Investigations in Looters' Trenches at Ka'Kabish, Northern Belize: An Analysis of Ancient Maya Architecture and Construction Practices

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Abstract

Investigations in Looters' Trenches at Ka'Kabish, Northern Belize: An Analysis of Ancient Maya Architecture and Construction Practices

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Looting of archaeological sites is a worldwide problem, and can destroy the ability to learn about the past. Fortunately, the remnants of looters' excavations can be used by archaeologists to gain knowledge of the past. This thesis is a case study of the use of looters' excavations in archaeology.

Research was undertaken at the ancient Maya site of Ka'Kabish in northern Belize, specifically focusing on reconstruction of the chronology of architectural constructions within looters' trenches. This research was of a rescue nature, since looting has been, and still is, prevalent at the site. The chronological building sequence, quantity and quality of constructions, and the role and function of architecture were investigated. Architectural arrangement and construction practices were compared to other sites in northern Belize and the wider Maya subarea to gain an understanding of how Ka'Kabish may have functioned among its neighbours.

As a case study, this research demonstrates that archaeologists can extract valuable information and learn from looters' trenches. It is therefore argued that archaeologists should strive to preserve the remnants of looting by making full use of these trenches.

Keywords: Archaeology, Looting, Ancient Maya, Architectural Construction, Northern Belize.

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Chapter One: Looting and its Relationship to Archaeology

Archaeologists strive to learn about past cultures through intellectual pursuit and the excavation of archaeological sites. However, archaeological sites around the world are also excavated by people searching for artefacts to sell on the antiquities market. This type of excavation is known as looting and it is very damaging to the discipline of archaeology. Looting destroys the ability to learn from artefacts, since their context and provenance remain unknown and thus any associated cultural information is lost. Consequently, it has been described as impairing and hindering the work of archaeologists (Graham 1986:457; Robertson 1972:147). Despite its illegal nature, it is a worldwide problem that does not appear to be ending anytime soon— even with past and present attempts to stop it. Looting of archaeological sites is considered to be one of the largest illegal activities in the world; over 80% of all antiquities on the art market today are estimated to be associated with illegal excavations (Argyropoulos *et al.* 2011).

Looting is very much prevalent in today's society. Incidents of looting publicised in the media shock and outrage the public, such as the looting of the Iraq National Museum in 2003 (Brodie and Renfrew 2005:346; Rothfield 2009), and the looting of Egyptian artefacts during a recent period of political unrest in North Africa (Jones 2011). However, most looting takes place out of public view, and it is likely that the majority of the public are unaware of its extensive and rampant nature.

This thesis is a case study of looting, exploring the combination of archaeological research and the use of looters' excavations. Since looting is a worldwide problem that is prevalent in today's society, this thesis is relevant on a modern and global basis.

Looting of Archaeological Sites

Even though this thesis is not aimed at providing answers that will stop the looting of archaeological sites, my research has utilized looters' excavations and it is, therefore, important to address the subject of looting in more detail. Firstly, it is necessary to define and explain looting.

Definition of Looting

This thesis defines looting as the *illegal excavation* of archaeological sites, designed to acquire artefacts of *monetary* value. Although in a sense both looters and archaeologists excavate archaeological sites (which inherently causes destruction), there is a distinction between legal excavations undertaken by archaeologists, and illegal excavations undertaken by looters. Similarly, both looters and archaeologists acquire artefacts, but looters are motivated and guided by profit, while archaeologists are motivated by a desire for knowledge of the past.

There may not appear to be a clear distinction between looters and people who pick up and collect artefacts from the ground surface of an archaeological site. However, looters purposefully search for artefacts by the means of destructive excavation. Those who collect artefacts from the surface of a site may not have purposefully intended to look for artefacts, although they are also guilty of collecting artefacts without recording where they were found. The artefacts on the surface of a site, while being out of their original context, can still be very informative if their locations were recorded.

It is also important to make a distinction between modern archaeology, and past archaeological research. In its infancy, collecting artefacts was the primary concern of archaeologists, since it was thought to be a way of advancing knowledge (Chase *et al.*

1988:56). Techniques to gather artefacts were somewhat similar to those of today's looters, such as the cutting up of monuments to facilitate transport (Gann 1997:89). Nevertheless early archaeologists often kept records of their work— something looters fail to do. Collectors of unprovenanced artefacts have justified their actions by likening themselves to early archaeologists (Chase *et al.* 1988:56). However, the scientific archaeology of today has moved away from collecting artefacts, and focuses on collecting information about the past on a larger scale— thereby disassociating itself from looting.

Just as there is a clear distinction between scientific archaeology and looting, there is a clear difference between the use of looted, or unprovenanced, artefacts and the use of looters' excavations. The study of artefacts acquired through looting knowingly utilizes the products which drive and control illegal excavation. Nevertheless the use of unprovenienced artefacts can be very informative and actually enrich the archaeological record, and some scholars encourage their use (Donnan 1991; Evans 2004:160). Being driven by knowledge, rather than profit, the use of such artefacts by archaeologists does not have the same motivation as it has for looters. There remains, however, controversy behind the study and use of unprovenanced artefacts. It has been argued, for example, that the publication of studies of unprovenanced artefacts indirectly supports looting (Alexander 1990; Argyropoulos *et al.* 2011). Some scholarly journals even refuse to publish material that is associated with unprovenanced artefacts (Archaeological Institute of America 2011; Society for American Archaeology 2011).

The use of looters' excavations also utilizes the remnants of this illegal activity, but can be as informative, if not more, as unprovenienced artefacts. The use of these excavations does not have the same controversy as the use of these artefacts however, perhaps because it does not employ products that are of monetary value to looters. The

journals referred to above, which make explicit claims about refusal to publish unprovenanced artefacts, do not make specific statements about the acceptability of using looters' excavations in archaeological reporting.

The Looting Process

Looting often takes place in developing countries, from which artefacts are illegally exported for sale in an overseas, developed, country. This illustrates the stark contrasts that exist in the looting process; looting deprives poorer countries of their heritage, whilst richer countries benefit. Dealers of looted artefacts often use the excuse that they are protecting artefacts from countries that are unable to protect their own heritage (Pendergast and Graham 1981:13). Conversely, the illegal nature of acquisition stresses that their principle motivation is profit, and not the concern of preservation. Further emphasizing the unlawful nature surrounding looting is the fact that many people involved are associated with other illegal activities such as drug trafficking, the arms trade, and even terrorism (Argyropoulos *et al.* 2011; Gilgan 2001:78; Grube 2006:244; Miller 1982:42; Rothfield 2009:85).

As discussed above, illegal excavation takes place in order to acquire artefacts to sell on the antiquities market. The high prices obtained for these artefacts are the justification for the huge effort looters put into their excavations (Graham 1986:4506). Different economic values are placed on artefacts, but portable objects such as painted ceramics, jewellery, and figurines are usually the most valuable, and therefore the most desired for profit. Larger objects such as stelae (standing monuments, often carved) are more difficult to move and export, so are often cut into smaller portable pieces (Robertson 1972:151). I have refrained from referring to the antiquities market as "illicit", since this suggests an

illegal and underground market. Archaeological artefacts, from both looted and un-looted excavations, are often for sale through legal markets and auction houses such as the famous auction house of Sotheby's (Gilgan 2001:78-83). Furthermore, looted artefacts and artefacts of questionable provenience are displayed in many museums worldwide— a further instance where the lines between illegal and legal have been blurred.

Commonly, populations living in, and next to, archaeological sites are the most likely to participate in looting activities (Maury 1999). Looting may supplement their income, or be their exclusive economic income. The economic benefit of this activity has led to looting being coined as "subsistence digging" (Matsuda 1998:91). Looting can be carried out by one independent individual, or by a group of individuals who have been hired by a contractor. The contractor sponsors the expedition and provides supplies to the crew, who then turn over the recovered artefacts (Maury 1999). Some of these expeditions are surmised to be very large, since looters' camps have been found to hold up to as many as 80 people (Pendergast and Graham 1989:52).

A Straightforward Case of Right versus Wrong?

Unfortunately, although legal and illegal excavation of archaeological sites appears to be a straightforward case of right versus wrong, it is not as clear as it seems. Some have argued that, from the perspective of the indigenous populations, looting is not only a method of economic survival but a legitimate connection to their heritage and past (Matsuda 1998). Some indigenous people believe that they are heirs to artefacts left in the ground, thought to be gifts from the ancestors, and thus feel rightfully able to use them for economic survival (Matsuda 1998:88, 93). It has even been suggested that indigenous people can be excused from looting because it is their heritage and profiting from it is,

therefore, not unreasonable (Pendergast 1991:90). Consequently, archaeologists do not have more right to claim access and ownership to archaeological artefacts than the heirs to these artefacts. It comes down to the bigger question of "who owns the past?" Since this question is unanswerable, the ethics surrounding looting are inherently complicated and not straightforward.

Additionally, there is not a general agreement over who is to blame for looting. Most place blame with antiquity dealers and collectors (Graham 1986:460; Renfrew 1993), whereas others support the intentions of collectors (Griffin 1986). Blame has also been directed at the art market, the country of origin of the artefacts, museums, and even archaeologists (Brodie and Renfrew 2005:344; Griffin 1986; Isler-Kerényi 1994:351; Miller 1982:42; Renfrew 1993:17). Archaeologists have been attacked for being too "self-righteous" (Griffin 1986:464), and have been reminded that failure to publish findings, or inadequacy in mapping or excavation, is also a means of suppressing information (Griffin 1986). Those who study or handle unprovenanced artefacts, especially archaeological conservators, have also been criticised for helping to create a public tolerance for looted artefacts (Elia 1995:249; Renfrew 1993:17; Tubb and Sease 1996:193). Dealers often take looted material to an archaeological conservator for repair, or to make the material look aesthetically pleasing for the antiquities market. Some conservators are inclined to treat and enhance such material, regardless of the method of acquisition.

Consequently, there is no general agreement about where efforts to stop looting should be directed. Suggestions have included efforts to change the social attitude of collectors (Jennings and Rand 2008), stricter acquisition policies in museums (Brodie and Renfrew 2005; Robertson 1972:155), more involvement from the academic community

(Brodie and Renfrew 2005:357), creating a stronger national pride in the heritage of the countries concerned (Gilgan 2000; Parks *et al.* 2006; Robertson 1972:155), and increased dialogue between collectors and archaeologists (Griffin 1986:465; Miller 1982:42).

Uses of Looters' Excavations in Archaeology

Although looters are known to dig large areas at a rapid pace, having been described as "tunnelling like squirrels after nuts" (Pendergast and Graham 1981:16), there is some use to the pillaged areas they create. Looters do not fill in their excavated areas when they have finished and, despite being somewhat uneven and unstable, these do allow archaeologists to observe and record information without having to excavate. What is deemed to have no value for the looters or the antiquities market, such as evidence of stratigraphy, construction materials, and even abandoned "non-valuable" artefacts, can be very informative for archaeologists. Therefore, it makes sense to observe and record information without having to excavate an area, thus saving time, money, and energy.

Archaeologists have recognised the advantage to using looters' trenches: "I...have looter's trenches [to work with], and I'd rather stick with that than destroy more temples" (Lucero, in Vergano 2007). Although this is a controversial statement, since it equates professional archaeological excavation to the destructive and illegal looting process, it highlights the support of using looters' trenches to gain information. It is also important to remember that the funding of archaeological projects dictates whether or not large-scale professional excavations can take place, or whether a project is limited to gathering information from available looters' trenches and small-scale excavations. Hence, funding can be one of the factors that condition such a statement of support.

Additionally, looters' excavations are useful in the sense that they can be used to

salvage information before any more looting takes place at a site, or before information begins to deteriorate (Nielsen 1980:32). Modern web-based programs, such as "Google Earth", also enable looters' trenches to be of use to archaeology. They allow the long-term looting of sites to be monitored over time, and can be used to raise public awareness and strengthen the international response to looting (Contreras and Brodie 2010).

Despite the advantages that looters' trenches can have, there are also numerous disadvantages associated with their use. Looting can be destructive enough to cause a huge loss of information from a site. It can also be very difficult to gain information from what is left behind by the looters (Nielsen 1980:35). In addition, looted areas can prove to be very dangerous for archaeologists. The instability of hasty, crude, looters' excavations has the potential to cause serious injury to archaeologists. Their instability is evident from reports of looters being killed during their excavations, due to the creation of unstable and dangerous trenches (Grube 2006:244; Helen Haines, personal communication 2010). Additionally, looters have been reported to carry weapons and this raises the risk of harm to archaeologists. Numerous reports of violent threats and fatal shootings of archaeologists emphasize the danger that looters can cause (Alexander 1990:1074; Gilgan 2001:78; Graham 1986:454; Robertson 1972:147; Rothfield 2009:85).

Lastly, in some respects, utilization of looters' excavations is making use of, and therefore accepting, illegal excavations. It could be seen as lending a sense of legitimacy to their destruction, and may possibly project the wrong message to the public about the acceptability of looting. To overcome this, increased public awareness about its damaging effects and the efforts being made by archaeologists to lessen its devastating impact is essential.

International Legislation

Even though it has been argued that looting "seems impossible to control" (Argyropoulos *et al.* 2011), and will never completely cease because of economic necessity (Maury 1999), there is international legislation and laws in place to try and tackle the problem. The main legislative efforts to control looting take place both within the country of origin, to stop local looting and export of material, and within the country receiving illicit artefacts, to control and stop the import of foreign looted material (Miller 1982:37).

In 1970 the United Nations Educational, Scientific, and Cultural Organization (UNESCO) passed the *Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property*. The convention was aimed at stemming the looting of archaeological sites and selling of illicit antiquities around the globe (Elia 1995:245). This date is viewed as a watershed because after this time the acceptability of unprovenanced artefacts decreased significantly. However, objects that were imported into a country prior to 1970, regardless of whether they were illegally imported, are not subject to the legislation (Tubb 2007:10). Currently, 120 countries have signed the UNESCO convention (UNESCO 2011).

In 1995 the International Institute for the Unification of Private Law (UNIDROIT) passed the *Convention on Stolen or Illegally Exported Cultural Objects*, aimed at strengthening the protection of cultural material (Tubb and Sease 1996:193). Although it is suggested that countries sign both the UNESCO and UNIDROIT conventions, to strengthen the fight against the international trafficking in looted objects, the UNIDROIT convention focuses more on the recovery of stolen artefacts (UNESCO 2005). Regardless, only 42 countries have presently signed the UNIDROIT convention

(UNIDROIT 2011).

As well as legislation concerning the import and export of artefacts, specific legislation for artefacts within museums has also been created. In 2004 the International Council of Museums (ICOM) introduced *The Code of Ethics for Museums*. This sets out standards of professional practice for museums, clearly stating that the acquisition of unprovenanced artefacts should be avoided (ICOM 2004).

Despite this international legislation, looting continues to prevail. It has been suggested that the fundamental problem is the legislation of certain countries, because most art-importing countries do not enforce the export legislation of other countries (Elia 1995:248). Additionally it has been suggested that the implementation of legislation has actually driven the looting trade underground, becoming even more secretive and thus more difficult to stop (Jennings and Rand 2008:28).

The Problem of Looting in the Maya Subarea

The ancient Maya, discussed in more detail in the next chapter, were a complex civilization that occupied parts of Mexico and Central America. The territory of the ancient Maya is part of the larger archaeological culture area referred to as Mesoamerica. First proposed by Paul Kirchoff in 1943, the term is used to describe part of Central America in which there were shared features of cultural adaptation by different groups of indigenous peoples (Evans 2004:19; Kirchoff 1943; Kowalski 1999:3). For this reason, the ancient Maya territory is a subarea within Mesoamerica. It measures roughly 990 km on a north-south axis and 630 km on an east-west axis, and includes all or parts of the countries of Mexico, Belize, Guatemala, Honduras and El Salvador (Sharer and Traxler 2006:26; Thompson 1966:17 [Figure 1.1]).

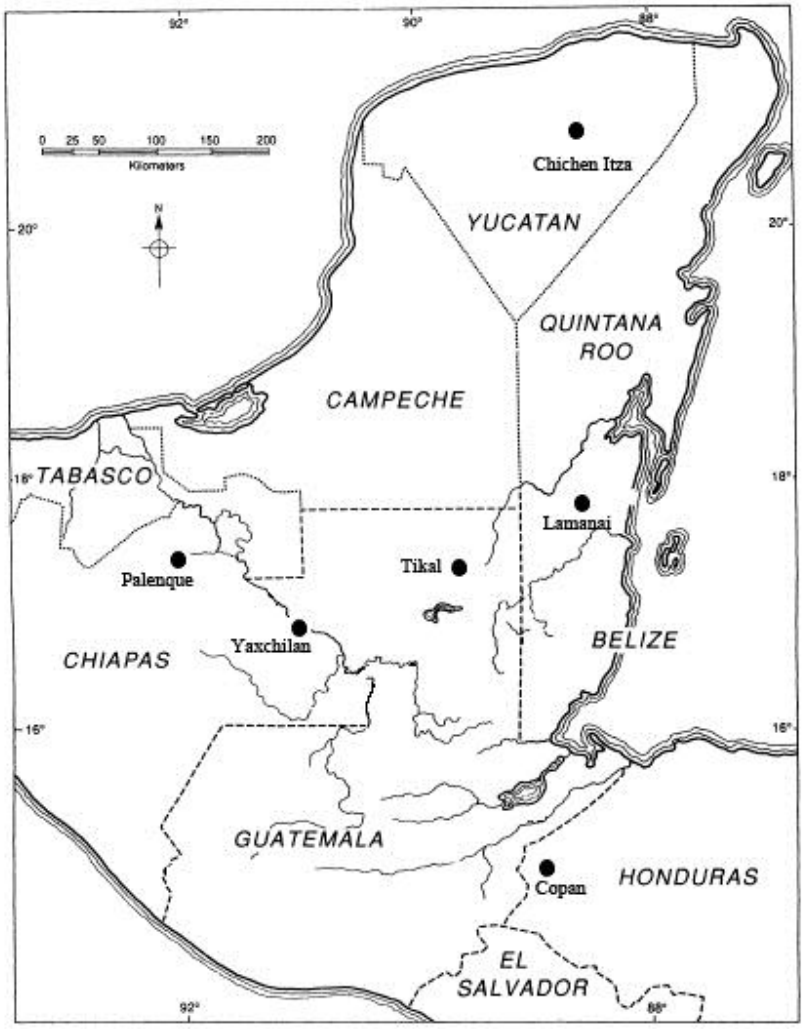

Figure 1.1. Map of the Maya subarea. Modern political divisions and location of some principle archaeological sites are shown (modified from Healy 1990:248).

In the Maya subarea looting is a huge problem, and "almost every Maya site has been pillaged" (Sharer and Traxler 2006:17). Looting is especially prevalent in this subarea because ancient Maya artefacts can reach huge sums of money on the antiquities market (Grube 2006:12). For example at a 2004 Sotheby's auction ancient Maya artefacts sold at prices ranging from $9,000-$299,200 USD (The City Review 2004). In addition to the high prices that can be gained from archaeological artefacts, many sites in the Maya

subarea are covered by the jungle canopy. This shields looters from view and enables them to continue their excavations without the threat of detection.

Some looters in the Maya subarea are experienced excavators and are very knowledgeable about ancient Maya architecture, since they have been known to read archaeological site reports (Pendergast and Graham 1981:16). It is likely that some have even been employed and trained by archaeological projects, and use looting as their income for parts of the year they are not employed. The knowledge of this is evinced by the exposure of walls and/or floors, and placement of trenches in specific locations (such as axial alignments) so as to increase the chances of finding burials or offerings (Nielsen 1980:28). Looters' trenches in the Maya subarea are often very large and have been known to reach heights of up to 60 feet (Graham 1986:459).

Looting in Belize

My research focuses on Belize, a country small in size that has been heavily affected by looting. Belize is made up of mainland and small cayes which run along its eastern coast, creating a combined total area of 23,000 square kilometres (Wright *et al*. 1959:13). Previously known as British Honduras, the country was a colony from 1862 to its independence from Britain in 1981 (Wright and Coutis 1993:xv, xviii). The latest statistics show that the country is inhabited by roughly 330,000 people (Statistics Belize 2010), consisting of, but not limited to, *Mestizos* (a combination of Spanish and Indian), Maya, Spanish, African American, Garifuna (also known as Black Carib), German, Chinese, East Indian, and Mennonites (Wright and Coutis 1993:xix).

Archaeological excavations in Belize began at the end of the nineteenth century and were almost entirely restricted to amateur activities until 1926 (Gann 1997; Hammond

1983a:25). It was only in the 1960s and 1970s that Belize became a centre of large-scale archaeological activity, which was also a time when the looting of archaeological sites began to increase— likely due to foreign tourists wanting to purchase archaeological "souvenirs" (Gutchen 1983:219; Hammond 1983a:24). Tourism continues to grow in Belize, with archaeological sites up and down the country attracting many tourists (Trein 2006:3). This trend has benefitted the country economically, but has also increased the looting of archaeological sites.

Past studies of looting in Belize discovered that 59% of known Maya sites had been damaged by looting, and between 30,000-50,000 people a year participate in looting— roughly 10 to 15% of the population (Gutchen 1983:223; Matsuda 1998:91). The number of looted sites is likely to have increased over time, as the publication of known sites and accessibility to more remote parts of the country has improved— increasing the ability for looters to find archaeological sites. In addition, the number has probably risen because an increasing number of 'new' sites are being found which were pillaged by looters long before the arrival of archaeologists. Looting in Belize is recognized to take place on various levels, from "opportunistic digging", where people engage in looting periodically to supplement their income, to professional looting, which takes place under contract and therefore is highly organized and may involve armed gangs (Parks *et al.* 2006:427).

The behaviour of archaeologists has encouraged some Belizeans to think that archaeologists export artefacts back to their home country to sell at a profit (Gilgan 2000:6). Despite this common misconception, it has been discovered that the highest recorded number of people charged with illegal excavation are, in fact, Belizean (Gilgan 2000:33). Of these offenders, 29% were also associated with possession of illegal drugs or possession of dangerous and illegal firearms (Gilgan 2000:34).

Legislation in Belize

In 1953 the Institute of Archaeology (at the time known as the Department of Archaeology) of the Government of Belize was established (Gutchen 1983:218). The Institute is currently responsible for research, preservation, management, and publications involving archaeological remains and sites, as set out in the *National Institute of Culture and History [NICH] Act*, Chapter 331 (Part IV, Section 35) (Government of Belize, Law Revision Act [GB, LRA] 2000). They manage the growing number of foreign funded and staffed archaeological projects throughout Belize. These continue to grow in scope and number. In 2010 alone there were 16 different archaeological projects operating throughout the country (Delsia Marsden, Institute of Archaeology Belize, personal communication 2010).

Prior to the establishment of the Department of Archaeology in 1953, exploration, excavation, or removal of artefacts from sites was illegal without a permit (Gutchen 1983:219). Today, the Institute of Archaeology still requires a permit to "search for and explore or excavate" any piece of land or body of water in Belize (Part IV, Section 49 of the *NICH Act*, Chapter 331) (GB, LRA 2000). More specifically, there is a direct statement prohibiting anyone to "import, export, sell, or trade" monuments and artefacts without a license (Part IV, Section 56(1) of the *NICH Act*, Chapter 331) (GB, LRA 2000). Belize was unable to sign the UNESCO convention until after their independence from Britain in 1981, wherein they were put in charge of their own foreign affairs (Gutchen 1983:220). Although Belize did not sign the convention until 1990, they were 12 years ahead of Britain in publicly demonstrating their concern for cultural heritage (UNESCO 2011). However, neither Britain nor Belize have signed the UNIDROIT convention (UNIDROIT 2011). Attempts have also been made throughout the country to increase

awareness of the importance of cultural heritage among Belizean residents and tourists, to try and stem the problem of looting (Gilgan 2000, 2001:73).

Even though it is clear that archaeological sites in Belize are protected by some of the world's strongest antiquities legislation, the country continues to suffer from considerable amounts of looting (Gilgan 2001:75; Pendergast 1991:89; Pendergast and Graham 1981:13). One of the main problems in tackling looting is the lack of access to foreign components of the illicit industry. Even if locals are caught and punished for looting, the foreigners who fuel this industry often remain unprosecuted (Pendergast and Graham 1989:51, 55). It is important that wealthy, developed, nations make a greater effort to halt the import of looted artefacts.

The Use of Looters' Excavations in Belize

There are numerous examples in which archaeologists have used looters' excavations to rescue data and generate information from sites in Belize. In western Belize, looters' trenches have been investigated at the sites of Minanha, Xunantunich, and Yalbac (Groves *et al*. 2000:26; Pendergast and Graham 1981; Lucero 2005: 350). In central Belize, looters' trenches have been investigated at the site of Baateelek, as have trenches at the sites of Blue Creek, Chan Chich, and La Milpa in north-west Belize (Driver 2008:267; Houk 1998:5; Jordan 2008:63-64; Trein 2010). Collectively, these investigations have improved knowledge of architectural construction practices.

A site that has suffered from heavy looting, and provides an opportunity for archaeologists to salvage information, is the site of Ka'Kabish in northern Belize (Figure 2.1). Ka'Kabish has experienced, and is still vulnerable to, looting activities. In light of this vulnerability, gaining knowledge about the site before further looting takes place is

essential. This thesis discusses research that took place at the site of Ka'Kabish, and therefore helps to improve and accumulate knowledge before it is lost forever at the hands of looters.

Research Questions

The following questions have directed and motivated this research. The final chapter will discuss the answer(s) to each question in detail. Questions pertaining to individual structures and specific architectural groups will become clear following description of the site of Ka'Kabish in the next chapter:

1. What are the advantages and disadvantages of using looter's trenches in archaeology?

   It is important to have a specifically designed question that will give an opinion pertaining to the acceptability of looters' trenches in archaeology. Addressing and understanding the looting of archaeological sites is an important element in deciding whether archaeologists should be making use of looters' trenches or not. A case study of the use of looters' trenches will illustrate whether these trenches can be used in a balanced way, or whether their use lends a sense of legitimization to the practice of looting.

2. What was the chronological building sequence of Structures D4 and D9?

   The chronological building phases of the two largest structures at the site of Ka'Kabish will help provide an understanding of the site history, and how the site relates temporally to neighbouring centres in Belize. The building sequence of each structure will be defined based upon the use of looters' trenches.

3. What were the functions and roles of Structures D4 and D9?

Although role and function can be intertwined, and are often viewed as interchangeable, I view them as having a distinction. I define the function of a structure as the specific purpose for which it was built, and the practical use it had. For example, the ancient Maya would have built structures for various reasons including administration, religion, craft production, or even simply for dwelling.

The role of a structure refers to the manner in which it is viewed and perceived by the populace, and the resulting involvement it had within a site or an area of a site. For example a structure may have been built as a dwelling for a family, but over time, perhaps as a result of several generations of use, it may have become a symbolic structure representative of ancestry. Thus, it may have had an important ideological role in the lives of the families that lived in and around the structure.

The function and role of Structures D4 and D9 may, or may not, have changed over time. Understanding the functions and roles that the two structures may have had at the site of Ka'Kabish will help provide an understanding of the social, political, and economic position of the site.

4. What can be learned about construction practices at the site of Ka'Kabish?

Ancient Maya construction practices can be useful chronological markers, indicators of social status, labour systems, and ideology. Studying the construction practices at Ka'Kabish has potential to provide an increased understanding of the site, and its relationship with neighbouring sites.

5. What can be learned from the architectural layout of Group D?

Ancient Maya architecture is an expressive vocabulary that communicates various cultural concerns and beliefs. Understanding the layout and arrangement of architecture at Ka'Kabish can be an informative and valuable method of increasing knowledge about the site and its inhabitants.

These questions will be answered by exploring various topics throughout the thesis. The next chapter provides a brief introduction to the ancient Maya, northern Belize, and the site of Ka'Kabish. Chapter three presents a discussion of ancient Maya architecture, which will aid the reader when reading the discussion of the 2010 field season at Ka'Kabish in Chapter four. The fifth chapter provides an analysis of the results of the field season, and Chapter six offers an interpretation and discussion of these results. The final chapter re-visits the research questions and presents the conclusions of this research.

Summary

Illegal excavation of archaeological sites damages the archaeological record because it destroys the context of artefacts, thereby reducing or eliminating the knowledge that can be gained from them. It occurs on a worldwide basis, but is especially prevalent in the Maya subarea and the country of Belize. While not ideal, the remnants of these illicit excavations can be of benefit to archaeology, because what is left behind can often be informative to archaeologists. This thesis is a case study of the use of looters' trenches in archaeology, at the ancient Maya site of Ka'Kabish, demonstrating the information that can be gained from their use.

Chapter Two: The Ancient Maya, Northern Belize, and Ka'Kabish

Known for their hieroglyphic writing, calendric system, elaborate religious ceremonies, proficiency in astronomy and mathematics, vivid costumes and adornment, and monumental architecture, the ancient Maya continue to be a source of inspiration and interest for the public and scholars alike. As well as referring to the culture, the word "Maya" refers to the 31 Mayan language dialects which were, and some of which still are, spoken in Central America (Webster 2002:38). Although different regions spoke different Mayan dialects, collectively these people are referred to as the ancient Maya.

The Maya subarea is divided into three geographical zones: the Pacific Coast, the Highlands, and the Lowlands (Grube 2006:14). The Highlands are in the southern region of the Maya subarea, and the Lowlands are in the northern region. The Lowlands are generally divided into northern, central, and southern portions (Sharer and Traxler 2006:45-53). However, they are sometimes further divided geographically, with Belize being commonly referred to as the Eastern Lowlands (see *Research Reports in Belizean Archaeology*). In antiquity, the Maya subarea was made up of many independent states, ruled by kings and queens (though acceptance of the latter are sometimes debated [see Joyce 2008:67-85]) and, in this sense, cannot be seen as a homogenous empire (Coe 1993:133; Martin and Grube 2008:6-7; Reese-Taylor *et al.* 2009).

Studies of the ancient Maya are generally divided into three periods of time, known as the Preclassic (or Formative) period, the Classic period, and the Postclassic period. Over the years, as research and understanding have grown, significant developments, such as the decipherment of Maya hieroglyphs have refined these chronological periods (Coe 1992). For this thesis I will be using dates for these periods which are adopted, and

followed by, Dr. Helen Haines (project director of the Ka'Kabish Archaeological Research Project), modelled on dates used at nearby sites in northern Belize.

The Preclassic Period

It is presently accepted that the Maya subarea came to be inhabited by the ancient Maya by at least 2000 BC, although some cultural traits are found in the earlier Archaic period around 3400 BC (suggesting appearance of the Maya might be earlier in time) (Coe 1993:33; Hammond *et al.* 1979; Lohse 2010; Lohse *et al.* 2006:216). The Preclassic period is divided into early (2000-1000 BC), middle (1000-300 BC) and late (300 BC-250 AD) facets. The period was initially considered to exist only as the precursor to what was perceived to be the more civilized, and complex, Classic period (Andrews 1965:296). It is now understood that aspects of society, which were thought to have only existed in the Classic period, such as an elite class, monumental structures, royal tomb constructions, extensive trade, writing, and some calendrical elements, existed by the Late Preclassic (Coe 1992:63). It is also understood that the Maya likely adopted ideas and inventions from other cultures and parts of Mesoamerica. For example, it is thought that cultural features, such as a writing system and sophisticated large-scale architecture, had diffused to the Maya subarea from the Olmec region to the west (since these Mesoamerican people possessed these features much earlier than the Maya [Diehl 2004:15,96; Thompson 1966:19; Webster 2002:48]).

The Classic Period

Once having been thought of as the pinnacle of Maya achievement, the Classic period is no longer regarded to be the sole measure of ancient Maya success (Thompson

1966:112; Pendergast 1990:170). This era is divided into early (250-600 AD), late (600-850 AD), and terminal (850-1000 AD) periods. The transitional period between the ending of the Late Preclassic and the beginning of the Early Classic is sometimes referred to as the 'Terminal Preclassic' (Sharer and Traxler 2006:294). This reflects the changes that are seen in the Early Classic in the Maya Lowlands. These changes include the rise of population numbers and cultural developments, emergence of a series of independent states, and more centralized political power (Martin and Grube 2008:8-9; Sharer and Traxler 2006:287,371).

The famous Maya "collapse" is associated with the Terminal Classic, wherein it used to be thought that the entire Maya civilization dissolved (Andrews 1965:288,320). This was due to the fact that excavations had been focused in the Southern Lowlands, where sites were largely abandoned and did show evidence for decline (Adams 1969:8; Pendergast 1990:169). However, it is understood that changes in the Maya subarea in this period varied from region to region, and must be evaluated on a site-by-site basis (Adams 1973:33; Demarest *et al.* 2004:571). For example, it is now understood that the majority of sites in the Southern Lowlands declined, while sites in the Northern Lowlands continued to flourish (Webster 2002:47; Willey 1986:19). It is also argued that the term "collapse" is an incorrect reflection of the events which took place, since what declined was not ancient Maya civilization, but a distinct Classic period political system (Demarest *et al*. 2004:572; Sharer and Traxler 2006:503). Consequently, the term "transition" or "transformation" is sometimes used in place of "collapse" (Aimers 2004:316).

The Postclassic Period

This era is divided into early (1000-1200 AD) and late (1200-1540 AD) periods.

Decades ago, archaeologists argued that while the Classic period exhibited the height of Maya culture, the Postclassic exhibited a time of decadence (Pendergast 1986:223). While an argument may be made for reduced Postclassic populations in some areas, this is not true for all regions. For example, the Southern Lowlands, the central Petén (Guatemala), and the central part of Campeche (Mexico) saw reduced populations, while the Northern Lowlands saw increased population (Chase and Rice 1985:1). The Maya continued to construct temples and palaces in the Postclassic, although some were less monumental (and expensive) than their Classic period predecessors (Willey 1986:35). There was also an increase in coastal settlement at this time, which is linked to heightened trade, and the construction of walled defensive sites, especially on the eastern coast of the Yucatán and Belize (Chase and Rice 1985:6; Willey 1986:39). Now archaeologists see the Postclassic as a period, not a stage of development, and certainly not one of decline (Smith and Berdan 2003:10).

The Preclassic to Postclassic in Northern Belize

My research focuses on Northern Belize (Figure 2.1). This is an area with some of the earliest dated ancient Maya sites in Belize, as well as some of the latest occupied sites in the Eastern Lowlands. The northern half of the country is similar to its neighbouring area of Mexico, in that it is predominately flat land, while the southern half is similar to its neighbouring portions of southern Guatemala, in that it has mountain mass (referred to as the "Maya Mountains") (Hammond 1982:349). The environmental zone of northern Belize has been described as "Dry Tropical", meaning it has an annual rainfall of less than 80 inches and an average annual temperature of more than 24 degree Celsius (Wright *et al*. 1959:28). Several rivers run through northern Belize, including the New River,

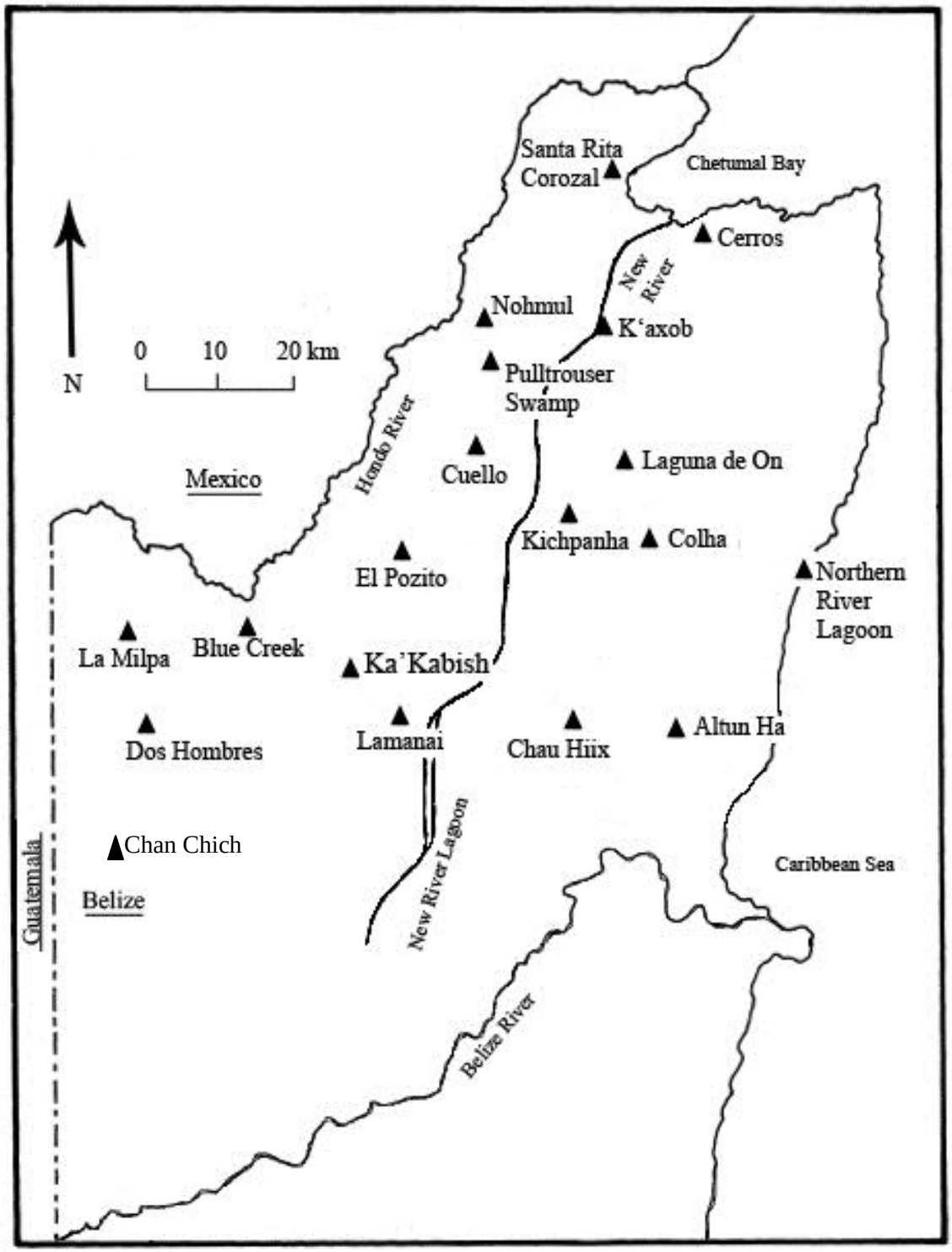

Figure 2.1. Map of Northern Belize. Archaeological sites mentioned in the text are located on the map (redrawn from Shafer and Hester 1983:520).

Hondo River, and Belize River, all of which were an integral part of ancient Maya trade networks (Healy 1989).

Limestone occurs in abundance throughout Belize, and northern Belize consists of limestone ridges running southeast to northeast (Hammond 1974:177; Wright *et al*. 1959:23). The limestone is covered by soft, sandy soils and is considered fertile, accounting for the rich tropical rainforest vegetation that grows on these ridges (Hammond 1974:177; Kosakowsky 1987:1). Northern Belize also contains what is referred to as a Chert-Bearing zone, which is a zone with high quality chert resources (Hester and Shafer 1984:158). This region was heavily exploited by the ancient Maya to produce stone tools.

The Preclassic Period (1000 BC- 250 AD)

Although it is generally accepted that parts of the Maya subarea came to be inhabited from approximately 2000 BC, there is currently no evidence of Maya occupation of northern Belize prior to about 1000 BC (Andrews V and Hammond 1990). There were, however, earlier populations living in Belize during the Paleoindian and Archaic periods (Hester *et al.* 1981; Lohse 2010). The sites of Blue Creek, Chan Chich, Colha, Cuello, Dos Hombres, K'axob, Kichpanha, and Santa Rita Corozal are, to date, the earliest recognised ancient Maya sites in northern Belize, all dating to the Middle Preclassic period or slightly earlier (Chase and Chase 2004a:244; Guderjan 2004:247; Houk 1996:235; Kosakowsky 1987:1; McAnany 2010:114; Potter 1991:28; Reese and Valdez 1987:37; Robichaux 1998:34).

The dating of archaeological sites in the Maya subarea is based largely on ceramics, specifically the creation and use of recognised ceramic complexes and phases. Complexes

refer to ceramic material in a given geographic region, whilst phases refer to a short period of time (Gifford 1976:11). For example, sites in northern Belize during the early Middle Preclassic are associated with the Swasey complex and phase (Andrews V and Hammond 1990).

As part of the Eastern Lowlands, northern Belize has been important in contributing to an understanding of the rise of ancient Maya civilization in the Preclassic. Sites in this region exhibit very early evidence for large-scale public architecture, growth of long-distance trade, increased food production, the growth of distinctions within society, and craft specialization. Evidence for large-scale public architecture can be seen at the sites of Blue Creek, Cerros, Cuello, and Lamanai— all of which underwent major construction programs in the Preclassic (Freidel 1986:xvi; Guderjan 2004:247; Kosakowsky 1987:4). Perhaps the best example of large-scale public architecture in this period comes from the site of Lamanai, where an impressive 33 m tall structure (N10-43) was constructed in the Late Preclassic (Pendergast 1981:41).

Evidence for long-distance trade in northern Belize during the Preclassic is illustrated by the presence of jade, the source of which is hundreds of kilometres away in the Motagua Valley in Guatemala, and ceramics that suggest contacts to sites in the Highlands (Foshag and Leslie 1955:81; Hammond 1974:186). There is also evidence for trade between the site of Altun Ha and the central Mexican site of Teotihuacan in the Late Preclassic (Pendergast 1971). The site of Cerros, situated on the edge of the Chetumal Bay in northern Belize, acted as an important maritime trade port during the Late Preclassic and would have facilitated long-distance trade in northern Belize (Freidel 1986:xvii).

Increased food production can also be seen at sites in northern Belize during this

time. At the site of K'axob, the frequency of metates (ground stone implements used to grind maize) increased in number from the Middle Preclassic to the Terminal Classic, which demonstrates an increase in food production (McAnany 2010:114). Additionally, the construction and use of raised fields to increase agricultural productivity begins in this period. This intensified system of agriculture is believed to have been a response to heightened population growth and competition for land (Hammond 1977:65). Raised fields are wet lands on river or swamp margins, created by elevating soil above the natural terrain, used to grow crops such as maize (Hammond 1977:67; Turner and Harrison 1983:1). At the sites of Blue Creek, Cerros, and possibly Pulltrouser Swamp, raised agricultural fields were being constructed and used by the latter half of the Late Preclassic (Guderjan 2004:247; Scarborough 1991; Turner and Harrison 1983:247-248).

Evidence for the growth of distinctions within Maya society during the Late Preclassic can be seen at some sites in northern Belize. For example, Structure 5C at Cerros represents the influence of the first king (*Ajaw*) of the site, and clearly differentiates him from the rest of society because his status is elevated to one of supernatural qualities (Schele and Freidel 1990:105,115). Evidence of Preclassic burial patterns also reflects distinctions within society in this period. At the site of K'axob graves dating to this period were discovered in architectural platforms, suggesting that individuals were being interred within architecture because of their important status within society (McAnany 2010:39). Additionally, evidence for wealthy burials can be seen at the sites of Blue Creek and Chan Chich. At the former, Late Preclassic Tomb 5 revealed three individuals interred with more than 100 pieces of jade (Guderjan 2004:247), and at the latter Tomb 2 revealed various royal-status artefacts including one of the earliest symbols of royalty (a jade pendant worn on the headdresses of rulers)

(Houk *et al*. 2010:236-240, 246).

Craft specialization in the Late Preclassic can be seen at the site of Colha, which is adjacent to the Chert Bearing Zone of northern Belize. It emerged as a lithic tool production site with over 100 chert workshops, and it is believed to be responsible for 90-95% of the formal stone tools found at other sites in northern Belize (Hester and Shafer 1984:157; Roemer 1991:55; Shafer and Hester 1983:533-537). During the preceding Middle Preclassic tool production at Colha was of small proportions, but it expanded to mass production in the Late Preclassic (Potter 1991:28; Shafer 1991:31). This demonstrates that the site saw great growth and organizational change before the Early Classic and, therefore, illustrates that northern Belize was a region witnessing pronounced cultural development in the Preclassic period (Potter 1991:28).

The Early Classic (250-600 AD) and Late Classic (600- 850 AD) Periods

The widespread adoption of polychrome decoration of ceramics is the traditional marker for the beginning of the Early Classic in much of the Maya subarea (Sharer and Traxler 2006:288). In the Early Classic the Tzakol ceramic sphere (ceramic spheres exist when two or more complexes share a majority of their most common types) dominates in the Lowlands (Gifford 1976:12; Sharer and Traxler 2006:288). In the Late Classic the Tepeu ceramic sphere dominated the Maya Lowlands (Sharer and Traxler 2006:378).

The Early Classic in northern Belize was a time of change happening unequally among sites. Whilst some sites experienced decline, others grew and prospered. The site of Nohmul, for example, has been referred to as a "successful" centre for its continued occupation and growth into the Classic period, while neighbouring sites such as Cerros and Cuello were descending from their Preclassic success (Hammond 1983b:249). Blue

Creek also continued to grow during the Early Classic, with major construction efforts occurring across the site (Guderjan 2004:247).

The emergence of independent states can be seen at various sites in northern Belize during the Early Classic. At Blue Creek stucco masks on Structure 9-IV portray site rulers and reinforce the idea that the site was an independent city with its own ruling lineage (Guderjan 2004:243-245). Furthermore, both Lamanai Structure N9-56 and Altun Ha Structure B-4 2nd B, had elaborate stucco masks decorating the facades of the buildings (Pendergast 1979b:73; 1981:37). Thought to represent an individual wearing a reptilian head as a headdress, the Lamanai masks could potentially represent a ruler— due to the fact that the original site name is understood to be *Lama'anayin* (submerged crocodile) (Pendergast 1981:32, 38). Crocodiles were important in Mesoamerica for their association with earth and water, fertility, and cosmology (Thurston 2011). The presence of crocodile remains in elite and ritual contexts in the Maya subarea suggests that, as well as being used for subsistence, they were used in elite ceremonial practices (Thurston 2011:185-187). Wearing a headdress of reptilian nature would associate the ruler of Lamanai with the high status given to crocodiles, and perhaps even supernatural powers linking him/her to the deities (Pendergast 1981:38). Therefore the stucco masks could be a device used to illustrate the fact that Lamanai was an independent state at this time.

