered from the burial trench were in a poor state of preservation, thus making sexing the skeleton near impossible. However, the presence of adult human teeth, coupled with the diameter and length of the long bones, suggests that this individual was likely an adult, or possibly a sub-adult. Due to the wealth of associated contextual evidence, including cultural materials, accumulated while exhuming the remains of this individual the principal investigator has interpreted these remains as belonging to either a 'founder' or a revered ancestor . It is interesting to note that the trench constructed to receive the secondary-bundled interment of this individual is approximately the size of an adult, despite the fact that the bundled remains were concentrated in the center of the trench.

7) Excavations of the earliest cultural deposits present above sterile bedrock in the central area of the South-Plaza of Group D have revealed an extremely rich interment of ritual paraphernalia; consisting of predominantly fragmentary ceramic vessels (evidence of possible feasting), a human burial with an associated grave marker, and numerous mortuary offerings . Furthermore, these cultural deposits had been interred within, or were associated with, a peculiar arrangement of declivities, pits, and a human-sized burial trench that had been carved into the limestone bedrock. Though the undulating pattern present in the bedrock revealed within the confines of Units 1 and 2 (north) seems to have been roughly carved, the orientation of the trench along a precise north-south axis, and the mirrored alignment of the northern and southern pits, demonstrates their intentional design and subsequent human construction. The discovery of a small carved declivity in the bedrock to the northwest of the southern offering pit had an associated capstone and was composed of the same limestone as the bedrock itself. This provides further evidence that the morphology of the bedrock beneath Units 1 and 2 (north) was in fact intentionally constructed to receive the cached offerings and interment.

8) Initial interpretation of the sequence of construction, ritual interment, and fill (D-I) deposition encountered within the lowest cultural level present in Units 1 and 2 (north) suggests that the series of events which led to the creation of this deposit would have likely been; 1) The pattern of declivities, matching pits, and linking burial trench , are intentionally carved into the bedrock following a precise north-south orientation, with the two main offering pits in intentional alignment; 2) The secondary-bundled burial of a particularly prominent member of Middle Formative (800-600) Maya society, or perhaps a revered ancestor, is placed in the approximate center of the roughly human-sized trench ; 3) While the grey clay-like soil of D-I is beginning to be deposited into the burial trench, a 'marker stone' is placed vertically into the sediment, likely with the intention of it protruding above the subsequently constructed floor surface above (Floor 1[D-II]); 4) The rich caches of carved jade objects, shell beads, and possibly perishable organic materials, such as textiles or wooden items, are placed into the declivities and matching pits created to receive them, as well as accompanying the bundled burial, while the grey clay-like soil of D-I is being deposited; 5) Once the grey clay-like soil of D-I has been deposited to roughly the elevation of the top of the burial trench and the offering pits, an extensive ceramic midden is deposited above the southern extent of the burial trench and the southern offering pit, with some pieces in the upper layers displaying signs of carbon scorching on their exteriors; 6) The fill of D-I is deposited to a flat level that completely covered all of the cultural materials associated with the ritual activities below, as well as the surface of the bedrock; 7) The first plaster floor of the complex sequence of re-plastering events composing Floor 1 (D-I) , and the very first plaza floor present in the South-Plaza, is constructed on the flat sub-floor surface of D-I. This process of construction, probable ritual interment, and deposition, evinced by the composition of the earliest cultural horizon present within Units 1 and 2 (north), clearly demonstrate the effort, intentionality, and probable ritual/religious significance embodied by this Middle Formative (800-600 BC) mortuary context. Interpretation of the cultural processes and the construction process that created this impressive mortuary context further underscores the profound social power that this interred individual must have either wielded in life, or was accorded in death.

9) At this point a number of observations can be made concerning the assemblage of jade artefacts that were recovered from the earliest Middle Formative (800-600 BC) deposits above bedrock in the central area of the South-Plaza of Group D. 1) The assemblage represents artefacts manufactured from at least five different varieties of jade (i.e. "Olmec Blue," translucent dark-blue/green, dark-blue, apple-green, and milky-turquoise), each likely originating from a different geographic source; 2) The great variety of forms present (ranging

from simple beads, and lightly-worked chunks, to meticulously polished celts, and even the Parrot Spoon Pendant) suggest that Ka'Kabish may have possessed a burgeoning lapidary industry during this time period, and that they must have been linked into a much broader trading network in order to attain either the raw materials or finished objects; 3) The distinct but culturally significant forms present suggest that the artefacts composing this assemblage were ritually and symbolically saturated with religious meaning at the time of their interment; 4) The variety of jade artefacts composing this assemblage suggest that the elite of Ka'Kabish at this time were utilizing jade, in correlation with a symbolic system of ritual communication, in order to negotiate and reinforce their position within the increasingly complex Middle Formative (800-600 BC) society active at Ka'Kabish.

10) Upon close inspection of the Parrot Spoon Pendant (see Figure 9), recovered from the lowest cultural deposits present in Unit 2 (north) it is apparent that it has two bi-conically bored perforations in its 'top' edge. Thus, it was likely worn as a pendant on a necklace with the associated shell beads of Cluster #2 , or it was perhaps stitched onto a pectoral piece along with the wealth of associated beads . Debate has raged about the exact function and means of display of this particular category of artefact (the Ka'Kabish Parrot Spoon Pendant is an example of an artefact class known as "Olmec Spoons"), due in large part to the previous lack of known proveniences and associated contextual evidence (Healy and Awe 2001). Thus, the discovery of the Parrot Spoon Pendant at Ka'Kabish, and the contextual evidence collected with it has much to offer to the study of Middle Formative (800-600 BC) Maya society and ritual.

Conclusion

Previous investigations at the site of Ka'Kabish (which began in 2007) have revealed that far from being a small secondary center with a peripheral history to the larger center of Lamanai, located just 10 km away, Ka'Kabish was in fact a dynamic urban settlement, with a unique history stretching back to the Middle Formative period (Haines 2011). Subsequent excavations conducted during the 2012 season have revealed evidence, which substantiates finds initially made in 2011, indicating that the South-Plaza of Ka'Kabish was subjected to an intensive ritual agenda centered around the emergence of an elite social class during the Middle Formative (800-600 BC) period (Haines 2011).

The continued excavations of Unit 1 and Unit 2 (north) during the 2012 field season, completed efforts initiated in 2010 to reach the earliest cultural horizons present within the central area of the South-Plaza of Group D. This multi-year effort has revealed a sequence of plaza floor constructions and sub-floor fill levels similar to that evinced during excavations in the North-Plaza of Group D. However, the

earliest cultural occupational deposits we encountered in the central area of the South-Plaza of Group have stretched the history of this area of Ka'Kabish back to the Middle Formative (800-600 BC).

The discovery of a buried building and mortuary remains with associated offerings within Unit 2 (south) and Unit 3clearly necessitates further excavations within this area of the South-Plaza of Group D in order to determine more of the early history of this ritually active area of Ka'Kabish. The diverse assemblage of mortuary offerings recovered from Units 1 and 2 (north), as well as the wealth of contextual evidence recovered through our excavation efforts, demonstrates the value that continued investigations in this area of Ka'Kabish have to offer to not just our understanding of the earliest occupational horizons at this site but to theorizations concerning the social composition of Middle Formative (800-600 BC) elite Maya society and culture as a whole. This is perhaps best demonstrated by the discovery of the Parrot Spoon Pendant associated with the southern mortuary-offering pit located within Unit 2 (north). This pendant is an example of a category of artefacts known as "Olmec Spoons", which had up until the beginning of the 2012 field season never been scientifically excavated from a secure context and were known only from compromised (looted) contexts and undisclosed proveniences (Healy and Awe 2001).

Investigations within the South-Plaza of Group D have further evinced that this area of Ka'Kabish was subjected to an intensive ritual agenda, centered around the emergence of an elite social class, during the Middle Formative. The discovery of a burial and associated offering caches indicates that this emerging elite class was engaged in a process of intensive social competition and were situated in a culture of increasingly complex hierarchicalization, which in turn was negotiated through a system of ritual communication, embodied in such artefacts as the Parrot Spoon Pendant.

Acknowledgments

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CHAPTER 5

2012 EXCAVATION OF OPERATION 8, UNIT 3

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Introduction

Excavation of Operation 8 Unit 3 took place over a three week period during the 2012 field season. The purpose of the excavation was to establish if the ceramic cache found in the 2011 excavation of Operation 8 Unit 1, an adjacent unit, spread westward into the area encompassed by Unit 3. Although the excavation revealed no spread of ceramics as anticipated, it did reveal an obsidian workshop and a Formative period platform. Profile and plan maps were created to document the layers which, along with the findings from the units, will be discussed below.

Operation 8, Unit 3

Operation 8 Unit 3 (OP8-3) is located within the core zone of Plaza D South, east of structure D-8 and south of structure D-5 a (Figure 1). The investigation of Plaza D South began in 2010 with the excavation of a two meter by two meter unit known as Operation 8 Unit 1 (see Lockett-Harris, this volume). Due to lack of time and inclement weather excavations were not completed and the unit was closed with the intention of reopening it the following year. The unit was reopened in 2011 and soon had to be extended due to the discovery of a large ceramic cache. The cache was discovered in the south wall and contained four identifiable vessels (Haines 2011:9). An attempt was made to expand the unit another two meters south, which became Unit 2, but the discovery of what appeared to be a platform changed the configuration of the new unit to only 1 meter further south.

