The Dissertation Committee for Marisol Cortes Rincon Certifies that this is the approved version of the following dissertation:

A Comparative Study of Fortification Developments Throughout The Maya Region and Implications of Warfare

Committee:

Fred Valdez, Jr., Supervisor

Samuel Wilson

Enrique Rodriguez-Alegria

Peter H. Dana

Palma J. Buttles

Traci Ardren

A Comparative Study of Fortification Developments Throughout The Maya Region and Implications of Warfare

by

Marisol Cortes Rincon, B.A.; M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August, 2007

Dedication

To My Beloved Husband, Steven Rincon

and My Mother, Margarita Galvis

Acknowledgements

I was lucky enough to have the support of many people in the production of this dissertation. I would like to acknowledge my family for their undying support throughout this venture. A large part of the success of this research was due to an exceptionally supportive dissertation committee. First of all, I would like to express my sincere gratitude to my dissertation committee chair, Dr. Fred Valdez Jr. He has been an incredible mentor, and an intellectual giant, and his influence of my career and as an archaeology student has been immense. I will always remember him for his kind heart, and patience he always displays towards all of his students. He truly has a passion for teaching, and getting to know his advisees. Dr. Valdez's contributions to my education, field experience, and my dissertation are immeasurable.

The other committee members must also be mentioned - Drs. Samuel Wilson, Enrique Rodriguez-Alegria, Peter H. Dana, Palma J. Buttles, and Traci Ardren have been incredibly supportive of my endeavors. I cannot thank them enough for their kind words and for taking the time out of their busy schedules to serve on my committee. Additionally, Dr. T. Kam Manahan, Co-Project Director of the Proyecto Arqueologico Xuenkal, graciously served on my dissertation committee as an official reader. He provided me a wealth of information, and priceless editorial assistance. Furthermore, he guided me in the right direction throughout my field research at Xuenkal. I am indebted to both Drs. T. Kam Manahan and Traci Ardren for inviting me to join their Proyecto Arqueologico Xuenkal during the 2006 spring and summer seasons. Dr. Manahan has been an incredible source of information. I cannot thank them enough for all their help.

Dr. Peter H. Dana assisted with my Geographical Information Systems (GIS) analysis and queries. He always answered my relentless technical questions with infinite patience. I would have never been able to complete my GIS queries if it had not been for all of his help and encouragement to keep working on the GIS database and spatial analysis, and his most frequent advice: “keep it simple”.

Dr. Palma J Buttles provided editorial help. She always made time to answer all my questions and provided me with an infinite number of references. Dr. Sam Wilson assisted me when I first began to put together a database of fortified sites. He helped out in organizing all of the information and statistical analysis. Dr. Enrique Rodriguez-Alegria always challenged me to investigate warfare from many different angles, and to stay on top of the newest research in the Maya lowlands. He made the time to edit my first draft, even though he was heading off to the field.

I would also like to thank Drs. Nikolai Grube, Brian Stross, Julia Guernsey, James Denbow, Martha Menchaca, Claud Bramblett, Thomas Hester, James Neely, Peter Dana, Fred Valdez Jr., and Sam Wilson for providing excellent graduate seminars at the University of Texas. I have often said I have been spoiled rotten with my advisors. Dr. Timothy Renner was my advisor as an undergraduate student at Montclair State University. Dr. Renner assisted me with learning Classical Greek, and Classical Latin. Dr. Stanley Walling introduced me to field archaeology at a historic field school in central New Jersey. During that same year, he invited me to join the Programme for Belize Archaeological Project in northwestern Belize. Dr. Walling always encouraged me to push myself harder and most importantly not to settle for anything less than perfection. He has been a supportive advisor, and one of my most cherished friends. I probably would not have pursued a graduate career, if it was not for his constant encouragement.

Conversations and mutual support from my fellow graduate students helped to stimulate new insights of my research, and provided needed encouragement along the way. At the University of Texas at Austin, Grant Aylesworth, Micaela Obledo, Ann Scott, Elizabeth Reed, Sandra Dias, and most importantly my dearest and closest friend: Rissa Trachmann. She has been a wonderful friend, and provided me with so much help to get through this process. She has been a true friend, and offered a supportive shoulder to lean on. Rissa even went as far to help me out with last minute details, and kept me from losing my very last shred of sanity. I would have never met my deadline without her assistance.

Melissa DeVito, a graduate student from Montclair State University, has joined me on the field in Belize, where we shared many great memories. She is my dearest best friend, and has encouraged me all the way throughout graduate school. My childhood friend, Jarrod Feliciano, has offered both editorial assistance, and moral support throughout the way.

Most important of all, I would like to thank my family for their undying support - My mother, Margarita, for all her kind of words, and for supporting my career choices. She stayed up with me to make photocopies of my first draft, and assisted with the final edits on the dissertation. Both my mother and husband provided me with an endless font of love and support. My beloved husband has been my rock, the one who kept me going through it all, and believed in me, even when I did not. Thank you for encouraging me every step of the way, for putting up with me through this dissertation process, for being a source of inspiration, and keeping me semi-sane. Thanks for not divorcing me, and for always being there, when I came back from those long lengthy field seasons.

A Comparative Study of Fortification Developments Throughout The Maya Region and Implications of Warfare

Publication No._____

Marisol Cortes Rincon, Ph.D.

The University of Texas at Austin, 2007

Supervisor: Fred Valdez, Jr.

This dissertation presents data to support the continuity of warfare throughout the Maya lowlands, and adjacent regions. I discuss the current problems with the archaeology of warfare, the continuity of conflict beginning with the Late Preclassic through the Terminal Classic. Additionally, I emphasize the influence that Teotihuacan had during the Early Classic throughout Mesoamerica, while in some areas there is evidence of diplomatic and economic relations, there is also clear evidence of forced relations at other sites. Conflict is identified on the archaeological record through the heterarchical analysis of a variety of data encompassing defensive features, settlement patterns, epigraphy, iconography, and forensic data. I examine data from San Jose Mogote, Monte Alban,

Montana, Izapa, Kaminaljuyu, and sites located within the northern, central, and southern lowlands.

The primary goal is to present a cohesive series of war-related events per lowland zone, and chronological time period. Some of the primary questions deal with how land use, and economic trade relations transform political relations and alliances throughout time. Additionally, how do changes in political alliances affect trade routes? By recognizing the important role warfare played in the lowlands, we also recognize how these events affected the elites and their interaction with other polities, and most importantly how these events affected the commoner populace. In the process of investigating conflict throughout the Preclassic and the Classic periods, we can attempt to pinpoint continuities, political and economic changes, and the sociopolitical responses undertaken by polities in a time of war.

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Chapter 1

Introduction

One of the goals of this dissertation is to demonstrate that warfare was almost always present throughout the Maya lowlands during the Classic period (A.D. 250 – 900). This is done in order to demonstrate that war was part of the political and economic inter-exchange between polities starting as early as the Late Preclassic, and continuing into the Classic periods. A secondary objective is to analyze the evolution of fortification systems per region and time period. Military tactics are also discussed, based on the evidence available. Additionally, I investigate the relationship and correlations between fortified sites, and variables such as raw materials, resources, and economic trade routes per chronological phase. A third objective is to examine settlement patterns during a time of war. The primary goal is to analyze warfare from an economic point of view, and to ascertain any resulting changes on trade relations.

Sites with evidence of fortifications, conflict related iconography, and epigraphy are integrated in the volume. The sites included in the dissertation are from the Oaxaca Valley, the Soconusco region, the Southern Highlands, the Southern Lowlands, the Central Lowlands, and the Northern Lowlands. Also presented is a case study of the preliminary field investigation of a defensive wall at Xuenkal. A site located in the northern part of the Yucatan peninsula within the Cupul region. Excavations at the site are discussed in Chapters 5, and 6.

This chapter includes an introduction to warfare studies, traditional views of Maya conflict, theoretical models, possible indicators of war, military tactics, economic impacts, potential reasons for fortifications during the Late Classic and the Terminal Classic, and proposed hypotheses for carrying out war. Research goals and methodology are incorporated and covered in detail. Additionally archaeological field methodology is covered, along with Geographical Informational System (GIS) analysis and queries.

The Problem and Significance of the Research

The majority of defensive architectural remains are usually walls. Scholars disagree as to the function of these features (see Webster 2005 for a hydraulic-function interpretation of Tikal's earthworks). At times, these elements are interpreted as delineating private versus public space. The same issue is also present with earthworks, some of the suggested functions of these elements are: defensive, water management, and agricultural purposes. Some of the sites that have stronger lines of evidence of defensive works are: Aguateca, Punta De Chimino, Ek Balam, Cuca, Dzonot Ake, Chacchob, and Muna, among others (see Chapter 3). Inomata (1995) did a phenomenal job of pinpointing all the different aspects of the fortifications, attacks, and abandonment of Aguateca. Dating a defensive feature is another conundrum. Most of the walls are composed of dry fill, and are for the most part sterile of diagnostic artifacts, such as ceramic sherds or lithics. Excavations of walls in the northern lowlands have little-to-no ceramic material. Other disagreements focus on the presence or absence of warfare and the reasons military campaigns were carried out, which vary per region, and chronological phase. It should be noted that the

lack or presence of conflict also has a deep-seated effect on the formations of boundaries over time. These disagreements are what make the study of warfare so interesting, the constant flow of new ideas, and the recycling of old hypotheses.

By recognizing the important role warfare played in the lowlands, we also recognize how these events affected the elites and their interaction with other polities, and most importantly how these events affected the commoner populace. While acknowledging the importance of conflict is fundamental in understanding the political events throughout the lowlands, the goal is not to understand the intricacies of war, but the effects warfare had on these polities. How did elites react in a time of conflict, and thereafter? What steps were taken to ensure peace? What were the processes undertaken to ensure the protection of their immediate surroundings? What about safeguarding their subjects? How did warfare affect the non-elites? What effects did conflict have on the flow of commerce? Is it possible to analyze the formation and the changing of political boundaries throughout time by studying warfare patterns?

I propose we look at regional political and economic interaction in a framework that embraces warfare studies. In this manner, archaeologists can gain a deeper understanding on the cyclical levels that polities underwent: success, inter-exchange, and failures. By studying conflict throughout the Preclassic and the Classic periods we can attempt to pinpoint continuities, political and economic changes, and the sociopolitical responses undertaken by polities in a time of war.

Organization of the Volume

This dissertation is organized in seven chapters. Chapter 2 covers evidence of conflict during the Late Preclassic in other regions of Mesoamerica. The sites discussed in Chapter two include San Jose Mogote, Monte Alban, Dainzu, Izapa, and Kaminaljuyu.

Chapter 3 examines evidence of fortifications from the southern, central, and northern lowlands. Additionally, each lowland zone is discussed per time period. Furthermore, epigraphic information is incorporated to present a more cohesive picture.

Chapter 4 provides the physical setting for the Yucatan Peninsula. A few of the regional centers are also included to place the case study within its regional context.

Xuenkal is introduced, along with the previous archaeological work at the site in Chapter 5. Additionally, the fortification system at Xuenkal is discussed along with the test units on and near the defensive works. A tentative date of construction for the wall is proposed based on the material found within the test units.

The settlement outside of the defensive wall at Xuenkal is covered in Chapter 6. A discussion of the cultural material and architecture is also included. Diachronic occupation of the site is covered based on the preliminary sherd analysis.

GIS analysis and query results are presented in detail in Chapter 7. A brief overview of trade is also discussed. Additionally, correlations with trade, resources, and fortifications are proposed based on spatial and non-spatial analysis within GIS.

Study of Warfare

The very definition of war introduces intricate complexities as to the archaeology of warfare itself. War historians and archaeologists often fail to provide a detailed description of war and of its many variations. It should be stated that war adopts many forms or degrees of sophistication, dependent upon the social and political organization of the carriers. In addition, the technology of the society affects the severity of "war" itself. A third point is the catalyst precipitating the act itself, whether for procurement of resources, water, land, and slaves, for retaliation or perhaps simply as an open window of opportunity.

Clausewitz (1873) defined war as "an act of violence to compel our opponent to fulfill our will" (Clausewitz translated by Greene 2003). Conflict can be an act of political interchange, such as a border struggle that has escalated into war. Ferguson (1984) sees warfare as a social activity carried out by a cultural group; a similar concept as hunting and gathering, an activity essential to the survival of a group. Solometo (2004) makes the distinction that both social and political groups partake in warfare related activities. Political leaders are the main protagonists of war while the social members are the pawns that carry out the necessary combat. War is not an act of spontaneity; conceptually, conflict is a normal and a legitimate aspect of sociopolitical behavior. Conflict involves tactical planning and logistics; such as when, how, and where to attack, designating participants' roles, and any required ritualistic pre-and-post preparations (Kelly 2000).

When analyzing warfare, there are many variables that need to be taken into consideration, such as scale, arena, entities, intensity, organization, strategy, purpose, and function (Webster 1993). Several areas of study that are not fully developed in Maya warfare include the evolution of weaponry from Preclassic to Postclassic (2000 B.C. - A.D. 1521), and an extensive forensic analysis of possible battle-inflicted wounds (Sheets 1978; Webster 1980; with the exception of obsidian prismatic blades and chert points analysis of the Copan region by Aoyama 2005; Postclassic Lacandon Maya and Arrow weaponry studies by Nations 1989; and Weaponry at Cholula during the Postclassic by McCafferty 2003). In addition to these unknown factors, the advancement of defensive architectural systems and battlefield tactical warfare have not, as of yet, been as fully researched in this venue as they have for other cultures. For example, in Europe during the Middle Age, strong castles protected both lord and peasant. Walls ringed European cities to protect them from invading armies and the construction of fortifications became an art (Duffy 1975, 1997).

Most people today consider warfare a full-scale onslaught between nations with standing armies and a unified form of government, the Maya had neither. A population needs to possess a set of variables prior to having a full standing army: sustainable populace, a surplus of natural resources to maintain soldiers that would not contribute any assets and, most critically, the need to have an army precipitated by fierce competition with another entity (Keegan 1993; Schelling 1960). Hereafter, the following will serve as definitions for warfare activities:

Raids: a group of organized individuals with a set of objectives using specialized weaponry and coordinated behavior (Cioffi-Revilla 2000; Ferguson 1984).

Regional Conflict: Restricted to sites within the same geographical region. (a) Conflict between two neighboring sites under the umbrella of a regional polity. (b) Conflict between two or more polities that can lead to diplomacy discussions or ultimately to war.

Non-regional Conflict: (a) Conflict with a site from another geographical region. (b) Conflict with another cultural group.

Types of force used in warfare: Polities or involved parties can use military force to obtain a specific objective. This force can be directed at civilian populations directly or indirectly. Unrestricted warfare is applicable when a state employs conventional force against the noncombatants of another territory to destroy the enemy's ability to wage war. For example, attacking the enemy's food supply and repeatedly attacking their city, and civilians. If the objective is to utterly destroy the enemy rather than defeating them, war of annihilation is the proper term (Worley 2003).

Traditional Views of Maya Warfare

At the turn of the twentieth century, many scholars championed the idea of the "Peaceful Maya". Even when faced with evidence such as the Bonampak murals portraying vivid scenes of a battle followed by captive sacrifices, they were dismissed as a by-product of the Postclassic (A.D. 950 - 1521). Armillas (1951) was one of the few early scholars to propose that the Maya had a militaristic component to their culture. At the time, there was no epigraphic material to contradict the assumed non-military character of Maya life.

It was not until Tatiana Proskouriakoff published her work (1960, 1961, 1963, and 1964) on the historical nature of Maya inscriptions, that this view slowly began to evolve.

Theoretical Models of Warfare

Warfare has been suggested to be one of the instruments driving the development of complex societies (Aoyama 2005; Brown and Garber 2003; Carneiro 1970, 1981, 1990; Johnson and Earle 1987; Haas 1982; Sanders 1977; Sheets 2002; Webster 1975). It has been suggested that the emergence of agriculture and sedentary life contributes to conflict among groups. New agricultural innovations and subsequent surplus lead to a population increase followed by competition over land and other natural resources. If the rate of growth of the demarcated agricultural land does not correlate with the consumers' needs, a window of opportunity will open for conflict under economic reasons (Carneiro 1970, 1994). "Warfare was intimately interwoven with the economy and the ideology of these societies" (Haas 1982). Warfare itself is not the driving force for carrying out conflict; it is merely a symptom of preceding underlying problems within a region.

There are a number of theoretical models that have been put forth by researchers to explain the reasons for warfare in the Maya Lowlands. Webster (1976, 1977, and 1999) outlines an evolutionary pattern in warfare with three stages in the development of warfare with origins in the Preclassic (2000 B.C. – 250 A.D.). Stage I (prior to 400 B.C.) stems from migration into the Maya lowlands, basing the earliest form of conflict on territorial competition, what he termed as "agricultural colonization." Swidden agriculture aids in supporting rising population numbers until the carrying capacity for

this particular agricultural method is reached. Expansion and further migrations help to mitigate this issue, but over population in densely occupied areas forces a struggle for the control of natural resources. The next stage (ca. 100 B.C.) addresses the differential access by the populace to land and to natural resources that leads to internal conflict and to economic stratification. Expansion policies to attain land, thereby increasing wealth and status, become driving factors in societal development. Military management positions implemented to administrate the newly acquired resources ultimately create social stratification. The third stage (ca. 750 A.D.) is characterized by more aggressive expansions to attain additional land and by instituting more "managerial" jobs that ultimately render further social stratification. Military personnel were used to control both internal and external conflicts, and to protect trade which was a factor in the establishment of power for the ruling elites. This process led to internal feuds among sites under the control of one polity, fighting for broader political control, and for prestige. This eventually culminates in one of the political nodes breaking away from the polity hub to form its own lineage and to restart the cycle (Webster 1976, 1977, 1993, and 1999). This particular model is very similar to the Power Cycle theory (Doran 1983, 1995a; Doran and Parsons 1980). It suggests that major powers go through cyclical changes, referring to the political and social progressions of the polities involved and their ability to maintain control of their respective regions. Those unable to adapt to new changes are bound to decline (Doran 1983, 1995a; Doran and Parsons 1980).

Yet another interesting perspective on warfare concerns internal and external causes. Demarest (1978) defined two courses of military action among the Maya. One is

focused on the intra-polity warfare that was limited to the elites with specific rules of engagement. The other consisted of a factional inter-polity endemic war, which embroiled all social classes within the polities involved and without any rules of engagement (Demarest 1978). This particular model concentrates on the intensity used in combat such as unrestricted warfare utilizing conventional military force and perhaps hinting at annihilation wars.

Adams (2005) presents five sequential cycles of warfare in the Maya lowlands. The first is during the Preclassic (2000 B.C. - A.D. 250), and it is defined as an expansionistic stage. El Mirador is the major regional center at the time. Adams alludes to the possibility of El Mirador taking over a few sites at the time during the Preclassic. The second stage takes place during the Early Classic (A.D. 250 – 600); it is a period in which Tikal and Calakmul compete for regional power. The elites had expansionistic and competitive objectives in mind to further their political careers. The third stage is during the Hiatus (A.D. 534 – 593), in which civil wars ensue during a period of famine and other regional environmental stresses. The fourth stage is during the Late Classic (A.D. 600- 800); it is an attempt, after the Hiatus, to restore power, both by the older polities and the newer ones vying for regional power. The fifth and final stage is during the Terminal Classic (A.D. 800 – 900). This is time of "desperation" and there is an increase in population and fierce competition over scarce resources (Adams 2005).

An expansionistic theory suggests that just as the rest of the world was compelled at one point to turn to war for territorial and resource control, so were the Maya (Cowgill 1979) supporting Webster's and Adams' theoretical perspectives. Chase and Chase

(1996) put forth the idea that Late Classic Maya waged war to gain larger territories. The importance of territory and its effects on conflict are just starting to receive a little more recognition by current scholars (Vasquez 2000). Recent research has shown that territory disputes play a factor in the steps preceding major conflicts (Vasquez 2000).

However, the idea about the peaceful Maya still persists. A few scholars still hold to the ideological perspective on ritualized warfare with the Maya only carrying out the occasional raid. This idea is derived from the epigraphic material consisting of records citing the capture of "high-ranking individuals", and not of territorial conquests (Freidel 1986; Sabloff 1986; Schele and Miller 1986). In a similar point of view, Freidel (1986,) has pursued an explanation based on the structure and the interaction of Maya polities and their rulers. Specifically, it is based on religious reasons for warfare due to the pressing need for upper-class sacrificial victims required for ascension ceremonies (Freidel 1986; Thompson 1966). This is a concept that would only apply to raids and not to regional conflict between two polities.

Indicators of Warfare

People throughout time have responded to various types of aggression by defending themselves. Different levels of defense include family, small and or large settlements, and territorial boundary protection. This physical evidence has been left on the landscape. Archaeological support of conflict includes epigraphy, iconography, weaponry, ethnographic studies, forensic evidence, and architectural remnants of fortifications (Webster 1976). Indirect forms of evidence of conflict incorporate

abandonment of sites and drastic settlement changes (Demarest et al. 1997; Inomata 1995, 1997, 2003).

Forensic. Forensic evidence of warfare is restricted to human remains. This line of evidence includes burials with traumatic pathology consisting of (but not limited to) parry inflicted wounds, embedded points, dismembered skeletons, decapitated skulls, fractured skulls, and mass burials, which could also be interpreted as sacrificial victims. Weaponry is another form of evidence of warfare amongst the funerary objects included in burials (Cioffi-Revilla 2000; Molleson 1991).

Location. This line of evidence refers to the location of a site within its physical terrain and its defensible setting, for instance, sites that are situated on a high ridge, an island, and a peninsula. Location by itself does not constitute as evidence for conflict within a region. Multiple lines of evidence are required in order to support insurgencies within a zone (Adams 1999; Cioffi-Revilla 2000).

Structural. An architectural defensive feature is considered a hard line of evidence of conflict. It is not specifically related to a warfare event but implies power struggles or skirmishes within a region. Structural evidence incorporates walls, moats, ditches, palisade walls, parapets, towers, baffled gates, killing alleys, and hastily built barricades (Cioffi-Revilla 2000; Dahlin 2000; Demarest et al. 1997; Inomata 1995, 1997, 2003). A perishable defense is a wall that was constructed by piling up soil in conjunction with small stones and with an inner-and-outer covering made from animal skin. A reproduction of this type of wall can be viewed today at the Alamo museum in San Antonio, Texas. This was probably a template of early defensive features which are

invisible in the archaeological record. Perhaps these types of defenses were cheaper and faster to construct as large stones were not required or unnecessary stripping of structures for building material. Other examples of unpreserved protections are wooden palisades, and wooden towers.

Iconography. Pictorial references of conflict related events occur in both the Old World and New World (Cioffi-Revilla 2000). Battle scenes and captive sacrifices are depicted on murals throughout the Maya lowlands. Lintels and stelae serve as venues for militaristic aggrandizement of a ruler. Throughout the Maya lowlands, rulers are depicted standing triumphantly over a defeated captive (Carreon Blaine 1993; De La Fuente 1998; Gann 1901; Martin and Grube 2000; Martinez De Luna 2005; Miller 1986).

Epigraphy. Epigraphic data when used in conjunction with other lines of evidence of warfare can be very useful in untangling a series of events. In the Maya lowlands, stelae were carved to commemorate certain episodes of warfare. Some of the stelae contained historic dates and reference the capture of both elite and nonelite personages from other sites (Cioffi-Revilla 2000; Freidel 1986; Martin and Grube 2000; Sabloff 1986; Schele and Miller 1986; Stuart 1984, 1993, 1995). Chase and Chase (1998, 2003) indicate the Late Classic Maya had various ways of referring to conflict based on the objectives of war. Capture or *chuc'ah* refers to seizing captives (Schele and Freidel 1990). Whether this idea also applies to securing a town is hotly debated (Marcus 1992). Axe or *ch'ak* events epitomize combat between two sites. Additionally, this has been interpreted as decapitation and the act of wielding an axe (Marcus 1992; Schele and Freidel 1990). Destruction or *hubi* implies a more direct and permanent impact on another location

(Chase and Chase 1998, 2003; Grube 1994; Schele and Freidel 1990). Star-war events have been interpreted as possible territorial war-related objectives (Chase and Chase 1998, 2003).

Military Tactics

All the sites discussed in this dissertation indicate there was a basic understanding of military tactics including both defensive and offensive strategies. Aggressors can have an infinite number of objectives and protecting those targets demands unlimited resources. This methodology evolved throughout time and through experience gained during various war-related events.

Ideology. Methods of promoting war include demonizing the enemy, saving oppressed communities from tyranny, promoting democracy, and or religious ideals. Royal courts and public spaces served as platform venues for propagandizing warfare by the ruling Maya elites. For example, the Maya preformed bloodletting rituals to commune with the gods for fortuity in war. Yaxchilan's Lintel 26 portrays a scene in which the queen gives the armed king his jaguar headdress (Martin and Grube 2000). This signifies that women played a religious role in these types of events. Another example is the divine spirit accompanying the highest-ranking warrior; illustrations of these can be seen on the North Panel mural within the Upper Temple of the Jaguars at Chichen Itza (Martinez De Luna 2005). Captains have green-feathered serpents surrounding them in the midst of battle. This signified that the heavenly body would accompany them in war and if needed, this

spirit would also fight the enemy's deity. In a sense, it represents the blessing of the gods at a time of war.

In Maya ideology, gods are expected to go to war and conquer other gods. For example, the Hero Twins defeated the Lords of *Xibalba* (Popol Vuh translated by Tedlock 1996). Rulers, as deities, are also expected to assume on this role. This recurrent theme is evident within the Popol Vuh mythology. During a time when rulers were seen as divine beings, it must not have been very difficult to convince their subjects to go to war. The rulers' divinity status and Maya ideology played a role in providing the necessary framework to carry out warfare for any type of hidden agenda. The Popol Vuh provides ethnohistoric ideological insights, which, when used in correlation with archaeological remains, iconography, and epigraphic data, can provide a vast amount of information.

Fear was injected into the citizens as a means to ensure conformity to imposed social values. At Blackman Eddy in Belize, there are signs of destruction and of burning of public civic buildings and defacing of stucco masks. There are no signs of termination rituals that would indicate action by the local community as part of a renovation or of a pre-abandonment ritual (Brown and Garber 2003). It is possible the attacking forces were destroying the representatives of what or whom they considered to be false gods and eliminating their center of power. This is similar to the steps taken by the Hero when they declared one of the Lords of Xibalba as a false sun god (Brown and Garber 2003). The aggressors were not only taking resources from Blackman Eddy, but also destroying any ideological credibility the local rulers had within their community. It is a fairly common

act by cultural groups to destroy representations of rulers, religious icons, and monuments. On the other hand, it could also be intrasite factional competition.

At Cuello, Belize, there is a mass burial containing 32 individuals buried in the fill of a large platform dating to the Late Preclassic. Evidence of fire, termination rituals and associated white marl deposits are also present (Gerhardt and Hammond 1991). Most of the individuals were young adult males that could have been warriors and or possibly sacrificial victims from an elite family (Brown and Garber 2003; Gerhardt and Hammond 1991; Saul and Saul 1991).

Deterrence and Defensive Tactics

The presence of conflict, whether it is ongoing or sporadic, brings forth the primal need to protect one's self, family, and the members of the immediate residential group. This level of protection only covers their immediate surrounding area to ensure the safety of associated structures, of food supply, and other resources. Ways of protecting a small residential area include walls restricting access, relocating to a higher area that is more easily defensible, or refurbishing a structure to serve as a lookout tower. This methodology can be implemented to incorporate an entire site as well with additional defenses such as ditches, moats, and restricted access points into a site. Protecting a region incorporates all of these methods with additional defensive strategies such as landscape modifications (earthworks), primary and secondary lines of defense, and frontier settlements that are intended to protect borders, to absorb the main collision of attack(s) and to provide notice to their regional polity and allies in a time of danger.

Defensive systems and their purpose as deterrents of potential dangers fulfill the criteria of public good. In that vein, all individuals within a community or within a region have equal beneficial and consumption rights of these features. This differs from consumption of private goods that are purchased and consumed by those who can afford these items. Once this defensive service has been provided, it is important that it benefits most community members, and not just one individual. Even defensive walls that encompass an elite complex cover all of the structures within this elite group not just one. Constructions of these features are both labor and time consuming. Even if not all of the population agrees or partakes in the construction, everyone benefits at a time of conflict and by the deterrence of potential aggressors (Kennedy 1975).

Fortifications. A fortification is a well constructed defensive measure which often includes fighting positions and may include additional obstacles. A number of sites throughout the lowlands exhibit protective wall(s) around the site or the core perimeter. Some of these are single, double, and with inner rings around specific sectors within a site, usually encompassing elite areas. A double-walled construction seems to have been a common feature in the Petexbatun region, serving as primary and secondary lines of defense. If the outer wall was breached, defenders could fall back to the perimeter of the inner wall, providing them with a smaller area to defend. Walls covering large areas have a weakness in that more man-power is required at most of the points by the wall. Double-wall features provided a third use: killing alleys that created very narrow baffled walkways with little visibility between two walls thereby setting a trap for the invading force and allowing the defenders to kill the first line of attackers (Van Tuerenhout 1996).

Thus far, only three sites are known to have killing alleys Dos Pilas, Quim Chi Hilam, and Cerro De Bananas (Demarest et al. 1997; Inomata 1997, 1999; Van Tuerenhout 1996). Since the latter two sites were villages, it strongly implies military defensive techniques were not just intended for larger sites. Sites responsible for supplying agricultural surplus were economically essential and, if sacked, could strike a devastating blow to their ruling polity. These areas were deemed valuable enough to delegate labor and material to construct defensive works around these agricultural resources and the inhabitants. In the same vein, trade routes are valuable resources and need to be guarded against thieves to protect merchant travelers and to maintain the constant flow of goods and cultural exchange throughout a region (Hassig 1992).

Developments in defensive tactics include an array of supportive defensive methods, such as both inner and outer walls, earthworks with supportive parapets, and walls with palisades. It appears the Maya population, from elites to commoners were knowledgeable at some level about tactical defensive practices. Methods of attack have a causal effect on the developments of various lines of defense within a site and surrounding region. This same concept can be applied to offensive tactics. Different strategies of attack must be implemented based on the defensive system at a site and its topographical characteristics. Technological advances of warfare are a direct effect from experience and cultural exchange of ideas.

In a few cases, the outer defensive walls were covered with stucco, which makes scaling the wall extremely difficult, as it is very slippery. Excavations at Ek Balam yielded archaeological data to support the hypothesis that the walls were covered with

stucco; only a small portion was excavated and found to have red stucco (Ringle 2004). An example of this type of a site with outer protective red walls is exemplified at the murals at the Monjas Complex at Chichen Itza (Martinez De Luna 2005). The main purposes of a fortified wall were to absorb the impact of any type of projectiles thrown at the inhabitants located within the walls, to withstand fire, and most importantly to deter the enemy from attacking.

Economics of Defense

Fortifications covering a large part of an area can be expensive, but allied polities within the region can absorb the costs. Terms of alliances usually include joint support in times of conflict via manpower, supplies, tools, weapons, slaves, and materials for building fortifications. For instance, the Spartans in the winter of 413 B.C. sent notice to their allies to gather iron and construction materials to build fortifications. The next spring, prior to embarking on war, the Spartans fortified Decelea (Thucydides Book VII, translated by Warner 1972). Another example is during the early campaigns in the Peloponnese when Alcibiades, an Athenian general, went into Peloponnese to gather supporting forces from the allies and to convince them to extend Patrae's walls to better protect the region (Thucydides Book V translated by Warner 1972).

Cooperative security is a preemptive measure implemented by polities under the terms of an alliance. This is done to deter enemies from using force against their territory (Geller 2000). Sharing the burden of economic strains and the costs of defense between allied parties can become problematic, especially when one of the allied parties has a

lower number in population and fewer resources. Major political powers carry the military burden in this type of alliance. Those in charge have to decide an acceptable amount of man-power that can be delegated into service and not have a huge impact on their local economy or supply their allies with materials and other needed assets for war (Kennedy 1975). Research suggests that partnership with other polities might actually increase the potential of conflict. This thesis implies that allied polities are more likely to have disputes with each other. Additionally, one of the allies will end up going to war with an unknown enemy to honor an alliance agreement (Geller 2000; Singer and Small 1966; Siverson and Starr 1990).

Landscape Modifications. Earthworks incorporate natural topography and consist of landscape modifications. These features appear to serve a dual function both as an element of a defensive strategy and as political boundaries. Earthworks include ditches and moats. This type of defensive feature requires moderate upkeep by cleaning out refuse and maintaining its walls to avoid erosion. Large earthworks consist of a long or a series of defensive lines protecting a large area from a perceived threat. The earthworks north from Tikal have a potential weakness as a defensive feature if it did not incorporate restricted access on multiple points along the line of defense. Puleston (1967) suggested that there were five controlled entry points, although, Webster (2004, 2006) disagrees with a defensive functionality of the north earthworks at Tikal. The one major advantage the earthworks had were the two seasonally swamps, commonly known as *bajos*. One located on the east and the other situated on the west where the defensive line terminated.

The *bajos* limit counter-attacks from either one of these two points due to the slow and poor mobility of troops through the bog terrain.

Moats and ditches around a site perimeter or in conjunction with a wall increase the length a projectile has to travel to hit its mark and considerably slows down attackers. A defense system loses its purpose if unable to absorb an attack. More importantly, the architects of these systems have to adapt to new offense strategies. These features serve as exemplary examples of revolutionized military tactics in the Maya Lowlands and the elites' abilities to assemble the local populace to build defensive works.

Logistics

Logistics of warfare involve all aspects incorporated in mobilizing a small or large group of individuals, supplying, and maintaining this force. As neophytes, these processes probably began as participants carrying their own weapons and their own adequate food supply while participating in a raid (Keegan 1993). Warfare became more extensive as time went by and new methods of sustaining forces were developed. Soldiers still carried their own weapons and tools, but depended on the countryside for sustenance (Keegan 1993). Warfare activities were likely limited to the dry season, as this is a time when the elite captains could gather contingents from their associated farming communities without putting hardship on their crops (Marcus 1992; Roys 1972; Webster 1980). Although, Nahm (1994), however, suggests Late Classic Maya warfare was carried out throughout the entire year.

Offensive Tactics

Offensive tactics include systematically taking down the enemy's resources and disintegrating fortification systems. Defensive suppression refers to the measures taken in order to neutralize, degrade, and / or destroy an enemy's defenses (Department of Defense Dictionary of Military and Associated Terms 2002). Attacking fortified places is not considered to be the best strategy, as these places are very difficult to take over. According to Sun Tzu, avoiding an attack on a fortified site is best due to the complexities and preparations in a long term siege (Sun Tzu 1994). Army doctrine recommends avoidance of fortified areas unless it is indisputably necessary. The defined success of breaching a fortified position is calculated by: casualties that are less than 20 percent and if the enemy suffers at least a 75 percent casualty rate, unless of course if the goal is to annihilate (US Army Joint Readiness Trading Center [JRTC] Take Home Package 1987-1989).

Hunting strategies can be applied to the most basics of levels of warfare. A group of individuals provides a much needed distraction while the second group carries the main attack. The southwest panel at the Upper Temple of the Jaguars at Chichen Itza depicts a group of armed soldiers doing just that, having created havoc with fire in the northwest portion of the site whilst the main body of troops strategically enveloped the enemy's flank from the southeast (Figure 4.11; Martinez De Luna 2005). In the military, these are known as diversion strategies: "act of drawing the attention and forces of an enemy from the point of the principal operation; an attack, alarm, or feint that diverts attention" (Department of Defense Dictionary of Military and Associated Terms 2002).

Other tactics include attempting to magnify a legion's number, making it appear larger in quantity. By using mirrors tied to the soldiers' backs which reflect light, an estimated head count becomes very difficult. According to Bernal Diaz (translated by Idell 1956), the Tlaxcalans used this technique. Integrating slaves into the marching army served the same purpose. The common use of banners was a third device as these are large and would impede onlookers' estimations of how many soldiers were in fact present. This is a method utilized by film directors and by producers in the production of procession scenes when there is a shortage of extras.

Slavery in the Maya area was fairly common. Captives were kept alive from raids or from battles to be used in different sectors of society. Slaves could have been used in war campaigns to carry food supplies for the soldiers, to set up nightly camps or even a semi-permanent base camp, to sharpen tools, to carry water and to re-supply weapons to soldiers during longer attacks. The Romans took slaves with them on battle campaigns; their manual labor constructed ramps or other similar features for counter-attack measures. At the siege of Masada (A.D. 72), Jewish slaves are believed to have built the rampart, still visible today, on the west side under the watchful eyes of the Roman soldiers. This was done in order to allow the Romans to maneuver their siege tower up the hill to take the rebels after a prolonged siege of six months (Josephus Book VII: chapter 8). As early as the Second Punic wars, slaves were recorded as having partaken in war-related activities (Libourel 1973). Slaves could have also been used as laborers for large-scale monuments.

In order to mobilize troops, quantity notwithstanding, military strategists must consider the best routes for movement, topography, the possibility of crossing unfamiliar territory as well as the inherent risks of taking known routes which might impede the need for the secrecy essential to a surprise attack (Keegan 1993). Familiar paths in the Maya lowlands included land and riverine, coastal trade routes, and sacbeob. Trade routes could have been used for the transportation of weaponry and soldiers into enemy territory. This could explain why some defensive walls only cover a small portion of a site, perhaps only the section of the site facing a sacbe.

Another strategy in subjugating an enemy includes cutting off their supplies, their resources and their reinforcements. This is achieved by dividing the forces into various groups with their respective missions. One group stays by the main access way and counter-attacks any incoming reinforcements or supplies from allied groups. A second group takes charge of the local water supply and of any other immediate resources. The third and largest group will take the site in a series of attacks until the defenders cannot withstand any more attacks. A successful execution of this maneuver will interrupt any incoming assistance and cut off the enemy's supply, weakening them and placing them in a critical position (Keegan 1993). This could shed light as to why so many of the sites in the Maya lowlands have water sinkholes and aguadas within the defensive works.

Economic Impact from Warfare

"In practice, the effects of warfare on economic processes are ambivalent" (Golden 2003:44). Trading probably still continued during times of conflict, without major

interruptions, but the prices of a much needed product coming from a warring polity might spike, as with the current rise of oil prices today. For example, 1,300 small swords arrived at Athens from Dii, meant for the *peltasts* (light infantry soldiers) who had already departed to Sicily. Since the products arrived too late, the Athenians sent the merchants back with their swords compensating each one with a drachma for attacks made on them by the Delean people on their way to Athens. Although the Athenians did not keep the merchants' swords, they ensured continued economic relations by compensating the traders for their hardships in time of war (Thucydides Book V translated by Warner 1972).

Any military affair, whether defensive or offensive, is a costly ordeal. Additionally, warfare has a demographic impact on both sets of population. Warriors die or are captured in battle, leaving their towns with fewer male inhabitants, afflicting their immediate family members, and their local economy.

Research Goals and Probable Causes of Warfare

I propose that throughout the Late Classic, the majority of the fortified sites are located closer to resources. The need to protect raw material was the main reason for the construction of nearby fortifications. Additionally, I suggest that during the Terminal Classic, the protection of trade routes became the primary objective. Some of the sites within closer proximity to trade routes were renovated with defensive features. I suspect that the majority of wars were put into action for the procurement of raw material, resources, and economic advancement. I utilize Geographical Information System (GIS)

to test these ideas with three different spatial queries. The first inquiry deals with the distance from raw material to fortifications. The second test examines the distance of rivers from sites that have defensive features. Lastly, I explore the distance from land trade routes to fortified sites. These propositions are discussed in further detail in a subsequent section within this chapter and in Chapter 7.

At Xuenkal, the research goals and questions include an extensive study of the defensive wall segments throughout the site core, such as length and thickness of the barricade, area enclosed by the fortification, construction date, and construction techniques. Furthermore, I will examine the different possible functions of the wall. Another point of interest is the comparison of settlement from the inner and outer perimeter of the feature. Lastly, the analysis of military potential and natural resources located within the safe confines of the partition.

The following section will cover hypotheses one through three as explained by Van Evera (1999). These theories are further divided in order to apply them to different war related events in modern history (Van Evera 1999). Although, the Maya were never unified under a single state and did not reach the level of complexity as the nations that Van Evera (1999) describes. I believe some, not all of his theoretical approaches, can be applied to various warfare events throughout the Maya lowlands.

Hypothesis 1 (H^1): War is more likely to occur when the apparent advantage lies with the first side to attack.

This is sometimes referred to as the stability theory (Schelling 1960). The odds of a war that begins under this theory are solely based on the rewards associated with first strike (Schelling 1960). It could also be argued that the first side to attack ultimately loses less, since war would have broken out regardless of peace talks, if any. In this scenario, the choice is clearly either to embark on war immediately or at a later time. It becomes an issue of controlling the timing of the event itself.

Averting an enemy's attack can lead to preemptive mobilization. Essentially, it is when one or both sides organize their forces to forestall an assault (Van Evera 1999). This war-game theory can prove to be quite dangerous; a state can mobilize their forces for attack and find themselves in the midst of an accidental war based on erroneous information. Conceptually, war-game theory refers to the methodology of analyzing information in order to decide the best strategies to follow (Ellsberg 1960; Morrow 2000; Schelling 1960). Carthage embarked on the second Punic War under the misguided idea that Rome was going to attack first (Errington 1972).

H^1 seems to be appropriate for a few events in the Maya lowlands. For example, Tikal attacked Uaxactun during the Early Classic (A.D. 250 – 600). Uaxactun is located about forty kilometers north of Tikal. There is a defensive feature, a series of earthworks four and one-half kilometers from Tikal's site core. This series of events were probably preceded by the arrival of 'strangers' at Tikal in A.D. 378 and the subsequent new

dynasty began by *Yax Nuun Ayiin I* (Stuart 2000). Perhaps Uaxactun posed a threat to Tikal's new dynasty, prompting the construction of this massive project. On the other hand, Tikal's ruler could have used it as a statement of power. Smoking Frog, Tikal's ruler, made the first move, attacking its neighbor before Uaxactun made the first move. From the archaeological and epigraphic records, it is not clear whether Uaxactun's ruler ever planned to embark on war against Tikal.

Hypothesis 2 (H^2): War is more likely to occur when the power of the regional polity fluctuates sharply.

This is referred to as the window of opportunity theory or the power vacuum theory (Van Evera 1999). It is an extension of the first-move advantage paired with a window of opportunity in the balance of power between the regional polity and or the allied polities. It refers to a period when a polity's strength is in economic and or political decline. The decline of the regional polities tempts its secondary centers to launch an attack before the power shift has ended or before another polity capitalizes on the situation. It also puts pressure on the declining polity to make a military statement, thereby proving to others that it still holds the regional seat of power. It serves as a way for a polity to fight a war under their own terms, rather than waiting and fighting a war under worse economic and military conditions. It also prevents them from bargaining in a weakened state.

In this type of scenario, peace-talks would take up a lot of time with unknown results, whereas war would demand an immediate decision with only a few possible outcomes. The rationale behind this theory is that this window of opportunity will not

happen again for all of the parties involved (Van Evera 1999). As Thucydides so succinctly stated: “In war opportunity waits for no man” (Thucydides Book I translated by Warner 1972). H^2 is very similar to the power transition theory. This model suggests that a dissatisfied state or polity will take any chances to further their economic and political growth to usurp the dominant power. Ultimately, these types of events lead to war (Kugler and Lemke 2000).

H^2 might be applicable to a few cases in the Maya lowlands. El Mirador left a power vacuum during the Late Preclassic. Tikal took advantage of this window of opportunity and exerted its power regionally. After Tikal lost its regional hold, smaller polities fought amongst themselves for regional power. The end of the Hiatus (A.D. 534 - 593) left a series of windows of opportunities throughout the Maya lowlands. In the Peten, Tikal tries to reestablish their dominion once again. In the Petexbatun, Ruler 1 of Dos Pilas, embarks on a series of alliances to eventually gain regional control.

Hypothesis 3 (H^3): War is more likely to occur when the control of resources enables the acquisition of other resources.

This theory refers to the trading of acquired resources for other valuable items for consumption. The value of the acquired product is based on whether or not it can be used to acquire other needed merchandise. The value of the same produce can change over time, based on need and on consumer demand. Agricultural land was highly valued during the Classic. The value of goods is also based on the ease or the difficulty in obtaining it. A particular commodity loses its economic viability if it is too difficult to

conquer or too costly to attain. Another issue is the administration of the resource after it has been obtained or allowing the newly conquered polity to continue to oversee its own assets (Van Evera 1999). Creation of an administrative system is essential, but this usually creates further social stratification. Military leaders are appointed to supervise the resources or to govern the local centers.

H^3 can be applied at various sites and at different time periods. Tikal took over Rio Azul approximately in A.D. 392 perhaps to take over trading routes in the region (Adams 1991; Sharer 1994). Chunchucmil, located in the northwestern part of the Yucatan, was attacked; barricaded walls were set up hastily and the site was subsequently abandoned (Dahlin 2000). Chunchucmil had access to many rich resources within its region, such as salt, and a nearby trading port (Dahlin 2000). Salt was a necessity and the trade of this commodity was documented during the Postclassic as far as the Northern Lowlands all the way to the Southern Lowlands (Andrews 1980, 1983). Another example is when the ruler of Quirigua takes over the jade source and trade route in the region after capturing the ruler from Copan (Sharer 1978, 1994).

Research Goals Summary

These are not, by any means, newly developed theories. Others have suggested these ideas to study the cause and effects of conflict during both War World I and II (Van Evera 1999). I am merely proposing to test these premises for the Prehistoric Maya. The causes of war will not and cannot be explained by a single theory. While one theory might provide an explanation for events within a particular region, it will not necessarily

fit the model in another area. I will provide chronological listings of fortifications throughout the lowlands. This will allow me to show the evolvement of these architectural features. Additionally, this information will demonstrate the continuity of warfare throughout the Classic period. Furthermore, GIS spatial queries will allow me to test for inter-relations between factors, such as location of fortified sites from raw material. The primary goal is to fully understand the intricacies and dynamics of warfare; to focus on the event(s) preceding a conflict and the subsequent actions taken by all of the involved parties.

Archaeological Field Methodology

The first part of the following section will cover methodology undertaken in the field, such as survey, total station mapping, off-mound test pits, on mound excavations, recording of information, and lab procedures. The subsequent portion will detail the methodology used in Geographic Information System software (GIS).

Survey: Mapping objectives for the *Projecto Arqueologico Xuenkal*, hereafter referred to as PAX, for the 2006 season included: (1) continue mapping on the northeast and northwest to close the northern boundary lines; (2) continue mapping topographical features such as sascaberos and rejolladas; and (3) identify structures for the test pitting program (Manahan and Ardren 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

During the 2006 season, we also mapped the east and southeastern areas of the site. Reconnaissance mapping was accomplished by cutting base lines every fifty meters. "*Picadas*" were set by the workers cutting lines ten meters apart from each other on a

base line. Team leaders would follow behind each worker with a Global Positioning System receiver (GPS) to take a coordinates of each structure and to flag it with a GPS point number as it was found and was recorded. Two-way radios were used to communicate between team leaders to avoid duplication of new structure numbers. These structures were later mapped in a more detailed manner by the survey crew. The Project Directors adapted a similar recording strategy as the Ek Balam Survey Project (Smith 2000). Information recorded per each structure included: type of structure, architectural characteristics, structure measurements, group designation, ceramic surface quantity, metate(s), and level of disturbance, and additional characteristics. All information was recorded in a handheld palm pilot. Each structure was assigned a permanent field number (FN01-FN571) and photographed from two different angles. The survey dataset from the palm pilot, GPS, and photograph logs were backed up daily, and imported into the Microsoft Access settlement database (Ardren and Manahan 2004, Manahan and Ardren 2005, 2006).

A Topcon GTS-226 Total Station coupled with a Ranger N687 data collector was used for detailed mapping at the site. There are a series of established datums throughout the site, which are used to set up the total station, and to close a traverse around each mapped area for a high level of accuracy. Once a traverse has been closed and the marginal error is narrowed to a minimum, the Topcon is set up over a known point (mapping station) and mapping begins. Newly mapped structures during the 2006 season with the Topcon included the new elite complex (FN487-FN498) found in the northwest

area by a large rejollada (Manahan and Ardren 2005, 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Off-Mound Test Units

Off-mound test units were set up near the structure edge, but not close enough to disturb any of the architecture. The objective was to excavate midden deposits or plaza associated with the structure. Each test pit was set up following the structure's orientation. If a unit was not productive and time permitted, a second unit was set up on a different side of the structure. All of the test units were 2 x 2 m in size, unless otherwise noted, and excavated to bedrock level. The goal of the test pitting program was to gather diachronic and settlement information through the site. Each unit was photographed pre-and-post excavation in black-and-white film, and with a digital camera. Levels were excavated in 20 cm increments or if a change in strata was noted. Separate documentation was used for test units: lot forms, photograph log, operation-suboperation location, drawing logs, and lot definition forms. All of the plan maps and profile drawings were done at a 1:20 scale (Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

On-Mound Excavation

In order to attain better control of excavations on structures, a grid was overlaid with the Topcon and data collector. The total mapping station (TMS) was set up over a known point at the site, which was used as the zero point for the grid. Sideshots were taken every two meters on northing, and easting lines, stakes with labeled northing and easting

are placed every two meters (i.e. N20E20). The grid encompassed two meters around the structure. This was done first to excavate the surface surrounding the structure and to follow any features, if any, towards the structures. Each excavated unit was appointed the southwest corner coordinates. Each level was assigned its own lot number, in order to avoid any human error (i.e. Unit N20E20-Lot 20-Level 3). Elevations points were taken with the TMS at eighteen meters and higher, to avoid any future negative elevation numbers. Each datum was marked with waterproof tags with its unique datum number, and elevation measurement (Manahan and Ardren 2005, 2006).

A separate lot form was used for on-mound excavations to allow recording of northing and easting location within the grid. As with the test units, each lot was photographed pre-and-post excavation. Plan maps and profile drawings were also done at a scale of 1:20. Ceramics, lithics, obsidian, bone, small finds, and faunal remains were bagged separately with two tags, one inside the bag, and one tied to the outside of the bag, with all of the required information. Lot definition forms also record how many bags per level were collected. The plan maps of all the excavated units were imported into Adobe Illustrator to encompass all of the excavated units including northing and easting coordinates (Manahan and Ardren 2005, 2006).

Lab Procedures

Numerous bags were brought into the lab on a daily basis. Record keeping at the lab is crucial to minimize the amount of human error. Each bag of ceramics was recorded daily on a lab form with date, operation, subop, lot number, level, and the initials of the

recorder. The same was done for bags with small finds, lithics, obsidian, bone, and faunal. The lab director oversees washing and re-bagging of artifacts. Later, these are taken to the lab in Merida, and analyzed by the project ceramicist / specialist. The Projecto Xuenkal also has a project expert in vessel restoration (Ardren and Manahan 2006, 2007; O'Brien 2006).

Geographical Information System (GIS) Methodology

The ArcGis software package has various scripts that allow querying of both spatial and non-spatial information. It enables testing of theoretical questions, and models. I will provide a detailed chronology of all the fortified sites in the Maya Lowlands along with epigraphic conflict data for each temporal period. As discussed previously, my first hypothesis explores the thesis that fortified sites were closer in proximity to valued resources during the Late Classic. My second hypothesis investigates the idea that sites with defensive features are situated closer to trade routes during the Terminal Classic. By querying the distance from each site to each resource, I will be able to discuss the relationship between these two variables. Likewise, by plotting out the distance between fortifications with trade routes, I will have more information about the commerce and if economic nodes along trade routes were protected. The following section will describe the dataset collected, and the steps taken for analysis. The results of these queries will be covered in Chapter 7.

GIS Database Layers

The database is made up of set of layers, each one with a different set of information described in further detail below (Figure 1.1). Dividing the data into separate layers allows for more flexibility. For example, the ability to query and join attributes by time period or any other associated attributes. Two of the layers include Central American rivers, and topographical information. If a suitable paper map or digital maps were available, they were scanned and or converted into raster images and georeferenced. All of the scanned maps and additional layers were georeferenced using the same datum.

Environment Layer: Topography information was taken from ArcGis worldwide data. Some of the more detailed information such as the location of rivers was downloaded from each country's geodetic websites.

Resources Layer: I scanned "The Ancient Maya World" produced in October of 1989 by Hammond, published the National Geography Society. It includes item sourcing (i.e. obsidian sources, jade, salt, cacao, and many more), each resource was saved as a point, resource name, location, and saved as a separate point-layer to allow more detailed querying.

Trade Routes Layer: From Hammond's 1989 map and "The Ancient Maya World", I created a line-layer in GIS by tracing over the trade routes (same as the resources layer).

Site Information Layer

This layer includes site name, site rank, sites that have fortifications, estimated construction date for the defensive works, and location saved as longitude and latitude. Some of the coordinates were posted on their respective country's geodetic website.

Other sites' locations were obtained from maps, in which the accuracy level is less precise, some were obtained with hand-held GPS, and others are from archaeologists that included this vital piece of information on their field reports.

Chronology: This is just a simple list of chronology (occupational time periods) per each site.

Fortifications: This consists of a list of architectural defensive features per site, along with any natural defenses (ex. taking advantage of a gorge or high elevation). It has a few subdivisions based on how the system was built, such as a hastily built wall, a system that was incorporated into the original settlement, and consecutive lines of defense.

Fortification Date: This is the estimated construction date for the defensive system based on archaeological reports and on my own fieldwork at Xuenkal. I subdivided the dataset by time period to allow a cohesive pattern through out time per region.

Epigraphy Layer: A dataset of bound captives, of war-events, and of any other similar event recorded on stone monuments (Dillon 1982; Johnston 2000; Martin and Grube 2000). This dataset included site and approximate dates or time period. This information is vital, as it presents events at sites that did not have any remnants of fortifications. It can shed additional light on political relationship between polities.

Figure 1.1 Geographical Information System Fortified Sites Dataset

a. Fortified Sites: a point shape type of file with the coordinates for each of the sites.
b. Trade Route: a line type of file with all of the trading routes provided on the National Geographic map, and from Norman Hammond's maps.
c. Sea Trade Route: same as above
d. Political Boundaries: a polygon shape type of file with all of the lowlands boundaries (After Sharer 1994).
e. Resources: point shape type of file with all of the item source locations, as illustrated in the NGS, and Hammond's maps.

GIS software has enabled me to incorporate large datasets into this dissertation, an enterprise that would have not been possible to attain through customary field survey procedures. After registering all of the datasets, tweaking technical difficulties, and testing precision level, I was able to start implementing spatial or attribute queries. This allows for an analysis of a variety of spatial, physical characteristics (i.e. fortified walls), and cultural data (i.e. trade routes). Proximity measurements provided data to define norms for transportation distance of trade goods, and of trade routes, as they relate to fortified sites. Spread functions were utilized to trace the dispersal of architectural fortification innovations throughout regions, temporal periods, and movement of goods within and outside of networks.

Chapter 2

Preclassic Evidence of Conflict

This chapter will cover various regions in order to incorporate epigraphic and architectural evidence of conflict during the Preclassic (2000 B.C. – A.D. 250) in Mesoamerica. The intention is to address issues of ideology, power, conflict, and expansionistic policies. The sites that will be discussed in the Oaxaca valley include San Jose Mogote, Monte Alban, and Dainzu. Additionally, iconography data from Izapa, (located in the Pacific Coastal Plains), and Kaminaljuyu, (located on the Southern Highlands), will be examined.

The Oaxaca region is located in the modern Mexican state of Oaxaca (Figure 2.1). The valley of Oaxaca is located in an undulating mountain zone, commonly known as the Southern Highlands. The highlands formed over a Cretaceous-Paleogene belt (Marshall 2006). The rugged highlands consist of a series of distinct mountain ranges separated by deep fault canyons, with broad alluvial valleys, and volcanic peaks paralleling the Pacific Coast on its southern perimeter. The majority of the tectonic episodes are due to the plates in a rift identified as the Bartlett Deep. This rift dates to Palaeozoic times with a depth of 15,000 to 24,000 feet. On the north, the highlands are demarcated on the northwest by the Grijalva River, and on the northeast by the Motagua River. The average temperature is between 15˚ and 25˚ Celsius. The rainy season is from May to December, with a dry season during January to April. Vegetation varies from Tropical Evergreen

Forest, Tropical Savannah, and Tropical Deciduous Forest (Adams 2005; Blanton et al. 1981, 1993; Marshall 2006).

Many resources were gathered from the Volcanic Highlands including obsidian, jade, and basaltic rocks. One of the obsidian sources is located at el Chayal in Motagua Valley; the other is situated at Ixtepeque, both are found in the Guatemala highlands. Obsidian was traded throughout Mesoamerica, and was considered a highly valued commodity. Basaltic rocks were used to craft grinding stones, known as *manos* and *metates* (Adams 2005; Blanton et al. 1981; Sharer 1994). Although, none of these highly valued resources were located within the Oaxaca Valley, but they were imported into the region.

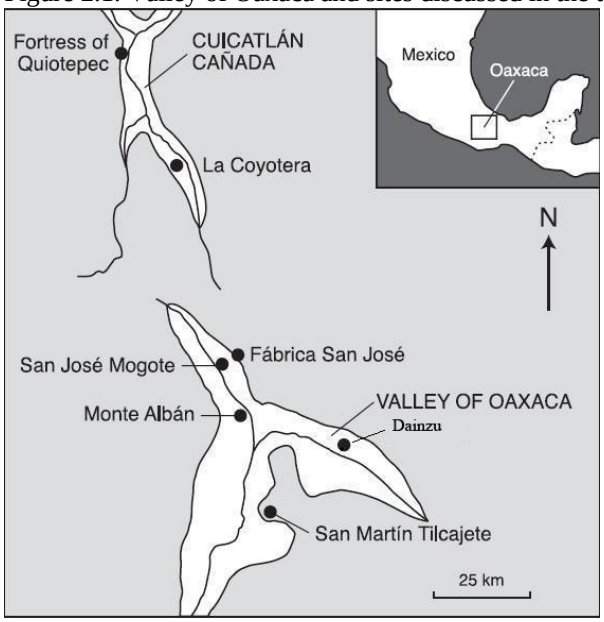
The valley of Oaxaca measures approximately 1,500 square kilometers, with an annual rainfall ranging from 400 to 800 mm (Blanton et al. 1981, 1993). The Valley is compromised of three arms forming a misshaped Y: with the Etla arm on the north, the Tlacolula arm on the west, and the Valle Grande (also referred to as Ocotlan Valley) arm on the south end. The junction where the three arms of the valley meet is commonly referred to as the central area. The valley has a mean elevation of 1,500 m above sea level (Blanton et al. 1981, 1993; Belmonte-Jimenez et al. 2004). The Atoyac River begins in the north part of the Etla Valley, joins the Salado River coming from the Tlacolula valley, and continues its trajectory towards the south (Belmonte-Jimenez et al. 2004; Blanton et al. 1981, 1993).

The earliest traces of occupation in this region were found at Cueva Blanca, in the eastern part of the valley, dating to the Archaic (10000 – ca. 3000 B.C.). These traces of

occupation were dated to 9050 - 8780 B.C (Blanton et al. 1993). Guila Naquitz, a cave located on the northern part of Oaxaca, yielded a more detailed occupation dating to the Archaic, with seasonal occupations from 8900 until 6700 B.C. (Blanton et al. 1993). The earliest evidence of squash domestication was found at Guila Naquitz dating between 7400 – 6700 B.C. (Blanton et al. 1993).