The Altun Ha masks on Structure B-4 2nd B are thought to represent the Sun God, but might also portray a site ruler (Pendergast 1979b:73). Within the structure was Tomb B-4/7, which contained an immense jade carving of the head of the Sun God with an incised *Ajaw* (holy lord) glyph (Pendergast 1979b:54). This might suggest that the individual interred in the tomb was the ruler, or holy lord, of the site. The stucco masks, therefore, could be a representation of this ruler as the Sun God, and act as a device to

illustrate the fact that Altun Ha was also an independent state.

As in the Early Classic, the Late Classic appears to be a time of uneven change among sites in northern Belize. During this time the site of La Milpa, regarded as a modest-sized centre in previous periods, underwent major construction efforts to alter the site to one of grander proportions (Hammond and Tourtellot 2003:97-98). The site of Dos Hombres is similar to La Milpa because it also underwent a major period of construction during the Late Classic (Houk 1996:235). Whilst La Milpa and Dos Hombres were experiencing growth and prosperity, Blue Creek was experiencing reduced economic and political status, as illustrated by a decline in access to jade (Guderjan 2004:248).

Another change during the Late Classic appears to be a shift from the monumental centres to outlying areas at certain sites. Both Blue Creek and Lamanai exhibit architectural constructions during the Late Classic, but outside the monumental centre. At Blue Creek there is evidence for expansion of elite residences outside the monumental centre, and at Lamanai the site centre was largely abandoned whilst major construction took place elsewhere (Guderjan 2004:248; Pendergast 1981:29).

The Terminal Classic (850-1000 AD) and Postclassic Periods (1000-1540 AD)

The Terminal Classic and Postclassic periods in northern Belize are marked by population changes at sites, with some places increasing in population and others decreasing in population. What is particularly interesting about these two periods in northern Belize is the strong contrast between occupations. Some sites are known to have experienced what is commonly referred to as a "collapse" during the Terminal Classic, demonstrating abandonment and depopulation, whereas others continued to be occupied through the Postclassic, and even until Spanish contact in the sixteenth century.

The sites of Altun Ha, Blue Creek, Dos Hombres, and La Milpa show evidence of abandonment, whilst the sites of Lamanai, Chau Hiix, Nohmul, and El Pozito show evidence of occupation into the Postclassic (Andres 2005:21; Chase and Chase 1982; Houk 1996:236; Guderjan 2004:248; Hester *et al.* 1991:67; Pendergast 1981, 1986; Scarborough and Valdez 2003:10). The reason(s) for site abandonment across the wider Maya subarea are not fully understood and remain an ongoing debate (Demarest *et al.* 2004). Explanations are varied and are often divided into internal and external factors. The former includes peasant revolt, demographic change, climate change, disease, and soil potential, while the latter includes economic change and invasion (Sabloff 1973:35-36).

Scholars believe that many people were migrating at the time of the collapse, moving from the Western Lowlands (which experienced wide depopulation) to the Eastern Lowlands (Demarest 2004:266). The population expansion around this time may be due to an influx of people coming from the Petén area of Guatemala (Barrett and Scherer 2005:105; Chase and Rice 1985:1). The movement from the Petén may have been encouraged by invaders moving into the Lowlands from northern Yucatán (Chase and Chase 1982:610). Rapid population growth at sites on the east coast of northern Belize were mirrored in northern Yucatán, suggesting that trading opportunities were attracting people to these specific regions (Andrews 1993:56; Chase and Chase 2004a:246). The site of Santa Rita Corozal, as discussed above, was an important trading site. It appears to have remained an attractive settlement, as population numbers continued to expand in the Postclassic period (Chase and Chase 2004a:247). The increase in population during the Terminal Classic and Postclassic led to violence in some areas. Colha, for example, demonstrates evidence for violence and warfare at the onset of the

collapse— possibly an attempt to quell the influx of refugees into the area (Barrett and Scherer 2005:106).

The new influx of immigrants to northern Belize increased the connections between this region and outside areas, specifically the Northern Lowlands. For example, in the Terminal Classic connections can be seen in the clear architectural affinities between the site of Chichen Itza in Mexico and Nohmul (Chase and Chase 1982). Additionally, ceramics found at Lamanai dating to the Postclassic share a connection to ceramics at the site of Mayapan in the Northern Lowlands (Pendergast 1986:240). Likewise, a Postclassic mural painting from Santa Rita Corozal shares similar stylistic motifs with those at the site of Tulum in the Northern Lowlands (Sharer and Traxler 2006:610; Pendergast 1986:240). Furthermore, red ceramic wares predominated in the Postclassic, having extended from the Northern Lowlands down the Caribbean coast into Belize (Sharer and Traxler 2006:590).

Other changes during these periods in northern Belize include alterations in construction and consumption. Construction materials appear to have diminished in quality at various sites during the Postclassic period (Andrews 1993:50). Consumption of tapir and crocodile also began to increase, as evinced by the presence of these remains at the sites of Pulltrouser Swamp, Colha, Laguna de On, and a settlement on the Northern River Lagoon (Masson 2004; Thurston 2011).

Having briefly discussed the Preclassic to Postclassic periods in northern Belize, the background has been set for understanding the site of Ka'Kabish and its relationship with other sites in northern Belize.

The Site of Ka'Kabish

Ka'Kabish is located in north-central Belize, close to the sites of Lamanai, El Pozito, and Blue Creek (see Figure 2.1). It was constructed on one of the several limestone ridges that occur in northern Belize (Haines 2007:2). The site is surrounded by cohune palm forest, although much of this has been cleared by local farmers for sugar cane, banana, and corn plantations (Baker 1995:105; Wright *et al*. 1959:227). Ka'Kabish sits on the highest point between the Bravo Escarpment (which rises approximately 100 m) in northwest Belize, and the coast— with the terrain gradually lowering towards Lamanai (Baker 1995:105; Guderjan 1995:15). The availability of chert in this area of northern Belize suggests that inhabitants of Ka'Kabish would have had access to local chert for the production of stone tools (Helen Haines, personal communication 2011). Neighbouring sites such as Lamanai and Blue Creek are also thought to have had obtained chert locally (Cox and Ricklis 1999:85; Pendergast 1982:246).

The site core of Ka'Kabish measures 700 m north to south and 500 m east to west (Figure 2.2). It contains 57 structures in six plaza groups, with both small and large public architecture, including a ballcourt (see Chapter three for definition). The site is surrounded by domestic residential structures in fields to the south and southeast of the site (and likely more will be found to the west and north as investigation develops), known as the 'settlement zone' (Haines 2010:10). A modern road cuts through the site, linking the nearby towns of San Felipe and Indian Church (Figure 2.3). Unfortunately, existence of this road has provided easy access for looters, resulting in extensive damage across the site.

David Pendergast made the first known archaeological inspection of the site in the early 1980s while working at the site of Lamanai, located only 10 km away (Guderjan

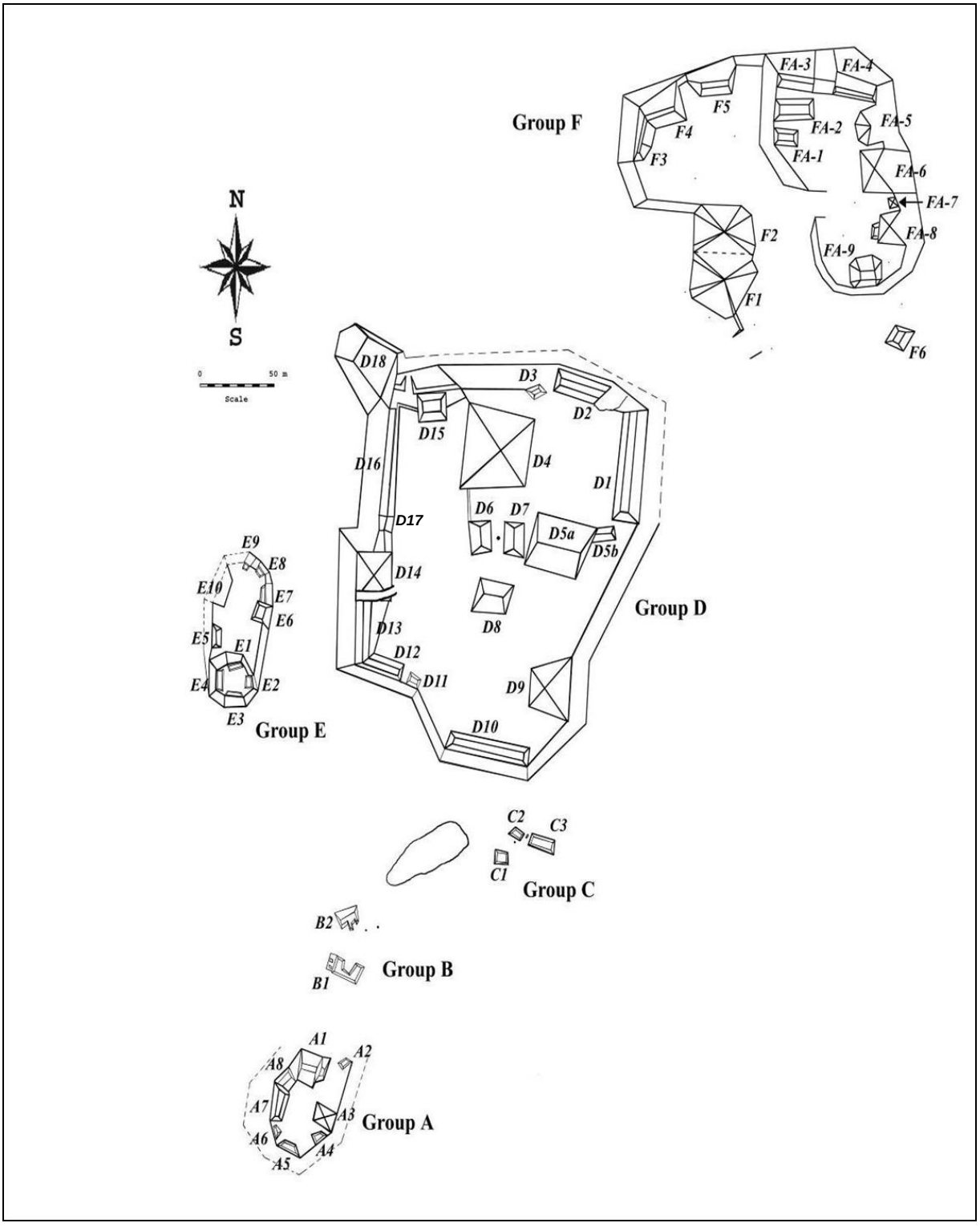

Figure 2.2. Site core of Ka'Kabish (Haines 2010:35).

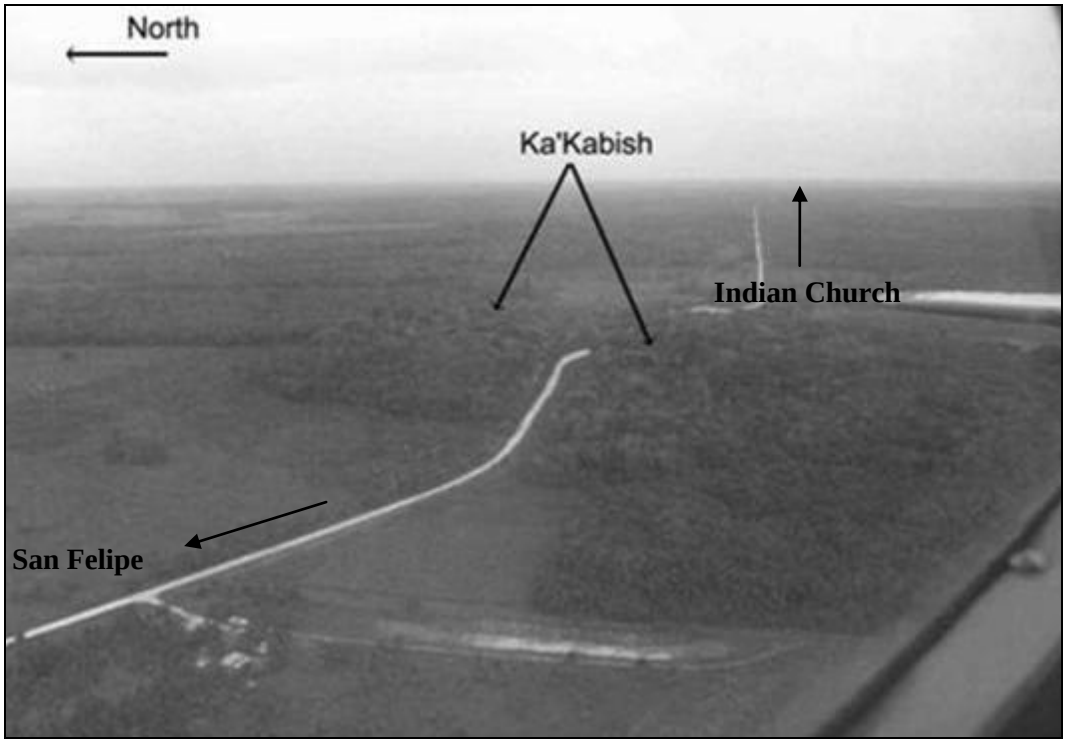

Figure 2.3. Aerial photograph overlooking the site of Ka'Kabish (Modified from Haines 2005:30).

1996:117). He reported on the looting at Ka'Kabish, comparing the looters' trenches to "craters" (Pendergast 1991:89). The local Belizean inhabitants of Indian Church used the name "Ka'Kabish" when talking to Pendergast about the site, and since no other name has been found in reference to the site, it continues to be used (Helen Haines, personal communication 2010). In the Yucatecan Mayan dialect, one translation of *Ka'Kabish* is "high, firm land", which seems appropriate considering the topography on the highest point of the elevated land between the Rio Bravo Escarpment and the coast.

In 1994, Robert Baker carried out a survey along the road from Ka'Kabish to Lamanai (Baker 1995). He discovered a small site, dubbed Cocochan, located midway between the two larger sites. All five major temple structures at Cocochan had also been

subjected to looting activities (Baker 1995:111-113). In 1995, the site core of Ka'Kabish was mapped by archaeologists, including Helen Haines, from the Maya Research Program (MRP) (Guderjan 1996:117). The road was used as a dividing point for the North and South complexes of the site. It was discovered that the site had sustained damage during construction of the road in the 1980s, and it was reported that at least one building was destroyed from this construction (Guderjan 1996:117). Two other structures, along with a section of the south plaza, were also removed during the use of the site as a quarry for road fill (Guderjan 1996:118; Haines 2005:2). It is known that workers for the Belize government have sometimes damaged other archaeological sites in Belize, mostly through road construction, so this is not an isolated case of damage by a government department (Gutchen 1983:226).

In 2005, Haines sought to assess the site to decide whether a research project could be initiated, and to generate local support for future excavations (Haines 2005:3). The land that the site occupies, as well as the land around the site, is divided into allotments which are owned by several individuals (Haines 2005:3). Haines spoke with individual landowners and almost all were enthusiastic about the prospect of a future archaeological excavation taking place (Haines 2005:3). The rest of the 2005 season centred on investigating the core area and surrounding settlements of the site. Several new structures were mapped, as well as existing looters' trenches, and were incorporated into the map produced by MRP in 1995, although the structures were renumbered. Haines (2005:4) also discovered that the nearby milpa farming was damaging some structures at the site.

In 2007, under the newly formed Ka'Kabish Archaeological Research Project (KARP), Haines created an updated map of the southern portion of the site (Haines 2007:1). Five architectural groups, labelled A-E, were identified in the southern complex.

Group A is a small plaza group (see Chapter three for definition) and contains eight structures. Bulldozer activity to the north of this group may have destroyed additional structures (Haines 2007:7). Most structures in the group are low platforms for perishable structures (A2, A4, A5, A6), but there are some which appear to have been small range structures (A1, A7, A8), in addition to a small temple-pyramid (A3) (see Chapter three for definitions). Group B lies to the north of the bulldozed area and contains only two structures (B1 and B2), both of indeterminate function (Haines 2007:8). Between Group B and Group C is a large depression, thought to originally be an *aguada* (natural features on the landscape that served as water storage features) (Haines 2007:9). Group C contains three structures (C1 to C3), thought to be platforms for perishable structures.

Because of its large size, Group D appears to have been the main group at the site. The platform on which group D sits varies in height across the group, due to the limestone ridge on which the site was constructed. The southern edge is roughly 4 m high, the northern and eastern edges are roughly 5 m high, and the western edge is closer to 10 m high in some areas. The group contains 19 structures, including the tallest temple-pyramid at the site (D4) at a height of 21 m. The access to Group D is via a set of stairs to the west of this structure. The plaza to the east of this structure may have been the main plaza in the group. The group also contains the site's lone ballcourt (D6 and D7) and ballcourt marker (see Chapter three for definition). The ballcourt is an open-end type ballcourt since it has no walls defining end zones (Smith 1964:102). Structure D8 may have been purposely positioned to define the southern limits of this ballcourt.

Group D also has various range structures (D1, D2, D10, D12, D13), small constructions (D3, D11, D17), another temple-pyramid (D9), a platform of lower elevation (D18), and a structure (D14) with red-painted, corbelled vaulted rooms (see

Chapter three for definition [Haines 2007:9-17]). The function of other constructions in the group is less clear. Structures D5a and D5b may have been a range structure with small addition, rather than a temple-pyramid, based on the square ridge along the top of the structures. D15 appears to have been adjoined to D16, which may have been part of a wall defining the western edge of the plaza.

To the east of Group D is Group E, which contains 10 structures. At the southern end of the group is a high platform, upon which sits four structures (E1 to E4) thought to be platforms for perishable structures. Other structures in the group are also thought to have been platforms (E6 to E9). Structures E5 and E10 were damaged by bulldozing activity, but the former has evidence for a corbel vault (Haines 2007:17).

During the 2007 field season, Haines (2007:6) also surveyed an area of the settlement zone around the site. Ceramics gathered from the surface of the site during the mapping suggest that Ka'Kabish spanned the Late Preclassic to the Terminal Classic periods. Ceramics collected from the settlement zone extends occupation of the area into the Postclassic period. Haines returned to Ka'Kabish in 2009 to map the northern portions of the site, resulting in an extension of the site core map. This section of the site consists of 15 structures, labelled Group F. Within this group, there is a subset of structures resting on a large platform appearing to be an acropolis group (a number of related structures which are at various levels on a platform, perhaps once functioning as a royal palace complex) that have been labelled with an "FA" prefix— the "A" referring to the acropolis (Andrews 1975:67; Haines 2010:11). Structures F1 to F5, which include temple-pyramids (F1 and F2) and range structures (F3 to F5), are outside of this acropolis area.

The acropolis area sits on a platform roughly three metres high. An access ramp

connects the acropolis to the lower plaza area. The nine structures inside this area include temple-pyramids (FA-5, FA-6, FA-8), a range structure (FA-1), and a small low platform (FA-7). The function of other constructions in the group is less clear. FA-2 and FA-3 may form a second ballcourt, due to their configuration and the narrow alleyway between them. FA-4 may have been a range structure, but in its present form it is unclear. FA-9 is a rectangular structure with rounded corners, but further investigation is required for a clearer identification. F6 is further to the south-east of the group. Due to the damage caused by the road which cuts through this area of the site, it is not presently known how this structure relates to the rest of Group F (Haines 2010:14-19).

The group is believed to have been accessed by a ramp or stairway that aligns with the north-west corner of Group D (Haines 2010:12). Ramps have been reported at other sites in Belize, such as the 22 m long ramp located to the southwest of Structure 9 at Blue Creek (Driver 2008:267). Courtyard complexes (several structures grouped together around a courtyard [Hohmann-Vogrin 2006:197]) to the north and northeast of Group F were not mapped during the 2009 season due to time constraints (Haines 2010:11).

The first excavations at the site were initiated in 2010, as part of a long-term Trent University project led by Haines. The preliminary results will be discussed in detail in Chapter four. In addition to improving knowledge of the site, the excavations sought to establish a chronology based on ceramic dating. The field season ran for eight weeks and saw two plaza excavation units opened in Group D, mapping and excavation of looters' trenches in Structures D4 and D9, excavation in Structure FA-6, and surveying of fields in the settlement zone surrounding the site.

Ka'Kabish: Proposed Models

Early work at Ka'Kabish led to the assumption that the site was a secondary centre within the larger Lamanai political network. This assumption was based on the close distance between the two sites, and similarities in architectural arrangements and tomb constructions (Haines 2005:1, 15). Ka'Kabish had been ranked by in terms of size and known architecture by Guderjan (1995:19) in 1995 and given a much lower "score" than Lamanai, which suggested that it was inferior. However, after the mapping of the south section in 2007, it became clear that the core zone of Ka'Kabish was considerably larger and more complex than initially assumed (Haines 2010:10). Although more investigation is necessary before a fuller understanding of why Ka'Kabish existed so close to the larger (and presumably more powerful) site of Lamanai, four models have been proposed to explain the role that Ka'Kabish may have played in north-central Belize (Haines 2010:19):

1. A dual-residence for the royal court of Lamanai
2. A heterarchical ritual capital, with Lamanai as the political or economic capital
3. A suburban settlement for elites who may have commuted to Lamanai
4. An autonomous centre

The first model suggests that that Ka'Kabish was a refuge site for the elite or royal court of Lamanai during the unfavourable weather of the rainy season. There is evidence elsewhere in the Maya Lowlands suggesting that there were elite dual-residences linked to seasonal climate (Ball and Taschek 2001; Tourtellot 1993:228). This model would expect the royalty to be buried at the primary centre (currently thought to be Lamanai), and does not account for the tomb constructions found in Structures D1, D5, and FA-6 at

Ka'Kabish (Budhoo 2011; Haines 2007:10-11, 2010:17, 20).

The second model suggests that Ka'Kabish was a heterarchical ritual capital, with Lamanai serving as the political or economic capital. Heterarchy views socio-political systems in a horizontal manner, rather than the traditional "top-down" hierarchical manner (although the two are thought to have existed and operated alongside one another) (Scarborough *et al* 2003). Heterarchy considers certain social and economic elements to have operated between and within groups of people (elite and non-elite), which allows for a more flexible outlook towards political economy (King and Shaw 2003; Scarborough *et al* 2003:xiv). This model is favoured by Elizabeth Graham, who excavated Lamanai with Pendergast. She feels that the tombs at Lamanai do not resemble political elite but rich merchants (Haines 2010:20). However, as Haines (2010:20) has explained, if Ka'Kabish was the ritual capital, it would be expected to have larger and more numerous ritual architectural constructions. Instead ritual architecture at Lamanai exceeds Ka'Kabish in terms of numbers and sheer size.

The third model suggests that Ka'Kabish is a suburban settlement for elites who may have commuted to Lamanai, perhaps for some form of work. Although this would explain the elite residential structures at Ka'Kabish, if the population were travelling to Lamanai on a regular basis, ritually important monumental structures would not be expected at Ka'Kabish (Haines 2010:20). The presence of a ballcourt, a ritually important structure, in Group D at Ka'Kabish means this is another unlikely model (Haines 2007:12).

The final model suggests that Ka'Kabish was an autonomous centre. This would explain the ritually important monumental architecture and royal tomb constructions not explained by the other models. However, the close distance to Lamanai is less than has previously been suggested for primary centres elsewhere, and is closer to what has been

suggested for causeway terminus groups (Cheetham 2004; Haines 2010:21). Since there is evidence of causeways with outlying termini groups at sites elsewhere in the Maya Lowlands, such as at Caracol, Tikal, Calakmul and Coba, there is a possibility that Lamanai could have had termini sites as well (Chase and Chase 2001:276; Cheetham 2004:125; Webster 1998:27). However, in comparison to known termini groups, Ka'Kabish is larger in size, has more complex architecture, and does not have a causeway. Thus, this means it is more likely that Ka'Kabish is an autonomous centre, and this is the model that is currently favoured.

Summary

Northern Belize is a region of the Maya subarea which was attractive to some of the earliest ancient Maya populations in Belize. It was also an area which was attractive during periods of unrest and change in the Maya subarea, both to local populations and populations from elsewhere in the Lowlands. Ka'Kabish is a 'new' site in terms of archaeological investigations, and further research at the site is needed before knowledge of its history from the Preclassic to Postclassic periods is understood. The research presented in this thesis will add to the knowledge, which is currently small, about the site of Ka'Kabish.

Chapter Three: Ancient Maya Architecture

The architecture of the ancient Maya has played a prominent role in archaeological studies ever since the earliest site explorations began in the eighteenth century (Brunhouse 1973:8-12; Graham 1998:31-32). The imposing heights, intricate stylistic decorations, and sheer structural mass of the buildings caught the attention and imagination of early investigators and, subsequently, the attention of the general public. As a result, large annual budgets were allotted to archaeological projects in the Maya subarea for excavation and consolidation of architecture (Graham 1998:37). As has been shown through various studies, consolidation and restoration of Maya architecture can lead to an increase in tourism (Ramsey and Everitt 2008), and many of the earliest consolidated sites, such as Chichen Itza in Mexico or Copan in Honduras, are some of the most popular tourist attractions in Central America today (Black 1990:273).

Though scholarly and public fascination with architecture has remained constant over time, knowledge and understanding has changed. Gone are the days when archaeologists believed that sites with monumental and impressive stone architecture were solely religious centres (Morley 1956:261), or that such sites did not arise prior to the Classic period (Andrews 1975:14, 72). Now it is understood that stone architecture was built as early as the Middle Preclassic period, and that these structures were used both for habitation and religious purposes (Sharer and Traxler 2006:181-182).

Ancient Maya architecture varies structurally, regionally, and chronologically (Pollock 1965:378). A detailed explanation of the variation is not possible in this thesis and, therefore, only architecture associated specifically to this research will be discussed (for a comprehensive overview of ancient Maya architecture see Andrews 1975, and

Pollock 1965). In using the term *architecture* I am referring to the "built environment" of the ancient Maya, which may correspond to part of a specific site, one specific site, or a group of sites. In using the term *structure* I am (following Loten and Pendergast 1984) referring to a single complete architectural entity or, in other words, a single building.

Construction Materials

The materials used by the ancient Maya to build architecture were relatively homogenous, since the main construction materials were timber, stone, and clay (Wernecke 2005:9). Since timber and clay were primarily used for non-permanent structures, and this research concerns stone architecture, I will not be discussing their use in detail.

The Maya subarea can be divided into five geological parts, and the materials available for construction of stone architecture include marls, limestone, sandstone, shale, shists, gneisses, mudstone, granite, and volcanics (Wernecke 2005:9-11). Since locally available materials would have been used for construction (Littmann 1967:523), different sites have been found to have used slightly different construction materials. For example, sandstone was used at the site of Quirigua in Guatemala, volcanic stone was used at the site of Copan in Honduras, limestone was used at the site of Altun Ha in Belize, and adobe bricks were used at the site of Comalcalco in Mexico (Pendergast 1979a:22; Sharer and Traxler 2006:183; Wernecke 2005:32). The construction materials available in the different regions were one of the factors which determined architectural style (Hohmann-Vogrin 2006:195).

To obtain construction materials, there is evidence that the ancient Maya quarried stone (Pollock 1965:397). Tools made from wood and chert, and perhaps even bone and

shell, would have been used to roughly shape and extract stone from its surrounding matrix (Proskouriakoff 1963:xii; Wernecke 2005:148, 151). The blocks would then have been shaped and trimmed, much in the manner in which it is done today for consolidation and restoration purposes (Figure 3.1).

As discussed in the previous chapter, much of the Maya Lowlands is covered in limestone (Wright *et al*. 1959:23). The natural abundance of limestone made it an ideal material for construction purposes. To capitalize on the accessibility and quantity of limestone, and to create from it a functional construction material, the Maya burnt it to produce lime powder (Pollock 1965:396; Wernecke 2005:24). Lime was used to manufacture mortar and plaster, which was applied to the exterior of structures and also used as a coating for surfaces (Roys 1934:34).

Figure 3.1. Worker at the site of Tikal, Guatemala, trimming blocks for use in restoration of architecture. Photograph taken by author.

In addition to using the various materials listed above for stone construction, the ancient Maya salvaged material such as refuse, and chert cobbles, to use as construction fill (Hester and Shafer 1984:157, 160). It is, therefore, common to find broken ceramic pieces, damaged lithic tools, and lithic debris, when excavating architecture. Regardless of the fact they may be broken, artefacts found within construction fill can be used to provide information about craft production, artefact manufacture, and chronology at a site (Moholy-Nagy 1997).

At times, construction fill was also comprised of portions of cut stone, indicating the re-use of material from destroyed or modified structures [see *super-positioning* below] (Littmann 1962:101). It has been argued that the re-use of old materials is an economic indicator and can be employed to determine the economic status and wealth of a site (Littmann 1962:101).

Construction Practices

Architectural construction varied according to structure size, form, and function. It also varied regionally and chronologically. For example, materials could be laid with or without an adhesive (Roys 1934:34). This would often depend on the time and energy invested into a structure, as well as the availability of adhesive-like materials. Additionally, some structures were built with a consistent quality throughout, whereas others were constructed with a high quality exterior and low quality interior (Seibert 2000:11).

Despite these variations, some patterns in construction practices have been identified. These patterns are understood as markers of chronological change, and allow an improved understanding of the history of both a structure and a site (Pollock 1962:195;

Wernecke 2005:61). For instance, in the Middle Preclassic period construction practices are characterised by "clean" (lack of refuse or other material in the fill) and "dry" (a lack of adhesive) construction (Hansen 1998:63, 72; Wernecke 2005:61). Additionally, "pens" or cell-wall constructions, which were crude walls constructed to contain loose construction fill, are characteristic of the Middle and Late Preclassic periods (Hansen 1998:72; Lee 1996:93)

In addition to providing information about changes in building practices over time, construction practices can inform archaeologists about wider aspects of ancient Maya society. This is because the ancient Maya used a formal planning process before beginning construction, making decisions about how to communicate through architecture (Wernecke 2005:42-43). Scholars agree that these decisions are decipherable and can lead to a better understanding not only of the construction process, but of ancient Maya society in general (Ashmore and Sabloff 2002:204; Webster 1998:17). The insights gained from architecture include social status, division of labour, ideology, and social organization.

Social status among the ancient Maya is clearly visible from the range of their architectural constructions. The stark difference between humble, perishable, pole and thatch structures and large-scale, monumental, stone structures is the clearest example, since the former is argued to be an indicator of modest or low status and the latter an indicator of higher status (Abrams 1998:128). Another example is the difference between structures which have cut stone blocks and those which do not, with the former generally believed to be an indicator of wealth and higher status (Seibert 2000:31-32).

Division of labour can be understood from the form and mass of structures. For example, it has been argued that monumental architecture is an indication of a conscripted labour system (Abrams 1987:493). As the Maya epigrapher David Stuart (1998:384)

discusses, references to “build” and “tribute” are indistinguishable in ancient Maya inscriptions and, therefore, the relationship between the two may have been inseparable. As well as understanding that construction may have taken place by way of conscripted labour, archaeologists have also attempted to understand the energetic costs linked to labour. Such studies have suggested the man-power and amount of days necessary to build various structures, thus improving on the understanding of the division of labour and likely time required for tasks (Abrams 1987, 1998; Webster and Kirker 1995).

Ideology can also be understood from the study of construction practices. This is because the ancient Maya believed all aspects of the environment to be infused with life. Consequently, built structures were considered as living objects (Schele and Freidel 1990:67; Schele and Matthews 1999:26; Webster 1998:29). Early Maya architecture is known to have been painted various colours, usually red or white, and this is believed to have had a spiritual effect on the structures, possibly helping to animate them (Schele 1985:36; Wagner 2006:67). Additionally, the red colour of some architecture is argued to have represented blood, where the soul was believed to reside, and may have lent an animate quality to inanimate structures (Fash 1998:396). Therefore, structures which were painted may have been particularly important to the ancient Maya, and the colour applied to them may aid in interpreting their function or role.

Finally, construction practices can be used to better understand ancient Maya social organization. It has been suggested that both skilled and poor stone craftsmanship is evident in architectural constructions, sometimes within the same structure (Wernecke 2005:87). In terms of social organization, this suggests that there were both specialists and non-specialists within Maya society (Schele and Matthews 1999:27). Skilled craftsmanship would probably have been the product of architects, or skilled builders,

whereas lower quality craftsmanship (perhaps found more often in the unseen interior) would have been produced by non-specialists (Abrams 1987:491).

Despite the knowledge architects may have had about architectural construction, they were unable to prevent the structural problems that the tropical climate of the Maya subarea caused (Wernecke 2005:47). Consequently, periodic maintenance and repairs were often necessary (Pendergast 1990:68). The destructive nature of the tropical climate continues to be a problem today, and consolidation of exposed architecture sometimes involves covering structural elements with a shelter or even a replacement (Figure 3.2). In the long term maintenance of structures reached a point of diminishing return and, when this occurred, a new structure was built atop the exhausted one— a practice known as super-positioning (Schele and Matthews 1999:34).

Super-Positioning

Many ancient Maya structures were constructed in multiple episodes, with one structure frequently overlaying or encasing an earlier one. As a result, remains of structures visible today are often the latest versions of a series of earlier constructions (Abrams 1998:124; Andrews 1975:33-34; Sharer *et al*. 1999:222). This is why ancient Maya architecture is said to have undergone constant change and transformation (Hohmann-Vogrin 2006:195; Kostof 1985:10; McAnany 1998:271).

Super-positioning was a method of communicating political and symbolic messages. Politically, increasing the size of structures through super-positioning displays signs of power because it shows the ability to control large amounts of human energy (Trigger 1990:125). Enlargement and rebuilding are also methods of expressing change in political organization, and the practice of super-positioning at a site may illustrate a change in

Figure 3.2. Mask from Structure N9-56 at the site of Lamanai, Belize. Left image (2006) shows the mask protected by a shelter. Humidity continued to cause damage to the mask, despite the shelter, and steps were taken to prevent further damage. Right image (2010) shows a modern reconstruction of the mask, covering the now encased original. Photographs taken by author.

political status or rulership (Andrews 1975:34, 70).

Symbolically, the practice is associated with the ideology of growth and renewal. The clearest example of this association is the fact that the practice integrated older structures into new ones, resulting in a re-generation and growth of the structure. Webster (1998:21) argues that this practice, psychologically, could have introduced powerful associations into the new building. However scholars are aware that continued rebuilding over a long period can distort messages, creating difficulties in understanding and interpreting structures (Ashmore and Sabloff 2002:201, 211; Webster 1998:18). Therefore, in some cases, our interpretations of ancient political or symbolic messages must be treated with caution.

As well as being a political and symbolic message, it is also a method of reducing energy costs. Recent studies on construction methods have found that fewer workers were required to construct large

structures than previously believed, because super-positioning significantly decreases time and energy of construction (Wernecke 2005:52). In fact, in some cases, it allowed a reduction in energy expenditure of 40% or more (Abrams 1998:137).

Super-positioning may have taken place at significant points in the calendric cycle, or at times set by rulers (Pendergast 1990:68; Webster 1998:29). When it did occur, it was closely associated with the termination and dedication of structures. Termination refers to the abandonment of a structure which, often, but not always, was encased in a new structure. Terminated structures are thought to have been offerings, or dedications, for the construction of succeeding structures (Wagner 2006:68). Dedication rituals took place when a new structure was built, for the purpose of bringing life into the structures and making them ready for use (Schele and Matthews 1999:48).

Rituals, Offerings, and Caches

The termination of old structures and dedication of new structures was accompanied by specific rituals. These rituals involved offerings of both perishable and non-perishable material objects. Consequently, offerings have been described as "the tangible residues of ritual behaviour" (Moholy-Nagy 1997:298). In most cases offerings found inside structures or underneath standing monuments (known as stelae or altars) are referred to as 'caches'.

Caches are distinguished from offerings based on the fact that the former were intentionally hidden (Coe 1965:462). Despite the fact that offerings may have been encased by a new structure (and in a sense also hidden), they were generally left on the surface of floors, whereas caches were specifically intruded into earlier structures or buried within construction fill (Chase and Chase 1998:300). Caches within structures

were commonly placed on the primary axis of the structure, since this alignment functioned as the main avenue of communication with the deities (Coe 1965:462; Pendergast 1998:61).

Caches can be a group of objects buried with or without a container. Usually the container is a ceramic vessel and can have a lid, or it may be placed "lip-to-lip" with another ceramic vessel (one ceramic is inverted and placed atop another) (Chase 1988 Figure 2; Garber *et al*. 1998 Figure 11.2). Cached objects can consist of human remains, chert, jade, shell, obsidian, stingray spines, and perishable items, but do not have to contain all or any of the above to be considered a cache (Bozarth and Guderjan 2004:205; Chase 1988:82).

Because some caches contain human remains it has been disputed whether or not archaeologists should continue to separate burials from caches as features (Becker 1992:186). Since caches are thought to have been associated with the Maya underworld, they may have been considered as portals to the afterlife (Chase and Chase 1998:303-304). Furthermore, the 16th century account of the Yucatec Maya by Bishop Diego de Landa is informative in regard to burial practices for persons of high status. He describes cremated remains being placed as offerings to temple pyramids: "they burned their bodies and placed their ashes in great urns, and they built temples above them" (Tozzer 1975:130). Therefore caches may once have contained ashes as well as skeletal remains, which would further suggest that archaeologists could indeed view caches and burials as one and the same. But, without strong archaeological evidence, they continue to be viewed and treated as separate features.

Caches acted as elements of both termination and dedication rituals; they looked backward by focusing on a structure about to be concealed, and looked forward to a

structure about to be built (Pendergast 1998:62). They allowed a structure to be animate, since the practice resembles inserting a 'heart' into a structure (Wagner 2006:67). Caches (and the structures in which they resided) were often burnt as an act of destruction, illustrated by layers of burnt carbon within construction fill. This has been simultaneously linked to destruction (a termination ritual) and activation (a dedication ritual) (Chase and Chase 1998:324; Wagner 2006:67). The physical act of burning has been interpreted as part of the growth and renewal cycle, as it ritually 'kills' and animates the structure (Chase and Chase 1998:324; Fash 1998:417).

Practices involving burning appear to mirror the "Fire Enters His House" ceremony from the site of Yaxchilan in Mexico, which associates fire with structural renewal and renovation (Fash 1998:259). The use of fire in renewal ceremonies is also referred to by Bishop Diego de Landa (Tozzer 1975:151,161). Consequently, the ancient Maya appear to have regarded the burning of caches as an opportunity to terminate and animate their architecture simultaneously.

Plazas

Plazas were the foundation of most ancient Maya sites, on which architecture sat or around which it was arranged (Driver 2008:123) (Figure 3.3). They have been described as both the operational space and unit of structural planning (Pollock 1965:386; Schele and Matthews 1999:23). Usually rectilinear in shape, plazas are open spaces of varying size which were artificially levelled and coated in white plaster (Andrews 1975:11, 37). The largest plazas were usually the core zone of sites, and are known to have often been the first areas of occupation at sites (Inomata 2006a:806, 818), as was Plaza B at the site of Pacbitun in western Belize (Healy *et al*. 2004).

Figure 3.3. Example of a plaza at the site of Lamanai in Belize, with buildings arranged around an open space. Photograph taken by author.

Various activities, such as rituals, dances, or markets, took place in plazas and were likely the focus of the community (Andrews 1975:34, 37). The largest plazas would have been the location for mass spectacles and public events, and they were likely designed to hold large numbers of people (Inomata 2006a:805). Other areas of open spaces at sites likely performed different functions to those of the plaza. Courtyards and patios are terms for smaller open spaces, usually associated with residential groups (Driver 2008:124).

Plaza construction mirrors the pattern of floor construction, and appears to have involved a widespread building technique throughout the Maya subarea (Littmann 1967:523). Construction consisted of laying rough construction fill, covering with a layer of large stones, and then covering with a layer of adhesive or plaster (Littmann 1967:523; Wernecke 2005:70) (Figure 3.4). The nature of plaza construction can be indicative of the manner in which the plaza was built. For example, at the site of Copan in Honduras a

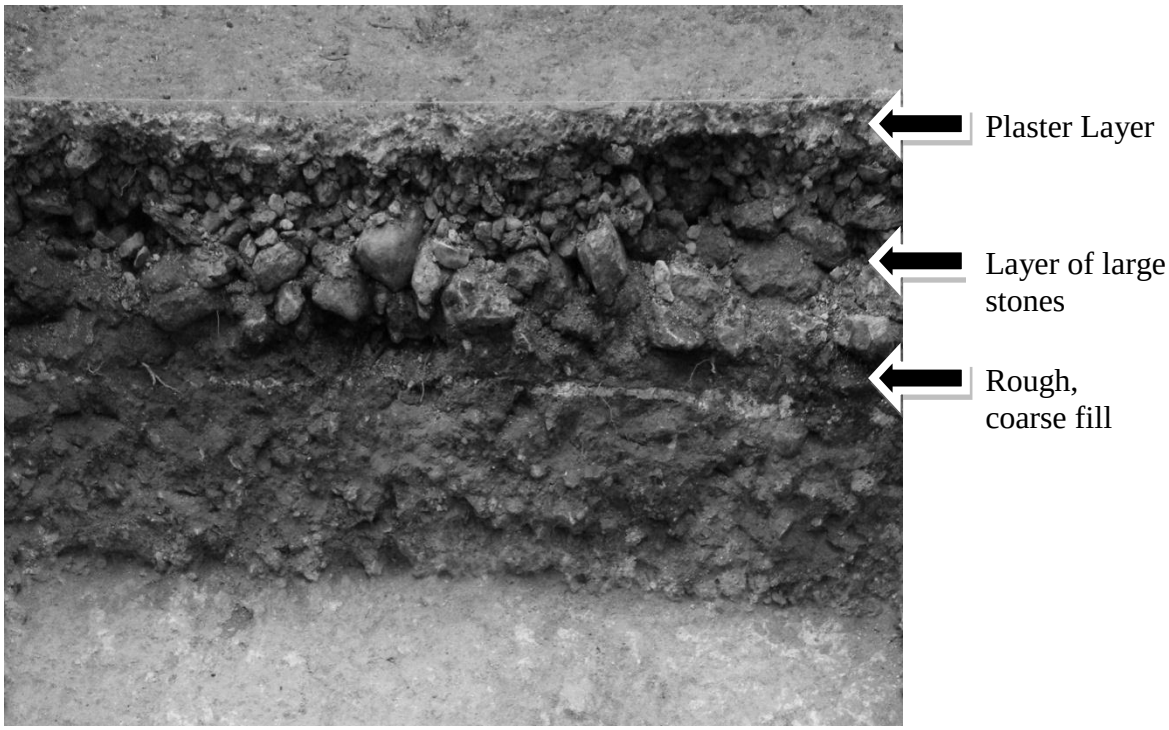

Figure 3.4. Construction of a plaza. In this case, the rough fill was a layer of soil. Photograph courtesy of Helen Haines.

substantial amount of construction material was used to create a plaza, which suggests that its construction involved a significant part of the community (Inomata 2006a:817).

Temple-Pyramids

The term temple-pyramid is used in this thesis rather than the term "temple", because the latter can simply refer to ritual or ceremonial use of a space (Andrews 1975:39). Here I am specifically referring to structures with the form of a stepped pyramid, which have a wider base than top (Figure 3.5). Temple-pyramids were constructed by a series of platform layers, which diminish horizontally as the vertical height increases (Normark 2006:78). The pyramidal platforms are known as substructures

because they generally supported a building at the top level known as the superstructure (Loten and Pendergast 1984:14; Pollock 1965:397; Wernecke 2005:56). This took various forms including perishable structures, masonry buildings with roof combs (such as that crowning Temple 1 at Tikal- see Figure 3.5), or a second storey (Loten and Pendergast 1984:14; Normark 2006:78).

There is usually at least one stair leading to the top of a temple-pyramid, but some had stairways on all four sides (such as the Castillo at Chichen Itza- see Figure 3.5) (Normark 2006:79). A stair could be inset (as at Structure N10-43 at Lamanai- see Figure 3.5) or could be outset and project from the structure (as at Temple 1 at Tikal- see Figure 3.5) (Pollock 1965:398). Temple-pyramids were usually located on the edge of a plaza, and the stair connected the structure to the plaza below (Lucero 2007:410; Normark 2006:78). The stairways were often very steep, with the steepness likely reflecting the fact that temple-pyramids were not to be accessed by the public (Andrews 1975:42; Schele and Matthews 1999:29). It has been suggested that the ability to climb the stairs and become

Figure 3.5. Examples of temple-pyramids. Left to right: Temple 1 at Tikal, The Castillo at Chichen Itza, Structure N10-43 at Lamanai. Photographs taken by author.

visible to those below was an important device for rulers and others to perform for the public (Inomata 2006b:199).

The earliest temples were probably constructed of wood and other perishable materials, and it is likely that the form evolved from basic Maya house constructions (Andrews 1975:39; Harrison 2006:219; Schele and Matthews 1999:25-26). Over time the lower walls began to be built of stone while the roof continued to be made of poles and thatch. In later stages, a masonry roof replaced the wooden one (Andrews 1975:39). The form of temple-pyramids is thought to have derived from the shape of mountain peaks, since the pyramidal form clearly emulates the shape of a mountain, and Maya hieroglyphic descriptions of tall structures use the term *witz* (mountain) (Harrison 2006:219; Hohmann-Vogrin 2006:200; Schele and Freidel 1990:71, 106).

In the early days of Maya archaeology, all temple-pyramids were designated as funerary shrines (Coe 1956). However, it is now understood that not all temple-pyramids were built as shrines to the deceased. Temple-pyramids probably served a range of different roles for the ancient Maya (Lucero 2007:407). Many are thought to have been devoted to deities, and were probably seen as houses of deities (Andrews 1975:12; Harrison 2006:226; Loten 2001:227; Taube 1998:428). It has even been suggested that different temple-pyramids at the same site may have represented different deities, and the population could have chosen which one to worship (Lucero 2007:407).