In Unit 2 concentrations of artefacts began to emerge below Layer 6 but it was below Layer 8 that the majority of partial and restorable vessels were discovered. The location of this second cache matched that of Unit 1 (Haines 2011:9). In 2012 OP8-3 was opened immediately to the west of Operation 8 Unit 2 and a 20 cm bulk was retained to separate the two units (Figure 2).

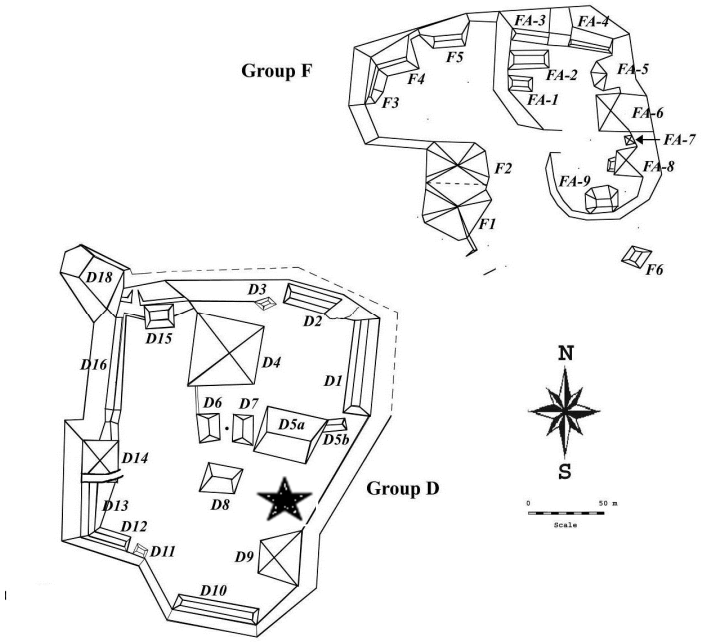

Figure 1. Site core of Ka'Kabish, indicating location of Operation 8, Unit 3

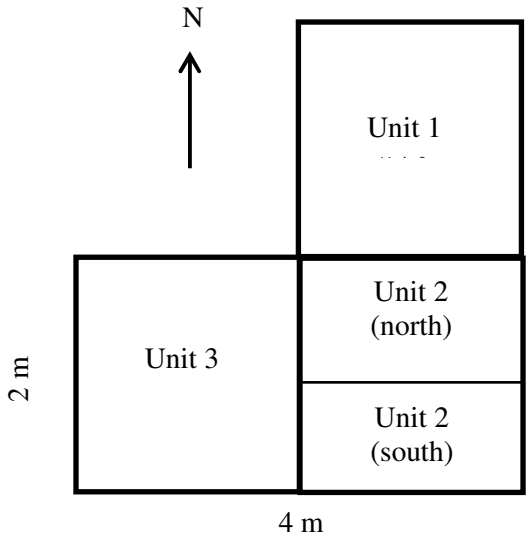

Figure 2. Outline of excavation units in Plaza D South, showing Unit 3 to the west of Units 1 and 2.

Methodology

An area measuring two meters by two meters was set up for excavation adjacent to Operation 8 Unit 2. The unit was decreased in size after approximately 30 cm of excavation at which time a 20 cm bulk was left separating Unit 1 and 3. The bulk was put in place due to concerns that the excavation of Units 1, 2 and 3 would not be completed by the end of the 2012 field season and consequently there would be concerns on how to back fill the units. Additionally, it served as a safety precaution to minimize debris falling onto workers excavating the lower levels of Unit 2.

The unit was dug in stratigraphic levels, determined using a combination of cultural levels(distinct visible difference in soil or construction material) and arbitrary levels. The arbitrary levels were used when there was no change in soil for long intervals or when there was an anticipated cultural change. This was particularly significant when excavation occurred through Levels 8 onwards where we anticipated the cache deposit.

All soil was screened using a ¼ inch mesh and a full collection strategy was used for lithic, ceramic, and faunal material. This is a different method compared to previous years where ceramic sherds smaller than a quarter were not collected (for strategy rationalisation see Gomer, this volume). Carbon was collected using a partial collection strategy. All material was bagged and separated by level in the field and brought to the lab only after the level had been closed.

Elevations for levels and features were obtained using a David White optical level. Plan maps were created for levels with distinctive characteristics such as clusters of stones or ceramics. Profile maps were created for the north, east and west wall at the close of the excavation. Excavation stopped prior to hitting bedrock due to the exposure of a Formative period platform. Although work on OP8-3 ceased after three weeks the unit was not backfilled until the end of the 2012 field season. The unit was covered with a tarp and carefully filled with earth to facilitate continued investigations in coming years.

Excavation Information OP8-3

Layer 1

Excavation began with the removal of the humus layers. Within the first 2 cm, over 20 obsidian flakes were recovered along with small lithic flakes (< 4cm) and ceramic sherds. The recovery of obsidian just below the surface was particularly interesting since it mirrored the results of the 2010 excavation of Unit 1 (Heath 2011:16). The matrix was moderately sorted with small roots measuring less than 2 cm in diameter. The level was closed when compact plaster pieces appeared across the unit. These are believed to be the remnants of a plaster floor.

Layer 2

The following layer appeared to be a poorly preserved plaster floor with a mixture of coarse sand, stones, roots (>10 cm) and dry soil. Approximately 75-100 pieces of obsidian (> 3 cm), less than 50 pieces of lithic (>11 cm), and some ceramic shards were recovered. Large pieces of lithics were found, some measuring over 11 cm, including what may be a biface. On the west side of the unit a cluster of large stones measuring between 10 cm and 50 cm was revealed. The cluster of stones measures 75 cm east/west and 140 cm north/south (Figure 3). The largest stone, in the extreme north west corner of the unit, measures approximately 30 cm east/west and 50 cm north/south. It was left unexcavated for the remainder of the excavation because it appeared to continue outside of the unit and its removal would jeopardize the stability and structural integrity of that corner of the unit.

Layer 3

Layer 3 appeared to be a well preserved plaster floor. The cluster of stones encountered in Level 2, which are thought to be part of platform constructions, were removed to reveal the plaster floor running underneath. A plan map was created prior to removing the stones. A large quantity of obsidian was found, including at least one obsidian blade (4 cm long by 2 ½ cm wide) and multiple obsidian cores. The large

Figure 3 : Closing of level 2 (after layer 2 had been removed) showing the cluster of stones on the west side of the unit.

amount of obsidian retrieved from within and around the cluster of stones suggests that this was the location of an obsidian workshop, and the stones likely formed the platform on which the workshop was situated. At this point the decision to leave a 20 cm bulk on the east side of Unit 3 was taken, and from this point forward it was treated like a discrete unit.

Layers 4, 5, and 6

These three layers were dug as one level and designated as Level 4. The matrix consisted of small (~2 cm) to medium (~10 cm) stones and the recovered artefacts consisted of numerous ceramic fragments and few lithic and obsidian pieces. Layer 4 appeared to be compact plaster, Layer 5 was thought to be evidence of re-plastering, and Layer 6 appeared to be plaster. These layers, however, were not distinguishable during excavation and evidence of them appeared following an examination of the profile post-excavation.

Layer 7

This layer coincides with the fifth level and was started when larger stones and clusters of plaster or marl, measuring 20 cm to 60 cm, were encountered. The stones and plaster clusters were mixed with coarse sand. An area in the south west corner, roughly 30 cm x 30 cm, had softer gray soil. Most of the lithic material was recovered from the east half of the unit. Very little obsidian was found in comparison to ceramic sherds. Notable ceramic shards consisted of what appears to be two vessel feet and one handle, though they have yet to be analysed.

Layer 8

The layer had been divided into levels, 6, 7, and 8. The matrix consisted of what appeared to be aggregate (potentially plaza fill), consisting of stones measuring 10 cm to 20 cm as well as 10 very large stones measuring 20 cm to 60 cm. A compact floor was encountered with what appeared to be a naturally formed hole measuring 10 cm x 10 cm in the north east region of the unit. The material found in this level was mostly ceramic; approximately 140 sherds per meter compared to 10 lithics per meter. The decision to close levels every 10 cm was taken because, based on the excavation of Operation 8 Unit 1 and 2 in 2011, we anticipated encountering a Formative period level and a Classic period level and we wanted to keep them separate.

Although the matrix in this layer remained consistent, ceramic shards nearly doubled to approximately 300 shards per meter towards the end of the layer (within 12 cm of the following layer), and were mainly restricted to the east side of the unit. Notably, a jade bead was found during the screening process of this layer (see Lockett-Harris, this volume, for discussion of 'jade' terminology). This was a small, tubular bead of mottled dark green jade measuring roughly 1.5 cm in length and weighing a scant 2g. Based on the area of excavation at the time of recovery, the bead can be located to an area 50 cm to 70 cm from the east side of the unit.