Settlement was scattered throughout valley of Oaxaca during the Tierra Largas phase (1500 – 1150 B.C.). The first communities were San Jose Mogote, Tierras Largas, and Hacienda Blanca (Figure 2.1). The area with a noted higher habitation was San Jose Mogote and its adjacent region, located in the center of the Etla valley. Agriculturally, this region has very productive arable soils, and categorized as Class I. Furthermore, this zone had dependable water sources (Blanton et al. 1981, 1993). There were a total of 19 small communities in the area. San Jose Mogote was the largest and the only one with public architecture. San Jose Mogote encompassed an area of 10 hectares, compared to the smaller villages in the vicinity, with under two hectares. Most of the nonresidential buildings can be found on Mound 1, at San Jose Mogote. Communities at this time had at least 10 wattle-and-daub structures (Blanton et al. 1981, 1993; Marcus and Flannery 1996, 2003).

Figure 2.1. Valley of Oaxaca and sites discussed in the text



(Modified After Marcus and Flannery 1996)

Evidence of burning was found in one of the postholes belonging to House 19, at San Jose Mogote. Charcoal samples were collected; these generated a date of 1540 B.C. (Marcus and Flannery 2003). Additionally, during this time there is evidence of a palisade wall in the western perimeter of the site, which was designated as Feature 21 (Blanton et al. 1981, 1993; Marcus and Flannery 1996, 2003). It is unclear if this feature encompassed the entire site or just a section. This defensive element consisted of a double-line of post holes, with an estimated length of 30 to 40 m (Marcus and Flannery 2003). As with House 19, indications of a fire were documented on Feature 21. The samples collected from three of the postholes yielded the following dates: 1310 B.C.; 1300 B.C.; and 1210 B.C (Marcus and Flannery 1996, 2003). Based on the data from this time period, there is no noticeable social stratification (Blanton et al. 1981). Most of the

population growth took place in the northern arm of the valley with a higher concentration at San Jose Mogote (Blanton et al. 1981).

During the San Jose Phase (1150 – 850 B.C.) the community of San Jose Mogote continued its noticeable growth reaching 70 hectares in size (Blanton et al. 1993). The community had a firm grip on economic trade. Magnetite mirrors and pottery from San Jose Mogote were traded as far as San Lorenzo on the Gulf Coast. One of the main trade routes was through the Valley of Mexico, known as the Inter-American highway. Another route was through the Gulf of Mexico, crossing the Isthmus of Tehuantepec, and arriving at the Pacific Coastal area, and continuing inland. Evidence of social stratification was evident by means of larger sized structures. These were constructed on the top of low platforms made from stone, and adobe. Additionally, these houses contained higher quantity of nonlocal products, and deer bones, one of the best sources of protein in the area. Mortuary data also corroborated the disparity in social class, based on the goods associated with the funerary assemblage (Blanton et al. 1981, 1993). Some individuals were interred without any goods. While others were buried with jade, earspools, high quality ceramics, magnetite, and shell ornaments suggesting economic relations with coastal sites (Blanton et al. 1993:61). The nearest jade source was located in the Motagua valley in Guatemala (Blanton et al. 1981; Sharer 1994).

During the Guadalupe Phase (850 – 600 B.C.), the settlement in Etla continued its growth. There were a few nearby arising centers with public architecture. Meanwhile, San Jose Mogote sustained its status as the largest community in the area with a few satellite villages (Blanton et al. 1981). One of these rural towns was Fabrica San Jose, a

salt-producing village. Three of the structures from Fabrica San Jose, dating to the Guadalupe Phase have clear evidence of burning (Marcus and Flannery 2003). It is possible that these episodes were part of local raids, but more lines of evidence are needed to corroborate this theory.

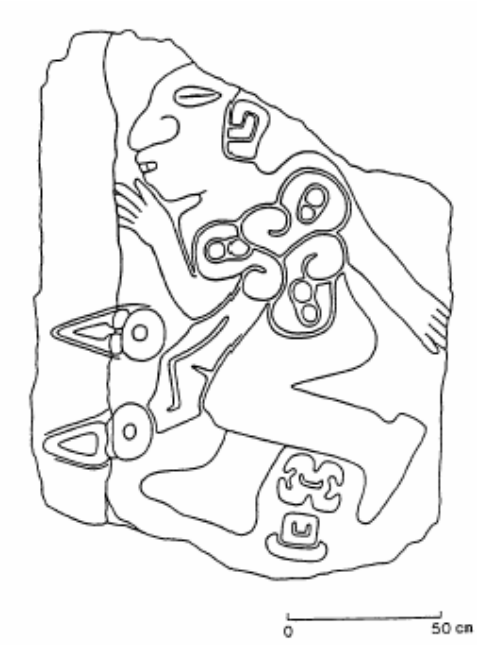
Population numbers are more evenly distributed throughout the three arms of the valley during the Rosario Phase (600 – 500 B.C.). Raiding increased dramatically manifested by burned charcoal found at a higher frequency in the Rosario Horizon throughout the Etla zone (Marcus and Flannery 1996, 2003). The sites in the region can be categorized under two tiers with San Jose Mogote on the top (Blanton et al. 1981). San Martin Tilcajete, located on the southern valley, belonged to the second tier (Blanton et al. 1981). This site was probably San Jose Mogote's main rival (Marcus and Flannery 2003). Yegüih and its surrounding rural communities were located on the eastern arm of the valley. Settlements during this phase were connected into three clusters, one in Etla, the second in the Tlacolula arm, and the third in the Valle Grande. There were buffered zones between the three arms of the Oaxaca Valley, perhaps these zones were deemed to dangerous to settle (Blanton et al. 1981, 1993; Marcus and Flannery 1996, 2003). It is unclear what contact, if any, these aggregated communities had with each other.

It was during the middle of the Rosario phase, that the site of San Jose Mogote was attacked. Structure 28, the main temple, was burned. Cinder remains were documented along the west and southwest of the building. The roof and side beams of the edifice were completely incinerated and collapsed towards the midpoint of the abode. A

12 cm obsidian blade was found on the charred floor remains of Structure 28. Charcoal samples taken from the burned collapsed roof were dated to 600 B.C. (Marcus and Flannery 1996, 2003). This temple was not rebuilt; instead Structure 19 was built directly on top of it. Structure 19 underwent a series of constructions episodes to expand its size. Structure 14 is located near the northeast corner of structure 19. Altar 1 is situated on the east corner, south of Structure 14. Monument 3 (Figure 2.2) is a carved boulder located between Structures 14 and 19 on Mound 1 of the site. It depicts a lifeless naked individual positioned on his back. His eyes are closed and his lips are open. He is wearing earspools, possible markers of elite status. There appears to be carvings on his chest and abdomen that might be bloodscrolls. There is a hieroglyphic inscription in between his feet. It reads One Earthquake, possibly the name of the unlucky individual, or the name of the place from where he was captured (Flannery and Marcus 1996, 2003). Both Structures 19 and 14 are public buildings; altar 1 is associated with the latter. The monument lies on its back facing up, in a narrow corridor between these two structures. Anyone who walked on this corridor towards Altar 1 would have stepped on the fallen figure, adding further insult to the slain captive, and his people (Flannery and Marcus 1996, 2003). Two hearths (Features 18 and 19) demarcated by stone lines are sealed in a strata layer above Monument 3. The charcoal samples taken from Feature 18 dated to 560 B.C., and those collected from Feature 19 dated to 630 B.C. Based on this evidence, Monument 3 can be given an approximate date between 630 and 560 B.C. (Marcus and Flannery 2003).

Perhaps the population growth spurt(s), and the rising numbers of centers were intensifying regional conflict at a dangerous demographic level. As discussed in Chapter 1, neighboring parties are more likely to go to war with one another. This can be due to close border proximity, and a higher rate of contact with foreign polities. One particular way to avoid this issue would be to relocate all involved parties to one neutral locale. It is estimated that the majority of the population of San Jose Mogote abandoned their community at the end of the Rosario Phase (600 – 500 B.C.), to partake in the founding of Monte Alban (Marcus and Flannery 2003, 2004). As mentioned in the previous section, the area near San Jose Mogote had the better agricultural soils suggesting powerful reasons to relocate to a different zone, known to be less fertile than their own land (Blanton et al. 1981; Kowalewski 1981). It is a rather interesting phenomenon that instead of reaching a diplomatic arrangement, the local community leaders decided to move their population elsewhere. Adams (2005) implies the reassignment of inhabitants was not done on a "voluntary" basis.

Figure 2.2. San Jose Mogote, Monument 3



(Flannery and Marcus 1996)

Monte Alban

Monte Alban (Figure 2.1) is located at the junction of the three arms of the Oaxaca Valley on a metamorphic Paleozoic complex (Belmonte-Jimenez et al. 2004). The site was built on the highest summit, with an elevation of 400 m above the valley level, and five km northwest from the convergence point of the Atoyac River, and the Salado River (Blanton et al. 1981; Belmonte-Jimenez et al. 2004). The soils in this area are categorized as Class III, with a 10 percentage arable potential, and are ineffective for planting maize (Blanton 1985; Blanton et al. 1981, 1993). The closest agricultural area is roughly four km from the site (Marcus and Flannery 1996, Blanton et al. 1981, 1993).

The establishment of a new regional capital took place at the beginning of Monte Alban Early Period I (500 – 350 B.C.). It was founded as part of a new settlement change centralizing the communities into one safe neutral locale (Adams 2005; Blanton et al. 1979; Blanton et al. 1981; Blanton and Kowalewski 1980, 1981; Marcus and Flannery 1996, 2003; Winter 1976). Sanders and Nichols (1988) argue for a relocation event due to great agricultural land and centralized locale. This was an area that was previously scantly settled (Blanton et al. 1993). Blanton (1976) refers to Monte Alban as a "dissembedded capital" due to its neutral location, which would not disturb the existing hierarchy system, and would not provoke competition for resources with other local centers. The hilltop was conditioned to construct structures for its new occupants. An early irrigation system on the eastern side of the hill directed water flow to the new agricultural parcels. This surplus would have only supported a small percentage of the populace at Monte Alban, indicating a strong dependency on its surrounding communities (Blanton 1983; Blanton et al. 1981, 1993). The inhabitants lived in three distinct districts (*barrios*) at the site, further supporting the relocation of different communities, and perhaps indicative of three politically independent *barrios* (Blanton et al. 1981; Marcus and Flannery 1996). The earliest buildings on the Main Plaza are Mound L, Mound K, and an early public structure on the northeast corner of the plaza. The Danzantes Gallery (discussed in detail in the Danzantes section) is located on the southeast façade of Mound L. These carved monuments date to both the Early I and Late I periods (500 – 200 B.C) at Monte Alban (Blanton et al. 1981).

A new development was the change from wattle-and-daub to adobe dwellings. These types of structures are more time consuming to construct, which may indicate a sense of permanency and safety (Blanton et al. 1981). On the other hand, if the resettlement was involuntary, it might have been a mandatory requirement by the ruling elites. Thereby, controlling movement of their inhabitants, and preventing them from migrating elsewhere. Population numbers are estimated to be around 5,000 for this phase (Blanton et al. 1981). Interestingly, someone returned to San Jose Mogote and constructed a shrine, Structure 23 on Mound 1, during Monte Alban Early I (Marcus and Flannery 2004).

Population rose to an estimated 17,000 residents during Monte Alban Late I (350 – 200 B.C.). The hilltop was covered by numerous dwellings as well as its immediate surrounding area (Adams 2005; Blanton et al. 1981). The numbers of Danzantes increased dramatically during this stage. Archaeological data suggests the series of defensive walls on the north, northwest, and west were built during this phase. The ruling elites devised a new ingenious way of controlling the local economy and production: the pottery workshops were located only in administrative centers (Blanton et al. 1981). This type of system probably helped in bringing more economy directly into Monte Alban's market. The total number of administrative centers increased from 11 to 16 in the region (Blanton et al. 1981). San Jose Mogote, at this time, was a secondary center. Although, a lot of the sites were unable to keep up with the local socioeconomic growth, and experienced a marked decline (Blanton et al. 1981). El Mogote, south of Monte Alban, was attacked and burned around 300 B.C. The surviving inhabitants relocated their

community to a more defensible locale at the site of El Palenque. The Palace building at El Palenque dates to 350 B.C., the residents even fortified their new site for any future attacks (Marcus and Flannery 1996, 2004; Spencer 2003).

Although, Monte Alban experienced a regional decline during the Late II period (200 B.C. – A.D. 300), there was an emphasis on expansion outside of the Oaxaca Valley. Intensive leveling off the hilltop was undertaken, the surface was covered with stucco, and new structures were added. Additionally, a series of areas were leveled off to construct terraces along the side of the hill. An earlier version of the ballcourt was built during Monte Alban II. Edifices G, H, and I were constructed on a parallel line on the middle pf the plaza. Additionally, Building J, a possible observatory structure, was built on the Main Plaza (Blanton et al. 1981). It has been suggested that Structure J served as a display, due to the 51 carved slabs illustrating military prowess (Beyer 1991; Blanton et al. 1981; Spencer 2003). In a stark contrast to the earlier Danzantes depicting individuals, the newer carved monuments have an emphasis on places that were conquered. Recent research at Cuicatlan, located north of Monte Alban, indicates this site was conquered and subjugated by Monte Alban during the Lomas Phase (300 B.C. – A.D. 200). Cuicatlan is one of the places named on the slabs in building J (Marcus 1976, 1983; Marcus and Flannery 1996; Spencer 2003). Evidence of conflict were also found at Sola Valley, due southwest from Monte Alban (Spencer 2003). El Palenque was attacked, the Palace building was completely burned, and its inhabitants were vanquished. Monte Alban was able to attain firm control this new territory (Spencer 2003). The flat plateau area at the bottom of the Monte Alban hill had very little

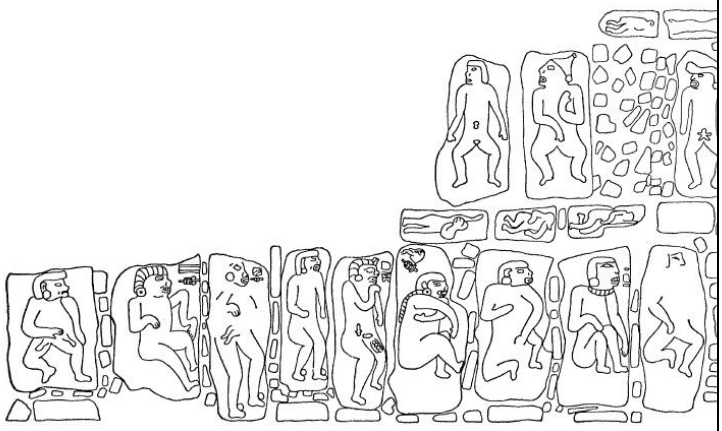
settlements (Adams 2005; Blanton et al. 1981; Marcus and Flannery 1996). Perhaps, this was an area deemed too risky to inhabit.

Danzantes

There are 320 Danzantes at Monte Alban (Blanton et al. 1981, 1993; Flannery and Marcus 1974, 1996; Joyce1976, 2000; Masson et al. 1992; Orr 1994, 1997; Scott 1978). Many of these personages were probably important individuals. Perhaps, for a humiliating effect, they are depicted nude, often with glyphs supplying their names, and places of origin. They are shown in agonizing positions, dismembered, and bleeding (Coe 1962; Flannery and Marcus 1996; Marcus 1974, 1996; Joyce1976, 2000; Orr 1994, 1997). The Danzantes Wall is located in Building L, also known as the Danzantes Building. It is the only remaining façade portion of the earliest phase of this structure, which has been dated to Monte Alban Period Early I (500 – 350 B.C.). It is one of the earliest edifices from Monte Alban, situated on the southwestern portion of the site (Acosta 1965; Beyer 1991; Scott 1978; Winter 1994). The wall (Figure 2.3) is made up of carved slabs found in situ (Caso 1928, 1947; Scott 1978). Its bottom row contains adorned figures, all facing left; some are portrayed with necklaces, earspools, and possible glyph names. It is believed that earspools signify higher class status. The second level consists of figures positioned on their stomachs facing down; some portrayed wearing earspools. The third level is similar to the bottom row, all facing in the opposite direction; none of these individuals have glyph names. The top level is in the same vein as the second row from the bottom up (Flannery and Marcus 1996). The remainder

Danzantes monuments are found on secondary or tertiary contexts, reused for construction during Classic times for Building L, and the adjacent Main Plaza area (Blanton et al. 1981; Flannery and Marcus 1996; Marcus 1974, Joyce 1976).

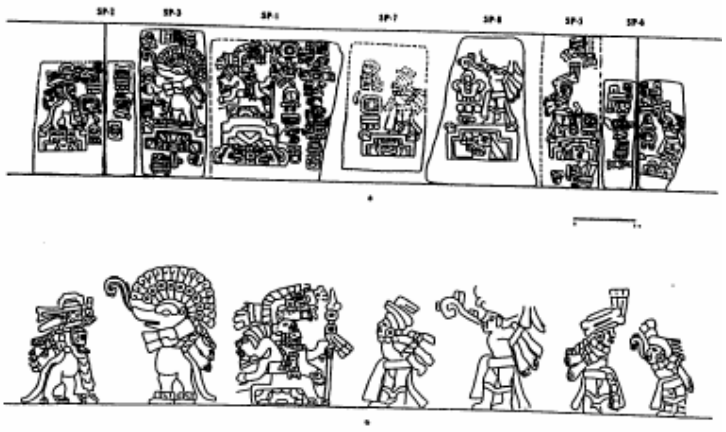
Figure 2.3. Drawing of the Danzantes on Building L



(Marcus 1974; original drawing by Villagra 1938)

On the walls of the South Platform, which is directly southeast from Building L, there are a series of stelae illustrating captives with hands tied behind their back (Figure 2.4). Some are wearing just a breechclout, but most wear their full regalia (Flannery and Marcus 1996; Orr 1997). Stela 8 exhibits a bound character wearing an elaborate headdress with what appears to be scrolls emanating from his mouth. He is standing on a glyph, which is probably the name of the place from where he was captured (Flannery and Marcus 1996).

Figure 2.4. The Captive Procession



(Orr 1997)

Dupaix (1806) was the first one to record the Danzantes. Since then, researchers have posed a diverse array of speculations to explain the existence of these monuments. Batres (1902) touched upon the twisted and obviously painful positions, but still referred to the personages as Danzantes. On the other hand, Villagra (1939) proposed a completely different idea, and stated these figures were swimmers. Caso (1938, 1947) interpreted the meanings of the glyph carved monuments on Mound J as conquered places. He construed the 'markings' on the Danzantes as tattoos. Hurtado (1951) takes the tattooing idea one step further, advocating the Danzantes as part of a religious cult. As part of a pre-ritual activity, the Danzantes were castrated, tattooed, and partook in a dance ritual, thereby explaining the expressions of pain, and contorted poses. Furst (1968) indicated the scrolls in the genital region were supposed to be a sign of a symbolic rather than a literal castration. Ramirez (1963) considered the figures to be victims of an unknown disease causing them bodily deformities. After 60 years of various ideas, Coe

(1962) ingeniously submitted these were representations of killed individuals. Marcus (1976) and Scott (1978) theorized these were terminated captives taken from militaristic campaigns. Since there are over 300 carvings at Monte Alban, these could be divided into shared traits, such as, bound position, seated or standing figures, arranged on their front or back, and attire. Another variable could possibly be captive recognition or elite status markers, such as earspools, necklaces, name glyphs, and headdresses.

Conquest Slabs

Building J is located north of the South Platform. The structure is shaped like an arrow with its tip pointing directly southwest. The stairs of the edifice face northeast, which do not conform to the layout of the rest of the architecture. This building has 51 tablets which have been interpreted as statements of subjugation of other settlements (Beyer 1991; Marcus 1974, 1983; Joyce 1976). The slabs date to Monte Alban II (200 B.C. – A.D. 300) and were originally excavated by Caso (1947).

There are four recurrent themes on the slabs, the first two are the most consistent: 1) a hill glyph, interpreted to mean the "hill of", 2) A set of glyphs depicting the name of the place, 3) an inverted head directly underneath the name of the town, and 4) glyphs including the date of the event (Caso 1947, Marcus 1976; 1983:106). Caso (1947) was the first one to suggest these monuments represented dead rulers from other sites. Marcus (1976) accepted Caso's theory, and developed it further to encompass the name of the conquered territory by comparing the "hill name" to those illustrated in the Codex Mendoza. Slab 47 was interpreted to refer to the conquest of Cuicatlan (Marcus 1983).

This was supported by evidence of a take over by Monte Alban (Spencer 2003). The conquest glyph consists of a hand grasping a weapon occurring underneath the name of the town. The death glyph alternates with it strongly implying destruction of another city (Marcus 1976; Marcus and Flannery 1996, 2003; Whittaker 1980). The information encased within Building J suggests military campaigns endorsed by the rulers of Monte Alban to expand its territory, acquisition of resources, and setting up tribute systems (Marcus and Flannery 1996, 2003).

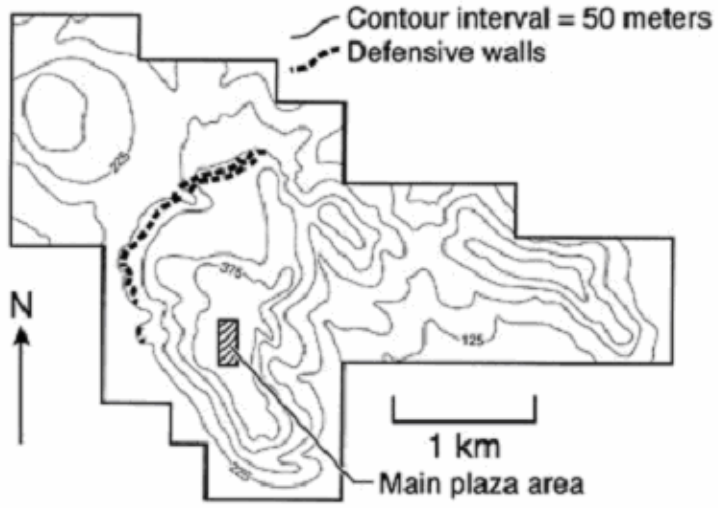
If traffic was regulated in a circular manner towards the southwest portion of the site, the spectators would walk towards Building L, pass by the Danzantes, and stop in front of the South Platform to view the bound captives on its walls. People probably knew and were encouraged to learn about these events. It is logical to assume that people were expected to learn the social rules, and the contexts that might have caused them. The captives might have been terrorized and brutalized during public displays of power. There was probably a constant threat of politically sanctioned ritual violence. Presently, there is no archaeological data to support sacrifices on a large scale, such as mass burial, decapitated skulls, fractured skeletal remains, and or disarticulated skeletons.

Defensive Features

The defensive walls are located on the northern and western slope of the site, less than a kilometer from the Main Plaza area (Figure 2.5). The wall system is positioned on what appears to be the most easily climbable area, perhaps deemed to be the weakest points, and easier to attack. The wall wraps around this area for three kilometers with an average

height of four meters (Flannery and Marcus 1996, 2003). Neely (1967) suggested a different function for the wall system as part of a reservoir dam for irrigation purposes. On the most northern sections of the wall, there is a double walled feature. This might have been a later construction phase reinforcing the weakest point of the wall. It could be possible that this was an attempt at making a killing alley indicating a higher level of complexity in defensive strategies. Archaeological investigations by the wall yielded minimal quantity of sherds implying this area did not have a lengthy occupation prior to its construction (Blanton 1978). The wall was roughly dated to Monte Alban I or II (Blanton 1978; Flannery and Marcus 1996, 2003). There appears to have been a cluster of villages along the bottom of the slope by Monte Alban within the defensive wall (Blanton 1978). It is not clear if these settlements were contemporary with the first construction phase of the wall. The northern defensive system at Monte Alban has a striking similarity to the northern earthworks at Tikal, which protected the agricultural area, and its inhabitants, instead of the site core.

Figure 2.5. Defensive Walls at Monte Alban



(Marcus and Flannery 1996)

Other possible defensive walls at Monte Alban are located on the slope of the southeastern area. The smaller wall is approximately 130 meters long; the largest one is approximately 250 meters long (Blanton 1978). Both the northern and southern walls could have served as a way of controlling traffic into the site, but if taken in conjunction with the 320 Danzantes and the conquest slabs within the site, it probably served a dual function as a fortification system (Blanton 1978). Both walls would have served as the primary line of defense. Retreat to the steep settlement on Monte Alban would have served as a secondary level of defense. It was quite possible that there was an expediency plan in a time of an attack for the people residing outside the defensive walls (Webster 1980). There must have been a military strategy that allowed the local satellite communities to seek refuge inside the walls. Even without any clear evidence of attacks, the wall system, and the carved monuments make quite a statement about the power of the site, and its elites.

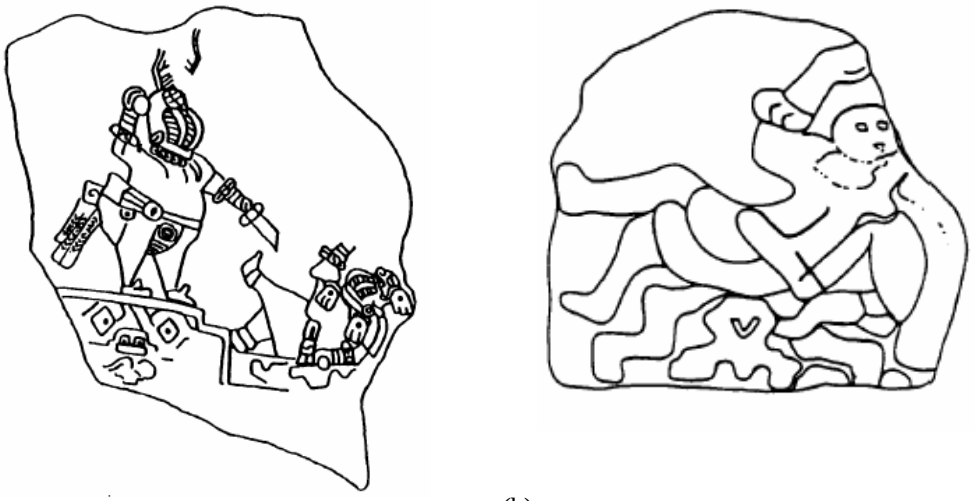
Contemporary Centers: Dainzu

Dainzu is situated on the Tlacolula Valley, within the Oaxaca valley, 25 km southeast from Monte Alban. The site located above the western base of its namesake, Cerro Dainzu. Its location on a hilltop has possible defensible potential (Adams 2005; Blanton et al. 1981, 1993; Marcus and Flannery 1996; Oliveros 1997; Orr 1997). The site was founded as part of a small settlement during the Rosario Phase (600 – 500 B.C.) Its first buildings were constructed over large artificial terraces. The hillside has numerous terraces with edifices interconnected by passageways, plazas, and stairs. Monumental architecture began during Monte Alban I and II (Blanton et al. 1989; Orr 1997). Dainzu was the regional center for its surrounding communities: Tlalixtac, SJT-50, El Sabino, Guelavia, Yegüih, and Santa Ana (Blanton et al. 1981, 1989; Marcus and Flannery 1996; Orr 1997). Archaeological work at the site began in 1966 headed by Dr. Ignacio Bernal (Oliveros 1997).

There are a few ballcourts at Dainzu; one of these was excavated in 1967, it has the typical Mesoamerican I-shape. The ballplayer carvings are situated on Complex A of the site, and date to Monte Alban Period II (Bernal 1968; Marcus 1983; Orr 1997). For the most part, the Dainzu carvings illustrate events from ceremonial ballgames. For example, some of the images indicate processions towards the hill, while others are images of ballplayers with elaborate costumes. Along the way up to the mound, there is a series of petroglyphs; some of these are images of decapitated players (Olivares 1997). Orr (1997) suggests that these were processional markers for the people to follow. It was a way to direct traffic up the slope while conveying a very direct message.

CD-5 (Figure 2.6a) depicts a standing figure holding a blade in his left hand, and a possible ball in his right hand. The ballplayer is pointing the blade aggressively towards a fallen figure. The standing figure is wearing a helmet, elaborate belt, and a loincloth. The fallen individual lies on his back, on a lower step than the victorious character. A similar fallen figure is illustrated on Stone 37 (Figure 2.6b), the individual lies awkwardly on his back, with his hands and feet in the air. His head appears to be at an odd angle. Perhaps this was a defeated individual who was tossed down the hill and broke his neck during the fall.

Figure 2.6. Ballplayers at Dainzu. (a-b)



(a) (b)

(Orr 1997)

The ballplayer carvings might have functioned as an intimidating message for the communities in the valley. The game itself was a tool utilized by the elites to provide evidence of their supernatural powers, while also manipulating the spectators in believing

the power of the site itself (Orr 1997). A spiritual belief in an ideological institution or a place provides the elites with the means to control the public. Orr (1997) proposes the ballgame as part of ritualized warfare. The losers of the game were sacrificed to ensure crop productivity; the blood renewed fecundity of the soils (Orr 1997:150). According to her theory, the elites probably used it as a form of mock battle to settle any disputes between local villages, unifying the spectators in a spiritual activity, and easing tension amongst communities (Orr 1997). This negates the need to raid local villages for captive sacrificial victims, and promotes inter-site interaction in a spiritual realm which is a shared set of beliefs by all involved parties. In a sense, it is a legalized form of a regional inter-exchange network of sacrificial victims.

Settlement Changes in the Oaxaca Region

There were three clusters of settlements during the Tierras Largas Phase, one in each arm of the Oaxaca Valley. The inhabitants near San Jose Mogote had the upper advantage as this was the best quality agricultural soil in the Etla Valley (Blanton et al. 1981). During the San Jose Phase, population peaked in the Etla Valley. While only five additional villages were established in the central and southern parts of the Oaxaca Valley (Blanton et al. 1993). Early public architecture is present at San Jose Mogote during the early segments of the San Jose Phase, but does not appear in the other valleys until the end of this period. Social development in this region is quite different from the rest of the valley. San Jose Mogote was drawing families to move closer to this area, furthering sociopolitical growth at the site. During the following Guadalupe and San Rosario

phases, San Jose Mogote continued its growth, and became the regional seat of power. As discussed in the beginning of this chapter, raiding amongst communities was fairly common as evidenced by burning of structures, possible palisade feature, and a carved monument depicting a sacrificial victim. At that time, it was possible that Monte Alban was already established as a local shrine, without permanent settlers. An unknown series of events prompted the local elites to come to an agreement, and resettle their communities at Monte Alban. Polities enter into alliance agreements for both defensive and offensive reasons. Perhaps, the regional leaders seized on an open window of opportunity to form an alliance to protect their immediate communities against a common foe. Additionally, the terms of an alliance can include sharing defensive and offensive costs. If all of the allied parties are in one locale, it ensures the costs are equally shared both in labor and supplies. As a state evolves, its policies will undoubtedly change. Monte Alban, later on, embarked on a series of imperialistic campaigns.

Monte Alban rapidly became a Tier 1 site, and its leaders soon faced the responsibilities of providing an adequate amount of surplus to the growing population, and protection from other possible rival centers (Blanton 1978, 1981, 1993; Flannery and Marcus 1996, 2003). The earliest appearances of the Danzantes carvings are contemporary with the defining of the Main Plaza as a formal public space, which is dated to Monte Alban Ia (Orr 1997). From Monte Alban Ia to Monte Alban Ic, the number of settlements around Monte Alban more than tripled. Settlement patterns shifted dramatically in this area. During Monte Alban Ia, there were only three sites located on easily defensible hilltops. By Monte Alban Ic, this number had increased to 13.

Inhabitants showed a desire to reside in an area that could be quickly turned into a fortress (Flannery and Marcus 1996, 2003). This settlement change is strikingly similar to that of the eight century Petexbatun region: the populace of this region also opted to live on hilltops allowing their inhabitants to take advantage of higher elevation for defensive purposes (Demarest et al. 1997; Demarest 1995, 2006; O'Manksy 1996, 1999; O'Manksy and Dunning 2004). The majority of the communities in the Petexbatun area were fortified with walls enclosing small household complexes, as well as agricultural terraces. The latter implies a growing concern with protecting food production districts (O'Manksy 1994, 1996). These areas are responsible for providing food surplus to the local polities; therefore, any attack on these agricultural areas would have been a powerful blow to the subsistence of the local elite.

Soconusco Region: Izapa

Izapa is located on the Pacific shore in the modern Mexican state of Chiapas, near the southeastern end of the Soconusco zone. This territory stretches from Chiapas to Guatemala. It is a long, narrow, rich coastal plain, and hill-region bordering the Sierra de Madre de Chiapas of southern Chiapas. The geological development of the area is due to the accumulation of volcanic alluvium coming down from the Sierra Madre de Chiapas Mountains, thereby creating fertile soils (Marshall 2006). The temperature at the piedmont area is a humid tropical type, and the coastal plain is dry tropical type. The average annual rainfall by the coastal area is 1,500 mm, with a dry season from November through June. The long rainy season in the coastal plains allows planting of

two crops per year. This area was an important subsidiary zone for Izapa's populace, providing them with much needed surplus of food, and other produces. Fierce rains occur during the months of July and August, frequently destroying crops in the area (Coe 1961; Lowe et al. 1982; Voorhies 1989).

The topographic layout near Izapa is characterized by a gradient low relief towards the Pacific coastal plains; Izapa is 35 km away from the Pacific Coast. The Izapa River, a smaller tributary of the Suchiate River, is located east of Izapa, and demarcates the eastern periphery of the site. There are local volcanic outcrops near this river; basalt boulders are abundant in this area. The river bed probably served as a source of materials for constructions at the site. The Tacana Volcano is due north from the site, with 4,064 m elevation above sea level. The annual average temperature at Izapa is 25.5˚ Celsius. The annual rainfall average is 3,596 mm (Lowe et al. 1982; Sharer 1994). The dry season at Izapa and its surrounding region is from December through February. Fruit trees at Izapa include avocado, mamey, sapodilla, breadfruit, orange, custard apple, balsa, laurel, tangerine, mango, grapefruit, and lime (Lowe et al. 1982). Izapa is privately owned by farmers residing in the area, they plant two crops in their milpas within a calendar year (Lowe et al. 1982).

It should be noted; the sites located in this region had interaction with other parts of Mesoamerica, the Maya lowlands, the Mexican Gulf Coast, and Central Mexico. Stylistic similarities in sculptures dating to the Middle Preclassic link the Pacific Coast to sites in the Olmec region and Chiapas (Popenoe De Hatch 1989). Lowe (1977) theorized that the local inhabitants spoke a Mixe-Zoquean language. The major centers that

developed in this region include Izapa, Abaj Takalik, and Balberta (Bove 1989). Research at Balberta, indicates the site was fortified sometime during the Terminal Preclassic and the Early Classic (Bove 1989). The culmination of the Preclassic period is marled by disruption, and the abandonment of sites (Bove 1989).

Investigation History of the Site

Coffin (1935, 1936) was the first one to report on the site of Izapa to the Instituto Nacional de Antropologia e Historia. Carlos (1939) published a summary about the site included in his Chiapas regional report. Ruppert (1938) from the Carnegie Institution visited the site, followed a year later by his colleague, Kidder. Stirling (1941) was the first to clear the overgrown vegetation at the site to document the carved monuments. Drucker (1947) made the first site map, and excavated a few trenches. In 1965, Lowe visited the site, and concluded a Preclassic presence based on surface ceramic observations. In 1961, the Brigham Young University set up a five year archaeological field project at the site (Lowe et al. 1982). Gomez Rueda (1995, 1996) headed recent excavations (Gomez and Grazioso 1997). Grazioso (2002) tackled the stylistic divergences of the carved monuments at the site, differing from the usual analysis of "Izapan style" to the more intensive intrasite analysis.

Occupational History

The first occupants of the region, known as the Chantuto, arrived in the southeastern part of Chiapas prior to 3000 B.C. (Lowe et al. 1982). Drucker (1948) was the first one to investigate these settlers, followed by Lorenzo (1955). Voorhies (1976) analyzed them in

further detail. The subsequent occupation was by the Barra people, knowledgeable pottery makers by 2000 B.C. Most of the sites in the locality tend to be situated at small distances from the sea, while others are found inland. Izapa is located between two major cultural zones: Mixe-Zoquean on the western side, and early Southeast Maya cultures. This frontier location had an impact on the diversity elements developed at Izapa (Lowe et al. 1982). At Izapa, the first known occupancy began during the Oco's Horizon (1500 – 1250 B.C.). The first settlers were probably drawn to the area due to the bountiful fruits growing in the vicinity, and mostly importantly cacao. The subsequent Cuadros phase (1200 – 1000 B.C.) was a continuation of settlements located along coastal bayous. Material culture found at Izapa has been noted to have striking similarities to elements that originated at San Lorenzo, an Olmec site on the Gulf Coast (Coe 1962; Lowe et al. 1982; Kappelman 1997). The subsequent Jocotal phase (1000- 850 B.C.) displayed a continued interaction with Olmec sites, specifically La Venta (Lowe et al. 1982; Coe 1962; Kappelman 1997). Monumental construction took place during the Middle Preclassic (900 – 300 B.C). Mound 30 has an earlier encased construction dating to Duende phase (850 – 650 B.C.). During the Escalon period (650 – 450 B.C.) occupants of the site incorporated new architecture within the central zone. Izapa became slightly more important during the Frontera epoch (450 – 300 B.C.). Population numbers continued to increase, and Mound 30 and its associated basal platform, continued their growth (Coe 1962; Lowe et al. 1982; Kappelman 1997). Izapa became a regional center during the Late Preclassic, which included the Guillen Phase (300 - 50 B.C.). Population continued to boom, while other sites in the coast showed a marked decline during this

period. Ceramics associated with Izapa was the dominant sphere in the Soconusco region starting with Late Preclassic through the Early Classic. Izapa was occupied for lengthy period of 2500 years (Lowe et al. 1982).

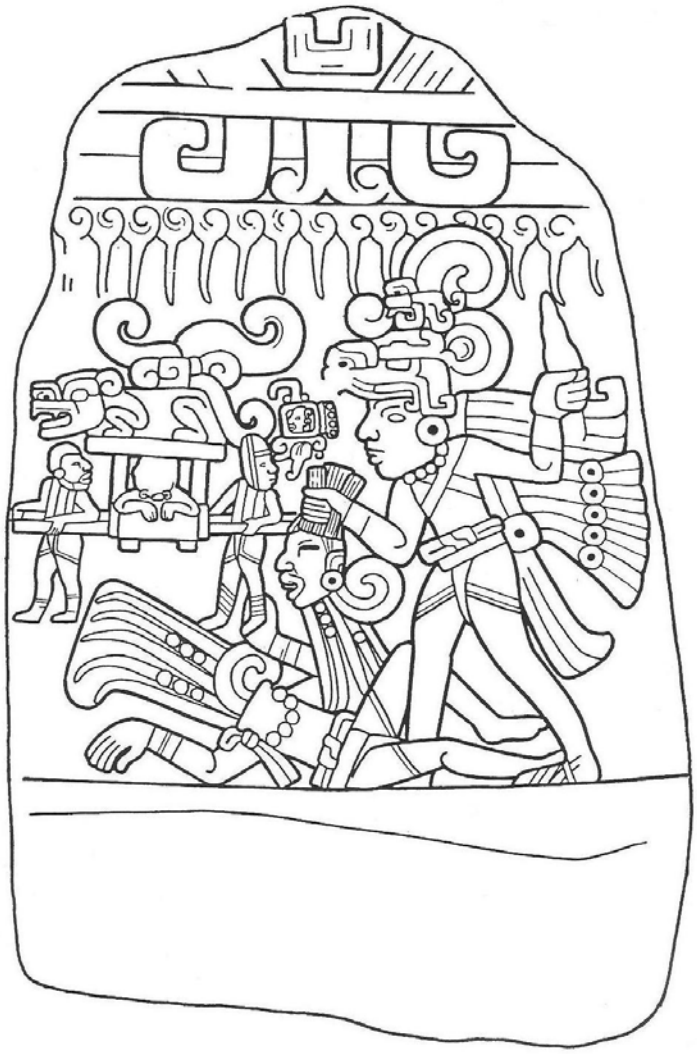
There a total of eight courtyard groups at the site (A-H) with a total of 162 structures. Architectural characteristics vary from basal, primary platforms, and terraced platforms. The tallest structure at the site and within the southern Chiapas region is Mound 60 (Lowe et al. 1982:77). The only domestic structures were found within Group F. A drainage system directed the water flow within the site (Adams 2005; Gomez Rueda 1997; Lowe et al. 1982). Water was a recurrent artistic and ideological theme narrated throughout the monuments at the site (Adams 2005; Kappelman 1997; Lowe et al. 1982). Most of the imagery is portrayed in a "narrative style" (Adams 2005; Kappelman 1997). Izapa is the only regional center that developed a stela-and-altar cult. Worked stone varied from carved-and-plain altars, stelae, and thrones (Lowe et al. 1982). Out of 253 stone worked monuments, 119 are carved (Adams 2005). A strong stylistic similarity between the monuments at Abaj Takalik and Izapa was documented (Kubler 1962; Lowe et al. 1982). Abaj Takalik was a contemporary center in the Southern Highlands (Lowe et al. 1982).

Evidence of Conflict: Stela 21 and Stela 89

Archaeological data places the stone monuments at the site within the Late Preclassic, specifically the Guillen Phase between 300 and 50 B.C. (Lowe et al. 1982:23). Duvalier (1956) was the first one to document Stela 21. The first iconographic interpretation was

offered by Orellana (1955), who suggested it was a decapitation scene. Stela 21 (Figure 2.7) and its associated Altar 19 are both located in Group D, in the western section of the site. These two carved monuments are directly west of Mound 45, Stela 21 measures 1.8 x 1 x 0.30 m; and Altar 19 measures 0.25 x 1.17 m. Mound 45 is on the southwest corner of the group with Mound 56 located south center of the plaza. The stela and altar were placed on a narrow corridor between Mound 56 and Mound 45. The foreground of the stela illustrates an elite individual dressed in an avian-type costume, and wearing an elaborate headdress (Figure 2.7). He is holding a blade in his left hand and a decapitated head in his right hand. At his feet lies a fallen headless figure with bloodscrolls coming out of the neck. The fallen individual appears to be an elite personage; he wears earspools, necklace, and a similar breechclout as the standing figure. The background scene features an individual transported by two persons in a palanquin, with a jaguar sitting on top. There is a glyph on the right by the palanquin, above one of the carriers. It could be a reference to a date, place name, or perhaps the name of the fallen figure (Lowe et al. 1982). It is not clear if the person in the palanquin is observing the scene on the foreground. It is possible that it could be the victim himself prior to or after the decapitation to let the audience know that this was an important individual who was sacrificed. It was a common practice to steal the enemy's palanquin as a trophy. It was often displayed in public to let people know that their ruler had taken power away from another ruler (Freidel 1986, 1993).

Figure 2.7 Stela 21



(Kappelman 1997)

Stela 23 and its associated Altar 19 are located along the same corridor. The stela illustrates an inverted figure that appears to be diving into the underworld. If the entrance and traffic into the plaza within Group D was controlled by this corridor, then the viewers would see Stela 21 first followed by Stela 23. It would imprint an image on their minds

as to the military and supernatural powers of the elites within the site. It has been suggested that Mound 23 in the northern area of Group D was associated with ascension temple rites (Lowe et al. 1982).

Stela 89 (Figure 2.8) is situated in Group B, in the eastern part of the site. Stela 89 was found buried south of Stela 32 in 1976, north of Mound 50, a nine meter pyramid. This courtyard group is dominated by Mound 30 and its large basal platform. Mound 47 flanks the west side, Mound 51 demarcates the east side of the plaza, and Mound 50 is positioned on the south of the courtyard. This stela illustrates an individual with his hands bound behind him. He is lying on his right side, with his legs tied, and brought up close to his lower abdomen. The personage has Olmec facial characteristics, and wears a helmet, and earspools, the stela measures 1.82 x .70 x .030 m (Lowe et al. 1982).

Figure 2.8 Stela 89

(Kappelman 1997)

Trade Items and Trade Routes

An adequate amount of annual rainfall and the volcanic alluvium deposits in the area gave this zone the best cacao producing soils in Mesoamerica. Izapa's central location in the piedmont made it preeminent for controlling the flow of commerce. Rivers draining from the highlands, and emptying into the ocean, provided canoe trading routes, although, these waters were infested with alligators, thereby creating a treacherous transit zone (Coe 1961; Lowe et al. 1982). One of the land routes consisted of crossing the coastal zone into the peaks of the Sierra de Madre Mountains, heading towards the valleys in the region, or the Guatemalan highlands. A secondary terrestrial path started from the northwest part of Soconusco, crossing into the Oaxaca districts, and culminating in the Gulf Coast (Coe 1961; Lowe et al. 1982).

The Izapa River was likely used to travel from the north and the east into the site. A terrace constructed on the edge of the river bank with a paved ramp may have functioned as an access point into the site. A stone basin was found in *situ* near the paved ramp. Nineteen grouped stelae with their associated altars were found due north from the terraced area. These ideological functioning boulders would have greeted any visitors. As the newcomers were walking towards the site, they would have been greeted by the sheer size of Mound 60 (Kappelman 1997).

Control of the cacao trade is thought to have been an early source of conflict. Izapa participated in the production, and distribution of cacao produce (Lowe et al. 1982). Soconusco area was one of the points of exchange utilized by the Aztecs. Cacao was still used as form of currency even after the Spanish contact (Ciudad Real 1952; Lowe et al.

1982). Some of the items traded into the region from other zones included jade, amber, pottery, flint, and obsidian (Lowe et al. 1982). The site was a commerce node on the Pacific region trade route, and possibly a respected center with ideological importance as illustrated by the numerous carved monuments. There are no fortifications at Izapa to corroborate any perceived threats. Izapa's location on a frontier zone between two distinct cultural groups, and in a central corridor of exchange could have prevented any attacks. Most of the traffic into the site would have come from the Izapa River from the east or from the coastal area in the south, and southwest. As mentioned previously, the site of Balberta located on the Pacific coast, was fortified (Bove 1989). Perhaps, this site served originally as a military outpost, and would have absorbed any primary attack(s) coming from the coastal area, and would have sent warning to the rest of the sites in the area. Balberta went on to become a regional center during the Early Classic, and exerted its military power over its regional neighbors (Bove 1989; Bove et al. 1993; Bove and Medrano 2003). Additionally, there is very clear evidence of interaction with Teotihuacan (Bove et al. 1993). Although, researchers at the site believe it was an amicable economic and social interaction between the two centers (Bove et al. 1993).

The Southern Highlands: Kaminaljuyu

Kaminaljuyu is located in the valley of Guatemala within the Southern Maya highlands. Most of the remnants of this ancient site lie beneath the urban modern Guatemala City. There are over 200 earthen mounds at the site, which has been referred to as "largest and most powerful Preclassic highland regional center" (Sharer and Sedat 1987:454).

Excavation History at the Site

The site was recorded in the 17th century by a local landowner, who described it as having impressive mounds, and salient similarities to the local populace (Villacorta and Villacorta 1930). Maudslay (1899) visited the site, and included it in his regional surveys. The next visitor was Batres (1916); he also incorporated it in his field report. Gamio (1926) excavated small areas of the site, and found evidence of earlier occupations. Lothrop (1926) arrived at the site to photograph the monuments. Villacorta named the site in 1936, the translation of its designated name from the Quiche language means "Hills of the Dead" (Kidder, Jennings, and Shook 1946). Investigations by the Carnegie Institution of Washington during the 1930's and 1940's were headed by Kidder for a lengthy period of 18 years (Kidder, Jennings, and Shook 1946). Due to Kaminaljuyu's location, next to a highland route, the Carnegie Institution of Washington wanted to investigate the site to gather information regarding trade and migration. Kidder and his colleagues proposed the site had an association with Teotihuacan, based on ceramic and architectural similarities (Kidder, Jennings, and Shook 1946). The archaeological research of the Carnegie Institution of Washington resulted in vast information ranging from large scale architecture, several ballcourts, temples, and drafting of the first map of the site (Kidder 1948, 1961; Kidder, Jennings, and Shook 1946; Shook and Kidder 1952). Excavations on Mound A and B yielded Teotihuacan artifacts and *talud-tablero* architectural styles, commonly associated with Teotihuacan. It has been suggested that the ceramics found were copies of Teotihuacan style, and not artifacts traded directly from Central Mexico, whether they are copies or not is irrelevant, as these items prove

without a doubt, inter-exchanges between two distinct cultural groups. Three burials were found within Mound E-III-3 (Shook and Kidder 1952). After the culmination of the Carnegie Institution of Washington project, Espinoza headed the excavations within the acropolis which also shared Teotihuacan architectural stylistic traits. Borhegyi, Shook, and Miles excavated both the adjacent areas, and within Kaminaljuyu for a period of four years, from 1952 to 1958. Borhegyi and colleagues found similar findings as their predecessors, a noted Teotihuacan influence. The Pennsylvania State University began their project in 1968, funded by the National Science Foundation, and headed by Sanders and Michels (Michels 1979; Sanders and Michels1969).

Occupation History at the Site

Kaminaljuyu began as a small farming village, with its initial stages dating to approximately 2500 B.C. (Michels 1979). Architecture from Las Charcas period (1000 – 700 B.C.) is characterized by perishable structures over earthen platforms. Female clay figurines are found throughout this horizon, believed to represent fertility symbols. One burial belongs to this phase; the individual was placed in a midden deposit without any grave goods (McInnis Thompson 2005; Popenoe De Hatch 1997). During the span of the Middle Preclassic (1000 B.C. – 400 B.C.), simple burials continued to be the norm, without any associated items (McInnis Thompson 2005; Popenoe De Hatch 1997; Popenoe De Hatch et al. 2002). By 500 B.C., there was a conglomeration of settlements on the Valley of La Ermita, the modern location for Guatemala City. It was at this time (ca. 500 B.C.) that Kaminaljuyu became a regional center (Michels 1979; Popenoe De

Hatch 1991; Popenoe De Hatch et al. 2002). A change in burial patterns was not noted, until the Late Preclassic (400 B.C. – A.D. 100). Construction of monumental architecture peaked in this period; the newer structures functioned as entombments for elites. Burial patterning through this period suggests a high degree of social stratification (McInnis Thompson 2005; Weaver 1993). An irrigation system composed of canals to divert the flow of water to the raised fields was documented, and believed to date to 300 B.C. This canal system is associated with the lake in the central part of the valley; its embankments show signs of modification (Adams 2005; Popenoe De Hatch 1997, 2002; Valdes 1998). The irrigation system helped to support increasing population numbers. By the Miraflores phase (100 B.C. – A.D. 200), five of the settlements in the Valley of La Ermita, evolved into regional centers (Adams 2005, Sanders and Michels 1969). Economic exchange at this time with other sites is evidenced by the presence of Usulutan ware from El Salvador (Adams 2005; Kaplan 1999). An aqueduct believed to have originated during the Miraflores phase, and utilized until Colonial times, was investigated by Navarrette and Lujan (1986). The serpent feature, also known as *la culebra*, implies the local elites had firm grip on the local community, and had the ability to muster laborers to construct the massive earthwork (Adams 2005; Michels 1979; Navarrette and Lujan 1986). By the Late Preclassic, Kaminaljuyu was a primary regional center. During this phase, exports included obsidian, and jade from Mazanal, near El Porton in the Motagua Valley (Parsons and Price 1971; Valdes and Popenoe De Hatch 1995). Imports probably included salt, dried fish, cacao, and cotton from the Pacific Coast (Kaplan 1999; Valdes and Popenoe De Hatch 1995). The same interment practices continued through the

Terminal Preclassic (McInnis Thompson 2005; Weaver 1993). At the end of the Preclassic period, Kaminaljuyu fell into a declining state leading to a pronounced depopulation. Scholars hypothesize that this was due to a failure of the irrigation system to support the population, and conflict coming from the west region (Shook and Popenoe De Hatch 1995). Valdes and Wright (2004) believe the majority of the citizenry migrated away from the site, and headed east into the Motagua Valley. By the Early Classic, the lake dried up due to tectonic activity (Sanders and Michels 1977). Based on material cultural remains, Kaminaljuyu recuperated from the previous loss, with evidence of affiliations with Teotihuacan (Valdes and Wright 2004). Braswell (2003) proposed this was a mutual economic relationship and not a political take over. Kaminaljuyu continued to have a lengthy occupation until the Postclassic (Popenoe De Hatch 2001; Popenoe De Hatch et al. 2002; Weaver 1993).

Stylistic Traits and Associations with Other Regions

Several of the initial hieroglyphic writing from the Maya area comes from Kaminaljuyu; for instance, Stela 10 has one of the earliest known dates (Kaplan 1999, 2002). Pot-bellied sculptures, stone depictions of obese men dating to ca. 300 B.C., are fairly common at the site, ranging from small portable depictions to large sculptures (Adams 2005). Stone figures shaped as mushrooms have been found within tombs dating to the Late Preclassic (Sharer 1994). While the sculptural style is regional, there are similarities with other centers, such as Izapa (Miles 1965; Norman 1976; Parsons 1986). Stela 11, at Kaminaljuyu, illustrates one individual standing between two incense burners, known

locally as *incensarios*. Likewise, Stela 18, at Izapa, shows two personages sitting between an *incensario*. Regional economic exchange, and interchange of ideas with Izapa, and other nearby centers, helped to fuse a unique style at Kaminaljuyu (Kaplan 1999).

El Chayal, a valuable obsidian source, is located 15 km northeast from Kaminaljuyu. This area was under the economic control of the elites at Kaminaljuyu. Whether this was a loosely controlled or heavily supervised locale is very ambiguous. The eruption of Ilopango volcano in El Salvador, ca. A.D. 200-250, could have had an impact in the sharp decline noted at Kaminaljuyu during this phase (Dahlin 1979; Henderson 1997; Sharer 1974, Sheets 1979a, 1979b).

Indicators of Conflict: Monument 65

Monument 65 (Figure 2.9) is a boulder carved on both sides, side A and B (Kaplan 1999; Parsons 1986). Finding the monument was due to the sheer chance of local kids playing near a sewage construction, during the midsummer of 1983 (Parsons 1986). The workmen notified the authorities, and excavations thus commenced. An additional piece was found in the area in 1983. Stela 10 was found in the vicinity in 1956 (Kaplan 1999; Parsons 1986). Monument 65 was discovered 400 m southwest of the acropolis (Parsons 1986). The monument resides at the National Museum of Archaeology and Ethnology in Guatemala. Contextual information has not been published but based on stylistics traits; the monument has been dated to the Early Arenal phase (200 B.C. – A.D. 100). Parsons (1986) proposed an estimated date of 150 B.C. The monument is a modified volcanic

slab measuring 290 x 200 x 33 cm (Kaplan 1999:358). The base of the slab has broken off. The sculptors flattened the surface of the slab and created the imagery by carving indentations creating a relief surface. There is a notable negative space, only the eight individuals are portrayed, the artists conveyed their message in utter simplicity. Side A has total of three tiers depicting three principal figures on the central column, seated on simple four legged beveled block thrones. On either side of the elites, there are bound individuals who might have been captives (Kaplan 1999, 2000). All of the elites have nose beads, possibly jade ornaments. Each of the elite parsonages appears to be issuing a stern mandate, with their index finger pointing at the unlucky bound individual. The lower right corner of the monument is missing. The remaining scene is similar to the ones above it.

All of the captives are bowing down on one knee, in a submissive gesture with their hands bound in front of them, gazing up towards the central figure in a beseeching manner. They are all wearing distinct headdresses, and earspools. Headdresses might have regionally stylistic characteristics, and may be indicative of the origin of each individual. The naked captive in the left upper corner wears a “flame like headdress” with the upper part raised like a crest. The unclothed captive to the right wears a helmet-type of headdress with beaded designs. The unclad middle left captive wears a “plumed, tripartite” headdress. The middle right captive wears a “long beaked bird with a serpent-framed wind behind his earspool”, and a breechcloth. The captive in the lower left tier wears a “tripartite hairdo surrounded by a profile dragon headdress”, and a loincloth (Parsons 1986:58). It is interesting to note that except for all the individuals illustrated,

there is no other imagery depicted, such as scrolls and or glyphs. Based on the uniqueness of each elite's headdress, and the possibility of the head ornaments containing the name of the individuals, Kaplan (1999, 2000) suggested these events happened at the same time, but with three different central figures, who answered to one central ruler. The negative space between the three tiers may be indicative of a single event.

Side B of Monument 65 is badly eroded with evidence of pock marks. These marks could possibly be the result from a termination ritual or from a vandalizing event. There is a recurrent theme with side A, an elite figure sits on a throne gesturing at a small kneeling figure on his left side. It is possible an individual might have been portrayed on the right side of the elite, but the section of the slab is too eroded. In contrast to Side A, there is a top framing band, similar to Izapan sky bands, along with possible glyphs above both individuals (Kaplan 1999).

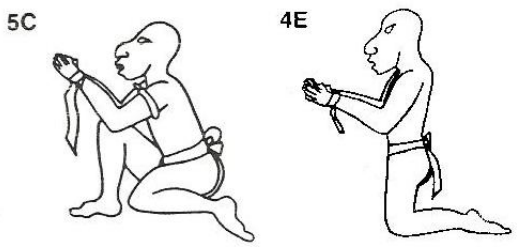
It is quite possible the binds on each individual's wrists might be ties from wristbands, although this does not explain the nakedness angle. Portraying figures in the nude has been accepted as the norm for displaying captives throughout Mesoamerica (Marcus 1979). Dillon (1982) compiled information on bound prisoners exemplified on Maya art. He set forth a typology of the various poses illustrated to depict tied prisoners and separated these into three groups. The first one entails the arrangement of the body; the second consists of the action(s) taken to debilitate the person; and the third encompasses the quantity of extremities, or bodily parts touching the ground surface (Dillon 1982: 29-35). Poses from typology groups 3B, 4E, 4G, and 5C (Figures 3.10a and 3.10b) bear striking similarities to the bound captives represented on Monument 65.

Figure 2.9. Kaminaljuyu Monument 65-Side A

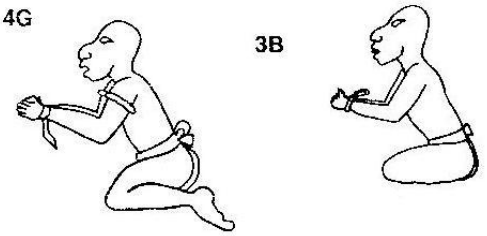
(After Kaplan 2000)

Figure 2.10. Bound Prisoners (a-b)

a)



b)



(Modified After Dillon 1982)

Summary

The landscape in the Oaxaca region changed dramatically with the aggregation of large numbers of people into one site. These events must have impacted the political hierarchy, the economy, and social composition. It was directly after the move to Monte Alban, that the Danzantes were commissioned in vast quantities. It should be noted that a workshop for these carved slabs has not been documented. It would be interesting to see where these workshops were located, and how they were structured. Perhaps, there was a similarity to the pottery workshops, which were located in administrative centers only, thus giving the elites full control of this propagandistic venue. It may be possible as

Adams (2005) suggested that the relocation of populace was not voluntary, and these slabs were set as a constant remainder of those who opposed the new political system. Not necessarily who was contesting their territory or boundaries, but their new policies.

Figures that are represented as captives or sacrificial victims usually have similar traits to allow the viewer to quickly identify them (Baudez and Mathews 1978). San Jose Mogote and Monte Alban share analogous stylistic qualities. The captives are depicted naked, positioned in uncomfortable poses, mutilated, and with accompanying glyphs. The Danzantes at Monte Alban were an integral part of the Main Plaza, so much that these slabs were reused at later times, and incorporated in System M, as façade stones for the staircase (Marcus 1979). The recurrent theme at both Monte Alban and San Jose Mogote was to display the fallen figure, and to continually humiliate the personage(s) by stepping over his image (Marcus 1979). Almost as if, this dead character was perpetually trapped in a shameful stance at the disposal of the elites. To some extent, a similar ideology was utilized at Cerros, Belize. Enormous façade masks represented deceased rulers flanking both sides, and both levels of Structure 5C-2nd. Rulers could walk up the pyramid steps with their ancestors on either side of them with their eternal approval (Freidel and Schele 1988). Public stages and their surrounding characteristics served as venues for the elites to prove their right of supremacy, and to skillfully manipulate the populace into believing their divinity.