Rooms inside temples were usually small and narrow (due to the limitation of the vault system employed for stone architecture- see Figure 3.6) (Proskouriakoff 1963:xvii), but allowed enough space for rituals and prayers to the deities to take place. It has been argued that rituals which took place at temple-pyramids allowed the structure to accumulate energy, making it more sacred with repeated use (Schele and Freidel

Figure 3.6. Examples of the Maya vault system. As seen, they vary slightly in shape but remain constant in their basic construction, which consists of two sloping walls rising until they meet at the peak. Photographs taken by author.

1990:72). In general there does not appear to be any preferred orientation for temple-pyramids, but there may be a preference at individual sites (such as at the site of Edzna in Mexico where all major temple-pyramids face west). This orientation may aid in determining their function or role (Andrews 1975:53).

Range Structures

This term refers to long, multi-roomed structures that are usually rectangular in plan, with doorways on one side to access interior rooms (Figure 3.7) (Andrews 1975:43). They are one of the least understood forms of ancient Maya architecture (Inomata 2010:5). In the past, the ignorance of the function(s) of these long narrow structures led to their grouping into the category of "palace" (Proskouriakoff 1963:xii; Webster 2001:133). It was hoped that this large group could later be divided into several smaller

Figure 3.7. Range structure at Uxmal, Mexico. Photograph courtesy of Maxime Lamoureux St-Hilaire.

categories representing specific functions (Andrews 1975:46). However, the failure to understand the actual function of so-called palaces meant that the term continued to be a designation for structures that fit into no other class (Pollock 1965:411). Consequently there was no archetypal form that could clearly be associated with the term palace, and today the term "range structure" is in use.

Despite the ignorance of their function(s), various possibilities have been postulated, including living quarters for priests, temporary living quarters for visitors, areas for administrative and commercial activities, storage facilities, and even a type of elite school (Andrews 1975:43).

Ballcourts

Unlike range structures, the function of ballcourts has been well defined and understood for some time. The term refers to two parallel range structures, with sloping or vertical sides, where the ancient Mesoamerican ballgame was played (Figure 3.8) (Miller 1999:24; Sharer and Traxler 2006:214). Although ballcourts date as early as the Middle Preclassic period in the Maya subarea, the ballgame was played much earlier in other

parts of Mesoamerica (Hansen 1998:74). The game consisted of two opposing sides of players (probably numbering three to five persons), and the objective was to strike a rubber ball into a goal area without using hands (instead using hips, elbows, and knees) (Miller 1999:24). The goal area may have been an end-zone, a marker, or a ring (through which the ball had to pass).

Ballcourts figure prominently in Maya creation myths, where they are associated with the underworld (Sharer and Traxler 2006:214). The ballcourt has been likened to a crevice in the earth's surface, giving access to the underworld below (Schele and Matthews 1999:207). Consequently, ballgames were religious occasions (and probably political too) because they recreated sacred events related to the cycle of growth and renewal (Evans 2004:391).

Ballcourts are generally associated with important plazas, though they vary considerably in terms of their position to other structures (Andrews 1975:39, 47).

Figure 3.8. Ballcourt with stone marker at Lamanai, Belize. Photograph taken by author.

They also vary in length but are all are oblong or rectangular in shape, and some have extended end-zones resulting in a capital 'I' shape (Andrews 1975:38; Evans 2004:393). Some ballcourts were more elaborate than others, with steps for seating /sacrificial display, or small structures atop the parallel buildings (Andrews 1975:47; Miller 1999:24). Stone markers were sometimes placed in the floor of the playing alley (Figure 3.8), and at other times stone rings were mounted on the walls (Figure 3.9). Like end-zones, these were presumably both for scoring goals (Andrews 1975:39).

Dedication rituals are known to have taken place at ballcourts, illustrated by the various caches that have been found (Evans 2004:393; Healy 1992:234). As discussed above, both ballcourts and caches were associated with the underworld. It is likely that caches in ballcourts were very potent symbols of death and rebirth, and may have served to define the sacred architectural constructions (Healy 1992:234). This is seen very clearly at the site of Lamanai in Belize, where a cache of objects was discovered under

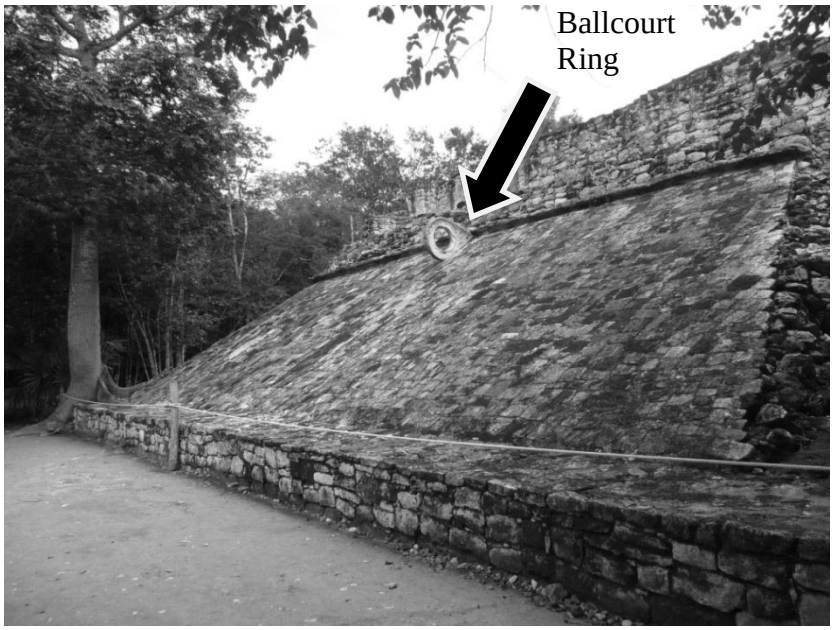

Figure 3.9. Ballcourt with ring at Coba, Mexico. Photograph taken by author.

the stone ballcourt marker sitting upon liquid mercury (Pendergast 1981:40). Cinnabar, red in colour, is the common ore of mercury— a pigment which had high value among the ancient Maya because the colour is associated with blood, fertility, and the soul (Freidel 1985:17; Freidel *et al*. 2001:202-207; Pendergast 1982:533). The occurrence of mercury in this context most likely helped to create a powerful link to the underworld, as well as further emphasizing the symbolic nature of ballcourts (Austin 1994:123).

Architectural Arrangements

Architecture has been likened to verbal language, with the "vocabulary" being spatial arrangements (Becker 2009:69; Preziosi 1979:1-6). Therefore, the arrangement of ancient Maya architecture is a form of communication. As discussed above, many scholars agree that, with study, we can decipher the messages sent through architecture. Consequently the study of architectural arrangements can be very informative about the ancient Maya.

Scholars have argued that ancient Maya architecture was arranged according to local topography, and to the location of available construction materials (Abrams 1998:124; Andrews 1975:36). But architectural arrangements were also influenced by many more concerns, including ideology, politics, economics, and engineering (Ashmore and Sabloff 2002:202). Therefore, it is not surprising that ethnic differences or political change can account for variation and modification seen in architectural arrangements (Ashmore and Sabloff 2002:204; Becker 2009).

More specifically, architecture is argued to have been deliberately oriented according to specific cardinal, or important cultural, directions, or even to emulate more powerful sites (Andrews 1975:51; Ashmore 1991:200; Ashmore and Sabloff 2002:202;

Pollock 1965:386). Architecture is even believed to have served as an expression of the ancient Maya perception of the universe, with the centre of sites designed to be material manifestations of the centre of the universe (Ashmore 1991:200; Seibert 2000:12). Different segments of sites (and outlying areas of sites) were connected via causeways, known as *sacbeob*, which were raised roadways (Shaw 2001; 261-272; Webster 1998:27).

The cardinal directions that appear to have been important to the ancient Maya include east-west and north-south. The former mimicked the movement of the sun and the latter emphasized the division of the living world and the underworld (Ashmore 1991:200-201). The divide between the living world and the underworld was further emphasized by the frequent position of a ballcourt between northern and southern areas of sites (Ashmore 1991:200; 1992:176). In many cases the northern area is a ritual group, whereas the southern area is a residential-administrative group (Ashmore 1992:179).

An example of the importance of cardinal directions is the so-called "E-Group". This architectural complex consists of a large pyramidal structure on the western side of a plaza, and a structure/s on a north-south axis on the eastern side (Hansen 1998:64). The complex first appears at sites in the Middle Preclassic period, and early versions consist of an elongated structure on the eastern side (such as the Mundo Perdido complex at Tikal) (Houston and Inomata 2009:79; Laporte and Fialko 1995:47). Later versions consist of three linearly structures on the eastern side (Hansen 1998:66). However E-Groups can differ significantly from one another, and are more correctly described as a range of variations rather than neatly defined types (Aimers 1993:77).

Some E-Groups marked the position of the rising sun on the solstices and equinoxes but were also related to agriculture and fertility, which is probably why they are often located close to ballcourts (Aimers 1993:i, 40-42, 94, 184; Guderjan 2006:97). They are

also commonly located in the central core zones of sites, and scholars suggest that they were the central foci of site planning (Aimers 1993:90; Houston and Inomata 2009:81).

In addition, the nature of space between structures is also important because the ancient Maya controlled access to structures and areas of sites using carefully designed architectural plans (Schele and Matthews 1999:27; Seibert 2000:8). Therefore, restricted access has been used as an indicator of social status; unrestricted access corresponds to low status, and restricted access corresponds to high status (Seibert 2000:41).

Summary

Architecture can be informative about many aspects of ancient Maya society, ranging from the local environment to social status. This information can be gathered from both the interior and exterior of structures. Internally, the construction materials used, and the method in which a structure was built, has demonstrated great potential as chronological markers and symbols of economy, social organization, and politics. Externally, the decoration, form, and arrangement of architecture act as manifestations of ideology, social status, political power, and economic standing.

The messages that the ancient Maya were communicating through their architecture may not be clear at first, but they are encased in all structures waiting to be rediscovered. A clear understanding of architecture and its construction process is a first step towards gaining a greater understanding of the people who designed, built, and used these structures.

Chapter Four: Ka'Kabish 2010 Field Season

The first archaeological excavations at the site of Ka'Kabish, Belize, took place in 2010 under a Trent University project led by Dr. Helen Haines. The project members consisted of three graduate students (including myself), two undergraduate students, a team of eight local workmen, and ceramic specialist Dr. James Aimers. In addition to improving knowledge of the site, the excavations sought to establish a chronology based on ceramic dating. The field season ran for eight weeks, with six weeks of excavation and two weeks of laboratory work. The field work included two plaza excavation units in Group D (referred to as Plaza D and Plaza D South), excavation in Structure FA-6, clearing and mapping of looters' trenches in Structure D4, and excavation, clearing, and mapping of looters' trenches in Structure D9 (Figure 4.1). Surveying of fields in the settlement zone surrounding the site core also took place, as well as mapping of the main plaza area within Group D using a total data station (Figure 4.2, 4.3)

Initially, because of a restrictive excavation permit from the Belize government, the intention of my research was to focus only on the clearing and mapping of looters' trenches in Structure D4 (hereinafter referred to as Str. D4). However, recent looting in Structure D9 (hereinafter referred to as Str. D9) had taken place sometime between the 2009 and 2010 field season and this allowed the permit to be extended to investigate this structure before further looting took place. Both structures in Group D were selected for investigation because, apart from being large and likely important, previous visits to the site by Haines had confirmed that several, distinct, construction episodes could be seen in the profiles of the looters' trenches. This would allow for the establishment of a chronology of the building sequence, therefore helping to gain a better understanding of

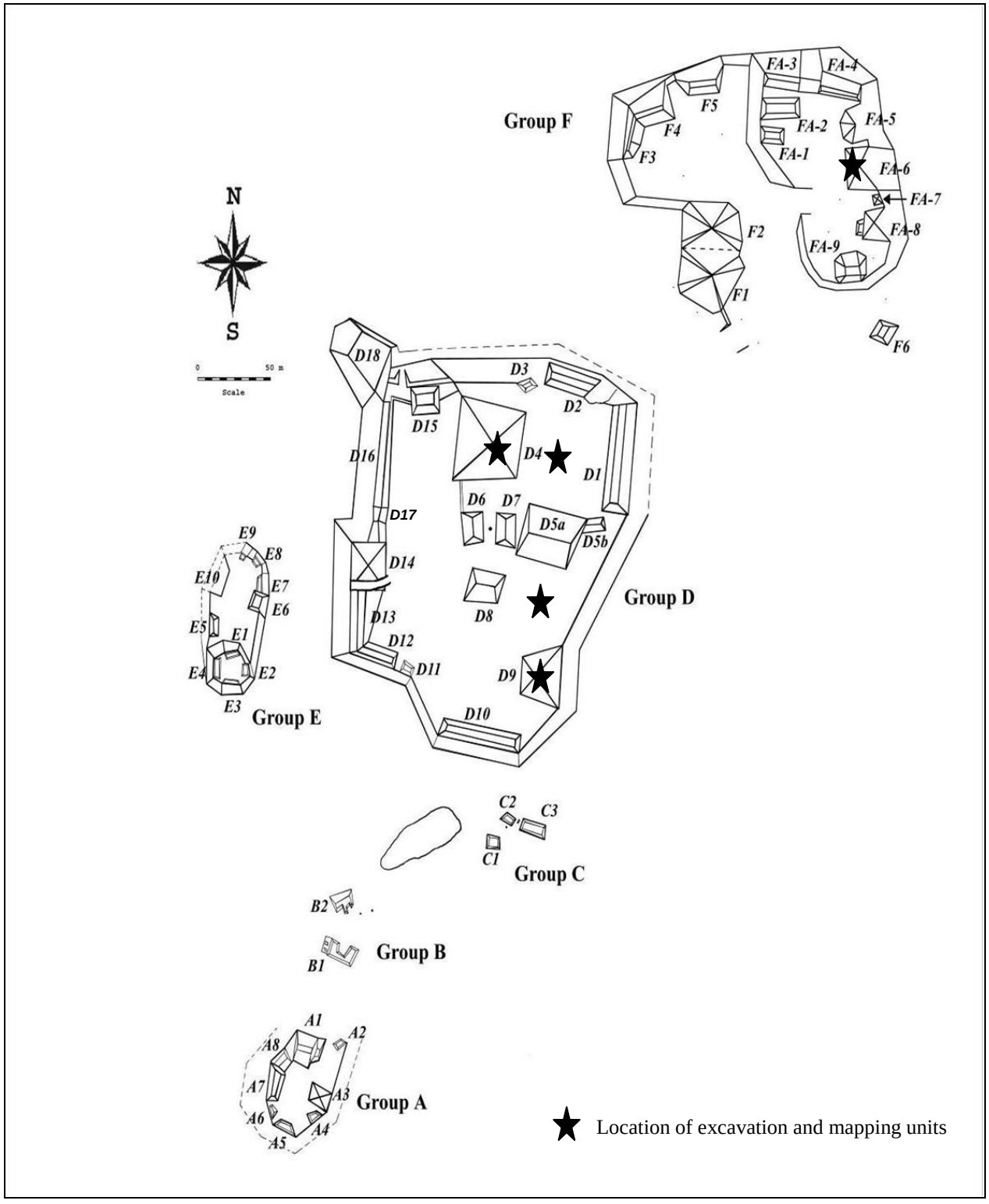

Figure 4.1. Concentration of 2010 field work in the site core (adapted from Haines 2010:35).

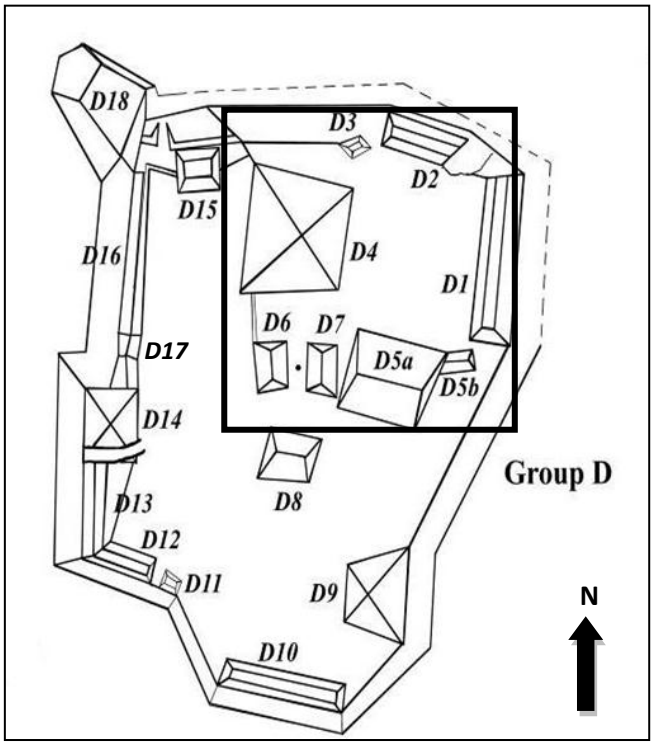

Figure 4.2. The main plaza in Group D (enclosed within square) (Adapted from Haines 2010:35).

the site occupation history (Haines 2005:6, 8).

In addition to these structures, I will also be discussing the results of the multi-unit excavation in the main plaza of Group D, referred to as Plaza D. Plaza floors visible in some of the looters' trenches in Str. D4 are thought to correlate with those uncovered in the excavation of Plaza D. It is hoped that this correlation will provide more accurate dates for the construction sequence of the structure and plaza. The second plaza excavation unit, known as Plaza D South, was opened between Structures D9 and D5. As the excavation of Plaza D South was unfinished at the end of the field season, the results will not be discussed here.

Definitions

It is important to define the various terms that I will use in this and subsequent

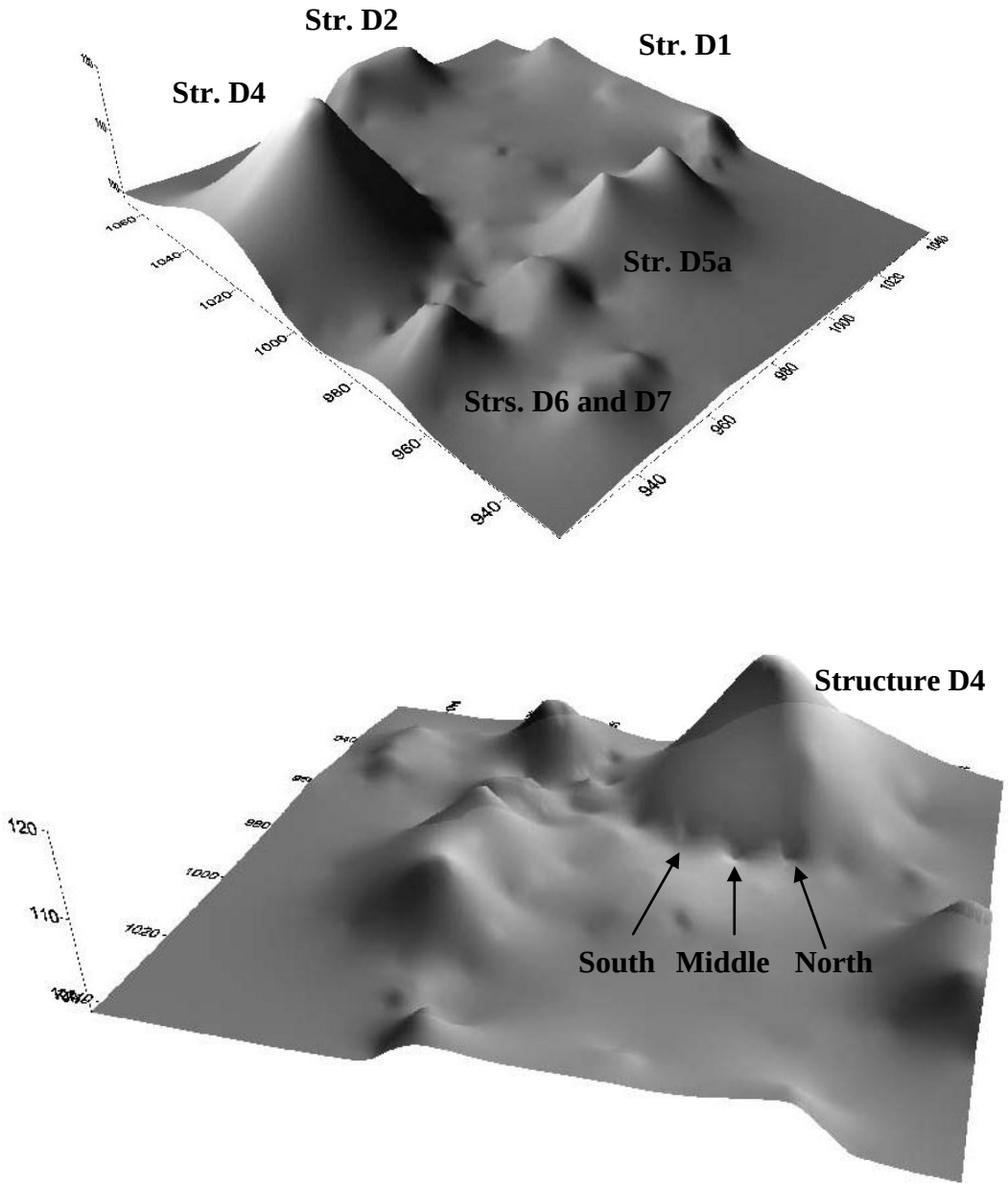

Figure 4.3. Contour map of Group D main plaza produced using a Sokkia Set 530R3 total data station. The top image is on a northeast to southeast axis, and the bottom image is on an east to west axis. The bottom image shows the three large looters' trenches, known as South, Middle, and North, at the base of Structure D4.

chapters to discuss the architecture and construction materials (following Helen Haines, personal communication 2010; Loten and Pendergast 1984; Wernecke 2005):

- Humus: Natural topsoil on the site's surface.
- Aggregate: Stone fragments mixed with clay or mortar to form concrete.
- Mortar: A cement-like adhesive for aggregate and masonry.
- Ballast: A layer of stone acting as a base for a floor.
- Plaster: A hard, fine-grained, mixture manufactured from lime used to coat surfaces such as floors and walls.
- Stucco: A term often used interchangeably with plaster (since it is also used to coat surfaces) but it is a rougher mixture, made of lime, aggregate, and water. It is often used in discussion of Bas-relief images and other decorative aspects of architecture.
- Marl: A mixed earthy substance, consisting in varying proportions of lime, clay, or sand used as an adhesive or as part of core fill (at Ka'Kabish there are different colours of marl, with different grades of inclusions).
- White Marl: A compact deposit that is white in colour with a gritty texture and clay-like hardness, and almost no inclusions.
- Grey Marl: A loosely consolidated deposit that is grey in colour with a gritty texture, and small inclusions.

Mapping

The methods used for mapping the looters' trenches were consistent across all trenches and structures. Profile maps were created for each side of the trench walls by fixing a string, line level, and tape measure to the walls. Plan maps of the trench floors were created using a string, tape measure, and directional compass. In most instances,

structural instability meant it was not possible to map the entire length of the trenches. To gain an idea of the size of the unmapped areas, a tape measure was carefully laid along the trench floor to the limits of the trench and the remaining distance was recorded. All information necessary for recording the construction of the building, as well as the dimensions of the trench, was recorded on graph paper. Notable areas of construction, such as evidence of plaster, were given extra detail. During the mapping process attention was paid not only to the quality and nature of construction materials, but to signs for the number of construction episodes. During mapping the location of interesting or potentially dateable material was recorded, before the object was removed from the building construction for the purposes of dating the construction phases.

I was responsible for drawing all structural profile and plan maps for Strs. D4 and D9, with various members of the project assisting with measuring. Since I was not a member of the Plaza D excavation team I did not personally draw the profile and plan maps but, in some instances, I did help with measurements. Therefore, all original Plaza D field maps are the work of other project members. However, I produced the final computerized maps using the original field maps. On all maps the same key has been used to indicate different construction fill to ease comparison between trenches, structures, and plaza. All maps were drawn on a scale of 1:20 cm.

Artefact Collection

The methods used for artefact collection were consistent across all investigation units (structures and excavation units). All excavated or cleared soil was screened through a ¼ inch mesh to increase the recovery of artefacts. A full collection strategy for lithic and faunal material was employed, but a partial artefact collection strategy was

employed for ceramics. This latter strategy, instructed to all project members by Aimers, was to collect only ceramic sherds that were larger than the size of a Canadian 25 cent coin. Ceramic sherds smaller than this size were not deemed to be conducive to the ceramic analysis and were not collected (unless unusual in some way, such as heavily decorated).

Artefacts were bagged in the field, divided by material, and clearly labelled with site, building, and level information. Each collection of artefacts was given a unique, site-wide lot number upon arrival in the lab (see Appendix A). Although lots generally correspond to excavation levels, discrete or unique collections of artefacts were collected separately thereby resulting in the possible assignment of more than one lot number per excavation level.

Structure D4

My research began with a focus on Str. D4, the largest building at Ka'Kabish. It is a steeply-sided pyramidal mound and appears to be the focal point of Group D. It rises approximately 21 m above the plaza floor. It lies on the west of what appears to be the main plaza group at the site, with the ballcourt (D6 and D7) to the south, a long range structure and small structure to the south-east (D5 and D5a respectively), a long range structure (D1) to the east, another range structure (D2) and a very small structure (D3) to the north-east (Figure 4.2). There is access to this plaza from both the north and south sides of Str. D4.

Eight looters trenches of various sizes and depths exist in this structure. The largest three are closest to the base, with the other five trenches located close to, or on, the summit of the structure. The largest trench, described by Pendergast (1991:89) as tall

enough for a person to walk upright in, makes visible some of the construction sequence. Ceramics collected from these trenches during the 1995 Maya Research Program (MRP) field survey indicated that the structure spans from the Late Preclassic to the Late Classic periods (Guderjan 1996:117). An examination of one of the looters' trenches by MRP reported at least three construction phases, the second earliest of which appeared to have been built on top of a cave (Guderjan 1996:117). Haines suggests that the original form of Str. D4 may have consisted of two parallel structures, between which existed a deep hole, and a succeeding construction episode then merged the two structures into one large building (Haines 2005:6).

Work at Str. D4 took place over the first four weeks, in the three large looters' trenches close to the base of the structure (as can be seen in the east-west view of Figure 4.3, and Figure 4.4). These were identified as the South, Middle, and North Trenches. Due to permit restrictions, excavation was not allowed in this structure. Consequently, work was confined to clearing the trenches of loose back dirt (using trowels and rock picks), cleaning the trench walls that had been exposed to the elements (using trowels), and mapping the cleaned trench walls. Any artefacts found during this process were recorded and collected.

South Trench

The first trench to be cleared was the South Trench. Back dirt was removed from an opening roughly 5 m x 1 m into the structure. A bullet shell casing was discovered during the clearing process (but it was later lost and therefore not recorded in the lot form). This item is probably connected to the looters, suggesting that they carried weapons during

their excavations. This highlights the danger associated with looters. After clearing, mapping took place for both the south and north walls of the trench. Due to structural instability it was not possible to map the entire length of the trench (Figure 4.4). To gain an idea of the size of the unmapped area, a tape measure was carefully laid along the trench floor to the limits of the trench and the remaining distance was recorded. Plan mapping took place for roughly 12 m of the trench while profile mapping took place for roughly 15 m (Haines took responsibility for mapping the remaining 3 m). The entire length of the trench is estimated to be 16.10 m. It ranges from 0.8 m to 4.4 m in width, as seen on the plan map (Figure 4.4).

The profile maps (Figures 4.5, 4.6) show that the outer construction was mainly large areas of white marl, in which there were large cut-stone blocks of masonry. These large stones covered a plaster surface of what appears to be an earlier construction. This interior plaster surface, on which some traces of red pigment were discovered, coats other large cut-stone masonry blocks within an area of grey marl and small-sized aggregate. The grey marl appears to have acted as a mortar for aggregate. The construction fill deeper into the tunnel was a mixture of dirt, and small to large-sized aggregate.

Middle Trench

The second trench to be cleared was the Middle Trench. Back dirt was removed from an opening roughly 2m x 1 m into the structure. Due to the fact that the looters had made this trench much deeper, it was possible to see two plaster floors in connection with the structure. Another bullet shell casing was discovered during the clearing process (Lot 60), likely associated with the looters (see Appendix C, Table C1).

This trench was the largest of the three because it ran through the entire length of the

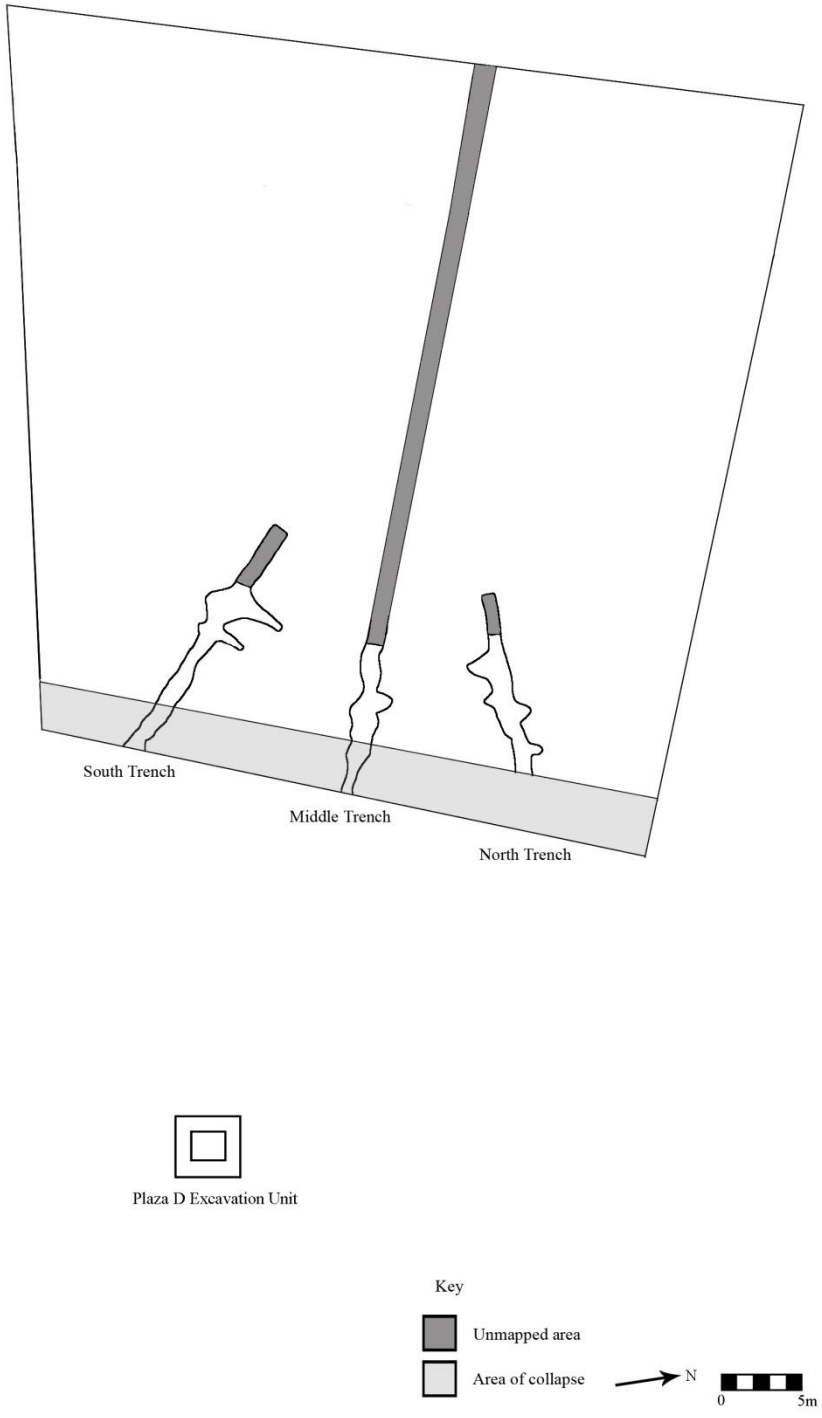

Figure 4.4. Plan maps of the South, Middle and North Trenches within Structure D4. The trenches are shown to the correct scale, shape, and orientation.

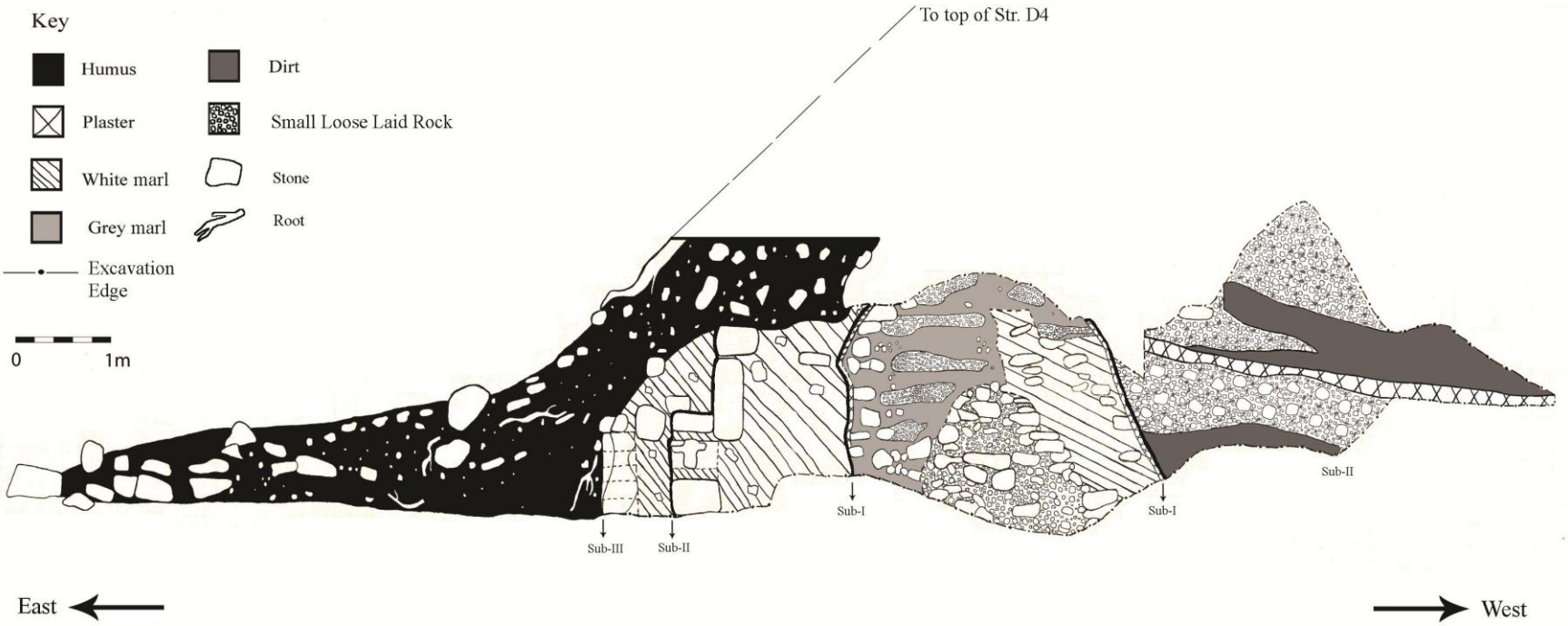

Figure 4.5. Profile map of Structure D4 South Trench, south wall.

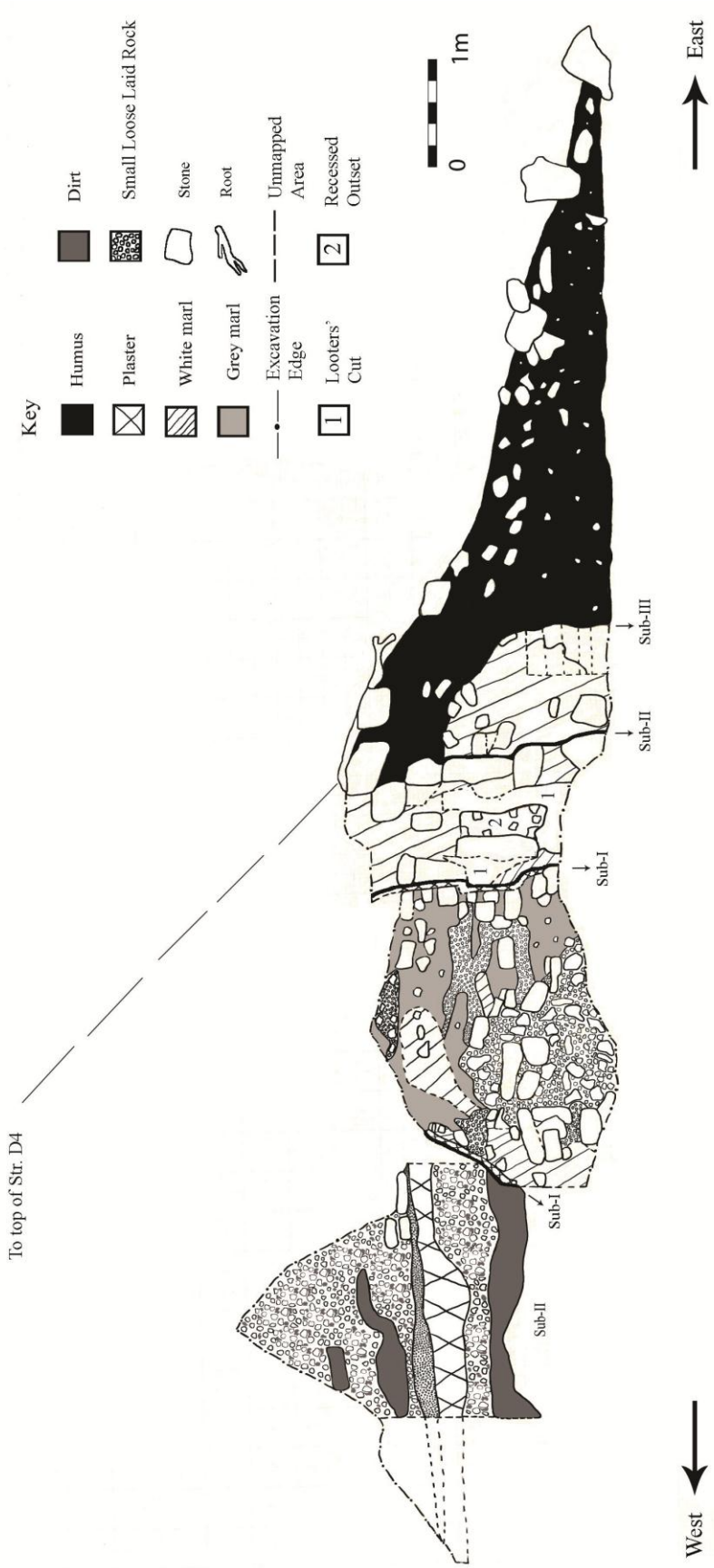

Figure 4.6. Profile map of Structure D4 South Trench. north wall

structure. However, this also made the trench the most complicated of the three in which to work because a lot of construction material near the centre of the structure had collapsed. This created a large cavern in which a great number of bats had taken up residence. Due to health and safety issues, and possible structural instability, it was not possible to map the entire length of the trench. Nevertheless, information about the rest of the construction was recorded on video camera by Haines, who investigated the west portion of the trench using the entrance on the opposite (west) side of the structure. She discovered that construction fill was similar to that seen on the east side of the structure, with no evidence of additional construction episodes to those seen on the east side.

Both the south and north walls of the trench on the east side of the structure were mapped. Information for roughly 9.5 m of the trench was recorded, as seen on the plan map (Figure 4.4). Mapping did not start at the point in which the ground level and collapse met, as it did for the South Trench, because this area was not accessible. The width does not vary as much as the South Trench, ranging from only 0.8 m to1.8 m. The profile maps (Figures 4.7, 4.8) show that the outer construction was mainly composed of large amounts of white marl, in which there were large cut-stone blocks of masonry. This white marl covers a thick plaster surface of what appears to be an earlier construction. This plaster surface coats other large cut-stone masonry blocks within an area of grey marl and both small and large aggregate. Again, as in the South trench, the grey marl appears to have acted as a mortar for aggregate. There is another thick plaster surface deeper into the tunnel, coated by large aggregate. This plaster surface coats another area of grey marl with large aggregate.

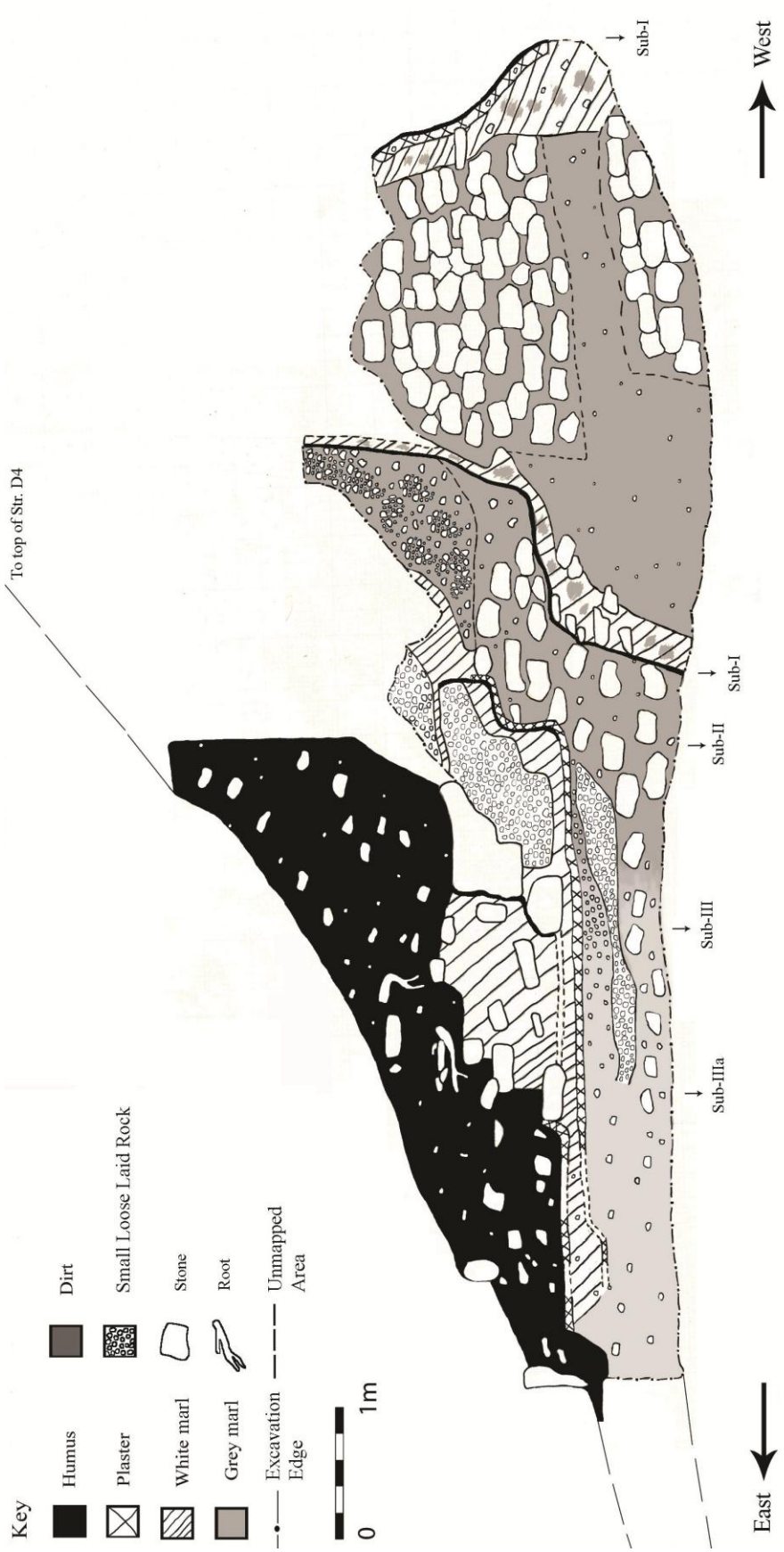

Figure 4.7. Profile map of Structure D4 Middle Trench, south wall

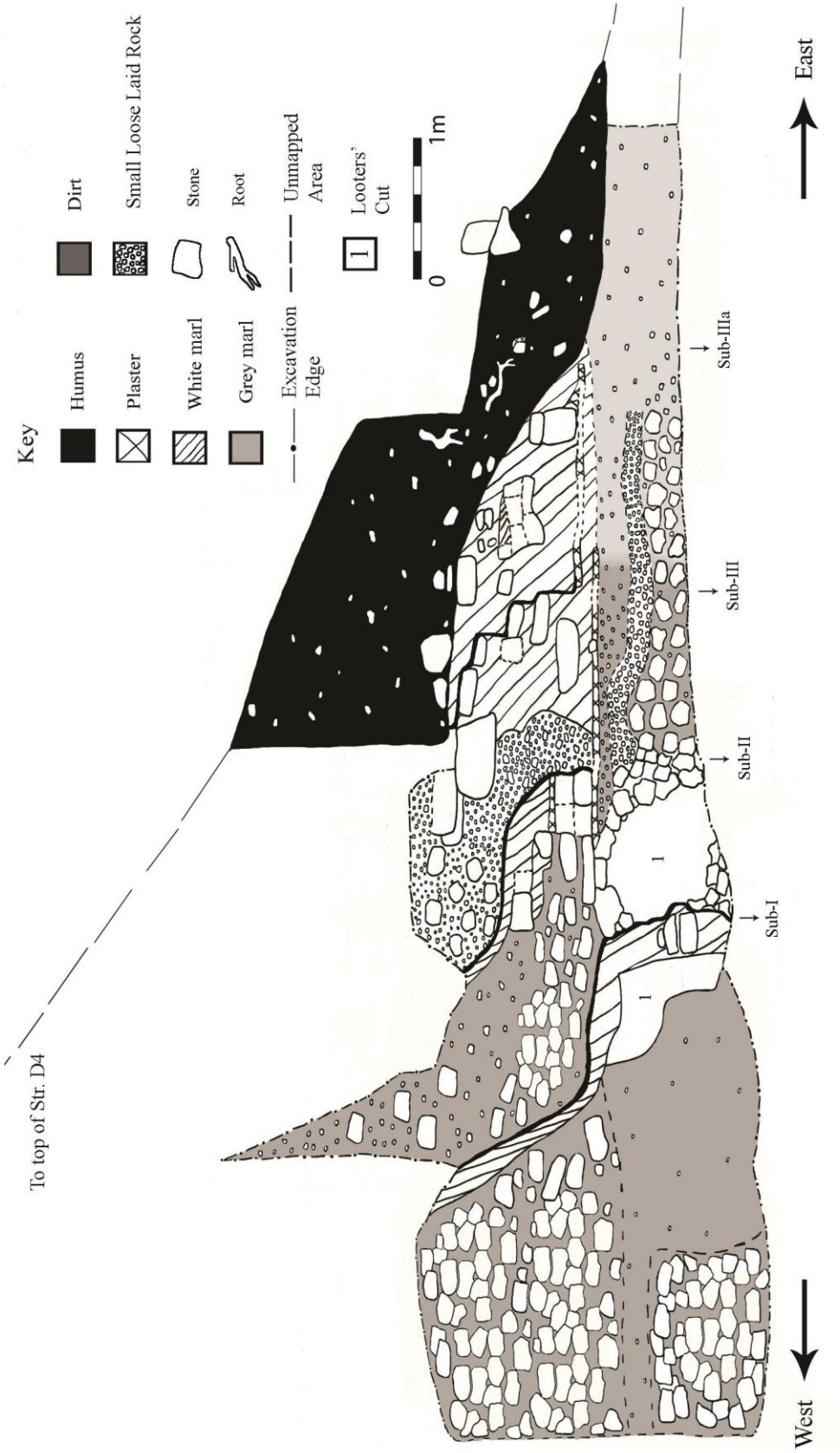

Figure 4.8. Profile map of Structure D4 Middle Trench, north wall

North Trench

The last trench to be cleared was the North Trench. Back dirt was removed from an opening roughly 1 ½ m x 1 m into the structure. After clearing, mapping took place for both the south and north walls of the trench. Due to structural instability, it was not possible to map the entire length of the trench. Profile and plan mapping took place for roughly 8.6 m of the trench, although the trench is estimated to be 12.3 m long. It ranges from 0.85 m to 2.4 m in width, as seen on the plan map (Figure 4.4). The trench is the smallest of the three in terms of height. As with the Middle Trench, mapping did not start at the point in which the ground level and collapse met, because this area was not accessible.