Layer 9

Layer 9 appeared to be a cobble stone floor. The stones were approximately 7 cm to 30 cm in size and were mixed with compact plaster and soft gray soil with aggregate underneath. The cobble floor was at a lower elevation in the southern half of the unit. Very little material was uncovered with approximately only 25 pieces of ceramic and lithic combined underneath the cobblestones. The level was closed when a plaster floor was encountered. Interestingly, the plaster floor was encountered at a lower elevation on the south side of the unit.

Layer 10

Layer 10 appeared to be a poorly preserved plaster floor mixed with gray soil. The floor in the north east end of the unit was thin, measuring approximately 3 cm, whereas it was approximately 10 cm to 15 cm thick elsewhere in the unit .

Layer 11

Layer 11 consisted of a 2 cm stratum of soft gray soil with few ceramics and small carbon flecks throughout.

Layer 12

Layer 12 consisted of a well preserved compact plaster floor in the southern half of the unit and a poorly preserved plaster floor in the northern half of the unit. Due to the differential preservation of the plaster, excavation of the northern section continued while the southern section remained unexcavated.

Layer 13

The matrix consisted of soft crumbly plaster and aggregate, which is thought to be the fill of a plaster floor. After excavation of approximately 16 cm, cut stones were encountered running east and west through the middle of the unit. A small, flat, roughly triangular piece of blue-green jade was found during the screening process.

Layer 14

This layer consisted of hard pitted and uneven plaster. During the removal of this layer a succession of three courses of cut stones were revealed (Figure 4). These stones sat upon a smooth flat surface (but in the north east corner sat upon a less compact gray soil).

Figure 4 : The exposed platform visible at the end of excavation. (photo courtesy of Tremain)

Discussion

One of the notable finds in OP8-3, discovered during the first week of excavations, was what appears to be an obsidian workshop. This would be indicative by the cluster of stones (a structure) combined with large quantities of obsidian (flakes, cores and blade pieces). Outside of OP8-3 copious amounts of obsidian were found during the second half of the field season in structure D-5. Whether these two different deposits are linked together chronologically is unknown at this point. However further analysis may indicate, based on obsidian's chemical fingerprint, if the obsidian is derived from the same location (McKillop 2006:134). Obsidian is not naturally available in the region around Ka'Kabish (McKillop 2006:133) which means that obsidian may have been a trade component at the site. Further research will point to Ka'Kabish's influence in the region of north-central Belize in regards to the import of vast quantities of obsidian and other non-local materials such as jade.

One of the most significant findings during the excavation of Operation 8 was a Formative period platform running east to west through the unit. During the second half of the field season, Alex Gonzalez and her crew continued to excavate in Operation 8 Unit 2 and found the north east corner of the structure. In Operation 8 Units 1 and 2, ceramic vessel, a burial, 17 pieces of jade, 515 shell beads, and what may be a stone marker for the burial, were found in front of the platform indicating that a ceremonial burial and offerings took place in this area of the site (see Lockett-Harris, this volume). This may explain why

there was no ceramic spread to the west. Although the meaning of this platform still remains unclear, the following field season will continue excavations in this area with the aim of uncovering the north west corner in the hope of collecting more evidence to surmise a stronger hypothesis of what occurred during the time the platform was constructed.

Conclusion

The initial position of OP8-3 was designed to explore the extent of the ceramic cache found in 2011. It was discovered that the cache did not spread beyond the confines of the originally encountered area. The materials and features discovered during the 2012 field season raise more questions than answers as to the nature of the trade, construction, and ceremonial practices, of Ka'Kabish. The evidence of obsidian and the discovery of the platform also bring to question whether the site played a more influential role in the region than that which has been hypothesized in the past. Future excavations and analysis of the material in Plaza D will hopefully provide more insight to the role Ka'Kabish has played in the region over the last 3000 years.

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CHAPTER 6

EXPLORING CHULTUN B-2 IN GROUP B AT KA'KABISH

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Introduction

Excavations were conducted in Chultun B-2 in Group B for the 2012 field season at Ka'Kabish. The goal was to attempt to discern the functionality of this feature and ultimately reach a better understanding of the role that it played within the site.

The function of man-made, subterranean chambers, called chultuns, has puzzled archaeologists in the Maya region since the beginning of the 20th century. While chultuns in the northern Maya lowlands are well accepted as water cisterns, the function of chultuns in the southern lowlands is still hotly debated. Suggested functions include uses as: water cisterns, burial chambers, sweat baths, food cellars, or some form of outdoor plumbing (Ricketson 1937, Puleston 1965).

The question of the function of these subterranean chambers was most intensively investigated by Dennis Puleston (1965: 26) who recorded 280 chultuns in his settlement survey at Tikal and suggested that at least one would be found with every settlement cluster. This research was significant in documenting that chultuns were an indispensable feature of Maya residential settlement. The most commonly accepted idea is that chultuns were used for food storage, but Puleston (1971: 322) showed that almost nothing could be stored in these chambers because the relative humidity was 100%. What then was the function of chultuns and what role do they play at Ka'Kabish, particularly in Group B?

Description

Group B is located north of the bulldozed road that separates Group A from the main forested zone and consists of two small sized structures and two chultuns. One chultun is inaccessible (Chultun B-1), while the second one (Chultun B-2) is partially filled but accessible through an opening that is 60 cm in diameter (Haines 2007: 8). Excavations in this group were conducted in Chultun B-2. No prior excavations have taken place in Group B before this field season.

On commencement of the excavation we found the chultun already opened with its capstone removed and lying to the northwest side of the entrance, as it had been when first investigated by Haines in 2007 (Figure 1). It is uncertain how long it has remained uncapped. Due to the karst nature of the area, many natural openings in the earth exist, but what is distinct about this feature is that it was culturally modified. The opening and inner chambers were both noticeably altered, not to mention a capstone was crafted to perfectly seal the opening.

From the lip of the opening to the platform beneath is a 47cm drop. The platform splits into two chambers, one in an easterly direction and one in a westerly direction. Both chambers were found to be cluttered with debris that had fallen from the ceiling and through the opening. My initial intentions were to excavate both chambers of the chultun but the ceiling on the eastern side was extremely unstable and fragile and therefore I only excavated the western chamber due to safety reasons, which was known as Operation 9.

Figure 1. Chultun opening and associated capstone.

Methodology and Excavation

The western chamber of the chultun is oval shaped and measures 236.5 cm by 239 cm. A unit datum point was placed in the platform directly under the center of the opening. The floor of the chamber sloped downward significantly from north to south and as a result three other reference points were placed in correlation to the unit datum; point A (30 degrees NE), point B (20 degrees NE), and point C (105 degrees NE), where opening and closing elevations were recorded to determine depth. Due to the unevenness of the surface, I started excavations at the highest elevation in the chultun at the northern end,

located at point A, and trenched across to the lowest elevation at the southern end, located at point C. The levels were excavated according to changes in the soil or changes in the cultural material present.

Excavation equipment consisted of trowels, a rock pick, and brushes. All excavated soil was screened upon removal from the chultun using a ¼ inch screen. All materials recovered through the screening process were bagged accordingly to their material type and those recovered in situ were carefully mapped and also collected accordingly to their material type.

Operation 9, Chultun B-2 – Surface

A lot of the surface area was littered with ceiling collapse and the debris from the outer surface (leaves, tree branches, tree bark, and small stones had fallen through the opening). There was also a large amount of bat guano covering the surface. Two soil matrixes were distinguishable; a light greyish white limestone matrix and a dark brown wet soil matrix. The artefacts collected from the surface consisted of four ceramic sherds and a small amount of carbon that had probably fallen in from the outer surface.

Operation 9, Chultun B-2 – Level 1

Level 1 consisted of mostly a greyish white limestone soil matrix and larger pieces of limestone from the ceiling collapse. A considerable amount of small animal bones were recovered from this level and are believed to be the remains of small rodents that had fallen into the chultun. The artefacts collected included a single human tooth, ceramic sherds and rims. The project ceramicist determined a Post-Classic date for the sherds. As excavation progressed seven large stones became discernible in the central area of the chultun. Six of them were not very deep and barely penetrated into the next level but the seventh and most central stone appeared to go deeper into the next level. It was not clear whether it was placed in the chultun intentionally or not. The change in soil matrix to a dark brown matrix marked the close of Level 1.

Operation 9, Chultun B-2 – Level 2

As excavations commenced on the southern end of the chultun the soil was soft and consistent. The central area was riddled with tightly packed limestone and ceiling collapse, making excavation of this level difficult. The stones in the central portion were removed because they were predominantly large limestone ceiling fall. Ceramic sherds were present throughout the chultun but appeared scattered without any evidence ceramic clusters. Again, analysis suggests that the ceramics likely date to the Post-Classic period. On the northern end human bone fragments were uncovered with two human teeth (molar and incisor). Notably, among the bone fragments was what appears to be either an ear spool or spindle whorl made from a vertebra bone displaying visible tool markings. The area appeared to be sectioned off from the rest of the chultun by a line of five stones. Other artefacts collected included small obsidian

flakes, lithic, and carbon. Radiocarbon results agree with the Post-Classic date, returning a date of 680 ± 39 B.P., which correlates to cal. AD 1263-1394.

The northern end of the chultun, sectioned off by the five stones, has been designated as Level 3 because it is thought that a burial may have been present (see below). Level 4 includes the central area and the southern end of the chultun.