The Dainzu carvings differ from all the other examples; these are images of ritualized ballgames (Orr 1997). The imagery itself is not captive-specific, but portrays fallen ballplayers, almost in the same fashion as the modern media exposes disgraceful

sportsmanship behavior. Since there are no depictions of actual sacrifice at Dainzu, the fallen figures might represent the downfall of troublesome individuals. The sequence of events exemplified on Monument 65 at Kaminaljuyu, may be an early archetype of a *multepal* system at the site, representing how conflict was dealt with by the rulers (Kaplan 1999).

At San Jose Mogote, Monte Alban, and at Izapa, these carvings are situated by public structures, which might have been used for ritual purposes, and elite displays of authority (Blanton 1978; Blanton et al. 1999; Flannery and Marcus 2003; Marcus and Flannery 1996; Lowe 1982). This is a great advertising strategy; because it was virtually impossible for spectators in the crowd to avoid looking at these images, which were placed strategically on publicly accessible areas. Furthermore, there is the free form of advertisement: word of mouth. Public participants returned to their respective communities with tales of the great carvings, and the intimidating messages these images convey.

It could be that captives served to fulfill roles as proxies for elite autosacrifice (Kremer and Flores 1993). Kremer and Flores have documented various rulers who participated in extreme bloodletting rituals by cutting the *carotis* and offering blood from this vital artery. If the *carotis* interior was severed, death was imminent. Some of the participants managed to survive this type of event, when proper skill and care was provided. The *ek' balam* shrub was used to stop bleeding (Kremer and Flores 1993). Another possibility might be that respected captured rulers were given the option to self-sacrifice, as a way to gracefully die with honor. The 13th ruler of Copan, *Waxaklajuun*

Ub'aak K'awill, was one of the unlucky individuals to expire in this manner in A.D. 738 (Kremer and Flores 1993; Martin and Grube 2000). Copan recounts this event at a later point in their history, but described it as a "noble death" (Martin and Grube 2000:205). Ruling elites were in charge of keeping the universe in motion. One of the ways of achieving this goal is through bloodletting rituals to renew the elements needed for a continued existence of the cosmos.

This section covered iconographic images of conflict within their contextual framework. The data discussed dealt with the Preclassic to illustrate that warfare was present in earlier time periods, and to demonstrate that iconographic data can be used along with other lines of evidence to support evidence of conflict. The following chapter will incorporate architectural evidence, such as fortifications, along with iconographic and epigraphic data, where it is available. The proposal of this thesis is to analyze social, economic, and political interaction in a structuralized form that takes into account warfare. Both competition and the lack of antagonism between regions had an acute effect on boundary formations throughout time, with its beginnings in the Preclassic.

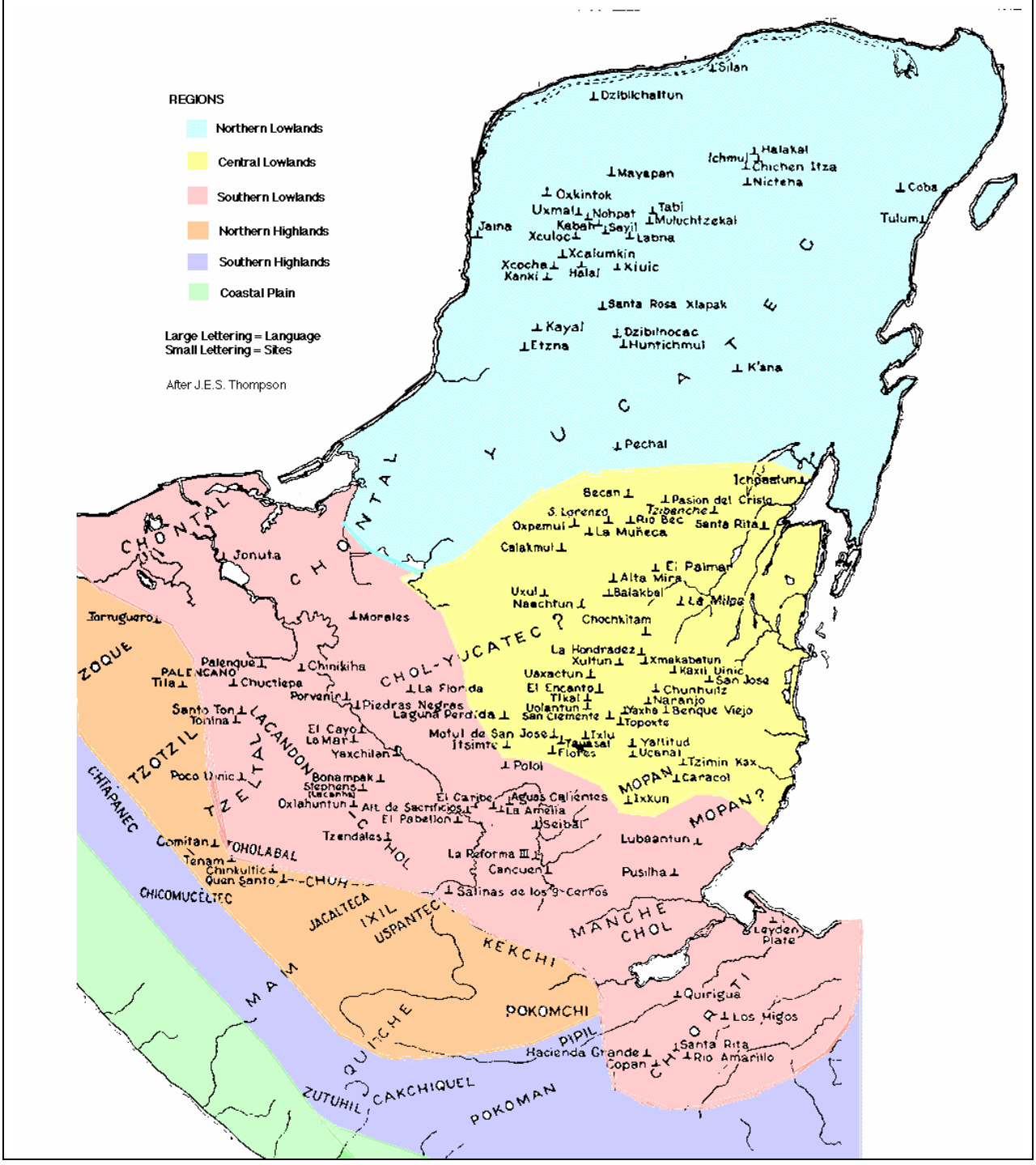
Chapter 3

Architectural Evidence of Conflict throughout the Lowlands

Introduction

This chapter will cover Maya chronology, followed by description of the southern, central, and the northern lowlands. Each segment of the lowlands and its environment zone will be discussed, including a brief overview of the archaeological research history. In addition, sites that have strong evidence of fortified features will be integrated, and if available, I will incorporate epigraphic and iconographic information. The primary goal is to present a cohesive series of war-related events per lowland zone (Figure 3.1), and chronological time period. Some of the primary question deals with how land use, and economic trade relations transform political relations and alliances throughout time. Additionally, how do changes in political alliances affect trade routes? Lastly, can political boundaries be discerned throughout time by studying warfare patterns?

Figure 3.1. The Maya Lowlands



A Chronological Framework

Most archaeologists acknowledge three major time periods for the Maya region: the Preclassic (2000 B.C. – A.D. 250), the Classic (A.D. 250 – 900), and the Postclassic period (A.D. 900 – 1519). These epochs correspond to cultural changes ascertained from the archaeological record. It should be noted, these transformations may have occurred at different times per region, and the defined eras should not be perceived as rigid dates.

Earliest confirmation of human habitation is evident from Clovis points dating to ca. 8000 – 9000 B.C. in the highlands of Guatemala (Coe 1999), and in northern Belize (Hester et al. 1996; Kelly 1993; MacNeish and Nelken-Terner 1983; Valdez and Aylesworth 2005). As with other regions of the Americas, the earliest settlers were nomadic hunter gatherers. The first sedentary villages occurred during the latter part of the Archaic period (ca. 6000 – 2000 B.C.). It is at these initial communities that the first evidences of plant domestications were found. MacNeish and his colleagues documented the earliest maize domestication in the New World found in the Coxcatlan Cave, located in the Tehuacan Valley of Mexico (MacNeish 1964; MacNeish et al. 1967; MacNeish, Peterson, and Flannery 1970; Popenoe de Hatch et al. 2002).

The Early Preclassic (2000 B.C. – 1000 B.C.) was marked by development of agriculture and permanent villages. Typically, structures were made from wattle-and-daub with poles supporting a thatched roof. During the early Preclassic, the elders might have shared political power within a rotation system. This type of system was recorded in ethnographic accounts (Sharer 1994). In the Soconusco region, there is evidence of a ruling elite class with associated prestige items. These early settlers were associated with

Barra ceramic complex (ca. 1700 – 1500 B.C.), followed by the more elaborate and diverse Ocos ceramic complex (ca. 1700 – 1500 B.C.). Three main routes connected Mesoamerica promoting trade and inter-exchange of ideas. The southern route followed the Pacific coastal plains; the central route traversed through the Peten; and the northern route tagged along the Yucatan coast. Other routes included the rivers flowing from the highlands, which allowed travel towards the west, and the Peten. The interconnected north-and-south routes allowed travel from the Yucatan and the highlands, and the Soconusco region (Andrews 1980; Adams 2005; Sharer 1994; Workinger 2002).

During the Middle Preclassic (1000 B.C. – 400 B.C.) the Pacific sites remained an important area of settlement (Bove 1989; Voorhies 1989). It was a period marked by a rising level of social complexity. In the northern lowlands, colonization and permanent settlement occurred near the coastal area, rivers, and lakes that provided a reliable source of water. It has been suggested that the population on the northern area might be due to migrations from the highlands (Andrews V 1990). The riverine and coastal region served as trade routes, which in turn promoted an exchange of ideas between various groups. There is archaeological evidence linking interaction between occupants from the Soconusco region with other cultural groups, such as the Olmec. The Olmec sites include San Lorenzo, La Venta, and Tres Zapotes (Lowe 1977; Lowe et al. 1982). Subsistence was achieved by coastal gathering, and swidden agriculture. This was supplemented by household gardens. Ceremonial areas during this era are characterized by large earthen platforms. Rising social stratification is evident due to elaborate elite residences, and mortuary complexes, along with lavish funeral remains. Lime-based plaster was often

utilized to pave formal surfaces. It was also used as stucco for masonry, and pyramidal structures. Later, plaster was used as a means to create large stucco masks to adorn the sides of large edifices. The northern lowlands lagged a bit behind, the southern area already experienced all of these social changes during the Early Preclassic. Nakbe, located in the central lowlands, has a major period of construction consisting of small structures, and low walls. This site was one of the major hubs in this time period. Some of the other sites that experience similar architectural developments are: Tikal, Uaxactun, Cuello, Cerros, and El Mirador. Xe (ca. 700 – 400 B.C. in the western southern lowlands), Swasey (central lowlands), and Mamom (Yucatan to highland transition), and the earliest examples of Usulutan pottery (El Salvador) are the known ceramic spheres for this phase. Incense burners were one of the earliest examples of ritual pottery. One of the earliest examples of Maya writing was found at the site of El Porton.

During the Late Preclassic (400 B.C. – A.D. 100), there is a marked increase in population growth, and the beginning stages of state level societies. Large monumental architecture and luxury-type of goods are viewed as symbols of power. The first entail local control to carry out community projects, while the latter, are portable and wearable symbols of prestige (Trigger 1990). Early leaders had to be very clever in devising methodologies that would provide them with the illusion of power while sustaining control of their citizenry. It is during this era that hieroglyphic writing emerged in the lowlands, alongside Long Count dates. Already large villages increased in size, and population, and new communities were formed. Large constructions projects were carried out at many sites in the region including El Mirador, Cerros, Tikal (Lost World), Rio

Azul, and Nakbe. El Mirador is the largest known Maya site for this time period. El Tigre complex is one of the largest constructions at the site. Temples at Cerros, Tikal, Uaxactun, and El Mirador have large stucco masks flanking both sides of the steps of these ritual edifices. Other sites that were in the process of developing into centers during this stage are Calakmul, Uaxactun, Lamanai, Seibal, and Altar de Sacrificios. Piedras Negras and Palenque were still villages during the Late Preclassic. Large architecture was plastered, and its surfaces were left unpainted or decorated in bright colors. The ceramics from this phase are Chicanel (lowlands), and Miraflores (highlands), both complexes are carry-overs from the Middle Preclassic. The dominant ceramic type, also used as a marker, is Sierra Red (Adams 2005; Coe 1999; Sharer 1994; Valdez 1987).

As discussed in the previous chapter, Izapa is located in the Soconusco region. At this time, there are large earthen ceremonial platforms. In the southern Maya area, one of the most impressive sites is Kaminaljuyu. This site reached its peak during this time period. Kaminaljuyu controlled El Chayal, one of the local obsidian sources. Another major site is Abaj Takalik, located in the pacific region of Guatemala (Adams 2005; Coe 1999; Sharer 1994).

There was more intensive agriculture, which was probably a by-product of the increase in population, and the demand to support more people. Raised-fields along the edges of bajo areas were fairly common. One of the markers for this time period are the pot-bellied figurines, they are representations of obese human personages. Additionally, the ruler was viewed as a deity that could commune with the gods. There was more emphasis on the cosmology facet of society. Writing was also an innovation of this time

period, which probably originated in the Oaxaca region. There was evidence of mass sacrifice in Cuello, Belize. Cerros appears to have suffered some decline along with termination rituals at the site (Freidel 1986).

The Proto Classic (A.D. 100 –250) is a period of marked decline in population, and abandonment of sites. This time period has been referred to as the Preclassic Hiatus. There was a shift in political power at some of the sites. Cerros was completely abandoned. El Mirador, one of the major centers, suffered a decline in monumental construction, and carved stelae. Refuse from the Tigre complex dates to the Proto Classic (A.D. 100 – 250). The carving of monuments appeared to go out of style or declined dramatically during this phase. Ceramic traditions included mammiform tetrapod (from El Salvador and Guatemala), painted Usulutan ceramics (El Salvador), and polychrome vessels. Bark-beaters were also documented in this horizon. Barton Ramie, Belize did not suffer the same abandonment fate as other sites; it had twice as many platforms as in the previous period. It has been suggested by Payson Sheets (1979b), that some of the migration into this area (and other parts of Belize) was due to the volcanic eruption in El Salvador ca. A.D. 200 - 250. Kaminaljuyu still controlled the obsidian source at El Chayal, and became the dominant center in the highlands (Adams 2005; Coe 1999; Sharer 1994).

State-level society and political organization continued its development during the Early Classic (A.D. 250 – 600), especially in the central, and southern lowlands. Polychrome pottery was adopted throughout the lowlands; it is the marker for this phase. Usulutan ware (black-painted) is the diagnostic pottery for the highlands. Tepeu 1 begins

at the end of the Early Classic. There was an increase in site nucleation, and formal plaza groups. Corbelled vaults were commissioned during this time period. It was also a period marked by dynastic records in carved monuments, and the beginning of an ancestor cult. The rulers themselves were portrayed on the carved stelae (Adams 2005; Coe 1999; Sharer 1994). This was the culmination of part-time shaman duties promoted to a deity, and finally as dynastic rulership with restricted membership based on divine status. The establishment of divine rulership has its origins during the Late Preclassic (Freidel et al. 2002; Freidel and Schele 1988). This process was not fully brought to fruition until the Early Classic.

Teotihuacan rises to power in central Mexico. The Early Classic period in the lowlands was marked by influence from Teotihuacan. A Teotihuacan connection has been documented at Monte Alban, Kaminaljuyu, Montana, and at Tikal. At these sites, there are cultural and architectural remains, such as tripod vessels, and *talud-tablero* architecture associated with Teotihuacan (Bove et al. 1984; Braswell 2004; Marcus and Flannery 1996). Whether this was a mutual relation or a direct control is a subject still debated to date. Coggins (1983) believes Teotihuacan exhibited a direct control of some of the Maya sites. On the other hand, Demarest and Foias (1993) suggest a friendly economic relation between the two regions.

According to the information depicted on carved monuments, Lord *Siyaj K'ak'* accompanied by emissaries, and warriors from Teotihuacan visited Tikal. The foreign ambassador traveled first to the site of El Peru, and arrived at Tikal on January 31st, A.D. 378. On this same date, *Chak Tok Ich'aak*, the ruler of Tikal at the time of the foreigners'

arrival, met his death by "entering the water", and a new dynasty is set up at Tikal (Martin and Grube 2000:29-30). Tikal continued its growth from a secondary center to the regional power in the Peten region. The power vacuum left by the decline of El Mirador made this possible. The earliest known Long Count date comes from Tikal, stelae 29, dated to ca. A.D. 292 (Martin and Grube 2000). Tikal begins to exert its new power over the region. Uaxactun, located 19.50 km north of Tikal, records the killing of one of its rulers by a Tikal royal family member during A.D. 378. Around A.D. 392, Lord *Siyaj K'ak'* of Tikal conquers Rio Azul. This was probably done to control the local trade routes, and the route leading to the Bay of Chetumal. At Rio Azul, five elites were executed and were portrayed on round altars found in front of Structure A-3 sub 3 dated between A.D. 360 and 393 (Adams 1999:75). At Palenque, *Siyaj K'ak's* name was recorded on a panel dating to the 7th century A.D. (Martin and Grube 2000). *K'inich Yax K'uk' Mo'*, Copan's founding ruler, was depicted with a stylistic mix of Maya and Central Mexican garb, this taken in conjunction with *talud-tablero* architecture at the site, implies that Copan was among the many Maya sites affected by the Teotihuacan arrival in the lowlands (Martin and Grube 2000).

The Hiatus lasted from A.D. 534 to A.D. 593 (Adams 1999, 2005; Coe 1999; Sharer 1994). It was marked by a lack of monuments and 'meager' tombs. Adams (1999) reports evidence of destruction at Rio Azul followed by a near abandonment during the Hiatus. There was a significant decline at Tikal as well, which lasted for a longer period of time than at other sites. Caracol claims to have taken over Tikal, as per their carved

propaganda. This might have been possible due to an alliance between Caracol and Calakmul (Martin and Grube 2000).

Population continues to grow dramatically during the Late Classic (A.D. 600 – 800) sustained by intensive agriculture. Pulltrouser swamp, situated in northwestern Belize, is a great example of agricultural innovations. It is an agricultural area with raised fields that are still visible today from aerial photographs (Turner II and Harrison 2000; Siemens and Puleston 1972; Walling 1993). Another method is agricultural terracing, which was also widely used in northwestern Belize, as well as other areas (Feddick 1996; Walling 1993). During the first century, Teotihuacan began to lose its power, which in turn affected its Maya allies. There was a power vacuum left by Tikal's decline, a power struggle ensues by the other smaller polities. Emblem glyphs begin to appear more frequently. There is a dramatic increase both in population growth and in construction at Caracol (Chase and Chase 1996, 1998, 2000). I propose that slaves were probably taken from Tikal in order to carry out most of the construction at Caracol. It would explain both the decline in populace at Tikal and the increase in population at Caracol (Chase and Chase 1998). In the Petexbatun area, a ruler from Tikal takes over Dos Pilas, and begins the slow process of exerting his power within that region by way of local alliances (Fahsen, Castellanos et al. 2003; Williams 2002). Initially, it was believed that the ruler of Dos Pilas was an exiled individual from Tikal (Houston 1993; Houston and Mathews 1985). This is a period marked by competition and the capture of elites throughout the Maya lowlands (Stuart 1993). There is a long list of propaganda to support this premise,

such as carved stela, lintels, and murals at various sites: Caracol, Naranjo, Calakmul, Yaxchilan, Bonampak, Copan, and Quirigua (Adams 2005; Coe 1999; Sharer 1994).

Architecture and artwork reach their peak during this period. The Peten and Usumacinta architectural designs are the central lowlands style. Both the Peten and Usumacinta have similar structure arrangements, consisting of large plaza complexes, Usumacinta style is slightly different with an emphasis on carved lintels. Puuc, Rio Bec, and Chenes are the northern architectural styles. Puuc edifices have an unadorned lower section with an intricate upper façade. Rio Bec architects utilized both central, and southern lowland styles. The Rio Bec buildings have two towers constructed over a large basal platform. Chenes style shares a similarity to the Rio Bec architecture, but accentuates the entrances with carved masks. Fine polychrome pottery is one of the noted markers for this era. Ceramic from this time period include Tepeu 1 (ca. A.D. 550 - 700), with its origins dating to the Early Classic, and continued its development into this phase. The second is Tepeu 2 (ca. A.D. 700 – 800), which is the marker for the last century of the Late Classic. Tepeu 2 polychrome vessels exhibit exquisite artistic elements. Small clay figurines resurface during the Late Classic. There is a slowdown in construction, and erection of monuments, a marked decline in trade, and population decrease in the central, and southern lowlands. Alternatively, the northern lowlands flourish during this phase (Adams 2005; Coe 1999; Sharer 1994).

Sites in the central and southern lowlands continue to show a decline in both population and erection of monumental architecture during the Terminal Classic (A.D. 800 – 900). Long count dates are no longer recorded. Meanwhile, the northern sites reach

their peak. Political organization changes into *multepal*, a system with more than one ruler in control (Fox 1987; Freidel and Schele 1989; Lincoln 1986; Schele and Freidel 1990). The Putun Maya were traders, who presumably took advantage of the situation in the central, and southern area (Adams 1973; Fox 1987; Graham 1973, 1990; Thompson 1970). They established a capital at Chichen Itza, Yucatan and took control over trade routes, and eventually moved to sea-faring trading system via larger canoes. One of their main trading ports was Isla Cerritos, situated off the coast in the northern Yucatan (Adams 2005; Andrews and Gallareta 1986; Andrews et al. 1988; Coe 1999; Sharer 1994).

Lamanai located in northwestern Belize survived the 'collapse' with a continued occupation to the Postclassic (Pendergast 1981). In the Petexbatun, however, competition between the local centers greatly increases (Demarest 1994, 2006; Demarest et al. 1997; Demarest). Most of the sites exhibit evidence of some form of defensive feature. Settlement patterns change with a preference for hilltop communities. There is no marked change in pottery making, except for the polychrome ceramics, which show a decreased skill in manufacture. Fine orange ware is the diagnostic marker for this time period. Tepeu 3 (ca. A.D. 800 – 900) is another ceramic type.

The collapse has been dated to this time period, especially for the central and southern areas. Numerous scholars have tried to explain this phenomenon: over-population (Culbert 1974), warfare, class conflict (Hamblin and Pitcher 1980; Kaplan 1963; Kidder 1950; Thompson 1931, 1954, 1970), foreign invasions (Adams 1971; Cowgill 1964; Sabloff and Willey 1967), volcanic eruptions (Sheets 1979), a series of

droughts (Gill 2000; Hodell et al. 2001), climate (Dahlin 2002; Haug et al. 2003; Hodell, Curtis, and Brenner 1995; Curtis, Hodell, and Brenner 1996; Shimkin 1973; Whitmore et al. 1996), epidemics (Spinden 1928), long distance trade route disruptions (Rathje 1973), environmental degradations (Abrams and Rue 1988; Paine and Freter 1996; Sanders 1973; Sanders and Price 1968), water control (Lucero 2002), and other natural disasters (Fagan 1999). It may have been a combination of all these theories (Valdez and Buttles 2007), but it was likely different reasons within each region.

The Southern Lowlands

The southern lowlands are part of a gradual transitional zone from the northern highlands (Figure 3.1). This part of the lowlands is characterized by tropical rainforest vegetation, and Afw, Tropical Rainforest climate (Vivo Escoto 1964). It is an area composed of Mesozoic, and Cenozoic limestone formations. The southern lowlands encompass northern Chiapas, Huehuetenango, El Quiche, Alta Verapaz, and Izabal. This zone also contains a fraction of the Gulf Coast, and the southern portion of the Caribbean coast (Adams 1991, 2005; Morley et al. 1983; Sharer 1994). Typically, this region is characterized by high quantity of rainfall and adequate surface draining. Annual rainfall averages between 2,000 to 3,000 mm. The dry season is limited to one or two months, occurring sometime between March and May. The rivers flowing from the highlands and the coastal area provided irrigation, steady water supply, and transportation routes. Among the principal rivers in this subzone, are the Usumacinta River with its tributaries (Jatate, Lacantun, Chixo, and Pasion), the Sarstoon River, the Dulce River, the Izabal

lagoon, the Motagua River, and Chamelecon River. Temperatures range from 25˚ and 37˚ Celsius, which are rather common for *tierras calientes* (Adams 1991; Morley et al. 1983; Sharer 1994).

Usumacinta Subzone

The Usumacinta zone takes its name from the Usumacinta River. The sites in the area include Tonina, Palenque, Piedras Negras, and Yaxchilan. The latter two sites were known to have ongoing conflict throughout the Classic period (Martin and Grube 2000). The Preclassic and Early Classic are still very unclear periods in this area. The archaeological data for Piedras Negras, the only site extensively excavated in this area, suggests that this was a small site until the latter part of the Early Classic (Houston et al. 2003). There is a distinctive architectural style in this zone. The local architects highlighted the natural landscape by constructing long vaulted range structures on the top of hills, thereby achieving the same sense of perpendicularity.

The most distinctive characteristic used in this geographical area are the outward inclination of the roof of buildings, the use of open roof combs with geometric designs and the decoration of piers, interior walls and roof panels with masks and human figures. Lintels were carved with dates, the lineage of city rulers, and special events.

The Pasion subzone

The Pasion River is a tributary of the Usumacinta River, the sites in the nearby area fall within the Pasion district. The major Classic sites include Altar de Sacrificios, Seibal, Dos Pilas, Arroyo de Piedras, Tamarindo, Aguateca, and Punta De Chimino. Altar de

Sacrificios is located at the junction point between the Usumacinta River, and the Pasion River. The inhabitants at the site benefited greatly from the site's location on a major trade route. Archaeological work at the site was headed by Smith and Willey from the Peabody Museum (Willey 1973). Occupation at Altar de Sacrificios dates back to the Middle Preclassic ca. 900 – 500 B.C. (Willey 1973). Seibal is the largest center in this region, located 60 km east of Altar de Sacrificios. Population levels rose during the Late Preclassic from 5,000 to 10,000 inhabitants, although, the site suffered a setback during the Early Classic. The Putun Maya had a direct political impact at the site during the Terminal Classic (Willey 1990).

Petexbatun Regional Polity

The Petexbatun area (Figure 3.2) is situated south of the Pasion River, and refers to a political unit under the control of the rulers at Dos Pilas. Settlement in this area dates back to the Late Preclassic with communities centered along the Lake Petexbatun, and its associated riverine precinct (Demarest 1997; Foias 1996). The Petexbatun River starts at the north end of the lake, and continues north culminating at the Pasion River. The Aguateca tributary discharges on the southern end of the lake. The lake and its rivers serve, in the past and the present, as communication and trade routes (Secaira 1992). The land routes are not accessible during the west season. The lake and most of its eastern wetlands have an estimated elevation of 100 m above sea level (Willey et al. 1975). Water levels rise up to 10 m during the rainy season, which is from July to December. The dry season is from January to June (Dunning and Beach 1994). The escarpment

located on the west side of the lake, extends for 10 km around the lake, with an elevation of 100 m above the surface of the lake (Bonis 1965). The local geology is distinguished by block-faulting, succeeding in a series of uplifted blocks (Dunning and Beach 1994; Rice 1993). The origins of the block-faults can be traced back to tectonic activity during the Oligocene period (Dunning et al. 1991). The limestone in the region has been impacted by karstic weathering processes. The rate of precipitation had a direct impact on corroding developments. Consequently, the Petexbatun region is speckled with sinkholes, also known as *aguadas* (Ford and Williams 1989). Additionally, fissures or *grietas* were created in the same manner. Fissures run along the side of the escarpment and are documented at sites, such as Aguateca. Another karstic formation is the cave system in the region (Brady et al. 1990). The soil stratum is thin in the Petexbatun, with bedrock frequently found at 20 cm below the surface (Dunning et al. 1991). Soil and water access were variables in choosing settlement locations (Dunning et al. 1991; Scarborough and Galloping 1991).

The Petexbatun Multi-disciplinary Project was headed by Demarest and Valdes from 1989 to 1994 (Demarest 1997). Punta De Chimino, Aguateca, Tamarindo have Late Preclassic ceremonial architecture (Demarest 1997:218). Epigraphic evidence suggests that the elites at Dos Pilas exerted military influence during the Late Classic over Arroyo de Piedra, Tamarindo, Aguateca, and Punta De Chimino (Demarest 2006:13).

Figure 3.2 Petexbatun Region

(After Inomata 1996)

Evidence of Warfare in the Southern Lowlands

Preclassic

Sierra De Lacadon Regional Archaeological Project (SLRAP) headed by Drs. Golden and Scherer carried out their investigations from 2003 through 2005 (Golden and Scherer 2006). Previous work in the region was done by Maler (1901, 1903) and Shook (1988). SLRAP documented a series of walls placed north of Yaxchilan, presumably protecting the northern border (Golden and Scherer 2006). These features are situated between hillsides nearby the local sites of El Bayal, La Pasadita, and El Tunel. A few of the walls average 100 m in length, while some are smaller, with just 30 m span. La Pasadita and El Tunel are both Late Classic subsidiary centers (Golden and Scherer 2006). La Tecnica has occupation dating from Middle Preclassic until the Protoclassic, with a few Late

Classic sherds. Additionally, E-groups were documented at La Tecnica (Golden and Scherer 2006). A stela illustrating Shield Jaguar III, ruler of Yaxchilan, was found at El Kinel. The stela depicts the main figure wearing a headdress, and holding a shield loosely in his left hand, and a spear in his right hand (Golden and Scherer 2006). The monument identifies Shield Jaguar III, as the guardian of Torch Macaw, presumably the local lord (Houston et al. 2005). The site is divided in half by a canal, perhaps to assist in cutting off the southern part, when the water level is too high. Postholes were documented in a raised spot adjacent to the berm, which may be evidence of a palisade feature (Golden and Scherer 2006). The postholes measured 12 cm wide, and 35 cm deep. The canal on the southern area may have been a defensive earthwork supported by a palisade. These features were not investigated any further to negate or support this theory, and the idea is purely hypothetical. Occupation at this site dated to Late and Terminal Classic. The site was abandoned ca. A.D. 830 (Golden and Scherer 2006). Zancuderos, a hilltop settlement, has a large wall surrounding roughly three quarters of its settlement, at the base of the hill. The feature is 800 m in length, and 5 m high. The unwalled area is protected by the swamp and the Yaxchilan River. The majority of the ceramics associated with this feature dated to Late Preclassic, with a handful of Late Classic sherds. The defensive feature was not excavated. The investigators hypothesize the barricade dates to the Late Preclassic, which is the major occupation period at the site (Golden and Scherer 2006). One other possible Preclassic fortified site was found near the Usumacinta River: Macabilero, located near Piedras Negras (Golden, Scherer, and Munoz 2005). It would

appear Yaxchilan was trying to make a northern frontier border with Piedras Negras (Golden, Scherer, and Munoz 2005).

Late Classic

To date, there are no records of fortification of sites during the Early Classic. Throughout the Late Classic period, there are a total of six sites, which have defensive features. Three of the sites were Petexbatun regional capitals at one point. Tamarindo is located on a knoll, roughly 6 km northwest of Lake Petexbatun, 7 km east of Dos Pilas, and 7 km northwest of Aguateca. The early settlers took advantage of its easily defendable high elevation. Vinson (1960) discovered the site in 1958. Graham investigated the site in 1959, followed by Merle Greene Robertson in 1970 (Graham 1961; Houston et al. 1990). Houston (1990) headed excavations at the site as part of one of the Petexbatun subprojects. Tamarindo, along with Arroyo de Piedra, appears to have exerted political control over the Petexbatun region during the initial phase of the Early Classic (Mathews and Willey 1991; Houston et al. 1990). A series of agricultural terraces, dams, and a reservoir system supported the local populace (Beach and Dunning 1997; Houston et al. 1990).

According to the interpretation of the carved monuments, Tamarindo was among the sites conquered by Dos Pilas (Greene Robertson, Rands, and Graham 1972; Marcus 1974). Although, there are no fortifications at this site, a staircase depicting captives strongly implies conflict. Three steps of a staircase are adorned with bound prisoners and associated glyphs. All three prisoners lie on their sides, with their right leg extended and their left knee brought up higher towards their chest, and their arms bound in front of

them. There are two rows of glyphs on the left of each prisoner, and one additional row to their right. The text indicates their names, dates, and a possible emblem glyph. All of the captives wear loincloths, and elaborate headdresses. The carved staircase has been dated ca. A.D. 730 to 830 (Greene Robertson, Rands, and Graham 1972; Marcus 1974). Evidence indicates that Tamarindo recuperated from the take over by Dos Pilas and regained political power (Demarest 2006).

Arroyo de Piedra was a satellite kingdom under the rulership of Tamarindo, and later on controlled by Dos Pilas. Arroyo de Piedra is located 3 km east from Dos Pilas, and 3 km west from Tamarindo. It is surrounded by arroyos and swamps which provided natural defensible features, supplemented by wall segments on low points (Escobedo 1994, 1997). A small group located north of the site has a defensive wall running parallel to the escarpment (Escobedo 1994, 1997). Although, the site is very small, there is a large quantity of sculpted monuments (Stuart 1990).

Dos Pilas

Dos Pilas was first investigated by Graham in 1967, and mapped by Graham, Dixon, and Houston during the same year (Graham 1967; Houston and Mathews 1985). Dos Pilas was the dominant Late Classic power in the Petexbatun area. It became the second Petexbatun regional capital. It is located approximately 11 km northwest of Aguateca. Dos Pilas' emblem glyph is exactly the same as Tikal's, implying a relationship to Tikal's dynasty. At first, it was believed that Dos Pilas was founded by Tikal elite survivors, exiled after the Caracol attacks on Tikal (Houston 1993; Mathews and Willey

1991). New evidence uncovered from the Dos Pilas' hieroglyphic stairs suggests that the founder of Dos Pilas, *B'alaj Chan K'awiil*, also known as Ruler 1, was related to the king of Tikal (Fahsen 2002). In its early days, Dos Pilas was a close ally of Tikal. Ruler 1 ruled for about 47 years (Sassi 1992). On A.D. 648, an entry on the hieroglyphic stairway at Dos Pilas records a battle between Ruler 1, at a young age of 25, with a lord from Tikal. The event culminated in the death of the Tikal lord. Incidentally, this confrontation occurred at a time of ongoing conflict between Tikal and Calakmul (Fahsen 2002; Guenter 2003).

Ruler 1 wasted no time at all by establishing political alliances in the Petexbatun through marriages with the local lords of the region, thus paving the way for his military take over of the region (Mathews 1991; Schele 1991). He fathered two sons, Ruler 2 and Shield Jaguar, with a wife from Itzan. His daughter, Lady Six Sky, served as a regent at Naranjo. Her mother was an elite lady from Dos Pilas (Sassi 1992). Another female relative, a sister or daughter, was married off to an elite member from Arroyo De Piedra. On A.D. 650, Dos Pilas was successfully attacked by Calakmul. Ruler 1 took refuge in Aguateca. Eventually, he was forced to make an alliance with the Calakmul polity (Boot 2002; Fahsen 2002; Guenter 2003; Martin and Grube 2000). From this point forward with the political backing of Calakmul, Ruler 1 was able to gain control of the Petexbatun and promote the political power of Dos Pilas (Demarest 1997). The Itzan polity was seized on A.D. 652 (Fahsen 2002).

The hieroglyphic stairs 2 and 4 record warfare campaigns carried out by Ruler 1, although the reasons behind these events are speculation, as this information is not

included in the epigraphic record. On January 12, A.D. 657 Ruler 1 of Dos Pilas joins Calakmul against Tikal, and captures a Tikal lord (Sassi 1992; Symonds and Houston 1990). *Nuun Ujol Chaak*, the ruler at Tikal, was forced to escape (Martin and Grube 2000). A preascension event is recorded at Yaxha to commemorate a young Lord from Calakmul, a mere 120 days after the conquest of Tikal by Calakmul. The Yaxha "agreement" was the reiteration of the subjugation of Tikal and Dos Pilas (Guenter 2003). There is a reference to *Nuun Ujol Chaak* at Palenque on A.D. 659, where he is presumed to have remained during his exile. He managed to regain control of Tikal (Martin and Grube 2000). On July 10, A.D. 662, a campaign was carried out against Yaxha by Ruler 1 of Dos Pilas. Lord Torch Macaw of Machaquila was captured on February 28, A.D. 664 by Ruler 1. On A.D. 672, a raid took place at Dos Pilas, recorded as Lake Petexbatun warfare. The attack on Dos Pilas was carried out by *Nuun Ujol Chaak* from Tikal (Symonds and Houston 1990; Sassi 1992; Martin and Grube 2000). *Nuun Ujol Chaak* succeeded in defeating Ruler 1, and maintained control of Dos Pilas (Boot 2002; Guenter 2003; Martin and Grube 2000; Sassi 1992; Symonds and Houston 1990). Within the next two years after the attack on Dos Pilas, two sites in the Petexbatun were sacked and burned. Guenter (2003) believes these attacks were carried out by *Nuun Ujol Chaak* looking for his half-brother Ruler 1. The first attack took place on May 31, A.D. 673, probably at El Peru. The second was on June 29, A.D. 673, possibly at *Chaahk Naah*. It should be noted, that these raids were carried out on the beginning of the rainy season (Guenter 2003). It has been suggested that warfare was only carried out in the dry seasons. A Calakmul princess arrived at El Peru in A.D. 675, and visited La Corona five

years later (Guenter 2003). The exile of Ruler 1 lasted for a period of five years; he is believed to have sought refuge at *Chaak Naah* (Martin 2003). Coincidentally, Ruler 1 retuned to Dos Pilas, seven days after Calakmul attacked Tikal on A.D. 677 (Boot 2002; Guenter 2003; Martin and Grube 2000). Two warfare-related events are recorded at Dos Pilas against an unidentified site on December 13 and on December 20 on A.D. 677 (Sassi 1992; Symonds and Houston 1990). Two years later, on A.D. 679, Dos Pilas and Tikal had yet another fierce encounter. This time around, *Nuun Ujol Chaak* lost the battle, and one of his lieutenants was captured by Ruler 1. It is unknown what happened to *Nuun Ujol Chaak*, as he was defeated by Dos Pilas, and allies from Calakmul (Martin and Grube 2000). At Dos Pilas, the event is recorded as Lord 13 Jaguar was captured by Ruler 1, from an unidentified site, on April 30 of A.D. 679 (Sassi 1992; Symonds and Houston 1990). At Cancuen, on May 7, A.D. 682, Ruler 1 of Dos Pilas is mentioned as having attended the ascension of its new ruler. The ceremony was carried out at Calakmul due to its aging ruler and his inability to travel. Calakmul and allies partook in a celebratory event to commemorate their victory over Tikal (Guenter 2003). On A.D. 686, Ruler 1 participated on another ascension ceremonial event at Calakmul (Boot 2002; Guenter 2003). He was 61 years old at the time. His daughter, Lady Six Sky, was the ruler of Naranjo.

Six years after the death of Ruler 1, Ruler 2 ascended to the throne at Dos Pilas on March 24, A.D. 698 (Sassi 1992). Ruler 2 continued his father's militaristic goals but changed it to a more manageable and localized zone. Alternatively, this could have been a result of Tikal's increasing power in the Peten. Ruler 2 assisted his half-sister, Lady Six

Sky, at Naranjo in a battle against Ucanal, and the capture of Lord Shield Jaguar on January 29, A.D. 695 (Sassi 1992). During the same year, Naranjo battled Tikal at Yellow Rabbit taking a captive, *Siyaj K'awiil* (Martin and Grube 2000). This event was referenced at Naranjo Stela 22, and included the participation of Ruler 2 of Dos Pilas on this battle, and the campaigns on the Yaxha-Sacnab lake regions (Sassi 1992:49). Later on, Ruler 1 assisted his nephew, son of Lady Six Sky, on March 19, A.D. 710. This second assisted event was recorded at Naranjo's Stela 23; a Lord of Yaxha, Jaguar Stone, was captured during this battle (Sassi 1992:59). Both stelae 22 and 24 illustrate Lady Six Sky in her full regalia standing victoriously over a bound captive facing the ground surface. Stela 23 represents her son, at age 22, standing over his human prize. At Dos Pilas, stelae 25 and 26 record two war-related events against unknown sites. The first took place on January 17, A.D. 717, and the latter on May 15, A.D. 721 (Sassi 1992). Ruler 2 passed away in October A.D. 726, his death was recorded at both Dos Pilas, and at Tikal. His demise was recorded as "he of Dos Pilas", and not with a Mutal (Tikal) title (Martin and Grube 2000).

Ruler 3 was enthroned on January 6, A.D. 727 (Sassi 1992). He was credited with a defeated under the rulership of Ruler 2 on Stela 1 (Martin and Grube 2000). He must have been a high ranking military official. His wife was an elite woman from Cancuen suggesting an alliance with this polity. Panel 19 illustrates Ruler 3 overseeing a bloodletting ritual by a young prince, probably the next ruler and the son of Ruler 2, *K'awiil Chan K'inich*. A high ranking individual from Calakmul was also present at the ritual, and was referred as the guardian of the young prince (Martin and Grube 2000).

Ruler 3 was only involved in one battle. On November 29, A.D. 735, Ruler 3 waged war successfully against Seibal, and captured their king, Jaguar Claw. This event was recorded at both Dos Pilas, and Aguateca, illustrating Ruler 3 standing over his high ranking prisoner. It should be noted that both Ruler 1 and 3 presided over Aguateca. Aguateca Stela 2 is a representation of Ruler 3 from Dos Pilas dated to A.D. 735 (Sassi 1992). The defeated king of Seibal was not sacrificed, but kept alive for approximately 12 years. He was humiliated publicly during two events, the first on December 6, A.D. 735, and the later on October 30, A.D. 747 (Martin and Grube 2000; Sassi 1992). Ruler 3 died on May 29, A.D. 741. Ruler 4, *K'awiil Chan K'inich*, must have overseen the second event. He took over Dos Pilas on June 23, A.D. 741. Seibal continued to be under the control of the rulers of Dos Pilas. Tablets 3, 5, and 6 at Seibal refer to scattering rituals overseen by a Lord from Aguateca; a similar event took place at Tamarindo. Ruler 4 did not wait too long before asserting his authority: on A.D. 743 he captured a lord from El Chorro. Two years later, Ruler 4 waged a military campaign against Yaxchilan and captured an elite individual depicted in hieroglyphic stairway 3 (Martin and Grube 2000; Symonds 1990). In the same year, he captured yet another lord from Motul de San Jose (Sassi 1992).

The Main Plaza at Dos Pilas is located on the west of the site; most of the construction on this group was overseen by Ruler 1. The fortifications on the Main Plaza (Figure 3.3a) include interior and exterior walls enclosing the area, complemented by smaller walls further restricting access. Stones were taken from edifices to construct the wall segments, for example Structure L5-1 was stripped of its façade. The outer wall

encloses 600 m, while the inner wall encloses 500 m. The wall thickness averages between 1.70 m and 1.80 m, with a height ranging from 0.86 m and 1 m (Houston et al. 1990). The east inner wall runs north-south, splitting Structure L5-56, connects with the corners of Structure L5-1, and continues north touching the south and northeast corners of Structure 17. There might have been a palisade over the long range structure encompassing the north of the plaza (Demarest and Houston 1990; Houston et al. 1990). On the west of the plaza, the wall runs north-south without bisecting any structures. On the south of the plaza, the wall runs east-west partitioning: Structures 31, 32, a plazuela, and a few small platforms on the southwest corner. The inner wall has a series of linear features connecting to the outer wall which appear to form killing alleys. The ceramics from the inner wall date to Late Classic (Houston et al. 1990).

The outer wall on the southern part of the plaza cuts across the ball court and Structures 33 and 35 (The Palace), and 37. The east, west, and north walls do not divide any structures. The corners of the hieroglyphic stairs on the steps of Structure L5-35 intersect the defensive wall. The ceramics from the test unit by this structure dated to Late Classic (Houston et al. 1990; Symonds et al. 1990). The outer wall has a baffled gate restricting access into the plaza (Demarest et al. 1991). The walls were made by piling up irregular sized stones held together with compacted clay (Houston et al. 1990). The main difference between the inner and outer wall was the latter had less worked stones taken from elite structures. This would imply the outer wall was built first and the inner wall came later. Structure L5-1 was probably used as a lookout tower. According to Houston (1990) the defensive system was supplemented by palisades, based on the walls' low

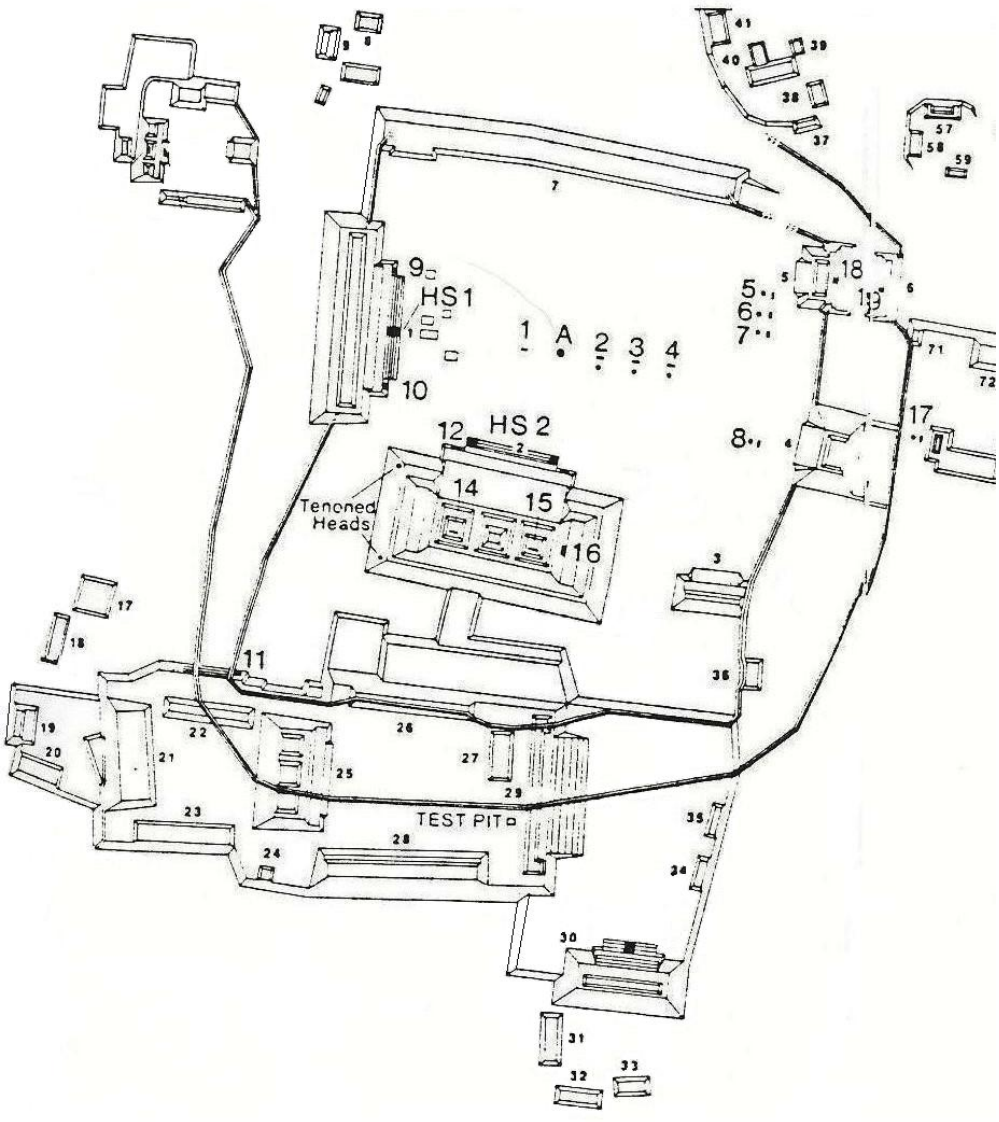
height, and lack of collapsed debris on either side of the walls. The defensive system served to control access into the structures, and space inside the wall (Demarest et al. 1995; Demarest et al. 1997; Demarest, Lopez et al. 1991; Demarest and Valdes 1995; Houston et al. 1990; Inomata 1995).

El Duende is located approximately 1 km east side of the Main Plaza (Figure 3.3b). This complex is located on the highest elevated part of the site. P5-7, El Duende, is the main temple of the complex measuring 20 m in height, and facing north. The defensive works in this district are slightly more complex with three sets of walls. The innermost wall was built directly over bedrock, measuring 1.5 m width, and 1 m in height. All of the ceramics from the test units in the vicinity dated to the Late Classic. The worked stones within the defensive wall came from the back wall of Structure P5-7. Although, there was no evidence of a palisade system, the investigators hypothesize that this wall was supplemented by one. There was evidence of a baffled gate serving as en entry point into the complex (Demarest et al. 1997; Escobedo et al. 1990; Inomata 1995). This appears to have been a desperate rushed attempt to defend the sacred temple (Demarest et al. 1997; Escobedo et al. 1990; Inomata 1995).

I suggest the Main Plaza fortifications were erected after Ruler 1 was exiled. The inhabitants must have feared *Nuun Ujol Chaak*, from Tikal, as he was still actively seeking his half-brother. Alternatively, the defensive walls might have been built by *Nuun Ujol Chaak* himself to prevent Ruler 1 and any of his allies from retaking the city. He might have set up camp at Dos Pilas after the successful takeover. Additionally, this must have presented an opportunity for other local centers to take advantage of Dos Pilas

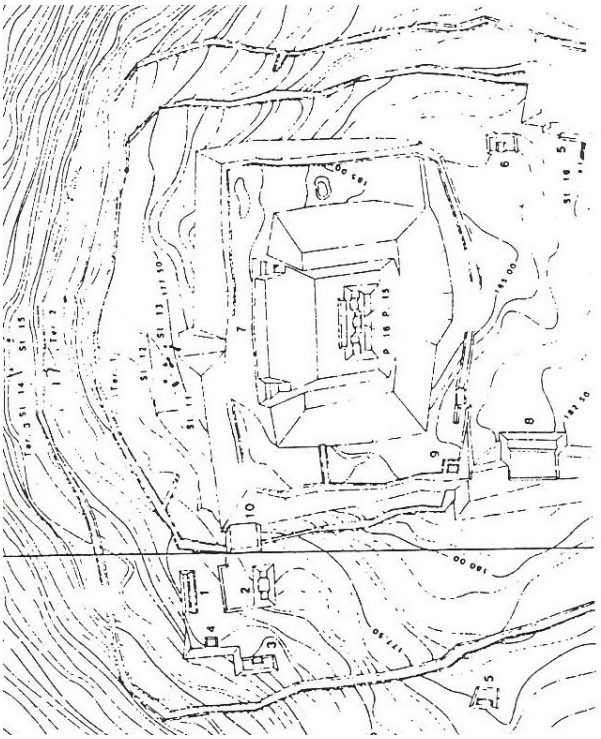
precarious position. The defensive works at El Duende protected the temple but did not have any dwellings within its refuge. This may have been done as punishment to the Dos Pilas citizenry, and to deny them commune with their gods. The fortification system might have started as one wall, supplemented later on by the two added rings.

Figure 3.3 (a) Dos Pilas: Main Plaza Fortifications



(Houston 1990)

Figure 3.3 (b) Dos Pilas: El Duende Fortifications



(Houston 1990)

The Dos Pilas political control over the Petexbatun region was successful until the capture of Ruler 4 by Tamarindo in A.D. 761. It is possible that Tamarindo made an alliance with another subjugated site in the region to overthrow the Dos Pilas dynasty. It should be noted that seven days after the attack on Dos Pilas, an "axe" event took place at Tamarindo. It could have been retaliation by the Dos Pilas elites or by another polity trying to take advantage of an open window of opportunity (Houston 1987, 1993; Houston and Mathews 1985; Martin and Grube 2000; Mathews 1991). Ruler 4 is not mentioned again at Dos Pilas or anywhere else. It is at this time, the surviving Dos Pilas

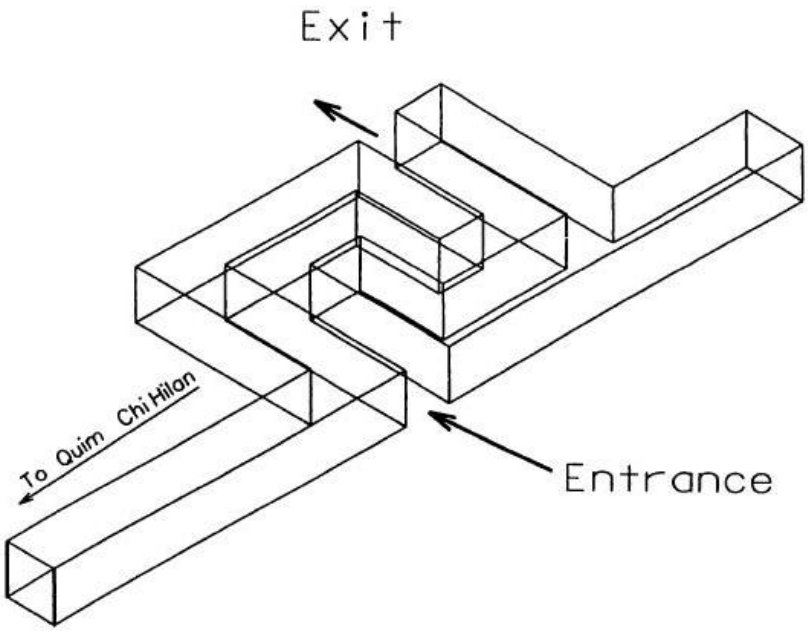
elites migrate to their twin capital of Aguateca. Several sites benefited greatly from the fall of Dos Pilas, among these are Itzan, Cancuen, and Machaquila.

Rural Fortifications

Fortifications were not exclusive to large sites in the Petexbatun. Numerous villages exhibited a form of defensive feature. The village of Quim Chi Hilam is situated 1.5 km north of Aguateca (Van Tuerenhout 1996). The site was first investigated by Inomata (1990) and his survey crew while they were mapping Transect I (Inomata 1990, 1995). This village is associated with Aguateca (Demarest et al. 1997; Van Tuerenhout 1996). Quim Chi Hilam has a total of 29 structures divided by a wall (Van Tuerenhout 1996). The defensive wall lies 400 m south of the structures at the site. Part of the wall is shaped in the form of a T. The feature runs north-northeast for 650 m running alongside the escarpment. The wall changes direction running east-west with a length of 150 m, with the top of the T ending at 14 m below the escarpment edge (Van Tuerenhout 1996). The wall measures 1.25 m in height, 1 m in width, and encloses 10 hectares. There is a baffled gate, a “maze-like” feature, which served as an entrance point, and a killing alley (Figure 3.4). Remnants of wattle-and-daub were found adjacent to the gate suggesting it was supplemented by a palisade (Van Tuerenhout 1996; Van Tuerenhout et al. 1993). A rectangular platform was investigated near the gate; it may have functioned as a possible lookout tower. Seven agricultural terraces were noted along the escarpment. The walls at the site protected the laborers who produced the food surplus, which supported the populace at Aguateca. Three sinkholes were mapped west of the site (Inomata 1990, 1995; Van Tuerenhout 1996). Excavations at the site, and its baffled gate yielded Late

Classic sherds (Van Tuerenhout 1996). Quim Chi Hilam's defensive wall was built in a similar style as Aguateca's, with vertical blocks for the base lines (Demarest et al. 1997). The site location occupied a critical defensive point, as it would have blocked attacks coming from the north, and below the escarpment (Inomata 1995). Although, attacks coming from lower ground would not have a high success rate. The site was abandoned ca. A.D. 800 (Demarest et al. 1997; Van Tuerenhout 1996).

Figure 3.4. Systematic Reconstruction of Quim Chi Hilam Baffled Gate

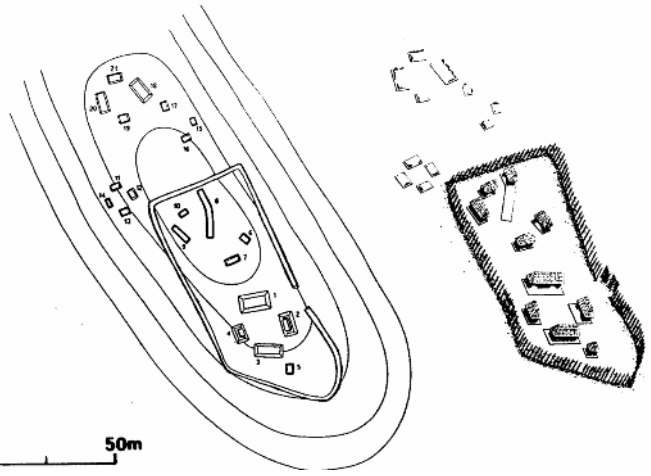


(Modified After Van Tuerenhout 1996)

Cerro De Mariposas (Figure 3.5) is located west of Aguateca on a steep hill. The defensive wall enclosed Structures 1 through 10, out of a total of 21 structures. The wall runs for 220 m, with a 5 m opening serving as an entry point. The enclosed structures appear to be elite residences. The residential settlement dates to the Late Classic. Its

defensive feature was likely built towards the end of this phase (Demarest 1995; Demarest and Valdes 1994; Inomata 1995, Tuerenhout 1996).

Figure 3.5 Cerro de Mariposas



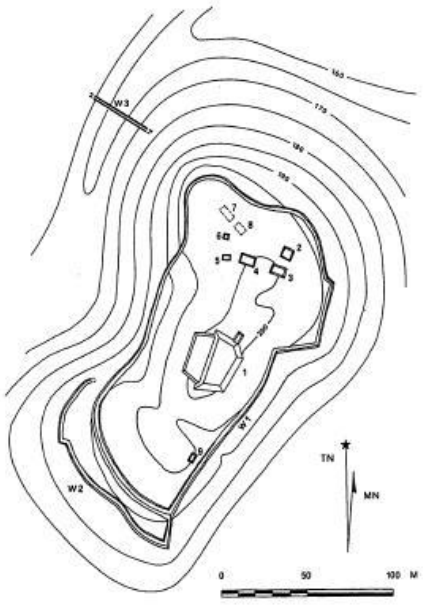
(Inomata 1995)

Cerro De Refugio is situated 600 m southeast from Cerro De Mariposas. It should be noted that there were no structures found at the site, but it was categorized as a possible fort or perhaps ritual space. A feature was documented consisting of a large uplifted piece of bedrock with a large space below it. This opening was divided by a wall reaching up to the ceiling (Inomata 1995:99).

Cerro De Cheyo (Figure 3.6) has nine structures. It is situated within close proximity to Cerro De Bananas. Cerro De Cheyo has defensive walls surrounding its settlement. The wall was thicker on the southern part; this may have been due to a gentle gradient on the escarpment. On this location the wall measured 2.5 m high, and 5 m wide (Inomata 1995:101). The wall runs for 500 m enclosing the hilltop with a height of 15 m. In steeper areas, the wall has a height of 3 m. Structure 1 was the largest edifice found at

the site. It may have functioned as a temple. As conflict occurred at a higher frequency, this temple may have doubled as a lookout tower (Inomata 1995). The wall at the site is one of the largest defensive features in the Petexbatun area. Ceramics from this complex dated to the Late Classic. A 40 m long wall lies at the base of the gorge, with a height ranging from 1.5 to 3 m (Demarest et al. 1994; Inomata 1995). One of the burials found consisted of a bound individual (Demarest et al. 1997; Wright 1994).