The profile maps (Figures 4.9, 4.10) show that the outer construction was mainly large areas of white marl, in which there were large cut-stone blocks of masonry. This white marl covers an area of grey marl. Within the grey marl was both small aggregate and large cut-stone masonry blocks. As with the other trenches, the grey marl appears to have acted as a mortar for aggregate. It covers a plaster surface, which appears to be an earlier construction. Behind this plaster surface was white marl coating an area of grey marl, which contained both small and large aggregate.

Observations

Based on observations gained from the looters' trenches, Str. D4 appears to have had at least three different construction episodes, which have been labelled Sub-I, Sub-II, and Sub-III. The numbers correspond to temporal constructions, with Sub-I referring to the earliest construction, and Sub-III to the latest (or most recent) construction. It is possible that there is a fourth, later, construction under the humus layer that was not visible during

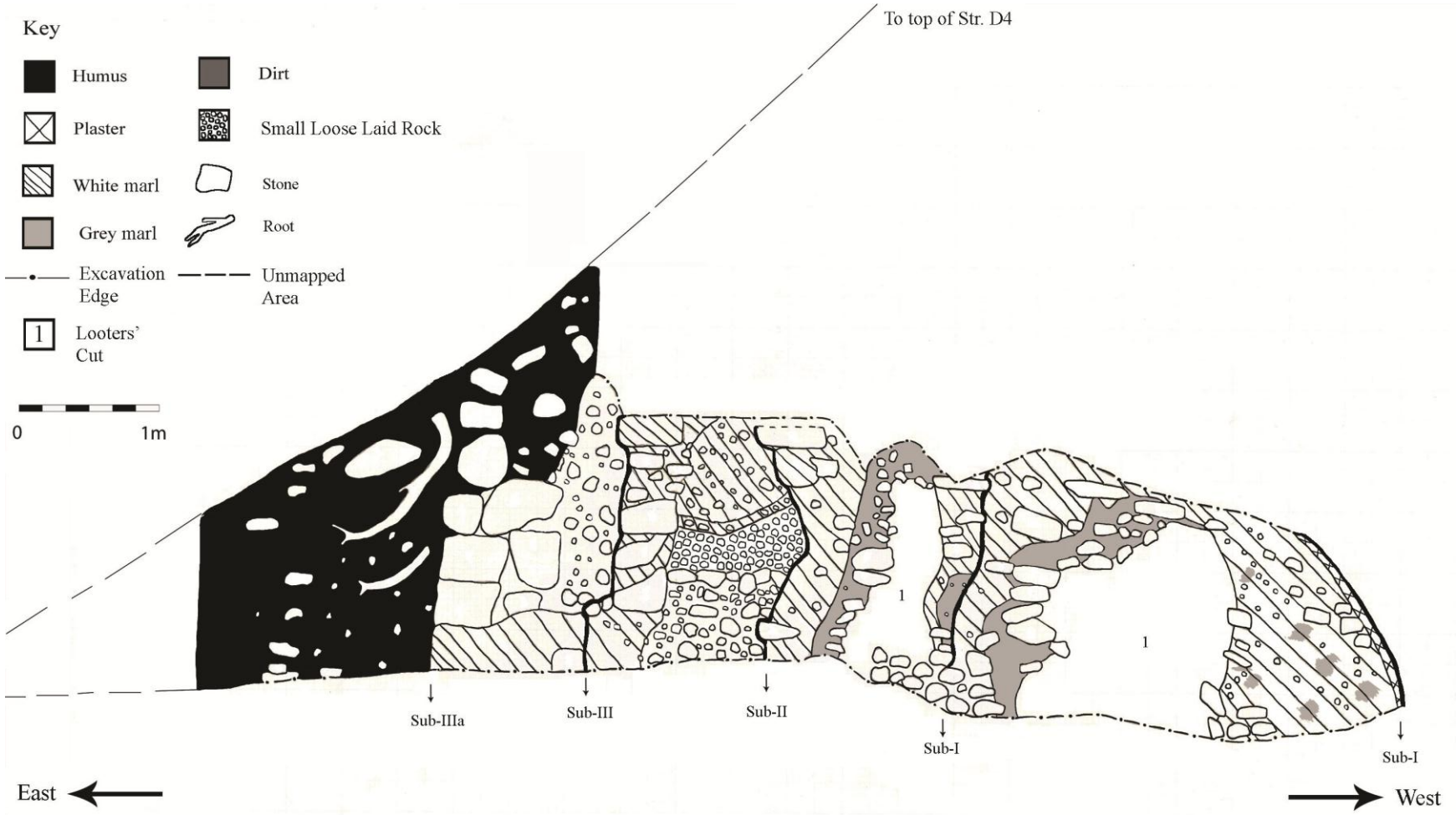

Figure 4.9. Profile map of Structure D4 North Trench, south wall

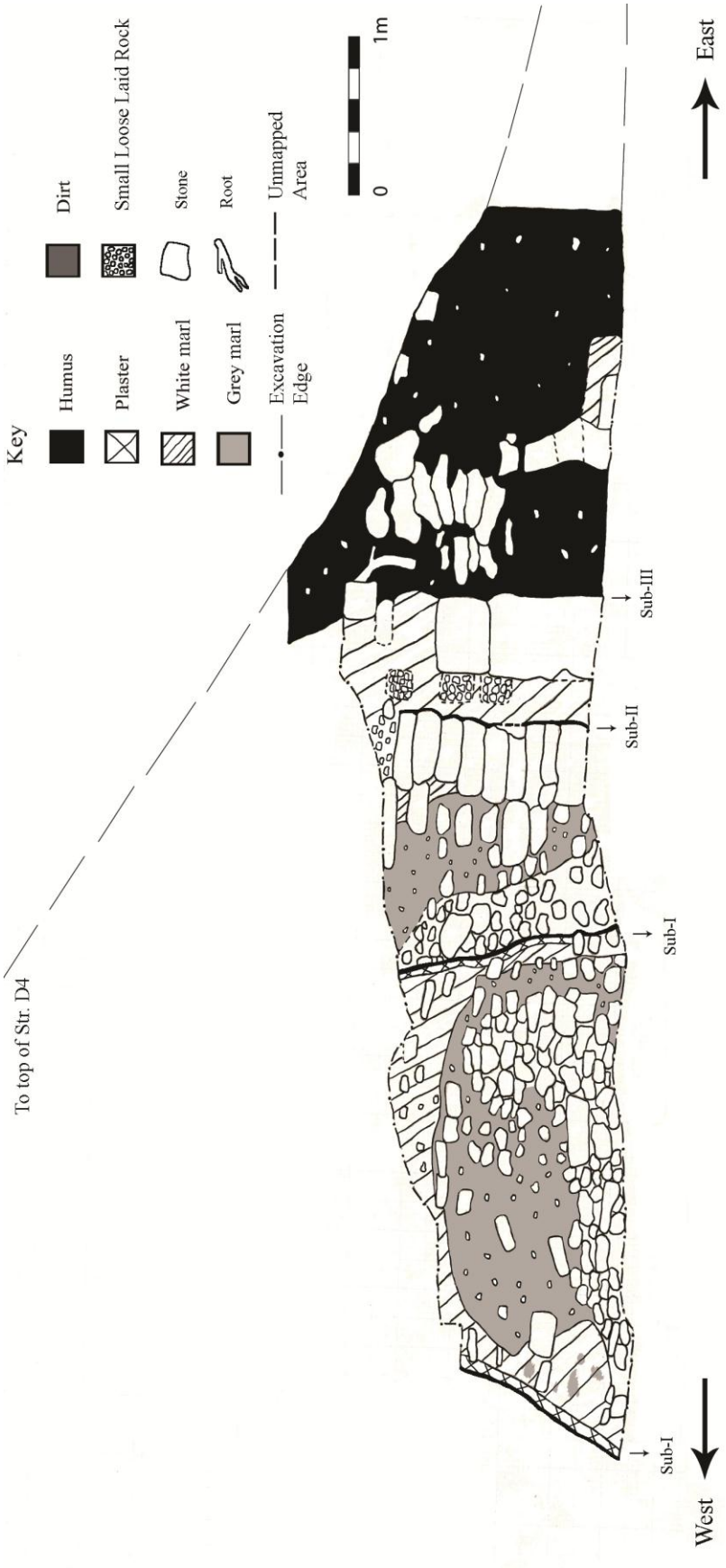

Figure 4.10. Profile map of Structure D4 North Trench, north wall

the profile mapping, but this seems unlikely (it is more likely that collapse and looters' backfill are mixed into the humus layer).

It appears that Sub-I was a fairly modest-sized structure, and is clearly visible in the profile maps by thin coatings of plaster atop a thick wall of marl. The construction of Sub-I consists of small to large aggregate mixed predominately with grey marl. This aggregate and marl appear to have been enclosed with large cut stones, and then covered in a layer of thin plaster. In the South Trench traces of red pigment were discovered on some parts of the plaster surfaces, corresponding with this construction.

The profile of Sub-I in the South Trench suggests that the frontal face of this construction (facing onto the main plaza) may have originally included apron and subapron mouldings (Figures 4.11 and 4.12). An apron refers to an outset upper portion of a structure's frontal profile, while a subapron refers to the lower inset portion (Loten and Pendergast 1984:3).

Sub-II was a much larger construction and expanded Str. D4 in terms of size, but the bulk of construction appears to have been on the west side of the structure. This suggests that the structure expanded in a westerly direction and only minimally in an easterly

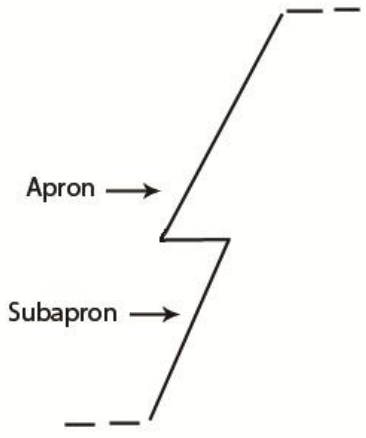

Figure 4.11. Example of an apron and subapron.

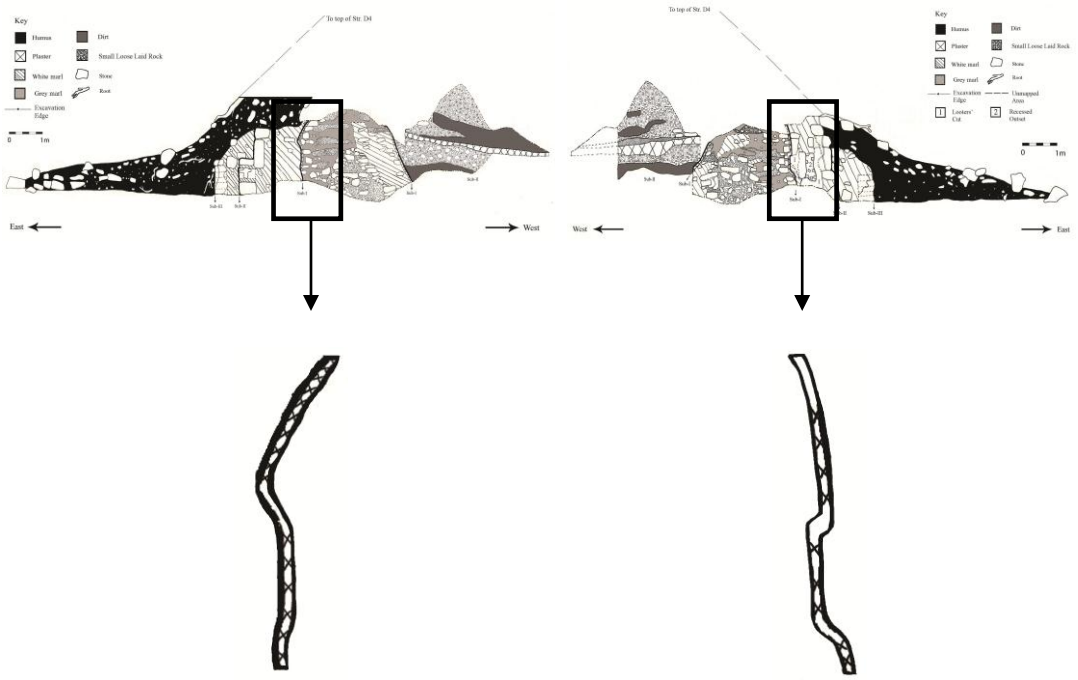

Figure 4.12. Possible apron and subapron plaster surfaces of Sub-I, as seen in the South Trench north wall (left) and south wall (right) profiles.

direction. The implications of this are discussed in Chapter six. At the eastern side of the structure, Sub-II consists of small to large aggregate held together with grey marl, which was then coated with white marl. At the western side of the structure construction material consists of layers of dirt, and small to medium sized aggregate held together in places with grey marl. Evidence for a plaster floor associated with Sub-II can be seen in the South Trench profiles. Evidence for a stair associated with this structure can be seen in the profile maps of the Middle Trench (see Figure 4.13).

The divide between Sub-II and Sub-III is only visible at the eastern ends of the profile maps, where the latter appears to have increased the size of Str. D4 with large cut

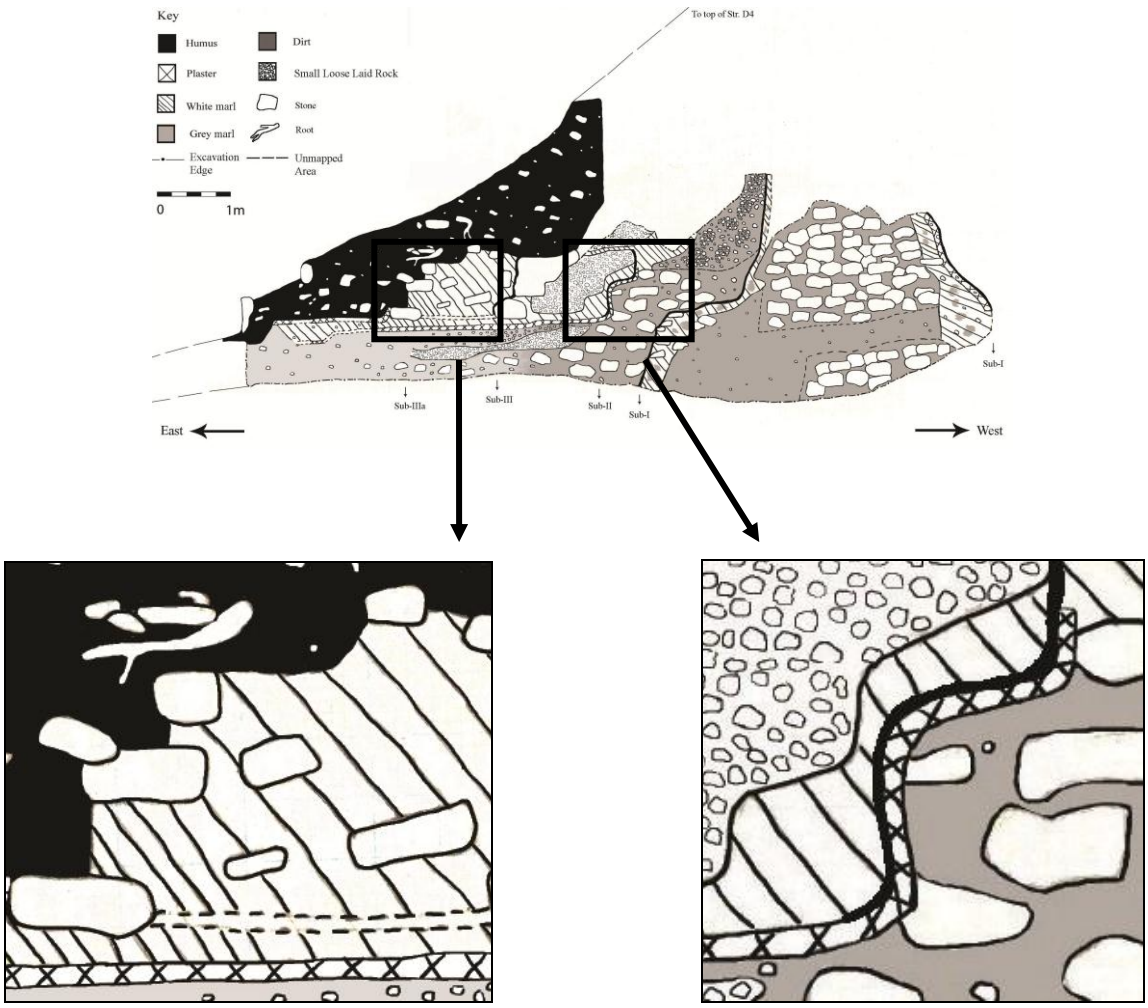

Figure 4.13. Evidence of Sub-IIIa stair (left), and Sub-II stair (right) in the profile of Structure D4 Middle Trench, south wall.

stones and small to medium sized aggregate, layered with white marl. This divide can clearly be seen in the Middle and North Trench profiles, but not the South Trench profiles. The Middle Trench and North Trench (south wall) profiles show evidence for what appears to be part of the Sub-III stair, since there is an extended area of white marl, and it has been distinguished by applying the term Sub-IIIa (see Figure 4.13).

Points of measurements were recorded for each construction during the mapping

process. When these are plotted onto the plan map, the position of each construction can be seen (Figure 4.14). When the position of trenches is removed from this plan map, it results in an even clearer image of the position of each construction (Figure 4.15). There are two measurements for Sub-I because both the east and west plaster walls were plotted, but the west plaster walls of Sub-II and Sub-III were neither accessible nor visible. The outset stair associated with Sub-III is clearly visible with the latter image, and shows a stair side and stair-side outset (see Loten and Pendergast 1984 Figure 5). Although the images do not show the increase in structural size on the western side of the structure, it does show that the structure increased minimally in size on the eastern side of the structure during the second and third construction episodes.

Plaza D

Plaza D was selected for excavation in order to investigate the chronology of the occupation at Group D, and possibly even the entire site— if the largest plaza at Ka'Kabish was the first area of occupation (which is true for some other sites in the Maya Lowlands such as Aguateca [Inomata 2006a:818]). Before excavation began, the entire plaza area was cleared of dense vegetation. An area measuring 4 m x 4 m was set up for excavation, with the intention of stepping the unit in to 2 m x 2 m for safety reasons as the excavation deepened. This area was roughly in line with the Middle Trench of Str. D4 (see Figure 4.4). The initial 4 m x 4 m excavation unit was split into four quadrants, labelled by their direction: northwest (NW), northeast (NE), southwest (SW), and southeast (SE). Both trowels and rock picks were used for excavation. The unit was dug in cultural and natural stratigraphic levels, following distinct soil and architectural layers.

Profile and plan maps were drawn prior to when the 4 m x 4 m unit was stepped in,

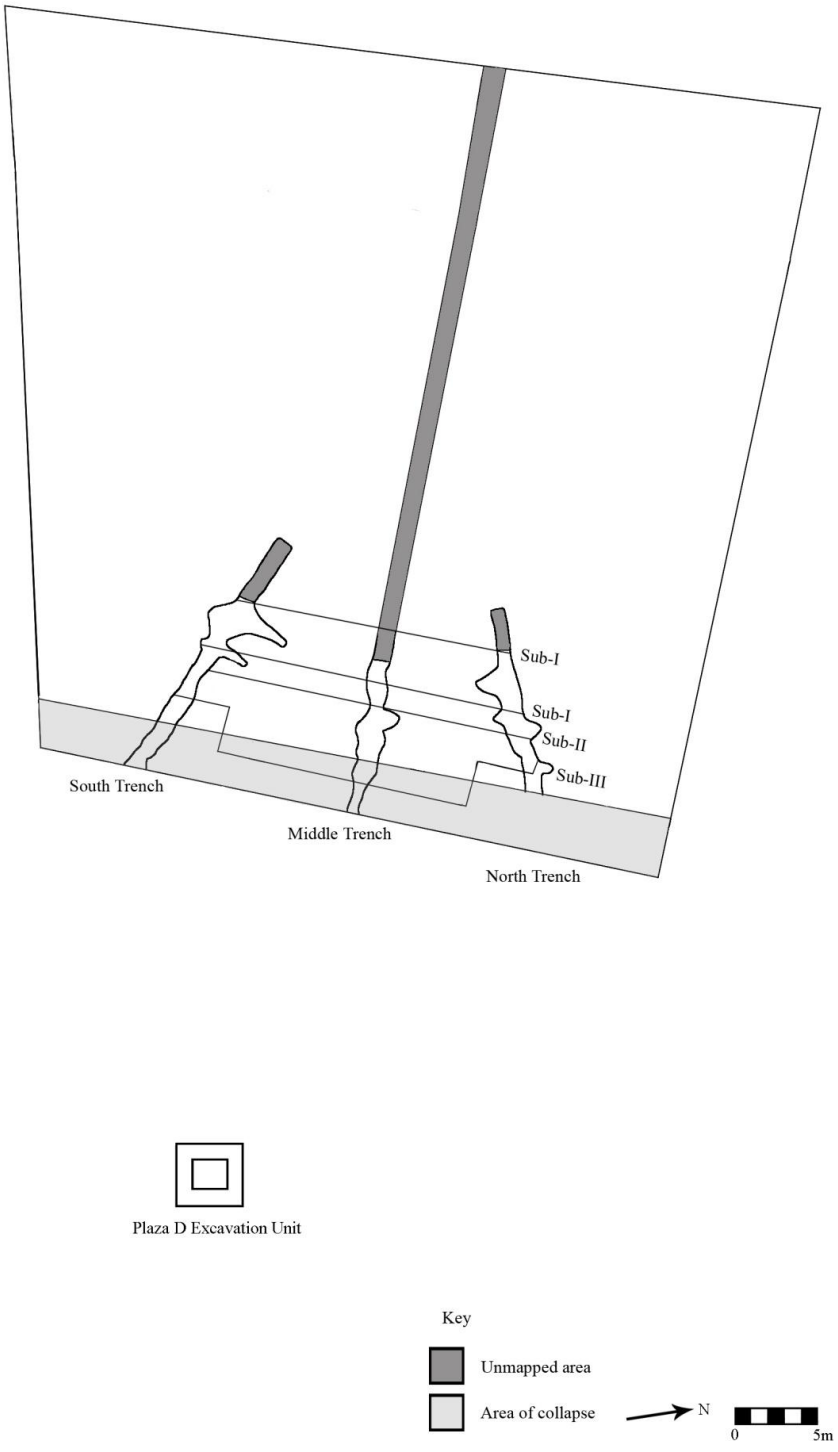

Figure 4.14. Measurements of Sub-I, Sub-II, and Sub-III imposed on top of the plan map.

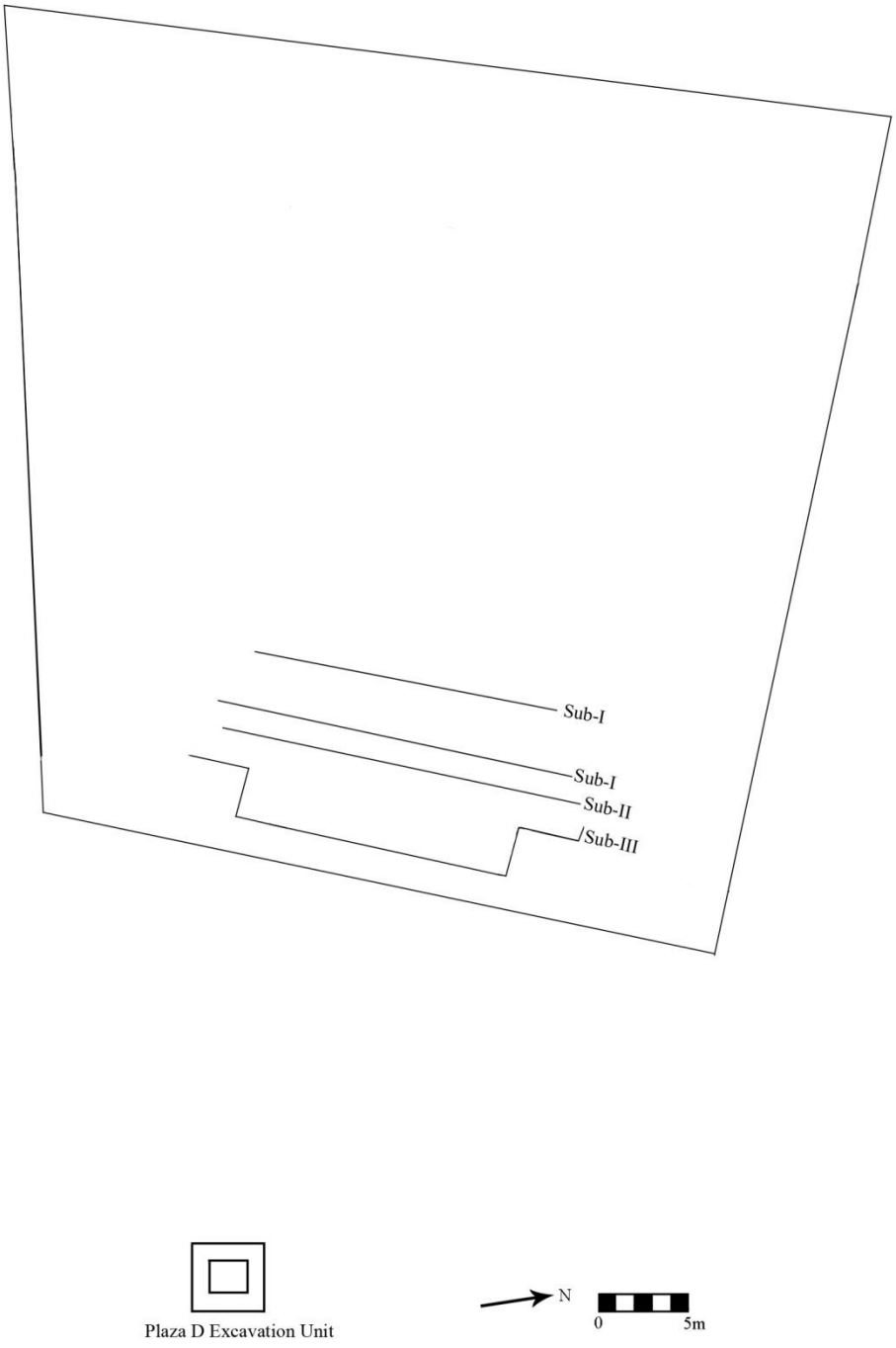

Figure 4.15. Measurements of Sub-I, Sub-II, and Sub-III imposed on top of the plan map, with the position of trenches removed. The image clearly shows the outset stair of Sub-III.

and when the 2 m x 2 m unit reached bedrock. Both the north and east unit walls were mapped. I have used the north wall as an example because this wall can be later aligned with the north wall profile in the Middle Trench of Str. D4 (since the two exposed plaster floors in this trench are thought to correlate with some plaza floors).

In total, eight plaster floors were uncovered before the excavation unit reached bedrock (Figure 4.16). Roman numerals have been used to correspond to temporal constructions, as were used for Str. D4, with Plaza D-I referring to the earliest construction, and Plaza D-VIII to the latest (or most recent) construction.

Plaza D-VIII

The first plaster floor was encountered at 20-30 cm below the surface (Level 2). This floor was poorly preserved, and was only partially encountered in the NE and SW units. Below this floor were layers of sub-flooring construction aggregate and both small and large rock ballast.

Plaza D-VII

When a second plaster floor was encountered the unit was stepped in, create a 2 m x 2 m unit, 130 cm below the surface (Level 5). This plaster surface was poorly preserved and sat immediately atop an earlier plaster surface, which was 130-140 cm below the surface (Level 6). The earlier plaster floor was well preserved, in comparison to its later re-plastering, and measured 6-8 cm in thickness. Below this floor was sub-floor construction, consisting of fist-sized ballast and a layer of black soil.

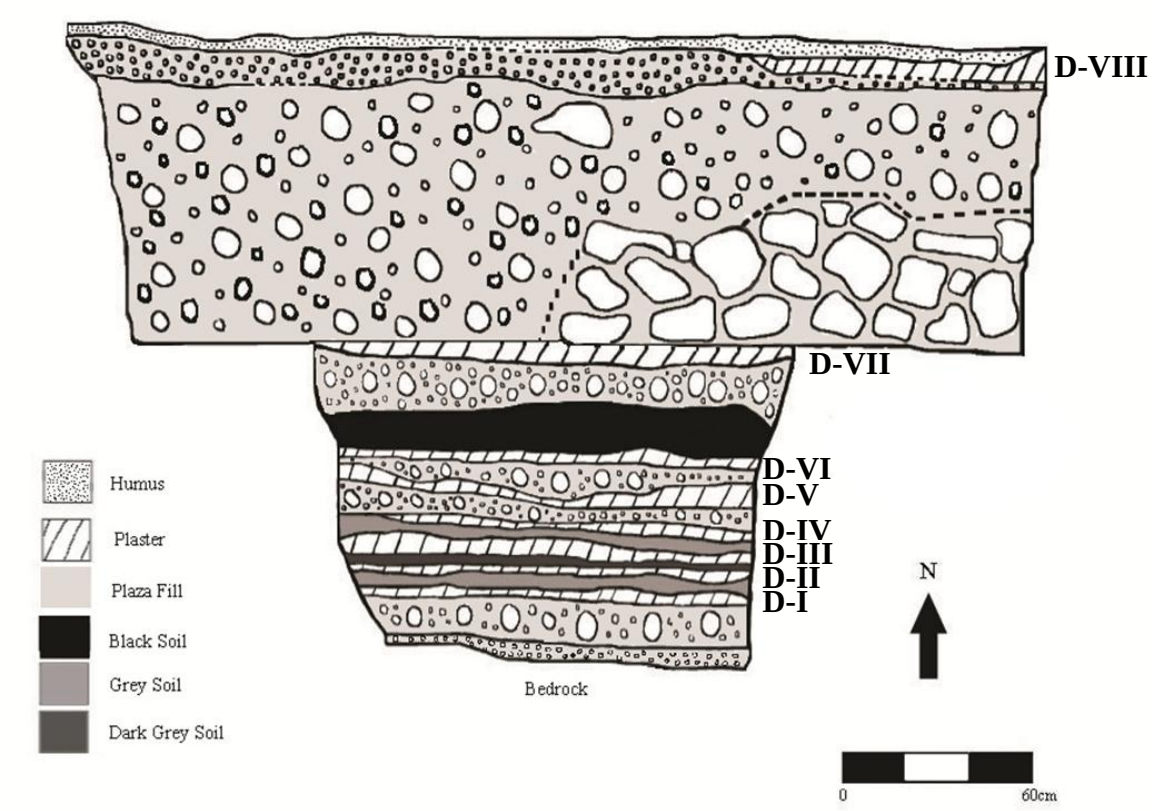

Figure 4.16. Profile map of Plaza D excavation unit, north wall.

Plaza D-VI

At a depth of 170 cm below the surface, a third plaster floor was encountered (Level 9). It was well preserved, with a thickness of 4 cm. Below this floor was a layer of sub-floor construction, consisting of fist-sized ballast.

Plaza D-V

A fourth plaster floor was encountered at a depth of 180-190 cm below the surface (Level 12). It had been re-plastered, but both the re-plastering and floor itself were poorly preserved and not encountered across the entire unit. The floor, where

visible, measured 4-8 cm in thickness. Below this floor was a layer of sub-floor construction, consisting of fist-sized ballast.

Plaza D-IV

At a depth of 195-200 cm below the surface a fifth plaster floor was encountered (Level 14). It was well preserved and measured 2-4 cm in thickness. Below this floor was a thin layer of grey soil.

Plaza D-III

A sixth plaster floor was encountered at a depth of 205-210 cm below the surface (Level 15). It was well preserved with traces of red pigment, and measured 6-8 cm in thickness. Below this floor was a thin layer of dark grey soil.

Plaza D-II

At a depth of 215 cm below the surface a seventh plaster floor was encountered (Level 16). It was well preserved and measured 2-4 cm in thickness. Below this floor was a thin layer of grey soil.

Plaza D-I

The final plaster floor was encountered at a depth of 225 cm below the surface (Level 17). The floor was the best preserved of all the floors and measured 4-6 cm in thickness. Below this floor was sub-floor construction consisting of fist-size ballast and small aggregate with dirt. The excavation continued until reaching bedrock at 240-250 cm below the surface (Level 21).

Observations

A total of eight plaza floors were revealed during the excavation. Between Plaza D-I and D-IV the subfloor materials consists of thin layers of soil. Starting at Plaza D-V, the layers of construction fill begin to get thicker. This reflects the beginning of an increase in construction in the plaza during this time. The implications of this increased investment in construction will be discussed in Chapter six.

Structure D9

Lying on the southeast corner of Group D, Str. D9 is the second largest building in the group (Figure 4.1). Like Str. D4, it is a large pyramidal mound, rising approximately 8.5 m above the plaza floor. It is situated to the southeast of Str. D4, at the southern limits of Group D. It lies to the east of Group D, on the limits of a large platform, with a long range structure (D10) to the southwest and a small range structure (D8) to the northwest. Str. D9 is accessible from the north, south, and west sides of Group D.

Two looters' trenches exist in this structure. One is a shallow trench in the upper east corner near the summit, and the other is a large tunnel on the west side about halfway up the structure. Work at Str. D9 took place over the last two remaining weeks of the field season. Mapping took place for the large looters' trench, and excavation took place on the stair of the structure. A permit extension from the Institute of Archaeology in Belize allowed excavation of this structure due to the recent looting that had taken place prior to the field season.

Excavation

The area of excavation was roughly 9 m x 2 m, on a slope of about 60°. Both

trowels and rock picks were used for excavation. Excavation began by removing the humus layer (Level 1). In this layer wax candles (Lot 128) were recovered (see Appendix E, Table E1). These items are probably connected to the looters, and suggest that they worked at night— presumably to avoid detection. Below the humus layer was a layer of white fine construction fill (Level 2), in which the stair began to be exposed (Level 3). The latter two levels were classified as "collapse" because they are assumed to be mainly layers of collapse from the areas of higher elevation, as well as containing some backfill from the looters.

On exposure of the stair at the base of the structure, another looter's trench was discovered running underneath the plaza floor (originally reported in the 1996 MRP report, but had been obscured by fallen dirt from the looters). Haines investigated this trench and noted that at least seven plaza floors were visible within a depth of 1.75 m.

Mapping

Profile mapping began on the north wall of the looters' trench while excavation took place on the stair. Time constraints meant that only one trench wall could be mapped. This mapping took place for the north wall of the trench. Due to the visible near identical construction on the south wall, I am confident that I have captured the construction details to allow an interpretation of the construction events.

Profile and plan mapping took place over a distance of roughly 18 m. Due to structural instability it was not possible to map the entire length of the looters' trench. The area mapped ranged from 0.6 m to 2.45 m in width, as seen on the plan map (Figure 4.17) The profile map (Figure 4.18) shows that the construction material is similar to that of Str. D4, with small to large aggregate, and both white and grey marl.

Observations

Based on the visible architecture, Str. D9 is believed to have had four different construction episodes. These have been labelled Sub-I, Sub-II, Sub-III and Sub-IV. The roman numerals correspond to temporal constructions with Sub-I referring to the earliest construction, and Sub-IV to the latest (or most recent) construction.

Sub-I is the most ambiguous construction because it consists of a very thick plaster surface (roughly 60 cm), which is unusual for ancient Maya architecture. Plaster floors of similar thickness dating to the Preclassic have been reported elsewhere (Hansen 1992:74). Therefore, it is not unreasonable to suggest that this could represent a plaster floor associated with the earliest construction. Because of its unusual nature and the amount of plaster devoted to it, it may represent an important type of construction. Although the category of architecture is unknown, it will be treated as the earliest construction of Str. D9 and its possible significance will be discussed in Chapter six.

A recent looters' hole exposed the construction beneath Sub-I. At the bottom of this hole is evidence for another plaster surface. This could be an earlier plaster floor, or perhaps even an earlier construction. Due to the depth of the looters' hole it was not possible to clear or excavate this feature any further. Because of the limited evidence available, it will not be discussed in further detail.

Above Sub-I is the construction of Sub-II, which appears to have included at least part of a stair. Sub-II appears to have been re-plastered or re-modelled, and the two phases have been distinguished by applying the terms Sub-IIa and Sub-IIb. The former refers to the earliest construction, and the latter to the later re-plastering/ re-modelling. The construction of Sub-IIa consists of small to large aggregate coated in places with grey marl. There is evidence of five plaster floors within the construction of Sub-IIa (Figure

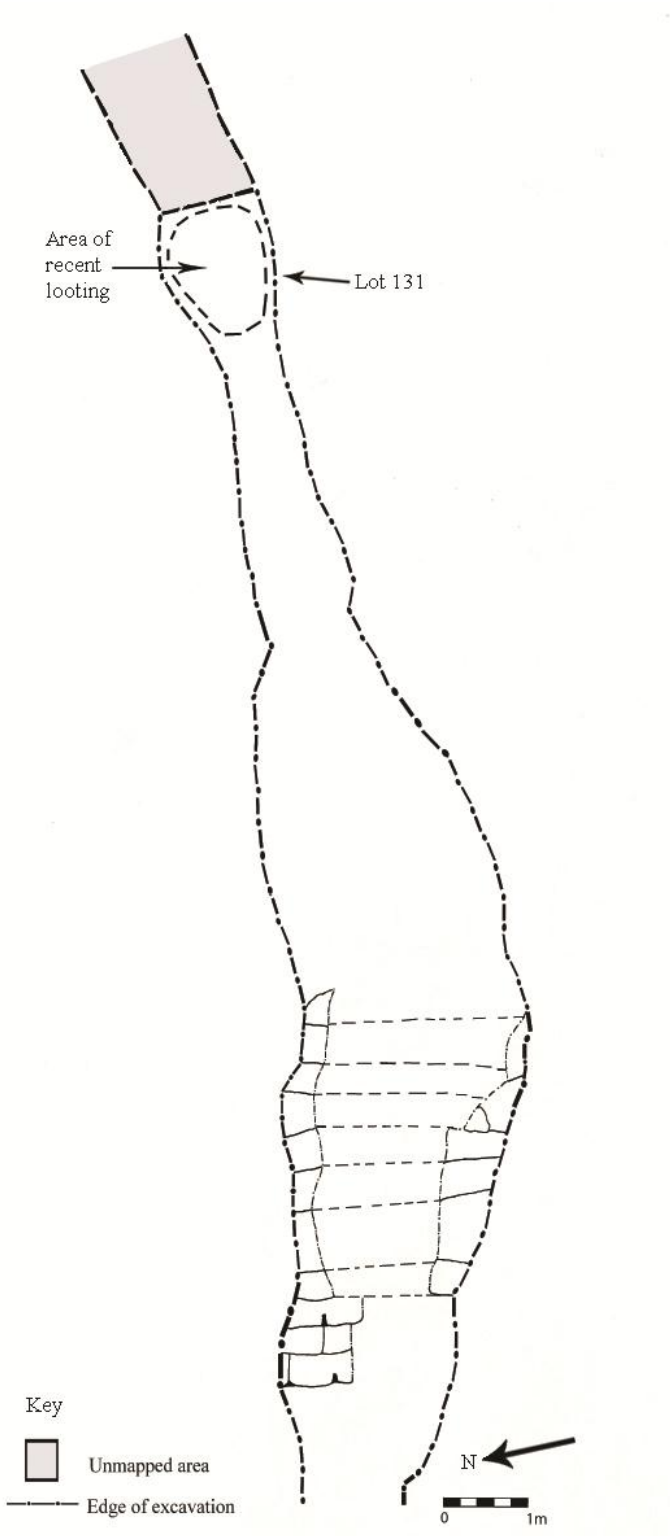

Figure 4.17. Plan map of Structure D9 looters' trench. The stair on either side of the trench has been joined by dotted lines (Lot 131 is discussed in Chapter five).

Figure 4.18. Profile map of Structure D9 looters' trench, north wall

4.19). The first appears to have been laid atop a subfloor. There is evidence of burning below this subfloor, the implications of which will be discussed in Chapter six. The first plaster floor was later re-plastered, and was likely originally connected to the plaster floor which connects to the surface of Sub- IIa. The profile map shows an area of grey marl between the two, suggesting that the looter's destroyed part of this area. The second plaster floor was re-plastered a further three times. Subsequent to these re-plasterings, Sub-IIb was constructed.

Sub-IIb consists of a layer of white marl, atop the stairs of Sub-IIa, suggesting that this is a re-plastering or re-modelling rather than a large expansion of the structure. The plaster associated with the surface of Sub-IIb is separated from the re-plasterings of Sub-IIa by a layer of grey marl. Prior to the recent looters' hole being created, Haines (2007:13) had noted the presence of what appeared to be either human or faunal remains within this construction. The looters' seem to have disturbed and/or removed these remains during the digging of the recent looters' hole.

Sub-III also appears to have included at least part of a stair, based on the stepped portions of thin plaster visible in the profile map. These plaster surfaces appear to be extended in distance, leading towards the steps. Sub-III is distinguished from Sub-II by a thick layer of grey marl and small aggregate. There is no evidence of re-plastering of this construction.

Sub-IV construction is the latest construction and corresponds with the excavated, final, stair of Str. D9. It consists of small to large aggregate coated in places with grey mortar marl. Two plaster floors corresponding with this construction have been exposed by the looters. Small and medium sized aggregate separate these floors, and perhaps originally connected to the Sub-IV staircase.

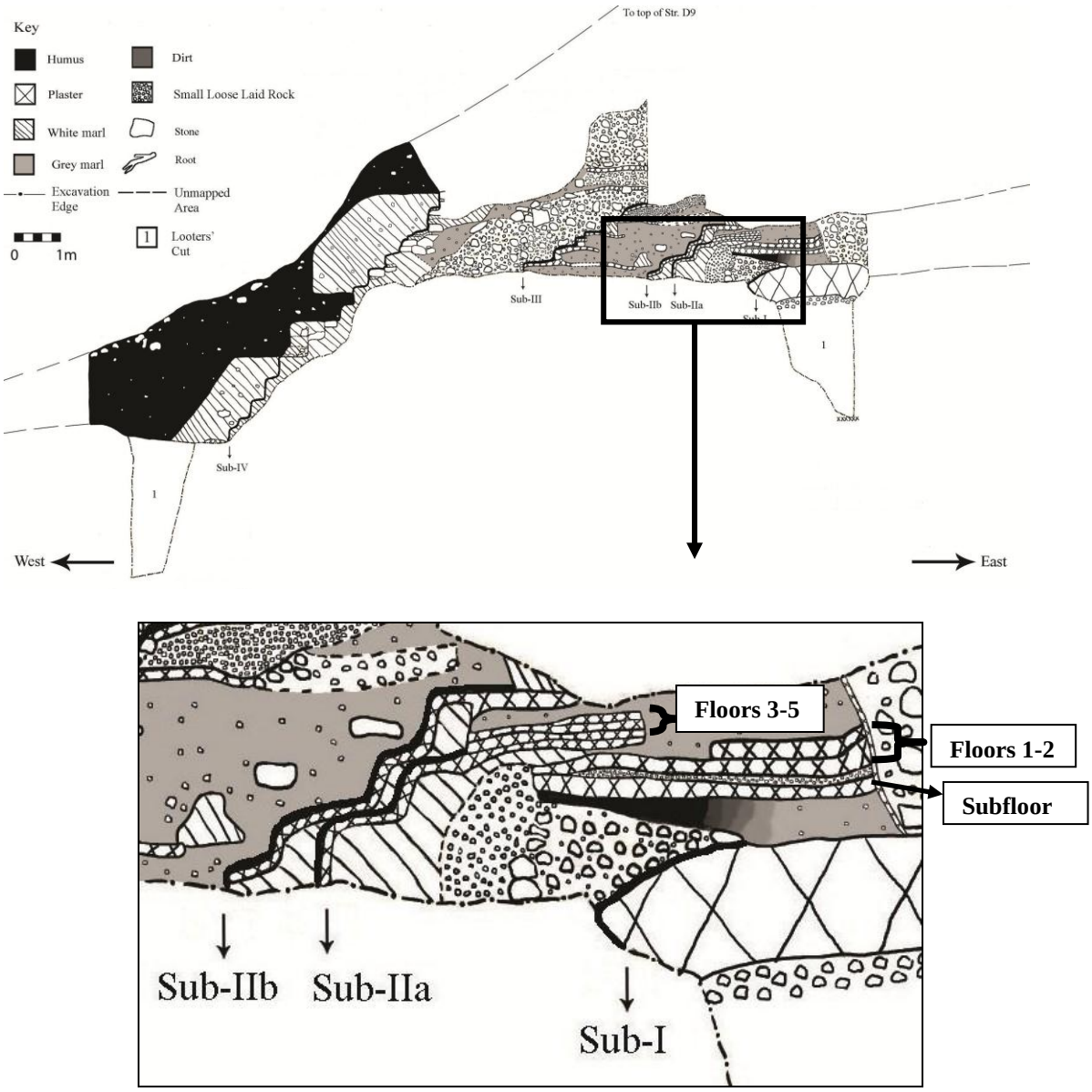

Figure 4.19. Plaster floors associated with Structure D9 Sub-IIa.