Operation 9, Burial Chultun B-2/2 – Level 3

This level correlates with Level 6 .The human bones recovered may either be related to the burial recovered from Level 2 (Burial Chultun B-2/1) or represent a second burial (Burial Chultun B-2/2). The density of bone material in this level is much less than in Level 6 and it is so badly damaged from ceiling collapse that it is hard to discern if there is a full body present. From speculation alone, it appears that most of the bones present are arm bones. This level was carefully mapped and artefacts collected consisted of one large rim sherd that correlates with other rim sherds in Level 6. Ceramic analysis suggests a Terminal Classic date for the rim sherd. Other artefacts include a bead made from bone, and carbon. The five previously mentioned aligned stones were removed during excavation and did not appear to have been placed there intentionally.

Operation 9, Chultun B-2 – Level 4

Excavations at this level were conducted across the remainder of the chultun surface. The soil matrix in the southern end of the chultun was soft and darker brown while the central area's soil matrix was hard and compact and was more difficult to excavate because of the large limestone deposits. Large pieces of ceramic sherds and animal bones, both mammal and avian, were uncovered within this layer. The project ceramicist identified the sherds to be Post-Classic in date, and noted that this level contained the highest amount of Post-Classic sherds from the chultun. Other recovered artefacts included a small obsidian blade, lithic fragments, and carbon. In the northwestern area of the chultun, larger bone fragments that protrude into the next level became visible and appear to be human. Consequently, the decision was taken to close Level 4 and designate the northwest portion of the chultun as Level 6.

Operation 9, Chultun B-2 – Level 5

Excavations of this level were predominantly conducted at the southern end of the chultun and within the central area. Two large ceramic clusters were excavated, and consisted of large rims and body fragments of different sizes. It is unclear whether or not these clusters represent a ceramic fill. Analysis suggests that some may date to the Post-Classic period, but there were also the most Terminal Classic sherds recovered from the chultun within this level. Other artefacts collected consist of an obsidian blade, a bone needle or awl and a broken bone flute (both were identified in lab with the faunal remains), and a partial human femur that seems to correlate with the human remains uncovered in Level 4. Radiocarbon

dates on carbon collected in this level yielded a date of AD 1296-1418 cal. (AA100165 age BP 587 +/- 39)

Operation 9, Burial Chultun B-2/1 – Level 6

This level correlates with Level 5, depth wise, and possibly with Level 3. Excavation took place only in the northwestern area of the chultun. Uncovered beneath the limestone ceiling collapse were the remains of a severely damaged individual (Figure 3). It appears as though the body was laid out in an extended position with the legs extending south (Figure 4). The pelvic and rib cage of the individual are severely damaged and most of the skeletal remains are broken into tiny fragments. Small fragments of the skull are recognizable, but are no bigger than two inches in length and width. The bone fragments recovered from Level 3 may be of the same individual, but it is hard to decipher if this is the case. Two clusters of teeth were uncovered, one in the southern area of the burial and one in the northern area. The individual is rested on a floor of small pebbles with a large quantity of land snail shells present. The floor beneath that layer appears to be one made of ceramic fill, with sherds of a probable Post-Classic date. This level was carefully mapped and collected. Recovered artefacts include one chipped lithic flake, a variety of ceramic sherds collected from the fill, carbon, and a soil sample of land snail shells and pebbles.

Figure 2. Excavations in Level 6 showing severely fragment nature of burial.

Figure 3. Excavations of burial showing legs pointing south in Level 6.

Operation 9, Chultun B-2 – Level 7

Excavations were conducted across the central and southern areas of the chultun, where there was no evidence of human remains. In the area closest to Level 6 (the northwest section of the central area) excavations uncovered larger stones and large quantities of ceramics that correlate with the ceramic fill that was found underneath the individual in Level 6. As a result, excavations in that area were closed and were commenced as Level 8. The individual seems to have been placed on a floor consisting of stones and ceramic sherds. The soil matrix of this level was moderately sorted and consisted of a dark brown soil. The southern end of the chultun reached bedrock at this time. Excavations for this level were closed when the soil matrix of the central area changed to a higher density of limestone inclusions. All recovered artefacts were ceramic and likely date to the Terminal Classic period.

Operation 9, Chultun B-2 – Level 8

Excavations in this level were directly underneath Burial Chultun B-2/1 (Level 6) and part of Burial B-2/2 (Level 3). This entire area was compacted ceramic fill, and was only found in correlation to where the skeletal remains were found. The ceramic fill was taken out in layers (Layers 1-4) and carefully mapped. Many of the ceramic sherds and rims seem to correlate with each other, and based on the size of the rims they appear to be large ollas. Ceramic analysis suggests a Terminal Classic date. The soil matrix in this level was a light ashy grey matrix. Other recovered artefacts include an obsidian core

and a pre-formed biface. A soil sample was also taken from this level. This level closed after recovering all of the ceramic levels and at this time the entire chultun was at one level.

Operation 9, Chultun B-2 – Level 9

Level 9 was mostly sterile with a low density of ceramic sherds and a few lithic fragments. Analysis suggests a Terminal Classic date but was one of two lots with the most Formative Period sherds as well. The soil matrix was extremely compact and contained limestone inclusions. The level was closed when bedrock was reached across the entire chultun surface. A soil sample was taken just before hitting bedrock in the northwestern area of the chultun.

Observations

Excavations indicated that there is evidence of at least one individual who was buried intentionally within the chultun terminating further use of the feature. There is the possibility of a second individual buried in the northern section (Level 3) of the chultun, but without further investigations of the skeletal remains it is hard to ascertain if this is the case, as does the age and sex of the individual or individuals. The body appears to be rested in an extended position with the legs pointing towards the southern end of the chultun. From analyzing the mapped levels concerning the ceramic deposit around and underneath the individual, it appears that there have been three large ollas placed near the body. It is also a possibility that all the ceramic layers underneath the individual were broken and used as a floor or mat to place the individual on. Further analysis of the ceramic assemblage from Level 8 can potentially shed light on this issue. It would also be interesting to investigate the eastern chamber of the chultun to see if it correlates with the western chamber.

Regarding the ceramic assemblage, the bulk of the deposit is likely to date to the Terminal Classic. There are a total of 246 Terminal Classic sherds along with another 396 Late Classic (these could be Terminal Classic, the parts of the vessels analyzed are difficult to ascertain for certain). This provides a total of 642 Late to Terminal Classic sherds. Although Post-Classic material was identified in all levels, Level 4 has the largest density of Post-Classic sherds (n=27). The majority of the indeterminate sherds are likely Early to Terminal Classic in date.

The burial most likely dates to the Terminal Classic considering that the majority of the ceramics in and around these levels date to this period. Regarding the C-14 dates taken from Levels 2 and 5, it appears that they date to the 13th-14thcentury. Unfortunately they do not correlate with the ceramics, so until further investigations can be conducted it is problematic to say that their dates are associated with the burial. Regarding the high density of Post-Classic sherds, perhaps it was from a later occupation in the area.

Conclusions

The excavations in Chultun B-2 were conducted to gain a better understanding of the functionality of this feature and ultimately reach a better understanding of the role that it played within the site. It is evident that the primary function of the chultun was a burial chamber, and receipt of the burial likely ended any further use. Since excavations determined no prior use of the chultun, but the space may have been cleared before the burial was placed inside, it is unclear whether or not the chultun served a function before the burial. Further investigations need to be conducted in the surrounding area to get a better understanding of the occupation time span and use of Group B.

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CHAPTER 7

2012 SURVEY OF THE KA'KABISH SITE CORE PERIPHERY

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Introduction

Over the course of the 2012 field season a large scale survey of the Ka'Kabish site periphery was conducted. Over the course of approximately five weeks several new groupings were located surrounding the Ka'Kabish site core while older known groupings were re-evaluated for positioning and structural composition. Groups G through L were newly identified this season, all located within a 1 km radius of the site core in all cardinal directions. The structures within each group varied in height, extent, orientation, and organizational grouping and were often physically represented by no more than a low-profile mound within the jungle setting. A total of 30 possible new structures were identified this season, each of which requires further qualitative analysis in order to verify their designation. The identification in the field of these new structures was based on qualitative observations within the jungle setting by local, experienced, guides and the survey technician. Each new group was given an alphabetic designation based off the previously identified groups (Group F being the last identified group prior to the 2012 season). The structures within each new grouping were then given a numeric designation based on the order in which they were located. Surrounding the Ka'Kabish site are extensive agricultural fields which creates a contrived boundary. Beyond this boundary region regular survey methodologies cannot be employed as the natural landscape has been plowed and flattened. This makes the site of Ka'Kabish an ideal confined area for the purpose of a manual site survey.

Methodology and Equipment

The methodology employed for the 2012 field season survey was not traditional in the sense that a grid or radial search approach was not used. The purpose of the survey this season was to identify possible new structures within the periphery of the Ka'Kabish site core. To accommodate this approach the use of transects and cluster surveys were used. The Ka'Kabish permit area is a rather large size of land so an approach of "search and survey" was used; a concept coined for this summary. This approach

is rather unsophisticated but allowed for a maximum amount of area to be covered in a minimal amount of time. The idea was to use the man-power at hand to not only survey known areas but to search the jungle setting for possible new targets. Once a possible target was identified a transect would be made to allow the area to be surveyed and linked to known "traverse points" with identified GPS coordinates and elevations.