Figure 3.6 Cerro de Cheyo



(Inomata 1995)

Cerro De Bananas is located 200 m south of Cerro De Refugio. There are a total of 36 structures within the site. A low stone wall surrounds the settlement (Demarest et al. 1994), although Inomata (1995) did not encounter this feature during his

reconnaissance of the site. The defensive wall runs for 235 m surrounding the hilltop settlement, with evidence of a palisade, and a killing alley (Demarest et al. 1997). Inomata (1995) believes this group to be part of the Aguateca polity. On the contrary, Demarest (1994) suggests the inhabitants of Cerro De Bananas were autonomous at one point, and shifted their allegiance to the Aguateca polity once warfare became too dangerous in the region (Demarest et al. 1994).

Cerro de Miguel is located west of Cerro de Mariposas. The site displays a similar pattern to sites located in the northern lowlands. Fourteen structures were densely packed within the defensive wall. The wall runs for 250 m, with a width ranging from 1.5 to 2 m, and 0.50 m in height (Demarest et al. 1997).

Cerro De Yax consists of two groups, one on the top of the hill, and another on the slope. The hilltop cluster has 14 structures and a defensive wall bisecting eight of the structures. The group on the slope has 10 structures without the benefit of a defensive feature. The measurements of the wall range 1.5 to 2 m wide, and 0.5 m in height (Demarest et al. 1997).

Cerro De Che is a small walled hilltop complex located 450 m west of Cerro De Yax. There are a total of 21 structures. Out of these, only four are located within the defensive feature, two structures are cut across by the wall. The rest of the dwellings are dispersed outside of the barrier. Group A has 11 structures located at the bottom of the slope with a few fortifications. The investigators were unclear as to the relation between this complex, and the hilltop settlement. The barricades from both settlements measure 1

to 2 m wide and 0.50 m high. Cerro De Che's wall runs for 190 m, and Group A's barrier is a 135m long (Demarest et al. 1997).

All of the above villages are located in the Petexbatun area and are situated on hilltops, which would allow their inhabitants to take advantage of the natural elevation for defensive purposes (Demarest et al. 1997). Most of these communities were fortified with walls enclosing small household structures, as well as agricultural terraces. The latter implies a growing concern with protecting food production areas.

All the small hilltop settlements discussed are located on the same escarpment due west from Aguateca. It was likely that these were satellite communities, and at one point may have been under the allegiance of Dos Pilas and or the Aguateca polity. Once Dos Pilas fell, the elites relocated to the already existing twin capital: Aguateca.

Terminal Classic

Aguateca was discovered by Jesus Segura in 1957, he was a worker of the Petty Geophysical Company conducting surveys in the region (Graham 1967). A geologist visited the site in 1960 (Vinson 1960). Graham visited the site during the latter part of the 1950s to document the carved monuments, and produced a preliminary map. He noted the walls and their defensive functionality (Graham 1967). Dixon and Houston investigated the site, remapped the area, and also documented the fortifications (Houston 1987). Navarrete and Lujan stopped by the site, while they were conducting excavations at Dos Pilas (Navarrete and Lujan 1963). In 1991, Killion directed the Intersite Survey Petexbatun Subproject, and studied the northern area of the site (Killion et al. 1991). The

Quim Chi Hilam Subproject also investigated the same area (Van Tuerenhout et al. 1993). Inomata began an intensive study of the site in 1990 for four continuous years (Inomata 1995).

Aguateca is located 12 km southeast of Dos Pilas, located on a naturally defensive location, and 185 meters above sea level (Inomata 1995; Van Tuerenhout et al. 1993). The site (Figure 3.7) itself is very small, located on the top of the escarpment, and is bifurcated by a fissure, also known as a *grieta*, running northeast-southwest (Inomata 1995; Van Tuerenhout 1996). The *grieta* forms natural bridges within the site, its measurements range from 50 to 60 m deep, and 5 to 15 m wide (Inomata 1995). Along the site, there are smaller fissures running parallel to the main grieta (Inomata 1995). The site is divided into three districts based on topography, settlement, and its fortifications: epicenter, periphery, and wetlands (Inomata 1995). The epicenter is located to the west of the escarpment. It is an area protected by the chasm on the south and west, by the escarpment on the east, a large sinkhole on the north, and by wall segments (Inomata 1995; Van Tuerenhout et al. 1993; Van Tuerenhout 1996). This area has the most defenses at the site, and was burned once it was abandoned. All of the stelae, altars, and panels are situated in the Main Plaza, southwest of the Palace Group (Inomata 1995).

Occupation at Aguateca dates to the Chicanel period. The site has no major occupation during the Early Classic (Inomata 1995; Wolley 1992). The earliest stele at the site was erected in honor of Ruler 3 from Dos Pilas /Aguateca. Rulers 1 through 3 are referenced on carved monuments as overlords of the site (Sassi 1991). Ruler 3 is illustrated on Aguateca Stela 2, in his full military regalia standing over the captured and

bound Seibal king (Sassi 1991). After Ruler 4 was captured, the elites relocated to the more formidable and defensible capital. Ruler 5, *Tan Te' K'inich* ascended to power in A.D. 770, stela 19 and 7 depict Ruler 5 (Inomata et al. 2002; Mathews and Willey 1991; Sassi 1991).

Unlike Dos Pilas, the defensive features at Aguateca were planned and constructed with ample time. The walls were built during the later occupational period of the site, towards the end of the Late Classic (Inomata 1995). None of the fortifications bisect any structures. One of the outer walls runs parallel to the western edge of the gorge. Two perpendicular walls protected the Palace Group and elite residential area to the south. Access to this area was heavily restricted coming from the causeway. Two parallel walls running east-west divide the causeway. One of these barriers makes contact with the edge of the escarpment. This may have been done to cut off access to the Palace Group completely in times of danger (Demarest et al. 1997; Inomata 1995, 1997; Inomata et al. 1990). The walls east of the *grieta* were supported by a system of palisades and parapets, such as Wall M8-4 (Demarest et al. 1997; Inomata 1995:85, 1997). In some areas, the *grieta* was narrow enough to allow passage by placing logs to cross over. The parapets may have been commissioned to foil attacks via these tapered areas (Inomata 1995).

There are two walls running east-west on the slope of the escarpment. A third wall runs north-south near the base. An elongated wall runs parallel on the edge of the escarpment north of the Palace group. On this area, there are two walls on the slope of the escarpment. Farther to the north, there are a series of walls on a less dense area, possibly

protecting the northern border from potential attacks. On the south, an elongated wall runs west-northwest guarding the southern periphery with small gaps in between to allow entry, the largest break is 10 m before continuing on for an estimated 200 m. This wall guards the Granada Group and the West Plaza. Inomata (1995) suggested this wall was never finished since it ends abruptly, and does not appear to have any supporting palisade system (Inomata 1995). The wall systems at the site are quite extensive and complement the natural topography, and the *grieta*. It would appear the main goal was to protect the elite residences, and to fortify the weaker points.

The remaining elites from Dos Pilas retreated to this site, where they continued to exert political control over the region (Mathews 1991). The site was attacked and abandoned sometime ca. A.D. 810 (Inomata 1995, 1997; Inomata et al. 2002). The structures north of the causeway were burned. Inomata and Stiver (1998) excavated three residences, and ruled out the possibility that the charred strata and scattered remains were due to termination rituals. The rooftops collapsed under the heat of the fire taking down the artifacts that were stored up higher, and scattering them on the floor (Inomata et al. 2002; Inomata and Stiver 1998). The three dwellings belonged to non-high ranking elites. Artifacts indicate the occupants were scribes, artisans, and sculptors living with their immediate families (Inomata et al. 2002; Inomata and Stiver 1998). Aoyama (2006) suggested the scribe was also a warrior based on the quantity of weapons found in his room. Projectile points were also found in the room of the scribe's wife (Aoyama 2006). Johnston (2001) indicated that scribes were highly valued as captives. Scribes were usually part of the elite family, and served to promote the ruler, and his achievements. If

this was taken away, the ruler would lose both a relative, and a precious propagandistic venue (Johnston 2001). The defensive walls made contact with the front, and rear of one the buildings investigated by Inomata and Stiver without bisecting the building (Inomata and Stiver 1998). This suggests conflict was ongoing, and the elites were taking more precautions beyond the existing defenses protecting the group's boundaries. The entrance to the Royal Palace (Structure M7-22) was found with two rows of stone closing access to the entrance. The east room was used to store items prior to its desertion (Inomata et al. 2001). There is evidence of fire within the Royal Palace. The barricade obstructing the entrance was opened. The edifice was ransacked, and set on fire. The throne and a bench inside the Palace were destroyed. Termination rituals were carried out by the invaders (Inomata et al. 2001). The surviving residents took items that they could easily carry with them, and left everything else *in situ*. The fact that rooms were filled with objects in the Royal Palace indicates the residents meant to come back, once the danger was over. To date, there is no continued habitation anywhere in the site after the attack and its abandonment (Inomata et al. 2002).

Figure 3.7 Aguateca Site Map

(after Inomata 1995)

Punta De Chimino

Punta De Chimino is located on a peninsula on the western side of the Petexbatun lagoon. This site had an excellent location along a major trade route. Aguateca is due south, and Seibal located northeast of the site. The largest quantity of green obsidian documented within the Petexbatun Regional Archaeological Project was found at Punta De Chimino, attesting to its vast trade networks (Demarest et al. 1997). Mapping of the site was carried out by Inomata (1989) along with surface collections. Excavations at the site began in 1990, as a subproject of the Petexbatun Regional Archaeological Project (Demarest 2006;

Wolley and Wright 1990). The 1990 and 1991 seasons were co-directed by Demarest and Wolley (Wolley and Wright 1990). Demarest (1994, 1996) headed even more extensive investigations at the site. Research focused on households (Quezada 1996; Quezada et al. 1997; Morgan 1996), ballcourt analysis (Morgan 1996), a shrine (Morgan 1996), and agricultural research (Demarest 1996; Dunning, Beach, and Rue 1997). Occupation at the site dates from the Late Preclassic to the Terminal Classic (Demarest 1996, 2006; Wolley and Wright 1990). Most of the architecture dated to the Late and the Terminal Classic periods (Demarest, Castellanos, and Escobedo 1996). The site's ballcourt was investigated by Morgan (1996), and dated to the Terminal Classic. There are a total of 85 structures (Demarest 2006; Wolley and Wright 1990). Architectural similarities to Seibal were noted throughout the site: household residences, shrine, and ballcourt (Demarest 2006; Escobedo Ayala 2006; Morgan 1996). The site was most likely under the political control of Seibal (Escobedo Ayala 2006).

Punta De Chimino is a perfect example of a site whose defensive features evolved to suit the inhabitants' needs. (Figure 3.8) It is located on a narrow peninsula, with impressive defensive walls complemented by a palisade system, and three moats protecting three consecutive agricultural sectors (Demarest 2006; Demarest et al. 1997; Demarest, Castellanos, and Escobedo 1996; Dunning et al. 1991; Wolley and Wright 1990).

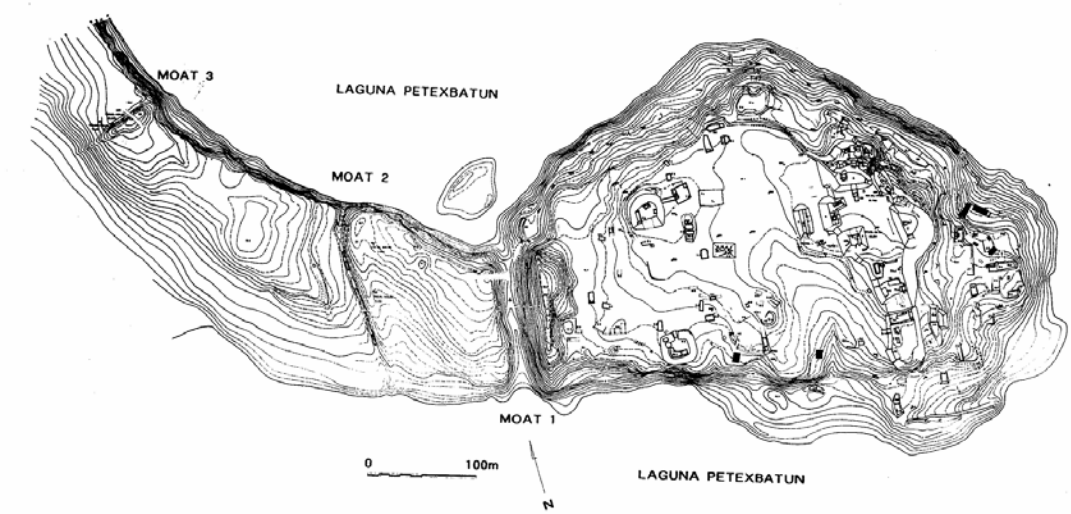
The innermost trench has a length of 140 m, 9 m deep, and 45 m wide. The adjacent wall measures 8 m in height. The middle trench measures 180 m in length, 3 m deep, and 45 m wide, supplemented by a 2 m high wall (Demarest et al. 1997; Wolley

and Wright 1990). The area between the innermost and the middle trench was excavated, and found to have boxed gardens (Demarest et al. 1997; Demarest and Escobedo 1997; Dunning and Beach 1994; Quezada et al. 1997). The third trench, closest to the mainland, measures 90 m in length, and 2.5 m wide, and augmented by a 1.5 m high wall (Demarest et al. 1997; Wolley and Wright 1990). The area between the middle moat and the trench closest to the mainland did not have any visible structures (Demarest et al. 1997).

Thirty-seven thousand cubic m of limestone and earth were excavated to make the innermost moat, out of these 13,000 cubic m were utilized to construct the adjacent defensive wall feature (Inomata et al. 1990; Wolley and Wright 1990). The combined height of the top of the wall in conjunction with the depth of the trench is 18 m (Wolley and Wright 1990). The base of the wall was built directly at the base of the trench, and prevented soil erosion. A post hole measuring 244 cm deep, and 20 cm in diameter was excavated in this area. This evidence suggests a supporting palisade system, and thereby making this defensive feature even more formidable. The construction fill within the innermost trench dated to both Late and Terminal Classic (Wolley and Wright 1990). Burial 1 was found within the dry fill of the innermost trench. Although, the human remains were fragmented due to the way it was buried with heavy fill atop, all the skeletal elements were present, indicating this was a primary context. Dental analysis indicates the male individual was 15 years old, at the time of death. The ceramics found near Burial 1 (not associated with the burial), but with the construction fill date to Late and Terminal Classic (Wolley and Wright 1990). It has been hypothesized that the walls at Aguateca stretched for another 3 km north. This would have reached the median point

between Aguateca and Punta De Chimino, suggesting they were not at war with each other, but fighting a common foe (Demarest et al. 1990). It is possible that after the siege and burning at Aguateca, its residents took refuge at Punta De Chimino. It was the only center to survive the widespread wars from A.D. 760 - 830 (Demarest et al. 1997; Escobedo Ayala 2006; Wolley and Wright 1990).

Figure 3.8. Punta De Chimino



(Demarest et al. 1997)

Southern Lowlands Summary

Settlement patterns shifted dramatically in this area, by the eighth century, inhabitants no longer resided near natural resources, but instead lived in an area that was easier to defend. Demarest attributes the main cause for the collapse of the Maya within this region to endemic warfare pushing its inhabitants to modify, and to plan new sites with extensive fortifications (Demarest et al. 1997).

In the Late Classic, outer walls seem to be preferred which are intended to protect a larger area. Four of the sites have a supportive system of palisades. There are three sites with killing alleys. Most of the sites are strategically located by water and at high elevation points, providing a more defensible location with access to major trade routes. Three of the sites have protected food production areas (Quim Chi Hilam, Aguateca, and Punta De Chimino). There is only one hastily built system (Dos Pilas; Table 3.1). All others appear to have been constructed with ample time, as the features did not bisect any structure nor did they strip nearby edifices of stones. It seems that the main difference between Late and Terminal Classic is that aside from Dos Pilas, and a few of the small walled villages, most of the fortifications appear to have been planned. A running theme throughout the Late and Terminal Classic is the inclination towards easily defended high elevation sites, which would only withstand short-term sieges. This is the primary line of defense, with walls as the secondary line of defense. There also seems to have been a transition from large fortified centers to smaller fortified sites. These were mostly the food production areas which supplied the population of the local centers. During the Late and Terminal Classic, there is only one site with a combined defensive system of moats and walls: Punta De Chimino. Walls are still augmented by palisades systems. The number of protected food production zones increases. High elevation seems to be preferred in relation to the proximity of natural water resources. Most importantly, there appear to be no hastily built systems. I interpret this as an ongoing precaution against a very common issue: the fear of attack or “landscape of fear” (Dunning and Beach 1994). The Terminal Classic period in this region is characterized by the revival of Seibal and its

large growing populations. It is quite possible that local inhabitants migrated into the site (Tourtellot 1988).

Table 3.1. Southern Lowland Fortifications

Regional Area	Estimated Construction Date of Defensive Features	Site Name	Site Description	Outer Wall	Inner Wall	Founded as a Fortified Site?	Hastily Built?	Natural Resources Located Inside the Wall
Southern Lowlands	Late Preclassic	Zancudero	Fortified Site					
		El Kinal	Fortified Site					
		La Pasadita	Fortified Site					
		El Tunel	Fortified Site					
		Argueta	Fortified Site					
		El Bayal	Fortified Site					
		Itzan	Fortified Site					
	Late Classic	Cerro De Bananas	Fortified Village	1		U	N	
		Cerro De Cheyo	Fortified Village	1				
		Cerro De Mariposas	Fortified Village	1		U		
		Cerro De Miguel	Fortified Village	1		U		
		Dos Pilas	2nd Petexbatun Capital	1	1	N	Y	N
		El Duende	Dos Pilas-Complex	1	1		Y	
		Punta De Chimino	fortress	1	1	P	N	Y
		Quim Chi Hilam	Fortified Village	1		U		
		Tamarindo	Petexbatun Capital			N		
		Yaxchilan	Regional Center					
		Cerro De Refugio	Fortified Tower or Religious Site					
	Terminal Classic	Aguateca	3rd Petexbatun Capital	Y	Y	Y	N	Y
		Arroyo De Piedras	Secondary Center	1		N		
		Cerro De Che	Fortified Village	1		U		
		Cerro De Yax	Fortified Village	1		U		
		Seibal	4th Petexbatun Capital	1		N		

The Central / Peten Lowlands

The Central Lowlands includes the Department of Peten in Guatemala, the eastern section of the Yucatan Peninsula, and the north and central parts of Belize (Adams 2005; Sharer 1994). The southern part of the Central Lowlands has both Tertiary and Mesozoic sediments, while the northern part of the central lowlands has Mesozoic and Paleozoic (Marshall 2006). The northern part of Belize is characterized by Am – Tropical Monsoon, the central part of Belize is Cwb – Tropical Highland Dry, and the south is Cfb – Tropical Highland – Wet (Marshall 2006).

The Peten area is characterized as Am – Tropical Monsoon, and Af – Tropical rainforest (Marshall 2006). The current rainy season in the Peten is from May through January, with the dry season occurring from February to May. On average, the annual rainfall is 2,000 mm, although during the dry season precipitation is typically 100 mm. The temperature ranges from 25° to 30° Celsius. The Peten is demarcated on the southwest by the Lacandon Range, a broad arc across Guatemala's southern Peten region towards the Maya Mountains of Belize (Marshall 2006). The karstic terrain in the Peten is made up of Cretaceous-Paleogene formations (Marshall 2006). The plateau in northeastern Peten consists of a hilly landscape, with elevation measurements averaging at 450 m. The western Peten is characterized by humid lowland region including alluvial plains, large swamps, and numerous lakes. The rivers in this area exhibit an irregular pattern due to the karstic drainage. The vegetation within the Peten is characterized as seasonal rain forest. The Maya Mountains consist of a fault-bounded highland area with granitic and meta-sedimentary basement rocks providing raw materials, such as granite, quartz, and limestone. The elevations in the Maya Mountains average 1,200 m above seal level.

On the northwest, the Central Lowlands is demarcated by the Candelaria River and the Mamantel River, both draining in the Gulf of Mexico. San Pedro River, a tributary of the Usumacinta River, drains into the Peten area. The Peten Itza Lagoon is located roughly in the mid point of the Peten basin. The Hondo River's main tributaries are the Rio Bravo originating in the Peten, and Booth's River which commences in western Belize. On the Belizean side, these tributaries form the Hondo River, and on the

Mexican side, the river is known as La Union River. On the Guatemalan side, this river is known as Rio Azul River. The Hondo River discharges into the Chetumal Bay on the Caribbean Sea. Two main tributaries make up the Belize River (The Mopan River and the Eastern River) which drains into the Caribbean Sea, near Belize City. The coastal area in northern Belize is characterized by low-relief shorelines (unlike the coast in the south east of the Maya Mountains), broad estuaries, and lagoons (Marshall 2006). Climate in northwestern Belize ranges from 24˚ to 26˚ Celsius, with the hottest temperatures around 32˚ Celsius (Brokav and Mallory 1993). The dry reason in Belize is from February to April. The rainy season is from June through September with annual rainfall averaging 1500 mm (King et al. 1992).

Evidence of Warfare in the Central Lowlands

Late Preclassic

During the Late Preclassic Period, there is only one known fortified site in the Central lowlands. Muralla De Leon is located on the basin of Lake Macanche within the Peten basin, southeast from Lake Peten-Itza, and east from Lake Salpeten. Occupation in the nearby Yaxha region dates to the Middle Preclassic ca. 700 B.C. to Postclassic (A.D. 1697; Rice and Rice 1980, 1984). Lake Sacnab, east of Lake Yaxha, was occupied from the Preclassic to the Late Classic (1000 B.C. – A.D. 900; Rice and Rice 1984). There are two small depressions directly due north from Lake Macanche, possibly two smaller lakes.

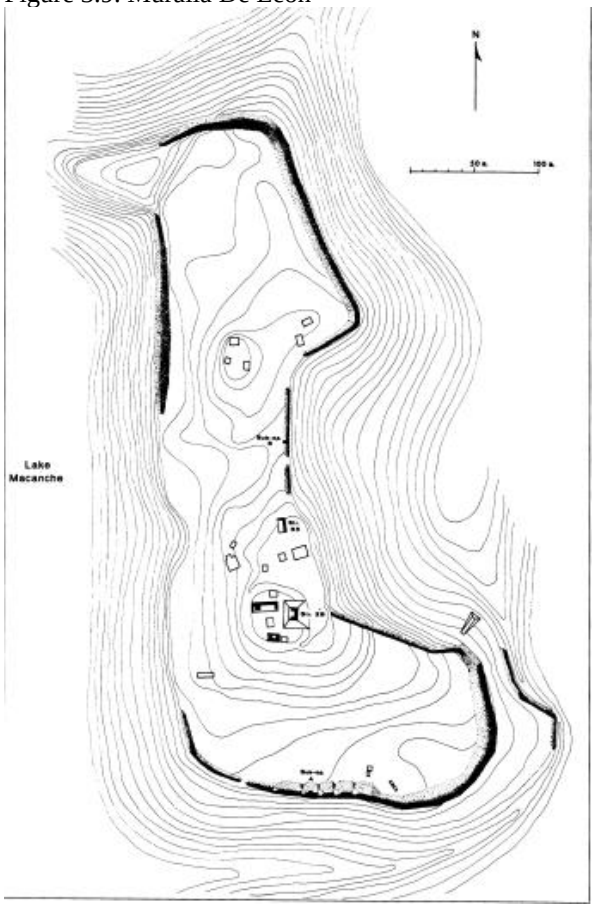
The site was encountered by the Proyecto Lacustre during 1979, while carrying out archaeological surveys in the Peten basin (Rice and Rice 1981). Muralla de Leon is situated on a plateau on the northeastern corner of Lake Macanche. The north and east areas of the site are protected by two smaller lakes, the west by Lake Macanche, and the south by a small river. The wall was constructed on the edges of a long mound, although there were sections where traces of the barricade could not discerned, possibly due to erosion (Rice and Rice 1981).

The entire site was fortified by a wall (Figure 3.9), with higher stone walls near areas low enough to be accessed by land, and supplemented with protective ditches. The wall measurements averaged from 0.50 - 4 m in height, and 1.50 - 10 m in width. Only the southern portion of the barricade might have supported an upper structure or a palisade, due to the wall thickness (Rice and Rice 1981). There were two test excavations on the wall itself, one on the northern wall segment, and a second test unit on the east section of the fortification (Rice and Rice 1981). These yielded a high number of pottery sherds dating to the Terminal Preclassic. Rice and Rice (1981) suggest that the wall might have been built sometime during the Late Preclassic. The researchers at this site concluded population at the site was too small to carry out a massive type of defensive construction (Rice and Rice 1981). Therefore, the labor must have come from a neighboring site or the basin, suggesting the local elites exerted political influence throughout the region (Rice and Rice 1981).

Interestingly, inside the wall complex a high number of Floral Park (75%) material was found versus the quantity (14.9 %) documented outside of the wall

settlement (Rice and Rice 1981). The Floral Park material dates to Terminal Preclassic, and it is believed to have originated at Guatemala and El Salvador in the Highlands (Rice and Rice 1981). This may have been a product of trade, or perhaps a local specialized group. Sheets (1979) suggested a possible migration from El Salvador region due to the volcanic eruption of Ilopango ca. A.D. 260. A Late Preclassic date for the construction of the defensive works implies a growing concern with local movement of people, perhaps from foreign areas, competition of resources, and ongoing border issues. There is no Early Classic occupation within the wall complex, suggesting the fortification was not successful in protecting the site's occupants. The Macanche basin exhibits a similar decline in occupancy during the Early Classic period. The next occupation sequence occurred during the Late Classic. Postclassic occupants took advantage of the already walled complex, to construct a temple within the walls (Rice and Rice 1981).

Figure 3.9. Muralla De Leon



(After Rice and Rice 1981)

Cival

Cival is situated in the northeastern section of Guatemala. Raymond E. Merwin, associated with the Peabody Museum of Harvard, was the first individual to record the site in 1911 (Merwin and Vaillant 1932). A preliminary map of the site was made by Graham (1984). Cival is 6.5 km from the regional site of Holmul. It is a subsidiary center within the Holmul region. Cival is positioned on the edge of an escarpment, west of the Homul River, strategically located on a trade route. There is a small pond south of the

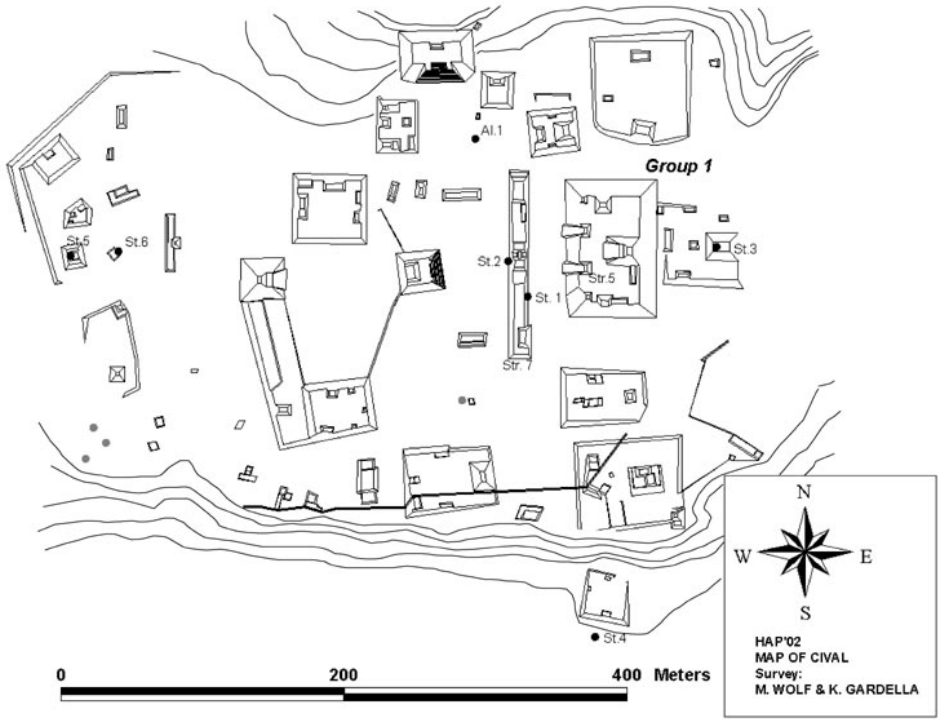
site. The Homul Archaeological Project (HAP), associated with Vanderbilt University, began in 2001 (Estrada-Belli 2002; Estrada-Belli et al. 2002).

Cival has an elevation of 50 m above the nearby *bajos*. A *tintal* swamp is located west from the site (Bauer et al. 2005). Occupation at Cival begins during the later part of the Middle Preclassic (ca. 700 – 500 B.C.). Group 1, situated on the eastern part of the site, has a Triadic group with a similar layout as E-Groups, documented in other sites, such as Nakbe, El Mirador, and Uaxactun. This particular ceremonial complex was constructed during the end of the Middle Preclassic. Structure 1 of the Triadic group has large flanking stucco masks, very similar to those found at Structure 5C-2 at Cerros (Estrada-Belli et al. 2004). Ceramics associated with this complex dated to both the Middle and the Late Preclassic (Bauer 2005; Estrada-Belli et al. 2005). A Late Preclassic ballcourt was documented northwest of Structure 2 (Bauer, Fejita, and Spector 2005; Estrada-Belli et al. 2005). A carved monument, Stela 2, was documented first by Merwin, and later on by Nikolai Grube (Grube 2003; Merwin and Vaillant 1932). Based on stylistics traits, Stela 2 predates other Late Preclassic carved monuments (Grube 2003; Estrada-Belli et al. 2003). Cival appears to have been a regional center during the Late Preclassic. The site was abandoned towards the end of the Terminal Preclassic, and power shifted towards the southern centers (Bauer 2005; Estrada-Belli et al. 2002).

On the southern part of the site, there is a defensive wall measuring 1 m wide, 2 m in height, and 300 m long (Figure 3.10). This feature abuts the rear of two small structures, and bisects two large basal platforms with superstructures. The cultural material within the test units excavated within the wall, date to the Terminal Preclassic

(Bauer et al. 2005; Bauer 2005; Estrada-Belli 2004). The wall was constructed atop a plaza floor dating to the Late Preclassic. The defensive feature has been tentatively dated to the Terminal Preclassic, although it is very possible that it was constructed during the Late or Terminal Classic. Future investigations will need to be carried out to date the wall more securely. One of the elite buildings was occupied during the Early Classic (Estrada-Belli et al. 2005). Other centers abandoned, roughly at the same time period as Cival, include El Mirador, Nakbe, and Cerros.

Figure 3.10. Cival Site Map



(After Wolf and Gardella 2001-2002)

Early Classic

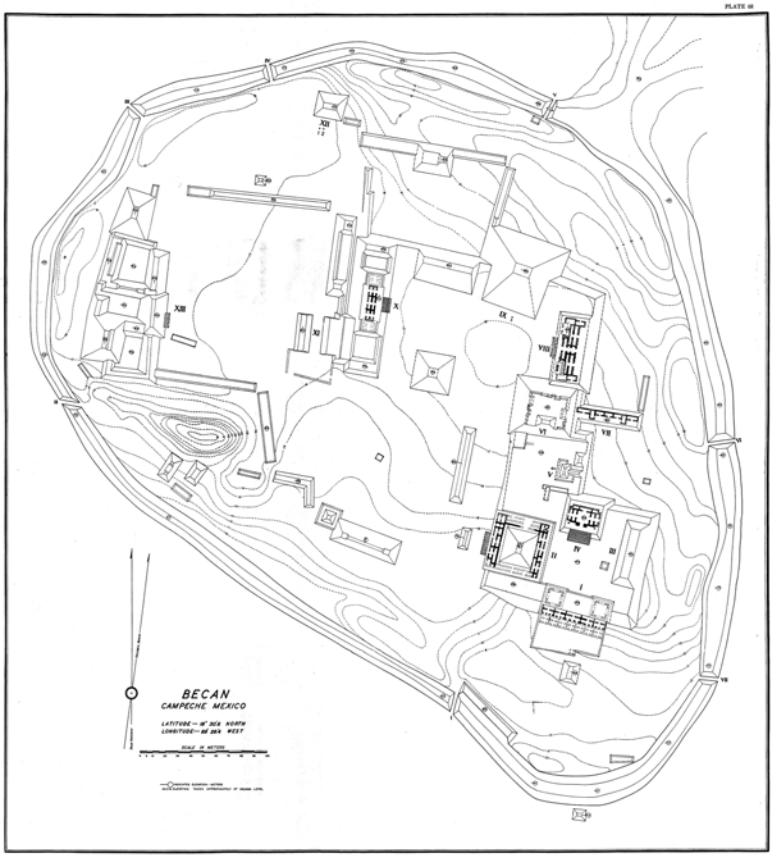
There are two known fortified sites in this time period. Both use a system consisting of earthworks, supported by causeways to control access to protected areas. Becan is located in the modern state of Campeche, Mexico, within the Rio Bec region, and with a latitude 18 30.6' N, and longitude 89 28.4' W (Ruppert 1943; Webster 1976). The site was reported to the Carnegie Institution in January of 1934 (Ruppert 1943; Ruppert and Denison 1943). The Third Campeche Expedition sponsored by the Carnegie Institution and under the direction of Karl Rupert and John Denison, began in February 20, 1934 and

ended on March 5 of the same year. The site was named after the moat that surrounds the site. Becan in Maya translates to “ravine or canyon formed by water” (Ruppert 1943:54; Webster 1974:8). Thompson (1954) speculated the feature was constructed during the Terminal Classic. Pollock (1965) posited the moat was dug to get access to construction material for the structures within the site. Ruppert and Denison (1943), and Armillas (1951) were among the solitary few scholars that accepted a defensive function. The Becan project began in 1969, financed by the Middle American Research Institute and the National Geographic Society. The project was first headed by Andrews IV, and later on by R.E.W. Adams during its 1971 season. In 1970, Webster began his test-pitting project to discern the date, and construction sequence of the fortifications (Webster 1974). Becan was remapped with a total station in 1999 - 2000 to include the “moat”, structures, and carved monuments (Campana Valenzuela 2005).

Becan’s first occupation period dates to the Middle Preclassic with Acachen ceramics. Pakluum ceramics were utilized during the Late Preclassic period. These two complexes had Peten and Pasion stylistic similarities (Ball 1974). In the Early Classic, Chacsik ceramics were a mix of both north and central characteristics. Sabucan complex were marked by southern elements. A transition from the Central zone to the Northern region is noted during the Late Classic, with the Bajuco complex. Chintok, also a northern complex, belongs to the latter part of the Late Classic. The Terminal Classic is characterized by Xcocom, a northern lowland ceramic complex. The ceramic sequence at Becan ends with Lobo, a Late Postclassic ceramic complex (Ball 1974; Webster 1974).

Becan is located on an elevated outcrop supplemented by defensive features (Figure 3.11). Among the fortifications is a ditch, not a moat, as it does not hold any water. The ditch has a total length of 1,890 m, with an average of 16 m in width, and 1.2 to 5.7 m deep (Webster 1974). The limestone at the base of the trench is very porous. As with Tikal's earthworks, it would need to be plastered in order to hold water. No traces of plaster were encountered on the excavations headed by Webster (1974). Large quantities of soil and stone were dug out to make the earthworks. The soil was used to build an interior rampart, adding an additional 5 m in height. This essentially functioned as a parapet, averaging 1 to 3.6 m in height, and 10 m wide. No traces of a palisade feature were encountered (Webster 1974). The stones were used to construct some of the structures within the site. A total of seven causeways controlled access into the site. These features are deteriorated, and suffered decay due to erosion (for detailed measurements see Ruppert 1974:55; Webster 1974:15). The architects respected the structures already present at the time of construction and did not overlap any of edifices. According to Webster's estimations, it would have taken 10,000 men a total of 40 days to construct the ditch and embankment (Webster 1974:97). There is one aguada within the defensive perimeter on the southwest of the site, near causeway II (Ruppert 1947; Webster 1974).

Figure 3.11. Becan Site Map



(After Ruppert 1943)

Aguada Carmelita is situated 500 m south of Becan. A cattail swamp borders the southern periphery of the site. A sacbe was documented extending from Causeway I, located on the southern part of the site. The sacbe cuts through the *bajo*, presumably leading towards Aguada Carmelita (Webster 1974). Additionally, two *bajos* are located on the north and northwest. Even in the rainy season, water from the inundated southern swamp does not come close to the ditch due to the local topography (Ruppert 1947; Webster 1974).

Eleven 2 x 2 m test units were set up within the ditch to investigate its construction methodology, construction date, and possible functions (Webster 1974). A total of 210 Late Preclassic sherds were found. This accounted for 1.8% of the ceramics within the defensive ditch (Ball 1974: Table 1). The Early Classic ceramic sherds totaled 617, accounting for 5.4% (Ball 1974: Table 1). Eleven additional units were set up on the parapet. The resulting ceramic analysis yielded 15% Late Preclassic, 5.8 % Early Classic, 71.9% Late Classic, and 7.3% unidentifiable sherds (Ball 1974: Table 3). As with Tikal's earthworks, retainer walls were documented on the inner side of the parapet abutting floors (Puleston and Callender 1967; Webster 1974). The earliest material from the retainer wall, in trench 21, dated to Early Classic (Ball 1974: Table 6; Webster 1974). The defensive ditch must have been constructed during the Early Classic, although other researchers accept a Late/Terminal Preclassic construction date (Adams 1977; Webster 1974). Causeways II and VII show signs of deliberate destruction (Webster 1974). This might have been done in order to cut off access from a possible incoming attack. The majority of the causeways had retainer walls on both sides. Interestingly, Structure XXII was found encased within the embankment, roughly 1.75 m below the surface. This edifice dated to Late Preclassic. The building was not dismantled; instead it was covered when the parapet was constructed. It is odd that the structure was not stripped of stone for other constructions, suggesting time was of the essence (Webster 1974). Webster (1974) suggested Structure XXI and XXVI might have been used in conjunction with the parapet, as supporting defensive buildings, and or to control traffic into the site. Both are located near the embankment, the first is located on the northeastern part of the site east

of Causeway V. The latter is situated on the southeastern part adjacent to Causeway VII (Webster 1974).

As discussed previously, a recent archaeological project at Becan was carried out (Campana Valenzuela 2005). The project's mapping data suggests that due to the local topography, the nearby *bajos* drained into the moat, and even into the central part of the site. Campana Valenzuela (2005) disagrees with Structures XXI and XXVI as having a defensive function, as hypothesized by Webster (1974); due to the fact the edifices face towards the site. Systematic sediments core samples would need to be taken from the *bajos* to figure out the transition from lake to swamp within the area, and correlation to the construction date of the defensive system. Only one 6 m core was taken from the south *bajo*, which is the "youngest" out of the three swamps (Webster 1974).

Tikal

Tikal, the largest known Maya site, is located in the central Peten. Tikal was located on an excellent trade route location. The site was discovered in 1848 by Ambrioso Tut, a *chiclero*. He contacted the Guatemalan government leading to a Guatemalan expedition, headed by Modesto Mendez (Sharer 1994). In 1853, the Berlin Academy of Sciences published the findings and drawings of the site. Gustav Bernoulli led an expedition in 1877. His team removed various carved wood lintels from the site, and took them to the Museum fur Volkerkunde in Switzerland. The first photographs and documentation of cultural elements were by Maudslay, during his visits to the site in 1881 and 1882 (Maudslay and Maudslay 1889). Maler, working for the Peabody Museum of Harvard

University, resumed investigations at the site during 1885 and 1904 (Maler 1911). The first map of the site was completed by Tozzer and Merwin, both employed by the Peabody Museum, in 1911 (Tozzer 1911). Morley paved the way for Maya hieroglyphic studies by recording both the monuments and inscriptions during 1914, 1921-1922, and 1928 (Morley 1937, 1938). Shook was undertaking excavations at Uaxactun (1926-37), a site located 19.5 km northeast of Tikal. He visited Tikal, and documented a few unknown features: Group H, and two additional causeways. The Tikal Project was undertaken by Shook in 1956, from the University Museum of the University of Pennsylvania (Shook et al. 1958). The project lasted for 14 years; Shook directed the first seven years, and Coe oversaw the final seasons. In 1970, investigations continued under the direction of Larios and Orrego, two Guatemalan archaeologists from the Instituto de Antropologia e Historia (Orrego and Larios 1983). Laporte in 1980 expanded excavations to include the Lost World (Adams 2005; Laporte 1988; Sharer 1994). The earliest occupation at Tikal dates to the Middle Preclassic, Early Eb phase ca. 700 B.C. (Coe 1962; Culbert 1977). Middle Preclassic deposits were documented in the Lost World; these included middens and specialized items (Ponce de Leon 2004). The earliest monumental architecture is found at the Lost World dating to the end of the Middle Preclassic (Laporte and Fialko 1995). Settlement size increased during the Late Preclassic (400 B.C. – A.D. 100), and Tikal was becoming a powerful site within the region (Harrison 1999).

The earliest carved monument is Stela 29 dating to A.D. 292 (Martin and Grube 2000). Tikal's Classic rulers referenced an ancestor, *Yax Ehb' Xook*, who presumably ruled ca A.D. 90, and began the dynasty rulership at the site (Martin and Grube 2000).

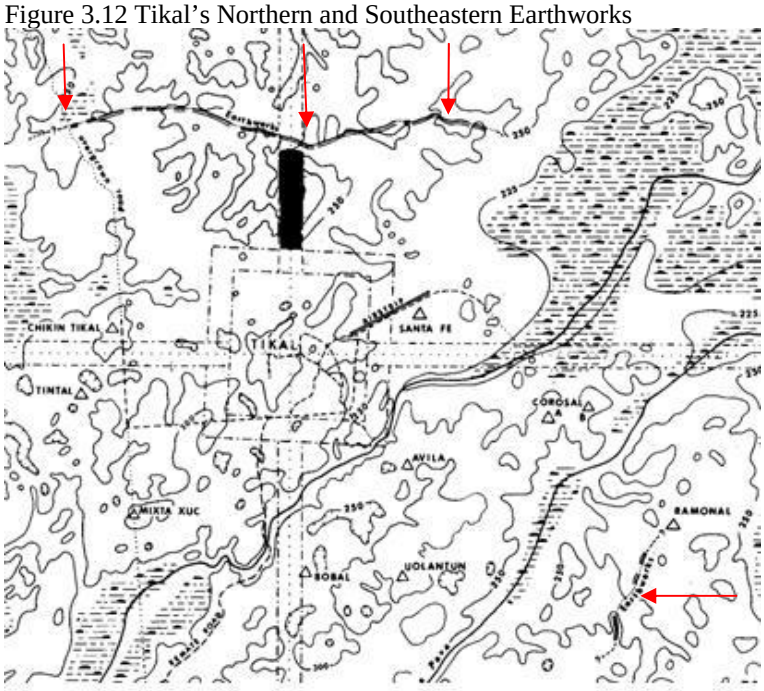
Moon Zero Bird was one of the earlier rulers of Tikal. The Leyden Plaque, an incised jadeite celt, illustrates this ruler standing over a bound captive on its front side. The other has a Long Count date of A.D. 320. This plaque may have originated at Tikal but was found during the 19th century in the Motagua Valley (Sharer 1994). Martin and Grube (2000) disagree with the Leyden Plaque. Instead they pose Lady *Une' B'alam*, Baby Jaguar, as the ascended ruler in A.D. 317 (Martin and Grube 2000).

Uaxactun, Tikal's neighbor, and Calakmul began to grow in status. Calakmul began to compete with Tikal during the Early Classic, and began the process of cementing alliances with other polities against Tikal; Uaxactun was one of the allies (Martin and Grube 2000). These three sites were approximately the same size during the Early Classic. As discussed previously, on A.D. 378, emissaries from Teotihuacan arrived at Tikal, accompanied by warriors. After the attack on Uaxactun, the site lost prominence, and became a lesser center under Tikal's domination (Martin and Grube 2000).

Four transects were set up on cardinal directions from the Great Plaza at Tikal by Puleston and Haviland. Each strip measured 500 m wide and 12 km long (Haviland 1969; Puleston 1974; Puleston and Callender 1967). The northern earthworks are located 4.6 km from the site center, and measure 9.5 km in length, with a few possible causeways, and retainer walls (Figure 3.12; Puleston and Callender 1967). The defensive feature is about an hour walking distance to the site core. There are two logwood swamps, also known as *bajos*, on the east and west of Tikal. Interestingly, both ending points of the earthworks disappear near the *bajos*. The swamp area is very difficult to traverse and

would make it extremely hard to come from that particular direction (Puleston 1967, 1974, 1983). It is possible that the swamps may have been lakes at one point (Cooke 1931; Sharer 1994). This suggests the ditch might have actually been a canoe-travel route. Although, the limestone itself is very porous, and unless it was plastered with stucco, the trench would not have held any water.

Figure 3.12 Tikal's Northern and Southeastern Earthworks



(After Puleston and Callender 1967)

Three test excavation units were set up on the northern earthworks to gather data about its construction date and possible functions (Puleston and Callender 1967). Artifact analysis indicated that this defensive feature dated to the Early Classic. One of the excavation units (B) revealed a raised area in the middle of the defensive trench, which might have functioned as a causeway. A wall was documented on the southern

side of the trench (Puleston and Callender 1697). There is a square platform located on the 4.6 km point by the earthworks. I propose this structure functioned as a watch tower and or to control traffic coming from the north into the area. Puleston noted the decrease of settlement after the defensive feature. Furthermore, groups tended to enclose plazas entirely further restricting access, for example, Structures NW-182/194, NE-90/100, NW-216/221, NW-225/243 and NE-108/113 (Puleston 1974:114). It should be noted that other researchers propose a Late Preclassic date for the Tikal northern earthworks (Adams 1977:131; Fry 1980, as quoted in Rice and Rice 1981:284).

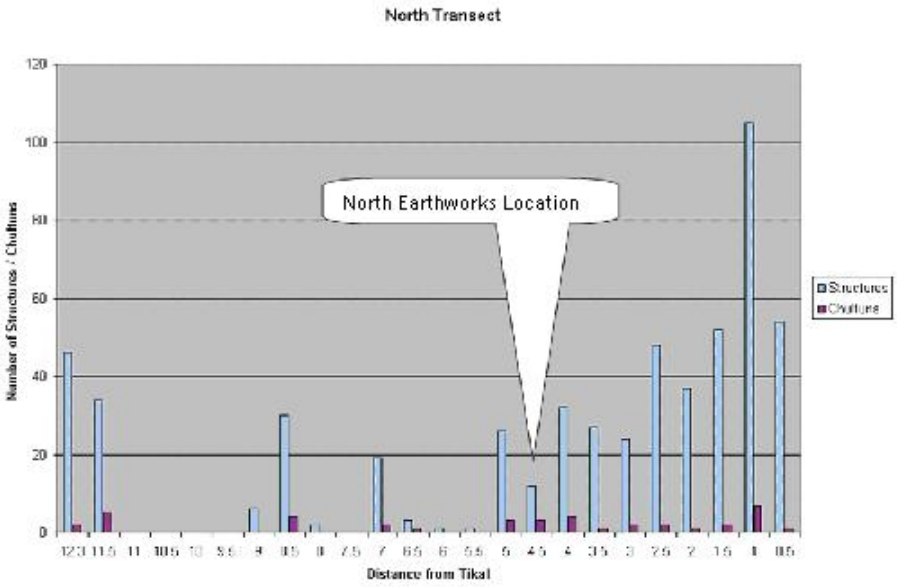
The southeastern earthwork is located approximately six kilometers from the site core and measures approximately 520 m (0.52 km). As with the northern ditch, the southern feature terminates on its north point on a *corozal* bajo and on the south on an *escobal* swamp (Ford 1981). There is a raised plaza with two structures less than 20 m west of the trench. The next structures were encountered roughly 60 - 80 meters east of the ditch. Settlement in the area west of the feature is extremely low. A possible aguada was documented 160 m east from the defensive barrier. Structure density peaks up after approximately 180 - 200 m (Ford 1981). Occupation from the Tikal-Yaxha area based on ceramics, dated to the Middle Preclassic (7%), Late Preclassic (18%), Early Classic (13%), Late Classic (51%), and Terminal Classic (11%) (Ford 1981: Table 5.2).

Webster headed a project during 2003 to investigate the earthworks at Tikal. His team was able to map previously missed sections of the feature, some towards the southwest of Tikal. The northern earthwork new measurements are 26 km long, enclosing 200 sq km. He suspects the feature may actually measure as long as 50 - 60 km.

Additionally, new structures associated with this feature were mapped on a survey strip measuring 250 m wide, and 12.8 km long. Webster now believes this feature was not used for military purposes, but was utilized for agricultural irrigation. He was awarded a second National Science Foundation grant to return for phase two of his excavations to prove or negate his hypothesis (Webster 2004). I believe that it was quite possible the earthworks could have functioned as both irrigation and defensive purposes.

Among the many questions to ask of warfare data is how far away was it safe enough to live from a defensive system? For instance, as already mentioned, Tikal's northern earthworks are 4.6 kilometers from the site center (Puleston and Callender 1967). There are continuous structures up to five km from the site. There is a cluster of twenty six structures after the defensive feature (Puleston 1983). As can be noted from Figure 3.13, the settlement decreases after 5 km, and is very scarce for another 1.5 km. There are two noticeable peaks, one at 7 km, and the other at 8.5 km, but there is no nearby center in this area. Jimbal, an important local center, is located at 11.5 km from Tikal, which may be the reason for the cluster of structures (n=80) towards the last kilometer of the north transect (Puleston 1983).

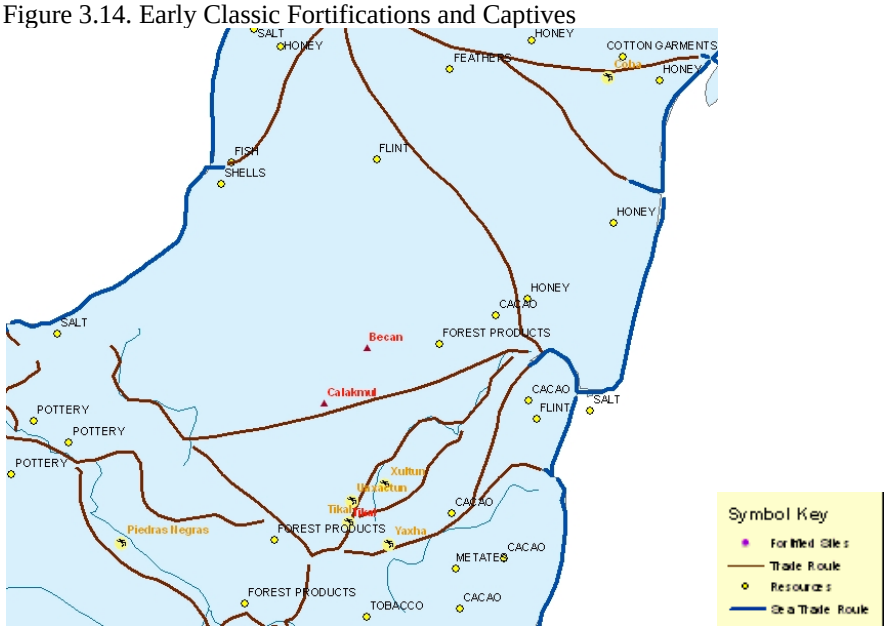
Figure 3.13 Tikal's Structures in Relation to the Earthworks



(Data for above chart from Tikal Report No.13:44-45)

Traces of conflicts between Tikal and Uaxactun include a deep shaft tomb below Structure B-VIII at Uaxactun. Within the burial, there were five individuals, two females, a child, and an infant. It should be noted that one of the females was pregnant. Stela 5 at Uaxactun depicts Smoking Frog, also known as *K'ak' Sih*, holding a *macahuitl* (wooden club with imbedded obsidian blades) and an *atlatl* (spearthrower) (Sharer 1994). During the 1930s, a mural was uncovered portraying a Maya lord with his body painted in black showing respect to a Mexican attired warrior (Martin and Grube 2000). At Bejucal, a nearby smaller center, a similar take-over episode is documented (Figure 3.14; Martin and Grube 2000).

Figure 3.14. Early Classic Fortifications and Captives



(Cortes-Rincon 2005)

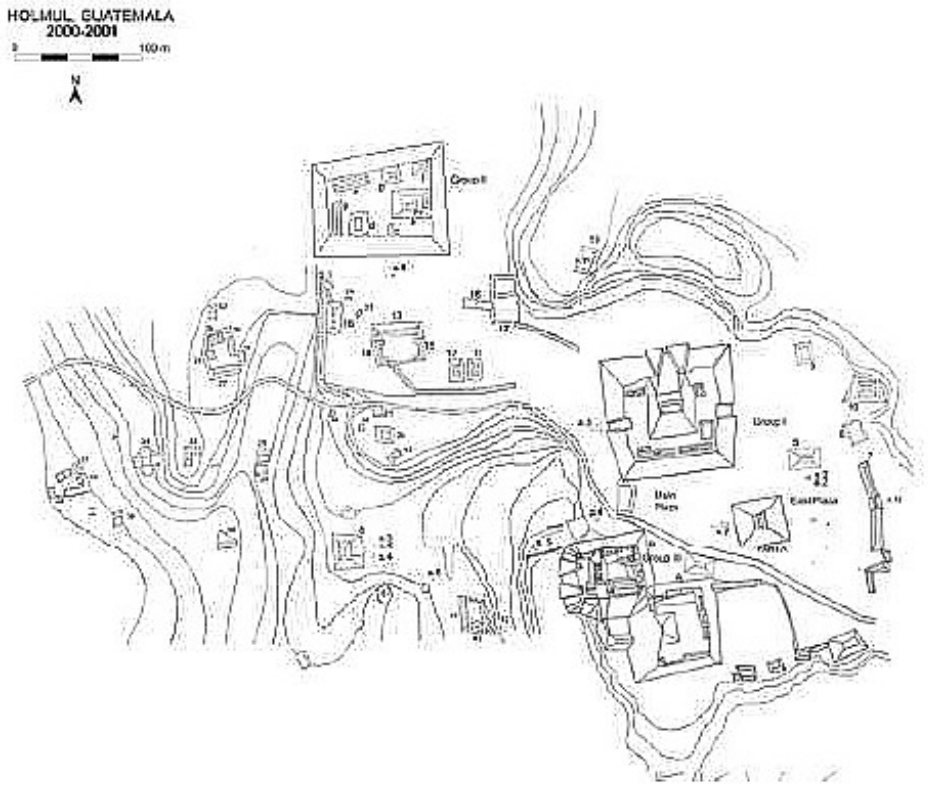
Late Classic

As mentioned in the preceding Late Preclassic section, Homul is located on the northeastern Peten, 45 km east from Tikal. The site was explored by Merwin in 1911. Merwin passed away after many trips to the area, he returned sick to the United States. His friend, Vaillant, continued his research, and produced a ceramic chronology for the site of Homul (Estrada-Belli et al. 2005; Merwin and Vaillant 1932). The Homul Archaeological Project (HAP) is sponsored by the Vanderbilt University, and co-directed by Drs. Estrada-Belli and Judith Valle. The site is positioned on a ridge with a 180 m elevation. It is surrounded by *bajos* on the west, south, and east. Occupation at the site spans from the Middle Preclassic until the Terminal Classic periods (Estrada-Belli et al. 2000, 2001, 2002, 2003, 2004, 2005; Merwin and Vaillant 1932). The site was chosen for

research due to its lengthy occupation, and to investigate Maya political development from a single site (Estrada-Belli et al. 2000). Ceramic analysis suggests a similarity to the Cunil complex, from sites such as northeastern Peten and from the River Valley in Belize (Estrada-Belli et al. 2005).

On the south corner of the plaza, Tokovinine investigated a wall that was presumed to have a defensive function (Figure 3.15). The feature cuts off access on the south area, and has large dimensions. Construction fill was documented on the southern part of the wall. The northern section of the wall abuts a plaza floor. The lower levels yielded a large quantity of Late Preclassic cultural material. The feature has been tentatively dated to Late / Terminal Classic until further investigations (Estrada-Belli et al. 2004).

Figure 3.15. Homul Site Map



(After Estrada-Belli 2001)

Mural 7 at the site of La Sufricaya, located 1.2 km west of Homul, has information tying this region to the Teotihuacan arrival in the lowlands during A.D. 378. Mural 7 describes three individuals, the first is *K'awiil* with a reference to a date of 08.17.01.04.12 (January 14, A.D. 378), as the arrival of *K'awiil* from Mutal (Tikal). Due to the date and Mutal indication, this is presumed to be a reference to the arrival of *Siyaj K'ak*, also known as the Teotihuacan ambassador, described at Tikal. He is also referenced as a lord of Uaxactun. He is associated with a change of rulership at Tikal, Uaxactun, Rio Azul, and El Peru, among others. The second individual is *Aj Wo*; according to Stela 5 at La Sufricaya, his date of ascension to the throne is A.D. 422. This

second figure is mentioned at Naranjo roughly 100 years later, as one of the rulers of Naranjo (Estrada-Belli et al. 2005; Grube 2003). Although, his name is slightly different: *Aj Wosal*, but this may refer to an ancestor (Martin and Grube 2000). The third figure is *Chak Tok Wayaab*, a Homul governor. Homul and Naranjo may have had political contact dating back to the Early Classic. I suggest that Homul shifted alliances to Naranjo after the political changes at Tikal. The site of Naranjo is located 20 km south of Homul. In Group III, at Homul, a ceramic vessel has a reference to the same personage from Naranjo (Estrada-Belli et al. 2005; Grube 2003). Similarly, a tripod plate in Building F was found associated with a burial. This vessel had a complete hieroglyphic text referring to the son of *K'ak' Ukalaw Chan Chaak* from Naranjo. *K'ak' Ukalaw Chan Chaak* ascended to the throne on A.D. 755, the first ruler of Naranjo, after the battle Tikal embarked upon against Naranjo on A.D. 744 (Estrada-Belli et al. 2005; Martin and Grube 2000; Merwin and Vaillant 1932). This might indicate that the elites from Naranjo sought refuge at Homul during the Tikal attacks on the site. When Tikal attacked Naranjo, they captured the ruler and his palanquin. Stela 28 at Tikal depicts the king of Naranjo as a captive. It is unclear if he was captured at Naranjo or elsewhere, as the prisoner is mentioned 128 days after the battle (Martin and Grube 2000; Sassi 1992). All of this political turmoil may explain why there was a need to erect a defensive feature at Homul.

Late Classic Epigraphic Evidence of Conflict

The epigraphic evidence suggests that on A.D. 695, *Hasaw Chan K'awiil* of Tikal, took down the son of the King of Calakmul, portrayed on Lintel 3 of Temple I (Boot 2002).

After this event, Tikal managed to regain power and control the trade routes and commerce. Stela 10 at Tikal dating to November 25, A.D. 724 depicts a Maya ruler standing with a captive behind him. The prisoner's torso is touching the ground with his arms and legs bound behind; his neck is arched at a very awkward angle. The name of the unlucky individual is unknown; the ruler is Curl Head (Sassi 1992).

Pulsiha is located in southern Belize, near the Maya Mountains. Pulsiha, Stela C, portrays a standing elite individual with a figure on the lower right corner. The stela was first documented by Gann (1927) during an expedition in British Honduras, sponsored by the British Museum. In 1929, the stela was moved to the British Museum. It currently resides in a storage area within the facility. The captive is wearing a headdress, and has a glyph within his headgear. The ruler of Pulsiha captured him on a war-related event ca. A.D. 613 (Wanyerka 2003). A small skeletal figure on the upper right part of the monument holds a glyph that reads "Four Youths" (Wanyerka 2003:102). This phrase has been documented at both Quirigua, and Copan, perhaps referring to the "Four Sacred Youths" (Wanyerka 2003).