Excavation revealed 13 (possibly 14) steps on the stair of Sub-IV. Only 11 of these were mapped on the plan map because the nature of the looters' trench did not allow for these to be accurately measured (the south side of the stair was not fully uncovered due to safety reasons). The stair bears evidence of a layer of white stucco marl and aggregate on two of the steps on the northern side of the structure. If this was evidence for re-

plastering, these layers would be seen on more than two steps. Therefore, this is more likely to be evidence for a stair block (the looters appear to have destroyed the remaining evidence). Stair blocks are a type of platform set in or on a stair (Loten and Pendergast 1984:13). Examples of stair blocks in northern Belize can be seen on Structure B-4 2nd A at Altún Ha (Pendergast 1979b Fig.30) and Structure N10-9 in the Late Classic at Lamanai (Loten 2006 Fig.8.3).

Summary

The excavation of Plaza D, and the clearing and mapping of looters' trenches in Strs. D4 and D9 have revealed the quantity and quality of construction episodes. When combined with the results from the artefact analysis (Chapter five), this will allow for an understanding of building chronologies. When combined with the established building chronology, the socio-political organization at Ka'Kabish (and how this may have changed over time) will be better understood.

Recording notable areas of construction within the looters' trenches of Str. D4 allowed the position and form of the various constructions to be reconstructed, notably the outset stair of Sub-III. Although this does not show the increase in structural size on the western side of the structure, it does show that the structure increased minimally in size on the eastern side (the implications of which are discussed in Chapter six). Overall, the use of the looters' trenches at Ka'Kabish emphasizes their value to archaeology and demonstrates that they can be used to enrich the archaeological record.

Chapter Five: Artefact Analysis and Results

Artefact analysis took place on weekends during the 2010 field season at Ka'Kabish. Each graduate student was responsible for sorting, analysing, drawing, and entering data for all material from their specific area of investigation. The exception to this was the analysis of ceramics, all of which was undertaken by the project ceramicist. Drawings were made only for "special finds", which were particularly unusual artefacts based on their large size, shape, decoration, or contextual location.

Ceramic Analysis

Aimers, the project ceramicist, analysed all ceramic material from the 2010 field season. He also analysed all material from the 2007 season, some of which has been included in my discussion below. In preparing for the analysis various project members assisted him by identifying and counting diagnostic and non-diagnostic sherds. Non-diagnostic sherds consisted mostly of unslipped and undecorated ceramic fragments. Only diagnostic sherds were used for the final analysis, since these were most useful for achieving the aims of the project (which was to establish a chronology for the site). Aimers (2010:1) used a type variety-mode classification to place the diagnostic sherds into classes of wares, types, groups, and varieties. These terms are defined below.

- Ware: The general surface treatment of a ceramic
- Type: Groups of ceramics that share specific characteristics (Gifford 1976:9)
- Group: The collection of types into larger groupings of related types that have significance for broad regional comparisons (Kosakowsky 1987:8)

- Variety: No variety exists apart or separately from a type. Each variety of a type may be distinguished from all others in the manner of one single attribute, or a small number of characteristics (Gifford 1976:10)
- Mode: Individual feature or attribute such as temper, rim profile, surface colour (Gifford 1976:11)

Type-variety analysis is a concept that makes it possible to compare ceramics of different temporal periods throughout the Maya subarea (see Smith *et al*. 1960). Types and varieties consider combinations of attributes, whereas modes are useful for looking at specific single attributes or features (Gifford 1976:8). To assist with the classification, Aimers referred to type-variety descriptions such as those published from the Belize Valley and elsewhere in northern Belize (Gifford 1976; Kosakowsky 1987).

The ceramic groups and types are associated with ceramic complexes and phases (see Appendix B). Various ceramic phases have been identified in the Maya subarea, each dating to broader Maya time periods. Table 5.1 illustrates the phases that are presently used to identify ceramic material at Ka'Kabish (see Andrews V and Hammond 1990; Gifford 1976:46; Graham 2004:225).

Lithic Analysis

All lithic analysis took place following the guidelines set out by Haines. Analysis consisted of noting any signs of wear, use, or exposure to heat. In the case of formal tools (see definition below), the weight was also recorded. Since my areas of investigation were Str. D4 and Str. D9, all lithic data from these structures are the result of my analysis.

Time Period	Ceramic Phase
Middle Preclassic (1000-300 BC)	Swasey, Mamom
Late Preclassic (300 BC- 250 AD)	Chicanel, Floral Park
Early Classic (250-600 AD)	Tzakol
Late Classic (600-850 AD)	Tepeu, Spanish Lookout
Terminal Classic (850-1000 AD)	Spanish Lookout
Early Postclassic (1000-1200 AD)	New Town, Buk
Late Postclassic (1200-1540 AD)	New Town

Table 5.1. Ceramic phases and their associated time periods. Note that the Spanish Lookout phase is listed as Late to Terminal Classic because it includes part of the latter, commonly argued to be representative of 650/700- 900 AD.

The excavation of Plaza D was led by Haines and, therefore, all lithic data from the plaza are the result of analysis by Haines. The sourcing of obsidian from all areas of investigation was undertaken by Haines, and the quantification analysis was conducted by Laura Heath, the results of which are used in her undergraduate dissertation (Heath 2011).

Both chipped and ground stone lithic artefacts were recovered at Ka'Kabish. Chipped stone artefacts are manufactured by removal from a core by means of direct or indirect percussion, with a hard or soft hammer. Ground stone artefacts are manufactured (mainly) by abrasion or polishing using the sharp edges of a large rock, and an abrasive

mixture such as sand and water. Both techniques are used to produce different stone tools. Chipped stone was sorted based on the following definitions:

Raw Material

- Chert: Non-translucent in colour, sometimes of a slightly rough texture. The colours of chert represented at Ka'Kabish include pale brown, brownish-orange, brownish-white, brownish-grey, greyish-white, and deep reddish-orange
- Chalcedony: More translucent in colour, and has a smoother, glassier, texture than chert. The colours of chalcedony represented at Ka'Kabish include brownish-orange, greyish-white, and mottled reddish-brown
- Obsidian: Volcanic glass, generally very dark in colour (usually black or green) and has a glass-like composition

Object Classifications

- Flake: Displays a clear bulb of percussion and striking platform
  -Primary Flake: Has more than 70% of surface covered with cortex
  -Secondary Flake: Has cortex present, but less than 70% of surface
  -Tertiary Flake: Has no cortex present
- Flaked Piece: Originally was a flake, but no clear bulb of percussion or striking platform visible (due to breakage)
- Shatter: No clear distinctions of form; probably broken from a core when flaking occurred
- Formal Tool: Deliberately manufactured, recognizable of consistent shape/form

- Informal Tool: Unmodified, or minimally modified (i.e. retouched)
- Bificial Thinning Flake: A long and thin flake, often ‘S’ shaped
- Uniface: Flaking occurred on one face of the tool
- Biface: Flaking occurred on both faces of the tool
- Bifacial Point: Small bifaces that taper to a point
- Scraper: Modification at one end, or along a margin, with a edge of between 60-90°
- Prismatic Blade: A long, narrow flake with parallel margins
- Macroblade: Large, wide, blades generally considered to be longer than 10cm
- Hammerstone: Usually spheroid in shape, and exhibits evidence of damage from being used to strike another object
- Tang/ Stem: Both terms refer to the extension of the base of a lithic, designed for hafting or gripping.

Groundstone material was sorted based on the following definitions:

<u>Raw Material</u>

- Volcanic: Material formed from volcanic lava, with a fine-grained texture containing shallow intrusions
- Basalt: A volcanic rock, usually grey to black in colour, with fine-grained texture.
- Dolomitic Limestone: Limestone that has been silicified into a hard stone (by a natural mineral process), with a crystalline appearance
- Rhyolite: A volcanic rock, similar in appearance to quartzite with a composition of quartz or crystals

Object Classifications

- Mano: Grinding implements, longer than they are wide, with rounded ends
- Metate: Large basins, usually rectangular in shape, with rounded corners and slightly convex sides

Structure D4 Ceramic Results

Overall, there was a lack of artefacts recovered from Str. D4.In total only 61 ceramic artefacts were collected. Eight sherds collected from the 2007 field season have also been included in this analysis, creating a total of 69 sherds (Appendix C, Table C2). The majority of sherds (n=36) came from the South Trench, the second largest number of sherds (n=17) were collected from the North Trench, and the smallest number (n=16) were collected from the Middle Trench.

Sherds collected from backfill were identified as part of the Chicanel phase (Late Preclassic). Other sherds were less distinctive, but also thought to be characteristic of the Preclassic period (Lots 59 and 119 respectively).

Sub-I

An unusual artefact that was collected from within the Sub-I building construction was a ceramic roller stamp (Lot 70 [Figure 5.1]). These have been recovered elsewhere in the Maya Lowlands (see Bartlett 2004 Figure 10.2b; Garber *et al*.2004 Figure 3.3a; Hammond *et al*. 1992 Figure 2; Kidder 1947 Figure 59c; Longyear 1952 Figure 83; Rice 2009 Figure 7b; Willey 1972 Figure 78), as well as in Highland regions (Lee 1969 Figure 36). They have been dated as early as the Middle Preclassic period and are thought to

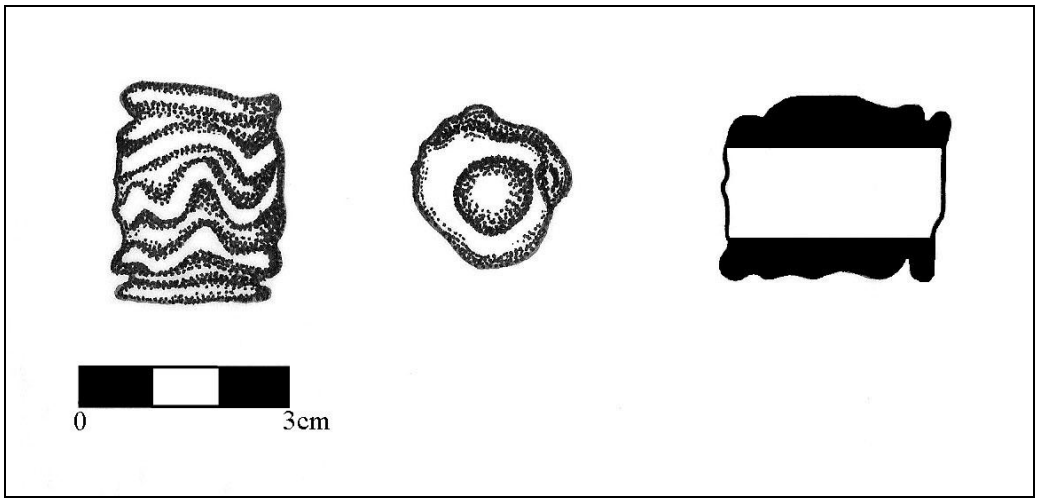

Figure 5.1. Ceramic Roller Stamp from Structure D4 Sub-I (Lot 70).

have been used for applying painted decoration to ceramics, textiles, plaster, or skin (Hammond *et al*. 1992:958; Lee 1969:74; Rice 2009:408).

The style of roller stamp found within Sub-I is the 'Stacked Parallel Line variety' (Smith 2009:59). This variety has been found at the site of Cuello in Northern Belize, but most prominently at the site of La Blanca in Guatemala (Smith 2009:59). The design on the roller stamp at Ka'Kabish is very similar to one found at La Blanca (Smith 2009 Figure 14, image 125). Although the stamp has not been dated to a specific time period, La Blanca was a large Middle Preclassic site and its occupation declined at the latter end of the Early Classic period (Love 2006:5-6). Considering that roller stamps elsewhere are identified as Preclassic, and La Blanca was a large Middle Preclassic site, this suggests that the stamp at La Blanca dates to the Preclassic period. Consequently, the roller stamp at Ka'Kabish may also date to the Preclassic period, suggesting that the Sub-I construction of Str. D4 was built during, or after, this period.

Sub-II

The only diagnostic sherd collected from this construction in 2010 was not confidently assigned to a ceramic group or phase, but is thought to be either Chicanel (Late Preclassic) or Tzakol (Early Classic) (Lot 121). Two sherds collected from this construction by Haines during the 2007 field season were identified as Thin/ Puuc slate ware (Lot 183), which dates to the Late to Terminal Classic period. Puuc slate was developed in the Yucatán during the Late to Terminal Classic, and has been found elsewhere in northern Belize (such as at the site of Nohmul) during this period (Chase and Chase 1982:608; Sharer and Traxler 2006:501). This suggests the Sub-II construction dates to the Late/Terminal Classic period, and that it was built using ceramics from earlier periods as part of the construction fill.

Sub-III

Two sherds (Lot 120) collected from the cleaning of the trench walls (in the vicinity of Sub-III construction) were identified as having polychrome decoration. It is widely agreed that polychrome decoration is a traditional marker for the beginning of the Early Classic in much of the Maya subarea (Sharer and Traxler 2006:288). Thus, Sub-III bears evidence for Classic period material. Based on the dating of the previous construction, it is likely that Sub-III dates to the Late/Terminal Classic, or later.

Structure D4 Lithic Results

In total, only 49 lithic pieces were collected from Str. D4 (Appendix C, Table C3). Of these, only nine are formal chipped stone tools (Table 5.2). No groundstone tools

Lot	Unit	Level	Material	Object Class	Object Type	Object	Condition	Quantity
125	South Trench	Looters Backfill	Chalcedony	Formal	Biface	Hammerstone	Whole	1
125	South Trench	Looters Backfill	Chalcedony	Formal	Biface	Macroblade Tang	Fragmentary	1
60	Middle Trench	Looters Backfill	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	1
66	South Trench	Sub-I	Chert	Formal	Biface	Indeterminate	Whole?	1
61	South Trench	Sub-II	Chalcedony	Formal	Uniface	Indeterminate	Fragmentary (Lateral Half)	1
96	Middle Trench	Trench Walls (Sub-III)	Chert	Formal	Prismatic	Blade	Whole	2
96	Middle Trench	Trench Walls (Sub-III)	Chert	Formal	Biface	Probable Scraper	Whole	1
96	Middle Trench	Trench Walls (Sub-III)	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Proximal/ Medial)	1
							Total	9

Table 5.2. Formal tools collected from Structure D4 (organized by level).

were collected. In looters' backfill three formal chipped stone tools were collected. One was a hammerstone manufactured from chalcedony (Lot 125), and two were macroblade tang fragments manufactured from chert and chalcedony (Lot 60 [Figure 5.2] and 125 respectively). Macroblade tangs are characteristic of the Late Preclassic in Northern Belize (Mitchum 1991:46).

Sub-I

In Sub-I, a general biface was found (Lot 66)

Sub-II

In Sub-II, a general uniface was found (Lot 61).

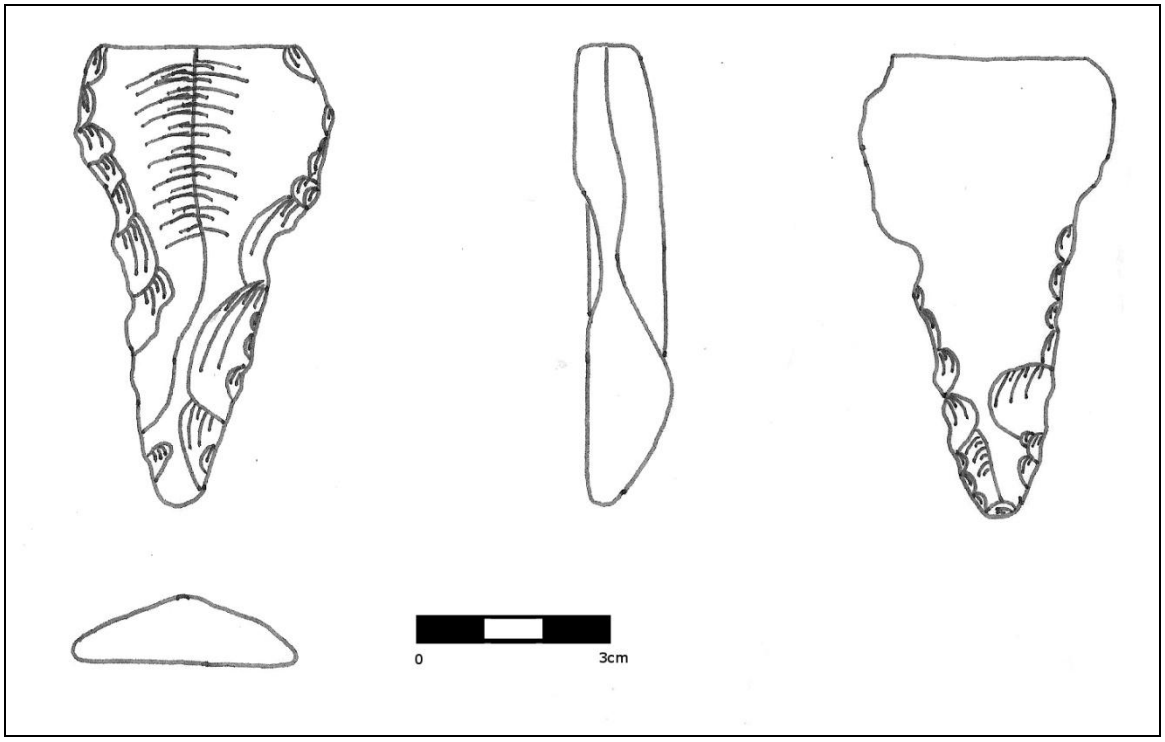

Figure 5.2. Macroblade Tang from Structure D4 (Lot 60).

Sub-III

Four formal chipped stone tools were collected (Lot 96) from Sub-III. Two were prismatic blades manufactured from chert, one was a probable scraper manufactured from chert, and the third was a fragmentary prismatic blade manufactured from obsidian (either proximal or medial section). The obsidian was identified as being from an El Chayal source from the Guatemalan highlands. El Chayal is a dominant source of obsidian in the Maya subarea during the Late Preclassic and Early Classic (Guderjan and Garber 1995:189).

There is slightly more chert (n=27) than chalcedony (n=21) in the overall lithic assemblage from Str. D4, but not significantly so. The assemblage also has a higher number of flakes (n=18) in relation to formal tools (n=9) (Table 5.3). One was a primary

Lot	Unit	Level	Object Class	Object Type	Quantity
58	South Trench	Looters Backfill	Flake	Tertiary	2
58	South Trench	Looters Backfill	Flake	Secondary	1
58	South Trench	Looters Backfill	Flake	Primary	1
59	North Trench	Looters Backfill	Flake	Tertiary	1
59	North Trench	Looters Backfill	Flake	Tertiary	2
60	Middle Trench	Looters Backfill	Flake	Tertiary	3
60	Middle Trench	Looters Backfill	Flake	Tertiary	3
125	South Trench	Looters Backfill	Flake	Tertiary	1
65	South Trench	Sub-I	Flake	Tertiary	1
61	South Trench	Sub-II	Flake	Secondary	1
61	South Trench	Sub-II	Flake	Tertiary	1
96	Middle Trench	Trench Walls (Sub-III)	Flake	Secondary	1
				Total	18

Table 5.3. Flakes collected from Structure D4 (organized by level).

flake, three were secondary flakes, and fourteen were tertiary flakes. Flaked pieces have not been included because their type could not be determined.

Structure D4 Conclusions

Based on the artefact analysis, it appears that Sub-I construction dates to the Preclassic (likely Middle or Late), Sub-II to the Late/Terminal Classic, and Sub-III to the Late/Terminal Classic, or later. There was a paucity of artefacts within the building construction of Str. D4 which, while being interesting, creates problems for dating the structure. Sterile construction fill in structures has also been reported at the site of Cerros in northern Belize (Freidel 1986:ix). The small number of artefacts recovered from Str. D4 may be due in large part to the fact that no excavation took place, but (while cleaning and mapping the trenches) I personally noticed that the building construction fill was

mostly “clean”. As previously discussed, “clean” and “dry” fill is characteristic of the Middle Preclassic period and, therefore, this might be expected inside Sub-I. But the lack of artefacts in the Sub-II and Sub-III constructions, which date to later periods, suggests that this choice of fill may be deliberate rather than just a reflection of a Preclassic trend.

Plaza D Ceramic Results

In total, 1066 ceramic artefacts were collected from the Plaza D excavation unit (Appendix D, Table D1). Below the humus layer and above Plaza D-VIII, 171 sherds were collected (refer back to Figure 4.16 for stratigraphy of the plaza unit). The ceramics tentatively date this layer to the Late Classic, based on the presence of an ash tempered sherd (Lot 4). Ash temper is often recognised as being associated with the Late Classic period, when large quantities of volcanic ash were used as temper for manufacturing ceramics (Ford and Glicken 1987:497). The area around the plaza excavation unit was later cleared, and two additional sherds were found on the surface. Only one was diagnostic (Lot 129) and identified as part of a Buk phase vessel (Early Postclassic), tying into the Postclassic date recognized in the settlement zone of Ka’Kabish.

Plaza D-VIII

From the construction fill of this plaza floor, 449 sherds were collected. Among the diagnostic sherds were distinguishable Tzakol (Early Classic) and Spanish Lookout (Late to Terminal Classic) ceramics (Lots 7 and 9). Therefore, this floor likely dates to the Late/Terminal Classic period.

Plaza D-VII

Below this plaza floor, 254 sherds were collected. Among the diagnostic sherds were distinguishable Chicanel (Late Preclassic) and Tzakol (Early Classic) ceramics (Lots 75 and 76), dating this construction to the Early Classic period.

Plaza D-VI

From the construction fill of this plaza floor, 82 sherds were collected. Within the diagnostic sherds nothing was more recent than distinguishable Chicanel ceramics (Lots 77, and 84). This places this construction in the Late Preclassic period.

Plaza D-V

Below this plaza floor, 26 sherds were collected. Among the diagnostic sherds nothing was more recent than distinguishable Chicanel ceramics (Lot 97), which also dates this construction to the Late Preclassic period.

Plaza D-IV

From the construction fill of this plaza floor, 42 sherds were collected. None of the diagnostic sherds were more recent than distinguishable Chicanel ceramics (Lot 99), dating the construction again to the Late Preclassic period.

Plaza D-III

Only two non-diagnostic sherds were collected from below this plaza floor, thereby not providing a date for this construction. However, the earlier (see below) and later

floors both date to the Late Preclassic. Therefore, the most likely construction date of this floor is in the Late Preclassic also.

Plaza D-II

From the 11 sherds collected below this plaza floor, only one was diagnostic. It was identified as a Chicanel ceramic (Lot 115), which dates this construction to the Late Preclassic.

Plaza D-I

Although 48 sherds were collected from below the earliest plaza floor, all were non-diagnostic and therefore did not provide a date for this construction. Based on the fact that this floor is the earliest, and subsequent floors date to the Late Preclassic, it is likely that this construction dates to the Late Preclassic period or earlier.

Plaza D Lithic Results

In total 2456 lithic pieces were uncovered during the excavation of Plaza D (Appendix D, Table D2). Of these only 34 were formal tools (Table 5.4), almost exclusively manufactured from chert and chalcedony, and two were informal tools (hammerstones). Below the humus layer and above Plaza D-VIII one fragmentary obsidian prismatic blade fragment was found (medial section, Lot 8). This blade was identified as being from the San Martin Jilotepeque source in Guatemala, which dominated the Late Preclassic period until it was replaced by the El Chayal source (which is a larger source in extent) (Haines 2000:115).

Lot	Unit	Level	Material	Object Class	Object Type	Object	Condition	Quantity
4	NW Unit	1	Silicified Limestone	Formal	Groundstone tool	Mano	Fragmentary	1
8	NE Unit	1	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Medial)	1
12	SE Unit	2	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Proximal)	1
12	SE Unit	2	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Medial)	1
2	SW Unit	2	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary	1
2	SW Unit	2	Chert	Formal	Uniface	General	Fragmentary	1
9	NE Unit	2	Chert	Formal	Biface	General	Whole	4
9	NE Unit	2	Chalcedony	Formal	Biface	General	Whole	2
6	NW Unit	3	Chert	Formal	Biface	General	Whole	1
6	NW Unit	3	Chert	Formal	Biface	General	Whole	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Whole	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Whole	1
6	NW Unit	3	Chert	Formal	Prismatic	Blade	Fragmentary (Proximal)	1
6	NW Unit	3	Chert	Formal	Biface	General	Fragmentary (Distal)	1
6	NW Unit	3	Chert	Formal	Biface	General	Fragmentary (Proximal/ Medial)	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Fragmentary (Distal)	1
13	SE Unit	3	Chalcedony	Formal	Biface	General	Fragmentary (Distal)	1
13	SE Unit	3	Chert	Formal	Biface	General	Fragmentary (Proximal)	1
10	NE Unit	3	Unknown	Formal		Mano	Fragmentary	1
10	NE Unit	3	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Distal)	1
7	NW Unit	4	Chert	Formal		Scraper?	Whole	1
7	NW Unit	4	Chert	Formal	Biface	Point	Fragmentary (Distal)	1
7	NW Unit	4	Chert	Formal	Uniface	General	Fragmentary (Medial)	1
15	Centre 2x2	6	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Medial)	1
15	Centre 2x2	6	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	1
75	Centre 2x2	7	Chalcedony	Formal	Biface	General	Whole	1
75	Centre 2x2	7	Chert	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	1
75	Centre 2x2	7	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	1
76	Centre 2x2	8	Chert	Formal	Biface	Point	Fragmentary (Distal)	1
76	Centre 2x2	8	Chert	Formal	Biface	Tang?	Fragmentary (Proximal)	1
							Total	34

Table 5.4. Formal tools recovered from Plaza D (organized by level).

Plaza D-VIII

A total of 21 formal tools was associated with this plaza floor. Among the chipped stone tools, 15 were manufactured from chalcedony or chert, and four were manufactured from obsidian. Additionally, one of the ground stone tools was manufactured from dolomitic limestone (the raw material of the other could not be determined). Where identifiable, the obsidian was identified as being from El Chayal and San Martin Jilotepeque sources in the Guatemalan highlands.

The tools collected consisted of five general unifaces (Lots 2, 6, 7), six general bifaces (Lots 6, 13), five fragmentary prismatic blades (two proximal sections, three medial sections, Lots 2, 6, 8, 12), one stemmed macroblade (Lot 10), one possible scraper (Lot 7), one bifacial point (Lot 7), and two mano fragments (Lots 4, 10). Bifacial points and stemmed macroblades are characteristic of the Late Preclassic in Northern Belize (Shafer 1991:33,38).

Plaza D-VII

The formal tools associated with this plaza floor total seven. Only chipped stone tools were recovered, of which six were manufactured from chert or chalcedony and one was manufactured from obsidian. The obsidian was identified as being a San Martin Jilotepeque source from the Guatemalan highlands. The tools collected consisted of a general biface (Lot 75), a bifacial point (Lot 76), a bifacial tang (Lot 76), three bifacial stemmed macroblades (Lots 15, 75), and one fragmentary obsidian blade (medial section, Lot 15). Bifacial points and stemmed macroblades are characteristic of the Late Preclassic in Northern Belize (Shafer 1991:33,38).

Plaza D-VI to D-I

No formal tools were associated with these plaza floors, but a potential ground stone pendant (Lot 122) manufactured from dolomitic limestone was found underneath Plaza D-I (Figure 5.3).

Interestingly, four cores were collected during the excavation of Plaza D. Three of these are manufactured from chert (Lots 1, 2, 4), and one is manufactured from chalcedony (Lot 75). This suggests that the inhabitants of Ka'Kabish were working locally available material rather than importing finished products. As with the Str. D4 assemblage, there is more chert (n=1348) than chalcedony (n=1093) in the assemblage.

Figure 5.3. Potential limestone pendant collected from Plaza D-I (Lot 122). The incised notch at the right end of this artefact leads to the assumption that it may have been intended as a pendant. It is similar to a limestone pendant found at the site of Barton Ramie in Belize, thought to be an imitation feline canine tooth (Willey *et al*. 1965 Figure 297h).

Likewise, the assemblages from Plaza D also had a higher number of flakes (n=757) in relation to formal tools (n=34) (Appendix D, Table D3). Of these, 64 are primary flakes, 200 are secondary flakes, and 493 are tertiary flakes. Looking at the flakes by level (Table 5.5) indicates that this pattern is constant over time, with tertiary flakes the most dominant flakes in all levels, followed by secondary flakes, and then by primary flakes. Flaked pieces have not been included because their type could not be determined.

Plaza D Faunal Results

The faunal material from Plaza D included animal bone and shell. Seven shell beads associated with Plaza D-I (Lots 122, 123, 124) were recovered (Appendix D, Table D4). These beads were small disk beads (roughly 1cm in size) made from either Conch (*Strombidae*) or Whelk (*Trochidae*) shell, which are both marine shells species (analysis by Haines). Small disk beads are characteristic of the Middle Preclassic period in the Maya subarea, and have been found in Middle Preclassic contexts at the sites of Colha, Cuello, K'axob, and Pacbitun (Powis *et al.* 2009:173). This suggests that during the

Level	**Primary Flake**	**Secondary Flake**	**Tertiary Flake**	**Total**
Plaza D-VIII (Levels 1-4)	54	154	329	537
Plaza D-VII (Levels 5-8)	1	19	40	60
Plaza D-VI (Levels 9-11)	0	2	5	7
Plaza D-V (Levels 12-13)	0	4	7	11
Plaza D-IV (Level 14)	0	0	0	0
Plaza D-III (Level 15)	0	0	0	0
Plaza D-II (Level 16)	0	0	0	0
Plaza D-I (Level 17-21)	9	21	112	142
			Total	757

Table 5.5. Flakes collected from Plaza D, organized by level.

Preclassic period the inhabitants of Ka'Kabish may have been involved in trade with sites close to the coast to obtain this material.

At the site of Tikal beads of white marine shell, thought likely to be different species of conch, were discovered in both ceremonial and residential groups and are, therefore, argued to have been worn by both upper-class and lower-class people (Moholy-Nagy 1989:142,150). Indeed, in Mesoamerica, marine shell is thought to have been an indication of high status (Moholy-Nagy 1989:147). Considering that Plaza D is located in a relatively restricted area of Group D (see Chapter six), which would suggest it was an area only elites could readily access, the disk beads from Plaza D-I may have been worn by elite residents (if the spatial configuration of architecture in this area of Group D was the same in the Preclassic period as it is now).

Plaza D Conclusions

The results of the artefact analysis suggest that the earliest plaza floor (D-I) was laid in the Preclassic period (likely Middle or Late). Subsequent floors (D-II to D-VI) suggest that construction efforts continued in the plaza during the rest of the Late Preclassic period. Plaza D-VII appears to have been built in the Early Classic period, and Plaza D-VIII floor appears to have been created in the Late/Terminal Classic period.

The most noticeable observation is the significant change in construction practices between Plaza D-VII and Plaza D-VIII, which appear to date between the Late Preclassic and Late/Terminal Classic periods respectively. Prior to the construction of the seventh floor, the layers of material between the floors are relatively thin and increase the height of the plaza only minimally. Therefore there appears to have been a significant change in

Group D in the Late/Terminal Classic, prompting a much larger construction effort for the final plaza floor.

As discussed above, it was hoped that the plaster floors uncovered in the Middle Trench of Str. D4 could be aligned with plaza floors from the excavation unit in Plaza D. The ceramics from the aligned floors would be used to date the construction episodes of Str. D4 more confidently. Based on elevation levels taken during the field season, and the nature of the construction seen in the profile maps, Plaza D-VIII most likely correlated with the second plaster floor visible in the Middle Trench profile (Figure 5.4). It is likely that the uppermost plaster floor in Str. D4 correlates with the plaza floor that has not been preserved and is, therefore, not observable in the Plaza D profile.

Plaster floor two in the Middle Trench of Str. D4 correlates with the Sub-II construction, which has been dated to the Late/Terminal Classic period. The ceramics from Plaza D-VIII also date to the Late/Terminal Classic. This strengthens the suggestion that Str. D4 Sub-II construction was built in the Late Classic or early Terminal Classic period.

Structure D9 Ceramic Results

In total 835 ceramic artefacts were collected during the excavation and mapping of Str. D9, but 109 sherds collected from the 2007 field season have also been included in this analysis— creating a total of 944 sherds for this study (Appendix E, Table E2). The majority of the sherds (n=796) came from the excavation unit on the stair. The remaining ceramic sherds (n= 39) were collected from Sub-I and Sub-IIa building construction.

From the 2007 season, 77 sherds were also collected from the Sub-IIa construction.

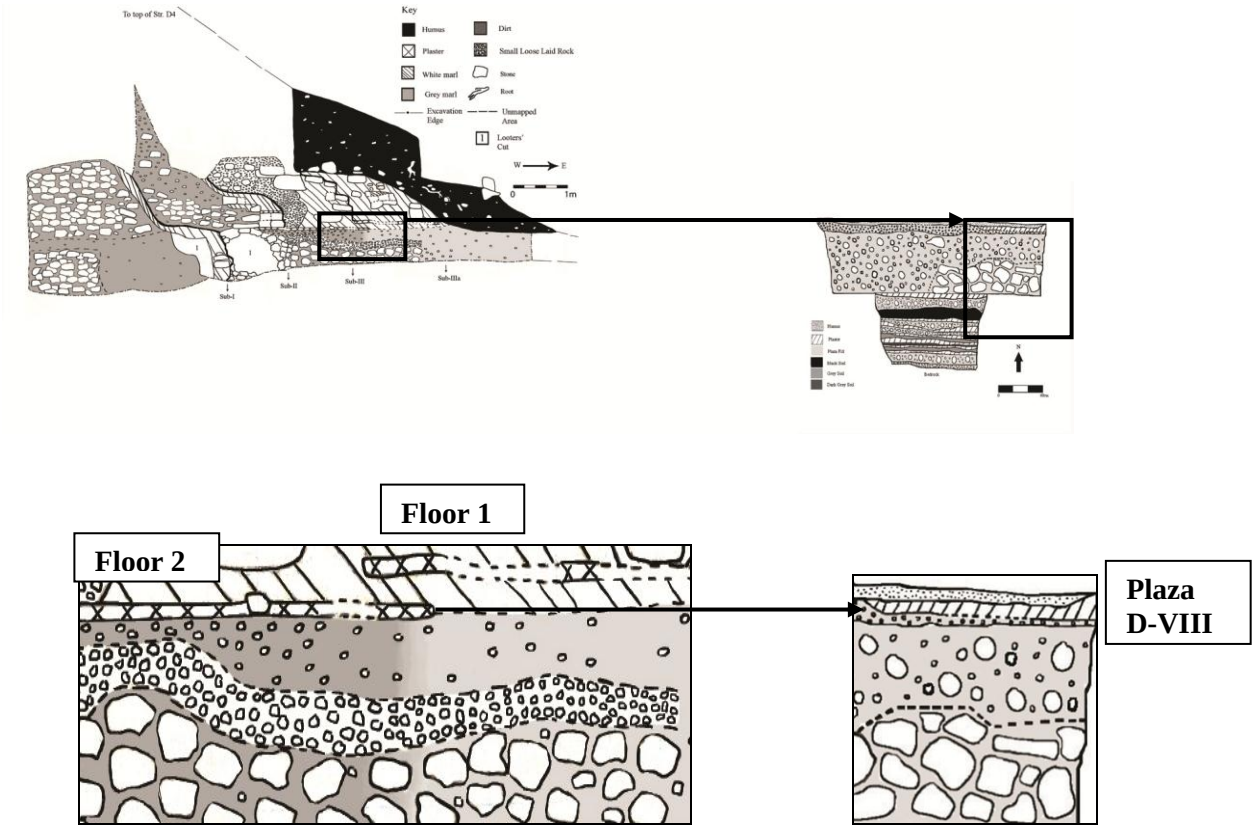

Figure 5.4. Correlation of plaster floors in the Middle Trench of Structure D4 (left image) with Plaza D-VIII (right image). As seen, the construction fill beneath both floors is very similar: in both instances thin plaster coats a layer of very small aggregate, followed by medium sized aggregate, and ends with very large aggregate/ ballast.

Five sherds may have been collected from Sub-III (based on Haines' field notes), but all are non-diagnostic and cannot provide assistance with dating. The remaining 27 sherds from the 2007 season were collected from looters' backdirt and the surface of the trench floor. The sherds collected from the humus level of the excavation unit (Lots 128, 145, 146) were identified as Chicanel (Late Preclassic) and Tzakol (Early Classic) phases. One sherd may be Mamom (Middle Preclassic) rather than Chicanel and therefore earlier in date. Two sherds which were not confidently assigned a ceramic group or type

were identified as having polychrome decoration. Polychrome ceramics are a traditional marker for the beginning of the Classic period. It is thought likely that the bulk of the humus layer would come from the latest construction episode (Sub-IV), so the sherds from the humus layer could be associated with this construction.

The sherds collected from Levels 2 and 3 of the supposed collapse (Lots 133,134) were identified to the Chicanel, Tzakol, and Tepeu (Late Classic) phases. These levels probably contained some backfill from the looters' trench, likely to be mainly Sub-IV to Sub-II construction fill (because only recently has a very small area of Sub-I been penetrated). Therefore, the sherds from these levels may be associated to Sub-IV to Sub-II constructions.

Sub-I

The sherds collected from the building construction of Sub-I (lots 126, 127) were identified as Chicanel phase types (Late Preclassic). Two sherds which were not confidently assigned to a phase or group were identified as having bichrome decoration, which is often a defining trait of the Late Preclassic period (Smith and Gifford 1965:502). The very thick (roughly 60 cm) plaster surface of Sub-I also appears to be characteristic of the Preclassic period, since there is evidence of thick plaster floors measuring between 50 and 80 cm at the site of Nakbe during the Middle Preclassic period (Hansen 1992:74).

Sub-II

Sherds collected during the 2007 field season from Sub-II construction fill were identified as Chicanel phase types (Late Preclassic). A notable ceramic artefact collected

from within this construction was a large sherd (Figure 5.5). This partial vessel may have been part of a ritual deposit such as a cache. A full collection strategy was employed for removal of this particular feature. Another piece of the same vessel was discovered only a few centimetres away, as were a few small sherds, and all were assigned the same lot number (Lot 131). As discussed previously, caches are often aligned on the primary axis of architecture (Pendergast 1998:61). These sherds were found aligned on the primary axis of the building (see Figure 4.17).

The sherd had been placed upside down in the fill, with the base directed towards the top of the structure and the rim of the sherd towards the bottom of the structure. Other examples of ceramic caches being placed in this position have been found elsewhere in the Maya Lowlands (Pendergast 1998:Figure 6.4). Inside the vessel was a mass of dense white material with small particles, likely a mixture of the construction fill and the original contents of the cache. Since caches sometimes contained perishable items (and so

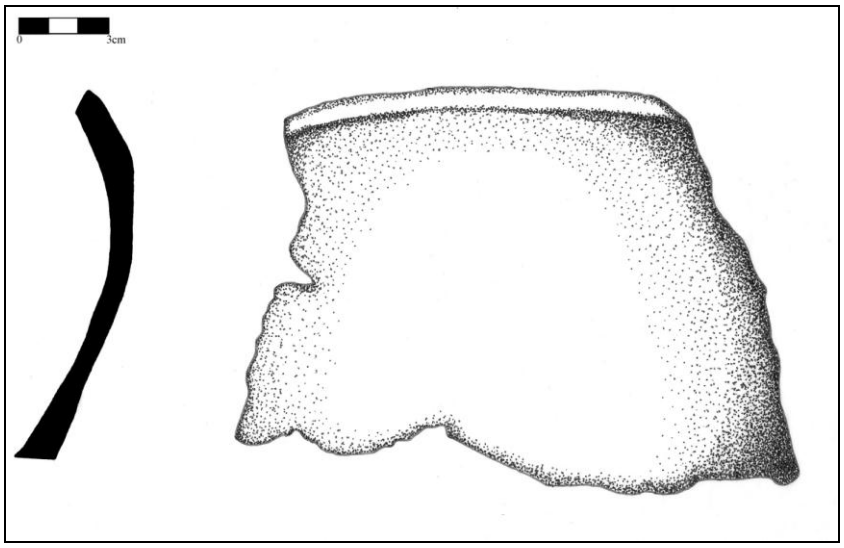

Figure 5.5. Sherd from Structure D9, Sub-IIa (Lot 131).

appear empty when excavated), the contents inside this partial ceramic vessel may also have been perishable (Chase and Chase 1998:302).

The large sherd and its counterpart were identified as being similar to the Vasquez ceramic complex of the site of San Estevan, which dates to the Late Preclassic period (Bullard 1965:29). The smaller sherds were not confidently assigned to a ceramic group or phase, but were judged by Aimers to be part of the Chicanel phase.

Structure D9 Lithic Results

In total, 257 lithic artefacts were uncovered during the excavation and mapping of Str. D9 (Appendix E, Table E3). Only 12 are formal tools, 10 of which were chipped stone artefacts and two of which were groundstone artefacts (Table 5.6).

From the humus layer, a retouched flake tool (Lot 128) and a macroblade tang (Lot 128) were collected. From the collapse levels (likely Sub-IV and earlier constructions), two fragmentary obsidian blades (proximal or medial sections), a probable axe, macroblade tang, a mano fragment, and two indeterminate tools were collected (Lot 133). Macroblade tangs are characteristic of the Late Preclassic period in northern Belize (Mitchum 1991:45). This would suggest that the collapse levels do contain some looters' backfill, and likely other artefacts associated with the earlier constructions inside Str. D9. The obsidian blades were identified as being El Chayal and San Martin Jilotepeque sources from the Guatemalan highlands.

Sub-II

From Sub-II, a general uniface (Lot 126) and metate fragment (legless slab variety)

Lot	Unit	Level	Feature	Material	Object Class	Object Type	Object	Condition	Quantity
128	Looters Trench	Collapse Level 1	n/a	Chert	Formal	Uniface	Retouched Flake Tool	Whole	1
128	Looters Trench	Collapse Level 1	n/a	Chert	Formal	Uniface	Macroblade Tang	Fragmentary (Proximal)	1
133	Looters Trench	Collapse Level 2	n/a	Groundstone	Formal	Unknown	Mano	Fragmentary	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Probable Axe	Fragmentary (Proximal?)	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Uniface	Indeterminate	Fragmentary (Distal?)	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Indeterminate	Fragmentary (Medial)	1
133	Looters Trench	Collapse Level 2	n/a	Obsidian	Formal	Prismatic	Blade	Fragmentary (Proximal/ Medial)	2
133	Looters Trench	Collapse Level 2	n/a	Obsidian	Formal	Prismatic	Blade	Fragmentary (Proximal/ Medial)	1
126	Looters Trench	Sub-II	n/a	Chalcedony	Formal	Uniface	General	Fragmentary	1
127	Looters Trench	Sub-II (probably)	New hole in interior	Groundstone	Formal	Unknown	Metate	Fragmentary	1
								Total	12

Table 5.6. Formal tools collected from Structure D9 (organized by level).

were collected (Lot 127 [Figure 5.6]). As with Str. D4 and Plaza D, the lithic assemblage from Str. D9 has a higher number of flakes (n=109) in relation to formal tools (n=12) (Table 5.7). Only two are primary flakes, 41 are secondary, and 66 are tertiary. Flaked pieces have not been included because their type could not be determined. Both chalcedony and chert are present in the material collected from Str. D9. As with the Str. D4 and Plaza D assemblages, there is more chert (n=142) than chalcedony (n=110). The two primary flakes are manufactured from chert.

Structure D9 Human/ Faunal Results

The potential ceramic cache (Lot 131) found in the building construction contained what appeared to be bone fragments (Appendix A, Table A3). These fragments were examined by Dr. Anne

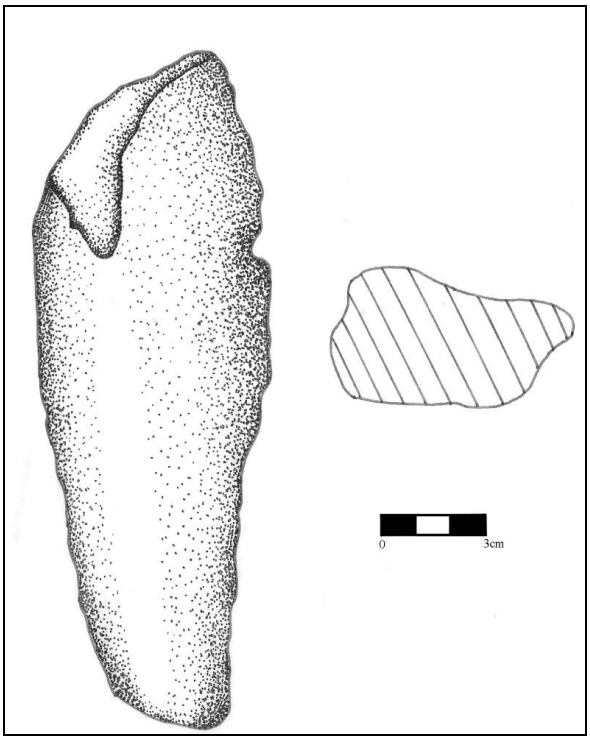

Figure 5.6. Metate fragment from Structure D9 Sub-II (Lot 127).