The 2012 field season survey was conducted using a Sokkia 530R Total Data Station supported by a Nomad Data Collector running TDS Survey Pro software. The collected data was synthesized into a database using Microsoft Excel and Sigma Plot 11, and was then analyzed using ESRI ArcGIS 10 and Golden Software Surfer 9. The latter program was used only to create interpretive maps. The data was imported into ArcGIS-ArcMap, interpolated using Inverse Distance Weighting (IDW) (Shepard, 1968), and projected as a series of digital elevation models (DEMs) in ArcScene.

Results of the Survey

The 2012 field season survey of the Ka'Kabish site resumed from the southern extent of Group B which is directly south of the site core. Starting from a "traverse point", staked and labeled from the previous surveys, a transect was made southwest towards the approximate known position of Group A. The group was successfully located and eight structures were re-surveyed, as it had been surveyed using an optical theodolite previously (Figure 1). Once the grouping had been surveyed another transect was made west-northwest in an attempt to locate Group E which was known to be approximately located in the southwest corner of the Ka'Kabish boundary area. Groups A and E are the known southeast and southwest extents of the Ka'Kabish area, respectively.

Group E was located approximately 30 meters to the south of the previously delineated position. Noting the discrepancy the area was re-surveyed (Figure 2) and because the southern and eastern extents of the area were truncated by agricultural fields the only option, once the survey was complete, was to head north. The area directly north of Group E, and west of Group D (Figure 3), had not been surveyed by any methods previously.

Approximately 22 meters north-northeast of the core of Group E, and 90 meters west of structure D14, a two structure grouping was located. This grouping was not a new one, as it is believed to be what were at one time designated structures 9 and 10 in Group E. Group E had not been revisited, or re-surveyed in 3 years, and based on the post-survey interpolation analysis, inverse-weighted distance of points, there seems to be no discernible structures in the location that E9 and E10 were previously delineated, even using extremely exaggerated vertical extents. Taking into account the precision of instruments being used and the spatial division between this new grouping and Group E, the two structure grouping was designated Group G. In turn, the number of Group E structures was noted to have

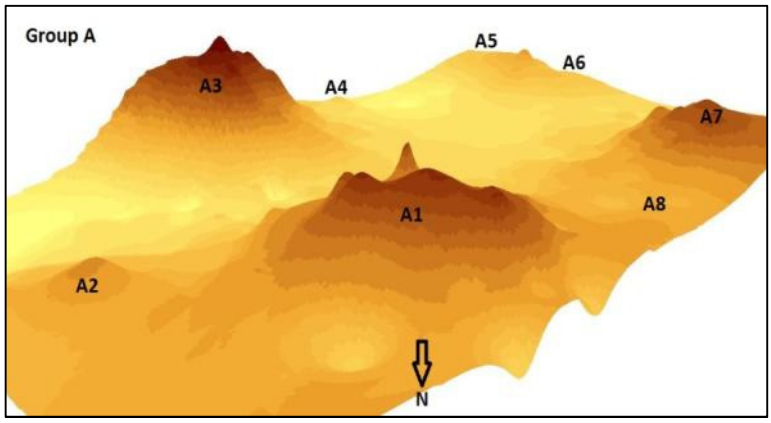

Figure 1. Map of Group A

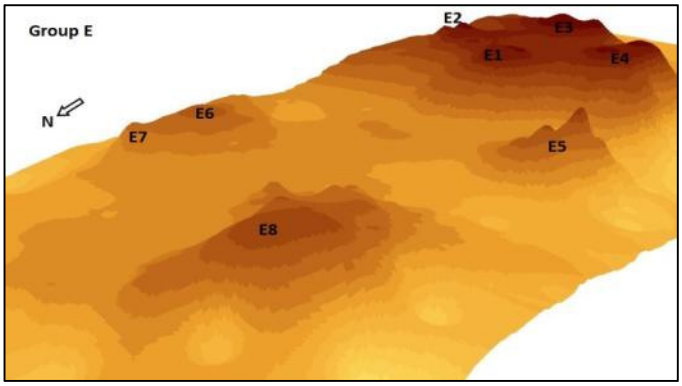

Figure 2. Map of Group E.

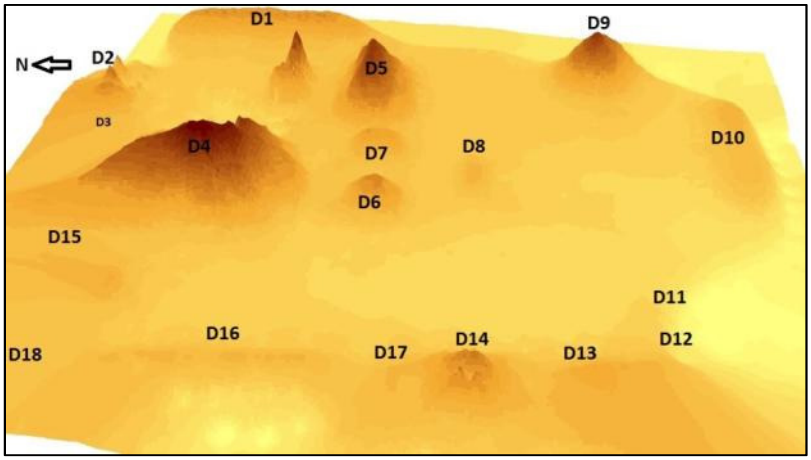

Figure 3. Map of Group D.

decreased from 10 to 8 (see Figure 2). Again heading north, with the east being truncated by agricultural field and the west by the previously surveyed Group D, a new grouping was discovered. This grouping was approximately 90 meters north-northeast of Group E and 60 meters west of structure D16. The new grouping contains at least five structures, two of which are over 1.5 meters in elevation. This new grouping was designated Group H (Figure 4). Based on visual explorations around the area it seems that there may be up to three additional structures that could be included in this grouping but they need to be revisited to determine if they should be included. One structure is 70 meters east of Group H while a pair of structures also exists approximately 100 meters north-northwest of the group.

Heading further north and crossing the road that bisects the site between Group D and F, a single possible structure was found 120 meters northwest of Structure F-5 (Figure 5), and 60 meters north of the road. This possible single structure is set within an area of varying terrain heights making it difficult to determine if it is in fact an ancient structure and as such was not assigned an alphanumeric designation. Approximately 80 meters further north of the possible single structure a previously observed grouping was found. This grouping had been observed before but had not been surveyed. This grouping was found to have three discernible structures approximate 180 meters northeast of structure F5 and was designated Group L. This grouping represents the northern extent of the 2012 survey (Figure 6).

Moving to the southeast of the site core and Group D, approximately 500 meters from structure D9 another new grouping was found. Designated Group I, this grouping contains at six distinct structures with the possibility of three others based on the IDW interpolation, one of which (I4) had been extensively looted (Figure 7). This grouping sits directly on the western edge of an open field and road where it seems likely other structures may have existed, based on the presence of broken fragments and terrain irregularities.

An approximate 200 meters southwest of Group I another new group was found, designated Group J. This group contains four core structures and three possible peripheral structures, all of which are moderate in profile (Figure 8). Structure J2 has a noticeable large debris pile adjacent to it from previous looting activities. Approximately 100 meters directly north of Group J there are two other low-profile structures adjacent to another agricultural field that have been designated Group K.

At the conclusion of this season's survey an additional 4300 point locations/elevations had been taken, adding to the approximate 4000 from previous seasons, identifying six new groupings and re-evaluating the position and structural components (internal and peripheral components) of three known groupings; Groups A, D and E. A small but distinct mound structure was found 100 meters south of D9. Beyond this, several possible new chultuns were identified (at least three and at maximum twelve), as well as some interesting natural features (hydrologic and geologic fractures; steep elevation steps; and an odd plateau 70 meters southeast of D9).

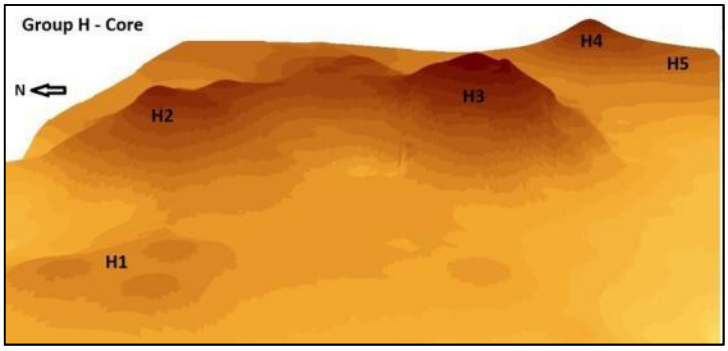

Figure 4. Map of Group H.

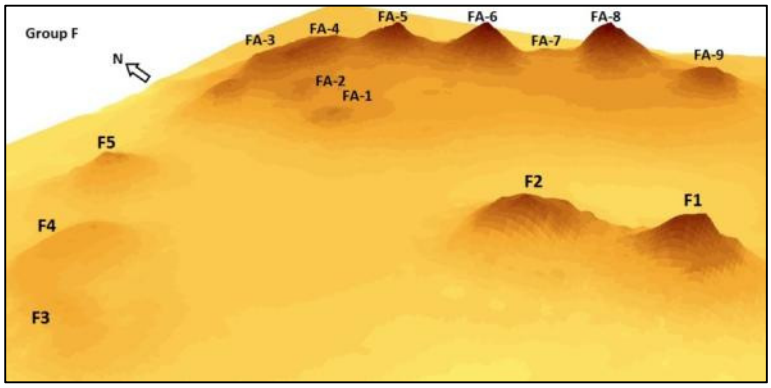

Figure 5. Map of Group F.