Other Sites with Evidence of Conflict

Colha is located in northern Belize in the district of Orange Walk. The site is approximately 20 km from the Caribbean Coast and 47 miles from Belize City. This region is characterized by high quality chert; at least three levels of chert have been noted at the site (Hester and Shafer 1984; Shafer 1991). Settlers were drawn to the area due to the local ecology and for the procurements of resources (Hester and Shafer 1984).

Hammond (1973) drafted a preliminary map of the site, while directing the Corozal Project. Wilk (1976) gathered surface collections, which led to the realization that Colha was a lithic producing center (Wilk 1976; Hammond 1973). Hammond and Hester (1976) organized the first Maya Lithic conference in Orange Walk, where it was decided that they would co-direct a field project at Colha (Hester and Hammond 1976). The Colha Project began in 1979, co-directed by Hester and Shafer. The project lasted for 14 field seasons, and yielded a vast number of field reports, symposium papers, journal publications, honors theses, masters theses, and dissertation projects (Adams and Valdez 1980; Anthony 1987; Anthony and Black 1994; Buttles 2002; Hester 1983; Hester et al. 1979; Hester et al. 1982; Potter 1980, 1982; Sullivan 1991; Valdez 1987, 1994; Valdez and Adams 1982; see Buttles 2003 for a detailed Colha bibliography).

Occupation at Colha dates from the Early Preceramic (3400 – 1900 B.C.) to the Postclassic (A.D. 1150 – 1300). There was a marked increase in the local population during the Late Preclassic (400 B.C. – A.D. 100). A secondary peak was documented during the Late Classic (A.D. 600 – 850); (Anthony 1987; Buttles 2002; Eaton 1980; Hester 1982; Hester et al. 1979; Valdez 1987). The ceramic chronology for the site was developed by Adams and Valdez (1979a, 1979b, 1980a, 1980b; Valdez 1987, 1994a). The lithic sequence at Colha was set up by Hester and Shafer (Hester 1982, 1985; Hester and Shafer 1984, 1987, 1989; Shafer 1982a; Shafer and Hester 1979, 1983, 1986a). The material discussed in the following section pertains to the Late / Terminal Classic.

Operation 2011 – Feature 1, located on the southern part of the Main Plaza at Colha, was excavated during the 1980 field season. This excavation yielded a

phenomenal find of 30 beheaded individuals (Barrett and Scherer 2005; Eaton 1980, 1982; Massey 1989, 1994; Massey and Steele, 1982, 1997). The skulls were recovered from a pit located near the steps of the one of the elite structures within the Main Plaza. The pit measured 110 cm long, 80 cm wide, and 20 cm deep. It should be noted the cranial remains were found in two separate stratums delineated by Late and Terminal Classic sherds (Eaton 1980; Hester et al. 1980; Massey and Steele 1997; Steele et al. 1980). The upper layer contained the older adults, while the lower one encompassed the younger members. The human remains included 10 juveniles (ranging in age from six months to seven years), three young adults (two males, one female), eight adults (five males, six females, two unknowns), and four old adults (one male, and three females). There is a noted absence of teenagers within the represented group (Massey and Steele 1997: Table 5.1). The skeletal analysis revealed a varied degree of robusticity, cranial modification, and filed teeth, suggesting these personages were part of an elite group (Barrett and Scherer 2005; Massey and Steele 1997; Valdez and Buttles 2007). A total of 66.67% of the cranium showed cutting marks. The remainder 33.33% of the sample was too badly damaged for further examination. Two cervical vertebrae displayed evidence of deeper cuts than the rest of the samples, thus implying these two individuals were not successfully beheaded on the first try. One of the skulls had clear signs of fire damage. The pit did not have any signs of charred remains. Consequently, it must have been done prior to the interment (Massey and Steele 1997). The individuals were likely killed in one event, beheaded, all of the craniums were skinned, and buried in the pit. The

structure associated with the pit was burned, and not reconstructed or reoccupied (Eaton 1980, Massey and Steele 1997; Hester et al. 1980).

Operation 2012, a ceremonial structure, is located southwest from Operation 2011.. An accumulation of human remains was found at the base of the central staircase resting on the platform's ancient surface (Operation 2012 – Floor 1). This feature dates to the Terminal Classic. The remains displayed signs of disarticulation and defleshing. Additionally, some of the cranium showed marked evidence of burning. A total of 25 individuals were recovered by Potter (Potter 1980; Barrett and Scherer 2005; Buttles 2002). The skeletal analysis indicates that the individuals were male, and 12-18 years old. A similar burning episode might have occurred at this complex (Barrett and Scherer 2005; Buttles 2002; Potter 1980, 1982).

Interestingly, a Middle Preclassic burial also shows sign of disarticulation and defleshing (Barrett and Scherer 2005; McInnis Thompson 2005; Wright 1989). This interment was found within Operation 2012, Suboperation 5 (Wright 1989). A total of 17 individuals were identified, only 14 crania were present (seven adult male, one adult, one adult female, four young adults, two adolescents, and two unknowns). The cranial remains had signs of burning (McInnis Thompson 2005; Wright 1989).

Central Lowlands Summary

The main difference between the fortifications at Becan and Tikal is that the ditch is intended to protect the population within the site. In contrast, at Tikal, the earthworks seem to be intended for the protection of the agricultural production zone. It would imply

that the earthworks were used as a primary line of defense intended to slow down aggressors, and provide the defenders with time to get help from the population of the Tikal core. At the present time, there are no known fortified sites during Terminal Classic in this region. Table 3.2 lists all of the sites with fortifications throughout the central lowlands.

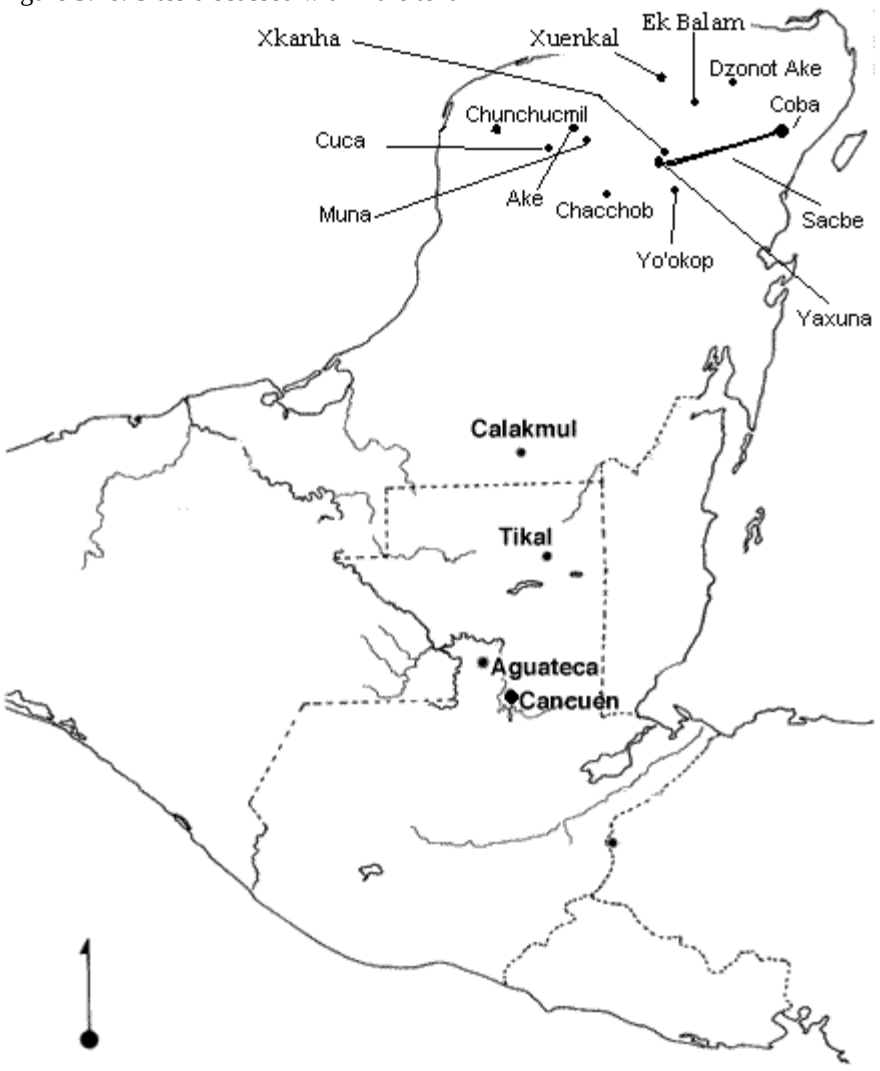
Table 3.2. Central Lowland Fortifications

Regional Area	Estimated Construction Date of Defensive Features	Site Name	Site Description	Outer Wall	Inner Wall	Founded as a Fortified Site?	Hastily Built?	Natural Resources Located Inside the Wall
Central Lowlands	Late Preclassic	Muralla De Leon	Fortified Elite Complex	1		P	N	
		Cival	Fortified Site					
	Early Classic	Tikal	Fortified Site			N		
		Becan	Fortified Site	1		N	N	
		Calakmul	Possible Fortified Site	1				
	Late Classic	Homul	Fortified Site					

The Northern Lowlands

Chapter 4 includes a detailed environmental background for the northern lowlands. In order to maintain a thematic flow of the history of warfare within the Maya region, I chose to leave the fortified northern sites within this chapter. This section will include Late and Terminal Classic sites that have strong evidence of defensive features (Figure 3.16). The only fortified sites that are currently known in this region make their appearance during the Late Classic Period. As far as I am aware, no defensive features have been documented from the Preclassic or the Early Classic. There are a total of two sites that have defensive features during the Late Classic: Ek Balam and Yo'okop. Ek Balam is discussed in further detail in chapter four, along with the other major regional centers in the northern lowlands.

Figure 3.16. Sites discussed within the text



(Cortes-Rincon 2004)

Yo'okop

Yo'okop is located in the Yucatan Peninsula. This frontier site is positioned between three different architectural zones, and their associated ceramic assemblages: Puuc, Central Yucatan, and Peten. The first published reference of the site was by Mason and Spinden (Mason 1927). Stromsvik and Pollock investigated Groups A and B during 1954 (Stromsvik et al. 1955). Walker and Wilson quickly perused the site in 1966. They both

returned to the site to carry out preliminary investigations and produced the first site map (Wilson 1974). The Instituto Nacional de Antropologia e Historia (INAH) conducted research at the site in 1998. Shaw and Johnstone began intensive archaeological work in 2000 through 2002 (Shaw 2000, 2001, 2002).

Middle Preclassic sherds have been documented at the site, mostly within Group D. The more defined occupation periods are the Late Preclassic through the Postclassic (Shaw 2001). Early Classic habitation is not well represented at the site due to a low number of sherds from this time period. Puuc is the predominant architectural style at the site. There is only one *aguada* at the site. Stela 3, located in Group A, refers to ruler 17 from Calakmul with a proximate date of A.D. 476, suggesting a close relation with that Peten site (Shaw 2000). Additionally, during the Late Classic, the Yo'okop elites had a close trading relationship with the Peten area. It is quite possible that this economic relation was due to Coba and their close ties with the Peten zone (Shaw 2000). In the Terminal Classic, a change in trade occurred, and Western Cehpech ceramics were highly utilized throughout the site. The transition of a new ceramic type marks a change in trading patterns, and possible alliances from the Peten to the northern Yucatan area. There is a noted absence of Sotuta ceramics, which are associated with Chichen Itza.

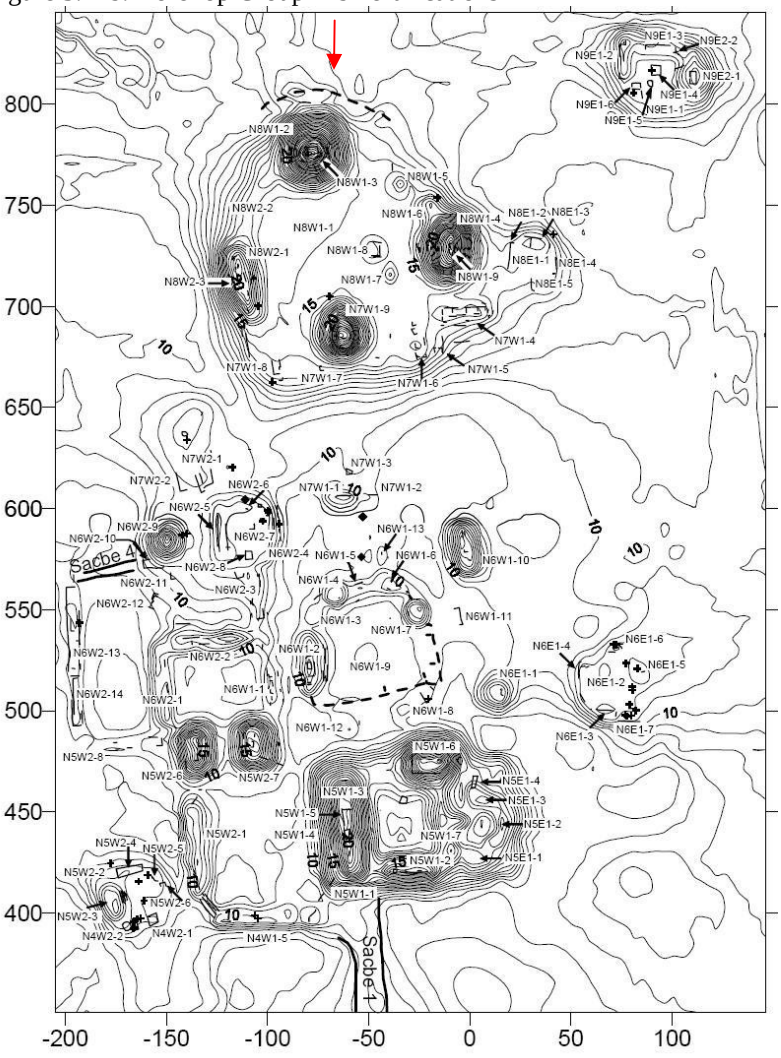
Fortifications at the site were documented in 2000 within Group B located at the central part of the site. Shaw (2000-2002) hypothesized Group A was the original seat of power situated on the southernmost point of the site. Power shifted to Group B during the end of the Late Classic. As mentioned previously, this transitional period includes the intrusion of Cehpech ceramics. Group B is enclosed by a series of low walls (Figures

3.17a; 3.17b) that might have supported a palisade system. A 30 m wall connects two structures on the southwestern part of the complex. A second wall restricts access on the eastern and southern side of the plaza. A northern barricade was documented in the 2001 field season (Shaw 2001). There were no new constructions built over the barricade and the features were not dismantled. There is not enough evidence to demonstrate Terminal Classic constructions within Group B, which may indicate the defensive features were constructed at the end of the Late Classic (Shaw 2000, 2001). Termination rituals were identified on Structure S3E1-5 during the 2002 field season (Shaw 2002). This structure is adjacent to the aguada. While fire has been documented within the edifice, it should be noted that this structure might have functioned as a sweat bath (Shaw 2002).

Figure 3.17a. Yo'okop

(Shaw 2001)

Figure 3.17b. Yo'okop Group B's Fortifications



(After Shaw 2001)

Terminal Classic

Muna

Muna is a third rank site located in the northwestern Yucatan. It is enclosed by two concentric walls, in a very similar style as Cuca. The walls enclose approximately 25 hectares. The inner ring at Muna resembles the fortification at Chacchob (Kurjack and Andrews 1976). Unfortunately, Muna has not been thoroughly investigated. Dahlin

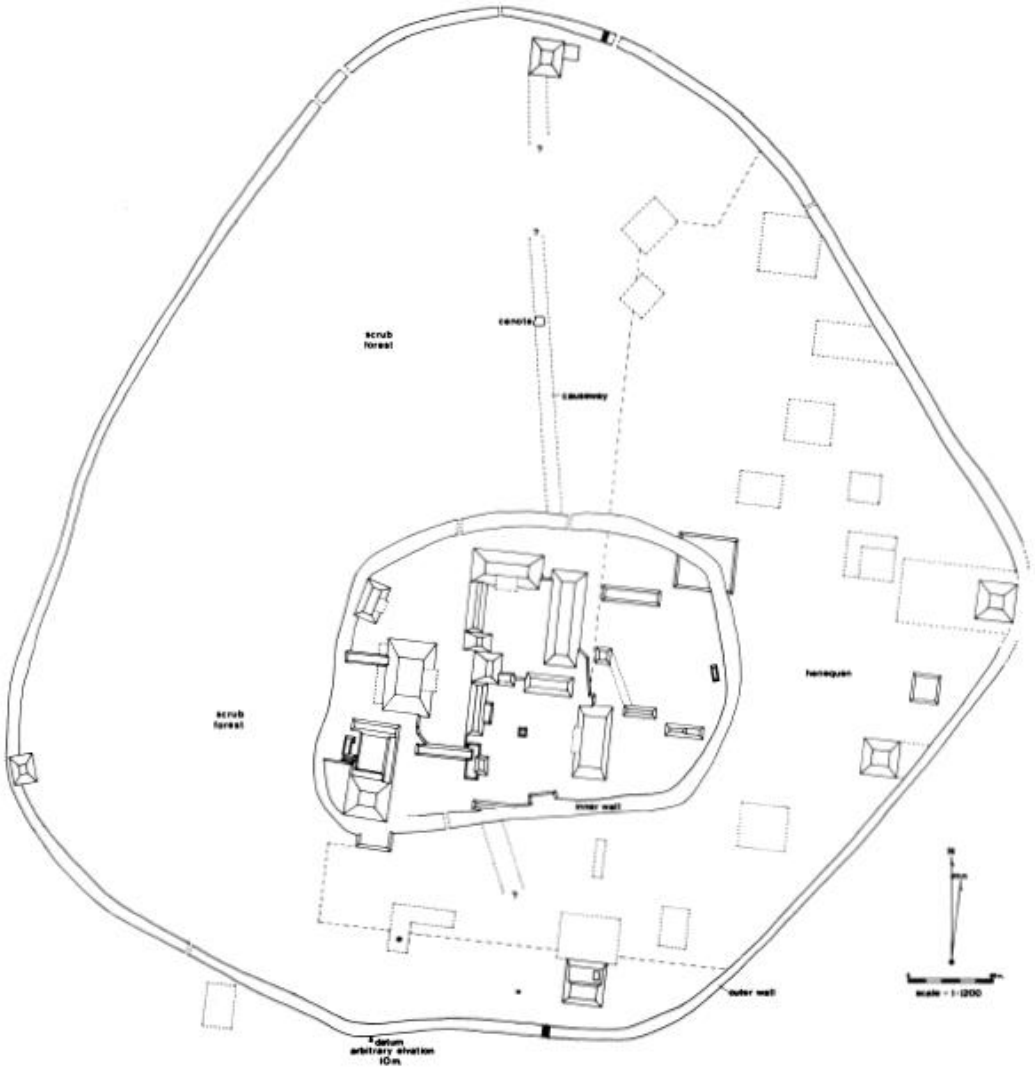
(2000) included the site in his report of northern lowland fortifications, but he did not visit the area. It is estimated that the fortifications date to the Terminal Classic, although intensive research needs to be carried out at this site.

Cuca

Cuca is located in the northwestern part of Yucatan, approximately 20 km northeast of Merida. The architectural style within the site is Puuc. The site is situated 2 km east of Hacienda Cuca. Due to its close proximity to the hacienda, the site has been stripped of stone. The southern part of the outer wall at the site has suffered the most. Andrews IV reported the site in 1942. Kurjack and Andrews carried out a preliminary survey at the site (Kurjack and Andrews 1976). Webster carried out investigations during 1976 - 1977 field seasons (Webster 1978, 1979). A number of stelae were documented at the site, although all of the monuments are uncarved. Two concentric walls protected the ancient inhabitants (Figure 3.18).

The outer wall is 2255 m long, 6 to 10 m wide, and 1 m high. The outer barricade enclosed 33 hectares. A cenote lies between the inner and outer ring. A causeway beginning on the edge of the inner wall leads to the cenote, and culminates on a pyramidal structure on the north within the outer wall. Two large structures abut the edges of the outer barricade. Two amorphous platforms were bisected by the outer blockade. Scrub forest can be found all along the west of the site within the wall boundary. There are roughly five entry points on the outer wall. These might have been ancient or new footpaths associated with the *milpas* on the southeast of the site. The sherds from test units on the outer wall are primarily Cehpech (Webster 1978, 1979).

Figure 3.18. Cuca



(After Webster 1978)

The inner wall measures 828 m long, 10 - 12 m wide, and 3 m high. The inner defensive feature enclosed six hectares. A large platform on the northeast was completely bisected by the innermost ring. There are two ambiguous buildings on the southern edge of the wall. It is unclear if these structures were severed by the wall construction or used as footing for the wall. Two edifices abut the edge of the wall, one on the northwest

(Structure VII), and a second (Structure VI) on the southwest (Webster 1979). Operation 4 investigated the junction between the rear of Structure VII, and the defensive wall. The inner wall, and associated plaza floor, near Structure VII, yielded a high number of Cehpech ceramic material (Webster 1979). Operation 7, on the southern section of the barricade, revealed a ramp on the inner face of the wall. Additionally, it is very clear that the fortification underwent several construction phases, and its first phase might have been plastered on its outer surface (Webster 1979).

The defensive rings postdate the structures within their confines, although, the ceramic sherds date to the same time period (Terminal Classic), suggesting the wall was erected shortly thereafter. It should be noted that a small quantity of Late Preclassic sherds were found within one of the trenches investigating the wall, mixed in with Cehpech material (Webster 1979). The inner fortification was far more massive than its outer component, and had more defensive potential. If the outer ring had a supporting palisade system, then it would have made a more formidable barricade. The wall was thick enough to support such a method. It is not clear if the site was occupied during Postclassic times, none of the sherds recovered date to this time period, although, Webster (1979) stated his belief on a Postclassic occupation.

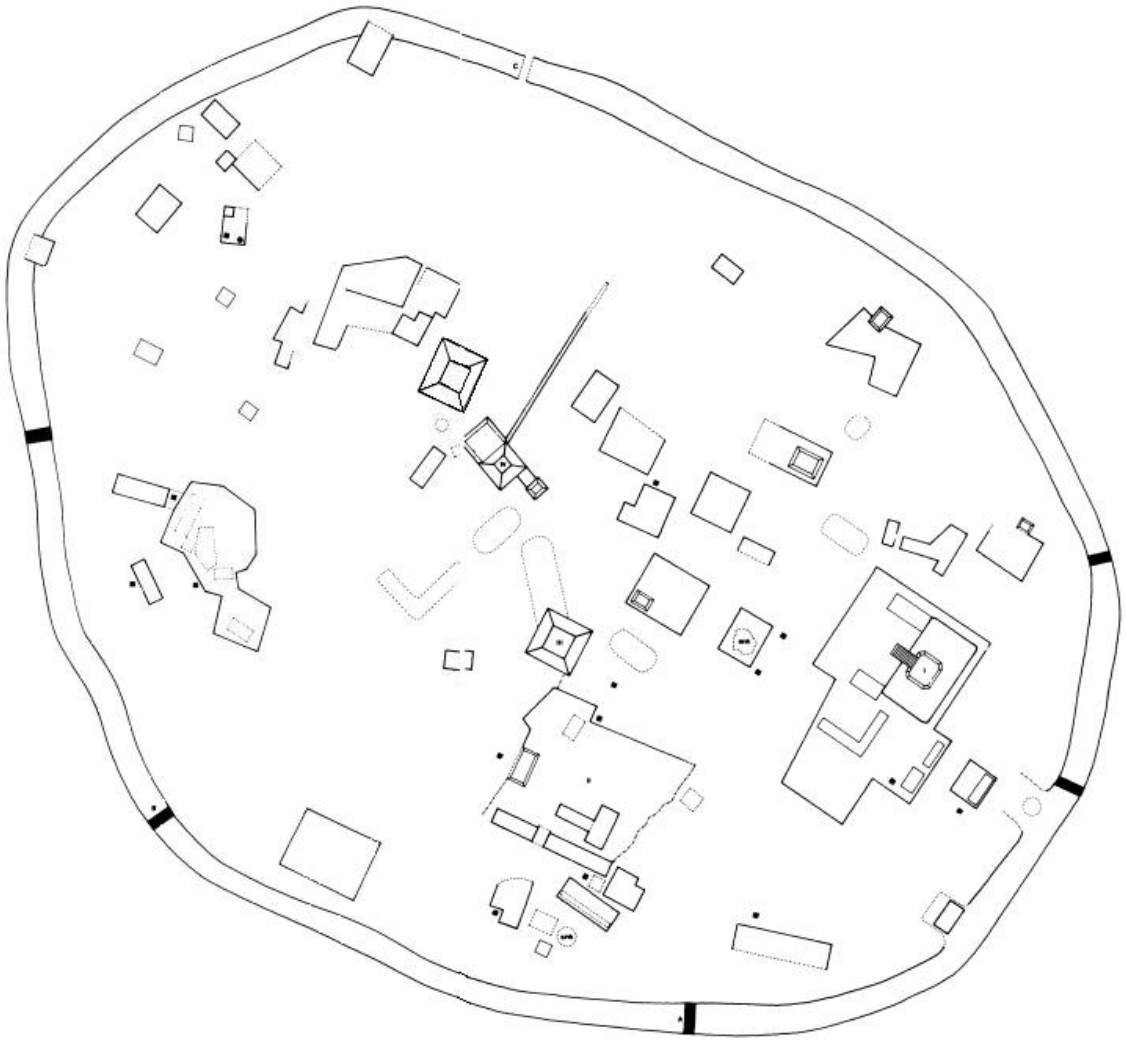
Chacchob

Chacchob is a small Puuc center. It was founded as a fortified site on an area that was previously vacant (Webster 1980). It is located north of the Puuc mountain range. Pollock and Stromsvik, associated with the Carnegie Institution of Washington, carried out

surveys, and produced the first site map (Pollock and Stromsvik 1953). Webster carried out test excavations at the site during 1976 – 1977 (Webster 1979). It is an elite settlement with a short occupation spanning from the Late to the Terminal Classic (Webster 1979, 1980). There are various sinkholes located within the walls (Pollock and Stromsvik 1953; Webster 1979). Structure I is the largest building within the wall. The rest of the edifices are scattered around the site, without any particular architectural arrangement. Most of the architecture consists of large low platforms. The site is surrounded by a defensive wall (Figure 3.19), which takes advantage of the local topography, and with three entry points (Pollock and Stromsvik 1953:84-85). The first gate is located on the north, the second on the south, and the third on the southwest. Each gate is approximately 2 m wide. The wall measures 1410 m in length, 10 m in width, and 2.5 m in height (Webster 1979, 1980). Only two structures were bisected by the wall, one on the northwest, and the second on the north. One of the test trenches (Operation 3) by the wall revealed a thin layer of plaster on the outer face of the wall (Webster 1979:95). The base of the wall was placed directly over bedrock; the upper unmodified slabs did not have any mortar (Webster 1979). Operation 5 also revealed plaster remnants on both the inner and outer facets of the wall, further supporting the theory that the wall was plastered (Webster 1979). No plastered floors were found within the site, which is rather interesting considering the wall was plastered. Most of the ceramic material (n = 7575) is from the Cehpech complex (Webster 1979: Table 4, 1980). The predominant ceramic type at the site is Puuc slate ware (Webster 1979: Table 4). Cehpech ceramic sherds were recovered from the test units investigating the wall. The site was abandoned during the

Terminal Classic and does not have a Postclassic occupation. There is no evidence of an attack on the site (Webster 1979, 1980).

Figure 3.19. Chacchob



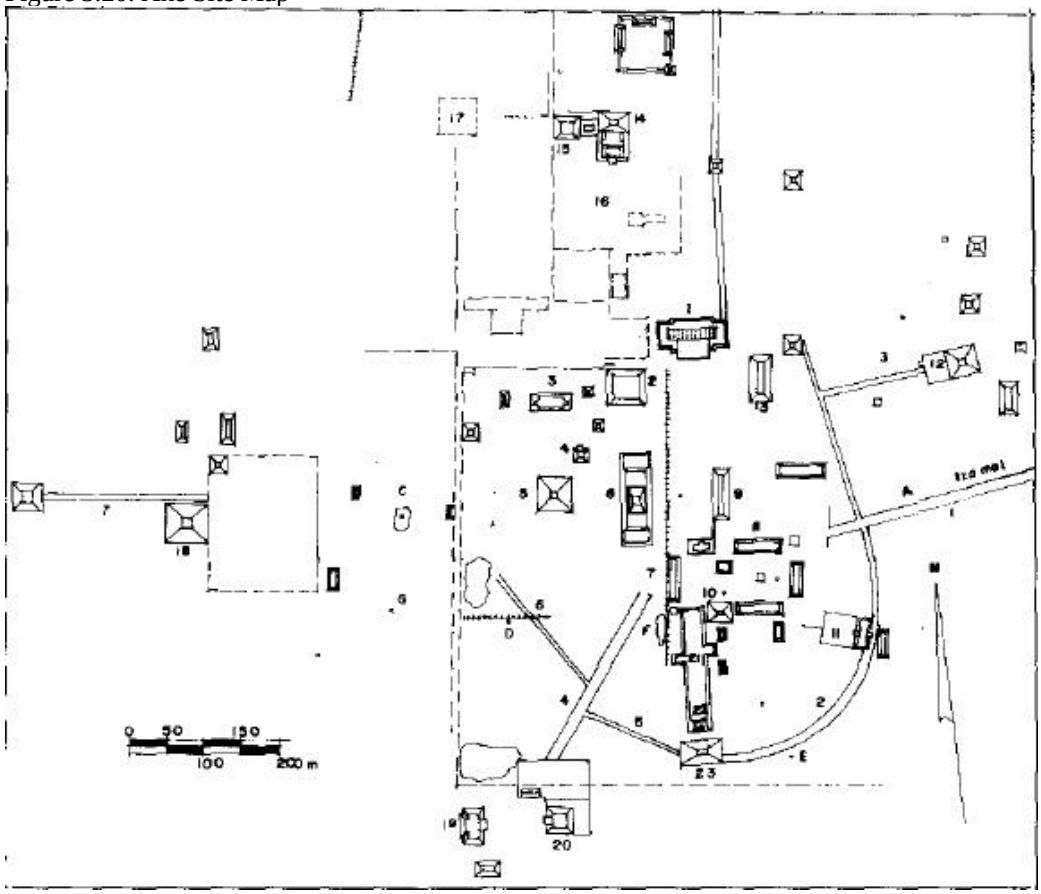
(Modified After Webster 1978)

Ake

Ake is a rank II center located on the northwestern Yucatan (Garza and Kurjack 1980). The fortifications (Figure 3.20) were first documented by Roys and Shook (1966). They

erroneously referred to the defensive walls as sacbeob (2, 5, and 6). This might have been due to the fact that the barricades were overlaid over the sacbeob at the site. The defensive works enclosed 25 hectares (Kurjack and Andrews 1976). Kurjack and Andrews (1976) carried out preliminary surveys of the site based on aerial photographs, and documented the defensive walls. Dahlin (2000) carried out a comparative survey of the majority of fortified sites in the Yucatan area. The site has occupation spanning from the Early Classic until the Terminal Classic. A 32 km sacbe connects Ake with Izamal, due southwest (Kurjack and Andrews 1976). Surface collections yielded Terminal Classic material. Modern constructions have affected the walls greatly (Kurjack and Andrews 1976). In order to date the walls, extensive investigations needs to be carried out. The most recent work that I am aware of was restoration of the main structures by Maldonado (1980, 1983, and 1989).

Figure 3.20. Ake Site Map



(After Roys and Shook 1966)

Montejo arrived at Xelha, situated in the eastern Yucatan, with an army and two ships in A.D. 1528. He had a lot of managerial issues with his soldiers, and thus set fire to his ships to keep his soldiers from murdering him, and escaping. He left a small number of men guarding their post at Xelha. Montejo took the rest of his men to inspect the local area. The majority of the towns they visited no longer exist. A few of the local towns pledged allegiance to the newcomers at Belma. After a two month rest at Conil, the Spaniards marched to Chauaca, which is located 16 km north from the modern town of

Tizimin. The inhabitants from Chauaca battled the foreigners, and retreated to Ake. At Ake, a battle ensued, and the Maya lost, with more than 1200 casualties. This was a key battle, as it ensured the allegiance of the majority of the local ruling elites (Idell 1957; Sharer 1994).

Chunchucmil

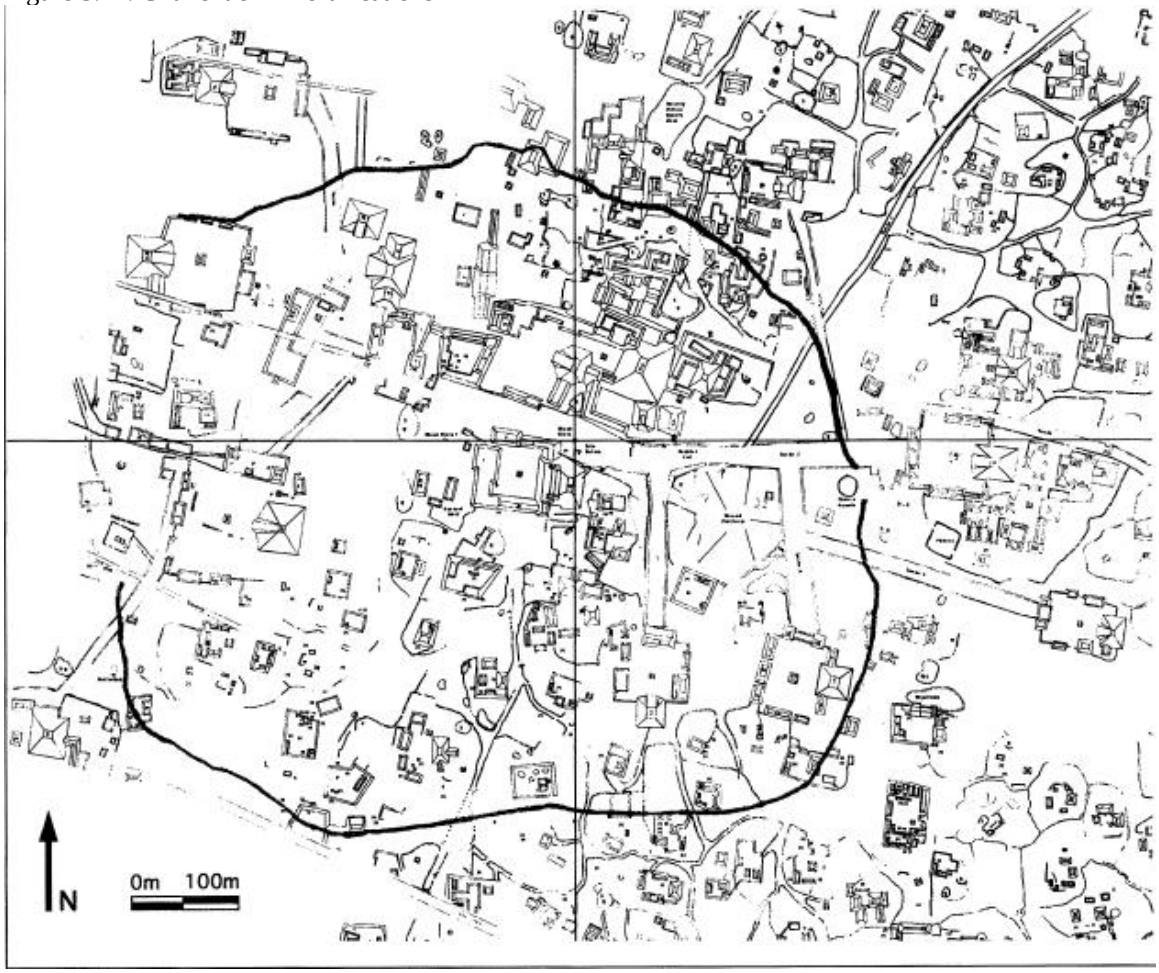
Chunchucmil is located on the northwestern point of the Yucatan peninsula, 68 km southwest from Merida, 27 km east of the Gulf of Mexico, and 25 km northwest from the Puuc hills. The Chicxulub asteroid is 45 km southwest from the site (Perry et al. 1995). The site was named after the nearby modern village of Chunchucmil. Chunchucmil is ranked as a site II (Garza and Kurjack 1980). Punta Canbalam is situated on the western Yucatan coast. This site was a local trading post under the economic control of the Chunchucmil elites. The Celestun Salinas were adjacent to the port, giving Punta Canbalam access to a highly valued commodity: salt. Celestun *Salinas* was probably the largest secondary salt source throughout Central America (Dahlin and Ardren 2002). A seasonally inundated swamp and savannah are located west of Chunchucmil and east of Punta Canbalam. These zones provided the ancient inhabitants with resources for their livelihood.

Vleck carried out the first investigations at the site (Vleck et al. 1978). The Pakbeh Regional Economic Project (PREP) had a total of eight field seasons beginning in 1993. The first season was headed by Bruce Dahlin. Other co-directors for subsequent seasons included Anthony Andrews and Traci Ardren. Occupation at the site began in the

Middle Preclassic until the Postclassic, although evidence for the last phase of habitation is very sparse. Chunchucmil was a prosperous gateway community within an economic trade network with a series of inter-connected nodes (Dahlin 2000; Dahlin and Ardren 2002). Architectural arrangement at the site consisted of three range edifices, a pyramidal building, and a platform in the mid point of the plaza. The majority of the residential groups were encircled by low walls, also known as *albarradas*. A series of sacbeob connected the groups within the site (Hutson 2004; Hutson et al. 2004).

Possible fortifications at Chunchucmil consist of a wall, which enclosed the site core. The wall measures 2 km in diameter, and has a 275 m gap on the western side. The feature encircles 45 hectares, with a maximum height of 1.5 m, and 3 to 4 m wide. The defensive feature bisects a few of the quadrangle groups, and five sacbeob. The blockade is crudely constructed, consisting of two parallel walls with unmodified stones and large boulders with rubble in the middle. The wall (Figure 3.21) surrounds most of the central zone. The barricades were never completed, and its stones were taken from nearby buildings, *albarradas*, and sacbeob. The site might have been under attack, and defenses were quickly set up, but the site was abandoned due to failure in its defensive techniques and or lack of adequate manpower (Dahlin 2000). Test units were placed by the wall to investigate its construction date. The data suggest the feature was built during Terminal Classic (Dahlin 2000). Dahlin reports ten sites in the northern plains of Yucatan that have some form of wall fortification, of which he believes about five were abandoned (Dahlin 2000).

Figure 3.21. Chunchucmil Fortifications



(After Dahlin 2000)

Yaxuna

Yaxuna is located on the central part of the Yucatan, 20 km southwest from Chichen Itza. It is a rank II site, as designated by Garza and Kurjack (1980). The *Chilam Balam* of *Chumayel* is a chronicle written during the Colonial period (Roys 1933). The author(s) of the document refers to Cetelac (Yaxuna) during the migration period of the Itza into the Yucatan (Andrews and Robles 1985; Robles and Andrews 1986). According to the account, the Itza had conflict with the Cetelac elites. This prompted the Itza to settle

northeast of Cetelac, at Chichen Itza. Additionally, the Cetelac ruler was forced to pay a levy (Ball 1986; Roys 1933, 1967).

Lindbergh, Kidder, and Ricketson carried out aerial surveys to investigate the numerous sacbeob at Coba. They wanted to follow each one to its final destination. Unfortunately, they were unable to follow the 100 km sacbe to Yaxuna (Bennett 1930). Bennett finally reached Yaxuna via land in 1930 (Bennett 1930). Villa Rojas continued investigations of Sacbe 1 (Redfield and Villa Rojas 1932). The Carnegie Institution of Washington began working at Yaxuna with investigations headed by Morley from 1932 to 1936 (Thompson, Pollock, and Charlot 1932). The Selz Foundation Yaxuna Archaeological Project began their field season in 1986 headed by Freidel and Gallareta (Freidel 1987). One of the primary objectives was to define the economic and political relation between Yaxuna, and its two neighbors: Chichen Itza and Coba (Freidel 1987). It was posited that Yaxuna was taken over by Coba, and thus became a node in its political hierarchy. Shaw (1998) proposed that Sacbe 1 was a statement by Coba to exert their political dominance over their newly acquired ally. The sacbe provided the Coba elites with direct route to Yaxuna. Shaw researched for evidence of three successful takeovers: Coba, Puuc, and Chichen Itza (Shaw 1988). Sacbe 1 was built some time during A.D. 700 (Freidel 1998; Shaw 1998). Yaxuna had a lengthy occupation spanning from the Middle Preclassic to the Postclassic (Ardren 1997; Freidel 1992; Freidel, Suhler, and Cobos 1992; Stanton 2000; Suhler et al. 1998; Suhler et al. 2004).

As mentioned previously, Yaxuna withstood a few attacks, and attempted takeovers. Ek Balam probably controlled Yaxuna prior to the Coba conquest, which

happened ca. A.D. 600 (Shaw 1998). Yaxuna was utilized by Coba as a strategic military outpost to forestall the encroaching elites from Chichen Itza. The Coba subjugation lasted merely 130 years. This was surmised due to a new ceramic type and architectural style: Western Cehpech. The Puuc influence at the site occurred ca. A.D. 730. It should be noted that data indicates both Puuc peoples and Coba elites appeared to exert control over Yaxuna. Both eastern and western Cehpech ceramics are present in the cultural assemblage. The next military campaign was carried out by Chichen Itza warriors ca. A.D. 900 (Shaw 1998). Sotuta ceramics, associated with Chichen Itza, were not initially discovered at Yaxuna. The only traces of this ceramic style that were found were located in the termination debris linked with the destruction of the palace in the North Acropolis (Freidel 1998). By Chichen Itza attacking Yaxuna, they effectively broke up the Eastern-Western Cehpech alliance, and left the site disengaged from its previous network. The majority of the populace abandoned the homeland, and only a small number of inhabitants continued occupation at the site (Shaw 1998).

The first evidence of conflict at Yaxuna dates to the Early Classic, between the Yaxuna IIa and Yaxuna IIb periods (Stanton 2000; Suhler and Freidel 1998). Structure 6F-4, a long range edifice on the north acropolis, showed clear evidence of fire, and termination rituals. Burial 24 was found behind this building. It included a ruler with 11 additional individuals (Ardren 1997; Bennett 1993; Suhler and Freidel 1995). Presumably, the 55 year old decapitated male was the ruler. A 40 year old decapitated female may have been his spouse, although, the older male and a young adult female were carefully positioned in their final resting place, while the rest were unceremoniously

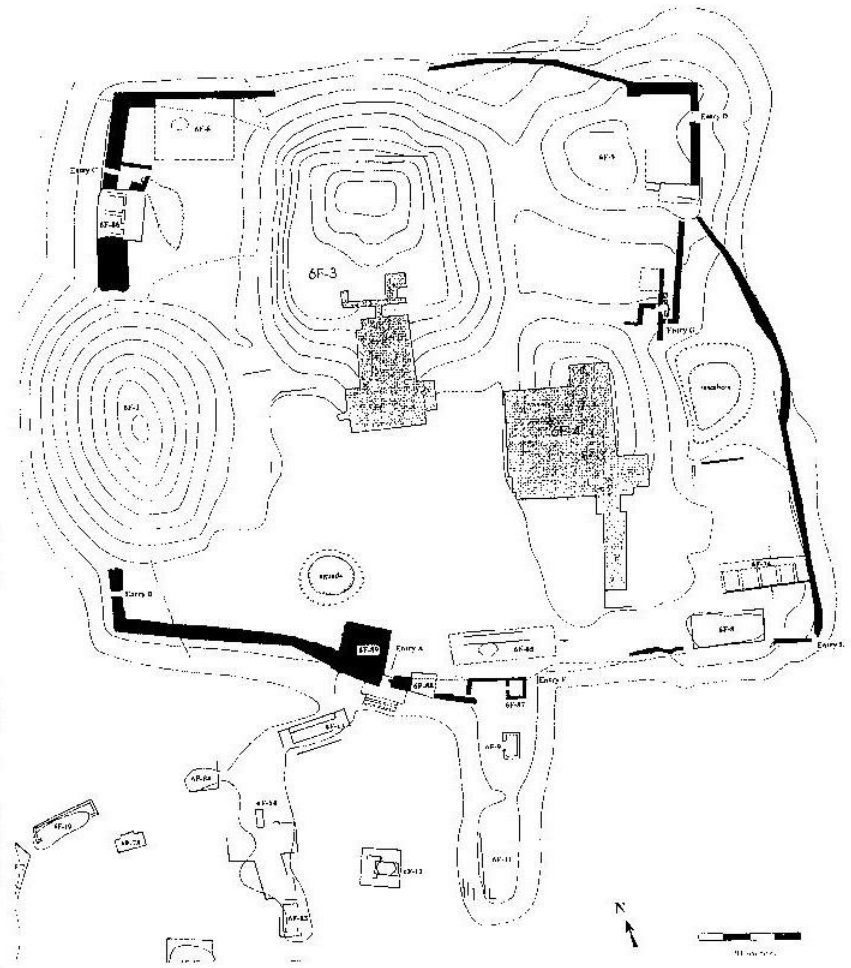
tossed in (Bennett 1993). These sacrificed persons might have been part of the royal family. The artifacts found associated with this feature had striking similarities to those found at Oxkintok. The adornments belonging to the deceased king were held inside a vessel. This vessel was terminated by jamming a long axe into it. This may signify an axe event commonly illustrated in carved monuments throughout the lowlands (Suhler and Freidel 1998). Oxkintok was known to have strong affiliations with Teotihuacan. Suhler and Freidel proposed a take over by Oxkintok, and the demise of the Yaxuna royal family (Suhler and Freidel 1995, 1998). This may explain the appearance of the sunken patio groups at Xkanha Group during the Early Classic (Ardren 1997).

Fortifications at Yaxuna include irregular wall segments on the basal edges of the North Acropolis (Figure 3.22). This area includes the council house, Structure 6F-68. The wall was hastily built; its segments are not uniform at all. There are a series of inner wall segments that serve to further restrict access within the acropolis. The defensive feature measures 0.60 to 3 m, and 1 m high, and encloses an estimated 465 m area. It is possible the barricade was supplemented with a palisade system. There are five entry points with possible baffled gates. The fortifications at Yaxuna are believed to have been constructed in the Terminal Classic, during the ongoing conflict with Chichen Itza (Ambrosino et al. 2001; Ardren 1997; Stanton 2000; Suhler et al. 2004; Manahan et al. 1997).

The second war-related event occurred during the Terminal Classic. Structure 6F-68 was burned, and termination rituals were carried out. The broken ceramic vessels used in the termination ritual included both Cehpech and Sotuta (Stanton 2000). Additionally, Burial 25 (female) was violated. Her remains and associated grave items were removed,

and a fire was lit in her resting place (Ambrosino 1997). A human cranium was documented off the edge of Structure 6F-4, in a *sascabera*. The skull showed clear signs of decapitation (Brainerd 1958). This evidence suggests Yaxuna had a skirmish with Chichen Itza, and lost the battle.

Figure 3.22. The North Acropolis at Yaxuna



(Suhler et al. 2004)

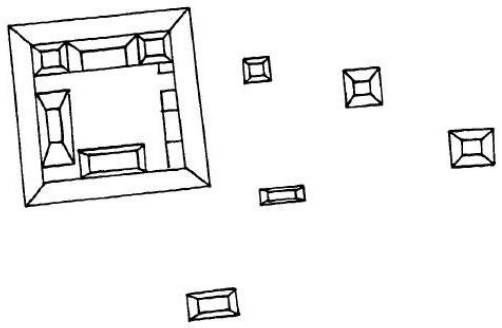
Xkanha Group

The Xkanha Group was an elite administrative enclave, located 1.75 km northwest from Yaxuna central zone. The site has an occupation dating to the Early Classic, Terminal Classic, and Postclassic. The site was named after a cenote, situated 500 m southeast from the group. Fourteen structures were constructed on a naturally elevated outcrop, approximately 4-6 m high. Investigations at the site began in 1991 (Ardren 1997). The complex was divided into five quarters: area 1 is the northern sector, area 2 is the eastern part, area 3 is the southern precinct encompassing a long range structure, area 4 is the western side with Structure 11, a large edifice that was later converted into a tower during the Terminal Classic, and area 5 is the surrounding settlement (Ardren 1997:55). Three patio quads are located on the northern sector of the complex (area 1). Each patio group has structures facing an interior central sunken patio, emphasizing privacy and restricted access. This particular architectural arrangement is very similar to the sunken patios at Chichen Itza, which date to the Terminal Classic. The cultural material from both area 1 and 2 date to the Late Preclassic and Early Classic. The only other site that has a comparable architectural layout during the Early Classic is Teotihuacan (Ardren 1997:56). Termination rituals were carried out towards the culmination of the Early Classic. Entrances to structures in area 1 were closed off and abandoned. There was a need for restricting access, and easier defensibility. The complex was unoccupied for almost two centuries (Ardren 1997).

The site was not repopulated until the Terminal Classic. Xkanha Group was refurbished completely during the Terminal Classic to function as a garrison, and to serve

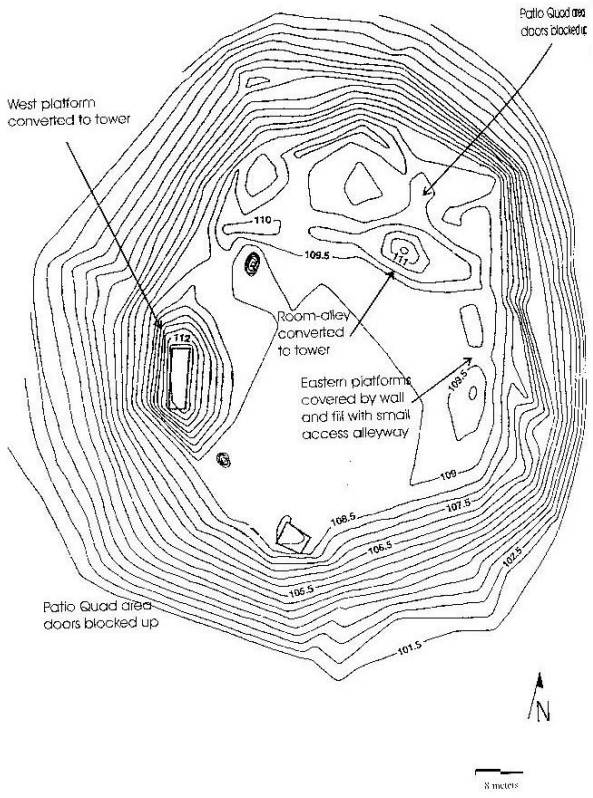
as the first line of defense for the population of Yaxuna (Figures 3.23a and 3.23b). Archaeological research indicates this group might have been constructed after an attack on Yaxuna (Ardren 1997). The structures and landscape were modified to increase their defensibility. Structure 4 on the northern sector and Structure 11 on the western perimeter were converted into towers (Ardren 1997). Feature 1, fragmentary human remains, is associated with a termination ritual on Structure 4. Interestingly, it is a female with carved shell, and Puuc ceramic material. The young woman is 19-22 years old, all that remained were teeth and fragments of her cranium (Ardren 1997:122-123). The Xkanha Group was protected by a massive wall on the east, the doorways of structures were blocked, and the entrances to the patio were narrowed (Ardren 1997; Dahlin 2000). A possible baffled gate was documented on the northern area of the complex between Structures 15 and 16 (Ardren 1997).

Figure 3.23a. Xkanha Group Site Map



(After Ardren 1997)

Figure 3.23b. Xkanha Group with Modifications



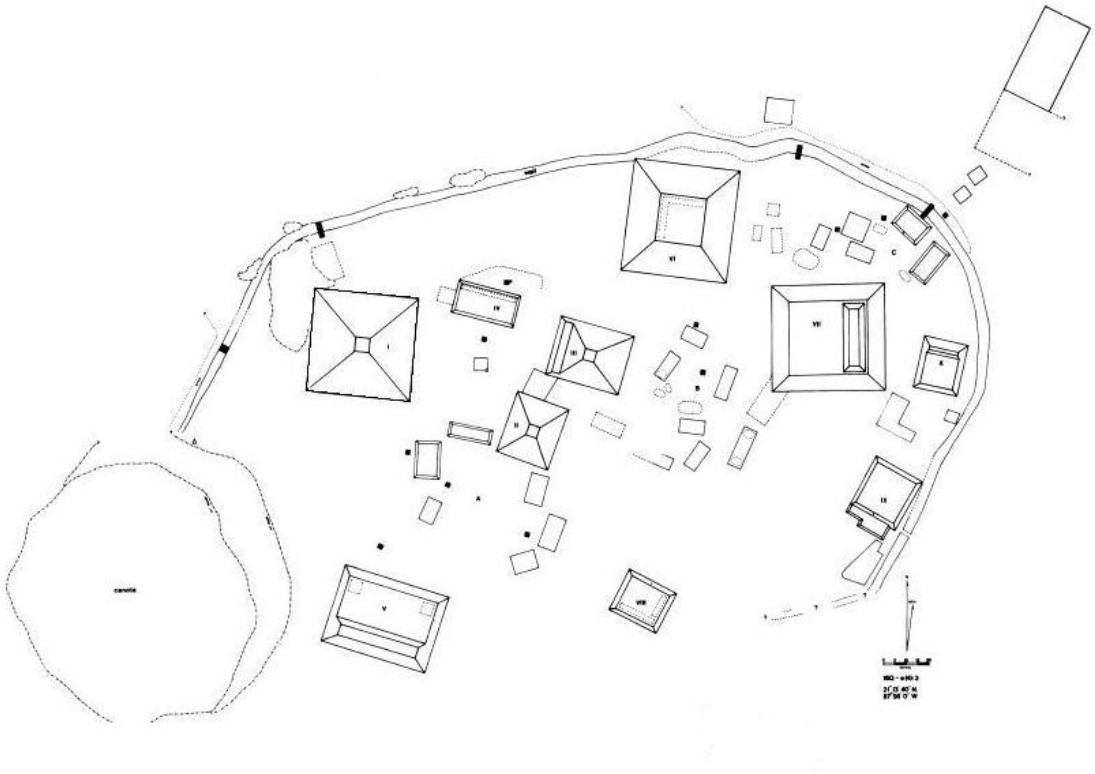
(After Ardren 1997, 2005)

Dzonot Ake

Dzonot Ake is located in the northeastern part of the Yucatan Peninsula, 20 km east from Tizimin. The site has a lengthy occupation spanning from the Late Preclassic to the Terminal Classic. The defensive system at the site (Figure 3.24) was first documented by Roys and Chamberlain (Roys 1943). Webster (1975) conducted a preliminary survey in the area. Intensive mapping and excavations were carried out during the 1976 - 1977 field seasons (Webster 1979). An outer wall surrounds most of the site core, with the exception of the southern part, the gap measures 300 m. The southern parcel has been

cultivated for some time; it may be that local farmers removed that section of the wall for their *milpas*. Alternatively, the stones may have been stripped for constructions for the nearby town. On the southwest, the wall disappears near a very large cenote. The wall measures 560 m in length, 3 to 5 m in width, and 0.30 to 1 m in height. The wall enclosed six hectares. The low height of this feature may be indicative that it might have been supported by a palisade system. Bedrock is very close to the surface and the low wall would have provided support for posts (Webster 1978, 1979, 1980). There is a break on the southwest area of the wall, near Structure IX, which might have been an entry point into the site. Four structures are located outside of the barricade on the northeastern portion of the site. The defensive feature served to protect three elite residential groups. The protective barrier does not bisect any structures. Eleven 2 x 2 m units were set up to investigate the site, out of these only four exposed sections of the wall (Webster 1979). The feature was built during the Terminal Classic (Webster 1980).

Figure 3.24. Dzonot Ake



(After Webster 1978)

Northern Lowlands Summary

Walls are the most widely used defensive system, especially inner walls, which protected a small area of a site, usually elite residences (Webster 1980). For the most part, the walls were thick enough to be supported by a palisade system. Chacchob and Cuca were both fortified by walls, which enclosed the elite residential areas. Webster raised the possibility of the existence of an "expediency plan" in a time of an attack for the people residing outside the defensive walls in these communities (Webster 1980). As with the walls at Monte Alban, it would make sense to assume that there must have been a military strategy allowing the locals to seek refugee inside the walls.

There are a total of four sites ranging from fortified towns to elite complex sites (Table 3.3). No sites were founded as fortified settlements, except for Chacchob. All of the defensive features were a later adaptation during the site's occupation, suggesting a symptom of fear and instability. Walls enclosing a larger portion of the site were more prominent, which enclosed a bigger settlement area. Interestingly, Chacchob, and Ek Balam both have evidence of plaster on the defensive walls. There do not appear to be any killing alleys. Three of the sites in the Terminal Classic had defensive systems which were built in a "hasty" manner which implies an immediate need of defense. Clearly, there was a continuity of fortified features throughout the Terminal Classic in the northern lowlands suggesting a power struggle between major powers: Coba, Puuc, and Chichen Itza.

Table 3.3. Northern Lowlands Fortifications

Regional Area	Estimated Construction Date of Defensive Features	Site Name	Site Description	Outer Wall	Inner Wall	Founded as a Fortified Site?	Hastily Built?	Natural Resources Located Inside the Wall
Northern Lowlands	Late Classic	Ek Balam	Fortress	1	1	N		
		Yo'okop	Frontier Site		2	N		
	Terminal Classic	Ake	Frontier Site	1		N	Y	
		Chacchob	Elite Garrison	1		Y		Y
		Chunchucmil	Gateway	1		N	Y	
		Cuca	Fortified Site	1	1	N	N	Y
		Dzonot Ake	Fortified Elite Complex	1		N	N	
		Muna	Fortified Site	1	1	N		
		Xkanha Grp	Garrison		1	N		
		Yaxuna	Fortified Elite Complex		1	N	Y	
		Xuenkal	Secondary Center	1	1	N	N	Y

Chapter 4

Physical Setting:

Geomorphology, Physiographic, Regional, and Economic Characteristics of The Yucatan Peninsula

This chapter will provide an overview of the formation of the Yucatan Peninsula, hydrology, vegetation, and human habitation history of the region, in order to place Xuenkal in its regional context with its neighboring polities. Xuenkal is located on the northeastern portion of the Yucatan Peninsula in the Cupul Region. The site is approximately 25 km east of Ek Balam, and 40 km northeast of Chichen Itza. Readings taken with a handheld GPS unit on structure FN40 produced coordinates of 21° 0'40.53"W and 88° 22'50.10"N. The physical geography of Xuenkal is characteristic for that of the Northern Lowlands, composed of a flat limestone karst plain covered by thorny tropical scrub forest.

The Yucatan Peninsula (YP) is located in the southeastern part of Mexico; it is approximately half of the land formation between the Caribbean Sea and the Gulf of Mexico. The dimensions are about 320 km east-west and 200 km north-south with a maximum surface elevation of 30 m above seal level. The YP encompasses the Mexican states of Campeche, Yucatan, and Quintana Roo. Xuenkal is located within the Mexican state of Yucatan.

The various characteristics of the Xuenkal region, such as water resources, agricultural soils, rejolladas, climate, and vegetation, all play a crucial role in settlement

patterns. The most influential factor is fresh water. Unfortunately, due to the geology of the region, water is very scarce. The north is characterized by extremely shallow and rocky soil, absence of surface water, and a pronounced dry season. The northern periphery is relatively flat until the Puuc Hills, an upland area extending southwards. Only the Puuc region receives regular rainfall which may have provided a regular source of rainwater for use. The residents of Xuenkal adapted to the northeast region by taking advantage of the subterranean water via man-made wells cut deep into the bedrock or by accessing the natural sinkholes known as cenotes. This chapter will seek to provide a general background of the geology of Yucatan and the processes that formed this zone and its features.