Keenleyside, a Physical Anthropologist at Trent University. She identified the fragments as likely to be bone, although due to the small size and poor state of preservation she was unable to identify whether or not they were human (Anne Keenleyside, personal communication 2010). As previously discussed, caches have been known to contain human and/or animal bone, so there is the possibility that some bone was once associated with the vessel and that it may have been an offering of some type (human or animal).

Structure D9 Conclusions

The most noticeable result of the artefact analysis of Str. D9 is the large amount of artefacts that were collected from the construction fill, a sharp and interesting contrast to Str. D4. The artefact analysis suggests that the Sub-I construction dates to either the

Lot	Level	Object Class	Object Type	Quantity
128	Collapse Level 1	Flake	Tertiary	5
128	Collapse Level 1	Flake	Secondary	6
128	Collapse Level 1	Flake	Tertiary	5
128	Collapse Level 1	Flake	Secondary	9
128	Collapse Level 1	Flake	Primary	1
133	Collapse Level 2	Flake	Secondary	16
133	Collapse Level 2	Flake	Tertiary	25
133	Collapse Level 2	Flake	Secondary	6
133	Collapse Level 2	Flake	Tertiary	23
133	Collapse Level 2	Flake	Primary	1
134	Collapse Level 3	Flake	Tertiary	3
134	Collapse Level 3	Flake	Tertiary	3
134	Collapse Level 3	Flake	Secondary	2
126	Sub-II	Flake	Tertiary	1
127	Sub-II (probably)	Flake	Secondary	1
130	Sub-IIIa	Flake	Tertiary	1
131	Sub-IIIa	Flake	Secondary	1
			Total	109

Table 5.7. Flakes collected from Structure D9 (organized by level).

Middle or Late Preclassic, and the Sub-II construction dates to the Late Preclassic period. Based on the ceramics recovered from the excavation of the stair, Sub-III may date to the Early Classic. Alternatively, Early Classic ceramics may have been used as part of the construction fill in a later period, and Sub-III may date, along with Sub-IV, to the Late Classic, or later.

Summary

The presence of primary flakes in all three lithic assemblages is a good indicator that the residents of Ka'Kabish were not importing chert blanks from the site of Colha (since blanks would already have the entire cortex removed— eliminating the presence of

primary and secondary flakes). Therefore, the residents of Ka'Kabish appear to have been working locally available raw material. The abundance of secondary (n=244) and tertiary (n=573) flakes in relation to primary (n=67) flakes in all three assemblages is a pattern to be expected if stone tool production was taking place at Ka'Kabish. Furthermore, if they were not working locally available material we would not have expected to find cores at Ka'Kabish. Locally available chert has been discovered near the neighbouring site of Blue Creek, and it is likely that tool production at the site relied almost exclusively on this chert (Cox and Ricklis 1999:85). It is also thought that the inhabitants of Lamanai would have been able to obtain local chert for tool production (Pendergast 1982:246). Thus, the use of local chert and chalcedony by the inhabitants of Ka'Kabish is also likely.

As with the presence of marine shell, the presence of obsidian in the lithic assemblages indicate that the inhabitants of Ka'Kabish were involved in long distance trade to obtain obsidian, as the only sources of it are in the Guatemalan highlands, Central Mexico, El Salvador, and south-west Honduras (Haines 2000:110; Houston *et al*. 2009:57). The major sources are San Martin Jilotepeque, El Chayal, and Ixtepeque in the Guatemalan highlands (Guderjan and Garber 1995:189; Hammond 1972a:1092). Some sources of Guatemalan obsidian appear to have been used more heavily at different times (Healy et al. 1984:414) but, generally, El Chayal was the dominant source during the Preclassic and Early Classic, while Ixtepeque increased in prominence during the Late and Terminal Classic, eventually dominating in the Postclassic (Guderjan and Garber 1995:189).

Ka'Kabish is comparable to the site of La Milpa (Hammond and Tourtellot 2004:289), in the sense that we do not know if there is Terminal Classic occupation at the

site. This is because only six sherds characteristic of the Spanish Lookout phase have been recovered from Group D. Although this phase includes the beginning of the Terminal Classic, some scholars assign it only to the Late Classic and argue that it is most accurately considered the Late Classic (James Aimers, personal communication 2011). Consequently, I will be referring to the Late/Terminal Classic period in subsequent chapters.

The sole Postclassic sherd recovered from the humus layer in the plaza ties in with the Postclassic sherds found in the outlying settlement area (Aimers 2007:65). While the core area of Ka'Kabish does not show evidence of Postclassic occupation, the surrounding settlement area does. Perhaps occupation at the site continued in the Postclassic in reduced numbers, or the inhabitants of the settlement area may have continued to visit the site in the Postclassic— perhaps as a matter of pilgrimage. Acts of pilgrimage to sites after they have declined is an activity known from other sites in northern Belize in the Postclassic period (Hammond and Bobo 1994:30; Pendergast 1986:226).

The sizeable increase in Str. D4 (with the building of Sub-II) corresponds to the large construction effort in Plaza D. Similarly, a relatively large final construction effort took place in Str. D9 (though not increasing the size of the structure to the same extent as Str. D4), appearing to correspond with the building effort elsewhere in Group D at this time. This would push the date of the final construction of Str. D9 to the Late/Terminal Classic period. Consequently it appears that something stimulated a change in construction practices at Ka'Kabish in the Late/Terminal Classic, one that deviates from earlier practices. The stimulus of this change will be explored in the next chapter.

Chapter Six: Interpretations and Discussion

The decisions taken in the planning, layout, and construction of architecture can inform us about many aspects of ancient Maya society. Architecture did not exist in a vacuum, but was part of a much larger socio-political system. This chapter will consider the function of Plaza D, and Structures D4 and D9, and discuss how they operated as part of a larger system within Ka'Kabish. Since construction efforts appear to increase in these structures in the Late/Terminal Classic period, the discussion will be contextualized to facilitate understanding of how the occupants of Ka'Kabish may have responded to events that were taking place in northern Belize, and the wider Maya subarea, at this time.

Limitations

Prior to presenting my interpretations, it is important to highlight and discuss the limitations within my research. In doing so, I acknowledge that my interpretations are based on data that is preliminary and not comprehensive. Firstly, research at Ka'Kabish is still in its initial stages and, consequently, information about the site remains limited. Even though some controlled excavations took place in 2010, data from numerous structures are missing and this hinders a more holistic view of the site.

Secondly, my work was limited to using looters' trenches and one plaza excavation unit. This brought an array of complications, because the looters created structural damage and likely removed many artefacts. Since I am unaware of the artefacts which were removed, this presents difficulties in interpreting the architecture and site history. If there were originally burials or caches inside the structures this would alter the interpretations that I would be able to make, and could potentially change our

understanding about Ka'Kabish.

Thirdly the artefacts collected from the three areas of investigation are all in secondary context, because they were included within construction fill. This is somewhat problematic for inferences and establishment of a secure chronology, especially since there was a paucity of artefacts within Str. D4.

Lastly, I am limited to interpreting only the most recent architectural arrangement rather than commenting at length on any changes or alterations made over time. I am aware that the orientation, arrangement, role, and function of architecture at Ka'Kabish may have changed significantly over time, and this will be considered ultimately in my interpretations. Despite these limitations, I am confident that I can interpret the data critically and reasonably, in order to produce a balanced argument about their significance based on what is now known about this site.

Structure D4 Interpretations

Sub-I

Although, in its final form, Str. D4 was a 21 m tall temple-pyramid, it started as a much smaller structure. Based on artefact analysis, it appears to date to the Middle or Late Preclassic period. It was built using small to large sized aggregate, coated in places with marl. According to measurements taken during mapping (Figure 4.15), Sub-I was a long and narrow structure and appears to conform to the typical form of range structures (as discussed in Chapter three). Sub-I was later engulfed by the construction of Sub-II, altering the structure to a tall temple-pyramid. The looters' trenches provided some evidence of the initial form and decoration of Sub-I, including red painted stucco, and

what are likely to be apron mouldings (Figure 4.12). Both of these decorative features are described as some of the basic trappings of Maya public architecture (Freidel 1986:xviii), suggesting that Str. D4 Sub-I was intended to function as a public structure.

The red pigment preserved on the plaster surfaces of Sub-I is likely to have had aesthetic and/ or ideological purposes, instead of being associated with the orientation of Str. D4. This is because, although red is the colour of east, the colour has been found to have little to do with directional placement of structures (Schele 1985:37). Therefore, it is likely that the inhabitants of Ka'Kabish chose the colour for other purposes. As previously discussed (in Chapter three), red was associated with blood, fertility, and the soul. Bloodletting was an important practice for the ancient Maya because it was a means of nurturing and communicating with the deities (Freidel *et al*. 2001:205). Thus, red painted buildings would have embodied these important elements of ancient Maya worldview and sacredness. In addition, it has been suggested that the ancient Maya favoured red-painted buildings because, as well as being a pleasing colour in terms of richness and intensity, the colour absorbed strong tropical light (Houston *et al*. 2009:20).

Sub-I may have correlated to the third plaza floor (Plaza D-III) of Group D, since this floor also had evidence for red pigment. Based on the elevation of this floor (roughly 2.1 m below the surface), and the highest visible point of Sub-I in the profile maps (1.8m above the surface [see Figure 4.7]), the minimum height of Sub-I at this time may have been roughly 4 m. Since the difference in elevation between the first and third plaza floors in Group D (Plaza D-I and Plaza D-III respectively) is only 0.15 m, if Sub-I correlated to earlier floors it would alter the projected height only very minimally.

Sub-II

Though it appears unusual that the time gap in construction from Sub-I to Sub-II may have been from the Middle or Late Preclassic to the Late/Terminal Classic, this is a pattern that has also been recognized in temple-pyramids at several other sites in Belize (Hammond 1981:164). Therefore, this may be a widespread practice in the region. The gap in construction means that the size of Str. D4 did not increase from its projected, minimum, height of 4 m until the construction of Sub-II. Although a structure established early in the development of a site can inhibit the range of succeeding forms (Loten 2006:102), the modest size of Sub-I allowed lots of room for manoeuvre with the construction of Sub-II. The size of this second construction is assumed to have been significantly larger to the earlier form of Str. D4. Since it is not known how tall Sub-II became, the building effort could have increased the height of the structure anywhere up to 17 m (since its final height is roughly 21 m).

The majority of the expansion of Sub-I to Sub-II took place in a westerly direction, and only very minimally in an easterly direction. I suggest the reason for this is that the builders did not want to encroach upon the main plaza area of Group D. This interpretation assumes the plaza to the east of the structure was more significant than the plaza area to the west. The construction of Sub-II took place simultaneously with the construction effort in Plaza D, as illustrated by the correlation of the floors seen in the structural profiles (Figure 5.4). It appears that the construction effort in this area of the site was designed to increase simultaneously the size of Plaza D and Str. D4.

A qualitative analysis suggests that the expansion of Sub-II used low quality construction materials, based on the loose laid fill and dirt visible in the western portions of the profile maps. Dirt is especially considered to be a low quality construction material

(Seibert 2000:137). If large constructions were required in a short space of time at Ka'Kabish, it would make practical sense for Sub-II to be of low quality. In comparison to a higher quality material, such as marl, low quality materials would decrease the time and energy required for construction. It would also allow a faster pace of construction. Interestingly, the associated construction of Plaza D (D-VIII) is also characterised by low quality construction, since it was built using small to large aggregate rather than well-sorted fill. Therefore, although the principle of least effort was sometimes avoided in order to achieve architectural objectives (Hammond 1972b:85), it appears that Str. D4 and Plaza D were expanded in the Late/Terminal Classic using this principle.

As previously discussed, the practice of building over the top of earlier constructions is known as superpositioning and has political, ideological, and practical concerns. The creation of a large temple-pyramid would have been an important political statement, and would have communicated (at least superficially) to neighbouring sites that Ka'Kabish was successful, powerful, and functional. Enlargement and re-building were also methods of expressing political change, so perhaps Sub-II was an expression of a change in political status at Ka'Kabish, possibly commissioned by a new site ruler.

The practice of superpositioning would also have been a means of communicating with the deities. Ideologically, it is a practice associated with growth and renewal— a cycle controlled by the deities. Since temple-pyramids were considered metaphors for the body of deities (clearly illustrated through anthropomorphic sculptures [see Houston 1998]), enlarging and rebuilding them would be a potent symbol associating the rulers of Ka'Kabish with the deities. The ability to communicate with the deities would have been an important tool for rulers, since it was through such communication that they were able to appeal for and manage the production of good crops, ensure good health, and defend

against warring polities (Loten 2001:230). The populace of Ka'Kabish would, therefore, likely have expected and welcomed the construction of temple-pyramids. Consequently, the function of Sub-II was likely both political and symbolic. As the tallest temple-pyramid, it is likely to have had a strong ideological role within the community of Ka'Kabish.

Sub-III

This construction was the final recognizable form of Str. D4, and dates to the Late/Terminal Classic period. Since the increase in height from Sub-II to Sub-III is unknown, the difference between the two constructions cannot be estimated. A qualitative approach would suggest that the third construction used higher quality materials than the previous construction, since it was built using large cut stones and small to medium sized aggregate layered with marl. However, the Sub-III is only visible on the eastern side of the structure and, like Sub-II, lower quality materials may have also been used on the western side.

The construction profiles provide evidence of steps associated with the structure, facing east into the main plaza. This suggests that Str. D4 Sub-III had an outset stair. This is similar to other Late Classic temple-pyramids in northern Belize, such as Structure N10-9 at Lamanai (Pendergast 1981 Figure 5) and Structure A-6 B at Altun Ha (Pendergast 1979a Figure 75). Although it is unknown whether there were additional stairs on the western side of the structure, or indeed if it was a radial pyramid, presently the evidence for one stair facing east to the main plaza within Group D seems most likely.

The form of the final construction of Str. D4, and its position on the western side of the main plaza, lends some suggestions as to its original function. At first glance a

temple-pyramid on the west of a prominent plaza with a long range structure (Str. D1) on the east side, suggests that this combination could be an E-Group complex— especially since this is a combination in the Middle Preclassic seen at the site of Tikal (Hansen 1998:66). However, in the Preclassic period Str. D4 Sub-I appears to have been a range structure. In the Late/Terminal Classic it became a temple-pyramid with the construction of Sub-II. Thus, although the configuration of Str. D4 and Str. D1 did not conform to that of an E-Group complex in the Preclassic period, it may have been altered into an E-Group complex when Str. D4 Sub-II was built.

For Str. D1 to be considered part of an E-Group complex when Str. D4 Sub-II was constructed, it would require evidence of conforming to a tripartite arrangement (since this is the arrangement that evolved from the earlier Preclassic form). If Str. D1 supported three perishable structures on its summit, it conformed to the arrangement of eastern E-Group structures. However, since it is not currently known whether Str. D1 conformed to a tripartite arrangement, the possibility of Str. D4 having been part of an E-Group complex at Ka'Kabish cannot presently be supported. Nonetheless, it is a possibility to be considered in future work at the site.

Being the largest, and tallest, structure at Ka'Kabish in the Late/Terminal Classic, Str. D4 would have invited awe and attention from the populace. This is reflected in the fact that monumental architecture was considered to contain powerful animate forces, thus expressing a sense of power (Loten 2001:232). In light of this, high temple-pyramids at Ka'Kabish would likely have expressed and reinforced the power of the site rulers. Additionally, it has been suggested that the largest temple-pyramids at a site were more associated with royal dynasties than gods (Lucero 2007:413). Therefore, as has been suggested above, there were likely political, symbolic, and religious intentions behind

creating the largest structure at Ka'Kabish. Since there may not have been any clear distinction between politics and ideology in ancient Maya thought, these intentions may have been one and the same (Sharer and Traxler 2006:715,755).

Structure D9 Interpretations

Sub-I

The earliest construction of Str. D9 is thought to date to either the Middle or Late Preclassic period. Like Str. D4 Sub-I, it was much smaller in comparison to its final construction. Although the very thick (roughly 60 cm) plaster surface associated with this construction does not point to any obvious function, it has been suggested that very thick plaster floors may have been a demonstration of prestige (Richard Hansen, personal communication 2011). Thick plaster surfaces have high labour costs, since more effort is spent in preparing, applying, and maintaining them (Lucero 2007:413). Consequently, the role of Sub-I may have been a political tool to communicate high status and wealth. This suggests that there was an upper class or set of elite inhabitants at Ka'Kabish in the Preclassic period.

As with the other constructions of Str. D9 (apart from the final construction), no plaza floors have yet been found in association to Sub-I. Therefore, projected heights for this, or subsequent, constructions cannot be estimated.

Sub-II

The second construction of Str. D9 appears to date to the Late Preclassic. It consists of small to large aggregate coated in places with marl, and is associated with a layer of

burning and a potential cache. This combination suggests that a termination ritual may have taken place inside Str. D9, since caches, and structures in which they resided, were often burnt as an act of destruction (Chase and Chase 1998:324). The act of burning was a symbolic one and would have simultaneously terminated an old structure (Sub-I) and animated a new one (Sub-IIa).

The combination of what is likely to be ritual activity, and the location of Str. D9 on the eastern edge of Group D, suggests that it may have functioned as an ancestral shrine. Ancestral shrines are usually located on the eastern edges of central plazas, and have been identified as structures that were built to commemorate the dead (Becker 1971; McAnany 1998:278). This may explain why there were human or faunal remains placed within the structure (see Chapter four). Since east is associated with the rising sun, which is reborn after descending into the underworld each night, it was a direction intimately linked to rebirth (Chase and Chase 1994:54). Thus, the veneration of the dead was associated with this direction in the Southern Maya Lowlands (Chase and Chase 1994:54).

Ancestral shrines are regarded as the dominant structures of an architectural group (Becker 1971:149). These shrines show much variability in form, orientation, and inclusion of physical remains and, therefore, it is agreed that they did not necessarily house the dead but, rather, were representative of the dead (McAnany 1998:278). Like Str. D9, other eastern shrines in the Maya subarea have evidence of on-floor burning, caches, and other ritual activity (Becker 1971:143).

There is evidence for intensive use of this structure because of the numerous re-plastered surfaces (Figure 4.19). The continual need to maintain and re-plaster suggests there was a lot of activity associated with this structure. It also hints that there were powerful residents at Ka'Kabish in the Late Preclassic who were able to command or

finance the renovation of Str. D9. It has been suggested that "maintenance was...part of the community's effort to keep buildings alive so that they could continue to serve as pipelines to the gods...[therefore] repair work probably had a ceremonial value that outweighed the labor tax that it represented" (Pendergast 1990:68). This agrees with the hypothesis that Str. D9 was an important ritual structure; it experienced a high amount of use, and much time and effort were dedicated to its maintenance.

Sub-III

The construction of Sub-III is thought to have either taken place in the Early Classic, or in the Late Classic (or later) using recycled Early Classic ceramic material in the construction fill. Its construction, based on the extended plaster surfaces leading to the steps, appears to have had a different building technique to previous constructions. Additionally, the majority of construction fill was marl rather than loose laid fill. This suggests that Sub-III was built using higher quality materials than previous constructions. Elsewhere in the Maya subarea, it has been discovered that construction materials improved in quality from the Late Preclassic to Late Classic (Littmann 1962:102). The suggestion that Ka'Kabish had access to high quality resources in the Classic period is strengthened by the fact that it constructed an elaborate royal burial in Structure FA-6 in the Early Classic (see below).

Sub-IV

A qualitative approach would suggest that the final construction of Str. D9, which is thought to date to the Late Classic period or later, is of a lower quality to the previous construction. This is because it consists mainly of small to large aggregate coated only in

places with marl. Perhaps this is because it was associated chronologically with the large construction effort that took place in the main plaza of Group D. As discussed above, if large constructions were required in a short space of time it makes practical sense to use lower quality materials. Consequently, it appears that Str. D9 Sub-IV may also have been constructed using the principle of least effort, contrasting the earlier construction efforts. This suggests that some form of change took place between the construction of Sub-III and Sub-IV, which may have been between the Early and Late Classic at Ka'Kabish. Perhaps this change was stimulated by the events that were taking place in northern Belize and the wider Maya subarea during this latter period (see below).

Although Sub-IV correlates to the latest plaza floor in this area of Group D, the previous construction does not correlate to a plaza floor. Therefore, the difference in height between the two cannot be estimated.

Structural Comparisons

It has been suggested that tall temple-pyramids facing plazas were important theatrical stages, because rulers and other performers who climbed the stairs would have been highly visible (Inomata 2006b:199; Loten 2006:103). The form of Strs. D4 and D9, with stairs facing large plazas, suggests that they may both have functioned as stages for communicating to the populace of Ka'Kabish. Despite this comparative function between the structures, there is a clear contrast in terms of construction fill because Str. D4 has a relatively "clean" fill and Str. D9 does not. It has been noted elsewhere that some structures contain no artefacts within the fill whereas others do (Chase and Chase 1998:299).

Considering that "buildings that are essentially the same in scale and design can have different energetic costs" (Webster and Kirker 1995:382), the contrast between the construction fill of the two largest temple-pyramids within Group D may have been conscious and deliberate. The contrast may have been based on function or placement within Group D. The large amounts of broken artefacts and lithic debris within the construction fill of Str. D9 could be related to the high accessibility to this material. Likewise, the low amounts of this material inside Str. D4 could be related to low accessibility.

The accessibility to broken artefacts and lithic debris would be produced by a refuse area or an area of artefact production. The large open plaza in which Str. D9 is located could facilitate a large public event, such as a festival or dance. It is also thought that markets took place in conjunction with festivals, though it is not known if, and how often, markets would have taken place independently of festivals (Dahlin and Ardren 2002:275; Houk 1996:297; Schele and Matthews 1999:29; Sharer and Traxler 2006:659). Large amounts of refuse and debris would rapidly accumulate from such an event.

Regardless of frequency, the proximity of possible markets and other large public events to Str. D9 would have been a convenient reason for storing refuse nearby—perhaps in middens. Refuse like this could be used as construction fill in future construction efforts, and be a useful or pragmatic method of eliminating refuse from the area. The plaza space in front of Str. D4 is a slightly more restricted space (see below). Combined with the fact that almost no refuse was used as construction fill, it seems less likely that public events, creating large amounts of refuse, took place frequently in the plaza area adjacent to Str. D4. Consequently, the location of Strs. D4 and D9 at Ka'Kabish may be one of the reasons for the difference in construction fill.

Furthermore, Lucero (2007:413) has argued that differing construction patterns and fill among temple-pyramids reflects the effort of different groups, communities, or work parties. The distinct difference in construction fill between the two structures (as seen in Table 6.1) suggests that various individuals, perhaps from different households or kin groups, may have contributed to the construction of each structure— possibly as a form of tribute to the site ruler. One example in which construction tribute may have been achieved is through the use of "construction pens" (as discussed in Chapter three). Households may have been given the responsibility of infilling their own "pen" (Paul Healy, personal communication 2011). The collective efforts of different individuals in the building of a single structure would explain variations within construction fill.

Lucero (2007:414) also argues that if temple-pyramids were built for specific functions, rather than multi-purpose functions, there would be variability in orientation, types of offerings, and location. Comparison of these aspects for both Str. D4 and Str. D9 (Table 6.1) demonstrates that there is a distinct difference in location, orientation, and associated ritual activity. This hints that the structures may have been built for different functions, suggesting that Str. D9 was an ancestral shrine and Str. D4 was not. Since it

Structure	**Location**	**Orientation**	**Construction Fill**	**Ritual Activity**
D4	North end of Group D	Facing east	"Clean"	None recovered
D9	South end of Group D	Facing west	Large quantity of broken artefacts and debris	Burning, potential cache, human/faunal remains

Table 6.1. Variability between Structures D4 and D9.

has been argued that the death of important people encouraged construction episodes at Maya sites (Becker 1993:53-54; McAnany 1998:276), more constructions would be expected in a structure that functioned to commemorate and celebrate the ancestors. Therefore, if Str. D9 did indeed function as an ancestral shrine, this may explain why there are four constructions in contrast to the three constructions of Str. D4.

The contrast in construction practices between the two structures is also evident in re-plastering and maintenance episodes. As discussed above, Str. D9 Sub-II was re-plastered numerous times, which suggests that it was an important ritual structure. It is the only construction within Str. D9 that bears evidence for such extensive re-plastering. The re-plastering appears to have taken place between the Late Preclassic and the Early or Late Classic, since a new construction (Sub-III) engulfed Sub-II at the later time. Perhaps maintenance was reaching a point of diminishing return, and it was considered more efficient to create a new, and enlarged, structure (Schele and Matthews 1999:34). Perhaps the rulers of Ka'Kabish had increased wealth and prestige in the Classic period, making the construction of a new, larger, structure possible and desirable.

This hypothesis is strengthened by preliminary results in Structure FA-6 at Ka'Kabish. In this structure looters exposed a tomb with red-painted walls, upon which hieroglyphic writing had also been written in red paint. Decipherment of a portion of these hieroglyphs suggests that they provide the name of the individual that was buried in the tomb, likely a site ruler (Haines 2010:17). The results from C^{14} dating and ceramic analysis date the tomb to the Early Classic period (Budhoo 2011; Haines 2010:17). This suggests that Ka'Kabish was a substantial centre at this date, since it had the resources to support an elaborate elite burial.

In contrast to Str. D9, there is no evidence for numerous re-plasterings within Str. D4. This hints that Str. D4 was not used as intensively as Str. D9. This supports the hypothesis that larger and more frequent public events took place in and around Str. D9, creating the need for continual maintenance. Hence, it appears that Str. D9 may have been the more important structure at Ka'Kabish, in terms of the function and role it held within the community. Perhaps this status shifted in the Late/Terminal Classic when Str. D4 became the largest structure at the site.

Group D Interpretations

Having discussed both Strs. D4 and D9, it is now important to consider the larger area of Group D. It is also useful to consider the arrangement of architecture within the group, and to explore architectural relationships to sites in northern Belize and the wider Maya subarea.

Construction Practices

As discussed in the previous chapter, there is a change in construction practices in Group D in the Late/Terminal Classic period. This construction effort increased the size of various architectural units, in some cases dramatically (such as Str. D4 and Plaza D). I am assuming that this construction took place in several areas in Group D, if not the entire group. Consequently, the final construction of Str. D9 (Sub-IV), which is tentatively dated to the Late Classic, may also correlate to this large building effort. This would place the construction in the same period as Str. D4 Sub-II and Plaza D-VIII— the Late/ Terminal Classic period.

This change in construction mirrors changes that took place elsewhere in northern Belize during this period, such as at the sites of La Milpa and Dos Hombres. Both sites experienced major construction efforts in the Late Classic and were subsequently abandoned in the Terminal Classic (Hammond and Tourtellot 2003:97-98; Houk 1996:235-236; Scarborough and Valdez 2003:10). Similarly, significant expansions took place at various structures in the Late Classic at the neighbouring site of Blue Creek prior to abandonment of the site in the Terminal Classic period (Guderjan 2004:248).

Since Ka'Kabish shares a pattern of large construction with the above sites, which were all abandoned in the Terminal Classic, Ka'Kabish may also have been abandoned during this time. An indicator of abandonment is argued to be a decline in architectural constructions (Chase and Chase 2004b:15; Morris *et al*. 2007; Rice *et al.* 2004:9; Sharer and Traxler 2006:500), and presently there is no evidence for constructions in the site core past the early phase of the Terminal Classic period (based on the ceramics recovered). However, more research is needed at Ka'Kabish before this can be confirmed, since we are lacking information on the construction chronology of the majority of structures at the site.

Another indicator of abandonment is the absence of exotic materials, since the shutting down of trade routes is argued to be a common characteristic of declining sites in Belize during this period (Morris *et al*. 2007). Indeed, trade routes appear to have broken down by the Late Classic at the neighbouring site of Blue Creek, since access to jade had declined by this time (Guderjan 2004:248). Long distance trade may still have been taking place in the Late/Terminal Classic at Ka'Kabish, however, because obsidian is still present (Table 6.2). Nevertheless, it is important to remember that the obsidian found within the construction fill may have been from refuse created centuries before, and may

not be reflective of refuse explicitly from the Late/Terminal Classic.

If Ka'Kabish did not decline in the Terminal Classic it would share the longevity of several other sites in northern Belize, such as Lamanai, Chau Hiik, Nohmul, and El Pozito (Andres 2005:21; Chase and Chase 1982; Hester *et al* 1991:67; Pendergast 1981). This would suggest that Ka'Kabish was more like its neighbours to the east (than to the west) of northern Belize (see Figure 2.1). Future research is needed to understand more fully whether Ka'Kabish was occupied or abandoned during this period of unequal growth and decline in northern Belize.

The change in construction practices at Ka'Kabish in the Late/Terminal Classic is characterized by large, low quality, constructions (Table 6.2). As discussed above, this suggests that constructions took place in a short period of time. The stimulus to create large constructions at Ka'Kabish as quickly as possible may be due to events that were taking place in northern Belize. During the Terminal Classic period in northern Belize there is a strong contrast between the continuity and discontinuity in occupation of sites.

Accompanying the continuity in occupation was a population expansion at various

Construction	**Low Quality Fill**	**Large construction effort**	**Long Distance Trade**	**Date**
D4 Sub-II	Yes	Yes	Maybe (obsidian in corresponding plaza level)	Late/Terminal Classic
D9 Sub-IV	Yes	Yes	Maybe (obsidian in collapse level)	Late Classic
Plaza D-VIII	Yes	Yes	Maybe (obsidian in corresponding levels)	Late/ Terminal Classic

Table 6.2. Comparison of Late/Terminal Classic constructions in Group D.

sites, thought to be due to an influx of people coming from the Petén region of Guatemala (Barrett and Scherer 2005:105; Chase and Rice 1985:1). The movement from the Petén may have been encouraged by people moving into the Lowlands from northern Yucatán. This suggestion stems from evidence that the site of Nohmul in northern Belize was closely allied to northern Yucatán, specifically the site of Chichen Itza (Chase and Chase 1982:610). Puuc Slate ceramics, developed in the Yucatán, are found at Nohmul during this period (Chase and Chase 1982:608; Sharer and Traxler 2006:501). Interestingly, there is evidence for what appears to be Puuc Slate wares from Str. D4 at Ka'Kabish as well (Lot 183), further illustrating the link that northern Belize had to the Yucatán at this time. Consequently, perhaps the large construction effort at Ka'Kabish signifies an increase in population at the site— due to an increased presence of Yucatán populations in northern Belize at this time.

The increasing number of inhabitants could have aided the large construction effort at Ka'Kabish, but in itself does not explain the change in construction practice. Substantial additions to architecture elsewhere in Belize during this period are thought to be the result of a growing, and more politically competitive, community (Lucero 2007:419). Consequently, the construction effort at Ka'Kabish was likely a "final push" towards success— fashioned to demonstrate political power, in an attempt to avoid a fate similar to neighbouring declining sites in the Terminal Classic.

Group D Architectural Arrangement

Although architecturally "the stones cannot really speak for themselves ...they...do speak a language which is still comprehensible in terms of design and form" (Andrews 1975:33). Hence, I argue that the architectural arrangement of Group D can be translated

into meaningful information about the site of Ka'Kabish. However, prior to discussing the arrangement of architecture, it is important to emphasize some basic assumptions. I am assuming that Group D is an intentionally organized architectural entity, and is reflective of the intentions and objectives of the elite inhabitants of Ka'Kabish. These intentions may be political, ideological, or practical, as has been argued elsewhere (Awe *et al*. 1991:28; Houk 1996:x).

The platform on which Group D sits appears to have been arranged on a north-south axis, as it is longer than it is wide. I argue that the arrangement of Group D has two distinct spaces (Figure 6.1). The main plaza in Group D appears to have functioned as a semi-restricted plaza, which could be accessed between Str. D4 and the ballcourt, and

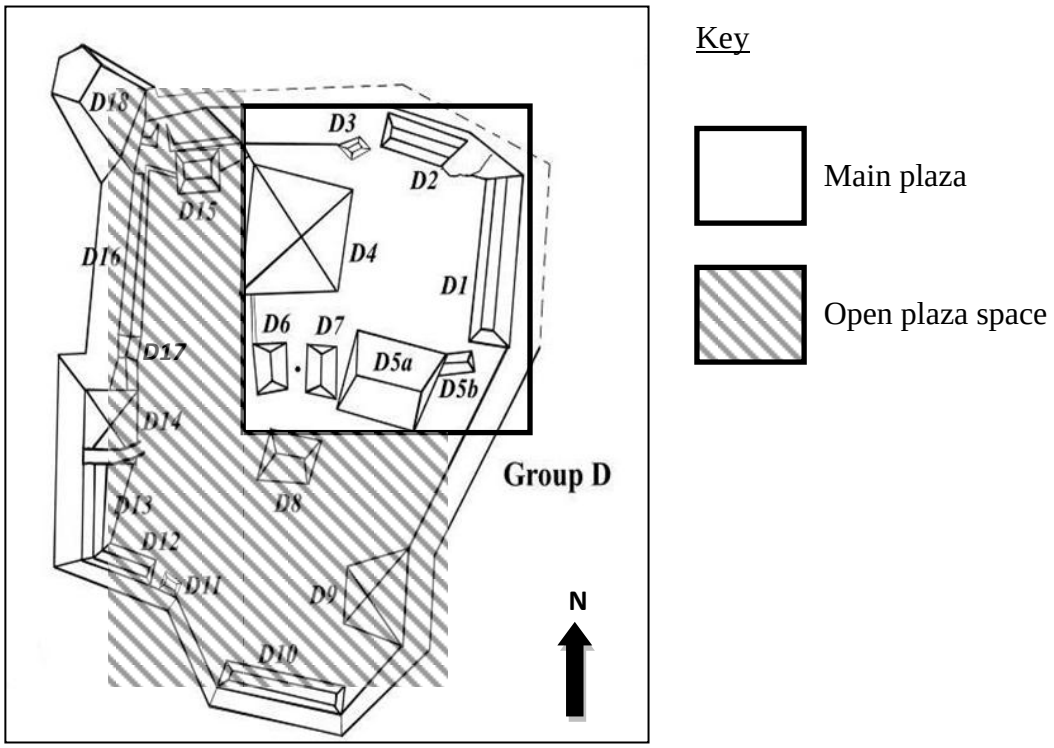

Figure 6.1. The two distinct plaza areas within Group D. The main plaza is distinct from the rest of the group, which has been designated 'open plaza space'.

between Strs. D4 and D3. Semi-restricted plazas were likely used for both civic and religious activities, and may have had community-related functions (Awe *et al*. 1991:28). The rest of Group D represents a more open and accessible plaza space. The southern area of the group is divided from the main plaza by the ballcourt, and the area to the west of the main plaza is an elongated space. Elongated plaza spaces elsewhere in northern Belize are presumed to be an attempt to exaggerate length and create a larger and more open space (Houk 1996:280). Therefore, the area to the west of the main plaza may have been designed to elongate the overall platform size, helping to increase the overall size of Group D.

Considering that the main plaza may have been semi-restricted, the flow of people into and out of this area could be controlled and, in this sense, was an effective method of architectural segregation (Awe *et al*. 1991:29). Contrastingly, the rest of Group D is an open and less controlled space. Considering that Group F was attached to the north-west of Group D via a ramp or stairway (Haines 2010:12), it would have visually demonstrated that access to and from Group F was restricted. Thus, it appears that controlling the movement of people into and out of the northernmost group at Ka'Kabish may also have been a concern. It has been demonstrated that various architectural devices were employed by the Maya to control access to spaces (Hammond 1972b; Schele and Matthews 1999:29), and it appears that such devices were employed for the northern portions of Ka'Kabish (Group F and the main plaza in Group D).

Architectural Relationship to Northern Belize

To understand more fully the architectural arrangement of Group D, a comparison with neighbouring sites is useful. Although comparisons will be made with sites of

varying size, other scholars have used this method with success (e.g., Ashmore and Sabloff 2002; Houk 1996). Ashmore (1991:200, 1992:174) has defined five site planning principles that regularly appear in ancient Maya architectural arrangements:

1) Reference to a north-south axis;
2) Complementary functions between north and south;
3) The addition of elements on the east and west to form a triangle with the north;
4) The presence of a ballcourt as a transition between north and south ;
5) The use of causeways to emphasize connections.

The complementary functions between north and south are often visible in the presence of a northern ritual group and a southern residential-administrative group (Ashmore 1992:179). The ballcourt is commonly positioned between the two, acting as a transition point between the underworld and the living world (Ashmore 1992:176).

On a smaller scale of Maya architectural arrangement, specifically focusing on north-west Belize, Houk (1996) has defined two types of site arrangement. Type 1 sites have the largest plaza (and therefore the open/public space) at the north end of the site, whereas Type 2 sites have the enclosed /private acropolis at the north end of the site (Houk 1996:279). Type 1 sites, including La Milpa, are thought to be related to a site planning template originating in the north-east Petén (Houk 1998:9). Type 2 sites, including Blue Creek, are all located in a north-south line paralleling the course of the Booth's River (Houk 1996:285, 1998:9). They appear to be related to sites between the Hondo River and New River in northern Belize, since sites in this region are also divided into two contrasting parts— the southern area being a public open area and the northern area being enclosed and private (Hammond 1981:165; Houk 1996:289, 1998:10).

Similarly, sites to the north of this region in southeast Campeche (Mexico) also have an area of civic architecture, and an area of ceremonial architecture (Šprajc 2004:404), and therefore have architectural similarities to northern Belize.

Houk (1996:279) discovered that Type 1 and Type 2 sites share the following common elements:

1. A north-south alignment;
1. A large rectangular plaza (usually with an attached quadrangle group);
2. An acropolis group juxtaposed with the main plaza;
3. A ballcourt between the north and south groups;
4. At least one stela;
5. Causeways connecting parts of the site core, and the site core to distant groups or features.

When the above models are applied to the site plan of Ka'Kabish, strong ties to northern Belize and the wider Maya subarea emerge (Table 6.3). As a common pattern throughout the Maya subarea (Ashmore 1991, 1992), and at neighbouring sites in northern Belize and southeast Campeche (Houk 1996; Šprajc 2004:404), it is no surprise that the site plan at Ka'Kabish appears to have a north-south axis. This shows that the elite inhabitants of Ka'Kabish consciously arranged their architecture to emulate this distinct axis, with Group F being placed at the north end of the site and Group A at the southern end of the site. Group F contains the acropolis group of Ka'Kabish and, since it was likely connected to Group D via a ramp or stairway, it appears to reflect the pattern of an acropolis group adjacent to a main plaza observed by Houk (1996). It also appears that Ka'Kabish has ties to northern Belize and the wider Maya subarea because it

	North-South Axis	Contrast of north and south areas	Ballcourt positioned between two areas
Ka'Kabish	Yes	Yes	Yes
Northern Belize	Yes	Yes	Yes
Other sites in Maya Subarea	Yes	Yes	Yes

Table 6.3. Comparison of Ka'Kabish architectural arrangement to common arrangements found in northern Belize and wider Maya subarea.

conforms to the pattern of contrasting northern and southern areas. The northern area of Ka'Kabish includes the Group F acropolis, which would have been a restricted area, and the southern area includes Group D, which is a more open and accessible area.

Another common pattern among Lowland Maya sites is the placement of a ballcourt between two contrasting groups. Ashmore (1992:179) has suggested that ballcourts are placed between a northern ritual group and a southern residential-administrative group. This would conform to Houk's Type 1 sites. However the area to the south of the ballcourt at Ka'Kabish is open, and the area to the north (the main plaza and Group F acropolis) is more restricted. Therefore, the ballcourt at Ka'Kabish likely separates a northern residential-administrative area and a southern ritual area, and for that reason it appears to conform to Houk's Type 2 sites. Further supporting the suggestion that Ka'Kabish fits into Type 2 sites is the fact that the location of the site follows the general north-south line of other Type 2 sites close to the Booth's river (Houk 1996 Figure 6.17).

While the placement of the ballcourt in the centre of Group D does not conform neatly to the division of two distinct areas, as it does in Houk's original analysis, the exact

layout of Ka'Kabish over time is presently unknown. Since the dates of construction for Group F are unknown, it is possible that it was a later addition to the site core than Group D. Thus, it is possible that the ballcourt initially separated only the northern and southern portions of Group D, and Group F later became the northern portion of the site. It is equally likely that the main plaza in Group D was not initially an enclosed space, and only later became a semi-restricted space. Hence, the whole of Group D would have been the southern ritual area and, therefore, more clearly distinguished from the northern area.

Regardless of the change in architecture over time, it is clear that prior to the abandonment of Ka'Kabish, the site had both a northern residential-administrative area, and a southern ritual area— albeit with an indistinct division. In this regard, Ka'Kabish does have an architectural relationship to northern Belize and the wider Maya subarea.

Architectural Relationship via Visual Communication

It has been suggested that there may have been some form of visual communication between the sites of Blue Creek, Lamanai, and Ka'Kabish, perhaps expressed architecturally (Guderjan 1995:17). Considering that Ka'Kabish can be seen from Structure N10-43 at Lamanai, and from the escarpment at Blue Creek (personal observation, 2010), this is not an unreasonable suggestion.

An architectural similarity to the site of Lamanai would be expected, based on the latter site's prominence and size, its close proximity, and similarity in elite tomb constructions (Haines 2007:11). However, despite the fact that Lamanai is on a north-south axis, its layout also clearly follows the shore of the New River Lagoon on which it is situated (Pendergast 1981:32). Thus, Lamanai is more likely to have been influenced by its environmental setting than Ka'Kabish was. The similarity to Blue Creek is more

evident in a north-south axis, and the presence of a ballcourt between a contrasting northern and southern area, but little more. Based on the present evidence there is little proof that there was a strong form of visual communication between the three sites. However, further research is required before this suggestion should be accepted or disregarded.

Summary

Plaza D and Strs. D4 and D9 are individual architectural components of a larger socio-political system at Ka'Kabish. Within Group D, the two largest temple-pyramids appear to have functioned as tools of communication, and symbols of political status. The architectural arrangement of the group suggests that Ka'Kabish deliberately oriented its structures on a north-south axis, and created two distinct residential and ceremonial areas separated by a ballcourt. How this arrangement changed over time is unknown, but future research will provide a fuller understanding of how Ka'Kabish compares, architecturally speaking, to sites in northern Belize and the wider Maya subarea.

What is presently known is how the site responded to events that were taking place in northern Belize during the Late/Terminal Classic period. Construction practices reveal that in response to changes that were occurring, the decision to increase the size of architecture in Group D rapidly was taken. This appears to have been a "final push" towards success— perhaps fashioned to avoid a fate similar to several, nearby, declining sites.

Chapter Seven: Conclusions

Using the information gained from investigations at the site of Ka'Kabish, as well as information attained from a literary review, I will now attempt to answer the research questions posed in Chapter one. The future research needed at Ka'Kabish is also discussed, as well as additional goals for integrating the remnants of looting into archaeology. To conclude the thesis, a short summary of this research and its implications is provided.

What are the Advantages and Disadvantages of Using Looter's Trenches in Archaeology?

Looting, otherwise known as illegal excavation of an archaeological site, takes place on a worldwide basis in order to acquire artefacts to sell on the antiquities market. Looters do not fill in their excavations when they depart a site, thus leaving behind evidence of their destruction. Due to the short period of time in which these excavations take place, and the lack of concern for preservation or context, many looters' trenches are unstable and actually destroy entire sections of archaeological sites. Since some looters' trenches are unstable, and therefore dangerous, not all can be used by archaeologists. Fortunately, as has been demonstrated with this research, some can be used to supplement and enhance our knowledge of the archaeological record. However, no specific guidance exists within the archaeological community to inform archaeologists whether they should or should not be using looters' trenches. To aid archaeologists in their decision about whether to make use of them or not, I discuss the advantages and disadvantages of using looters' trenches.

Disadvantages

Some scholars and scholarly journals argue that the study and publication of looted antiquities legitimizes looting, and increases the monetary value of unprovenanced artefacts (Argyropoulos *et al.* 2011; Tubb 2007:6). Some journals have gone as far to refuse to publish information about objects which are associated with looting (Archaeological Institute of America 2011; Society for American Archaeology 2011:5). Similarly, the use of looters' trenches could be seen as lending a sense of legitimization and reluctant acceptance of looting. Since some people believe that archaeologists are involved in the illegal exportation and sale of artefacts in overseas countries (Gilgan 2000:6), direct association with looters' trenches can do little more than to encourage further the idea that archaeologists are no better than looters.

The very nature of looters' trenches, which are often haphazard and unstable, can be dangerous for archaeologists because they have the potential to cause serious injury—just as they have harmed, and even killed, the looters that created them (Grube 2006:244; Helen Haines, personal communication 2010). Looters have also been reported to carry weapons, and many are involved in other illegal activities, such as drug trafficking, the arms trade, and even terrorism (Argyropoulos *et al.* 2011; Gilgan 2001:78; Grube 2006:244; Miller 1982:42; Rothfield 2009:85). There are reports of archaeologists being threatened, and even fatally shot by looters (Graham 1986:454; Robertson 1972:147). The bullet shell casings found within trenches at Ka'Kabish (Chapter four) are examples of the risks involved when archaeologists involve themselves with looting and looted sites.

Lastly, looting is sometimes so extensive at a site that a great deal of crucial information is lost, leading to attitudes that "all the good stuff has already left...and only broken pots are here" (Gilgan 2000:52). It can, thus, be argued that the time spent

investigating a looters' trench may have been better spent investigating areas where artefacts have not been removed since there is more information to be gained from areas where looting has not taken place. Additionally, the destructive nature of looters' trenches can make it very difficult to interpret and understand information, essentially "impairing" the work of archaeologists (Graham 1986:457). Hence, in addition to losing information, the data left behind can be misleading or wrongly interpreted by archaeologists, thereby further distorting the archaeological record.

Advantages

One main advantage of using looters' trenches is the ability to observe and record information without having to excavate an area, saving time, energy, and money. Another advantage is the ability to salvage information from a site, sometimes before further deterioration or further looting takes place. Since looters' trenches are not filled in, they can expose some large areas of archaeological sites and quicken the pace of deterioration— thereby further destroying the archaeological record. Additionally, trenches can be later used by other looters, who can expand upon previous acts of looting, as was the case in Structure D9 at Ka'Kabish. Therefore, this thesis research is an example of salvaging information from a looted site before further deterioration and looting destroys valuable information.