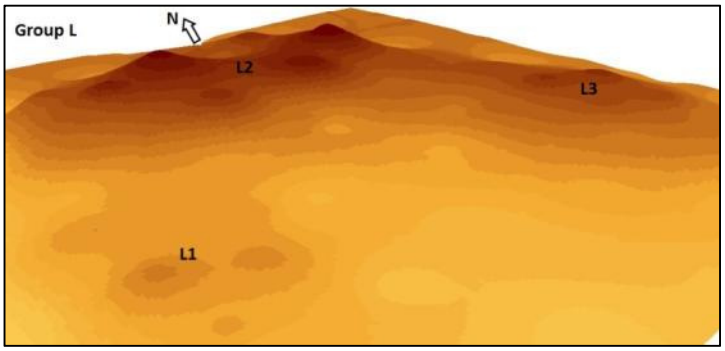

Figure 6. Map of Group L.

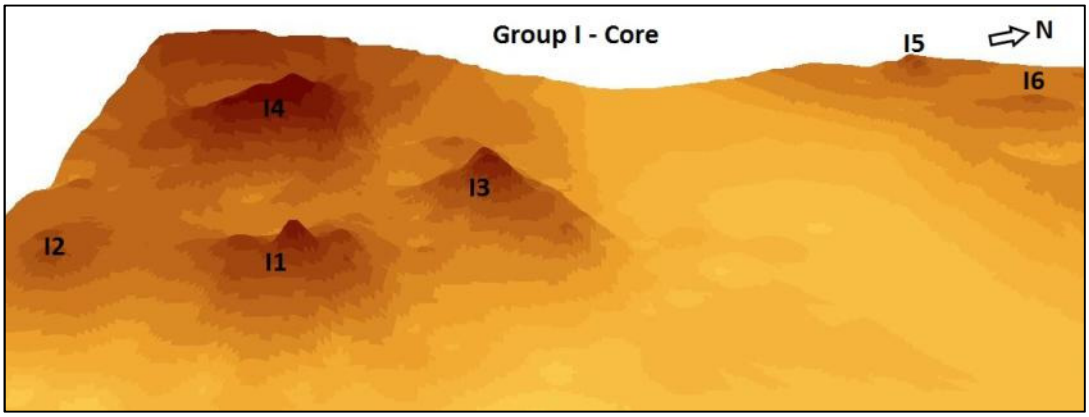

Figure 7. Map of Group I.

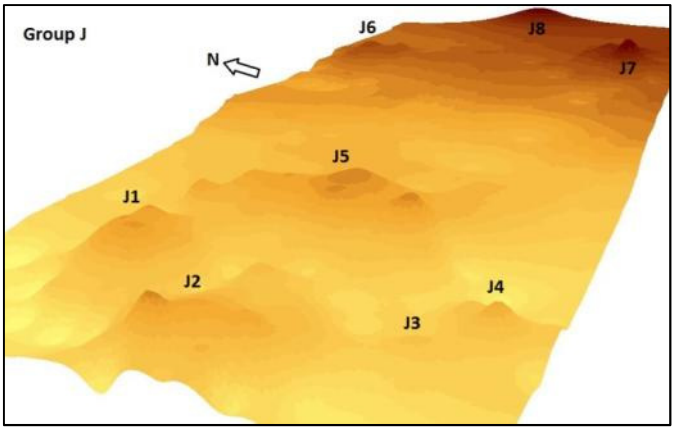

Figure 8. Map of Group J.

Future Considerations

Further work needs to be carried out on the northern side of the Ka'Kabish site, (north of Group F moving east) as well as re-evaluating some of the possible structures identified this season. It would also be beneficial to re-survey many of the more remote and low-profile structures found this season to increase the spatial resolution of the interpolated imagery. This site seems to contain more than is easily observable, a function of its location and setting, and would benefit greatly from remotely sensed, multispectral (LANDSAT ETM+ or upcoming LDCM) data to help interpret the extent of the site. In the future it would also be desirable to obtain aerial LiDAR data that could increase the spatial resolution of the known and unknown components of the site by a significant degree.

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CHAPTER 8

FROM KA'KABISH TO LAMANAI: THE INITIAL PHASES OF A TRANSECT SURVEY

by Mr. Alec McLellan

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Introduction

Over the course of three field seasons, a team of three archaeologists surveyed several areas southwest and southeast of Ka'Kabish. In 2010 and 2011 the team was primarily concerned with the distribution and density of structures in the settlement zone surrounding the site core. In an area that covered 1.08 square kilometers, archaeologists found evidence of 95 individual structures (McLellan 2010; 2011; 2013). During the 2012 season this research was expanded to include several new areas of occupation, increasing the known size of the site as well as the density of structures surrounding the site. Instead of focusing on areas that recently underwent agricultural intensification, which increases the visibility of terrestrial surveys, the team began a transect survey between Ka'Kabish and the nearby site of Lamanai. This report summarizes the progress that was made in the initial phases of this survey.

Location and Description of the Settlement Zone

As mentioned, in 2010 and 2011, the team surveyed two specific areas in the settlement zone. The first location extended in a southwesterly direction from the site core, 0.8 km into the periphery. The transect width varied somewhat depending on the composition of the agricultural fields, but generally averaged 0.2 km. The second survey zone was roughly 1.5 km from the site core and extended in a southeasterly direction for 1 km. The width of the survey zone was 0.92 km. In these locations, the team found 84 areas mounded due to subsurface stone platforms and 11 scatters of artifacts unaccompanied by mounds (Figure 1).

The team chose these areas for survey due to recent agricultural activities which removed jungle vegetation, increasing the likelihood to discover ancient remains. However, the length of agricultural use varied in both areas. For example, in areas southeast of the site the land was only recently cleared for maize cultivation. In comparison, areas southwest of the site had a longer history of use, which greatly affected the accuracy of the survey. In many cases, it was clear that occupation existed in particular areas but it was impossible to delineate exactly where structures were located or when they were occupied. For

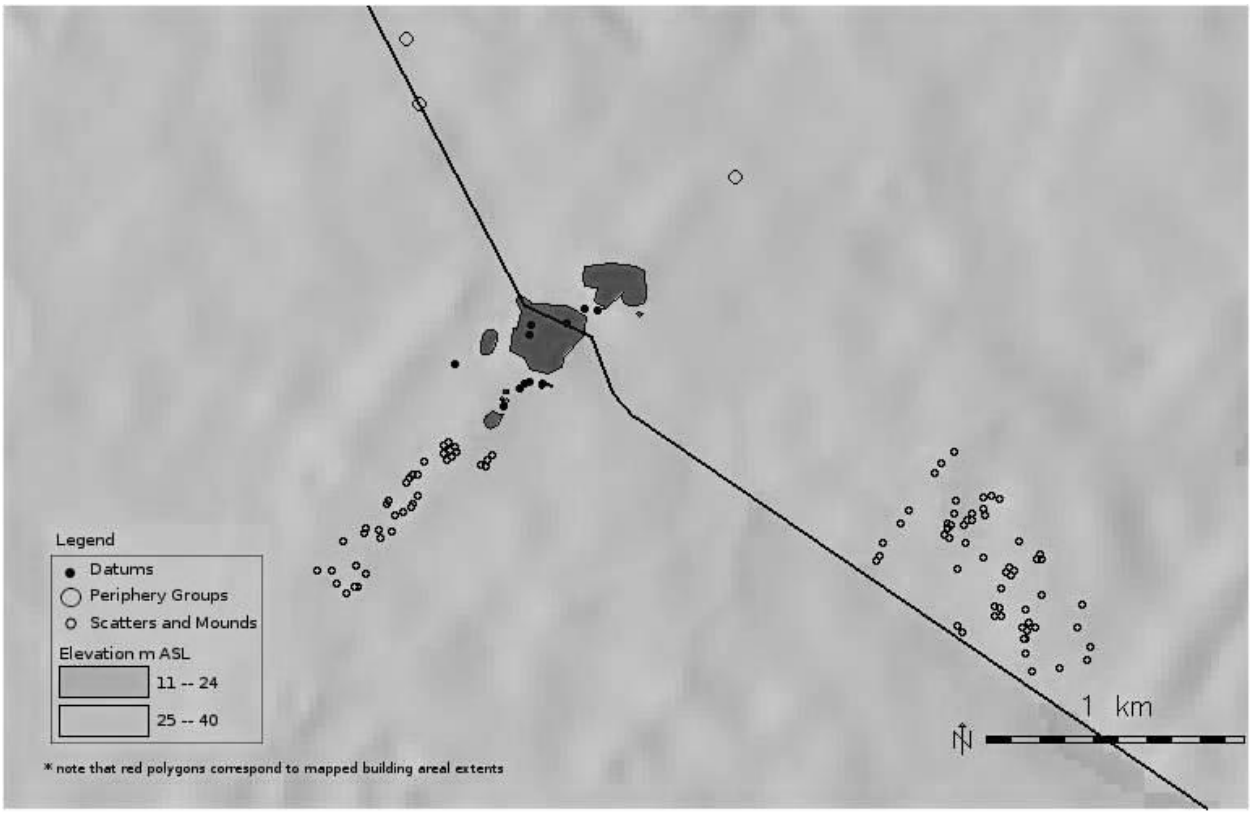

Figure 1: Map of Settlement and the Site Core (polygons) of Ka'Kabish (Map by W.C. Carleton and A. McLellan)

the purposes of recreating the time-space systematics of the site, these activities erased most of the usable data. The clarity of the archaeological record in areas southeast of the site encouraged the team to establish the transect survey north of a modern road, over a distance of 10 km, in a southeasterly direction towards Lamanai.