The YP is a neotropical karstic plain with a complex geological history; its surface is all carbonate and consists of a wide array of karst formations with minimal soil cover, the oldest rocks date to the Paleozoic (Table 4.1; Weyl 1980). The majority of the YP is made up of a 2500 m layer of marine carbonates deposited during a series of inundations. The entire surface of the YP was underwater during the Lower and Upper Cretaceous. In the earlier period, the first extensive deposits of carbonates set the foundation for what would eventually become the YP (Weidie 1985). The latter period begins with an uplift of the central and the eastern margin of the platform. This period ended with tectonic instability, with another uplift occurring in the central and eastern part of the platform. The Ticul, an active fault line, had a major shift which coincided with submarine volcanism to the northwest (Weidie 1985). Cores taken along the fault reveal a scorching intrusion which helped form the Puuc Hills. It is unknown if the

developments in the Ticul fault were interrelated to tectonic and/or volcanic activity or directly affected by the Chicxulub asteroid. The impact caused a massive extinction of species in the late Cretaceous (Weidie 1985).

A decline in the sea water level uncovered the central core of the YP in the Paleocene–Eocene, another encroachment occurred in the Middle Eocene, followed by an incomplete inverse movement in the Upper Eocene that left the northern section and parts of the western sections submerged. This process allowed the deposition of layer of dolomites, limestones, and marls (Back et al. 1986). This continued until the Upper Oligocene–Lower Miocene leaving the eastern coastline exposed. The sea advanced in the Middle and Upper Miocene and the Early Pliocene, covering the eastern coast. The current perimeters of the YP were reached during the Late Pliocene-Pleistocene due to interglacial fluctuations (Lopez-Ramos 1975). During the Holocene Period, there were climate changes including two very dry periods (6000-5000 B.C. and 4000-3000 B.C.), which dried up most surface basins (Curtis et al. 2001; Metcalf et al. 2000).

Table 4.1. Stratigraphy of the Yucatan peninsula.

Geological Age	**Northern Zone**	**Southern and Central Zones**
Holocene	Limestones with mollusks, sandbacks, clays, soils	Soils
Pliocene	Carrillo Puerto Formation	Undifferentiated
Miocene	Estero Franco Formation, Bacalar Formation	
Oligocene	Lutites, limestones	Undifferentiated
Eocene	Chumbec Member (limestones), Pist´e Member (limestones), Xbacal Member (limestones)	Chumbec Member, Pist´e Member
Paleocene		Icaich´e Formation (limestones, dolomites, evaporites)
Upper Cretaceous		Peten (?)(limestones)

(Velazquez 1986)

Caliche, a cement hard limestone, is a byproduct of the YP's surface carbonates (Lesser and Weidie 1988). Underneath the caliche lies another useful element: sascab. It was one of the materials used to manufacture stucco, which was used in ancient times as plaster on floors and walls. Sascab deposits average 0.5 m and 0.10 m in thickness (Lesser and Weidie 1988).

Physiography

The YP has four different physiographic regions: 1) Northern Pitted Karst Plain; 2) Eastern Block-Fault District; 3) The Southern Hilly Karst Plain; and 4) Sierra de Ticul (Lesser and Weidie 1988).

The Southern Hilly Karst Plain begins in Guatemala and extends north towards the Sierra de Ticul, thereby creating most of the southwestern portion of YP. This region has been known to have low levels of settlement due to the high difficulty in accessing water—a consequence of a deeper water table. The topography is higher than the northern areas with a maximum of 300 m above sea level (Lesser and Weidie 1988).

The Sierra De Ticul is 185 square km, consisting of a low-tertiary limestone, and shows a typical relief which encompasses the Puuc Hills, with a maximum elevation of 200 m ASL. Inner-mountain depressions occur along the Sierra forming valleys. The soils developed on limy sediments are rich in clay and vary in their profundity according to their position in the relief.

The Eastern Block Fault runs from the most northeastern point of the YP all the way south through most of Belize. It is a zone characterized by carbonated rocks that

differ from other areas due to a series of north northeast faults that developed into horsts and grabens (Lesser and Weidie 1988). On the surface, these faults are articulated as parallel long depressions. A perfect example is Cozumel Island, it is a horst block delimited on the east and west by deep faults (Lesser and Weidie 1988). Extensive networks of reefs and coral cay have developed offshore, forming the world's second largest barrier reef (Marshall 2006).

The Northern Pitted Karst Plain extends from the Sierra de Ticul on the west to the Eastern Block Fault encompassing the northern third of the YP. This portion consists of a low relief pitted karst plain with an elevation of 4 to 30 m ASL. This zone is characterized by a dense network of sinkholes and cenotes, an extensive interconnected system of flooded caverns, some up to 130 km long, lies beneath the northern Yucatan lowlands. The Ring of Cenotes, a feature with a radius of 80 km, has a semicircular alignment of cenotes extending along the northwestern YP, ranging in width from 5 to 10 km. This feature overlies the impact formation resulting from the Chicxulub impact crater. The crater is buried under approximately 1 km of strata from the Tertiary period (Marshall 2006). Although this region may seem inhospitable, the vast numbers of archaeological sites dotted along this area attest otherwise.

Hydrogeology

Due to the porous nature of the soils, any water that accumulates rapidly evaporates (or permeates) through the limestone into the aquifer of the YP; it is the only source of fresh water for human activities. The aquifer is surrounded by seawater with freshwater

staying atop of saline water. The permeation of rainwater restocks the underground stream, and enhances the subterranean circulation as water is pushed towards the coastline and finally into the sea. Various factors play into its movement underground such as water, cracks, and interconnected fractures. Water flows from the higher regions in all direction to the lowest zones, the aquifer discharges into a series of springs providing water to marshes, lagoons, and finally into the sea. This process serves as an impediment of inland water penetration which has been known to occur as far as 10 to 15 km inland. The stratum with fresh water is usually located 130 cm ASL, and this layer thickens towards the central zone of the YP. This plays a role in obtaining fresh water in the coastal areas; usually the best fresh water sources can be found 15 km inland. The coastal water table elevation varies from 0.10 to 0.20 m between rainy and non-rainy seasons (Villasuso and Mendez Ramos 2000).

The dissolution of carbonate rock has created karst topography with sinkholes, known as cenotes. This same process produces speleogenesis which is the formation of caves (Lesser and Weidie 1988). As the ceilings of caverns collapse, rounded depressions are formed, called dolines (known as rejolladas locally), differing from cenotes in their lack of water at the bottom. These features may have played a crucial role in the support of population and settlement patters within this region (Morehart 2006). Rejolladas are hypothesized to have been used to farm cacao and to have been used for agricultural purposes during the dry season.

During my time at Xuenkal, I was honored to have been invited to witness a Chac Chaac ceremony. Normally, women are not allowed to attend rain water ceremonies, as

their presence is believed to cause bad luck. The workers at the site graciously invited me, and two other female project participants. The Maya priest set up an altar with offerings, representing the Milpa and the Maya world. He blessed the altar and each offering brought up to the altar. The Maya Priest asked each worker in what direction his Milpa was located, and would then take a piece of the offering, and toss it in that direction. This was done in order to bless each worker's Milpa, and to pray to *caac'o'ob* to bless the land, rejolladas, cenotes, and to bring water to the area. The ceremony itself was a great success as it rained for over one and one- half weeks.

Climate

YP is dominated by a tropical wet-dry climate (*tierra caliente*) in which rainfall increases considerably from the northwest to the southeast (Wilson 1980). The rainfall in Yucatan is controlled in part by both the Gulf of Mexico, and the Caribbean Sea. The northeastern part of the peninsula lies on the Atlantic Hurricane Belt, storms affecting the northern Caribbean Coast usually pass through this area (Ward and Wilson 1976). Hurricane Wilma passed through the YP in 2005 causing substantial damage to everything in its path, including the local town of Espita, and the site of Xuenkal. Hurricane Emily also passed through the region devastating the east coast, particularly Cancun and Playa Del Carmen.

The Yucatan peninsula has two main classes of climate: 1) hot and subhumid and 2) hot and dry, with 12 further subdivisions. The northern part of YP is categorized as a Tropical Monsoon (Am) with heavier rains occurring in the summer only. The southern

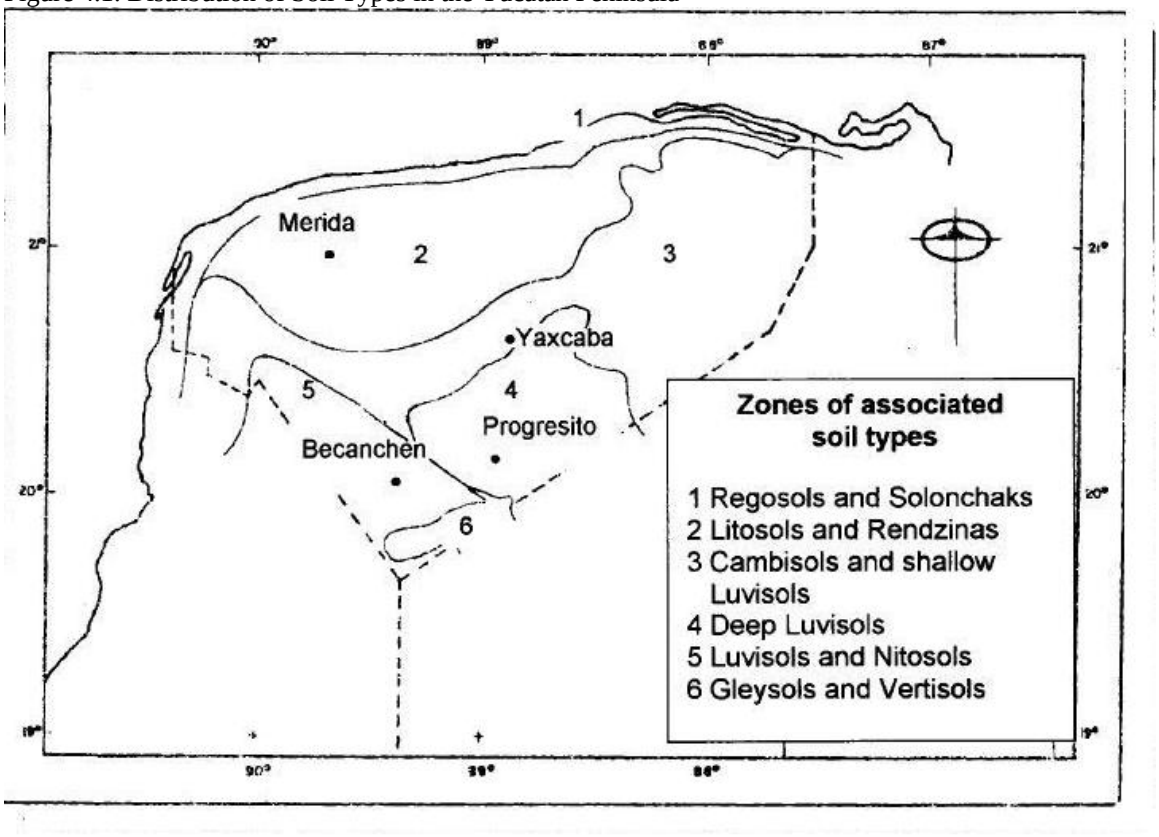
portion is classified as Tropical Rainy (Af) with a minimum rainfall of 60 mm during the driest month (Wilson 1980). The annual median annual temperature is 26º Celsius. The months with the highest temperature are July and August, with the lowest in December and January; the coldest temperatures average 18º Celsius. The rainy season in the YP occurs from June through December with minimal rainfall occurring during the rest of the year, about 90% of the rainfall occurs from May to October. The average annual rainfall is approximately 105 cm of which 85% returns by evapotranspiration and the remainder 15% infiltrates into the ground water (Back et al. 1986).

Soils

YP is characterized by a mosaic of soil classes, which can differ even in small distances, the northern peninsula's soils range from .0 to 1.5 m deep (Figure 4.1). The surface is distinguished by thin soils and numerous outcrops, limestone as a parent material and the limited weathering due to YP's recent creation help explain the soil thickness. FAO/UNESCO system has provided a taxonomy of soils, which has been further complemented by researchers who carried out ethnographic research in the Maya region, interviewing farmers to record agricultural information (Dunning 1992; Duch 1991). The Maya classification system describe factors such as color, location, depth, fertility, water economy, the content of stones with their perspective size, and distribution among the soil. The problem with using Maya taxonomy is the variation of terminology based per region.

The soils of the state of Yucatan are dominated by stony soils, which form groups with various types. Regosols occur in deep sandy coastal soils. Solonchaks and Histosols are halomorphic soils that occur in swampy areas, solonchaks are rich in salt. Most of the types belong to stony Lithosols (*Tsek'el*), and shallow Rendzinas (*Chaltun*) in the north and west. In the east and south, reddish brown Cambisols (*K'ankab*) and shallow black Luvisols (*K'ankab*) soils. Nitrosols (*Ek-Lu'um*) are dark clayey deep soils that occur in the west. Gleysols (*Ak'ache*) and Vertisols are dark clayey inundated soils which occur in the south part of YP. Gleysoils are notorious for poor drainage and excess of water in the subsoil, this particular soil has limited agricultural usage (Duch 1991).

Figure 4.1. Distribution of Soil Types in the Yucatan Peninsula



(After Duch 1991)

Subsistence and Vegetation

The types of vegetation can be distinguished in the YP as follows: 1) tall to medium semi-evergreen forest; 2) tall to medium deciduous forest; 3) transitional forest; and 4) low deciduous forest.

Tall to medium semi-evergreen forest is a type of vegetation that covers areas with an average rainfall of 1200 mm, the height of the trees average from 25 to 30 m. Tall to medium deciduous forest covers areas with an average rainfall between 1100 to 1200 mm, the height of the trees average from 25 to 30 m. Transitional forest is a mix of tall to

medium and low deciduous forest occurring in areas with an average rainfall of 1000 mm, the height of the trees average from 15 to 20 m. Low deciduous forest occurs in areas that average annual rainfall between 700 to 1000 mm, the height of the trees range from 15 to 20 m (Miranda and Hernandez X 1969).

The nearby town of Espita (16Q 364661E, 2320177N) is nine km away from Xuenkal. The name of the colonial town translates to "place of tiny water". Both Espita and the Cupul Region have continuously supplied the Yucatan populace with corn, beans, and cotton since Colonial times. Presently it is a cattle-producing region (Andrews 1990; Patch 1993).

The regional area by Espita is covered with a variety of resilient woody scrub adapted to survive in dryer climates. Common tree species in this area include ramon (Brosimum alicastrum), gumbo-limbo (Bursera simaruba), zapote (Manilkara zapota), flamboyan (Fabaceae Delonix regia), and Spanish cedar (Cedrus deodara), among others. The slash-and-burn agriculture has impacted the native vegetation within the region, and the repeated usage of this method will continue to do so.

Overview of Human Occupation in the region

Paleoindian and Archaic

Human habitation in the Maya region begins with the Paleoindian period. Subsistence was based on hunting mastodon, bison, felines, and horses. Populace at the time lived near the Cave of Loltun in the northern YP (Velazquez Valadez 1980). Once this large prey disappeared due to climatic changes, the hunting and gathering individuals adapted

to their new environment by settling in riverine, coastal areas where food resources were available. Around 3500 B.C., these habitants started to supplement their diet with domesticated plants (Folan 1987).

Preclassic

Population in the Yucatan during the Archaic period was minimal. It was not until the Middle Preclassic, roughly about 700 B.C. that population started to increase. In the northern lowlands, colonization and permanent settlement occurred near the coastal area, rivers, and lakes that provided a reliable source of water. The riverside and coastal region served as trade routes, which in turn promoted an exchange of ideas. Subsistence was achieved by coastal gathering and swidden agriculture. It was also supplemented by household gardens.

The Proyecto Costa Maya (PMA) headed by Fernando Robles and Anthony P. Andrews has gathered precious settlement data that suggests population peaked in the northwestern corner of the YP during the Middle Preclassic. Some of the sites that PMA has recorded with Middle Preclassic occupation include Kintunich, Nuevo Chalmuch, Xtobo (with a ballcourt), Tipikal, Xocnaceh, and Poxila (Anderson et al. 2004; Anderson 2003, 2005; Robles and Andrews et al. 2000, 2001, 2002; Robles and Andrews 2003). El Mirador Group at Dzibilchaltun has Middle Preclassic occupation with stone constructions, and a sweat bath (Andrews IV and Andrews V 1980; Andrews V and Ringle 1992). Settlement data suggests that during the Late Preclassic, plazuela groups consisting of courtyards and large platforms were scattered along the region. There is a

marked increase in population growth, and the already large villages become centers. Komchen has Middle Preclassic occupation, but stone architecture is not present until the Late Preclassic (Ringle and Andrews V 1990).

Classic

Occupation continued throughout the Classic period with various centers growing both in size and population. During the Early Classic, several sites rise to prominence, such as Acanceh, Ake, and Izamal. Becan, situated in the Rio Bec region, has fortifications surrounding its perimeters dated to the Early Classic (Webster 1979, 1980). Acanceh, southeast of Merida has three-level pyramid over 11 m high, the site shows Teotihuacan architectural influence. Oxkintok, positioned in the northwestern section of the YP, is among one of the centers exhibiting Teotihuacan cultural and architectural elements. By the Late Classic period, the number of sites increases dramatically along with its sustaining populace. Dzibilchaltun was abandoned during the Early Classic, but the site regained its prominence during the Late and Terminal Classic (Andrews IV 1975; Andrews V 1981; Andrews and Andrews 1980). Edzna is situated south of Dzibilchaltun. The site is known for its lengthy sequence of sculpted monuments. Additionally, there is a complex hydraulic system in conjunction with a moat surrounding the site. These features probably served a dual purpose: defensive and water management (Andrews 1969; Forsyth 1989). Along the Puuc region, numerous sites rise to power: Uxmal, Labna, Sayil, and Kabah. Uxmal, 80 km south of Dzibilchaltun, was a large economic center. Izamal is connected to Ake by a 32 km sacbe. Stela 14, at Uxmal, has elements

associated with Chichen Itza iconography. Furthermore, there are two bound naked captive at the base of the monument, and possible armed Chichen Itza warriors (Kowalski 1980). Kabah is connected to Uxmal by an 18 km sacbe. Structure 2C-6 has north and south doorjambs illustrating war-related iconography. On two of the four doorposts, two elite warriors are dispatching of a single captive, while the other two are depicted in fluid motion with their war regalia. The vertical stone pieces framing the doorway on Structure 2A-3 also illustrates warriors with their prone captives. These carved monuments were tentatively dated to 890 A.D. (Kowalski 1980; Pollock 1980). Sayil is approximately 6 km south of Kabah. A series of sacbeob connect its residential complexes within the site (Killion et al. 1989; Tourtellot, Sabbloff, and Carmean 1989). Labna is situated 8 km south of Sayil. It is a rank 3 center, without any signs of Sotuta occupation (Carmean, Dunning, and Kowalski 2004). Defensive works at the northern sites, such as Chunchucmil, Chacchob, Ake, Cuca, Muna, Yo'okop, Xkanha Group, and Yaxuna were discussed in detail in Chapter 3. Chichen Itza, Isla Cerritos, and Ek Balam will be discussed in further detail, in a later section of this chapter. In the southern lowlands there is a marked decrease in population, architecture and monumental erection, while the Northern Lowlands flourished during this time period.

Architectural Styles and Ceramic Spheres

Architectural and ceramic distributions are believed to be associated with political units. Puuc, Rio Bec, and Chenes are the northern architectural styles. Puuc style is named after the Puuc hills in the northern state of Campeche. The buildings are characterized by

a plain lower portion with alternating sections between walls and doorways. The upper section is decorated with a facade full of intricate designs. Other characteristics are veneer masonry, and vaulted stones. Stone columns are indicative of Puuc style; these usually appear in the lower portion of facades and support the upper structure. Rio Bec structures are a mix between central and southern lowland styles, the buildings usually having two rounded towers over a large basal platform. The towers have false stairways that are too narrow to scale and the tower itself cannot be entered as most have only decorative entrances. Chenes style shares a similarity to the Rio Bec architecture, but accentuates the entrances with zoomorphic carved masks, while the top lintel and sides of the doorway are adorned with elements representing eyes, noses, and ear flares (Pollock 1980; Potter 1977).

Ceramic spheres are represented by their visual characteristics, and divided into wares, and further subdivided into types (Figure 4.2; Tables 4.2 and 4.3). The Early Classic sphere is represented by the Cochuah ceramic complex with its various wares and types: Chuburna Group, Tituc type, Timucuy Group, Xanaba type, and Shangurro group. Huachaningo is the diagnostic type for this time period (Jimenez 2006; Smith 1971).

Motul ceramic complex is from the Late Classic. Muna (Akil Impreso, Muna Pizarra, and Sacalum Black Types), Ticul, Cum, Arena, Vista Alegre, Cizin, and Infierno (Jimenez 2006; Smith 1971).

During the Terminal Classic, the Yucatan is dominated by the following Spheres: Sotuta, Eastern Cehpech, and Western Cehpech. Sotuta is subdivided into three different wares: Chichen Unslipped (Sisal Type), Chichen Slate (Dzitas Slate Type), and Chichen

Red (Dzibian Red and Fine Orange Types). Cehpech is divided into a variety of wares: Puuc unslipped, Puuc slate (Muna Slate Type), Puuc thin (Ticul Thin Slate Type), Puuc red (Teabo Red Type), and Holactun Slate Ware (Jimenez 2006; Smith 1971).

Figure 4.2. Northern Lowland Ceramic Types

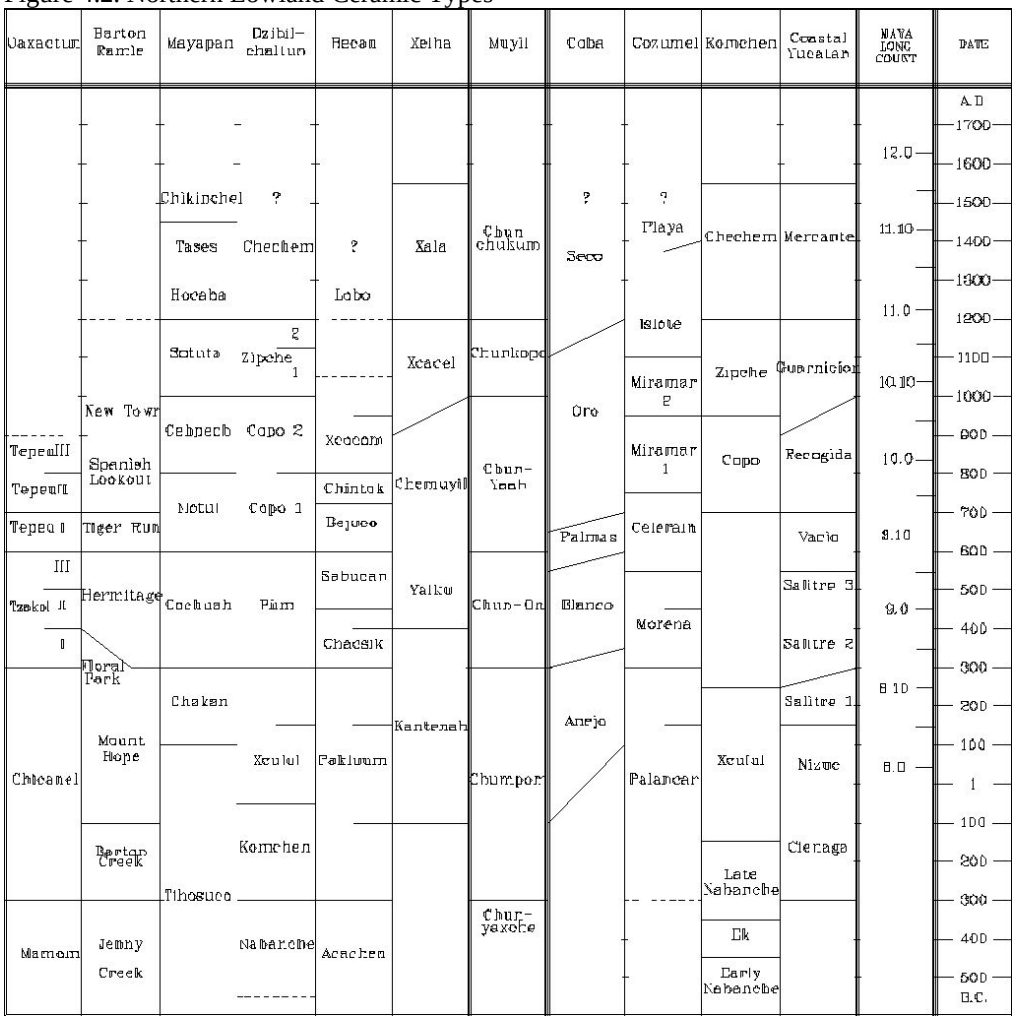


Table 4.2. Cehpech Ceramic Complex

Ware	Type	Type	Type	Type	Type	Type	Type
Puuc	Chum Unslipped	Yokat Striated	Halacho Impressed	Oxkutzcab Applique	Tepakan Composite	Yiba Modeled	
Unslipped							
Puuc Slate	Muna Slate	Sacalum Black-on-slate	Chumayel Orange-on-slate	Tekit Incised	Xaya Gouged-incised	Akil Impressed	Yaxnic Modeled
Thin Slate	Ticul Thin-slate	Xul Incised	Tabi Gouged-incised	Tikihal Circle-shading			
Puuc Red (Thin Red)	Teabo Red	Tekax Black-on-red	Becal Incised	Opichen Gouged-incised	Yaxumha Modeled	Sachcaba Modeled-Carved	
Cauich Coarse-Cream (Holactun Slate Ware)	Holactun Black-on-cream						

Table 4.3. Sotuta Ceramic Complex

Ware	Type	Type	Type	Type	Type	Type	Type
Chichen Unslipped							
Chichen Slate	Dizitas Slate	Balantun Black-on-slate	Chacmay Incised	Timak Composite	Balam Canche Red-on-slate	Tekom Gouged-incised	Nenela Incised
Chichen Red	Dzibiac Red	Chan Kom Back-on-red	Xuku Incised	Holtun Gouged	Tiholop Gadrooned		

Archaeological Work in the Nearby Region

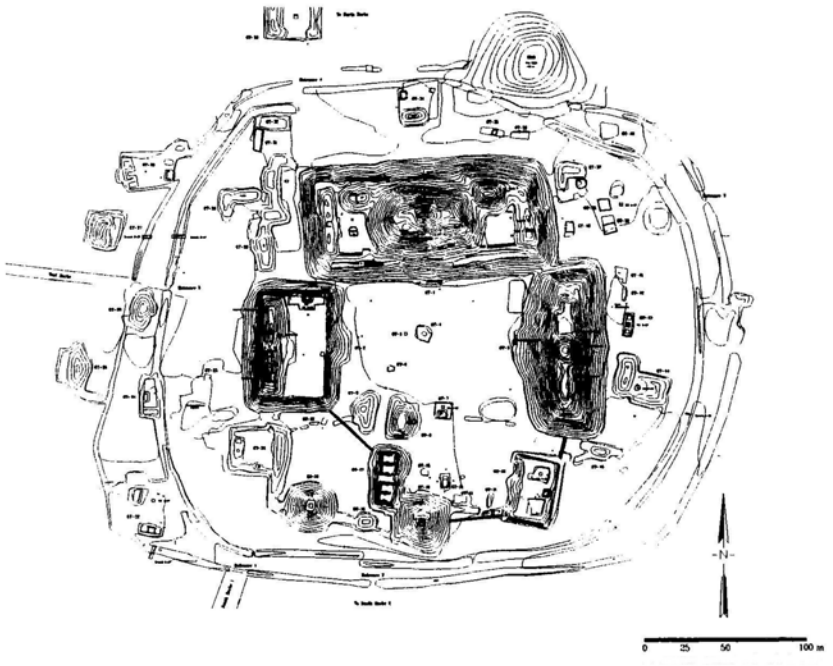
Ek Balam

The site of Ek Balam is located approximately 25 km north of Saci-Valladolid. Bey and Ringle began reconnaissance explorations at Ek Balam during 1984 and 1985. Ringle returned with a team in 1986 to continue mapping the site center and conduct test pit excavations. Continued settlement studies have been carried out by Ringle and his project participants, and the survey results indicate settlement expands from the site center for about two km (Ringle 1989, 2004; Ringle et al. 2004). Occupation spans from Middle Preclassic to Postclassic. The highest ceramic concentrations are from the

Terminal Classic (Ringle et al. 2004). Ek Balam was an important regional center during the Late and Terminal Classic period; it has little-to-no Sotuta sherds, Cehpech is the associated ceramic complex with this site (Table 4.2). Ek Balam is one of the few sites in the Yucatan area that has an emblem glyph carved on Stela 1; this carved monument dates to about A.D. 830. Evidence for emblem glyphs in this region is extremely scant (Grana-Behrens 2006; Ringle et al. 2004). Historical records refer to the site as one of the principal control points for this region (Garza et al. 1983).

Two concentric walls, dating to the Late Classic, enclose the site center (Figure 4.3). Two large trenches were set up parallel from each other on the southwest portion of the wall. Excavation results indicated that the outer section of the wall is 2.7 m thick at the southwest area, with an estimated height of one meter and faced with cut stone. Fallen debris from the wall was visible on either side of the wall. The inner wall was of slightly smaller dimensions with 2.6 m in thickness. Ceramic material from the units was exclusively Cehpech with one anomaly: one Dzibiac Red sherd (Ringle et al. 2004). Stucco floors extend from the base of both walls and this floor may have continued underneath to the outer facade of the wall. On the inner enclosure, the stucco continues to the base of the wall, suggesting that the floor was contemporaneous with the refurbishment of the wall. The inner wall has facing stones that are of nicer quality than the outer face of the wall (Ringle et al. 2004).

Figure 4.3. Ek Balam



Central Ek Balam (Courtesy William M. Ringle).

No permanent water supply was found within the wall, but there are five chultuns located within the defenses. Seven chultuns are outside of the wall, there are three nearby aguadas, one bajo, and a savannah zone. Lack of permanent water supply during a siege would have been fatal for the inhabitants of the site. Another weakness in defensibility is the overlap of the outer wall with platforms. The higher platforms are on the outside of the wall giving attackers the higher ground, and thereby limiting the defenders' ability to repel an assault (Ringle et al. 2004). One possibility could be that there were once perishable structures on these platforms that could have served as watchtowers, but this has not been tested and remains only hypothetical.

A third wall appears to delineate the elite area; narrow platforms connect structures on the main plaza. It could have been used to limit public versus private space (Ringle et al. 1989, 1991, 2004). There are remains of a fourth wall on the plaza; this wall runs east-west on the main plaza. These remains could have been due to a breach in the outer wall defenses and a last stand by the inhabitants to defend the site or it could very well be a modern modification to enclose cattle. This feature was not excavated, and therefore not dated. No other sites with enclosed walls were located by The Ek Balam Survey Project (Ringle et al. 1989, 1991, 2004). Fortification systems are indicative of conflict in a particular area, and can be used to reconstruct sociopolitical relations among a region.

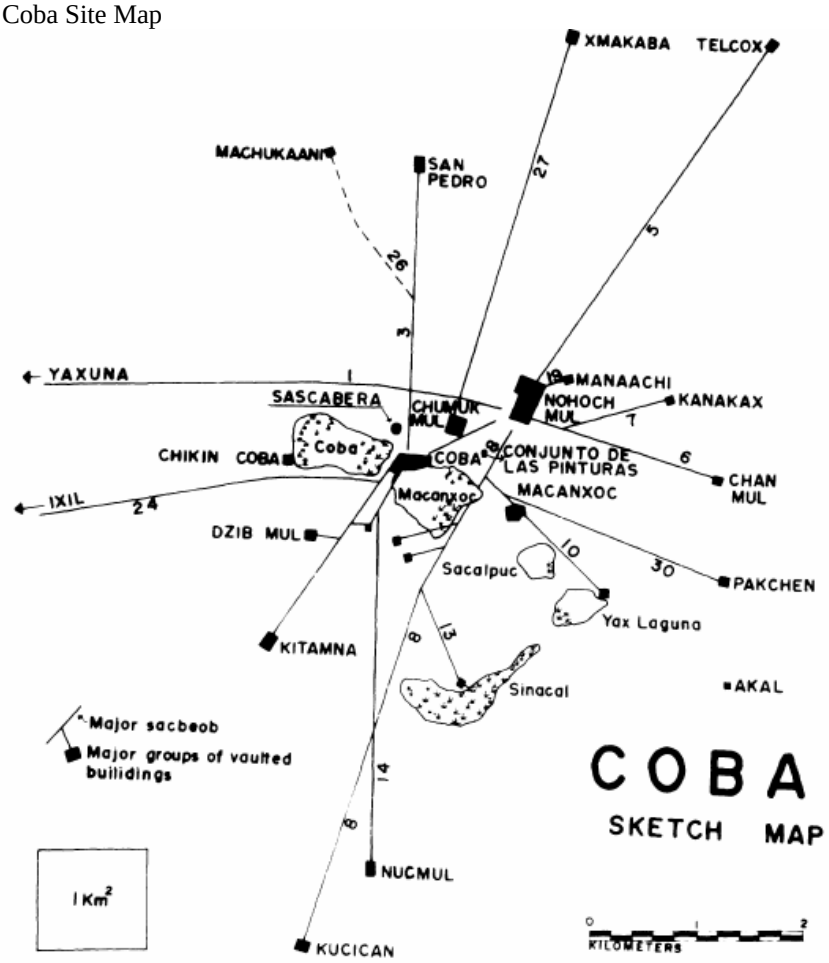
Coba

Coba is located on the northeastern part of Yucatan (20° 29' 23.7" W; 87° 43' 55.5" N). There are five small lakes in the area, which are very rare in the Yucatan region. The lakes are attributed to the Holbox fracture, a regional feature within the northeastern karstic plain; it consists of approximately 100 km of elongated depressions (Weidie 1985).

One of Coba's best known features are the radiating sacbeob, two intersite sacbeob heading east connect to the site of Yaxuna and cover 99 km, the second terminates at Ikil, 20 km away (Figure 4.4). Intrasite sacbeob divide the site into four or more barrios. All told, there is a total of 50 or more sacbeob within the site. There are 70

sascaberos underneath the site; the material removed was used to make the mortar for the buildings and to cover the upper surface of the sacbeob (Folan 1977).

Figure 4.4. Coba Site Map



(After Folan 1977)

The site had a long occupational span beginning with the Terminal Preclassic until the Late Postclassic. Most of the architecture is in Puuc style. There are 23 carved stelae, which is rather uncommon in the Yucatan area (Folan 1975a, 1977a, 1977b; Gonzales 1975). There are eight aguadas, two caves, one cenote, two chultuns, five

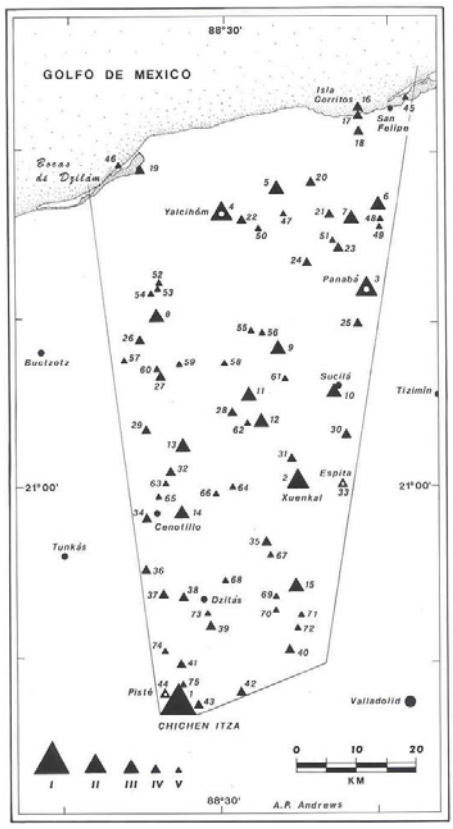
nearby lakes, and three wells. Stela 20, dating to A.D. 721, illustrates an elite individual wearing a headdress, earspools, and other regalia. He stands over a bench, beneath it there are two bound individuals. The person on the left has a headdress, earspools, and a chest ornament; he is positioned on his side and faces towards the left. The person on the right has his arms bound in front of him facing the floor. He also wears a headdress and a loincloth. On both sides of the main character, there are two individuals on their knees with their arms behind them (Pollock 1980; Thompson, Pollock, and Charlot 1932). It is unclear whether they are prisoners with their arms bound or if they are just showing respect to the principal elite individual. Another possibility could be that these are the same individuals below the main personage. Perhaps it symbolizes their subjugation and their current lesser elite status. I propose this suggestion due to the similarities between the persons on either side to the ones below the leader: they both wear the exact same regalia.

Isla Cerritos

Archaeological work at Isla Cerritos is currently headed by Anthony P. Andrews and Tomas Gallareta Negro (Andrews et al. 1984). It is a small island, 200 m in diameter, about 500 m away from the north coast of the Yucatan, and approximately 90 km away from Chichen Itza (Figures 4.5a and 4.5b). Previous archaeological work at the site occurred during the 1970s and early 1980s (Andrews 1978; Lincoln 1983). Occupation at the site spans from the Late Preclassic to the Terminal Classic with a very sporadic occupation during the Postclassic. Isla Cerritos has one nearby estuary and a Peten on the

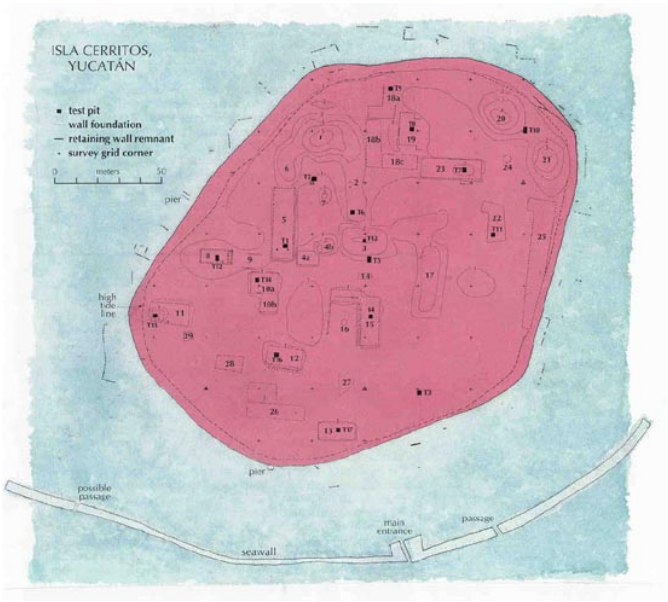
mainland. There are remnants of a sea wall with two narrow entry points, and what might have been a possible harbor. At Paso Del Cerro, there are remnants of a sacbe heading towards the interior.

Figure 4.5a. Cupul Sites



(After Andrews 1989)

Figure 4.5b. Isla Cerritos



(After Andrews et al. 1986)

Isla Cerritos was the primary trading post for Chichen Itza during the Terminal Classic; many items were traded from this site all throughout the Cupul Region. During the Terminal Classic, the site controlled several key resources: Rio Lagartos, both as a

trade route and the natural resources that it provided, and the nearby salt source from Las Coloradas. An assortment of artifacts has been found at the site including chert and basalt from Belize and obsidian from the Central highlands, most of the catalog of artifacts is repeated at Chichen Itza. Over 80% of the obsidian found at the site comes from the Central Highlands of Mexico (Andrews 1978, 1980, 1990; Andrews and Corletta 1995).

Chichen Itza

Chichen Itza is located on the north central part of the Yucatan (20° 40' 58.9" W; 88° 34" 6.7" N; Figure 4.6). The settlement covers an approximate area of five square km. The site was first documented by Diego de Landa in 1566. Stephens and Catherwood visited the site in 1841 and published the first map. Maudslay and Homes also published maps of the site in 1892 and 1895. Archaeological work began in 1924 with the Carnegie Institution under the direction of Morley, and continued for two decades (Ruppert 1935). More recent work has been undertaken by Cobos (1995-1997) and Winemiller (1998, 2000, and 2001).

Figure 4.6. Chichen Itza Site Map

(After Schmidt 1999)

The earliest ceramics date to the Protoclassic, it is possible that the site was settled earlier due to the water resources within the area. There are two large Type 1

cenotes within the site core (Roys 1939). Overall, there are seven cenotes, 30 chultuns, four rejolladas, and four wells (Winemiller 2003). During A.D. 750 to 1200, it was one of the most important regional centers. It was not until the Terminal Classic that the site attained the proportions and urban characteristics visible today.

The earliest structures were of Puuc architectural style, concentrated on the southern part of the site, commonly known as Old Chichen. The only architectural difference is block masonry stonework rather than the fine veneer stonework from other Puuc centers in the western part of the Yucatan. Cehpech occupation is associated with Terminal Classic at the site, but there is a substantial overlap with Sotuta.

The northern part of the site is dominated by El Castillo. The structure has nine terraces and access to the top temple is by four stairways. Two feathered serpent columns divide the entrance to the temple. New Chichen is dominated by a Maya Toltec fusion of architectural style.

Chichen Itza was successful in trade, attaining control of the region and its vast resources, and most importantly maintaining that control for a long period of time. Isla Cerritos was the main trading post for the site, bringing in exotic goods from Central Mexico, Guatemala, and lower Central America. Some of the items imported included fine orange ceramics, basalt, obsidian, turquoise, and jade (Andrews 1990). Salt, cotton, honey, and slaves were among the major exports by the Itza (Andrews 1980, 1990). The Itza were successful in maintaining control of the economic trade routes by setting up numerous trading posts throughout the peninsula and by taking advantage of salt exportation—a much needed product throughout the lowlands. There was a high

dependence of coastal products and the importation of exotic goods. Chichen Itza managed to cut off Coba and the city's trading routes by taking over Isla Cerritos, and basically going around Coba.

Military prowess was a recurrent artistic theme. Murals at the Upper Temple of the Jaguars and Las Monjas reveal scenes of conflict. Adela Breton was hired by Maudslay in 1900 to document the murals at Chichen Itza. Her sketches and watercolor reproductions are remarkable. The following descriptions are based on her watercolor reproductions.

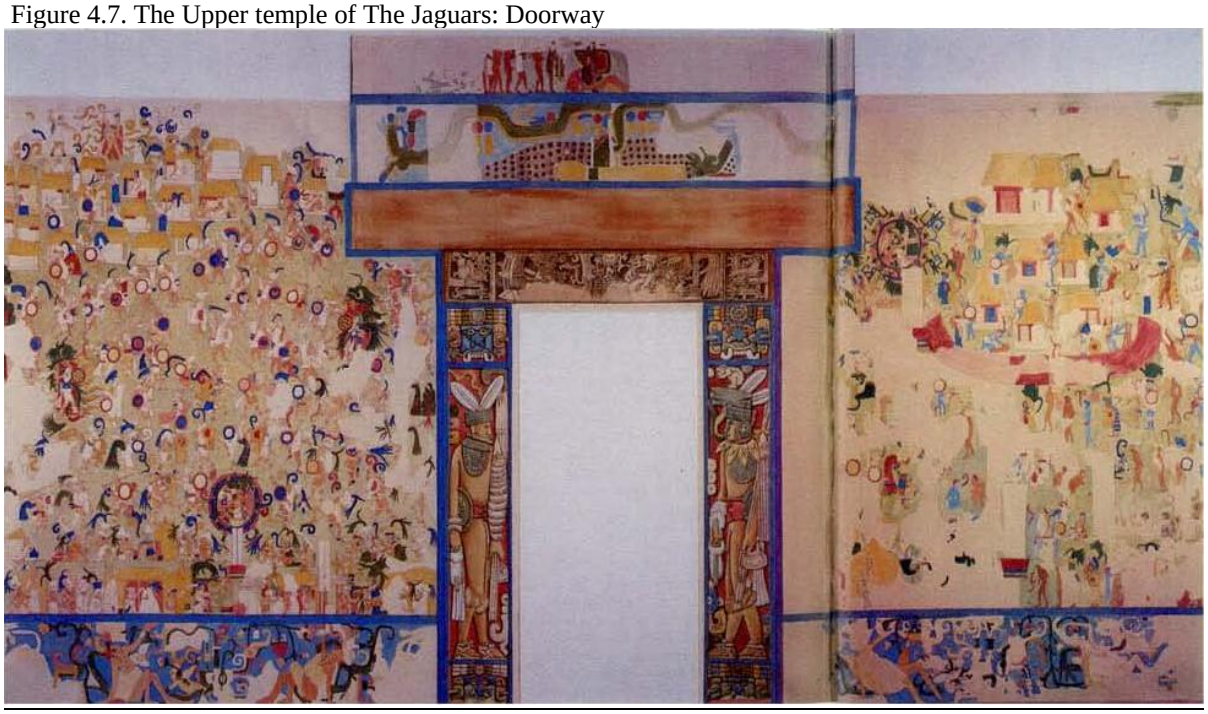
The Upper Temple of the Jaguars

The Upper Temple of the Jaguars, located in the Ballcourt complex, has numerous mural panels. The panels are divided into three areas, the upper area illustrates a possible village, the mid-area contains scenes of military conflict, and the lower area displays huts with elites interacting with one another.

The doorway leading into the interior chamber is decorated on both sides of the door with individuals facing each other (Figure 4.7). The individual on the left wears headgear with two large feathers protruding from it; around his neck he wears a plate, around his waist is a red band that holds his shield on his lower back. His left arm appears to be heavily padded which could indicate protective gear for his shield arm to guard him from blows. In his left hand he holds a weapon, and he is wearing sandals. The individual on the right hand side wears very similar equipment, although his headgear is more intricate with large ear ornaments. He has a feathered necklace over his

neck plate, and a piece of cloth hangs over his left arm and back. His shield is barely visible on his lower back.

Figure 4.7. The Upper temple of The Jaguars: Doorway



(Modified after Coggins and Shane 1984, original by Adela Breton 1928)

Northeast Panel

Only the upper segment of the northeast panel survives. It depicts four red hills with trees (Figure 4.8). These hills have been interpreted as the Puuc region due to the red soil. On the upper left corner, a warrior stands on the open jaws of a snake; it is not clear if he is watching over the scene below or if he is trying to engage the warriors on the hill in battle. The majority of the warriors hold a blue rectangular shield while the others carry white shields. On the upper right hand corner, five individuals are fleeing via a bridge.

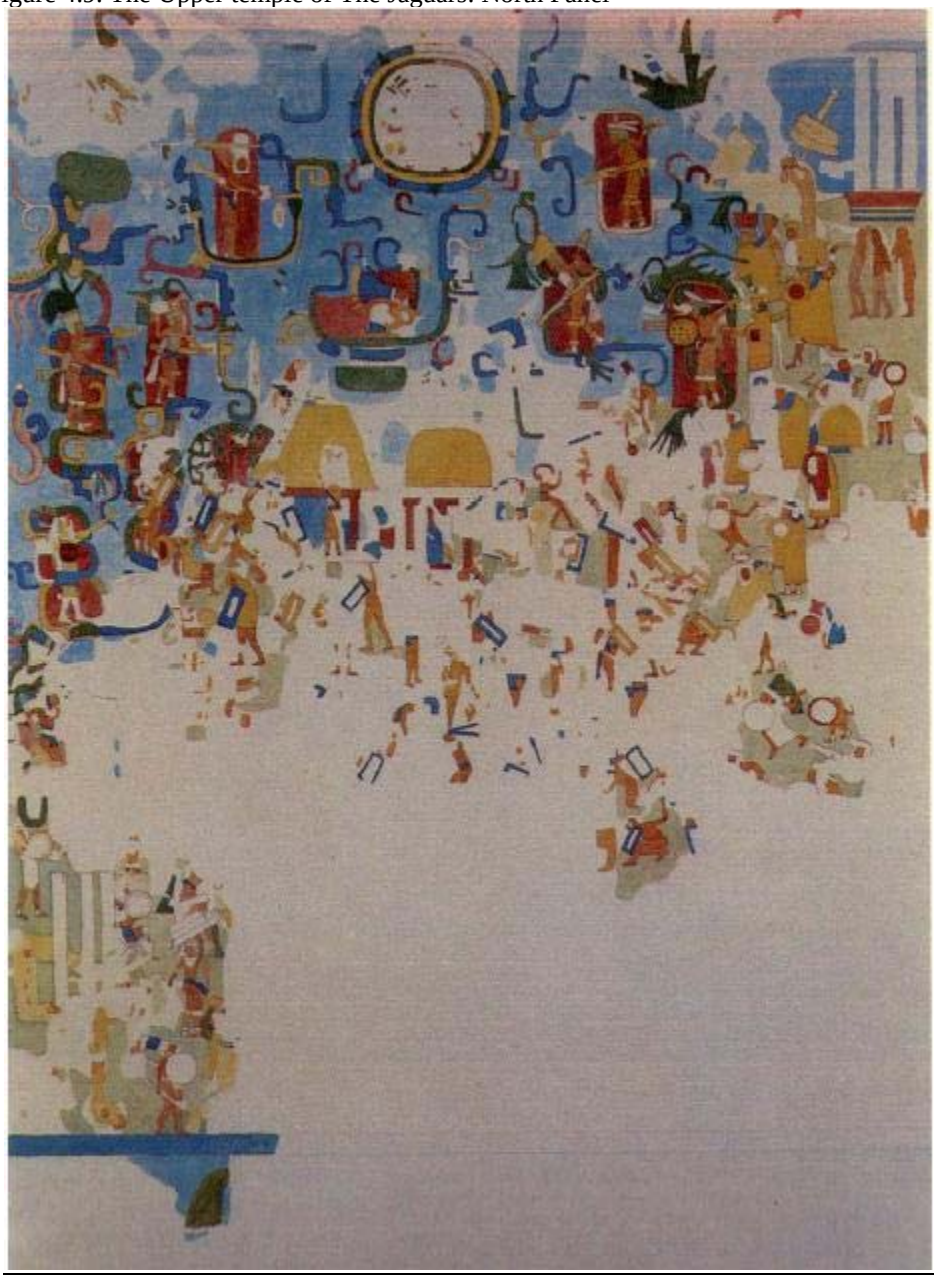
Figure 4.8. The Upper temple of The Jaguars: Northeast Panel

(Modified after Coggins and Shane 1984, original by Adela Breton 1928)

North Panel

Only the upper portion of this panel survived. The background of the upper left scene is a blue sky or perhaps water (Figure 4.9). There are warriors hovering on green serpents with red backgrounds that are probably shields. On the upper center, there is an individual barely visible inside a sundisc. On the center portion, there are two huts surrounded by warriors holding blue square shields fighting warriors with round shields. On the lower left portion, there are more warriors with round shields and weapons rushing up to join the skirmish. On the upper right portion, nine robed individuals stand holding round shields.

Figure 4.9. The Upper temple of The Jaguars: North Panel



(Modified after Coggins and Shane 1984, original by Adela Breton 1928)

Northwest Panel

On the upper portion, eight thatched structures are within a red wall (Figure 4.10). To the west, an individual stands inside a sundisc. The attackers and locals are differentiated by their skin color. Blue-painted warriors with green and blue headdresses attack the villagers. Based on stylistic military gear, two individuals appear to be higher ranking. One wears a light colored cloth down his back, the other wears a green cloth draped over his back. Perhaps, these are the two captains flanking the doorway (see Figure 4.7). Most of the warriors wear colored feathers on their head, perhaps each brigade is differentiated by the color of the feather worn on his head. Outside of the wall, several nude individuals stand under the watchful eyes of numerous warriors.

Figure 4.10. The Upper temple of The Jaguars: Northwest Panel

(Modified after Coggins and Shane 1984, Original by Adela Breton 1928)

Southwest Panel

The upper area of this panel was one of the few panels recorded by BYU Archaeological multispectral images in 2001 (Figure 4.11). Nineteen houses cover the upper portion of the panel. On the upper left corner, warriors appear to be surrounded by flames. One warrior is portrayed throwing a spear with an atlatl with his right hand; his shield hangs on his lower back. Beside him another warrior holds a similar pose; also, next to him is a

warrior with a long red rectangular shield. Extra spears are tied to the inner portion of the shield right up against the warrior's arm. The shields appear to have designs on them, one looks like half a moon, while others have jaguar skin designs.

People can be seen crouching inside two of the houses. Warriors hunkered down with loaded atlatl in their right hands and spears in their left can be seen outside the houses. The majority of the individuals in the middle hold round shields.

Two elaborately dressed captains can be seen in the middle and right side of the panel. They wear similar green headdresses, hover over green serpents, and hold jaguar skin shields. In the lower center portion, a personage is inside a sundisc.

An individual that looks remarkably like a woman (she is illustrated topless) can be seen with a shield on her right hand and a spear in her left hand, her right leg is bent upwards, and her knee is padded. The warrior is in the midst of the battle depicted in fluid motion with her spear ready to strike (see the bottom image on Figure 4.X).

Figure 4.11. The Upper temple of The Jaguars: Upper Portions of the Southwest Panel

(BYU Archaeological Imaging Laboratory 2001. Multispectral Image)

South Panel

Numerous thatched roof houses on a blue background, individuals can be seen inside their homes, and several warriors stand beside these structures (Figure 4.12). On the upper left corner, there is an individual that has fallen off the top of the house, while another stands below him holding what might be a spear. On the upper part, there are three individuals looming over the scene below. The one on the left is intertwined with a green serpent; the other two are over blue curved scroll, all of them hold shields. Most of the battle is covered in the middle and lower portion of the panel. Warriors are differentiated by the different style of shields, most are round while others are oval-shaped with a feathered design hanging loosely down on one edge of the shield.

What is remarkable about this particular panel are the siege towers. Atop each of the towers is a captain wearing a headdress with a green serpent encircling the warrior and part of the tower. The tower on the east is a three-level structure. Three individuals stand at the base, one holds on to the second level with one hand while throwing a spear with the other, a captain is inside the third level, and another individual is on the top of the siege tower. The second tower is a four-level structure, one warrior crouches at the base perhaps pushing the tower, the other stands next to him holding the beams of the base. A warrior stands on the ledge of the second level holding a shield. There are two individuals on the third level. One is naked and may be trying to climb up to the next level; the other is crouched down holding a shield at a high angle with his right arm while he throws spears with his left. On the fourth level, the captain is inside and appears to be

opening the top ledge of the structure. The third tower is on the far west side of the panel, only two levels are visible. One individual stands within the bottom level and the captain is inside the upper most level.

Figure 4.12. The Upper temple of The Jaguars: South Panel

(Modified after Coggins 1984, Original by Adela Breton 1928)

On the upper right portion of the panel, there are two possible high ranking individuals. One is inside a sundisc wearing an elaborate green headdress sitting on a bench. The other is sitting in an elaborate palanquin. At the base of the panel, there are elite individuals sitting over stools in active conversation, perhaps discussing military strategy. An individual with a green serpent encircling him is in the middle of this scene.

Southeast Panel

This is the only panel that does not portray a battle, but does demonstrate defensive characteristics. The structures on the panel are masonry style architecture unlike the thatched houses on the previous panels. There are two concentric walls around the town. Excavation reports at Ek Balam suggest that the walls were covered in red stucco (Ringle 2004). Inhabitants are engaged in regular household activities. Warriors are standing and sitting around holding round shields and weapons.

Las Monjas Murals

Las Monjas Complex is located in the southwest part of the site. Sacbe number seven leads into this complex from the south. Room 22 contains several murals, including a scene of an attack on a town (Figure 4.13). A town enclosed by a red wall is under attack by several warriors. There is a possible second inner wall in the background. Warriors stand on the other side of the red wall holding round shields and spears. Where the red wall terminates, five individuals face towards the east, standing in formation and wearing a wild boar head as headgear, blue ear spools, and blue wrist bracelets.

Figure 4.13. Las Monjas Murals: Room 22

(Modified after Coggins 1984, Original by Jean Charlot)

The Temple of the Warriors Murals

The Temple of the Warriors lies to the northeast of El Castillo. Area 31 illustrates a group of three canoes traveling on the coast. Each canoe has an oarsman and two warriors. The oarsmen are dressed plainly with only a white loincloth; the warriors all have rounded shields and extra spears on their back. Alongside the canoe, fish, shell, crabs, and other types of marine life are visible. The background is dominated by a red soil color with trees and birds. On the right portion of the mural, there is a green snake

over a structure; five other thatched roof structures are located all around the background. People are involved in every day activities.

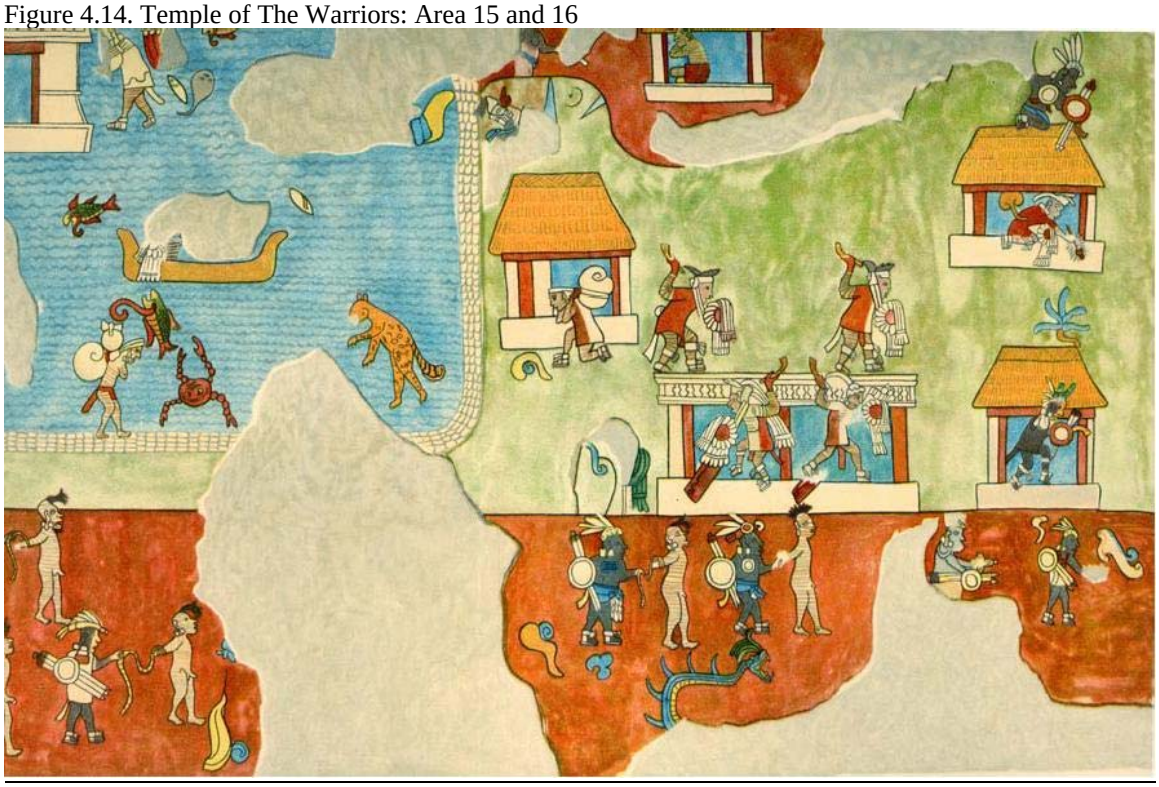
Temple of the Warriors: Areas 15 and 16

The upper left section of the mural has a blue background with two canoes (Figure 4.14). The right side of a masonry building is visible; there is one individual walking towards it. As with the Area 31 mural, there are fish, crabs and shell in the water. Throughout the mural, there are individuals carrying heavy bundles on their backs. One anthropomorphic jaguar is positioned by the edge of the water. The warriors are identified by their gear and shields. The attackers have round shields and are portrayed with darker grayish skin, wearing a round chest plate, white feathers on the head, and blue piece of cloth around the waist. Only the captain wears a green headdress. The defenders have shields shaped like flowers with a cloth draped over the middle of the shield. They wear orange shirts, and hold a weapon high in the air ready to strike. On the upper right side of the panel, there is a thatched hut with a local warrior hunched over trying to set fire to the building. Directly on the roof of this structure, there is an attacker waiting to strike. Directly below, there is another hut with an attacker wearing a green headdress walking towards the inside of the hut. To the west, there is a possible masonry temple with two defenders atop the building and two more standing below it holding their weapons high in the air.