Although the use of looters' trenches could be seen as lending a sense of legitimization or acceptance, it also enables archaeologists to enrich the archaeological record. Looters leave behind evidence of stratigraphy, construction materials, and even abandoned artefacts. All of these can be used by archaeologists to gain information and it is, therefore, important to stress that what is often deemed to have no value to looters can

be of the utmost importance to archaeology. This emphasizes the inherent difference between looters and archaeologists, and demonstrates that while looting can severely damage a site and remove many aesthetically pleasing artefacts, archaeologists can still learn a great deal from what is left behind. While a site may appear to have been destroyed and ransacked on the surface, it is literally what is below the surface that is valuable and useful to archaeologists.

Overall, the enrichment of the archaeological record speaks for itself in support of the use of looters' trenches. I argue that the advantages ultimately outweigh the disadvantages, and that it is beneficial to make use of looters' trenches in archaeology. My research provides an example of how archaeology has been able to make the best of a bad situation, and enrich our knowledge about the site of Ka'Kabish despite the looting. Continued use of looters' trenches can only continue to demonstrate how to counteract the looting that is still very much prevalent in Belize, and worldwide.

What was the Chronological Building Sequence of Structures D4 and D9?

Structure D4

This structure had three different construction phases, which have been labelled Sub-I to Sub-III. Information from mapping, artefact analysis, and comparative studies, was used to define the construction chronology of this structure. The earliest construction, Sub-I, dates to either the Middle or Late Preclassic period. It was a fairly modest-sized construction, thought to be only 4 m in height, compared to its later form, and consists of small to large aggregate coated in places with marl.

The second construction, Sub-II, dates to the Late/Terminal Classic period, and expanded Str. D4 significantly in terms of size. Since it is not known how tall Sub-II became, the building effort could have increased the height of the structure up to 17 m (since its final height is roughly 21 m). The gap in construction activity from the Preclassic to the Late/Terminal Classic is lengthy, but is a pattern which has been recognized in temple-pyramids at other sites in Belize (Hammond 1981:164). The majority of construction took place in a westerly direction and only minimally in an easterly direction. It appears to have been built using low quality construction materials, such as dirt and loose laid fill, suggesting that it was constructed in a short period of time. This construction also correlates with the large construction of Plaza D, with plaster floors matching in elevation.

The final construction, Sub-III, also likely dates to the Late/Terminal Classic period. The increase in height from Sub-II to Sub-III is unknown, and the difference between the two constructions cannot be estimated. By this time, Sub-III stands at 21 m tall. It was constructed using large cut stones, and small to medium sized aggregate layered with marl. These appear to be higher quality materials than were used in the previous construction. The stair of this construction was outset, and faced east to the main plaza within Group D.

Structure D9

This structure had four different construction phases, which have been labelled Sub-I to Sub-IV. Information from mapping, artefact analysis, and comparative studies, was used to define the construction chronology of this structure. Unlike Str. D4, projected heights cannot be estimated for the constructions within Str. D9 because plaza floors have

yet to be found in correlation to the building sequence. Although Sub-IV correlates to a plaza floor, the previous construction does not correlate with a plaza floor and therefore the difference in height between the two cannot be estimated.

The earliest construction, Sub-I, dates to either the Middle or Late Preclassic period and is only represented by a very thick plaster surface, which may have been a plaster floor. The second construction, Sub-II, also dates to the Late Preclassic period and consists of small to large aggregate coated in places with marl. It appears to have been part of a stair and bears evidence for re-plastering, which is why it is referred to as Sub-IIa and Sub-IIb. Numerous re-plasterings are associated with this construction, suggesting that the structure was intensively used.

The third and fourth constructions, Sub-III and Sub-IV, are less securely dated. Sub-III is thought to have been built either in the Early Classic, or in the Late Classic, or later, using ceramic material from the Early Classic as part of its construction fill. It appears to have been constructed using a different technique to the previous constructions, based on the extended plaster surfaces leading to the steps. Additionally, the majority of construction fill was marl rather than loose laid fill, suggesting that Sub-III was built using higher quality materials than the previous constructions.

Sub-IV is thought to have been built in the Late Classic period, or later, and appears to have been built using lower quality materials than its predecessor, suggesting that it was constructed in a short period of time. This suggests that it may correspond to the large building effort seen elsewhere in Group D, and would push the date of the final construction to the Late/Terminal Classic. Excavation revealed steps associated with Structure D9 Sub-IV, upon which may have originally been a stair block. In its final stage, Str. D9 stood 8.5 m tall.

In conclusion, both structures were first built during the Preclassic period. Str. D4 began as a small structure, and in the Late/Terminal Classic was expanded during a period of major construction within Group D. A third, and final, construction overlay this, which appears to also have been built during the Late/ Terminal Classic. Str. D9 began as a much smaller structure in comparison to its final form. Constructions took place more frequently in this structure, and there appears to have been more intensive use of this structure during certain periods. The fourth, and final, construction of Str. D9 appears to have taken place in the Late Classic period, but may have been associated with the large construction effort in Group D—pointing to a date of construction in the Late/Terminal Classic.

What were the Functions and Roles of Structures D4 and D9?

Although role and function can be intertwined, and are often viewed as interchangeable, in this thesis they viewed as having a distinction. The function of a structure is the specific purpose for which it was built. The role of a structure refers to the manner in which it is viewed and perceived by the populace, and the resulting involvement it had within a site or an area of a site. Thus, the former refers to the practical, and the latter refers to the ideological. The function and role of the structures may, or may not, have changed over time.

Being high temple-pyramids facing large plaza areas, both structures likely functioned as stages for communicating to the populace of Ka'Kabish. However, the contrasts in construction fill, location, orientation, and types of offerings suggest that the structures were built by different groups or work parties, and that each was raised for

specific functions. Therefore, as well as serving the purpose of temple-pyramids, it appears that there were additional functions specific to each structure.

Structure D4

The earliest form of this structure, Sub-I, is a long and narrow structure and appears to conform to the typical form of range structures. It bears evidence for apron mouldings and red painted stucco, said to be the basic trappings of Maya public architecture (Freidel 1986:xviii). Therefore, evidence suggests that it functioned as a public structure in the Preclassic period. Due to its location in the main plaza of Group D, which appears to have been a semi-restricted space, it is likely that events which took place in the plaza adjacent to Str. D4 were infrequent and required the control of people into and out of this area.

The construction of Sub-II changed the form of the structure into a temple-pyramid. It engulfed the earlier construction and extended it greatly in terms of height, as well as overall mass. If further excavation reveals that Str. D1 conformed to a tripartite arrangement when Str. D4 Sub-II was built as a temple-pyramid, then their combined functions may have been an E-Group architectural complex.

Large temple-pyramids were important political statements, and could be used as tools of communication both to the populace of Ka'Kabish and neighbouring sites. Therefore, the role of Str. D4 may have been to express change in political status at Ka'Kabish in the Late/Terminal Classic period. In contrast to Str. D9 (see below), there is no evidence for numerous re-plastering episodes of Str. D4. This suggests that it was not used as intensively as Str. D9, perhaps reflecting a lower role within the community. It is likely that this role changed in the Late/Terminal Classic when Str. D4 became the largest structure at the site.

Structure D9

This structure appears to have been an ancestral shrine, based on its location within Group D and recovered evidence for ritual activity. Ancestral shrines were built to commemorate the deceased, and this is why it is interesting that the structure is located in the southern portion of Group D. South is associated with the underworld and north with the world of the living (Ashmore 1991:200-201). The ballcourt, which was also associated with the underworld, divided these two areas at Ka'Kabish. Hence, the ballcourt within Group D may have acted as an entrance to the underworld, a location where a structure celebrating the deceased would be expected.

The numerous re-plastering episodes associated with the Sub-II construction suggests that the structure was intensively used. This agrees with the hypothesis that larger and more frequent public events took place in and around Str. D9, creating the need for continual maintenance. Therefore, it appears that prior to the construction of Str. D4 Sub-II, Str. D9 may have had a more important role at Ka'Kabish. The very thick plaster surface of the earliest construction, which is thought to reflect high status (Richard Hansen, personal communication 2011), suggests that this prominent role dates to the structure's very beginnings.

In conclusion both structures functioned as temple-pyramids and stages of communication in their final stages of construction, but Str. D9 had the more specific function of an ancestral shrine. The function of Str. D4 changed from what is likely to have been a range structure, to a large temple-pyramid. Becoming the largest structure at the site may have changed its role within the community. This suggests that the roles of the two structures may have changed over time, with Str. D9 possibly having a more

prominent role early on in the site's history and Str. D4 overtaking this prominence at a later date.

What can be Learned about Construction Practices at the Site of Ka'Kabish?

A significant change in construction practice takes place in Group D in the Late/Terminal Classic period, as illustrated by a very large construction effort. The increase in the size of architecture diverges from earlier periods, where structures and plaza floors did not increase as dramatically in size. Although this is currently only witnessed in three architectural units (Plaza D and Strs. D4 and D9), it is assumed that this large construction effort affected a larger portion, and perhaps even the majority, of Group D. Low quality construction materials appear to have been used as construction fill for the structures, suggesting that expansions were carried out over a short space of time using the principle of least effort.

These events mirror other major constructions at sites in northern Belize in the Late Classic period (Hammond and Tourtellot 2003:97-98; Guderjan 2004:248; Houk 1996:235-236; Scarborough and Valdez 2003:10). The stimulus for increasing the size of architecture during the Late/Terminal Classic may, in part, be due to an influx of people coming from northern Yucatán and the Petén area of Guatemala (Barrett and Scherer 2005:105; Chase and Chase 1982:610; Chase and Rice 1985:1). This was a time of significant disruption and change in the Maya subarea, as Classic period political systems declined (Demarest *et al*. 2004:572). Therefore, perhaps the large construction effort at Ka'Kabish signifies an increase in population at the site. However, this in itself does not explain entirely the change in construction practice.

It has been suggested also that architectural enlargements and additions during this period were the result of growing and more politically competitive communities (Lucero 2007:419). Indeed, the region of northern Belize in the Terminal Classic period demonstrates a strong contrast between the continuity and discontinuity in occupation of sites. Sites were likely competing to survive in the region at this time, and it is likely that Ka'Kabish and other sites responded by demonstrating a visual effort towards growth and success. Consequently the construction effort at Ka'Kabish may be seen as a "final push" towards success, fashioned to demonstrate political power to avoid the fate of its declining neighbours. If Ka'Kabish's efforts were successful, it would share the longevity of sites to the east (such as Lamanai and El Pozito), but if it declined in this period it would share the fate of several sites to the west (such as Blue Creek and La Milpa).

In summary, the construction practices at Ka'Kabish are detailing the site's response to events which were taking place in northern Belize, and the wider Maya subarea, especially in the Late/Terminal Classic period. This was a time of uneven change which saw many sites declining and a few flourishing. The stimulus behind the large construction effort at Ka'Kabish may have been an effort to avoid the fate of declining sites.

What can be Learned from the Architectural Layout of Group D?

As well as being the largest architectural grouping at Ka'Kabish, Group D contains the site's largest structure (Str. D4), and the lone ballcourt (Strs. D6 and D7). Being such a prominent collection of structures, the layout of the group is expected to be very informative in terms of illustrating how Ka'Kabish relates, architecturally speaking, to other sites in northern Belize and the wider Maya subarea.

Group D is thought to have two distinct areas. The north-east corner of the group appears to be a semi-restricted plaza space, referred to as the main plaza, and the rest of Group D is a more open and less restricted space. These distinct areas would likely have dictated the nature of the activities that took place, and impacted the movement of people. The activities that took place in and around Str. D4 may have been less frequent than those taking place in and around Str. D9. The frequency of maintenance in Str. D9, demonstrated by the numerous re-plastering events, appears to support this hypothesis.

Both the arrangement of Group D and the overall site plan of Ka'Kabish (with Group F to the north and Group A to the south) are on a north-south axis. This axis is prevalent at many sites in northern Belize and the wider Maya subarea, reflecting a common intention in Maya site planning. The ballcourt at Ka'Kabish is located close to the centre of Group D, between the main plaza and open plaza space. Thus, as at other sites, it appears to divide a contrasting northern and southern area. What is not yet clear is whether the restricted area was only Group F, or whether it included the main plaza in Group D. Regardless, it is clear from the final architectural arrangement that Ka'Kabish had both a northern residential-administrative area, and a southern ritual area— albeit with an indistinct division—and it appears to conform to Type 2 sites of northern Belize defined by Houk (1996).

In conclusion, the arrangement of architecture in Group D shares affinities to northern Belize and the wider Maya subarea, because of its north-south axis, contrasting northern and southern areas, and placement of a ballcourt between these areas (Ashmore 1991, 1992; Houk 1996; Šprajc 2004:404). Presently, Ka'Kabish does not demonstrate implicit architectural relationships with the neighbouring sites of Lamanai or Blue Creek. Only future research will enable a better understanding of whether or not there is an

architectural relationship between the three sites.

Future Research and Goals

Much more work is required at Ka'Kabish for a more holistic understanding of the site. The construction chronology of other structures and architectural units within all groups still needs to be defined, which will demonstrate how the site evolved and changed over time. A larger artefact assemblage also needs to be recovered to understand consumption and production practices, as well as trade routes and potential political alliances. Ultimately, further information will improve our understanding of Ka'Kabish, and its relationship to other sites in northern Belize and the Maya subarea.

In an ideal world, steps for protecting the site from further looting would be established but, unfortunately, Ka'Kabish is one of many sites requiring such protection in Belize. Protecting one site ignores the wider scale of the problem and will not eliminate the problem of looting. Focusing on the problems from both the developed and developing nations (collector/dealer and looter respectively) is essential in order to reduce and eventually stop looting. On the developed side, increased legislation is essential to halt the import of artefacts from developing countries such as Belize. On the developing side, increased education is essential to teach local people that looting destroys their own heritage. However, it is likely that people who are driven to looting will be driven to other illegal activities to replace any lost income. Therefore, increased employment opportunities are also necessary to discourage the need for looting. The long-term goal is to reduce and even stop looting of archaeological sites such as Ka'Kabish.

Summary

This thesis is a case study of how looters' trenches can be used to benefit modern archaeological research. It began with the opportunity to record and map looters' trenches in Str. D4 at the site of Ka'Kabish in north-central Belize. Prevalent looting at the site allowed excavation and mapping of a looters' trench in a second structure, that of Str. D9. The information collected from the looters' trenches was combined with new excavation information from Plaza D, to learn more about ancient Maya construction practices at the site.

Central to this research was the principle of making the best of a bad situation, since Ka'Kabish has, in a sense, been damaged and cheated of some of its history due to looting. As a case study, this research demonstrates that archaeologists can learn from looters' trenches, and should strive to preserve the remnants of data from looting by making full use of these trenches. It demonstrates that, rather than lending an overall sense of legitimization or acceptance to looting, the use of looters' trenches can enrich the archaeological record. In addition to the positive outcomes of this research, it is important to remember that using data from looters' trenches has limitations. For example I was restricted in the interpretations that I could make, since the removal of artefacts and destruction of architecture by looters distort the archaeological record. If the structures had not been looted, the interpretations made might have been significantly different and could alter our current understanding of Ka'Kabish.

What this thesis cannot explore is the wider implications of looting and, therefore, it does not address at length the selling of archaeological artefacts on the antiquities market. In a sense, because this aspect controls and drives the looting of archaeological sites, this thesis is not a complete study of how looting can be stopped. In most cases it is not in the

power of archaeologists to halt looting and, therefore, they should focus on preserving and enriching the archaeological record. The demise of looting needs to be controlled by more powerful political authorities. Although archaeologists can contribute to policy, steps, and actions that might help stop looting, ultimately it is not the responsibility of archaeologists to do this. The preservation of the past is the responsibility of all citizens, since the past belongs to everyone. It is the responsibility of archaeologists, however, to inform and educate the public as much as possible about the past, and this thesis is an example of how this can be achieved.

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Appendix A: Ka'Kabish Lot Forms

Lot	Operation	Unit	Level	Date	Ceramic	Lithic	Faunal	Obsidian	Botanical	Carbon	Soil	Historic	Residue	Human	Bags
1	Plaza D	SW	1	09-Jun-10	1	1	1								3
2	Plaza D	SW	2	11-Jun-10	1	3									4
3	Plaza D	SW	3	14-Jun-10	1	1						1			3
4	Plaza D	NW	1	08-Jun-10	1	1	1								3
5	Plaza D	NW	2	08-Jun-10	1	1									2
6	Plaza D	NW	3	11-Jun-10	1	3						1			5
7	Plaza D	NW	4	14-Jun-10	1	2									3
8	Plaza D	NE	1	10-Jun-10	2	1		1							4
9	Plaza D	NE	2	14-Jun-10	1	2									3
10	Plaza D	NE	3	15-Jun-10	1	1									2
11	Plaza D	SE	1	10-Jun-10	1	1		1							3
12	Plaza D	SE	2	14-Jun-10	1	2		1							4
13	Plaza D	SE	3	17-Jun-10	1	1	1								3
14	Plaza D	Centre 2x2	5	17-Jun-10	1	1									2
15	Plaza D	Centre 2x2	6	18-Jun-10	1	1		1							3
75	Plaza D	Centre 2x2	7	21-Jun-10	1	1									2
76	Plaza D	Centre 2x2	8	21-Jun-10	1	1	1				2				5
77	Plaza D	Centre 2x2	9	21-Jun-10	1	1	1								3
84	Plaza D	Centre 2x2	10	22-Jun-10	1	1					1				3
85	Plaza D	Centre 2x2	11	22-Jun-10	1										1

97	Plaza D	Centre 2x2	12	23-Jun-10	1	1									2
98	Plaza D	Centre 2x2	13	23-Jun-10	1	1	1								3
99	Plaza D	Centre 2x2	14	23-Jun-10	1	1	1			1					4
100	Plaza D	Centre 2x2	15	23-Jun-10	1	1							1		3
114	Plaza D	Centre 2x2	15	24-Jun-10	1										1
115	Plaza D	Centre 2x2	16	24-Jun-10	1	1									2
116	Plaza D	Centre 2x2	17	24-Jun-10	1	1	1								3
117	Plaza D	Centre 2x2	18	24-Jun-10	1	1	1								3
118	Plaza D	Centre 2x2	19	24-Jun-10	1	1	1								3
122	Plaza D	Centre 2x2	21	28-Jun-10	1	1	1								3
123	Plaza D	Centre 2x2	20	28-Jun-10	1	1	1								3
124	Plaza D	Centre 2x2	Probably 19 (backdirt)	28-Jun-10		1	1								2
129	Plaza D	Plaza surface	Raking of paths	29-Jun-10	1										1
				Total	33	37	13	4	0	1	3	2	1	0	94

Table A1. Plaza D Lot Form.

Lot	Operation	Unit	Level	Date	Ceramic	Lithic	Faunal	Obsidian	Botanical	Carbon	Soil	Historic	Residue	Human	Bags
58	STR-D4	South Trench	Looters' backfill	June-10	1	1									2
59	STR-D4	North Trench	Looters' backfill	June-10	1	1									2
60	STR-D4	Middle Trench	Looters' backfill	June-10	1	1						1			3
61	STR-D4	South Trench	Sub-II	11-Jun-10	1	1									2
63	STR-D4	South Trench	Sub-II	11-Jun-10	1	1									2
64	STR-D4	South Trench	Sub-I	11-Jun-10	1	1				1					3
65	STR-D4	South Trench	Sub-I #003 collection	15-Jun-10		1									1
66	STR-D4	South Trench	Sub-I #007 collection	Jun-10											0
67	STR-D4	South Trench	Sub-I #001 collection	14-Jun-10	1										1
68	STR-D4	South Trench	Sub-I #006 collection	15-Jun-10	1										1
69	STR-D4	South Trench	Sub-I #004 collection	14-Jun-10	1										1
70	STR-D4	South Trench	Sub-I #002 collection	14-Jun-10	1										1
71	STR-D4	South Trench	Sub-I #005 collection	15-Jun-10						1					1
96	STR-D4	Middle Trench	Trench walls	22-Jun-10	1	1		1							3
119	STR-D4	Middle Trench	Looters' backfill	24-Jun-10	1										1
120	STR-D4	Middle Trench	North wall fill (cleaning)	24-Jun-10	1										1
121	STR-D4	North Trench	Sub-II	24-Jun-10	1										1
125	STR-D4	South Trench	looters' backfill	28-Jun-10	1	1									2
132	STR-D4	North looter's trench	Sub-II #001 collection	06-Jul-10	1										1

138	STR-D4	South Trench	Collection 2	2007	1										1
183	STR-D4	South Trench	Collection 1	2007	1										1
				Total	18	9	0	1	0	2	0	1	0	0	31

Table A2: Structure D4 Lot Form

Lot	Operation	Unit	Level	Date	Ceramic	Lithic	Faunal	Obsidian	Botanical	Carbon	Soil	Historic	Residue	Human	Bags
126	STR-D9	Looter's Trench	Sub-I	28-Jun-10	1										1
127	STR-D9	Looter's Trench	Probably Sub-I	28-Jun-10	1	1									2
128	STR-D9	Looter's Trench	Collapse- humus	05-Jul-10	2	1						1			4
130	STR-D9	Looter's Trench	Sub-IIa	06-Jul-10	1	1									2
131	STR-D9	Looter's Trench	Sub-IIa (Possible Cache)	06-Jul-10	2	1	1			2				1	7
133	STR-D9	Looter's Trench	Collapse - level 2	06-Jul-10											0
134	STR-D9	Looter's Trench	Collapse - level 3	08-Jul-10	1	1	1								3
142	STR-D9	Looters' Trench	Collection 1	2007	1										1
143	STR-D9	Looters' Trench	Collection 3	2007	1										1
144	STR-D9	Looters' Trench	Collection 2	2007	1										1
145	STR-D9	Looters' Trench	Surface	2007	1										1
146	STR-D9	Looters' Trench	Collection 5 (backdirt)	2007	1										1
147	STR-D9	Looters' Trench	Collection 4	2007	1										1
				Total	14	5	2	0	0	2	0	1	0	1	25

Table A3. Structure D9 Lot Form

Appendix B: Ceramic Dating

Ceramic Group	Ceramic Complex	Ceramic Phase	Time Period
Joventud	Jenney Creek	Mamom	Middle Preclassic (1000-300 BC)
Sierra/Polvero	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
San Felipe	Mount Hope	Chicanel	Late Preclassic (300 BC- 250 AD)
Aguila/ Dos Arroyos	Hermitage	Tzakol	Early Classic (250-600 AD)
Mountain Pine	Tiger Run	Tepeu	Late Classic (600-850 AD)
Mount Maloney	Spanish Lookout	Spanish Lookout	Late to Terminal Classic (850-1000 AD)
Muna Slate	Copo	Spanish Lookout	Late to Terminal Classic (850-1000 AD)
Zakpah	Buk	Buk	Early Postclassic (1000-1200 AD)

Table B1: Ceramic groups identified from the assemblages of Str. D4, Plaza D, and Str. D9, and their associated complexes and phases. Note that the Spanish Lookout phase is listed as Late to Terminal Classic because it includes part of the latter, commonly argued to be representative of 650/700- 900 AD.

Ceramic Type	Ceramic Group	Ceramic Complex	Ceramic Phase	Time Period
Altamira Fluted	Sierra	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Flor Cream	Flor	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Laguna Verde Incised	Sierra	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Lechugal Incised	Polvero	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Palia Unslipped	Palia	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Polvero Black	Polvero	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
San Antonio Golden Brown	San Felipe	Mount Hope	Chicanel	Late Preclassic (300 BC- 250 AD)
Sierra Red	Sierra	Barton Creek	Chicanel	Late Preclassic (300 BC- 250 AD)
Caldero Buff-Polychrome	Dos Arroyos	Hermitage	Tzakol	Early Classic (250-600 AD)
Minanha Red	Minanha	Hermitage	Tzakol	Early Classic (250-600 AD)
Pucte Brown	Pucte	Hermitage	Tzakol	Early Classic (250-600 AD)
Yaloche Cream-Polychrome	Dos Arroyos	Hermitage	Tzakol	Early Classic (250-600 AD)
Mount Pleasant Red	Mountain Pine	Tiger Run	Tepeu	Late Classic (600-850 AD)

Table B2: Ceramic types identified from the assemblages of Str. D4, Plaza D, and Str. D9, and their associated groups, complexes, and phases.

Appendix C: Structure D4 Artefact Analysis

Lot	Unit	Level	Category	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Qty.
58	South Trench	Looters Backfill	Chipped Stone	Chert	Flake	Tertiary	General	Whole		2
58	South Trench	Looters Backfill	Chipped Stone	Chert	Flake	Secondary	General	Whole		1
58	South Trench	Looters Backfill	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
58	South Trench	Looters' Backfill	Ceramic	Ceramic						15
59	North Trench	Looters Backfill	Chipped Stone	Chert	Flake	Tertiary	General	Whole		1
59	North Trench	Looters Backfill	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		2
59	North Trench	Looters' Backfill	Ceramic	Ceramic						15
60	Middle Trench	Looters Backfill	Chipped Stone	Chert	Flake	Tertiary	General	Whole		3
60	Middle Trench	Looters Backfill	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		3
60	Middle Trench	Looters Backfill	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		5
60	Middle Trench	Looters Backfill	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		4
60	Middle Trench	Looters Backfill	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
60	Middle Trench	Looters Backfill	Chipped Stone	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	33.7	1
60	Middle Trench	Looters Backfill	Historic	Plastic	Formal		Shotgun shell casing	Whole		1
60	Middle Trench	Looters' Backfill	Ceramic	Ceramic						9
61	South Trench	Sub-II	Chipped Stone	Chalcedony	Formal	Uniface	Indeterminate	Fragmentary (Lateral Half)	42.5	1
61	South Trench	Sub-II	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2
61	South Trench	Sub-II	Chipped Stone	Chert	Flake	Secondary	General	Whole		1
61	South Trench	Sub-II	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		1
61	South Trench	Sub-II	Ceramic	Ceramic						4

63	South Trench	Sub-II	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
64	South Trench	Sub-I	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
64	South Trench	Sub-I	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
64	South Trench	Sub-I	Ceramic	Ceramic						3
65	South Trench	Sub-I	Chipped Stone	Chert	Flake	Tertiary	General	Whole		1
66	South Trench	Sub-I #007 Collection	Chipped Stone	Chert	Formal	Biface	Indeterminate	Whole?	115.9	1
67	South Trench	Sub-I #001 Collection	Ceramic	Ceramic						1
68	South Trench	Sub-I #006 Collection	Ceramic	Ceramic						1
69	South Trench	Sub-I #004 Collection	Ceramic	Ceramic						1
70	South Trench	Sub-I #001 Collection	Ceramic	Ceramic	Formal		Roller Stamp	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chipped Stone	Chert	Flake	Secondary	General	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chipped Stone	Chert	Formal	Prismatic	Blade	Whole	3.2	2
96	Middle Trench	Trench Walls (Sub-III)	Chipped Stone	Chert	Formal	Biface	Probable Scraper	Whole	19.3	1
96	Middle Trench	Trench Walls (Sub-III)	Chipped Stone	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Proximal/Medial)	1.2	1
119	Middle Trench	Looters Backfill	Ceramic	Ceramic						1
119	Middle Trench	Looters Backfill	Ceramic	Ceramic						4

120	Middle Trench	North Wall Fill	Ceramic	Ceramic						2
121	North Trench	Sub-II	Ceramic	Ceramic						2
125	South Trench	Looters Backfill	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
125	South Trench	Looters Backfill	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
125	South Trench	Looters Backfill	Chipped Stone	Chalcedony	Formal	Biface	Hammerstone	Whole	184.6	1
125	South Trench	Looters Backfill	Chipped Stone	Chalcedony	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	57.2	1
125	South Trench	Looters Backfill	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		1
125	South Trench	Looters Backdirt	Ceramic	Ceramic						2
132	North Trench	Sub-II #001 Collection	Ceramic	Ceramic						1
138	South Trench	Collection 2- Sub-II	Ceramic	Ceramic						6
183	South Trench	Collection 1- Sub-II	Ceramic	Ceramic						202
									Total	120

Table C1: Structure D4 Artefact Data File

Lot	Unit	Level	Ware	Group	Type	Variety	Comments	Quantity
119	Middle trench	Looters' Backfill	Red slip Preclassic form				2 incisions. Chicanel Phase	1
119	Middle trench	Looters' Backfill	Red slips					3
119	Middle trench	Looters' Backfill	ND					1
60	Middle trench	Looters' backfill	ND					1
60	Middle trench	Looters' backfill	Specials					8
59	North trench	Looters' backfill	ND	Sierra	Altamira Fluted		Chicanel Phase	14
59	North trench	Looters' backfill		Sierra	Laguna Verde Incised		Chicanel Phase	1
58	South trench	Looters' backfill	ND					8
58	South trench	Looters' backfill	Specials					7
125	South trench	Looters' backfill	ND					1
125	South trench	Looters' backfill	Red slipped cream was striated					1
64	South trench	Sub-I	ND					3
67	South trench	Sub-I #001 Collection					Chocolate pot?	1
70	South trench	Sub-I #002 collection	Roller Stamp					1
69	South trench	Sub-I #004 collection	ND					1
68	South trench	Sub-I #006 collection	Red slipped cream was striated					1
121	North trench	Sub-II	ND					1
121	North trench	Sub-II	Peten Gloss Brown	Pucte/ San Felipe?			Chicanel or Tzakol Phase	1
61	South trench	Sub-II	ND					4
138	South Trench	Sub-II	ND					6

183	South Trench	Sub-II	Puuc Slate?	Slate Muna			Could be thin slate or Puuc slate.	2
120	Middle trench	North wall fill (Sub-III)	Cream Polychrome				Early or Late Classic	2
							Total	69

Table C2: Structure D4 ceramic analysis results, organized by level (Note: ND= Non-diagnostic).

Lot	Unit	Level	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Quantity
125	South Trench	Looters Backfill	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
125	South Trench	Looters Backfill	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
125	South Trench	Looters Backfill	Chalcedony	Formal	Biface	Hammerstone	Whole	184.6	1
125	South Trench	Looters Backfill	Chalcedony	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	57.2	1
125	South Trench	Looters Backfill	Chalcedony	Flake	Tertiary	General	Whole		1
58	South Trench	Looters Backfill	Chert	Flake	Tertiary	General	Whole		2
58	South Trench	Looters Backfill	Chert	Flake	Secondary	General	Whole		1
58	South Trench	Looters Backfill	Chalcedony	Flake	Primary	General	Whole		1
60	Middle Trench	Looters Backfill	Chert	Flake	Tertiary	General	Whole		3
60	Middle Trench	Looters Backfill	Chalcedony	Flake	Tertiary	General	Whole		3
60	Middle Trench	Looters Backfill	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		5
60	Middle Trench	Looters Backfill	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		4
60	Middle Trench	Looters Backfill	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
60	Middle Trench	Looters Backfill	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	33.7	1
59	North Trench	Looters Backfill	Chert	Flake	Tertiary	General	Whole		1
59	North Trench	Looters Backfill	Chalcedony	Flake	Tertiary	General	Whole		2
65	South Trench	Sub-I	Chert	Flake	Tertiary	General	Whole		1
64	South Trench	Sub-I	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
64	South Trench	Sub-I	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
66	South Trench	Sub-I #007 Collection	Chert	Formal	Biface	Indeterminate	Whole?	115.9	1
63	South Trench	Sub-II	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
61	South Trench	Sub-II	Chalcedony	Formal	Uniface	Indeterminate	Fragmentary (Lateral Half)	42.5	1
61	South Trench	Sub-II	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2

61	South Trench	Sub-II	Chert	Flake	Secondary	General	Whole		1
61	South Trench	Sub-II	Chalcedony	Flake	Tertiary	General	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chert	Flake	Secondary	General	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		1
96	Middle Trench	Trench Walls (Sub-III)	Chert	Formal	Prismatic	Blade	Whole	3.2	2
96	Middle Trench	Trench Walls (Sub-III)	Chert	Formal	Biface	Probable Scraper	Whole	19.3	1
96	Middle Trench	Trench Walls (Sub-III)	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Proximal/Medial)	1.2	1
								Total	49

Table C3: Structure D4 lithic analysis results, organized by level.

Appendix D: Plaza D Artefact Analysis

Lot	Unit	Level	Ware	Group	Type	Variety	Comments	Quantity
1	SW	1	ND					42
1	SW	1	Specials				Some Late Classic?	5
8	NE	1	ND					37
8	NE	1	Specials					1
4	NW	1	ND					24
4	NW	1	Specials				Ash? Belize Group?	1
11	SE	1	ND					56
11	SE	1	Specials					5
5	NW	2	ND					35
5	NW	2	Specials					4
2	SW	2	ND					108
2	SW	2	Specials					22
9	NE	2	ND					36
9	NE	2	Black Slip				Similar to supposed Mt Maloney from Lot 7. Spanish Lookout Phase	1
9	NE	2	Peten Gloss	Aguila			Tzakol Phase	1
9	NE	2	ND					15
12	SE	2	ND					84
12	SE	2	Specials					5
3	SW	3	ND					19
3	SW	3	Specials					2
6	NW	3	ND					50
6	NW	3	Specials					4
6	NW	3		Minanha	Minanha Red		See also Lot 17. Tzakol Phase	1
10	NE	3	ND					14
10	NE	3	Specials					4
13	SE	3	ND					16
13	SE	3	Specials					2
13	SE	3		Sierra			Chicanel Phase	2
13	SE	3	Specials				Two are probably Sierra Group. Chicanel Phase	4
7	NW	4	ND					14
7	NW	4	Specials					5
7	NW	4		Mount Maloney			Typed by LeCount. Spanish Lookout Phase. (Aimers thinks it is Polvero [Chicanel Phase])	1

14	4X4	5	ND					18
14	4X4	5	Specials					3
15	2X2	6	ND					91
15	2X2	6	Specials				Two possible Sierras. Chicanel Phase	6
75	2X2	7	ND					29
75	2X2	7	Specials				Preclassic forms. One Sierra and one Pucte? Chicanel and Tzakol Phases	4
75	2X2	7		Sierra or Polvero			Labial flanges with vestigal slip. Chicanel Phase	2
75	2X2	7		Sierra	Laguna Verde Incised		Basal Angle/break. No lip. Chicanel Phase	1
75	2X2	7	Specials					5
75	2X2	7		Sierra?			In Type Collection. Chicanel Phase	1
75	2X2	7					In Type Collection	1
76	2X2	8	ND					64
76	2X2	8		Aguila			Tzakol Phase	1
76	2X2	8	Specials					5
76	2X2	8		Dos Arroyos	Caldero? Yaloche?		In Type Collection. Tzakol Phase	1
77	2X2	9	ND					15
77	2X2	9		San Felipe	San Antonio Golden Brown		Arrowhead rim. Chicanel Phase	2
77	2X2	9	Specials					5
84	2X2	10	ND					46
84	2X2	10		Polvero?			Chicanel Phase	2
84	2X2	10	Specials					4
84	2X2	10		Sierra?			Chicanel Phase	3
85	2X2	10	ND					5
97	2X2	12	ND					12
97	2X2	12		Sierra			Eroded slips. Chicanel Phase	3
98	2X2	13	ND					11
99	2X2	14	ND					34
99	2X2	14		Sierra	Laguna Verde incised, cream slipped exterior		In Type Collection. Chicanel Phase	1
99	2X2	14		Sierra			Chicanel Phase	2
99	2X2	14		Sierra			Chicanel Phase	1
99	2X2	14	Specials					4
100	2X2	15	ND					2

115	2X2	16	ND					10
115	2X2	16		San Felipe	San Antonio Golden Brown		Chicanel Phase	1
116	2X2	17	ND					14
116	2X2	17	Specials					4
117	2X2	18	ND					5
118	2X2	19	ND					10
118	2X2	19	Specials					3
123	2X2	20	ND					5
123	2x2	20	?				Some red (and black?) slip	1
122	2x2	21	ND					6
124	2x2	Probably 19 (backdirt)					Ceramic Adorno	1
129	Plaza surface	Raking of paths	ND					1
129	Plaza surface	Raking of paths		Zakpah			Pasteslip form. Buk Phase	1
							Total	1066

Table D1: Plaza D ceramic analysis results, organized by level.

Lot	Unit	Level	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Qty
4	NW Unit	1	Chert	Core	Unipolar	Indeterminate	Fragmentary		1
4	NW Unit	1	Dolomitic Limestone	Formal	Groundstone tool	Mano	Fragmentary		1
4	NW Unit	1	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
4	NW Unit	1	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		2
4	NW Unit	1	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		9
4	NW Unit	1	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		12
4	NW Unit	1	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		15
4	NW Unit	1	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		21
4	NW Unit	1	Chert	Flake	Primary	General	Whole		2
4	NW Unit	1	Chalcedony	Flake	Primary	General	Whole		2
4	NW Unit	1	Chert	Flake	Secondary	General	Whole		25
4	NW Unit	1	Chalcedony	Flake	Secondary	General	Whole		1
4	NW Unit	1	Chert	Flake	Tertiary	General	Whole		16
4	NW Unit	1	Chalcedony	Flake	Tertiary	General	Whole		11
4	NW Unit	1	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
4	NW Unit	1	Chalcedony	Flake	Tertiary	Retouch Flake	Whole		3
8	NE Unit	1	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Medial)	0.5	1
8	NE Unit	1	Rhyolite	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		4
8	NE Unit	1	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		15
8	NE Unit	1	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
8	NE Unit	1	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
8	NE Unit	1	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		6
8	NE Unit	1	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
8	NE Unit	1	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
8	NE Unit	1	Chalcedony	Flake	Primary	General	Whole		3

8	NE Unit	1	Chalcedony	Flake	Secondary	General	Whole		4
8	NE Unit	1	Chert	Flake	Secondary	General	Whole		4
8	NE Unit	1	Chalcedony	Flake	Tertiary	General	Whole		10
8	NE Unit	1	Chert	Flake	Tertiary	General	Whole		3
11	SE Unit	1	Chert	Debris	Debris	Miscellaneous piece	Whole		12
11	SE Unit	1	Chalcedony	Debris	Debris	Miscellaneous piece	Whole		5
11	SE Unit	1	Chert	Debitage	Debitage	Miscellaneous piece	Fragmentary		3
11	SE Unit	1	Chalcedony	Debitage	Debitage	Miscellaneous piece	Fragmentary		1
11	SE Unit	1	Chert	Flaked Piece	Flaked Piece	Indeterminate	Fragmentary		20
11	SE Unit	1	Chalcedony	Flaked Piece	Flaked Piece	Indeterminate	Fragmentary		5
11	SE Unit	1	Chert	Flake	Primary	General	Whole		1
11	SE Unit	1	Chalcedony	Flake	Primary	General	Whole		1
11	SE Unit	1	Chert	Flake	Secondary	General	Whole		3
11	SE Unit	1	Chalcedony	Flake	Secondary	General	Whole		2
11	SE Unit	1	Chert	Flake	Tertiary	General	Whole		8
11	SE Unit	1	Chalcedony	Flake	Tertiary	General	Whole		4
1	SW Unit	1	Chalcedony	Flake	Tertiary	Retouch Flake	Whole		3
1	SW Unit	1	Chalcedony	Flake	Tertiary	General	Whole		2
1	SW Unit	1	Chert	Flake	Tertiary	General	Whole		7
1	SW Unit	1	Chert	Flake	Secondary	General	Whole		3
1	SW Unit	1	Chalcedony	Flake	Primary	General	Whole		1
1	SW Unit	1	Chert	Core	Unipolar	Indeterminate	Fragmentary		1
1	SW Unit	1	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
1	SW Unit	1	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		3
1	SW Unit	1	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		10
1	SW Unit	1	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		24
1	SW Unit	1	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		24
1	SW Unit	1	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
1	SW Unit	1	Chalcedony	Flake	Secondary	General	Whole		3
1	SW Unit	1	Chert	Flake	Primary	General	Whole		2

12	SE Unit	2	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Proximal)	0.2	1
12	SE Unit	2	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Medial)	1.1	1
12	SE Unit	2	Obsidian (Indeterminate)	Debitage	Shatter	Miscellaneous piece	Fragmentary	1.9	1
2	SW Unit	2	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Medial)	0.2	1
2	SW Unit	2	Chert	Debris	Chunk	Miscellaneous piece	Whole		20
2	SW Unit	2	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		16
2	SW Unit	2	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		55
2	SW Unit	2	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		40
2	SW Unit	2	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		59
2	SW Unit	2	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		44
2	SW Unit	2	Chalcedony	Flake	Primary	General	Whole		5
2	SW Unit	2	Chert	Flake	Secondary	General	Whole		5
2	SW Unit	2	Chalcedony	Flake	Secondary	General	Whole		15
2	SW Unit	2	Chert	Flake	Tertiary	General	Whole		36
2	SW Unit	2	Chalcedony	Flake	Tertiary	General	Whole		40
2	SW Unit	2	Chert	Formal	Uniface	General	Fragmentary	53.4	1
2	SW Unit	2	Chert	Core	Unipolar	Indeterminate	Fragmentary		2
2	SW Unit	2	Chert	Flake	Primary	General	Whole		2
9	NE Unit	2	Chert	Debris	Chunk	Miscellaneous piece	Whole		10
9	NE Unit	2	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
9	NE Unit	2	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		18
9	NE Unit	2	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
9	NE Unit	2	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		39
9	NE Unit	2	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
9	NE Unit	2	Chert	Flake	Primary	General	Whole		4
9	NE Unit	2	Chalcedony	Flake	Primary	General	Whole		1
9	NE Unit	2	Chert	Flake	Secondary	General	Whole		1
9	NE Unit	2	Chalcedony	Flake	Secondary	General	Whole		2

9	NE Unit	2	Chert	Flake	Tertiary	General	Whole		8
9	NE Unit	2	Chalcedony	Flake	Tertiary	General	Whole		11
9	NE Unit	2	Chert	Informal		Hammerstone	Whole		1
9	NE Unit	2	Chert	Formal	Biface	General	Whole	226.8	4
9	NE Unit	2	Chalcedony	Formal	Biface	General	Whole	168	2
12	SW Unit	2	Chert	Debris	Chunk	Miscellaneous piece	Whole		30
12	SW Unit	2	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		10
12	SW Unit	2	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		64
12	SW Unit	2	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		53
12	SW Unit	2	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		64
12	SW Unit	2	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		26
12	SW Unit	2	Chert	Flake	Primary	General	Whole		6
12	SW Unit	2	Chalcedony	Flake	Primary	General	Whole		5
12	SW Unit	2	Chert	Flake	Secondary	General	Whole		17
12	SW Unit	2	Chalcedony	Flake	Secondary	General	Whole		11
12	SW Unit	2	Chert	Flake	Tertiary	General	Whole		2
12	SW Unit	2	Chalcedony	Flake	Tertiary	General	Whole		25
5	NW Unit	2	Chert	Debris	Chunk	Miscellaneous piece	Whole		12
5	NW Unit	2	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
5	NW Unit	2	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		50
5	NW Unit	2	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		47
5	NW Unit	2	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		34
5	NW Unit	2	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
5	NW Unit	2	Chert	Flake	Primary	General	Whole		2
5	NW Unit	2	Chalcedony	Flake	Primary	General	Whole		1
5	NW Unit	2	Chert	Flake	Secondary	General	Whole		3
5	NW Unit	2	Chalcedony	Flake	Secondary	General	Whole		5
5	NW Unit	2	Chert	Flake	Tertiary	General	Whole		25
5	NW Unit	2	Chalcedony	Flake	Tertiary	General	Whole		15

5	NW Unit	2	Dolomitic Limestone	?	?	Adorno	Fragmentary		1
6	NW Unit	3	Chert	Debris	Chunk	Miscellaneous piece	Whole		28
6	NW Unit	3	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		14
6	NW Unit	3	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		70
6	NW Unit	3	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		38
6	NW Unit	3	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		69
6	NW Unit	3	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		47
6	NW Unit	3	Chert	Flake	Primary	General	Whole		10
6	NW Unit	3	Chalcedony	Flake	Primary	General	Whole		2
6	NW Unit	3	Chert	Flake	Secondary	General	Whole		24
6	NW Unit	3	Chalcedony	Flake	Secondary	General	Whole		7
6	NW Unit	3	Chert	Flake	Tertiary	General	Whole		55
6	NW Unit	3	Chalcedony	Flake	Tertiary	General	Whole		19
6	NW Unit	3	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		5
6	NW Unit	3	Chert	Formal	Biface	General	Whole	87.5	1
6	NW Unit	3	Chert	Formal	Biface	General	Whole	141.9	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Whole	185.7	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Whole	75.7	1
6	NW Unit	3	Chert	Formal	Prismatic	Blade	Fragmentary (Proximal)	2.8	1
6	NW Unit	3	Chert	Formal	Biface	General	Fragmentary (Distal)	90.5	1
6	NW Unit	3	Chert	Formal	Biface	General	Fragmentary (Proximal/ Medial)	86.9	1
6	NW Unit	3	Chalcedony	Formal	Uniface	General	Fragmentary (Distal)	19.2	1
13	SE Unit	3	Chert	Debris	Chunk	Miscellaneous piece	Whole		4
13	SE Unit	3	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
13	SE Unit	3	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		6

13	SE Unit	3	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
13	SE Unit	3	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		10
13	SE Unit	3	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
13	SE Unit	3	Chert	Flake	Secondary	General	Whole		6
13	SE Unit	3	Chalcedony	Flake	Secondary	General	Whole		1
13	SE Unit	3	Chert	Flake	Tertiary	General	Whole		3
13	SE Unit	3	Chalcedony	Flake	Tertiary	General	Whole		4
13	SE Unit	3	Chalcedony	Formal	Biface	General	Fragmentary (Distal)	42.2	1
13	SE Unit	3	Chert	Formal	Biface	General	Fragmentary (Proximal)	111.1	1
3	SW Unit	3	Chert	Flake	Primary	General	Whole		1
3	SW Unit	3	Chert	Flake	Tertiary	General	Whole		7
3	SW Unit	3	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
3	SW Unit	3	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
3	SW Unit	3	Chalcedony	Flake	Secondary	General	Whole		4
3	SW Unit	3	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
3	SW Unit	3	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		7
3	SW Unit	3	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
10	NE Unit	3	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
10	NE Unit	3	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
10	NE Unit	3	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
10	NE Unit	3	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
10	NE Unit	3	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		2
10	NE Unit	3	Chert	Flake	Secondary	General	Whole		2
10	NE Unit	3	Chalcedony	Flake	Secondary	General	Whole		1
10	NE Unit	3	Chalcedony	Flake	Tertiary	General	Whole		2
10	NE Unit	3	?	Formal		Mano	Fragmentary		1
10	NE Unit	3	Dolomitic Limestone	Debris		Cobble	Whole	172.5	1
10	NE Unit	3	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Distal)	55.4	1

7	NW Unit	4	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
7	NW Unit	4	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
7	NW Unit	4	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
7	NW Unit	4	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
7	NW Unit	4	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
7	NW Unit	4	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		9
7	NW Unit	4	Chert	Flake	Primary	General	Whole		3
7	NW Unit	4	Chert	Flake	Secondary	General	Whole		2
7	NW Unit	4	Chalcedony	Flake	Secondary	General	Whole		3
7	NW Unit	4	Chert	Flake	Tertiary	General	Whole		1
7	NW Unit	4	Chalcedony	Flake	Tertiary	General	Whole		3
7	NW Unit	4	Chalcedony	Informal		Hammerstone	Whole		1
7	NW Unit	4	Chert	Formal		Scraper?	Whole	49.5	1
7	NW Unit	4	Chert	Formal	Biface	Point	Fragmentary (Distal)	123	1
7	NW Unit	4	Chert	Formal	Uniface	General	Fragmentary (Medial)	20.4	1
15	Centre 2x2	6	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Medial)		1
15	Centre 2x2	6	Chalcedony	Flake	Secondary	General	Whole		7
15	Centre 2x2	6	Chalcedony	Flake	Tertiary	General	Whole		15
15	Centre 2x2	6	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		3
15	Centre 2x2	6	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)		1
15	Centre 2x2	6	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		3
15	Centre 2x2	6	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		21
15	Centre 2x2	6	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		41

15	Centre 2x2	6	Chert	Flake	Secondary	General	Whole		6
15	Centre 2x2	6	Chert	Flake	Tertiary	General	Whole		6
15	Centre 2x2	6	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
15	Centre 2x2	6	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		17
15	Centre 2x2	6	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		27
75	Centre 2x2	7	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
75	Centre 2x2	7	Chert	Flake	Tertiary	General	Whole		5
75	Centre 2x2	7	Chalcedony	Flake	Tertiary	General	Whole		3
75	Centre 2x2	7	Chert	Flake	Secondary	General	Whole		3
75	Centre 2x2	7	Chalcedony	Flake	Secondary	General	Whole		3
75	Centre 2x2	7	Chalcedony	Flake	Primary	General	Whole		1
75	Centre 2x2	7	Chalcedony	Formal	Biface	General	Whole	43.1	1
75	Centre 2x2	7	Chert	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	39.5	1
75	Centre 2x2	7	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	56.8	1
75	Centre 2x2	7	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
75	Centre 2x2	7	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		9
75	Centre 2x2	7	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
75	Centre 2x2	7	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
75	Centre 2x2	7	Chalcedony	Core	Unipolar	Indeterminate	Fragmentary		4
76	Centre								

	2x2	8	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
76	Centre 2x2	8	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		2
76	Centre 2x2	8	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
76	Centre 2x2	8	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
76	Centre 2x2	8	Chert	Flake	Tertiary	General	Whole		6
76	Centre 2x2	8	Chalcedony	Flake	Tertiary	General	Whole		1
76	Centre 2x2	8	Chert	Formal	Biface	Point	Fragmentary (Distal)	41.9	1
76	Centre 2x2	8	Chert	Formal	Biface	Tang?	Fragmentary (Proximal)	51.8	1
118	Centre 2x2	11	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
118	Centre 2x2	11	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
118	Centre 2x2	11	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		2
118	Centre 2x2	11	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
118	Centre 2x2	11	Chalcedony	Flake	Secondary	General	Whole		2
118	Centre 2x2	11	Chert	Flake	Tertiary	General	Whole		2
118	Centre 2x2	11	Chalcedony	Flake	Tertiary	General	Whole		2
118	Centre 2x2	11	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
98	Centre 2x2	13	Chert	Flake	Tertiary	General	Whole		3
98	Centre 2x2	13	Chert	Flake	Tertiary	General	Fragmentary		2
98	Centre 2x2	13	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		1

98	Centre 2x2	13	Chert	Flake	Tertiary	Bifacial Thinning Flake	Fragmentary		1
98	Centre 2x2	13	Chert	Flake	Secondary	General	Whole		4
98	Centre 2x2	13	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		10
116	Centre 2x2	17	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
116	Centre 2x2	17	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
116	Centre 2x2	17	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
116	Centre 2x2	17	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
116	Centre 2x2	17	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		13
116	Centre 2x2	17	Chert	Flake	Primary	General	Whole		1
116	Centre 2x2	17	Chalcedony	Flake	Primary	General	Whole		2
116	Centre 2x2	17	Chert	Flake	Secondary	General	Whole		1
116	Centre 2x2	17	Chalcedony	Flake	Secondary	General	Whole		7
116	Centre 2x2	17	Chert	Flake	Tertiary	General	Whole		1
116	Centre 2x2	17	Chalcedony	Flake	Tertiary	General	Whole		7
117	Centre 2x2	18	Chert	Flake	Secondary	General	Whole		3
117	Centre 2x2	18	Chert	Flake	Tertiary	General	Whole		4
117	Centre 2x2	18	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		3
117	Centre 2x2	18	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
117	Centre 2x2	18	Chalcedony	Flake	Tertiary	General	Whole		2

117	Centre 2x2	18	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
122	Centre 2x2	21	Chalcedony	Flake	Secondary	General	Whole		5
122	Centre 2x2	21	Chalcedony	Flake	Tertiary	General	Whole		55
122	Centre 2x2	21	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		2
122	Centre 2x2	21	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		9
122	Centre 2x2	21	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		96
122	Centre 2x2	21	Chert	Flake	Primary	General	Whole		6
122	Centre 2x2	21	Chert	Flake	Secondary	General	Whole		5
122	Centre 2x2	21	Chert	Flake	Tertiary	General	Whole		40
122	Centre 2x2	21	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
122	Centre 2x2	21	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		8
122	Centre 2x2	21	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		59
122	Centre 2x2	21	Dolomitic Limestone	?	?	Pendant/Adorno	Whole		1
								Total	2456

Table D2: Plaza D lithic analysis results, organized by level.