Objectives

The objective of the research was to determine where and when the ancient Maya were located surrounding the sites of Ka'Kabish and Lamanai. The team focused on mapping settlement distributions and determining when structures were occupied through an analysis of ceramic typologies (Gifford 1976; Masson and Mock 2004). The specific research questions that were addressed included:

- Does settlement decrease in density between the two sites?
- Are areas closer to the monumental centers more densely occupied than the peripheries?
- Do clear polity boundaries exist between the two sites?

Methodology

To answer these questions, a 10 km transect between Ka'Kabish and Lamanai was surveyed by a group of three people, walking in 5 m intervals. Every 100 m a test-pit excavation was conducted. 100 m trails were cut perpendicular to the main axis of the transect, with test-pit excavations extending to the right of the main axis every 10 m. The northern portion of a modern road was surveyed, as this area underwent previous archaeological research and reconnaissance (McLellan 2010; 2011; 2013). Permission was obtained from various landowners who held property along the transect survey. The landscape was mostly cleared for agricultural purposes, with several areas of dense jungle. Surface collections of ceramic, lithic, and faunal remains were taken from noticeable material concentrations in agricultural areas. Mounded structures in these areas were also mapped and test-pit excavated.

Concentrations of artifacts were visibly represented by flagging each individual artifact prior to collection. Collection strategies focused on visibly diagnostic artifacts that were larger than 5 cm in diameter. 'Visibly diagnostic' referred to artifacts that represented the neck, rim, or base of a vessel, or included bichrome, or polychrome features. These artifacts were more likely to be identified typologically, providing the chronology for the occupation of individual structures.

Data

Prior to assessing the archaeological potential of the transect survey, the team was required to seek out various landowners for permission to investigate their fields (Figure 2). This task was time-consuming, as it was often difficult to determine who owned each field and once an owner was identified, it was difficult to contact them. After acquiring a map of the land parcels, and visiting various local communities, the team was granted permission to survey the fields.

The transect survey was established using a GPS system, with trails running northwest of each point. A total of 10 test-pit excavations were conducted at each point, with the goal of determining which areas of the site were more densely occupied. The team's initial use of the methodology proved promising, with test-pits closer to the site yielding anywhere between 1 and 30 ceramic sherds. However, inclement weather forced the team to abandon test-pit excavations, as a high water table precluded further research. Thus, the initial goals of the project were abandoned because of continued, and worsening, weather conditions.

The team was forced to adopt a methodology that was used in previous seasons, taking advantage of recently cleared agricultural fields to map noticeable material culture concentrations, or mounded structures. Fortunately, an area further from the site, still along the transect line, was recently cleared by one of the land owners that the team had contacted earlier in the season. This field was located 4 km southeast of the site core. It was roughly 500 m in length, with a width of 300 m. The team's initial

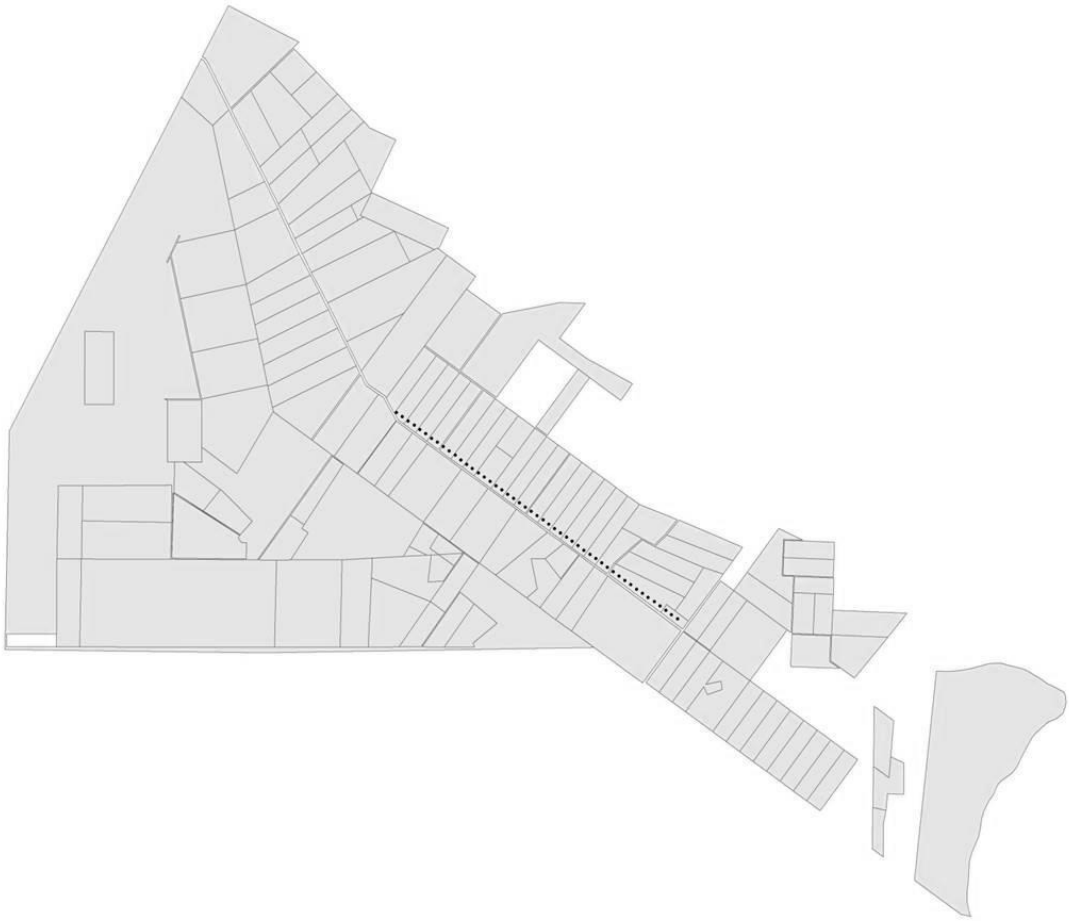

Figure 2: Map of Land Parcels with Transect Points (represented by black dots)

reconnaissance of the first 200 m revealed no evidence of structures or material culture. It was also clear that the vegetation in this area, prior to its removal, was characterized by different species of flora than the surrounding jungle. The soil was lighter in texture and colour, with a silt loam, or sandy disposition. This 200 m swath of unoccupied terrain was archaeologically interesting as very few sections of the transect radiating outwards from Ka'Kabish were as sparsely occupied as this area. Perhaps, this section

of the landscape was used for agricultural purposes, or maybe, this lack of occupation represented a break between the Ka'Kabish and Lamanai polities.

As the team moved further from the site, roughly 4.2 km southeast of Ka'Kabish, several other areas of occupation were identified. The team recorded 21 structures arranged in various plazuela groups, with lengths ranging from 4-10 m and widths ranging from 3-7 m (Figure 3). The team collected diagnostic ceramics from each structure, as well as any lithic or faunal materials. Although a detailed analysis of these materials was not performed, an initial perusal of the sherds indicates that many of the structures dated to the Terminal Classic Period. This is expected, as previous research indicated that the majority of the 95 structures surveyed in past seasons dated to the Terminal Classic Period (McLellan 2013). Further research will determine if any later or earlier dates are suggested for particular structures.

While only the initial phases of the survey were completed, the team mapped and recorded the location of the transect survey, with points corresponding to test-pit excavations. The team also noted the elevation of each point, every 100 m, between Ka'Kabish and Lamanai. From an anthropological perspective, it is interesting to note that Ka'Kabish rises 120 m above sea level while Lamanai sits roughly 5-10 m above sea level. This discrepancy in elevation ensured in antiquity that the inhabitants of each site were always clearly visible to each other from their respective locations.

Future Research

Although the field season was largely unsuccessful due to poor weather conditions limiting productivity, the framework for future studies was established with a clearly laid-out grid for further archaeological investigation. At this point, it is difficult to determine if areas between Ka'Kabish and Lamanai were settled during the Terminal Classic Period. However, based on the number of structures roughly mid-way between the two sites, it seems likely that settlement did not decrease in density between Lamanai and Ka'Kabish. Instead, there seems to be a slight decline in density roughly 1 km from the site core, with lower density settlements dispersed in the periphery between the two sites. Without a clear decrease in density of structures, it is difficult to determine if, or where, any clear polity boundary existed.