The scene in the lower part consists of two gray painted warriors with a bound naked captive in front of each them. To the right, two more warriors walk by. Below them, there is a blue-plumed serpent with green feathers with his jaws agape.

This might be the scene that follows after Area 31 depicting warriors traveling by water, as the gear that the attackers wear on this mural is very similar to those in Area 31. This might have been their final point of destination. All of the sea-resources imagery and the constant representations of people carrying bundles could be the artist's way of explaining why that particular area was subjugated.

Figure 4.14. Temple of The Warriors: Area 15 and 16



(Modified after Morris 1931, Original by Ann Axtell Morris)

Front Chamber Areas 19-21

The water theme continues in this panel as well. Naked captives, painted red, are in a canoe with their gray painted captors, some of the captives are bound, and others are not.

One individual floats on the water. One canoe appears to be sinking, possibly because of the large number of shields inside of it.

Temple of the Chac Mool Benches

Four warriors are seated along a file on jaguar benches. The warrior on the far left is the most noticeable. He holds an atlatl on his right hand and spears in the left, and a round shield on his lower back. Only the lower part of the other three warriors is visible but they appear to be wearing similar garments.

On the other side of the bench, there are four warriors very similar to the other side, but they are just barely visible. On the third side of the bench, there is an older woman wearing a white skirt with blue sash around her waist, she holds a pot in her hands. Perhaps, this is the female warrior depicted in Upper Temple of the Jaguars.

Summary Discussion

Thematic subjects of the murals discussed so far entail warfare events that may or may not have happened. As with any other form of political propaganda, the events might have been manipulated by the "victorious" party in order to aggrandize the elite roles as warriors. What I find extremely significant in the murals are the illustrations of weaponry, and the concentric walls of the various places that were attacked. Weaponry consisted of many different shaped shields, atlatl, and spears. For the most part, warriors carried their shields slung around their lower back, and extra spears were tied within the shield itself. Military tactics can be appraised by the coastal attacks by canoe, breaching of concentric walls, and, most remarkable of all, the siege towers. The southwest panel

on the Upper temple of the Jaguars portrays a scene of fire, possibly set by the attackers as their warriors are standing near to it. This could have been done to cause a distraction at one point of the city while a second team, led by a different captain, attacks from a different vantage point. On a few of the murals, in the lower portion, individuals were portrayed in discussion while seated on benches. It is possible that the attackers set up camp somewhere near their final point of destination to strategize their attack on the site.

Taken together, all of this information hints at the technological military innovations that had been taking place through the Late and Terminal Classic culminating in the Postclassic. As with any war, the public needs to know why the polity should go to war, so Maya artists included subtle hints to suggest the coastal resources and vast tribute as validation for conflict. The portrayal of captives also represents a highly valued asset. These individuals could be used as enslaved labor, traded for other goods, and could even be used in times of war to carry weaponry, food, tools, to sharpen spears, or push the heavy siege towers.

Chapter 5

Xuenkal and

Investigations of the Defensive Feature

This chapter will cover Xuenkal's site description, previous archaeological work at the site, local resources, and the defensive feature surrounding the central area. Furthermore, I will discuss my research goals, methodology, and findings. A tentative construction date for the feature is suggested. Additionally, test units adjacent to the wall and excavations carried out near the settlement within the barricade are included.

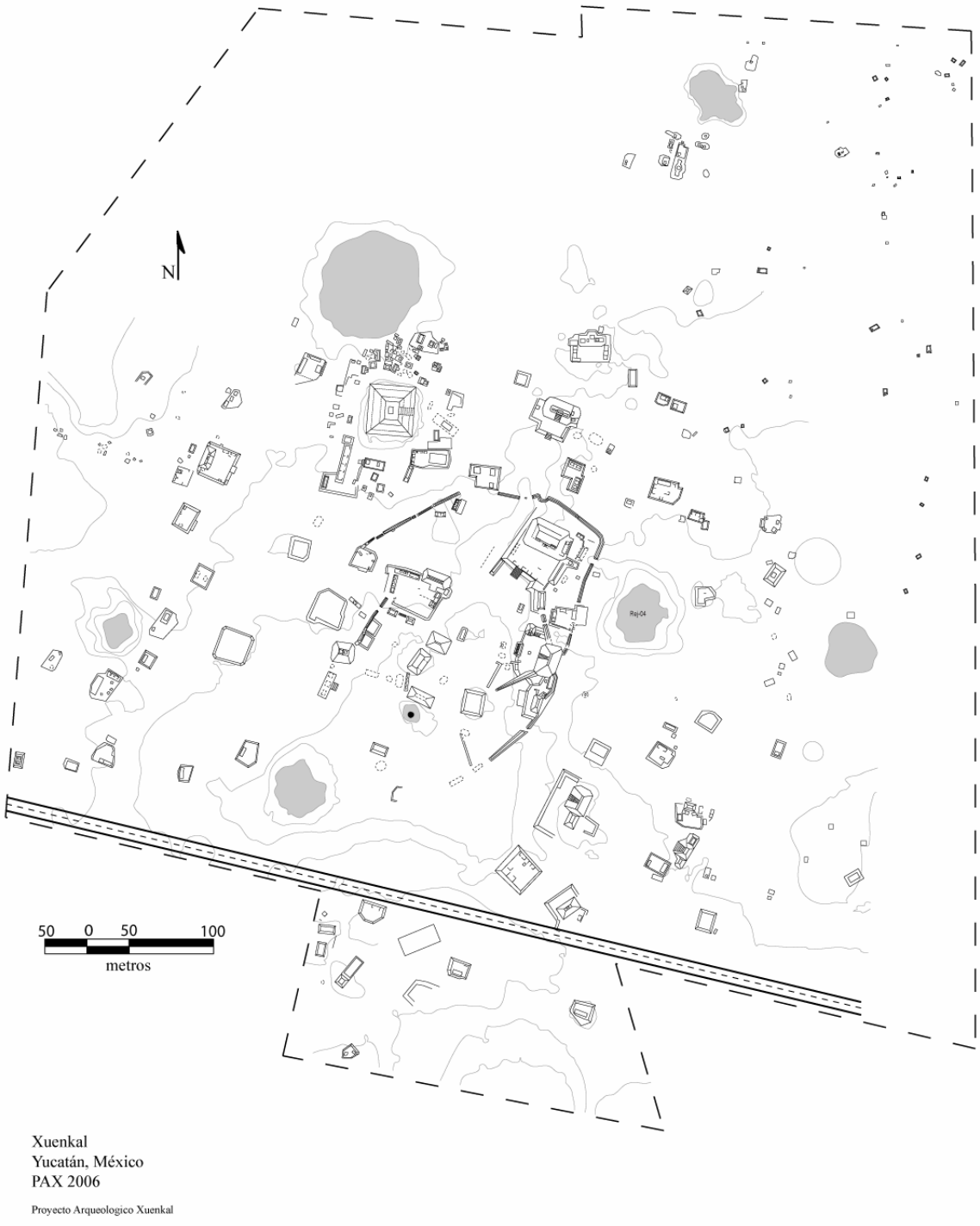
Site Description

As noted previously, the site has a total of 571 structures. FN40 stands out as the largest pyramidal structure; it is 29 m in height, measures approximately 65 m on a side, and it faces east where there is a single staircase. Nearby test excavations imply that this is an Early Classic structure with probable modifications throughout the Classic period (Manahan and Ardren 2005). It is of similar size and proportions to the Castillo building at Chichen Itza. Directly due southeast is the North Palace (FN84), its orientation is 15 degrees east of North, an alignment shared by most of the site's settlement (Manahan and Ardren 2005). FN84 lies atop FN94 which is one of the largest platforms; there is a range structure on the eastern side of this platform. This group is situated along a natural rise on bedrock giving it a higher elevation than nearby groups and supplemented by adjacent walls on the western side of the platform. There is a *rejollada* on the eastern

side; elevation in this area drops off quite dramatically. The North Palace also had the added benefit of being inside the fortified walls (Figure 4.15; Manahan and Ardren 2006).

Numerous residential group clusters extend from the site core for at least a square kilometer. Residential patterns consist of a series of range structures oriented around three sides of a large platform mound. The structures are distributed among 28 closely situated platform groups, which have been labeled “A” through “BB” by the archaeologists (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006). Platforms range from those that show evidence of perishable upper structures, some without any remnants of upper structure, elite structures, and those of more modest elite architecture.

Figure 5.1. Xuenkal Site Map



(Manahan and Ardren 2006)

Previous Archaeological Work at Xuenkal

The site was originally documented in the later part of the 1970s; it is classified as a Rank II site (Gonzalez and Kurjack 1980). In 1988, it was revisited by the Cupul survey Project (Andrews et al. 1988). The participants sketched a more detailed map of the site and collected surface artifacts, the majority of the ceramics were predominantly Sotuta (Andrews et al. 1989). In the summer of 2003, archaeologists from the Mexican Institute of Anthropology and History (INAH) were assigned to a salvage project in the area due to a widening road project which bisected the southern portion of the site. The work was carried out in the south central part of the site on the opposite side of the road. The data from this project yielded contextual information, and even burial data (Burgos et al. 2004).

2004 PAX

Projecto Arqueologico Xuenkal (PAX) began in 2004 with permission granted by INAH. The project was funded by a research grant from the University of Miami. Objectives of the season included detailed documentation of the site's central core, mapping the settlement and topographic features, and creation of a database that would incorporate settlement data, water, and soil information. During this season, 303 ancient structures were recorded and mapped. Structural information was recorded into a handheld palm pilot, the data to be incorporated later into a regional GIS database. Recording criteria of structures is similar to that of the Ek Balam Survey Project. The ruins of an 18th century corn and cattle plantation in the southwestern part of the site were also mapped and

recorded. Reconnaissance data at the time suggests that the settlement continues further away from the area covered (Ardren and Manahan 2004).

2005 PAX

The 2005 field season was funded by The Foundation for the Advancement of Mesoamerican Studies, Inc (FAMSI). Additional funding was provided by the National Science Foundation (NSF). Field research was carried out under permit from INAH. The season objectives included continuation of the mapping project, thereby determining the site settlement and its peripheries; off-mound test excavations to elucidate the site's chronology; and evaluation of ecological significance of rejolladas and their probable agricultural usage. The mapping crew recorded a total of 108 structures, bringing the total to 411 structures at the site. Five additional rejolladas were included in the mapping project; three were initially recorded in the previous season. Off-mound test pits were set up near 47 structures, with a total of 60 test units. The ceramic material dated mostly to Sotuta complex, but the data also revealed Cehpech material as well. Much of the monumental architecture dated to Early Classic and even Late Preclassic (Manahan and Ardren 2005).

2006 PAX

Funding for the 2006 season was provided by the National Science Foundation, and permission for field work was graciously granted by INAH. Objectives for the season included continuation of mapping both with a TMS, and reconnaissance with a handheld GPS unit; off-mound test pits on midden deposits, plazas, and adjacent to small structures

to elucidate construction methodology. Residential excavations were undertaken on three structures (FN276, FN75, and FN183). Excavations at FN183 yielded a high number of burials with a vast array of ceramics, obsidian, and shell (Cucina et al. 2006; Manahan and Ardren 2006). Sixty off-mound test units were excavated around 47 individual structures, bringing the excavated test units to a total of 121. Mapping results yielded an additional 136 structures bringing the total number to 571. Most of the mapping was concentrated on both the northeast and northwest peripheries in order to fill a gap on the map. The rural settlement still needs to be further investigated, as the settlement continues on further to the north. Due to time constraints, we were unable to continue reconnaissance work. Perhaps one of the most exciting finds of this season was an uncarved stela, found lying on its side. It was discovered outside of the central core of the site. Paleoethnobotanical research was carried out in the rejolladas, and a few of the residential structures (Morehart 2006).

Rejolladas and Water Source

One of the main goals in the 2006 season was to document the settlement's nearby rejolladas; there are six rejolladas at the site. During the 2006 season, Morehart conducted pollen and soil analysis (Morehart 2006). Rejolladas are valuable in agricultural potential due to their rich soils; Pre-Columbian usage of these features has been documented for this region (Gómez-Pompa et al. 1990; Kepecs and Boucher 1996). The largest rejollada is located on the northwestern portion of the site, approximately 25 m away from FN40; it is about 50 m in diameter. Two of the second largest rejolladas

lies east of the North Palace (FN84); they are both about 30 m in diameter. There are small structures around the latter rejolladas; excavation material in this area will be discussed in further detail in the following chapters. The fourth rejollada lies on the southwestern portion of the site not too far from the main road, also about 30 m in diameter. A fifth small rejollada is on the western part of the site; about 24 m in diameter, there are about four platforms with perishable structures in the surrounding area. The sixth rejollada is located on the most northeastern point of the site with a few small structures nearby (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006). The only known water source is located in the south portion of the site, it is possible that this water source was at one point enclosed by the fortification walls.

Cave system

There are a series of underground systems at the site. There are about nine sascaberos; these were used to core sascab in ancient times. There are two caves near FN276, south of FN40. There is a large entrance to a cave on the northwest area of the platform, opening into a series of underground caves that have not been thoroughly assessed. The second cave is located towards the east; there is an entrance point, not as large as the other one. Another opening was found towards the southeast side but this was mostly a round opening on the surface, this may be part of the eastern cave.

Population Estimates

Estimating population at a site has always been a notorious archaeological problem. Among the many issues are how many people per structure, how many structures were occupied at the same time, and how many of these structures were residential versus those that were used as kitchen, storage, and activity areas. To estimate population numbers at Xuenkal, I reduced the number of structures by 16% to account for ancillary structures (Haviland 1970). Secondly, I applied a 75% occupancy rate (Adams 1981). Lastly, I allowed four to five people per structure (Inomata 1995). There are a total of 571 structures at the site, 91.36 of these account 16% leaving 474.64, and a 75% occupancy rate leaves 359.73 structures, which with either four or five inhabitants per structure, leaving an estimated populace of 1,439 or 1,799.

Xuenkal is very important due to its spatial relationship with major regional centers discussed in the previous chapter. Furthermore, it is important because of its temporal relation to documented sites with defensive features in the Northern Lowlands during the Late and Terminal Classic. Xuenkal has a very lengthy occupational history. The excavation and mapping data discussed in this chapter draw heavily on the 2004-2005 field notes, and Informes submitted to the Instituto Nacional De Antropologia e Historia (INAH), courtesy of Drs. Traci Ardren and T. Kam Manahan. Test Pits 1-60 were excavated during the 2005 season. During the spring and summer of 2006, I joined the Projecto Arqueologico Xuenkal, to conduct research under the auspices of the Project Directors. Off-mound test pits 61-121 along with on-mound excavations on FN75, FN76, FN276 and FN183 were conducted during the 2006 seasons.

Research Goals

An archaeological investigation of the defensive system is vital to this research. The first phase of fieldwork covered the following: 1) the length and the size of the wall; 2) the size of the area enclosed by the wall; 3) the construction date of the wall; and 4) the construction techniques and/or the repairs.

The second phase encompassed 1) possible functions of the wall; 2) settlement both in and outside of the wall; 3) relationship between the defensive architecture and the residential structures; and 4) natural resources within the wall.

The third phase covered 1) subsistence; 2) artifact analysis; 3) defensibility and military potential; and 4) the socio-political-economic relationship of the site itself within its region.

A significant part of my research goals were to answer certain questions including: were there any repairs to the structure, and what were the associated events? What are the weak and/or strong points of the defensive system? Are there any correlations between newly constructed structures within the wall and with the construction of the defensive system? Most important is the query: What were the series of events surrounding the original construction of the wall?

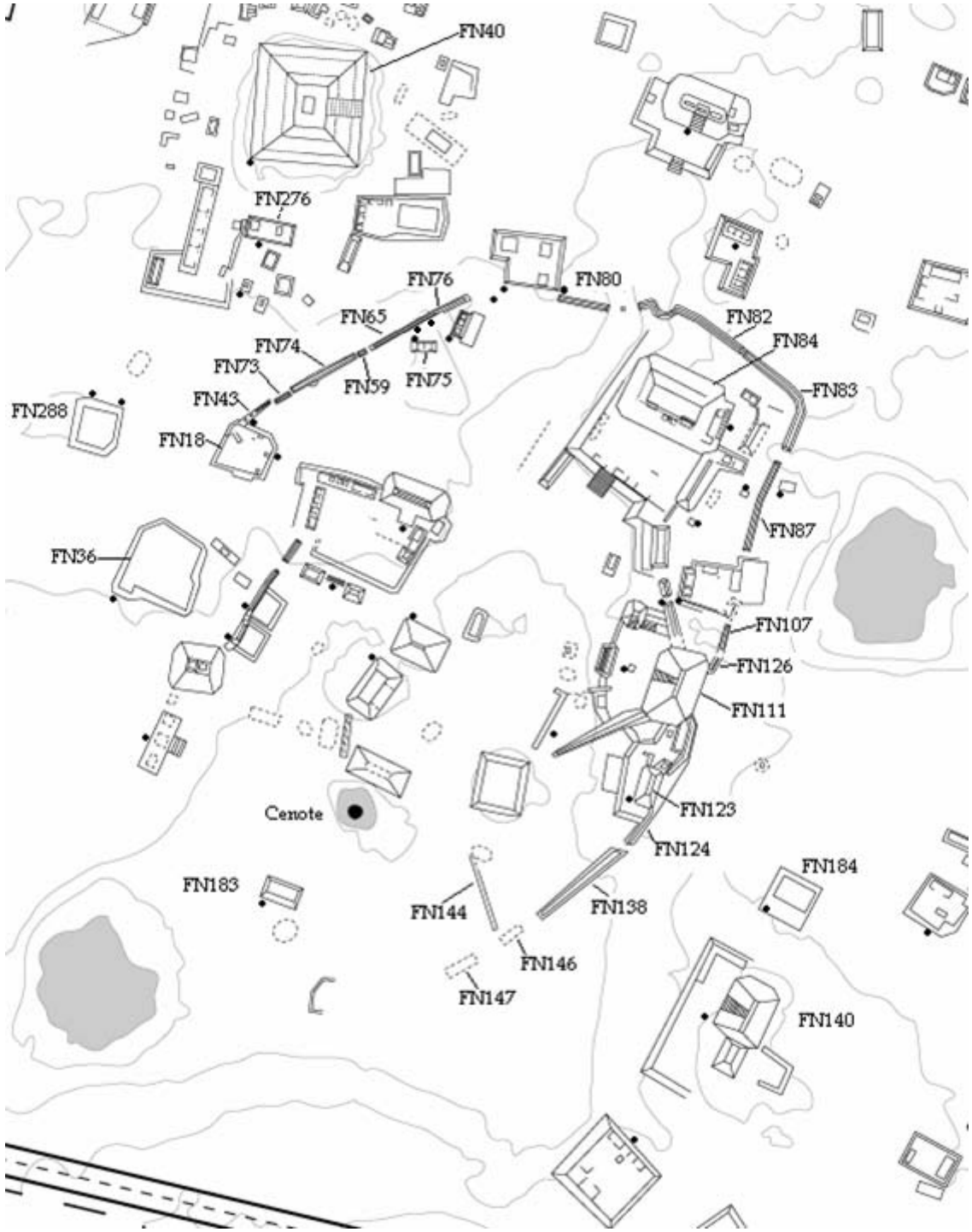
By taking into account a greater range of variables over regional settlements and communities, we might be able to generate a more careful study of the political and the economic relations between sites. We need to understand the development of fortification systems and potential catalysts for the innovation with this particular type of architecture. Another facet of study is deciphering the relationship between defensive features with the

space immediately inside and outside of its perimeter, which will be extremely useful in analyzing intrasite settlement patterns. The investigation of catchment area will place the fortification system in a wider economic setting.

Defensive Works

A defensive wall encircles Xuenkal's site center, which, supplemented by shorter walls that bridge gaps between buildings, encompasses approximately seven and one half hectares (Figure 5.1; Ardren and Manahan 2004; Manahan and Ardren 2005, 2006). Part of the wall in the southwest and south area is missing; it might have been dismantled at a later time to use as building materials for a nearby hacienda or for the albarradas for cattle (Manahan, personal communications 2005). Interestingly, FN40, the largest structure at the site is omitted from the defensive wall. In the northeast, the North Palace (FN84) lies within the confines of the wall. This north area also has inner walls that encircle part of the palace; it is unclear whether this was an added defense element to this elite complex or if it was used to delineate a public space from a private one.

Figure 5.2. Xuenkal's Fortifications



(Modified After Manahan and Ardren 2006)

Defensive Wall Size and Construction Techniques

The wall is made up of a range of segments; some are elongated wedges while others are smaller in length and in height, and each portion was qualified using the same system by which structures were assigned numbers (FN1-FN599). FN43, FN73, FN74, FN59, FN65, and FN76 are located in the northwestern and western sector of the defensive wall. The segments are not directly adjacent, but neither are they separated by structures. These narrow openings might have been used as entry points as there are residential structures in close proximity. All of these segments are constructed of rubble and cut-stone and are a similar height. Based on the volume of rubble adjacent to the wall, the estimated original height is between 1.5 to 2 m (Cortes-Rincon Field Notes 2006).

FN75 and FN77 are residential structures located on the northwest sector of the site adjacent to the defensive wall. FN76 located 2.9 m away from the northwest corner of structure FN77. The northern tip of this segment is 2.5 m wide with a height of 0.50 m, further south, and this segment widens to 3.15 m and a height of 0.66m. The side facing the residential structures is shorter than the outer face of this segment, and the elevation on the area by the outer face is lower than where the residential structures are located. There is a great deal of fallen debris on both sides of the wall. The construction material of this wall includes large metate fragments, boulders, a few cut stones, and uncut stones. There is a break in between FN76 and FN65 measuring 1.10 m; cut-stones are clearly visible on either side. This may have been an entry point into this residential area, note that both segments on either side of this gap are the thickest points of the wall

in the western zone. FN65 starts out with a wider wall measuring 3.10 m and thins out to 2.75 m; the inner and outer height of this wall is .85 m. With the exception of metate fragments, the construction materials are very similar to those of FN76. Directly adjacent to FN76 is FN59, one of the smallest wall segments at the site (Cortes-Rincon Field Notes 2006; Manahan and Ardren 2006).

FN43, FN73, and FN 74 are segments in the western wall directly north of platform FN18. FN18 is a large low 1 m high platform, with three upper rooms directly south of FN40; its northwest corner is directly adjacent to the defensive wall. The western exterior face of FN74 has a visible course of upright slabs of uncut limestone, some of the stones measure 50 x 50 x 35 cm. There is a bulge in the middle inner face of FN74, this might have been caused by collapse debris or it may have been, at one point, an element of a ramp or of a stairway. The width of the wall is approximately 1.7 m and continues for another 1.5 m. FN73 is shorter than FN74. FN43 abuts the northwest corner of platform FN18; this wall segment is oriented towards the northwest. All of these segments are constructed from rubble and large pieces of bedrock with cut-stones. The wall stretches for about 50 m due northwest without any nearby noticeable settlement. Although, due to the dense scrub forest, it is possible to have missed smaller structures (Ardren and Manahan 2004; Cortes-Rincon Field Notes 2006; Manahan and Ardren 2005, 2006).

FN80 and FN81 are segments on the north and northeast part of the wall. FN80 is a thick segment of the wall barely touching the southwest corner of FN61. FN61 is a basal platform with three upper structures. FN81 is a small segment between FN80 and

FN82. There are gaps in between these wall segments, perhaps these were possible entry points on the north point or the wall was stripped of stone for later constructions. The wall segments in this area are constructed of large boulders. The wall network north and northeast by the North Palace (structure FN84) consists of FN82, FN83, and FN87 on the eastern side. Judging from the remains of structure, FN86 might have been stripped of stones to build FN83 (northeast wall segment). FN82 is a wall segment that dips down towards a sascabero located 2 m due northwest. The north element forms a semi-circular section, and it appears at one point that it might have been constructed in a linear fashion, but was adjusted to include the edge of the sascabero. It was constructed with rubble and some cut-stone. This segment still stands about 1.4 m high. Directly south of the North Palace, there are two small structures; one is rectangular (FN85) while the other is apsidal form (FN86). In between these two structures, there is a linear wall running north to south and directly to the northwest, and another linear wall running northeast towards the outer wall ring. It is not clear if these were added features to the outer wall or what other function these might have served (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

FN83 begins next to FN82 in front of the rear northeast corner of FN84 and terminates near the eastern edge of FN84 leaving a small entryway into the group. It is made up of rubble and uncut limestone pieces, but there are a few cut-stones visible. According to the workers, there was an older road that passed through this area that might explain the gap in the wall, as it was probably blown out to allow free passage for local traffic. FN87 is located directly south of FN83, flanking the eastern part of this group;

this wall segment runs north to south. The wall height is lower in this section, approximately one-half m; the rejolladas is directly east of the wall giving the local settlers the advantage of higher ground. A large platform (FN102) is directly adjacent to FN87, there are no rear walls flanking this platform. There a rock piles on the south corner of this platform suggesting a defensive wall was being built behind the rear area of the platform or it was being dismantled. Two additional wall segments (FN107 and FN126) are located adjacent to the south corner of FN102. There is a small gap in between these two segments (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

FN111 is south of FN84, the rear north and south corners of this tall structure are adjacent to the defensive wall (FN126 and FN118); the wall does not protect the rear of the building. The builders of the protective wall may have decided the height of the structure was adequately defensible. The front of the building faces west. On the front of FN111, two walls flank this structure towards the northwest and southwest. Both walls still stand approximately 2.25 m high, and both outer faces of the segment are taller than their inner sides. The top of the walls measure approximately 1.5 to 2 m thick; based on the fallen debris on both sides, the wall's original thickness is estimated to be 4 to 5 m (Ardren and Manahan 2004; Cortes-Rincon Field Notes 2006; Manahan and Ardren 2005, 2006).

An L-shaped linear feature is directly in front of the FN111's basal platform (FN128). The northwest segments (FN110 and FN105) are almost adjacent to the southeast basal platform of the North Palace. The southwest segment (FN117) is just

barely adjacent to a large low-lying platform (FN127) on the south. This particular area has a very complex layout with restricted entrances; small wall segments further impede access (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

FN118 is a wall segment that runs south from the south corner of FN111 making contact with a small platform. On the other side of this platform, FN124 is the next adjacent wall segment. FN138 is the following segment; this particular section is rather long. A linear wall (FN144) is located directly southwest of platform FN127. This linear feature runs southeast, barely making contact with the one of the outer wall segments (FN146). The final wall segment in the southeastern area is FN147, which is a small rectangular wall. The entire south portion of the wall is missing as mentioned previously (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

The only cenote is located in the south center. Two structures (FN66 and FN64) lie north of the cenote, and a small wall connects these two buildings (FN60). Ceramic material from these two structures dated to Terminal Classic. FN44 and FN45 are located on the western zone. FN46 is a wall segment that flanks the west of structure FN44. FN47, another wall segment, flanks the west of structure FN45; this segment is taller than FN46. The wall segments are constructed of large blocks, of rubble, and of cut stone. The wall segments appear to have been faced on both the interior and the exterior. At least three courses of articulated fall are visible. Judging from the collapse debris, FN47 probably stood about 2.5 m high, and FN46 was probably 2 m high. A small wall segment, FN52, continues north to meet the west edge of FN53, a large basal platform with large elite structures and a possible shrine, this slice of the wall is noticeably taller

than the other two portions (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

Excavations on-and-nearby the defensive wall

A defensive wall segment was chosen for excavation (FN76); it is located on the northwest area adjacent to a residential structure FN75 that was excavated fully during the 2006 field season. Test pit number 32, and N40E38 unit were two excavation units set up on this wall segment. All of the ceramics will be referred by their associated chronological time period (Table 5.1), with the exception of Cehpech and Sotuta ceramic complex. This was done in order to see if the overlap is associated with the construction of the defensive works at the site. As discussed in Chapter 4, there is an overlap of these two horizons at the site.

Table 5.1. Xuenkal Ceramic Types

Time Period	Ceramic Complex
COLONIAL	Colonial Oxcum Sacpocana Mama
POSTCLASSIC	Mama Navula Kukula
TERMINAL CLASSIC	Kukula Cehpech Complex Sotuta Complex
LATE CLASSIC	Motul Horizon
EARLY CLASSIC	Cochuah Horizon
MIDDLE PRECLASSIC	Nabanche Tardio

Test Pit 32 and N40E38

Operation 11, Suboperation 3 was assigned to TP32, a 2 x 2 m unit, which was set up adjacent to the middle inner face of the wall. Prior to excavation, unarticulated collapse debris from the upper portion of the wall was visible on the surface (Manahan 2005). Level 1 was composed of the upper humus layer mixed in with collapse debris. The rocks removed ranged from small fill to large unmodified boulders mixed in with 150 sherds (45 Early Classic, 75 Cehpech, and 30 Sotuta). Level 2 was very similar to the previous one with the exception of having a lighter colored soil. This level ended on the bottom of the collapse without any ceramics, although, one gray chert flake fragment was found. Level 3 was composed of reddish soil mixed with pieces of limestone and 150 sherds (1 Preclassic, 14 Early Classic, 105 Cehpech, and 30 Sotuta), and a complete light brown

hammer-stone. Stratum 3 ended on bedrock totaling 62 cm of excavated soil below surface (Manahan and Ardren 2005; Peniche May 2005).

Obsidian

All three levels yielded prismatic blade fragments with scratched platforms. These are characteristics associated with production techniques used during the Early to Late Classic contexts. All of the blades from this unit are from El Chayal (Table 5.2; Braswell 2005; Manahan and Ardren 2005).

Table 5.2. Obsidian

Op-Subop-Lot	Type	Fragment Type	L (mm)	W (mm)	T (mm)	Total Cutting Edge (mm)
11.3.1	Prismatic Blade	Proximal	21.1	9	2.8	40.4
11.3.2	Prismatic Blade	Proximal	13.8	6.5	2.2	13.8
11.3.2	Prismatic Blade	Medial	25.3	10.8	3.4	39.4
11.3.3	Prismatic Blade	Medial	22.9	10.8	3.4	39.4

(Braswell 2005)

N40E38

A grid was set up over a residential structure FN75 using a Topcon GTS-226 Total Station with a Ranger N687 data collector. I extended the grid approximately 7.5 m north from the northwest base of the FN75 platform. N40E38, a 2 x 2 m unit was set up to include the southeast corner of FN76 and the northeast corner of FN65. As, mentioned previously, there is a 1.10 m break between these two defensive wall segments(Figure 5.3). The unit was established to cover a portion of the gap and the two corners of the segments. As with the previous unit, unarticulated fall was present on the surface

adjacent to both wall segments. Stratum I consisted of a dark brown soil mixed with large rocks, this unit yielded very little recovery, and the sherds that were found were extremely eroded. On the eastern part of the unit, bedrock was already visible when this level ended. Stratum II consisted of a dark grayish soil mixed in with three large rocks side-by-side, situated directly on ancient surface. This level yielded one obsidian prismatic blade medial fragment along with 20 Cehpech ceramic sherds. Bedrock was reached fairly quickly in the eastern part of the unit, which had a higher elevation. Only one anomaly presented itself in this unit, a round hole located about one m away from the wall in the northeastern part of the unit; its location is in perfect alignment to southern end of FN76 (Figure 5.4). It might be a possible posthole, but further excavations on other wall segments would be needed to prove or disprove this hypothesis. The eastern portion of the unit had a much higher elevation consisting of cut bedrock running north-south about 30 cm away from the inner face of the wall segment. The western portion of the unit had much lower elevation and ended on flat bedrock. The unit was excavated down to bedrock totaling 39.8 cm below surface (Cortes-Rincon Field Notes 2006; Morehart, Cortes-Rincon, and Stockdell 2006, Manahan and Ardren 2006).

Figure 5.3. Xuenkal Fortification Wall Segment by FN75

Proyecto Arqueologico Xuenkal 2006

Figure 5.4. Fortification Test Unit

Proyecto Arqueologico Xuenkal 2006

Construction Methodology and Chronology

This segment of the wall appears to have been constructed of large unmodified boulders at the base with medium sized rocks on upper levels and with small dry fill in between. The mid point of the wall was set atop of ancient surface while the southern end point was set directly atop of bedrock. Bedrock modifications were found in the southern terrace south of residential structure FN75 and adjacent to the wall segment (FN76).

Most of the ceramics from TP32 are Cehpech along with 60 Sotuta sherds, both from the Terminal Classic. The rest are Early Classic, and a few Preclassic sherds. The ceramics from unit N40E38 are mostly Cehpech. This would suggest this wall segment

(FN76) dates to Terminal Classic, with earlier midden deposits taken from nearby structures utilized as construction fill. Alternatively, this section could have been constructed earlier and repaired during the Terminal Classic.

FN61

Operation 10 was assigned to Group M, Suboperation 1, a residential platform (FN61) with three upper structures. Three test pits were excavated within this operation. The basal platform has cut-stones visible. The southern edge of FN61 lies directly outside wall segments: FN76 and FN80. This structure was chosen for excavation due to its proximity to the defensive wall, and the moderate quantity of ceramics observed on the surface (Ardren and Manahan 2004). There is a sascabero located approximately two m due east. The structure is located on Hacienda land, and has been exposed to animal disturbances. Test pit 27 was located on the southwestern corner of the basal platform. Level 1 consisted of removing dark brown soil, collapse debris visible on the surface, and 300 Terminal Classic sherds (15 Cehpech, and 285 Sotuta). Level 2 consisted of removing the collapsed debris, and two thinning flakes. Level 3 consisted of removing the remainder of collapsed debris ending on bedrock. Level 3 consisted of predominantly Terminal Classic material (eight Cehpech, and 142 Sotuta sherds). The northeast part of the unit has a higher bedrock elevation (Manahan and Ardren 2005; Peniche May 2005).

TP28 was situated five m off the southwestern corner of FN61. While excavating the first level, reaching only 20 cm below the surface, bedrock was reached. There was

no ceramics recovered, but one bifacial flake was found in this unit (Table 5.3; Manahan and Ardren 2005; Peniche May 2005).

A third test pit (#29) was set up on the southeast side of the platform. Stratum I consisted of dark brown mixed with small rocks, and 50 Terminal Classic sherds (Sotuta). Stratum II consisted of removing larger stones, which were collapse debris from the platform wall, and 50 Sotuta sherds. Stratum III continued the removal of large stones, and exposed bedrock only in the middle of the unit. Three thinning flakes and one flake fragment were located in this level. Stratum IV consisted of removing gray brownish clay sascab surface just above the bedrock, and two Cehpech sherds, eight Sotuta, and six Early Classic sherds. Stratum V removed the remainder of soil, which was only in the southwest portion of the unit, this final level did not yield any artifacts (Braswell 2005; Manahan and Ardren 2005; Peniche May 2005).

Table 5.3. Obsidian

Op-Subop-Lot	Type	Fragment Type	L (mm)	W (mm)	T (mm)	Total Cutting Edge (mm)	Source
10.1.2	Prismatic Blade	Medial, 2 dorsal ridges	25.4	10.3	2.1	47.4	El Chayal
10.1.5	Prismatic Blade	Distal, two dorsal ridges	27.3	10.1	3.0	53.0	Pachuca, Hidalgo
10.1.5	Flake	Complete Percussion Flake	13.4	20.3	5.0	0	Ucareo, Michoacan
10.1.6	Prismatic Blade	Medial, 1 dorsal ridge	20.1	10.5	2.1	24.4	El Chayal
10.1.6	Prismatic Blade	Medial, 3 dorsal ridges	26.0	10.1	2.8	47.7	El Chayal

(Braswell 2005)

Discussion and Chronology:

Chert material suggests the residents of FN61 were retouching tools on site, and recycling pieces to use as different tool forms, for example, three are thinning flakes; three are tertiary flakes, and a bifacial tool. Three out the five obsidian blades and flakes are from El Chayal, Guatemala. One of the Pachuca prismatic blades was from Hidalgo, Central Mexico. The fifth obsidian flake came from Ucareo, Michoacan. Based on the cultural material found in the units excavated on this platform, the construction began in the Terminal Classical with predominant Sotuta ceramics and earlier material taken from a nearby structure and utilized as construction fill (Braswell 2005; Manahan and Ardren 2005; Peniche May 2005).

FN18

FN18 is a rectangular basal platform measuring 28.6 m in length, 26.2 m in width, and 0.70 m in height with three upper structures (FN: 19, 41, and 42). The platform exhibits minimal disturbances; the base has cut-stones and an outset stairway on the southeast. Only the northeast corner of the platform is connected to the defensive wall. Surface collections from 2004 were predominantly Sotuta, and a few Preclassic ceramic sherds. This structure was chosen for further analysis due to its proximity to the defensive wall and the ceramic surface collections (Ardren and Manahan 2004; Manahan and Ardren 2005).

Operation 3, Suboperation 1 was assigned to this platform located in Group I. Three test units were excavated around this platform (TP3-5; Table 5.4). TP3 was

situated on the north of the platform, near the northwest corner where the wall intersects the building, and the closest point to the defensive wall. On the southeastern part of the unit, large collapsed stones from the platform wall were visible on the surface. Level 1 consisted of cleaning up this debris and removing the humic layer along with 100 Sotuta sherds, and what could have been an earlier ceramic water jar. Level 2 consisted of removing reddish brown soil along with the remainder collapsed debris, and eight Cehpech, and 231 Sotuta sherds. Level 3 contained smaller rocks and four Early Classic, and 72 Sotuta sherds. This level ended on bedrock that had a higher elevation on the southeastern portion of the unit. TP3 was excavated to a total of 41.2 cm below the surface (Manahan and Ardren 2005).

TP4 was placed on the eastern edge of the platform; this unit was only excavated in two levels before reaching bedrock within 38 cm below surface. As with the previous unit, collapsed debris from the eastern platform wall was visible on the surface, articulated fall was present on the southwest part of the unit. A large cut boulder along with two unmodified boulders was removed in level one, along with four Cehpech, and 188 Sotuta sherds. Level 2 consisted of removing two large boulders directly above bedrock, which had a much higher elevation in the center of the unit. TP5 was placed atop the platform between the two upper structures FN19, and FN42. This test unit was very unproductive and ended on two short levels (Manahan and Ardren 2005).

Table 5.4. Obsidian

Op-Subop-Lot	Type	Fragment Type	L (mm)	W (mm)	T (mm)	Total Cutting Edge (mm)	Source
3.1.2	Prismatic Blade	Distal Blade Fragment, 2 dorsal ridges	20.1	8.3	3.3	40.5	Pachuca, Hidalgo
3.1.2	Prismatic Blade	Medial Blade Fragment, 2 dorsal ridges	20.4	8.3	2.6	35.0	Ucareo, Michoacan
3.1.5	Prismatic Blade	Medial Blade Fragment, 2 dorsal ridges	22.4	12.2	2.8	38.4	El Chayal
3.1.6	Prismatic Blade	Medial Blade Fragment, 2 dorsal ridges	22.0	8.2	3.2	42.6	El Chayal

(Braswell 2005)

Discussion and Chronology:

The cultural material from the test units suggests the construction of this platform dated to the Terminal Classic. The majority of the ceramics are Sotuta, with a few Early Classic sherds. The base for this platform was constructed of large boulders laid side-by-side directly on top of bedrock with dry fill in between the large boulders. The platform itself did not have any stucco floors, which would suggest that perhaps it had a packed earthen floor at one point. Lithic material indicates inhabitants were retouching their tools on site. Two of the obsidian prismatic blade fragments are from El Chayal while the other two are from the Central Highlands of Mexico (Braswell 2005; Manahan and Ardren 2005; Peniche May 2005).

Group O - FN123

Operation 13 was assigned to Group O, composed of two large temples (FN123 and FN111). A total of six suboperations were excavated in this group. Suboperation 5 was assigned to FN123, a rectangular structure possibly an earlier smaller temple facing west,

south of FN111, measuring three meters in length and width, and two meters high. Its walls are made of masonry and veneer stone with an outset stairway and a stone drum column. Its northeast and southwest rear corners abut the defensive wall. This structure was heavily impacted by the nearby hacienda construction. There is an albarrada running north-south right over this pyramidal structure. TP45 was placed near the southwest corner of FN123. Stratum I consisted of removing the humus layer, a dark brown soil with small rocks that turned out to be construction fill for the plaza in front of this structure. Artifact recovery included six Early Classic, 44 Cehpech, and six Sotuta sherds. Stratum II did not have any stratigraphic change; soil color remained the same as the previous level, this level continued removing the construction fill composed of large limestone boulders with little artifact recovery. Stratum III consisted of removing gray soil with a high level of artifacts, more so than any of the preceding levels, indicating this might have been a midden deposit sealed by the construction fill and plaza floor. This level yielded 250 sherds, a mix of Early Classic material with a few Terminal Classic sherds, including Cehpech and Sotuta (Table 5.5; Braswell 2005; Manahan and Arden 2005).

Table 5.5. Obsidian

Op-Subop-Lot	Type	Fragment Type	L (mm)	W (mm)	T (mm)	Total Cutting Edge (mm)	Source
13.5.3	Prismatic Blade	Proximal Blade Fragment, 2 dorsal ridges	24.7	13.2	3.2	49.1	El Chayal
13.5.3	Prismatic Blade	Proximal Blade Fragment, 2 dorsal ridges	31.9	12.2	3.3	60.7	El Chayal

(Braswell 2005)

FN111

This rectangular structure measures 12 m in length, 4 m in width, and 3 m in height. This temple is made from masonry stone; its exterior façade has cut stone with an outset stairway. There are two visible upper rooms with one possible additional room. During the 2004 field season surface collections were gathered and analyzed. The ceramics dated to Terminal Classic with the majority of the sherds belonging to the Sotuta Complex, with a few sherds dating to the Late Classic, and a few Preclassic sherds (Ardren and Manahan 2004).

TP41 was set up due west of FN111 aligned with the center of the structure. Stratum I consisted of removing the humus layer ending on the possible plaza floor surface, all that remained was *chich* fill below the eroded plaza floor. This was a very shallow level with 250 Cehpech sherds, and 1 gray medial flake. Stratum II consisted of dry core fill with four Early Classic, and four Cehpech sherds. This level ended on undulating bedrock with higher level of bedrock on the eastern part of the unit (Manahan and Ardren 2005; Peniche May 2005).

FN112

FN112 is a small square structure due west of FN111, and located atop the same basal platform. This structure was chosen for excavation to test its function as a possible altar. TP42 was situated on the south side of FN112. Stratum I consisted of removing the top humus layer with little artifact recovery (two Cehpech, five Sotuta sherds, and one chert flake). Stratum II consisted of removing black clay silt very similar as the previous level

with medium sized rocks. This level ended on construction fill with no artifact recovery. Stratum III consisted of removing very dark brown soil, and construction fill ending on bedrock with nine Cochuah sherds (Manahan and Ardren 2005; Peniche May 2005).

FN114

FN114 is a small rectangular structure located on the middle of the edge of the basal platform on which FN111 and FN112 are located. TP43 was located west of the structure including the collapsed debris from the wall of the structure. Stratum I included the removal of dark gray silt clay humus layer mixed in with fist sized rocks, 16 Early Classic, 34 Cehpech, and 34 Sotuta sherds. This level ended at 21 cm below the surface directly on bedrock (Manahan and Ardren 2005).

FN175

FN175 is small structure south of FN114, its located just off the basal platform on the southwestern area, but still within the confines of the FN111 southwest wall fragment. TP44 was set up on the west side of the structure. This unit was very shallow, ending on bedrock with 22 Cehpech, and two Sotuta sherds after 6.4 cm below the surface (Manahan and Ardren 2005).

FN108

FN108 is small square structure connected to a defensive wall segment FN110, and southeast of FN105 (another wall segment). TP 108 was set up on the north side of FN108. This unit was excavated on a single level consisting of reddish brown soil ending

at 14.4 cm below the surface on bedrock. Artifact recovery included 42 Late Classic; 45 Cehpech, and 29 Sotuta sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Discussion and Chronology

A stucco floor was not found on the plaza in front of FN123. Perhaps, it may have been a packed earthen floor or, most probably, it eroded away a long time ago. The high density of ceramics and two obsidians in level three date to the Early Classic giving this structure an early construction date with a continued occupation, and modification sequences until the Late Classic. There was not a high level of Terminal Classic pottery suggesting this structure received little attention during this time, as the inhabitants seem to have concentrated their efforts on the North Palace area (Manahan and Ardren 2005).

On the other hand, the structures to the north of FN123 yielded predominantly Terminal Classic material culture. FN111 had a high number of Cehpech sherds, and very little earlier material giving it a probable Terminal Classic occupation. Excavations on FN114 yielded an equal mix of Cehpech and Sotuta material. This structure was probably built in Terminal Classic. FN175 yielded mostly Cehpech material. FN108 yielded Late Classic, Cehpech and Sotuta material. This structure was probably built during the Terminal Classic with earlier midden deposits recycled from a nearby structure used as construction fill.

FN104

Operation 12 was assigned to Group N, which encompasses the North Palace area, and a few structures south of it. Suboperation 4 was delegated to FN104, a rectangular upper structure located on a low basal platform, FN102, directly north of FN111. FN102 has three upper structures, FN104 is the best preserved with two rooms. Architecturally, this structure is made of reused cut-stones and large boulders, and was chosen for excavation due to high ceramic surface observations and for its proximity to the defensive wall. TP40 was situated near the northwest corner adjacent to the west wall of the structure. Level 1 consisted of removing medium brown soil mixed in with small stones and one large boulder ending on bedrock after 22.2 cm below the surface. Artifacts recovered included 40 Early Classic, 150 Cehpech, 200 Sotuta sherds, and one obsidian prismatic blade proximal fragments from Ucareo (Braswell 2005; Manahan and Ardren 2005).

FN90

FN90 is a small apsidal structure located west of FN87, a defensive wall segment, and east of the North Palace. The area around FN90 has bedrock outcrops. TP107 was located north off the structure, and was the only area with visible soil surface. Level 1 consisted of removing the humus layer, a dark brown soil with limestone inclusions. Artifact recovery from this level included 30 Late Classic, 29 Cehpech, and two Postclassic sherds. Level 1 reached bedrock on the northern part of the unit 10.6 cm below the surface. The southern part of the unit was excavated as the second level, although there was no stratigraphic change ending at 7.6 cm below surface. Artifacts

from the second level included 20 Late Classic, four Cehpech sherds, and six Postclassic sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN88

FN88 is a small rectangular structure located outside and east of the defensive wall, its exterior façade made of cut-stone. TP104 was set up south of the structure near its southwestern corner. As with the area near FN90, there is a lot of bedrock visible on the surface. Level 1 consisted of removing the humus layer, a dark brown soil mixed in with 40-60% rocks. This unit ended at 16.6 cm below surface. Artifacts from this unit included 194 Late Classic sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

Evidence of animal disturbance would account for the mix of artifacts from Early Classic to Terminal Classic in FN104. The basal platform is very low in height; the upper structures were built directly atop of the platform with minimal construction materials. It is likely that FN104 was built during the Terminal Classic, and does not have an earlier construction. Judging by the higher number of Cehpech sherds, FN90, the structure located inside the wall was probably built during the Terminal Classic with minimal usage during the Postclassic. On the other hand, FN88, the structure located outside of the defensive wall appears to have been built in the Late Classic, and received minimal usage in the later periods.

Excavations of Structures located inside the Defensive Wall

There are a total of seven platform groups inside the wall, and seventy mapped structures within the wall. FN 85, 88, 89, 90, 92, 101-104, 106, 174 may all be related to settlement within the safety of the wall. These are all non-elite smaller structures that do not conform to the layout of the North Palace complex.

FN127

FN127 is a low large square platform with four estimated rooms located within Group O. The top of this structure was stripped for construction materials for the nearby hacienda located about 30 m away. Operation 13 was assigned to this residential group; suboperation 6 was assigned to FN127. TP46 was set up on the southeast near the corner of the platform. Stratum I consisted of removing the top humus layer with a mix of historic, and modern cultural material including wine bottles dating to 1800s, three Cehpech, 23 Sotuta, and 20 Postclassic sherds. Stratum II consisted of collapsed debris with less historic artifacts, reddish soil, and a chalcedony flake. Stratum III consisted of removing light reddish soil with three Cehpech, 40 Sotuta, and eight Postclassic Hocaba sherds. This unit was excavated to a total of 50 cm below surface (Manahan and Ardren 2005; Peniche May 2005).

Chronology and Discussion

This platform was probably built during the Terminal Classic, earlier material was found, but in very low quantities. The highest numbers of Hocaba material was found in this unit, more so than anywhere else at the site (40%). Postclassic material was found on all

three levels excavated within this unit suggesting bedrock was exposed in ancient times (Manahan and Ardren 2005).

FN91

FN91 is a large rectangular range structure flanking the eastern zone of the courtyard of the North Palace (FN84). The structure is constructed of large cut boulders with three rooms. Its exterior façade was made from veneer stones, and possibly an outset stairway on the west side of the structure. A moderate number of ceramics were observed on the surface during the 2004 season (Ardren and Manahan 2004). Operation 12, suboperation 1 was assigned to TP37, situated on the plaza due west of FN91, and approximately 15 m south of FN84. Level 1 consisted of removing the topsoil. Artifact recovery included 15 Early Classic, 70 Cehpech, 201 Sotuta, 18 Postclassic sherds, two bifacial chert fragments, six flakes, two thinning flakes, one complete percussion blade, and two obsidian prismatic blade fragments from El Chayal. Level 2 included just the eastern portion of the unit, a lighter soil color and difference in texture with nine Early Classic, 90 Cehpech, 201 Sotuta sherds, and one thinning flake. Part of the west wall of the structure was exposed in this level, along with collapsed debris from the wall with small traces of stucco that may have been part of a floor. Level 3 included the removal of small stones ending on subfloor fill with 10 Cehpech, 80 Sotuta sherds, and one brown chert flake. Level 4 consisted of removing construction fill, composed of lighter soil mixed with sascab, and one hammer stone. In Level 5, the rest of the construction fill was removed ending on bedrock at a total depth of 122 cm below surface. Artifact recovery

included 60 Early Classic, 34 Cehpech, 60 Sotuta sherds, one bifacial proximal fragment, and one Pachuca obsidian medial blade fragment (Braswell 2005; Manahan and Ardren 2005; Peniche May 2005).

FN84

FN84, the North Palace, is a superstructure on top of a large basal platform. FN94 is the southern half of the platform; FN98 is the northern end with a lower elevation. The North Palace is a two-story building with vaulted rooms. Its upper floor had two rooms with one room still standing on the east side; its northern wall has 11 courses visible. The lower floor has three rooms visible. Hurricane Gilberto damaged this structure in 1988 and thereafter by looters (Ardren and Manahan 2004).

Operation 12, suboperation 2 was assigned to TP38, which was set up on the courtyard south of FN84, and near the junction with FN125, a structure located east of FN84. Level 1 consisted of removing a black clay loam that appears to be a mix of topsoil, and modern burning of the area. Ceramics from this lot include 190 Cehpech, and 90 Sotuta sherds. Level 2 removed dark grayish soil mixed with small construction fill that was the eroded plaza floor (same as with the plaza floor west of FN91). Artifacts in this level included one Early Classic, 72 Cehpech, and 58 Sotuta sherds. Level 3 removed gray brown clay soil mixed in with small-to-medium sized rocks, and pieces of painted stucco from a different building. Artifacts from this level included nine Early Classic, 81 Cehpech, and 45 Sotuta sherds. Level 4 included removal of large boulders. No stratigraphic soil change was noticed in this level. Artifact recovery was less than the

previous levels: 111 Cehpech, 29 Sotuta sherds, and one thinning flake. Level 5 was similar in context to the previous level with the continued removal of large boulders. Artifact recovery included 86 Cehpech, 10 Sotuta sherds, and one prismatic obsidian proximal blade fragment from El Chayal (Braswell 2005). Level 6 removed a dark brown soil mixed with very large boulders that appear to be resting directly on bedrock. The boulders sizes are approximately 70 cm in length with 42 cm in width. Artifact recovery included 40 Cehpech, and 10 Sotuta sherds. The unit was closed at this last level, 116 cm below surface, due to the large size of the boulders, and the damage the removal of these boulders would have caused to the walls of the unit (Braswell 2005; Manahan and Ardren 2005; Peniche May 2005).

FN92

FN92 is located east of the north Palace in Group N. It is a small rectangular structure with one room. Its exterior façade is made out of rubble, on its eastern side there is an upright boulder wall running north to south. Operation 12, suboperation 6 was assigned to TP105. This test unit was set up on the east side of the structure. Stratum I consisted of the removal of dark brown humus layer with limestone pebbles, level ended at bedrock with 23.6 cm below surface. Ceramics include 98 Late Classic, and four Sotuta sherds dating to Terminal Classic (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN174

FN174 is a small square structure with one room, and rubble exterior façade located southeast of the basal platform the North Palace is located on. Operation 12, suboperation 7 was assigned to TP106, located approximately 1 m east of the structure. The eastern wall is still preserved with al alignment of stones still visible running north to south. Level 1 included the removal of the humus layer, dark brown soil mixed in with moderate small limestone. This unit was excavated in one single level terminating at bedrock after 10.8 cm below surface. Artifact recovery included 113 Late Classic, 7 Cehpech, and 94 Sotuta sherds (Manahan and Ardren; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

The test unit south of FN84 yielded mostly Cehpech material indicating the plaza was constructed in Terminal Classic times, although its construction date predates the influx of Sotuta ceramics at Xuenkal. Further investigation on FN84 would shed light as to its original construction and earlier encased buildings, if any.

FN91 was built in the Terminal Classic with earlier material taken from nearby Early-Late Classic deposits. The west wall of the structure consisted of masonry cut-stone side by side with any dry fill in between with a stucco plaza floor adjacent to it. Since none of the interior architecture was exposed, it was not possible to discern if the plaza floor continued below the wall since this structure was built later on; it could have been constructed directly atop of the stucco floor. The ceramics from TP37 are

predominantly Sotuta indicating this structure was a later addition to the North Palace courtyard.

FN92 appears to be a very modest structure dating to the Late Classic with very little Terminal Classic material. All of the Late Classic ceramic is from Motul Horizon with four Sotuta sherds. FN174 was also built in the Late Classic with minimal usage in the Terminal Classic. There is a lot of similarity between the cultural material found FN92 and FN88, which lies outside the wall.

FN92, FN88, FN90, FN106, and FN174 are all small structures located below the North Palace basal platform. It is unclear if these structures served inhabitants seeking refuge within the safe confines of the defensive wall similar to the small "squatter" structures within the El Duende Group, and the Main Plaza at Dos Pilas, Petexbatun (Demarest et al 1991; Demarest et al 1997). All of these structures appear to have been built during the Late Classic with continued occupation in the Terminal Classic. Only structure FN88, which is located directly outside of the defensive wall, has no Terminal Classic usage. Further analysis on all of these structures may determine Terminal Classic occupation, and functionality.

FN75 / FN77

Group L is located on the northwest area adjacent to the defensive wall with two residential structures FN75 (16Q356575 2323894) and FN77 (16Q356599 2323904). FN77 is a rectangular structure with three rooms and exterior façade made from cut stone (Manahan and Ardren 2005, 2006).

Operation 11 was assigned to this group, and suboperation 1 was delegated to TP30. The test unit was set up near the southwest corner of FN77. Level 1 consisted of dark brown silt soil mixed with unmodified and modified boulders, and probable collapse debris from the wall. Artifact recovery included five Early Classic, 25 Cehpech, 20 Sotuta sherds, and one obsidian prismatic blade proximal fragment from El Chayal (Braswell 2005). Level 2 removed dark brown silt without any noticeable stratigraphic change and no artifact recovery. Level 3 consisted of removing light brown silt soil ending on bedrock at 61 cm below surface. The west wall of the structure was visible in the east part of the unit, as the limestone was greatly eroded. Bedrock undulates throughout the unit with a higher peak in the northern portion of the unit (Braswell 2005; Manahan and Ardren 2005).

FN75

FN75 is rectangular structure southwest of FN77. This structure was chosen for excavation because it is situated 6 m away from the defensive wall, and the high density of ceramics on the surface (Ardren and Manahan 2004). Suboperation 2 was assigned to TP31. The excavation unit was set up near the northwest corner of the structure. Level 1 consisted of reddish brown topsoil with collapsed debris from the north wall of the platform encountered through the unit with small stones. This was a shallow unit ending on bedrock after 23 cm below surface; bedrock had higher elevation on the southeast corner of the unit. Artifact recovery included 170 Early Classic, 10 Cehpech, and 20 Sotuta sherds (Manahan and Ardren 2005).

During the 2006 season, a grid was overlaid above the platform using a Topcon GTS-226 Total Station coupled with a Ranger N687 data collector. Stakes were placed every two m from a zero point (N0E0), and 2 x 2 m units were set up in this manner, using the southwest corner coordinates to keep track of each excavated unit. Each 2 x 2 m sq unit was assigned a unique lot number, photographed pre-and-post excavation in both black and white film, and with a digital camera. Furthermore, technical drawings depicted details for each unit (Cortes-Rincon 2006 Field Notes; Manahan and Ardren 2006; Vallejo, Cortes-Rincon, and Manahan 2006).

FN75 - Basal Platform

Excavations began on the southwest of the basal platform to find the west wall of the platform. The first feature encountered was the west wall of the platform, which runs north to south for about four m, consisting of boulders and cut-stone. A stairway with balustrade stones on both sides was found in the midpoint of the west wall. Only the lower courses of stones in the stairway remain. This feature would have allowed access into the upper structure from the west. The north wall runs east-west for about 14 m comprised of boulders and of unmodified stones. Most of the wall collapsed north of the platform, and was greatly eroded. The west wall of the platform was eroded as well. One only course of rubble wall remained running north to south for about four m. One drum column was found in the junction point between the west wall, and the south wall of the basal platform. Only one course remains of the southern basal platform running east to west for fourteen m, the best preservation was seen in the southeast corner (Cortes-

Rincon 2006 Field Notes; Manahan and Ardren 2006; Vallejo, Cortes-Rincon, and Manahan 2006).

Terrace

South of the building there is an enclosed terraced area by three poorly constructed walls. The walls of this terrace are made of one course of uncut stones set on bedrock in its lowest points. It would appear to have been part of a leveling event for this southern portion south of the structure. Large boulders were placed on the lower points in the bedrock with small to medium sized rocks on the higher points. The west wall runs for five m south, and is aligned not with the west basal platform but with the stairway. A secondary west alignment appears to be an expansion for the terrace at a later point. This second terrace expansion aligns perfectly with the outer west basal platform. Only six m of the southern wall remain delimiting the extent of the terrace. Most of the east wall eroded, and only a few meters remain on the southeast portion. The bedrock appears to have been modified for drainage purposes in the southeast part of the terrace (Cortes-Rincon 2006 Field Notes; Manahan and Ardren 2006; Vallejo, Cortes-Rincon, and Manahan 2006).

Upper Structure

Three walls of the upper structure remain; the east wall has completely eroded. The northern wall, running east to west about ten m, consists of one course of uncut stone. The west wall runs north to south for about five and one-half m with three courses visible made up of cut-stone, of boulders, and of one drum column. The southern wall runs east

to west for approximately eight and one-half meters, its eastern end completely eroded. Two-courses of this wall are still visible consisting of large boulders with smaller uncut stones on the second course (Manahan and Ardren 2006; Vallejo, Cortes-Rincon, and Manahan 2006).