Lot	Unit	Level	Object Class	Object Type	Quantity
4	NW Unit	1	Flake	Primary	2
4	NW Unit	1	Flake	Primary	2
4	NW Unit	1	Flake	Secondary	25
4	NW Unit	1	Flake	Secondary	1
4	NW Unit	1	Flake	Tertiary	16
4	NW Unit	1	Flake	Tertiary	11
4	NW Unit	1	Flake	Tertiary	1
4	NW Unit	1	Flake	Tertiary	3
8	NE Unit	1	Flake	Primary	3
8	NE Unit	1	Flake	Secondary	4
8	NE Unit	1	Flake	Secondary	4
8	NE Unit	1	Flake	Tertiary	10
8	NE Unit	1	Flake	Tertiary	3
11	SE Unit	1	Flake	Primary	1
11	SE Unit	1	Flake	Primary	1
11	SE Unit	1	Flake	Secondary	3
11	SE Unit	1	Flake	Secondary	2
11	SE Unit	1	Flake	Tertiary	8
11	SE Unit	1	Flake	Tertiary	4
1	SW Unit	1	Flake	Tertiary	3
1	SW Unit	1	Flake	Tertiary	2
1	SW Unit	1	Flake	Tertiary	7
1	SW Unit	1	Flake	Secondary	3
1	SW Unit	1	Flake	Primary	1
1	SW Unit	1	Flake	Secondary	3
1	SW Unit	1	Flake	Primary	2
2	SW Unit	2	Flake	Primary	5
2	SW Unit	2	Flake	Secondary	5
2	SW Unit	2	Flake	Secondary	15
2	SW Unit	2	Flake	Tertiary	36
2	SW Unit	2	Flake	Tertiary	40
2	SW Unit	2	Flake	Primary	2
9	NE Unit	2	Flake	Primary	4
9	NE Unit	2	Flake	Primary	1
9	NE Unit	2	Flake	Secondary	1
9	NE Unit	2	Flake	Secondary	2
9	NE Unit	2	Flake	Tertiary	8
9	NE Unit	2	Flake	Tertiary	11
12	SW Unit	2	Flake	Primary	6
12	SW Unit	2	Flake	Primary	5

12	SW Unit	2	Flake	Secondary	17
12	SW Unit	2	Flake	Secondary	11
12	SW Unit	2	Flake	Tertiary	2
12	SW Unit	2	Flake	Tertiary	25
5	NW Unit	2	Flake	Primary	2
5	NW Unit	2	Flake	Primary	1
5	NW Unit	2	Flake	Secondary	3
5	NW Unit	2	Flake	Secondary	5
5	NW Unit	2	Flake	Tertiary	25
5	NW Unit	2	Flake	Tertiary	15
6	NW Unit	3	Flake	Primary	10
6	NW Unit	3	Flake	Primary	2
6	NW Unit	3	Flake	Secondary	24
6	NW Unit	3	Flake	Secondary	7
6	NW Unit	3	Flake	Tertiary	55
6	NW Unit	3	Flake	Tertiary	19
6	NW Unit	3	Flake	Tertiary	5
13	SE Unit	3	Flake	Secondary	6
13	SE Unit	3	Flake	Secondary	1
13	SE Unit	3	Flake	Tertiary	3
13	SE Unit	3	Flake	Tertiary	4
3	SW Unit	3	Flake	Primary	1
3	SW Unit	3	Flake	Tertiary	7
3	SW Unit	3	Flake	Secondary	4
10	NE Unit	3	Flake	Secondary	2
10	NE Unit	3	Flake	Secondary	1
10	NE Unit	3	Flake	Tertiary	2
7	NW Unit	4	Flake	Primary	3
7	NW Unit	4	Flake	Secondary	2
7	NW Unit	4	Flake	Secondary	3
7	NW Unit	4	Flake	Tertiary	1
7	NW Unit	4	Flake	Tertiary	3
15	Centre 2x2	6	Flake	Secondary	7
15	Centre 2x2	6	Flake	Tertiary	15
15	Centre 2x2	6	Flake	Tertiary	3
15	Centre 2x2	6	Flake	Secondary	6
15	Centre 2x2	6	Flake	Tertiary	6
75	Centre 2x2	7	Flake	Tertiary	1
75	Centre 2x2	7	Flake	Tertiary	5
75	Centre 2x2	7	Flake	Tertiary	3
75	Centre 2x2	7	Flake	Secondary	3

75	Centre 2x2	7	Flake	Secondary	3
75	Centre 2x2	7	Flake	Primary	1
76	Centre 2x2	8	Flake	Tertiary	6
76	Centre 2x2	8	Flake	Tertiary	1
118	Centre 2x2	11	Flake	Secondary	2
118	Centre 2x2	11	Flake	Tertiary	2
118	Centre 2x2	11	Flake	Tertiary	2
118	Centre 2x2	11	Flake	Tertiary	1
98	Centre 2x2	13	Flake	Tertiary	3
98	Centre 2x2	13	Flake	Tertiary	2
98	Centre 2x2	13	Flake	Tertiary	1
98	Centre 2x2	13	Flake	Tertiary	1
98	Centre 2x2	13	Flake	Secondary	4
116	Centre 2x2	17	Flake	Primary	1
116	Centre 2x2	17	Flake	Primary	2
116	Centre 2x2	17	Flake	Secondary	1
116	Centre 2x2	17	Flake	Secondary	7
116	Centre 2x2	17	Flake	Tertiary	1
116	Centre 2x2	17	Flake	Tertiary	7
117	Centre 2x2	18	Flake	Secondary	3
117	Centre 2x2	18	Flake	Tertiary	4
117	Centre 2x2	18	Flake	Tertiary	2
122	Centre 2x2	21	Flake	Secondary	5
122	Centre 2x2	21	Flake	Tertiary	55
122	Centre 2x2	21	Flake	Tertiary	2
122	Centre 2x2	21	Flake	Primary	6
122	Centre 2x2	21	Flake	Secondary	5
122	Centre 2x2	21	Flake	Tertiary	40
122	Centre 2x2	21	Flake	Tertiary	1
				Total	757

Table D3. Flakes collected from Plaza D, organized by level.

Lot	Unit	Level	Category	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Qty.
1	SW Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	Retouch Flake	Whole		3
1	SW Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		2
1	SW Unit	1	Chipped Stone	Chert	Flake	Tertiary	General	Whole		7
1	SW Unit	1	Chipped Stone	Chert	Flake	Secondary	General	Whole		3
1	SW Unit	1	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		3
1	SW Unit	1	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
1	SW Unit	1	Chipped Stone	Chert	Flake	Primary	General	Whole		2
1	SW Unit	1	Chipped Stone	Chert	Core	Unipolar	Indeterminate	Fragmentary		1
1	SW Unit	1	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
1	SW Unit	1	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		3
1	SW Unit	1	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		10
1	SW Unit	1	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		24
1	SW Unit	1	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		24
1	SW Unit	1	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
1	SW Unit	1	Ceramic	Ceramic						47
2	SW Unit	2	Chipped Stone	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Medial)	0.2	1
2	SW Unit	2	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		20
2	SW Unit	2	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		16
2	SW Unit	2	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		55
2	SW Unit	2	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		40
2	SW Unit	2	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		59
2	SW Unit	2	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		44
2	SW Unit	2	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		5
2	SW Unit	2	Chipped Stone	Chert	Flake	Secondary	General	Whole		5
2	SW Unit	2	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		15
2	SW Unit	2	Chipped Stone	Chert	Flake	Tertiary	General	Whole		36

2	SW Unit	2	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		40
2	SW Unit	2	Chipped Stone	Chert	Formal	Uniface	General	Fragmentary	53.4	1
2	SW Unit	2	Chipped Stone	Chert	Core	Unipolar	Indeterminate	Fragmentary		2
2	SW Unit	2	Chipped Stone	Chert	Flake	Primary	General	Whole		2
2	SW Unit	2	Ceramic	Ceramic						130
3	SW Unit	3	Chipped Stone	Chert	Flake	Primary	General	Whole		1
3	SW Unit	3	Chipped Stone	Chert	Flake	Tertiary	General	Whole		7
3	SW Unit	3	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
3	SW Unit	3	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
3	SW Unit	3	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		4
3	SW Unit	3	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
3	SW Unit	3	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		7
3	SW Unit	3	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
3	SW Unit	3	Ceramic	Ceramic						21
4	NW Unit	1	Chipped Stone	Chert	Core	Unipolar	Indeterminate	Fragmentary		1
4	NW Unit	1	Groundstone	Dolomitic Limestone	Formal	Groundstone tool	Mano	Fragmentary		1
4	NW Unit	1	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
4	NW Unit	1	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		2
4	NW Unit	1	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		9
4	NW Unit	1	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		12
4	NW Unit	1	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		15
4	NW Unit	1	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		21
4	NW Unit	1	Chipped Stone	Chert	Flake	Primary	General	Whole		2
4	NW Unit	1	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		2
4	NW Unit	1	Chipped Stone	Chert	Flake	Secondary	General	Whole		25
4	NW Unit	1	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		1
4	NW Unit	1	Chipped Stone	Chert	Flake	Tertiary	General	Whole		16
4	NW Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		11

4	NW Unit	1	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
4	NW Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	Retouch Flake	Whole		3
4	NW Unit	1	Ceramic	Ceramic						25
5	NW Unit	2	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		12
5	NW Unit	2	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
5	NW Unit	2	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		50
5	NW Unit	2	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		47
5	NW Unit	2	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		34
5	NW Unit	2	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
5	NW Unit	2	Chipped Stone	Chert	Flake	Primary	General	Whole		2
5	NW Unit	2	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
5	NW Unit	2	Chipped Stone	Chert	Flake	Secondary	General	Whole		3
5	NW Unit	2	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		5
5	NW Unit	2	Chipped Stone	Chert	Flake	Tertiary	General	Whole		25
5	NW Unit	2	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		15
5	NW Unit	2	Groundstone	Dolomitic Limestone	?	?	Adorno	Fragmentary		1
5	NW Unit	2	Ceramic	Ceramic						39
6	NW Unit	3	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		28
6	NW Unit	3	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		14
6	NW Unit	3	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		70
6	NW Unit	3	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		38
6	NW Unit	3	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		69
6	NW Unit	3	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		47
6	NW Unit	3	Chipped Stone	Chert	Flake	Primary	General	Whole		10
6	NW Unit	3	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		2
6	NW Unit	3	Chipped Stone	Chert	Flake	Secondary	General	Whole		24
6	NW Unit	3	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		7
6	NW Unit	3	Chipped Stone	Chert	Flake	Tertiary	General	Whole		55

6	NW Unit	3	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		19
6	NW Unit	3	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		5
6	NW Unit	3	Chipped Stone	Chert	Formal	Biface	General	Whole	87.5	1
6	NW Unit	3	Chipped Stone	Chert	Formal	Biface	General	Whole	141.9	1
6	NW Unit	3	Chipped Stone	Chalcedony	Formal	Uniface	General	Whole	185.7	1
6	NW Unit	3	Chipped Stone	Chalcedony	Formal	Uniface	General	Whole	75.7	1
6	NW Unit	3	Chipped Stone	Chert	Formal	Prismatic	Blade	Fragmentary (Proximal)	2.8	1
6	NW Unit	3	Chipped Stone	Chert	Formal	Biface	General	Fragmentary (Distal)	90.5	1
6	NW Unit	3	Chipped Stone	Chert	Formal	Biface	General	Fragmentary (Proximal/Medial)	86.9	1
6	NW Unit	3	Chipped Stone	Chalcedony	Formal	Uniface	General	Fragmentary (Distal)	19.2	1
6	NW Unit	3	Historic	Metal	Formal		Sardine Can Opener	Whole		1
6	NW Unit	3	Ceramic	Ceramic						55
7	NW Unit	4	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
7	NW Unit	4	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
7	NW Unit	4	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
7	NW Unit	4	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
7	NW Unit	4	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
7	NW Unit	4	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		9
7	NW Unit	4	Chipped Stone	Chert	Flake	Primary	General	Whole		3
7	NW Unit	4	Chipped Stone	Chert	Flake	Secondary	General	Whole		2
7	NW Unit	4	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		3
7	NW Unit	4	Chipped Stone	Chert	Flake	Tertiary	General	Whole		1
7	NW Unit	4	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		3
7	NW Unit	4	Natural Stone	Chalcedony	Informal		Hammerstone	Whole		1
7	NW Unit	4	Chipped Stone	Chert	Formal		Scraper?	Whole	49.2	1
7	NW Unit	4	Chipped Stone	Chert	Formal	Biface	Point	Fragmentary (Distal)	123	1
7	NW Unit	4	Chipped Stone	Chert	Formal	Uniface	General	Fragmentary (Medial)	20.4	1

7	NW Unit	4	Ceramic	Ceramic						20
8	NE Unit	1	Chipped Stone	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary	0.5	1
8	NE Unit	1	Chipped Stone	Rhyolite	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		4
8	NE Unit	1	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		15
8	NE Unit	1	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
8	NE Unit	1	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
8	NE Unit	1	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		6
8	NE Unit	1	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
8	NE Unit	1	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
8	NE Unit	1	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		3
8	NE Unit	1	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		4
8	NE Unit	1	Chipped Stone	Chert	Flake	Secondary	General	Whole		4
8	NE Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		10
8	NE Unit	1	Chipped Stone	Chert	Flake	Tertiary	General	Whole		3
8	NE Unit	1	Ceramic	Ceramic						38
9	NE Unit	2	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		10
9	NE Unit	2	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
9	NE Unit	2	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		18
9	NE Unit	2	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		5
9	NE Unit	2	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		39
9	NE Unit	2	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
9	NE Unit	2	Chipped Stone	Chert	Flake	Primary	General	Whole		4
9	NE Unit	2	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
9	NE Unit	2	Chipped Stone	Chert	Flake	Secondary	General	Whole		1
9	NE Unit	2	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		2
9	NE Unit	2	Chipped Stone	Chert	Flake	Tertiary	General	Whole		8
9	NE Unit	2	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		11

9	NE Unit	2	Natural Stone	Chert	Informal		Hammerstone	Whole		1
9	NE Unit	2	Chipped Stone	Chert	Formal	Biface	General	Whole	226.8	4
9	NE Unit	2	Chipped Stone	Chalcedony	Formal	Biface	General	Whole	168	2
9	NE Unit	2	Ceramic	Ceramic						53
10	NE Unit	3	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
10	NE Unit	3	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
10	NE Unit	3	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
10	NE Unit	3	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
10	NE Unit	3	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		2
10	NE Unit	3	Chipped Stone	Chert	Flake	Secondary	General	Whole		2
10	NE Unit	3	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		1
10	NE Unit	3	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		2
10	NE Unit	3	Groundstone	?	Formal		Mano	Fragmentary		1
10	NE Unit	3	Natural Stone	Dolomitic Limestone	Debris		Cobble	Whole	172.5	1
10	NE Unit	3	Chipped Stone	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Distal)	55.4	1
10	NE Unit	3	Ceramic	Ceramic						18
11	SE Unit	1	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		12
11	SE Unit	1	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
11	SE Unit	1	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
11	SE Unit	1	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
11	SE Unit	1	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		20
11	SE Unit	1	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
11	SE Unit	1	Chipped Stone	Chert	Flake	Primary	General	Whole		1
11	SE Unit	1	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
11	SE Unit	1	Chipped Stone	Chert	Flake	Secondary	General	Whole		3
11	SE Unit	1	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		2
11	SE Unit	1	Chipped Stone	Chert	Flake	Tertiary	General	Whole		8
11	SE Unit	1	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		4

11	SE Unit	1	Ceramic	Ceramic						61
12	SE Unit	2	Chipped Stone	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Proximal)	0.2	1
12	SE Unit	2	Chipped Stone	Obsidian (Indeterminate)	Formal	Prismatic	Blade	Fragmentary (Medial)	1.1	1
12	SE Unit	2	Chipped Stone	Obsidian (Indeterminate)	Debitage	Shatter	Miscellaneous piece	Fragmentary	1.9	1
12	SW Unit	2	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		30
12	SW Unit	2	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		10
12	SW Unit	2	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		64
12	SW Unit	2	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		53
12	SW Unit	2	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		64
12	SW Unit	2	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		26
12	SW Unit	2	Chipped Stone	Chert	Flake	Primary	General	Whole		6
12	SW Unit	2	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		5
12	SW Unit	2	Chipped Stone	Chert	Flake	Secondary	General	Whole		17
12	SW Unit	2	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		11
12	SW Unit	2	Chipped Stone	Chert	Flake	Tertiary	General	Whole		2
12	SW Unit	2	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		25
12	SE Unit	2	Ceramic	Ceramic						89
13	SE Unit	3	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		4
13	SE Unit	3	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		4
13	SE Unit	3	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		6
13	SE Unit	3	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
13	SE Unit	3	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		10
13	SE Unit	3	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
13	SE Unit	3	Chipped Stone	Chert	Flake	Secondary	General	Whole		6
13	SE Unit	3	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		1
13	SE Unit	3	Chipped Stone	Chert	Flake	Tertiary	General	Whole		3

13	SE Unit	3	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		4
13	SE Unit	3	Chipped Stone	Chalcedony	Formal	Biface	General	Fragmentary (Distal)	42.2	1
13	SE Unit	3	Chipped Stone	Chert	Formal	Biface	General	Fragmentary (Proximal)	111.1	1
13	SE Unit	3	Ceramic	Ceramic						24
14	Whole 4x4	5	Ceramic	Ceramic						21
15	Centre 2x2	6	Chipped Stone	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Medial)		1
15	Centre 2x2	6	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		7
15	Centre 2x2	6	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		15
15	Centre 2x2	6	Chipped Stone	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		3
15	Centre 2x2	6	Chipped Stone	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)		1
15	Centre 2x2	6	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		3
15	Centre 2x2	6	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		21
15	Centre 2x2	6	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		41
15	Centre 2x2	6	Chipped Stone	Chert	Flake	Secondary	General	Whole		6
15	Centre 2x2	6	Chipped Stone	Chert	Flake	Tertiary	General	Whole		6
15	Centre 2x2	6	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
15	Centre 2x2	6	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		17
15	Centre 2x2	6	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		27
15	Centre 2x2	6	Ceramic	Ceramic						97
75	Centre 2x2	7	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
75	Centre 2x2	7	Chipped Stone	Chert	Flake	Tertiary	General	Whole		5
75	Centre 2x2	7	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		3
75	Centre 2x2	7	Chipped Stone	Chert	Flake	Secondary	General	Whole		3
75	Centre 2x2	7	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		3
75	Centre 2x2	7	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		1
75	Centre 2x2	7	Chipped Stone	Chalcedony	Formal	Biface	General	Whole	43.1	1

75	Centre 2x2	7	Chipped Stone	Chert	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	39.5	1
75	Centre 2x2	7	Chipped Stone	Chalcedony	Formal	Biface	Stemmed Macroblade	Fragmentary (Proximal)	56.8	1
75	Centre 2x2	7	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		5
75	Centre 2x2	7	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		9
75	Centre 2x2	7	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		5
75	Centre 2x2	7	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
75	Centre 2x2	7	Chipped Stone	Chalcedony	Core	Unipolar	Indeterminate	Fragmentary		4
75	Centre 2x2	7	Ceramic	Ceramic						10
76	Centre 2x2	8	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		3
76	Centre 2x2	8	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		2
76	Centre 2x2	8	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		7
76	Centre 2x2	8	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
76	Centre 2x2	8	Chipped Stone	Chert	Flake	Tertiary	General	Whole		6
76	Centre 2x2	8	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		1
76	Centre 2x2	8	Chipped Stone	Chert	Formal	Biface	Point	Fragmentary (Distal)	41.9	1
76	Centre 2x2	8	Chipped Stone	Chert	Formal	Biface	Tang?	Fragmentary (Proximal)	51.8	1
76	Centre 2x2	8	Ceramic	Ceramic						71
77	Centre 2x2	9	Ceramic	Ceramic						22
84	Centre 2x2	10	Ceramic	Ceramic						55
85	Centre 2x2	11	Ceramic	Ceramic						5
97	Centre 2x2	12	Ceramic	Ceramic						15
98	Centre 2x2	13	Chipped Stone	Chert	Flake	Tertiary	General	Whole		3
98	Centre 2x2	13	Chipped Stone	Chert	Flake	Tertiary	General	Fragmentary		2
98	Centre 2x2	13	Chipped Stone	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
98	Centre 2x2	13	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Fragmentary		1
98	Centre 2x2	13	Chipped Stone	Chert	Flake	Secondary	General	Whole		4
98	Centre 2x2	13	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		10

98	Centre 2x2	13	Ceramic	Ceramic						11
99	Centre 2x2	14	Ceramic	Ceramic						8
100	Centre 2x2	15	Ceramic	Ceramic						2
115	Centre 2x2	16	Ceramic	Ceramic						11
116	Centre 2x2	17	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		1
116	Centre 2x2	17	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
116	Centre 2x2	17	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
116	Centre 2x2	17	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
116	Centre 2x2	17	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		13
116	Centre 2x2	17	Chipped Stone	Chert	Flake	Primary	General	Whole		1
116	Centre 2x2	17	Chipped Stone	Chalcedony	Flake	Primary	General	Whole		2
116	Centre 2x2	17	Chipped Stone	Chert	Flake	Secondary	General	Whole		1
116	Centre 2x2	17	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		7
116	Centre 2x2	17	Chipped Stone	Chert	Flake	Tertiary	General	Whole		1
116	Centre 2x2	17	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		7
116	Centre 2x2	17	Ceramic	Ceramic						18
117	Centre 2x2	18	Chipped Stone	Chert	Flake	Secondary	General	Whole		3
117	Centre 2x2	18	Chipped Stone	Chert	Flake	Tertiary	General	Whole		4
117	Centre 2x2	18	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		3
117	Centre 2x2	18	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		1
117	Centre 2x2	18	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		2
117	Centre 2x2	18	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		1
117	Centre 2x2	18	Ceramic	Ceramic						5
118	Centre 2x2	11	Chipped Stone	Chert	Debris	Chunk	Miscellaneous piece	Whole		2
118	Centre 2x2	11	Chipped Stone	Chalcedony	Debris	Chunk	Miscellaneous piece	Whole		1
118	Centre 2x2	11	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		2
118	Centre 2x2	11	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		6
118	Centre 2x2	11	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		2

118	Centre 2x2	11	Chipped Stone	Chert	Flake	Tertiary	General	Whole		2
118	Centre 2x2	11	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		2
118	Centre 2x2	11	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
118	Centre 2x2	19	Ceramic	Ceramic						13
122	Centre 2x2	21	Faunal	Shell	Adorno		Bead	Whole		2
122	Centre 2x2	21	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		5
122	Centre 2x2	21	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		55
122	Centre 2x2	21	Chipped Stone	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		2
122	Centre 2x2	21	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		9
122	Centre 2x2	21	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		96
122	Centre 2x2	21	Chipped Stone	Chert	Flake	Primary	General	Whole		6
122	Centre 2x2	21	Chipped Stone	Chert	Flake	Secondary	General	Whole		5
122	Centre 2x2	21	Chipped Stone	Chert	Flake	Tertiary	General	Whole		40
122	Centre 2x2	21	Chipped Stone	Chert	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
122	Centre 2x2	21	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		8
122	Centre 2x2	21	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Fragmentary		59
122	Centre 2x2	21	Groundstone	Dolomitic Limestone	?	?	Pendant/Adorno	Whole		1
122	Centre 2x2	21	Ceramic	Ceramic						6
123	Centre 2x2	20	Faunal	Shell	Adorno		Bead	Whole		1
123	Centre 2x2	20	Ceramic	Ceramic						5
124	Centre 2x2	Possibly 19 (backdirt)	Faunal	Shell	Adorno		Bead	Whole		4
124	Centre 2x2	Possibly 19 (backdirt)	Ceramic	Ceramic	Adorno		Pendant	Whole		1
129	Plaza Surface	Raking of Paths	Ceramic	Ceramic						2
									Total	3462

Table D4. Plaza D Artefact Data File.

Appendix E. Structure D9 Artefact Analysis

Lot	Level	Feature	Category	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Qty.
126	Sub-I	n/a	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		1
126	Sub-I	n/a	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
126	Sub-I	n/a	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
126	Sub-I	n/a	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2
126	Sub-I	n/a	Chipped Stone	Chalcedony	Formal	Uniface	General	Fragmentary	82.8	1
126	Sub-I	n/a	Ceramic	Ceramic						12
127	Sub- I (probably)	New hole in interior	Chipped Stone	Groundstone	Formal	??	Metate	Fragmentary		1
127	Sub- I (probably	New hole in interior	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		1
127	Sub- I (probably	n/a	Ceramic	Ceramic						10
128	Collapse- Level One	n/a	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		5
128	Collapse- Level One	n/a	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		10
128	Collapse- Level One	n/a	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		5
128	Collapse- Level One	n/a	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		6
128	Collapse- Level One	n/a	Chipped Stone	Chert	Flake	Tertiary	General	Whole		5
128	Collapse- Level One	n/a	Chipped Stone	Chert	Flake	Secondary	General	Whole		9
128	Collapse- Level One	n/a	Chipped Stone	Chert	Flake	Primary	General	Whole		1
128	Collapse- Level One	n/a	Chipped Stone	Chert	Formal	Uniface	Retouched Flake Tool	Whole	87	1
128	Collapse- Level One	n/a	Chipped Stone	Chert	Formal	Uniface	Macroblade Tang	Fragmentary (Proximal)	55.4	1
128	Collapse- Level One	n/a	Historic	Wax	Formal		Candles	Fragmentary		2
128	Collapse- Level One	n/a	Ceramic	Ceramic						124
128	Collapse- Level One	n/a	Ceramic	Ceramic						32
128	Collapse- Level One	n/a	Ceramic	Ceramic						24
130	Sub-IIa	n/a	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2

130	Sub-IIa	n/a	Chipped Stone	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
130	Sub-IIa	n/a	Ceramic	Ceramic						9
131	Sub-IIa	Possible Cache	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		1
131	Sub-IIa	Possible Cache	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
131	Sub-IIa	Possible Cache	Ceramic	Ceramic						6
131	Sub-IIa	Possible Cache	Ceramic	Ceramic						2
133	Collapse Level 2	n/a	Chipped Stone	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		10
133	Collapse Level 2	n/a	Chipped Stone	Chert	Flake	Secondary	General	Whole		16
133	Collapse Level 2	n/a	Chipped Stone	Chert	Flake	Tertiary	General	Whole		25
133	Collapse Level 2	n/a	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		6
133	Collapse Level 2	n/a	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		23
133	Collapse Level 2	n/a	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		39
133	Collapse Level 2	n/a	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		48
133	Collapse Level 2	n/a	Chipped Stone	Groundstone	Formal	??	Mano	Fragmentary	78	1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	66.8	1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Formal	Biface	Probable Axe	Fragmentary (Proximal?)		1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Formal	Uniface	Indeterminate	Fragmentary (Distal?)	46.5	1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Formal	Biface	Indeterminate	Fragmentary (Medial)	87.3	1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Core	Unipolar	Rejuventation top	Fragmentary (Proximal)		1
133	Collapse Level 2	n/a	Chipped Stone	Chert	Flake	Primary	General	Whole		1
133	Collapse Level 2	n/a	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
133	Collapse Level 2	n/a	Chipped Stone	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Proximal/Medial)	0.7	2
133	Collapse Level 2	n/a	Chipped Stone	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Proximal/Medial)	0.6	1
133	Collapse - Level 2	n/a	Ceramic	Ceramic						498

134	Collapse- Level 3	n/a	Chipped Stone	Chert	Flake	Tertiary	General	Whole		3
134	Collapse- Level 3	n/a	Chipped Stone	Chalcedony	Flake	Tertiary	General	Whole		3
134	Collapse- Level 3	n/a	Chipped Stone	Chalcedony	Flake	Secondary	General	Whole		2
134	Collapse- Level 3	n/a	Chipped Stone	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		4
134	Collapse- Level 3	n/a	Chipped Stone	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		4
134	Collapse- Level 3	n/a	Chipped Stone	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
134	Collapse - Level 3	n/a	Ceramic	Ceramic						30
142	Collection 1- Sub-IIa	n/a	Ceramic	Ceramic						53
143	Collection 3- Sub-IIa	n/a	Ceramic	Ceramic						1
143	Collection 3- Sub-IIa	n/a	Ceramic	Ceramic						23
144	Collection 2- Sub-III?	n/a	Ceramic	Ceramic						5
145	Surface	n/a	Ceramic	Ceramic						6
146	Backdirt	n/a	Ceramic	Ceramic						14
146	Backdirt	n/a	Ceramic	Ceramic						3
147	Collection 4- Trench Surface	n/a	Ceramic	Ceramic						4
									Total	1115

Table E1. Structure D9 Artefact Data File

Lot	Unit	Level	Ware	Group	Type	Variety	Comments	Quantity
128	Looters Trench	Collapse Level 1		Sierra	Altamira Fluted		Chicanel Phase	7
128	Looters Trench	Collapse Level 1	ND					79
128	Looters Trench	Collapse Level 1	Red Lipped Cream was striated					1
128	Looters Trench	Collapse Level 1	Tan Slips					5
128	Looters Trench	Collapse Level 1		Sierra? Joventud			Spike effigy. Chicanel or Mamóm Phase	1
128	Looters Trench	Collapse Level 1		Sierra?			Chicanel Phase	1
128	Looters Trench	Collapse Level 1		Polvero	Lechugal Incised		Chicanel Phase	1
128	Looters Trench	Collapse Level 1		Polvero	Lechugal Incised		Chicanel Phase	1
128	Looters Trench	Collapse Level 1	?					1
128	Looters Trench	Collapse Level 1		Dos Arroyos			Tzakol Phase	1
128	Looters Trench	Collapse Level 1		Sierra			Chicanel Phase	90
128	Looters Trench	Collapse Level 1		Sierra			Chicanel Phase	23
128	Looters Trench	Collapse Level 1	Specials					1
128	Looters Trench	Collapse Level 1		Sierra	Sierra Red		Chicanel Phase	2
128	Looters Trench	Collapse Level 1		Sierra	Sierra Red		Chicanel Phase	30
128	Looters Trench	Collapse Level 1		Sierra			Chicanel Phase	5
128	Looters Trench	Collapse Level 1	Polychrome				In type collection. Early or Late Classic	2
128	Looters Trench	Collapse Level 1	Specials					17
133	Looters Trench	Collapse Level 2	ND tan/gray slipped					39
133	Looters Trench	Collapse Level 2		Sierra-Polvero			Chicanel Phase	1
133	Looters Trench	Collapse Level 2		Polvero	Lechugal Incised		Chicanel Phase	3
133	Looters Trench	Collapse Level 2		Polvero	Lechugal Incised		Chicanel Phase	5
133	Looters Trench	Collapse Level 2			Mount Pleasant Red?		With impressed ridge (in type collection). Tepeu Phase	1
133	Looters Trench	Collapse Level 2		Pucte	Pucte Brown		Tzakol Phase	1

133	Looters Trench	Collapse Level 2		Pucte	Pucte Brown			2
133	Looters Trench	Collapse Level 2		Polvero	Lechugal Incised?		In type collection. Chicanel Phase	1
133	Looters Trench	Collapse Level 2	Brown slipped appliqued striated					1
133	Looters Trench	Collapse Level 2		Flor	Flor Cream		Chicanel Phase	1
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red		Partial mammiform suppoort? Chicanel Phase	3
133	Looters Trench	Collapse Level 2	Red lipped cream slip				This style also used for chocolate pots	2
133	Looters Trench	Collapse Level 2	Red lipped cream slip					3
133	Looters Trench	Collapse Level 2		Dos Arroyos	Caldero Buff-Polychrome		Tzakol Phase	1
133	Looters Trench	Collapse Level 2		Dos Arroyos	Caldero Buff-Polychrome		Tzakol Phase	1
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red		Chicanel Phase	8
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red		Chicanel Phase	37
133	Looters Trench	Collapse Level 2		Sierra	Altamira Fluted		Chicanel Phase	8
133	Looters Trench	Collapse Level 2	Specials					63
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red	Variety Unspecifed buff	Chicanel Phase	20
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red	Variety Unspecifed buff	Chicanel Phase	7
133	Looters Trench	Collapse Level 2		Sierra	Sierra Red	Variety Unspecifed maroon	Chicanel Phase	7
133	Looters Trench	Collapse Level 2		Sierra			Chicanel Phase	26
133	Looters Trench	Collapse Level 2		Sierra			Chicanel Phase	31
133	Looters Trench	Collapse Level 2		Sierra			Chicanel Phase	226
134	Looters Trench	Collapse Level 3	Bichrome red on orange				In type collection	1

134	Looters Trench	Collapse Level 3	Bichrome brown on red				In type collection	1
134	Looters Trench	Collapse Level 3	Red lip cream wash striated					1
134	Looters Trench	Collapse Level 3		Sierra	Sierra Red		Chicanel Phase	7
134	Looters Trench	Collapse Level 3		Sierra	Sierra Red		Chicanel Phase	7
134	Looters Trench	Collapse Level 3		Sierra	Sierra Red		Chicanel Phase	3
134	Looters Trench	Collapse Level 3						10
126	Looters Trench	Sub-I	ND					4
126	Looters Trench	Sub-I		Sierra	Sierra Red		Chicanel Phase	5
126	Looters Trench	Sub-I		Flor?			Tan Slip. Chicanel Phase	1
126	Looters Trench	Sub-I	Bichrome					2
127	Looters Trench	Sub-I (probably)		Sierra	Unspecified: Maroon		Chicanel Phase	5
127	Looters Trench	Sub-I (probably)		Sierra	Unspecified: Not Maroon		Chicanel Phase	1
127	Looters Trench	Sub-I (probably)		Sierra	Unspecified: Not Maroon		Chicanel Phase	1
127	Looters Trench	Sub-I (probably)		Sierra	Unspecified: Not Maroon		Chicanel Phase	1
127	Looters Trench	Sub-I (probably)		Sierra	Unspecified: Not Maroon		Chicanel Phase	1
127	Looters Trench	Sub-I (probably)		Palia	Palia Unslipped		Chicanel Phase	1
130	Looters Trench	Sub-IIa	Specials				2 rims	9
131	Looters Trench	Sub-IIa	Specials				2 Sierras? Chicanel Phase	6
131	Looters Trench	Sub-IIa	San Estevan Vasquez Complex				Chicanel Phase	1
131	Looters Trench	Sub-IIa	San Estevan Vasquez Complex				Chicanel Phase	1
142	Looters Trench	Sub-IIa	Paso Caballo Waxy	Sierra			Barton Creek. Chicanel Phase	53

143	Looters Trench	Sub-IIa	Paso Caballo Waxy	Sierra			Barton Creek. Chicanel Phase	1
143	Looters Trench	Sub-IIa	ND					23
144	Looters Trench	Sub-III?	ND					5
145	Looters Trench	Surface	Paso Caballo Waxy	Sierra			Barton Creek. Chicanel Phase	6
146	Looters Trench	Backdirt	Paso Caballo Waxy	Sierra			Barton Creek. Chicanel Phase	14
146	Looters Trench	Backdirt	ND					3
147	Looters Trench	Trench surface	ND					4
							Total	944

Table E2: Structure D9 ceramic analysis results, organized by level.

Lot	Unit	Level	Feature	Material	Object Class	Object Type	Object	Condition (and section where known)	Weight (g)	Quantity
128	Looters Trench	Collapse Level 1	n/a	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		5
128	Looters Trench	Collapse Level 1	n/a	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		10
128	Looters Trench	Collapse Level 1	n/a	Chalcedony	Flake	Tertiary	General	Whole		5
128	Looters Trench	Collapse Level 1	n/a	Chalcedony	Flake	Secondary	General	Whole		6
128	Looters Trench	Collapse Level 1	n/a	Chert	Flake	Tertiary	General	Whole		5
128	Looters Trench	Collapse Level 1	n/a	Chert	Flake	Secondary	General	Whole		9
128	Looters Trench	Collapse Level 1	n/a	Chert	Flake	Primary	General	Whole		1
128	Looters Trench	Collapse Level 1	n/a	Chert	Formal	Uniface	Retouched Flake Tool	Whole	87	1
128	Looters Trench	Collapse Level 1	n/a	Chert	Formal	Uniface	Macroblade Tang	Fragmentary (Proximal)	55.4	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		10
133	Looters Trench	Collapse Level 2	n/a	Chert	Flake	Secondary	General	Whole		16
133	Looters Trench	Collapse Level 2	n/a	Chert	Flake	Tertiary	General	Whole		25
133	Looters Trench	Collapse Level 2	n/a	Chalcedony	Flake	Secondary	General	Whole		6
133	Looters Trench	Collapse Level 2	n/a	Chalcedony	Flake	Tertiary	General	Whole		23
133	Looters Trench	Collapse Level 2	n/a	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		39
133	Looters Trench	Collapse Level 2	n/a	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		48
133	Looters Trench	Collapse Level 2	n/a	Groundstone	Formal	?	Mano	Fragmentary	78	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Macroblade Tang	Fragmentary (Proximal)	66.8	1

133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Probable Axe	Fragmentary (Proximal?)		1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Uniface	Indeterminate	Fragmentary (Distal?)	46.5	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Formal	Biface	Indeterminate	Fragmentary (Medial)	87.3	1
133	Looters Trench	Collapse Level 2	n/a	Chert	Core	Unipolar	Rejuventation top	Fragmentary (Proximal)		1
133	Looters Trench	Collapse Level 2	n/a	Chert	Flake	Primary	General	Whole		1
133	Looters Trench	Collapse Level 2	n/a	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
133	Looters Trench	Collapse Level 2	n/a	Obsidian (El Chayal)	Formal	Prismatic	Blade	Fragmentary (Proximal/ Medial)	0.7	2
133	Looters Trench	Collapse Level 2	n/a	Obsidian (San Martin Jilotepeque)	Formal	Prismatic	Blade	Fragmentary (Proximal/ Medial)	0.6	1
134	Looters Trench	Collapse Level 3	n/a	Chert	Flake	Tertiary	General	Whole		3
134	Looters Trench	Collapse Level 3	n/a	Chalcedony	Flake	Tertiary	General	Whole		3
134	Looters Trench	Collapse Level 3	n/a	Chalcedony	Flake	Secondary	General	Whole		2
134	Looters Trench	Collapse Level 3	n/a	Chert	Flaked Piece	Indeterminate	Indeterminate	Whole		4
134	Looters Trench	Collapse Level 3	n/a	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		4
134	Looters Trench	Collapse Level 3	n/a	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		2
126	Looters Trench	Sub-I	n/a	Chalcedony	Flake	Tertiary	General	Whole		1
126	Looters Trench	Sub-I	n/a	Chalcedony	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
126	Looters Trench	Sub-I	n/a	Chert	Debitage	Shatter	Miscellaneous piece	Fragmentary		3
126	Looters Trench	Sub-I	n/a	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2

126	Looters Trench	Sub-I	n/a	Chalcedony	Formal	Uniface	General	Fragmentary	82.8	1
127	Looters Trench	Sub-I (probably)	New hole in interior	Groundstone	Formal	?	Metate	Fragmentary		1
127	Looters Trench	Sub-I (probably)	New hole in interior	Chalcedony	Flake	Secondary	General	Whole		1
130	Looters Trench	Sub-IIa	n/a	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		2
130	Looters Trench	Sub-IIa	n/a	Chalcedony	Flake	Tertiary	Bifacial Thinning Flake	Whole		1
131	Looters Trench	Sub-IIa	Possible Cache	Chalcedony	Flake	Secondary	General	Whole		1
131	Looters Trench	Sub-IIa	Possible Cache	Chalcedony	Flaked Piece	Indeterminate	Indeterminate	Whole		1
									Total	257

Table E3: Structure D9 lithic analysis results, organized by level.