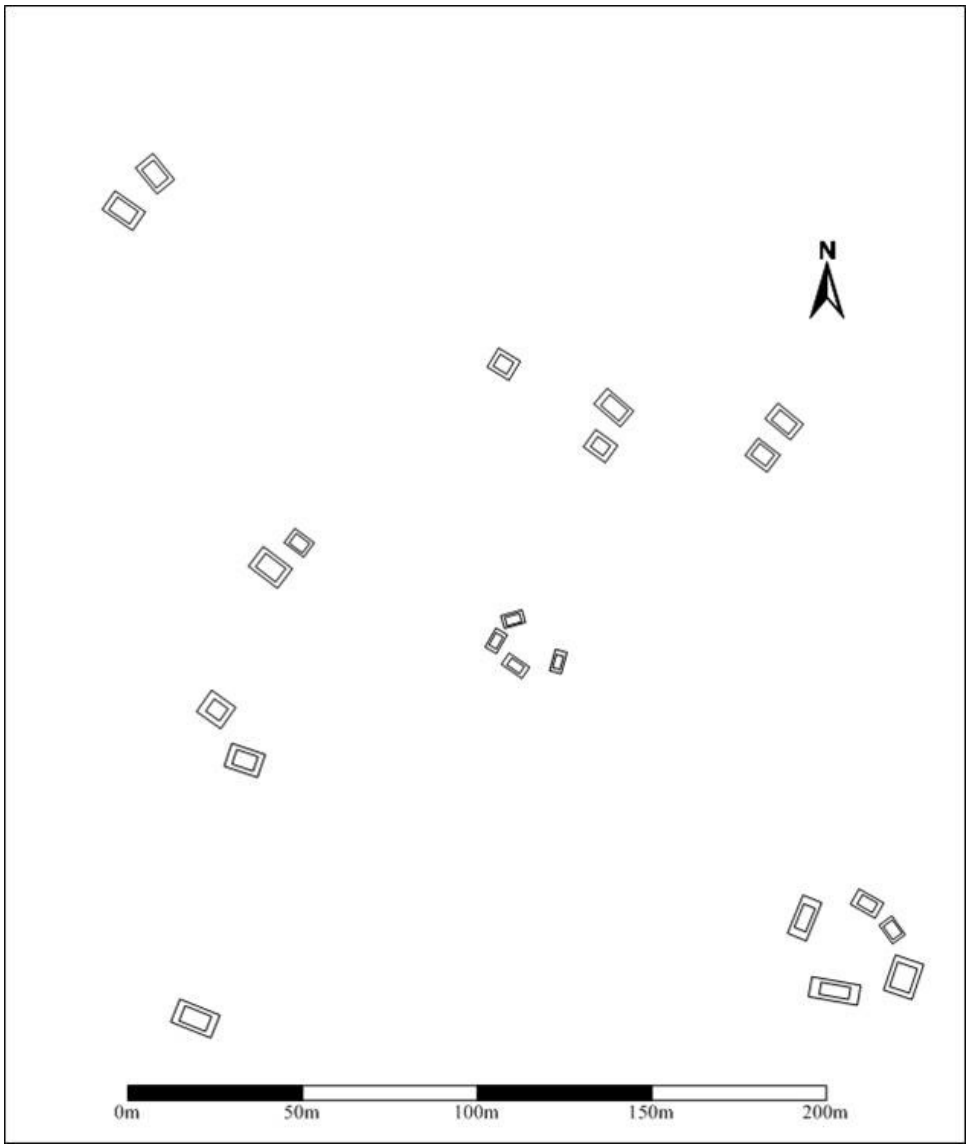

Figure 3: Map of Settlement 4 km Southeast of Ka'Kabish

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Appendices

ID	Northing	Easting	MSL	Length (M)	Width (M)
PBF-M1	1967838.84	320518.45	21.3	10	5
PBF-M2	1967908.1	320530.8	33	9	5
PBF-M3	1967918.66	320527.46	33.68	7	5
PBF-M4	1967960.54	320539.76	31.67	10	8
PBF-M5	1967969.28	320544.11	34.28	4.5	3.7
PBF-M6	1967939.04	320605.88	39.31	4	3.5
PBF-M7	1967933.32	320608.74	34.92	4.4	3.4
PBF-M8	1967934.94	320619.2	35.5	4.4	2.5
PBF-M9	1967941.24	320612.1	37.3	4.7	4
PBF-M10	1967859.03	320692.45	24.91	10.2	6.2
PBF-M11	1967866.57	320710.37	23.12	7.23	6.8
PBF-M12	1967858.22	320719.74	23.95	5	5
PBF-M13	1967844.95	320720.85	28.58	12	7.3
PBF-M14	1967840.56	320701.05	22.66	13	6
PBF-M15	1967993.28	320679.41	28.51	4	4
PBF-M16	1968004.74	320684.31	29.43	7	5
PBF-M17	1968006.05	320641.54	32.73	6.3	5
PBF-M18	1967996.99	320634.5	28.17	4.6	4.4
PBF-M19	1968021.21	320607.95	30.86	5	4.3
PBF-M20	1968062.16	320498.26	30.07	5	4.27
PBF-M21	1968075.22	320503.9	38.11	6	5.7

CHAPTER 9

THE FINAL WORD

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Over the course of the last six years (2007-2012) and five field seasons[2] we have made great advances in understanding the history of Ka'Kabish and, on a larger scale, contributed to our knowledge of the ancient Maya socio-political dynamics of north-central Belize. This work, which has been largely funded by a grant from the Social Sciences and Humanities Research of Canada, has produced two Master's thesis (Tremain 2011a; McLellan 2012a) with two more in progress (Gomer n.d.; Gonzalez n.d.). Additionally, two undergraduate thesis (Heath 2011; Pitre 2011) were also produced along with two journal articles (Haines 2008a, 2011a). Two additional journal articles have been submitted for review (McLellan and Haines n.d.; Tremain and Haines n.d.) as has one book chapter (Haines n.d.) with another chapter in progress (Haines and Sagebiel n.d.). Moreover a total of 15 papers have been presented at various conferences (Aimer and Haines 2011; Gonzalez and Haines 2013; Haines 2007, 2008b, 2010, 2011b, 2012a, 2012b; Haines and Aimers 2011; Haines and Patterson 2008; McLellan 2012b, 2012c; Tremain 2011b, 2011c, 2012).

These paper and publications were the produce of preliminary investigations into a variety of locations around the site, the purpose of which was to sample the area so as to formulate an idea as to the occupation and construction history of Ka'Kabish. Based on the data produced over the past five-year we know that the site was settled by the Middle Formative period (ca. 800-600 BC) as evinced by the thick, rich deposits buried below the south-eastern area of the Group D plaza. The people had an active agenda of construction as seen in the platform buried below the plaza, and likely also a ritual agenda as noted in the prolific ceramic deposit of reconstructable and partial vessels found at the north-east corner of the buried platform. Evidence for social differentiation is present at this early date as seen in the burial and mortuary offerings in Operation 8 (Lockett-Harris this volume). The inhabitants of Ka'Kabish were also clearly tied into long-distance trade networks that brought exotic materials such as marine shell for beads, and jade beads and pendants.

[2]No work was done in 2008.

During the succeeding Late Formative period (ca. 400 BC – AD 250) elite activity is more clearly manifested with the construction of Structure D-4 and D-9 (Tremain 2011a). While in the later Early Classic period the elite structure at the site included high status individuals, possibly even an autonomous divine ruler, as suggested by the presence of a painted corbel vaulted tomb in Structure FA-6.

The relationship between Ka'Kabish and Lamanai is slowly resolving itself into a few clear questions. Imagery and a hieroglyphic inscription on Stela 9 suggests that the ruler depicted was a military overlord or *Kaloomte'* (Closs1988; Grube and Martin 2004; Taube 1992). It appears that the date for this monument (AD 625), the life of the *Kaloomte'* (ca. late 6th century) and its corresponding destruction likely at the beginning of the Terminal Classic period (Pendergast 1988), correspond to a possible architectural construction hiatus at Ka'Kabish. Few structure have been identified dating this period, however, as the excavation of the site is still in its infancy, this could simply be a lack of data.

The presence of a cocoon crypt identical in construction, and now the presence of ceramic material likely from the Ka'Kabish tomb that also exhibits a high degree of similarity to the ceramics found in the Lamanai cocoon tombs show linkages between the two centres. Although no dates are available for the Ka'Kabish cocoon tomb, the fact the cocoon crypts at Lamanai have been dated to the 6th century correlates with the epigraphic evidence that suggests that the fates of the two sites were at some point conjoined.

We do not yet know the exact political nature of this relationship, nor how long it lasted. We do know that Ka'Kabish continued to be occupied until the end of the Classic period. While we initially thought that Ka'Kabish was abandoned at the end of the Classic period, with only the outlying settlement zones remaining inhabited, it now appears that residential groups adjacent to the site centre may also have continued to be occupied into the Post-Classic period (Gonzalez this volume).

It is also clear that contrary to our initial assumptions about Ka'Kabish, the city was likely an autonomous political entity from the Middle Formative to the Early Classic period. What ultimately happened at Ka'Kabish, and how great, or minor, a role it played in the Classic period politics of north-central Belize is still to be determined and will be the focus of investigations as we move forward in the coming years.

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