There are three consecutive rooms on the upper structure. The east room is the smallest measuring 3 x 3.5 m. The walls are made of rubble, and only course still stands on the north and west walls. The center room measures 4 m in width, and 4.5 m in length. The entryway for the room appears to be in the mid south center point. The western wall is a double frame with one course still standing, this wall is shared with the adjacent room to the west. In the western portion of the room, a packed earthen floor was found without any traces of stucco. In the eastern part of the unit, only the subfloor fill remained. The third room is on the west portion of the unit measuring 3 x 3.5 m. The west wall of this room is double frame, but most of the upper courses collapsed into the west. A poorly preserved floor was found in the northern and central part of the unit; only subfloor fill remained in the southern portion. A dedicatory cache was found in the central zone of the room below subfloor fill. It consisted of a whole small ceramic vessel with pieces of a second broken vessel and faunal bones not yet identified. To the west of this room, there is an extension adjacent to the upper structure. It is a small room measuring 1 x 4 m. This may have been utilized as storage; there was not any burning or any material associated with a kitchen. The southern wall was constructed with four drum column stones with dry fill. Articulated fall was observed in N34E30, this feature probably cornered with the balustrade stairway. A fifth drum column was found outside

of the west platform wall, it does not appear to be *in situ*. A poorly preserved floor was found inside of this room, it continued on the other side of the column wall. The artifact recovery from this small room included 6 Middle Preclassic, 9 the Late Preclassic, 3 Early Classic; and 5 Late Classic sherds (Manahan and Ardren 2006; Vallejo, Cortes-Rincon, and Manahan 2006).

Chronology and Discussion

FN77 was probably built during the Late Classic with a continued Terminal Classic occupation. Most of the artifacts date to Terminal Classic with an equal mix of Cehpech and Sotuta ceramics. FN75 was probably built in the Early Classic with a continued occupation until the Late Classic. A series of expansions were made to the basal platform. The first was the expansion on the southern terrace, followed by an expansion on the western part of the platform with a small storage room with Puuc drum columns in its southern wall. The terrace was expanded to the west as well, probably at the same time the storage room was added.

Other than the Puuc architectural features, there were not many quantities of Terminal Classic ceramics, although the cultural material for structure FN75 are still in the process of being analyzed. Judging from the Puuc columns, a Terminal Classic continued habitation is suggested for this structure. The defensive wall segment in this area had Late Classic material as part of its construction fill, which probably came from a midden associated with FN75 or FN77.

FN53

FN53 is a large basal platform with five upper structures located in Group J, east of FN18 and the defensive wall. The exterior façade of the basal platform has cut-stone and a stairway on the south side. Low to moderate concentration of ceramics was observed along with four metates. FN50 is the largest upper rectangular structure located on the northeast corner of the basal platform with visible one room, masonry walls with five courses still standing. Its exterior façade has veneer cut stones and an outset stairway measuring 4.5 m. FN50 measures 3 m in length, 2.3 m in width, and 2.2 m in height (Manahan and Ardren 2005).

FN55 is a long rectangular structure adjacent to FN50 on the northwest part of the basal platform. FN55 has four rooms with double frame walls with two courses still standing. Its exterior façade is made from cut stone, and an inset stairway with veneer stones. FN54 is a long rectangular structure flanking the western edge of the platform facing east with three rooms with double frame walls. Its exterior façade has cut stones, and a flush stairway with veneer stones. Two structures flank the eastern side of the basal platform, FN57 and FN56. FN57 is adjacent to FN50 on the northeast corner of the platform. It is a small rectangular structure with one room with a cut stone exterior façade, a possible ancillary for FN50. FN56 is directly south of FN57 facing west with two rooms. Similarly to the other structures, its exterior façade has cut stones and a flush stairway (Manahan and Ardren 2005).

Operation 4 was assigned to Group J, and suboperation 1 was delegated to TP6. The test unit was set up on the courtyard south of FN50 aligned with the centerline of the

structure. Level 1 consisted of thin black humus layer with large stones. Level 2 continued the removal of large and medium sized stones with very little soil ending on a floor with four Early Classic, and 116 Sotuta sherds. Both levels excavated 29.6 cm of topsoil below surface mixed in with large collapsed debris from the stairway, and the wall of FN50. Level 3 excavated the floor and subfloor fill ending on large boulders. Artifact recovery from Level 3 included seven Early Classic, and 78 Sotuta sherds. Level 4 removed large boulders ending on bedrock at 77 cm below surface. Level 4 was exclusively Early Classic with 443 sherds (Manahan and Ardren 2005).

Suboperation 2, TP7 tested the area south of FN55 near its midpoint. Level 1 removed very dark topsoil with a high artifact recovery including one thinning flake. This was a shallow unit ending at 35.6 cm below surface on dry platform fill (Manahan and Ardren 2005; Peniche May 2005).

TP8 was set up south of TP7 to investigate the plaza construction date. Level 1 consisted of removing dark soil with medium sized rocks, ending on a lighter soil with four medial prismatic obsidian fragments (two from El Chayal, one Pachuca, one from Ucareo) and one distal flake chert fragment (Braswell 2005). Level 2 removed a light soil that could have been part of the same floor as TP7-level 2, ending of large fill with one Pachuca obsidian prismatic blade medial fragment (Braswell 2005. Level 3 excavated through thick fill made up of medium sized unmodified boulders. Level 4 was a small probe in the center of the unit to excavate below the dry-core fill. Artifact recovery included 28 Early Classic sherds. Level 5 removed red soil ending on bedrock

with 32 Early Classic sherds. Levels 4 and 5 were probably the ancient surface above bedrock (Manahan and Ardren 2005).

Suboperation 3 was assigned to TP9, which was set up east of FN54. Level 1 consisted of removing the humus layer ending on construction fill same as TP7-level 1, and TP8-level 2. This was a shallow unit ending at 9.2 cm below surface, there was already information based on two excavations below dry-core platform fill, thereby, it was deemed unnecessary to excavate this unit any further (Manahan and Ardren 2005).

FN49 / FN51

Two rectangular structures are directly south and adjacent to basal platform FN53. FN49 is located on the west with FN51 to the east. Both structures have one room each with frame brace walls and exterior façade made from cut stones.

Operation 4, suboperation 4, was assigned to TP10, which was set up near the northeastern corner of the structure adjacent to a wall segment between FN49 and FN51. Two-courses of the eastern wall of structure FN49 are visible. Level 1 consisted in removing dark brown humus soil with uncut stones that are probable collapsed debris from the east wall of the structure. Artifact recovery from this level included an equal amount of 50 Cehpech, and 50 Sotuta sherds. Level 2 consisted of removing dark brown matrix and large unmodified boulders with 33 Early Classic, 33 Cehpech, and 34 Sotuta sherds. Level 3 removed a lighter tan soil with small fill and sascab. This final level ended on bedrock after 69.2 cm below surface (Manahan and Ardren 2005).

Discussion and Chronology

The basal platform (FN53) was built in the Early Classic without any Late Classic habitation, at least none that has been found yet. The courtyard was raised with large dry-fill followed by smaller dry fill and culminating on a plaza floor. Collapsed debris from the structures was found throughout all the units above the eroded plaza surface. TP8 yielded the best-preserved Sotuta ceramics found directly in front of the doorway of one of the rooms associated with FN55. Judging from the lithic material, the inhabitants were retouching their tools on site (Peniche May 2005). Most of the obsidian material is coming from El Chayal and the highlands of Mexico (Braswell 2005). FN49 was also built in the Early Classic with a reoccupation during the Terminal Classic. There were signs of animal burrows, which may explain the mix of Early Classic with Terminal Classic ceramics. Alternatively, FN49 might have been a later addition to the group during the Terminal Classic. This residential group on FN53 was reoccupied in the Terminal Classic; the new Sotuta inhabitants respected the original architecture (Manahan and Ardren 2005).

FN44

FN44 and FN45 are located southwest from the large basal platform FN53. Three defensive wall segments are located in this area, FN119 flanks the rear of FN44, likewise FN47 flanks FN45. One more segment running north to south appears to have connected with the western edge of FN53. This area has been stripped of stones for the nearby hacienda.

Operation 4 was assigned to Group J, and suboperation 2 was delegated to a rectangular basal platform, FN44. This platform measures 17 m in length, 17 m in width and 0.90 m in height. FN45 is directly north of this platform and share similar measurements, due west of both structures there are two wall segments directly adjacent to the rear of the platforms.

Test Pit 119 was situated on the southeastern side of the platform. Level 1 consisted of removing the humus layer, with 25 Late Classic, 2 Terminal Classic, one Postclassic, and one Colonial sherd. There was no stratigraphic change to the second level. Ceramic recovery included one Early Classic, one Late Classic, 22 Late Classic, and four Terminal Classic (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Discussion and Chronology

Most of the ceramic from this test unit are from the Late Classic. The platform was likely built during this time period. Architecturally, this test unit did not shed any light on the construction methodology of the platform itself: no collapse debris was found, except for four small rocks. The unit ended on bedrock at 26.8 cm below the surface, bedrock undulated throughout the unit ending on a high peak on the northwest part of the unit (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN64 / FN66

Both structures are located in Group K, north of the only cenote at the site. FN64 is a large rectangular structure facing southeast. Its exterior façade has cut stone, five wall courses of small cut stone are still standing, and a flush stairway with veneer stones. FN66, a large rectangular masonry structure, is located due northeast from FN64. From the layout of this group, it was it faced southwest, but the structure faces towards the northeast. This building has great preservation without any traces of looting. The steps are very steep, and it is very narrow on top of the structure (Ardren and Manahan 2004; Manahan and Ardren 2005).

Operation 5, suboperation 1 was assigned to this group with three excavated test pits. TP11 was set up near the northeast corner of FN66. Level 1 consisted of the removal of the top humus layer with 28 Cehpech, and 29 Sotuta sherds. There was not change in stratigraphic change in Level 2. Level 3 included large rocks, probable collapsed debris from the structure. Level 4 had a few large rocks and ended on bedrock after 42.2 cm below surface. Artifact recovery included 38 Cehpech, and 13 Sotuta sherds (Manahan and Ardren 2005).

TP12 was located south of FN64. Level 1 removed the top humus layer with just a few small rocks, 23 Cehpech and 45 Sotuta sherds. Level 2 included the removal of medium sized boulders, and a light soil. Level 3 excavated the northwest portion of the unit that exhibited signs of burning. Level 4 ended on bedrock, which had a much higher elevation in the middle of the unit. Artifact recovery from this level included 20 Cehpech, and 30 Sotuta sherds (Manahan and Ardren 2005).

TP13 was set up on the west side of the structure including a few small stones that appear to be collapsed debris from the side of the western wall. Level 1 removed the top humus layer with small and medium sized rocks, two Cehpech, and 85 Sotuta. Removal of this collapse continued in level 2 with a lighter soil with 40 Cehpech, and 60 Sotuta sherds. Level 3 consisted of a reddish brown soil mixed with few rocks. Level 4 consisted of a yellow reddish soil ending on bedrock. Artifact recovery included four Early Classic, two Cehpech, and 57 Sotuta sherds (Manahan and Ardren 2005).

Chronology and Discussion

Evidence of an earlier occupational history was expected at these two structures due to their proximity to the cenote. Both FN64 and FN66 were built during the Terminal Classic without any continued occupation during the Postclassic. There was a high number of constructions and reoccupation of structures during Terminal Classic times at Xuenkal.

Defensive Wall Summary

As discussed in the beginning of this chapter, the wall is made of a series of segments. The excavations discussed included structures directly adjacent and close to the wall. Most of the material from the structures adjacent to the wall date to Terminal Classic (FN18, FN61 and FN102).

Only FN123 located on the east has definite evidence for earlier occupation. FN53 located in Group J has Early Classic occupation, but the wall segments in this area do not conform to the architecture, instead the walls are superimposed on the rear of the

structures (FN44 and FN45) and the area was closed off during a later occupation period. One wall segment extends north from these two structures to connect with the southwest corner of the basal platform of the group (FN50). This arrangement is very similar to the North Palace, which also has protective wall segments on the western edge and southeast edge of its basal platform.

Yaxuna located 20 km southwest from Chichen Itza has similar defensive architecture as Xuenkal's North Palace, and Group J's elite residential complex. Yaxuna's North Acropolis has defensive wall segments on the lower elevation areas suggesting these areas were deemed as poorly defendable points. Two thick wall segments are located on the northwest and southwest of the basal platform. Thinner wall segments are located on the northeast, and southeast of the acropolis.

As mentioned previously, the southwest portion of the wall is missing, I propose the wall did not make a complete circle in this region, but instead closed off access to the southwestern groups with a series of wall segments in order to make a tighter defensive area, instead of a large walled area that would require higher man power to patrol that section of the site. FN144 is a wall segment on the southeast of the site running north to south between FN127 and FN69. FN60 is a short wall segment between FN69 and FN64, which are located just north of the only water source at the site. FN44, FN46, and the elite complex in group J are located to the west; FN18 due northwest directly adjoins the defensive wall.

Surface collections on FN83, the northeast defensive wall segments were gathered and a preliminary analysis of the ceramic material was undertaken, the majority of the

sherds date to the Terminal Classic. FN75 and FN77 both had a mix of Late and Terminal Classic. Judging by the cultural material found on the structures located near or adjacent to the wall, I suggest the defensive network was built sometime during the Terminal Classic and marked by a pronounced influx of Sotuta ceramics, and a decline in Cehpech cultural material.

Chapter 6

Investigations of the Settlement outside the Defensive Works at Xuenkal

This chapter will incorporate excavated data from the structures outside of the wall in order to illustrate settlement patterns throughout the site and to correlate these changes, if any, to the construction of the defensive feature. As with the previous chapter, the data utilized within this section draws from the Projecto Arqueologico Xuenkal Annual Informes (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006). Not all of the test units were included within this section, as it is not the scope of this dissertation. A general description of the architecture from the site core and its peripheral zone is included. Additionally, a brief overview of occupation at the site per time period is incorporated. The chapter is organized by a description of the test units followed by a chronology discussion. The underlined headlines refer to the off-mound test units, while the bold headlines pertain to structure excavations.

There are a total of 21 platform groups outside of the wall. Only eight platform groups are located within close proximity to the wall. The remainders of the platform groups are a series of dispersed settlements away from the site core itself, situated near rejolladas. The excavations discussed in the following section will begin on the western side of the site, and will continue clockwise around the site settlement.

FN36

FN36 is a large rectangular basal platform measuring 40.6 m in length, 38 m width, and 1.5 m height. This structure is located in Group E southeast of FN53, east of FN44 and

FN45, and approximately 5 m away from a sascabero. The basal platform, while it might have supported two superstructures at one point, has been heavily impacted by the hacienda construction. It was used to pen animals with traces of albarradas on its top with veneer, cut stone, vaulted stone, and round columns. The exterior façade has a few cut stones in the south wall. Moderate amounts of sherds were observed in this area, and one complete Chacmay Incised grater bowl was collected in 2004 (Ardren and Manahan 2004).

Operation 32, suboperation 1 was assigned to TP101. This unit was set up 50 cm from the southwest corner of the platform. Prior to excavation, collapsed debris from the south wall was noted on the area (Morehart, Cortes-Rincon, and Stockdell 2006). Level 1 consisted of black humus topsoil of smooth texture mixed with medium sized stones. Artifact recovery from level 1 included 113 Preclassic, 61 Early Classic, 10 Late Classic, and 8 Sotuta sherds. Level 2 removed dark brown soil with medium sized stones that appear to be part of the platform wall. Artifact recovery from level 2 included 18 Late Classic, four Cehpech, and 30 Sotuta sherds. Level 3 continued removal of medium sized stones averaging 25 x 30 cm in size that might have been platform construction fill. Soil removed from stratum 3 was dark brown with smooth texture mixed with 11 Late Classic, 10 Cehpech, and 32 Sotuta sherds. Level 4 consisted of dark grayish brown soil mixed with large stones. During the excavation of level 4, it became clear that the previous level 3 and level 4 were part of a collapsed wall, and not of platform fill. Artifact recovery from level 4 included two Cehpech, and 21 Sotuta sherds. As with the preceding levels, stratum 5 continued removing large stones averaging 45 x 10 cm and 18

x 15 cm in size, and dusky red soil. Level 5 had considerably less sherds than the prior levels, 9 Early Classic, and 5 Late Classic sherds. This unit yielded a high number of artifacts and was taken down to 74.8 cm below surface (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

FN36 had a long and lengthy occupation with 113 sherds dating to Middle Preclassic and 20 sherds dating to Early Classic. Late Classic material accounts for a total of 95 sherds. Interestingly, Terminal Classic sherds are predominantly Sotuta (n=95), with only 23 Cehpech sherds. Postclassic material only included three Navula sherds. The platform was used both in historic and modern times. There are traces of two possible upper structures that may be remnants of a modern household. The disturbances both by animals, and by people may account for the mix of earlier cultural material found within level 1, also taking into account the unit's final stratum contained Early Classic sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN37

FN37 is located on Group F southeast from FN36, and 20 m southeast from a sascabero. This long rectangular structure measures 37.8 m in length, 15.4 m in width, and 3.2 m in height. FN36 is an elite structure delimiting large architecture in the southwest quadrant of the site core. Its exterior façade has cut stones and an outset stairway measuring 5.3 m. There are three rooms on the upper structure; the two southern rooms have been

looted. A moderate amount of sherds were observed on the eastern side of the platform (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006).

Operation 33 and suboperation 1 were assigned to TP102. The test unit was set up one m away from the northeast corner of the structure. Level 1 removed the humus black topsoil with medium sized stones that are part of the collapsed debris from the west wall of the structure, and a cylindrical shaped stone measuring 15 x 10 cm, its tip measured 17 cm with traces of stucco. Artifacts from level 1 included one Preclassic, five Early Classic, 19 Late Classic, four Cehpech, and 11 Sotuta sherds. Level 2 removed soft textured dark grayish brown soil, along with two cut stones measuring 22 x 27 cm in size, and irregular sized stones that might have been construction fill for the upper structure. Level 2 included nine Early Classic, 68 Late Classic, 13 Cehpech, 19 Sotuta, and seven Postclassic sherds. There was no noticeable stratigraphic change throughout levels 2-5. Level 3 and 4 continued removal of collapsed debris. Level 3 included three Early Classic, 50 Late Classic, four Cehpech, two Sotuta, and three Postclassic sherds. Level 4 included one Early Classic, 32 Late Classic, 17 Cehpech, and two Postclassic sherds. In level 5, many large sized stones were removed measuring approximately 30 x 25 cm and 31 x 20 cm. This level ended on a well-preserved stucco floor, probably the plaza surface to the east of the structure upon which the level FN37 was built. Level 5 included one Middle Preclassic, 57 Late Classic, six Cehpech sherds, and two Postclassic sherds. Level 6 consisted of an exploratory probe below the floor down to bedrock with two Middle Preclassic, four Early Classic, 17 Late Classic, and two Cehpech sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

FN37 was probably built in the Late Classic; cultural material from Middle Preclassic (n=two), and Early Classic (n=20) was found, although not in great quantities. Terminal Classic occupants were predominantly using Cehpech wares with a very small Sotuta overlap. The inhabitants of this structure enjoyed Fine Orange wares and polychrome ceramics. The stucco floor was the best preserved formal surface found at the site thus far. Postclassic use of this platform is represented by just six sherds (Mama Red and Kukula). An *albarrada* running north-south to the east of this structure represents the Historic component (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN31

F31 is a large rectangular basal platform, measuring 38.6 m in length, 37.5 m in width, and 1.2 m in height, located in Group C southwest from FN36. Its outer façade has cut stone, but there are no longer any traces of upper structures. This area was used in modern times as a household lot, until 1988 when Hurricane Gilbert came through the Yucatan Peninsula causing a lot of destruction in the region.

Operation 30, suboperation 1 was assigned to TP100. The unit was set up where a moderate number of ceramic sherds were observed on the surface, indicating a possible midden area one m away from the southwest corner of the platform. Level 1 removed dark black humus layer mixed with irregular sized stones that are collapsed from the wall of the structure. Artifact recovery from level 1 included two Middle Preclassic, six Early Classic, 168 Late Classic, 42 Cehpech, 58 Sotuta, and 103 unidentifiable sherds. Level 2

removed a soft textured dark brown soil with the same collapsed debris as the previous level. Level 2 artifacts included seven Early Classic, 99 Late Classic, seven Sotuta, one Postclassic, and 70 unidentifiable sherds. Level 3 removed a soft textured dark gray soil with a lot of irregular sized stones. Traces of burning were noted in this level. Level 3 included 25 Middle Preclassic, 68 Early Classic, 158 Late Classic, 164 Cehpech, five Sotuta, and 81 unidentifiable sherds. Level 4 removed a dusky red soil with large boulders ranging 60 x 30 cm in size. Level 4 included one Middle Preclassic, one Early Classic, six Late Classic, one Cehpech, three Sotuta, and 19 unidentifiable sherds. This unit was excavated to a total of 68.2 cm below surface (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

TP100 yielded a total of 1,101 sherds, thereby supporting the initial hypothesis of a midden deposit. Twenty-nine sherds date to Middle Preclassic, 81 sherds date to Early Classic, 437 sherds date to the Late Classic with Muna Pizarra as the prominent type, 208 Cehpech overlapping with 72 Sotuta sherds dated to Terminal Classic, and just one Postclassic sherd. Construction of the platform probably began during Middle Preclassic with a longer occupational span during the Late Classic. This platform is one of the few buildings at the site with such a lengthy occupation (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN306

FN306 is polygonal large platform with one upper structure located in the far southwest area of the site within Group Z. FN306 is due southwest from FN31. Operation 31 and suboperation 2 were assigned to TP103. The unit was set up approximately 80 cm away from the southwest corner of the platform. This area was selected for the high number of ceramics observed on the surface. Level 1 consisted of removing dark brown humus layer mixed with a few medium sized stones with a high number of artifact recovery, suggesting a potential midden deposit. Level 1 included one Late Preclassic, 58 Early Classic, 56 Cehpech, 260 Sotuta, 17 Postclassic, and 71 unidentifiable sherds. Level 2 consisted of the same color soil, medium sized stones, and unfortunately bedrock was reached. Level 2 included one Cochuah sherd, and 249 Sotuta sherds. This unit was excavated to 34 cm below surface (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

Judging from the high frequency of Sotuta ceramic material on all levels, FN306 was built in the Terminal Classic. This structure had one of the highest frequencies of Sotuta material, with a small overlap with Cehpech ceramics. The earlier material found towards the south of the platform is probably from the platform construction fill that eroded (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN288

FN288 is a large basal platform located on the southwest end of Group G, and west of FN18. Its exterior façade is made from rubble with only one course still standing. Operation 2 and suboperation 1 was assigned to TP1 and TP2. Test pit 1 was located north of the structure near the mid point on what might have been a possible stairway. Level 1 removed dark brown soil mixed both with small and with medium sized stones; bedrock was exposed in the northern part of the unit. Artifact recovery from level 1 included five Cehpech, and 527 Sotuta sherds. Level 2 removed brown soil exposing a boulder wall line on the southern end of the unit, which turned out to be articulate fall from the platform's stairway. Artifact recovery from this level included eight Early Classic, four Cehpech, and 196 Sotuta sherds. TP1 was a very shallow unit with just two levels ending at 40.4 cm below surface (Manahan and Ardren 2005).

TP2 was set up west of TP1 on the western side of the possible stairway. Level 1 removed a thin dark brown humus layer with large pieces of bedrock, and large unmodified boulders from the structure. Level 2 removed loose medium brown soil mixed with construction fill, collapsed debris, and traces of stucco. The test unit ended on bedrock after 43.8 cm below surface (Manahan and Ardren 2005).

Chronology and Discussion

The northern area in front of the structure has very thin soil coverage. Both of the units ended at bedrock after just two levels. The large stones that were observed on both units were probable balustrade stones on either side of the stairway, very similar to the

balustrade stairway on FN75. FN288 was probably built in Terminal Classic with a very high count of Sotuta sherds (n=723), and earlier material was found in very low quantities. Postclassic material was not encountered on the excavated units or the platform's surface (Manahan and Ardren 2005).

FN276

FN276 is located directly south of FN40, the largest mound at the site. It is a low platform with two upper structures situated in Group G. FN277, a small square structure, is located directly west, and near one of the upper rooms of FN276. FN275, a larger square structure, is located south of FN276.

An underground cave system was documented north of this platform, suggesting an ideological purpose for both FN40 itself, and for the settlement surrounding it. A large cave entrance was explored on the northwest edge of FN276 to ascertain the location of connectors to other chambers or tunnels. A second cave opening was investigated on the east of the platform; its entrance is not quite as large as the other cave. The chambers below are quite large, and high enough for an adult human to stand upright inside. A round opening southeast from the platform was documented which could be part of the same eastern cave. These features were probably exploited for sascab, and perhaps used in rituals.

FN276 measures 8 m north-south, and 30 m east-west. The sheer size of the platform is due to a series of expansions, and most likely it was constructed during the paving of the area south of FN40. FN276 was chosen due to large quantity of ceramics

observed on the surface, and to the possibility of a sunken patio between FN277, FN276, and FN275. This type of structural design is a Chichen Itza diagnostic type, as far as we can tell from the archaeological data, this was not the case (Ardren and Manahan 20004; Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2005, 2006).

Excavation Methodology

As with structure FN75, a grid was overlaid over the platform using a Topcon GTS-226 Total Station with a Ranger N687 data collector with an orientation of 8˚ east of north. Stakes were placed every two m in order to establish 2 x 2 m units. Individual units were assigned the southwest coordinate of each 2 x 2 m square. Arbitrary elevations started at 20 m above surface level to avoid future negative elevations. Each level was excavated in 20 cm increments or when a stratigraphic change was noticeable. Documentation of each unit was recorded in lot forms. Photographs were taken pre-and-post excavation in both black and white film, and with a project digital camera. Plan maps, and profile drawings were done at a scale of 1:20. Architectural features were assigned numerical numbers prefixed with an F (i.e. F1-F5). The entire extent of the southern wall was consolidated at the end of the season. All of the units taken down to bedrock were also consolidated (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Excavation Data

Operation 2 is associated with all structures from Group G. Suboperation 4 was assigned in the previous year for a test unit on this particular platform, and was reused again this season. Excavation at the southern end of the platform from the 2005 field season

yielded four Early Classic, 520 Sotuta, four Postclassic sherds (Manahan and Ardren 2005). During the 2006 season, 70 (2 x 2 m) units were excavated. Excavations began on the southern end following the platform's southern basal wall. This feature was already documented on TP35, from the prior season to ascertain the edges of the patio, and its architectural relation to FN275 (Manahan and Ardren 2005). Architectural features were followed as they were encountered towards the north, the west, and the east of the platform. Due to the platform's low height, most units were only taken down to level 1, consisting of the removal of the upper humus layer, and ending on platform construction fill. Level 2 consisted of cleaning up architectural features as well as the units for drawings and for photographs. Of the 70 excavated units, only three were taken down to bedrock (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Architectural Features

Habitation of this platform began in the Middle Preclassic with an occupation break in Late Classic times, and resettled during the Terminal Classic. During the Early Classic, the area south of FN40 was leveled, and the platform underwent a series of constructions thereafter. Feature 5 is the earliest southern wall of the platform encountered in N56E52-lot 15. This wall runs east-west for approximately eight m with two courses uncovered during excavation. It is unclear if there are more courses below the surface, as this unit was not taken down to bedrock. The southern wall had poor preservation towards the east of the platform (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

The second construction phase of the platform was an expansion six m south of the first southern wall (F5). F1 is a crudely made wall, formed of unshaped limestone blocks stacked on top of each other with dry fill in between them. Four courses still stand that reach the same level as the platform fill. The first course appears to be lying atop bedrock. This feature might have been seven or eight courses high judging from the collapse visible on the adjacent lots. This feature was documented in N50E42, and TP35 excavation units. Most of the ceramics from F5 dated to Middle-Late Preclassic, and Early Classic (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

F7 is the third expansion of the platform's southern edge (N50E44). It lies almost adjacent to F1. The western part of this newer construction was made of cut stone. The eastern part of this feature was leveled off with sascab. It is possible that this was a retainer wall for F1 (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

F3 is the western basal wall of FN275 running north-south on the eastern half of N48E54 unit. One course of unshaped boulders is visible. This unit was not excavated to bedrock. It was not clear if this feature continued below the plaza surface (F2). F2 is a poorly preserved plaza floor less than twenty centimeters below the surface, adjacent to F3 (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

F6, the eastern basal wall of FN277, was encountered in N50E42 unit. This feature runs north-south with two courses of unshaped limestone blocks. Feature 6 is six m east of F4 on the same northern alignment within the grid (N50E46). The western

basal wall of FN276 has completely eroded (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Storage Room

A possible storage room is located near the southwest corner of the platform. It is delimited by Feature 4 and Feature 7, FN276's most recent southern wall. F4 is a two course crudely made wall running north-south abutting F7 on the north end. The surface on which this room lies was not visible, as this unit was not taken down to bedrock. This room appears to be a later addition. Perhaps, F7 is not the latest southern wall of the platform, but the north wall for this storage room. To the west of F4, there is an alignment of soft limestone that is the newer course of the wall, a repeated pattern south of F1 (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Rooms 1 and 2

Two rooms were found on FN276, located near the northwestern part of the platform. All of the rooms were cleared to the ancient floor surface, and the walls were cleaned up for photographing. Only the central sections of the rooms were taken down to bedrock. Judging from the cultural material and architectural remains, these rooms were built during the Terminal Classic (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Room 1 is not as well preserved as Room 2. The north and south walls are about four m long, and one-half of a m wide. The east and well walls are 3.5 m long, and one half of a m wide. There is a great deal of collapse debris towards the middle of the room.

The east wall collapsed towards its right side. The walls are of uncut stones set side-by-side. The upper course was constructed by stones stacked atop each other, with small dry fill between the layers. On the northwest corner of the room, there is big boulder that has tumbled off to its right side. The lower courses of the northern wall have several cut stones that are still standing. Most of the cultural material from this room dated to the Terminal Classic (Sotuta), and a few from the Late Classic (Muna Pizarra). Of particular interest were several spindle whorls recovered from within this room. These items are usually associated with Chichen Itza. A few Pachuca obsidian prismatic blade fragments were found within the room, analysis is still underway for these items (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

The north and south walls in Room 2 are about five m long, and one half of a m wide. The east west walls are roughly 3.5 m long, and one third of a m wide. The entrance to Room 2 was not clearly defined as the stones were eroded. The wall lines are visible, but the some of the wall stones tumbled off to the east. The northern wall has preserved extremely well with two courses made of cut stones, and upright boulders stacked side by side. In the northeast corner of the room, there is a large boulder that is still standing in its upright position; however, the one in the northwest corner has broken into a few pieces. A line of collapse debris is still adjacent to the northern wall; the rest has tumbled further north towards the cave entrance. Most of the ceramic material from this room dated to the Terminal Classic (Sotuta). Muna Pizarra represented Late Classic material. A few Early Classic sherds along with a few Middle Preclassic sherds account

for the earliest traces of occupations below the platform fill predating the construction of Room 2 (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Chronology

A preliminary ceramic analysis revealed an assortment of Middle and Late Preclassic, Late Classic, and Terminal Classic ceramic material found in the upper matrix. A total of 1,339 sherds were sampled for analysis. All of the levels 1 included 11 Preclassic, four Early Classic, 12 Late Classic, 679 Sotuta, 15 Cehpech, and one Postclassic sherd. Levels 2 included two Preclassic, three Early Classic, 469 Sotuta, and two Postclassic sherds. Levels 3 included one Early Classic and 39 Sotuta. Levels 4 included three Preclassic, two Early Classic, and four Sotuta sherds (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

Construction of this platform occurred during the Late Preclassic with a break in occupation during the Late Classic. There were a few additions to the platform itself, such as the two extensions of its southern perimeter and an extension to the east. Additionally, two rooms were constructed on the northwest part of the platform, and a storage area in the southwest corner. All of three rooms were constructed during the Terminal Classic, and were exclusively Sotuta occupants (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006).

FN157 / FN153

FN157 is due northwest of FN150 located in Group R. It is a large basal platform with an outset stairway, an outer façade made from rubble, with four upper structures. FN155

is a long rectangular structure with two rooms, and walls made from rubble. This edifice flanks the eastern side of the courtyard facing west. FN153 is the largest structure on this courtyard with three rooms, an inset stairway, and veneer architecture, this building faces south. FN152 is an ancillary structure located adjacent to the southeast corner of FN153. It is a very small square structure with one room with frame brace walls. FN156 is a one room square structure with frame brace walls. This edifice flanks the western side of the courtyard facing east. A modest amount of ceramics was noted on the surface of the eastern side of the courtyard (Ardren and Manahan 2004; Manahan and Ardren 2006).

Operation 18 and suboperation 2 was assigned to TP61. This test unit was set up roughly five m away from the southwest corner of FN153. Level 1 consisted of removing black humus soil mixed with small and medium sized stones. Levels 2-6 shared the same stratigraphic context consisting of dark grayish brown smooth textured soil, and large stones. This type of soil color and texture is typical of eroded limestone contexts. Level 7 removed smaller stones ending on bedrock at a depth of 114.4 cm below surface (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

Artifact recovery from TP61 included one Early Classic, 66 Late Classic, and 20 Sotuta sherds. Construction of the platform began during the Late Classic. The platform level was raised with large boulders, and dry fill with small fill (*chich*) atop ending on a compacted earthen courtyard surface. It is possible that FN153 might have an earlier

encased occupation, but this structure was not investigated further (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN211

FN211 is also situated in Group R due northeast from FN157. It is a large rectangular basal platform with an outer façade made from rubble walls; the upper structures on the platform form a triadic group. The platform was constructed directly on top of bedrock with the southern side sloping down. Its surface has eroded, and all that remains of its ancient floor is *chich*. FN218 is long, rectangular structure with three rooms facing west, flanking the east side of the courtyard. FN242 is a superstructure with five rooms facing south. FN213 is a small square structure on the northwest corner of the platform. FN212 is a long rectangular structure with four rooms situated on the west part of the platform facing east. This platform group is located on *ejido* land, and has traces of burning for milpa use (Ardren and Manahan 2005).

Operation 18 and suboperation 1 was delegated to TP57. The unit was set up on the center of the basal platform. Level 1 removed dark brown soil mixed with subfloor fill, 11 Early Classic, 180 Cehpech, and 34 Sotuta sherds. Level 2 was composed of light brown soil with three unaligned large stones, two Early Classic, 146 Cehpech, and three Sotuta sherds. Level 3 excavated small stones around the boulders reducing the unit size to 1.5 x 1 m. This level removed a red clay stratum ending on bedrock. Artifact recovery included two Cochuah, and 198 Cehpech sherds (Ardren and Manahan 2005).

Chronology and Discussion

Platform FN211 was constructed during the Late Classic with a brief continued Cehpech occupation in the Terminal Classic. This triadic group was abandoned prior to the noted Sotuta influence at Xuenkal. The platform level was raised with medium sized fill and large boulders. A thin level of *chich* was all that remained of the ancient courtyard surface. Due to the occasional burning of milpas in the area, the top of the platform has been disturbed (Ardren and Manahan 2005).

FN150

FN150 is an L-shaped basal platform located north of the defensive wall, and on the northeast zone of the site. The platform is situated within Group S, and has two upper structures. FN149 and FN148 are both long-range rectangular structure with three rooms, FN149 faces south while FN148 faces west. Only FN148 has veneer stones, the basal platform, and the other structure have outer façades made from rubble (Ardren and Manahan 2004, Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Operation 19 and suboperation 1 was assigned to TP62. The test unit was set up on the center of the basal platform, roughly 5 m northwest from FN148, and south of FN149. Level 1 consisted of removing dark gray silt loam with limestone inclusions, along with chert flakes, a chert projectile point, and with traces of plaster. Ceramic recovery from level 1 included two Middle Preclassic, 10 Early Classic, 160 Late Classic, three Cehpech, 359 Sotuta, and nine Postclassic sherds. Level 2 consisted of removing

the plaster floor, and dark grayish brown soil ending on subfloor fill. Artifact recovery from level 2 included 48 Middle Preclassic, 39 Early Classic, 92 Late Classic, seven Cehpech, and 11 Postclassic sherds. Level 3 did not register any changes in strata soil color, and medium sized stones were removed. Level 4 consisted of removing small and medium sized stones measuring roughly 15 x 10 cm in size that probably formed the nucleus of the platform. Artifact recovery from level 4 included 40 Preclassic, nine Early Classic, and one Late Classic sherd (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

The basal platform was built during Late Classic times. Its subfloor fill was made of Middle Preclassic, Early Classic, and Late Classic cultural material, indicating that this was taken from a nearby midden. The platform was constructed with medium sized boulders and small fill, followed by subfloor fill, and culminating on a stucco plaza surface. Level 2 has the only Sotuta material (n=359) encountered in this unit, suggesting Terminal Classic inhabitants were only using Sotuta ceramics. The Late Classic material is represented both by Muna Pizarra and Cizin Striated. The platform did not receive much use in Postclassic times (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN165

FN165 is a large rectangular basal platform east from FN150, situated in the northeast area outside the defensive wall located within Group S. A total of five structures are

located on this platform. FN162 is the largest range structure located on the northwest corner facing south. FN167 is a two room structure flanking the west side of the platform, facing east. FN163 is an L-shaped structure located on the northeast portion of the courtyard. FN164 is a C-shaped structure in the middle of the platform. FN167, C-shaped as well, is located on the southern center of the platform, facing north. Four metates were recorded during the 2004 season (Ardren and Manahan 2004).

Operation 19 and suboperation 2 was assigned to TP63. The test unit was set up on the center of the basal platform between FN162, and FN164. Level 1 removed dark gray silt soil with *chich,* and six Middle Preclassic, three Early Classic, 129 Late Classic, and 43 Sotuta sherds. Level 2 exposed articulated collapsed running east-west on the southern half of the unit. This was probably from FN162's southern wall. Level 2 artifact recovery included 12 Middle Preclassic, 12 Early Classic, 123 Late Classic, nine Sotuta, and one Postclassic sherd. Level 3 removed the collapsed debris with light brown soil terminating on bedrock after 50 cm below surface. Artifact recovery from level 3 included 178 Preclassic, 45 Early Classic, 225 Late Classic, 15 Cehpech, 364 Sotuta, 35 Postclassic, one Colonial, and 356 unidentifiable sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Socorro Jimenez 2006).

Chronology and Discussion

The basal platform was probably built in the Terminal Classic with midden deposits taken from a nearby structure, perhaps even the rejollada due south from this group. There are Preclassic and Early Classic sherds in the lowest levels of the unit mixed both

with Terminal and Postclassic material (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006). This might be explained by animal burrows; further investigation of this platform would be essential to prove or to negate an earlier construction date for this platform.

FN383

FN383, a large polygonal basal platform is located on the east side of the site, and east of a rejollada within Group AA. Operation 32 and suboperation 1 was assigned to TP110. The test unit was set up south of the structure. Level 1 consisted of removing the dark humus layer, and arbitrarily closed after 20 cm below surface. Artifact recovery from level 1 included 31 Preclassic, six Early Classic, 36 Late Classic, one Cehpech, 16 Sotuta, and 50 unidentifiable sherds. Level 2 removed dark brown silt and eroded fill from the southern wall of the platform. Ceramic recovery included 60 Preclassic, 19 Early Classic, eight Cehpech, nine Sotuta, and 74 unidentifiable sherds. Level 3 did not register any stratigraphic change except for a thin layer of sascab above bedrock (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN411

FN411 is located a few m north of a rejollada in Group AA. TP114 was located near the north edge of the platform. Level 1 consisted of removing dark brown silt with eroded fill. This level ended on bedrock after 20.6 cm below surface. Artifact recovery included 40 Middle Preclassic sherds (Saban, and Sierra Red). TP115 was set up near the west edge off the mound. Level 1 excavated through the humus layer. Level 2 had the same

context as the previous stratum ending on bedrock after 33.5 cm below surface, without any ceramic recovery (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

FN383 had a long occupation from Late Preclassic through Terminal Classic with an overlap of Cehpech, and Sotuta ceramics. FN390, located northeast from this basal platform, exhibits similar occupational sequence. FN395, due east, has Early Classic occupation, but none thereafter. FN411 was predominantly Middle Preclassic, without any later occupation (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006). It would appear the inhabitants in the eastern part of the site took advantage of the rejolladas within the area, and were settled within close range of these valuable features, but later settled around the site core itself, and within proximity of the defensive wall.

FN191

FN191 is a large square basal platform located south of FN383, on the southwestern portion of the site within Group T, and southwest from a rejollada. Its outer façade is made from rubble, two metates were recorded, one whole, and a broken one (Ardren and Manahan 2004). Operation 14 and suboperation 3 was assigned to test pits 113, and 114. TP113 was set up on the west side of the structure. This was a shallow unit removing dark brown humus layer, and ending at just 21 cm below surface. Bedrock slopes up toward the west area of the platform. Ceramic recovery included one Early Classic, 18

Late Classic, two Cehpech, and one Sotuta sherd (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Due to the low recovery, an additional test unit (TP116) was set up on the south side, just off the edge of the platform. Levels 1 and 2 removed dark brown silt. The test unit ended on bedrock after 29 cm below surface. Ceramics from level 1 included 13 Middle Preclassic, 17 Early Classic, 20 Late Classic, 18 Cehpech, 86 Sotuta, and 110 unidentifiable sherds. Level 2 included two Early Classic, eight Cehpech, and seven Sotuta sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

FN191 was probably built during the Late Classic with material taken from the earlier settlement near the rejollada on the eastern side. As with many of the other structures throughout Xuenkal, there is an overlap between Cehpech and Sotuta ceramics. There is no documented Postclassic settlement on this platform, only FN186 located southwest and FN302 due south from this platform yielded Postclassic material (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

FN135

FN135 is a large rectangular basal platform with one superstructure located in Group Q, and within a *milpa* area. FN140 is rectangular upper structure that faces west with five rooms constructed from masonry walls. Its exterior façade was made from veneer stones with an outset stairway. FN139 is an L-shaped feature on the northwest corner of the

platform. One metate was recorded along with a *hacienda* wall construction on the southwest area (Ardren and Manahan 2004).

Operation 15 and suboperation 1 was assigned to TP48. This unit was set up on the courtyard west of FN140. Level 1 removed the humus layer mixed with *chich,* and 36 Early Classic, 100 Cehpech, 60 Sotuta, and four Postclassic sherds. No stratigraphic change was registered in level 2. It was a continuation of the same soil color with small limestones, 139 Early Classic, 29 Cehpech, and 72 Sotuta sherds. Level 3 removed fewer large stones, and continued excavating through plaza construction fill. Artifact recovery from level 3 included 146 Early Classic, and five Cehpech sherds. Level 4 ended on bedrock after 71.4 cm below surface with 80% Late Preclassic, and 20% Early Classic material (Manahan and Ardren 2005).

FN136 / FN134

FN136 is an amorphous basal platform located in Group Q. The road leading to the town of Cenotillo heavily impacted this area: the southeast corner of the platform is gone. The room located on the south part of the platform has been stripped of stone. FN134 is a pyramidal mound located atop this platform. It is a rectangular masonry structure facing northwest with an outset stairway and with a lot of veneer stone on top of the mound. There are albarradas on both sides of FN134 (Burgos et al. 2004; Manahan and Ardren 2005, 2006).

Operation 15, suboperation 3 was assigned to TP120, set up on the platform near its stairs, directly northwest of the pyramidal structure. Level 1 removed the humus

topsoil along with unarticulated collapsed debris. Artifact recovery from level 1 included three Early Classic, 302 Late Classic, 12 Cehpech, nine Sotuta, one Colonial, and 30 unidentifiable sherds. Level 2 removed dark brown silt loam with large stones that are probable platform fill, 10 Early Classic, 97 Late Classic, eight Cehpech, and seven unidentifiable sherds. Level 3 continued through the same stratigraphic context ending on a lighter soil with 14 Late Preclassic, 10 Early Classic, 115 Late Classic, 13 Cehpech, and 34 unidentifiable sherds. Level 4 removed light brown silt loam with finer texture, small fill stones, 47 Late Preclassic, 27 Early Classic, 44 Late Classic, 10 Cehpech, four Postclassic, and 37 unidentifiable sherds. Level 5 continued through the same matrix terminating on bedrock after 74.8 cm below surface with eight Late Classic sherds (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Chronology and Discussion

The majority of Late Classic material from FN136 is Muna Pizarra dating to the Late Classic. This is one of the few platforms at Xuenkal with higher quantity of Cehpech than Sotuta. The basal platform was built in one construction event in the Late Classic directly on top of bedrock with a layer of soil and small fill. The large boulders visible on the profile are collapsed debris from the stairway of structure FN134 (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

On the other hand, FN135 was occupied during the Early Classic; construction of the platform probably began during the Late Preclassic. Judging by the material found

within the plaza fill in levels 1-2, the plaza was resurfaced during the Terminal Classic (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Character of Construction

The elite architecture is located on the northeast and the east sides of the site (FN84, FN123, and FN111). FN53, and its large upper structures located in Group J, demarcate the elite architecture on the southwest part of the site, within the safe confines of the defensive wall.

Outside the fortified wall, FN134, FN140, and FN198 delimit the elite architecture on the southeastern quadrant of the site. FN37 defines the well-built architecture on the southwestern part. FN25 set the limits of the northwest large architecture. FN157 and FN211 (triadic group) delineate the high quality architecture in the north (Manahan and Ardren 2005, 2006).

General observations on the construction methodology of structures within the site core itself, and in its peripheral zone were recorded by the survey team, and imported into a settlement survey dataset (Ardren and Manahan 2004; Manahan and Ardren 2006; Stockdell, Cortes-Rincon, and Morehart 2006). The sections below include a brief overview on architectural constructions both on large and smaller scales.

Site Core

Walls: Most of the structures within the site core, and near the periphery of the defensive wall had, at the very least, one or more courses still standing above the humus layer. In others, such as FN276 and FN75, walls were encountered during excavations. For the

most part, the base for structure walls was constructed with frame brace or with unmodified boulders. The higher courses stacked either with veneer stones, with cut stones, and/or with rubble. Basal platform walls generally ranged from boulder, rubble, and cut stones. Many of the platforms had outset stairways leading to the upper structures. These types of structures were built atop of bedrock with large outer facing stones stacked side-by-side, and dry fill between and/or behind the facing stones themselves (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006)

Floors: Floors were encountered in a few of the excavations, but the majority of these features at the site were not very well preserved, partially due to the presence of livestock from the *hacienda*, and from the burning of milpas for agricultural purposes. FN37, FN75, FN183, and FN276 had the best floor preservation associated within the structure or the plaza surface. Most of the other excavations encountered subfloor fills (*chich*), but not an ancient formal surface. Only FN37 and FN183 had stucco floors, the remainders of the ancient surfaces were tightly packed earthen floors (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006).

Peripheral Zone

A series of small house mounds were found along the north, northwest, southwest, and southeast regions of the site. These were small, dispersed groups on the peripheral zones ranging from *chich* mounds to small structures both square, and rectangular in shape

(Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Walls: The majority of the small groups were built atop basal platforms. The few platforms encountered had walls constructed from rubble. Generally, only one course remained from the structure wall above the humus layer. A few of the test pits among these groups encountered eroded collapsed debris from the walls (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

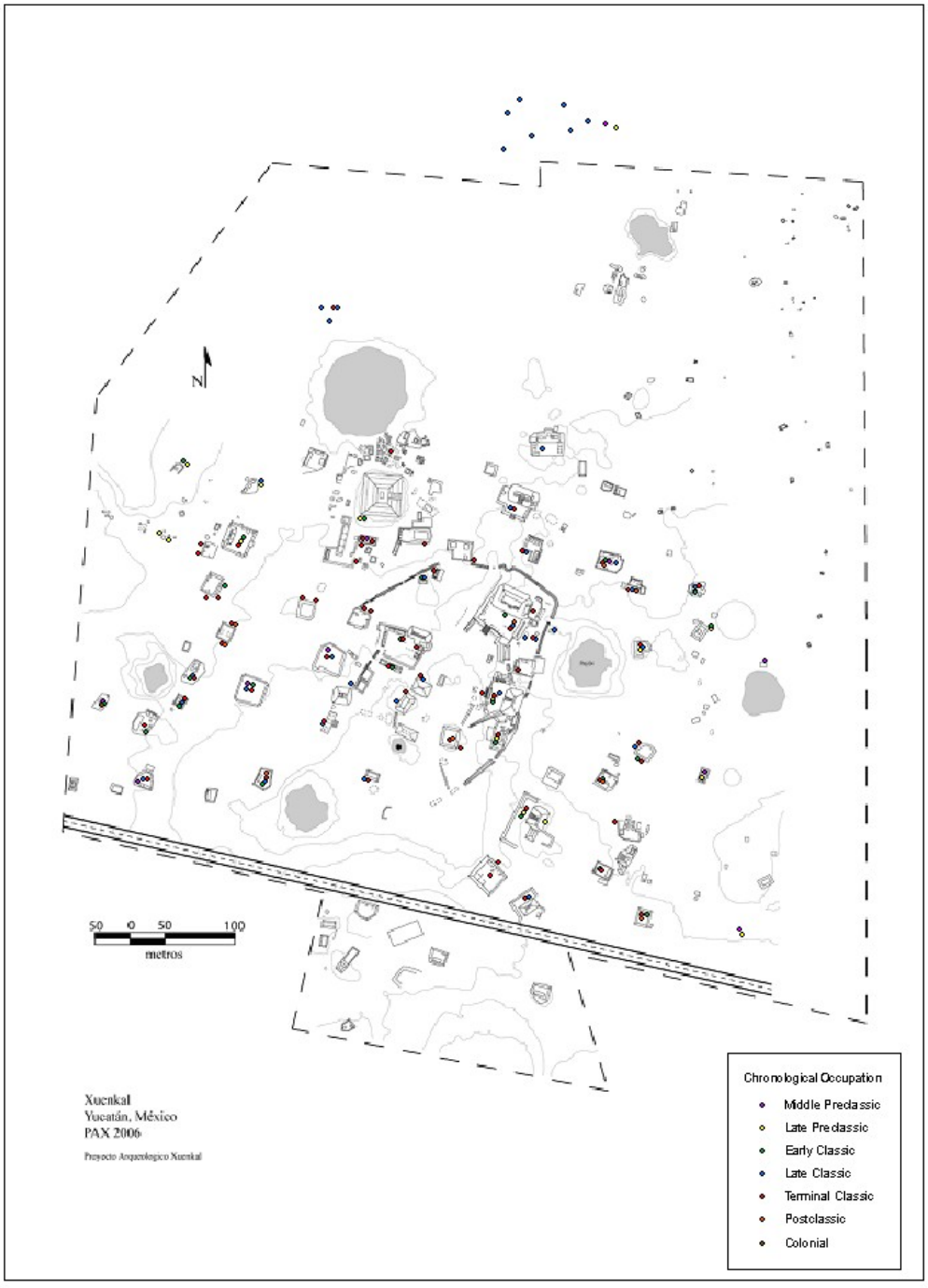
Floors: The majority of the floors in the smaller groups were packed earthen floors that are often mistaken for depositional sediment, and are barely discerned due to the light composition of the subfloor fill in the profile drawings (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Diachronic Settlement at Xuenkal

Settlement data taken from preliminary ceramic, chert, and obsidian analysis from the entire test pitting data, along with the cultural material from on-mound excavations was utilized to establish occupation sequences at the site (Ardren and Manahan 2004; Braswell 2005; Manahan 2005; Manahan and Ardren 2005, 2006; Peniche May 2005; Socorro Jimenez 2006). A general summary for each temporal period will be discussed in

the subsequent section; Figure 6.1 illustrates occupations per time period based on preliminary ceramic analysis.

Figure 61. Diachronic Settlement at Xuenkal



Preclassic

The Nabanche Tardio Horizon covers both the Middle and Late Preclassic. Middle Preclassic ceramics at the site include Dzudzuquil Crème, Saban White, and Juventud Red. Late Preclassic material consisted of Polvero Black, Flor de Crema, Sierra Red, and Dzilam Green (Manahan 2005; Socorro Jimenez 2006). Xuenkal was first inhabited during the Middle Preclassic period (Manahan 2005; Manahan and Ardren 2005, 2006; Socorro Jimenez 2006). This earlier settlement included dispersed small house mounds located near rejolladas, and were scattered on the far southeast (FN411, FN564-568), east of the wall (FN390, and FN413), northeast (FN165), north (FN469), northwest (FN276), and the far southwest section (FN308, and FN321).

Late Preclassic occupation was a continuation of the settlement of most of the structures discussed above. However, some were not reoccupied, and some settlers set up new house lots. Settlement on the southeast include (FN135, FN565-568, and FN411), east of the site (FN383 and FN395), north (FN422, and FN469), and northwest (FN374, FN381, FN364, and FN25). Within the wall, two large structures have occupation during this time period (FN111, and FN123), and quite possibly the largest mound at the site (FN40). Interestingly, there are no settlements on the far northeast or the far southeast during either the Middle or the Late Preclassic.

Early Classic

Cochuah Horizon encompasses this temporal period at the site, and it is represented at the site by Chuburna Brown, Xanaba Red, Shangurro Red / Orange, Huachinango Incised,

Maxcanu Buff, and Cetelac Fibre-Temper (Manahan 2005; Manahan and Ardren 2005, 2006; Socorro Jimenez 2006). As with the preceding time period, both old and new occupations are included. Structures occupied on the southeast contain (FN302, FN135, FN186, and FN191), on the east only FN395 continues to be occupied, on the northeast (FN165), no occupations at all were encountered on the north, on the northwest side (FN20, FN40, and FN374), and on the southwest (FN321, FN318, FN351, and FN311). Within the wall FN84, FN111, FN123, FN53, and FN75 have Early Classic occupation (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Vallejo, Cortes-Rincon, and Manahan 2006)

Late Classic

The Motul Horizon represents this temporal period at the site with its diagnostic type: Muna Pizarra. Other ceramic types include Vista Alegre, Cizin Striated, Arena Red, Chablekal Gray, Infierno Black, and Tepakan Composite (Manahan 2005; Manahan and Ardren 2005, 2006; Socorro Jimenez 2006).

During the 2006 season, an unmapped area on the far north, and northwest part of the site was surveyed and recorded. Most of these households turned out to be Late Classic settlement. Structures located in the north include FN477, FN478, FN480, FN422, FN487, FN478, FN504, FN509, FN510, and FN513. Structures located on the northwest zone include FN542, FN550, FN538, FN539, FN533, and FN536 (Manahan and Ardren 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Settlement on the north, closer to the site core include FN211 (triadic group), and FN155, on the northeast structures FN165, FN161, and FN383; on the southeast structures FN191, FN192, and FN136; on the southwest FN31, FN351, FN319, FN306, FN183, and FN308. Within the site core FN88, FN90, and FN174 are all small structures near the North Palace, and the defensive wall. These small edifices may be activity areas or may be refugee households. The North Palace (FN84), FN64, FN66, FN44, FN37, and FN36 have Late Classic material (Ardren and Manahan 2004; Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Terminal Classic

Terminal Classic ceramics at Xuenkal include Cehpech, and Sotuta ceramic complexes (Socorro Jimenez 2006; Manahan 2005; Manahan and Ardren 2005, 2006). The former is associated with Ek Balam in the Yucatan region, the latter with Chichen Itza. As discussed in the preceding sections, an overlap of both Cehpech and Sotuta has been documented at Xuenkal (Manahan 2005; Manahan and Ardren 2005, 2006; Socorro Jimenez 2006). It is unclear what led to this change at the site, but a high influx of Sotuta is present both on the elite, and on the non-elite level contexts. There appears to be a correlation between Sotuta occupation, and the fortification wall.

Structures occupied during this time period within the defensive works include the North Palace, FN90, FN102, FN111, FN127, FN77, FN61, FN53 (Group J), FN49, FN18, and FN66.

Structures located outside of the wall on the southeast include FN129, FN136, FN135, FN192, FN200, and FN302. On the east side zone, only FN383 has occupation during this temporal episode. Three structures on the northeast include FN390, FN161, and FN165. Structures situated due north consist of FN150, and FN157. The triadic group further north was abandoned in this time period. Occupation on the northwest comprises FN509, and FN538. Structures found on the western district include FN27, FN29, FN32, and FN288. Settlement directly southwest encompasses the following structures FN31, FN36, FN351, FN319, FN311, FN310, FN306, and FN183 (Manahan and Ardren 2005, 2006; Morehart, Cortes-Rincon, and Stockdell 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

There was an influx of new settlements at the site and large platforms were constructed. The newer settlement was concentrated on the southeast and west portion of the site. Older settlements were reoccupied respecting already standing architecture, such as Group J. At FN276, two upper rooms and a small storage were reoccupied (Cortes-Rincon, Manahan, and Vallejo 2006; Manahan and Ardren 2006). The north settlement does not appear to have any Terminal Classic occupation, although further investigation would be needed to obtain a larger data sample (Manahan and Ardren 2006; Stockdell, Cortes-Rincon, and Morehart 2006).

Postclassic

Hocaba ceramic complex represents this time period at the site with Navula Unslipped, Kukula Cream / Cream-on-black, and Mama Red ceramic wares (Manahan 2005;

Manahan and Ardren 2005, 2006; Socorro Jimenez 2006). A series of house mounds near the northwest rejollada are probably from this temporal period based on architectural characteristics, and surface collections (Ardren and Manahan 2004; Manahan and Ardren 2005). FN165 on the northeast side has a lengthy occupational span. Similarly on the east side of the site, structures FN161 and FN390 have Postclassic sherds. On the southeast, only two structures have Postclassic cultural material (FN186 and FN302). FN306 has the only Postclassic material on the southwest district. FN20 located on the west, and FN276 on the northwest also have brief Postclassic habitation. Within the site core itself, FN127, and the North palace are the only two areas with Postclassic use (Ardren and Manahan 2004; Manahan 2005; Manahan and Ardren 2005, 2006; Socorro Jimenez 2006).

Chapter 7

Correlations between Trade, Resources, and Conflict throughout the Maya Lowlands

Introduction

The primary objective of this chapter is to explore patterns of war-related events, and the associations of trade routes with the locations of fortified sites. The goal is to analyze warfare under an economic perspective, and the consequences that conflicts had on trade relations. Furthermore, to examine the formation of political boundaries over time, and the role warfare played in the process. Other variables that were taken into consideration were: item sources; such as obsidian source locations, feathers, honey, chert, and salt-source locales.

My first hypothesis is that during the Late Classic, most of the sites with defensive features lie within closer proximity to raw material. My second hypothesis is that the sites with defensive features will be in closer proximity to trade routes during the Terminal Classic. Thirdly, I expect that most wars were carried out for the acquisition of resources, and political gain. Lastly, three theories are posited as to the circumstances that prompted an act of war to be carried out (H^1- H^3). To make the data accessible, I incorporated various datasets into a GIS database (see chapter 1 for a detailed methodology).

Trade. A basic definition of trade refers to the economic exchange of products, and perhaps to the flow of ideas in both directions (Renfrew and Bahn 1996). This exchange is carried out between two different groups. It can be an exchange with a different cultural group, within the same social unit, and covering short and large distances. Social relations between two collective units help to cement trade partnerships; these are not usually set up by the price of a product (Sahlins 1972). Lekson (2002) suggested settlement clusters traded with one another within the southwest region, even if it were items that were not needed, in order to solidify their relations. This was done to set up an economic relation, which in turn led to an understanding of an alliance at a time of conflict (Lekson 2002). Polany (1957) proposed three levels of exchange: reciprocity, redistribution, and market exchange. The first refers to the movement of goods between two individuals that are on the same socioeconomic level. The second is the redistribution of products within a site, and to various nodes connected within a network. The third is a locale set up with the sole function of exchanging merchandise (Polany 1957; Renfrew and Bahn 1991).

Production. The manufacturing of goods is a product of craft specialization within a community, and dependent on their access to local resources. The process of specialization is an indicator of a rising level of complexity within a social unit. Through the archaeological record, we can ascertain when this change occurred. These changes imply a demand of goods within a cultural group, and other societies: elite-related items, and subsistence produce. Each community begins to specialize in their own product, for

example Colha, located in Belize, specialized in lithic production and redistribution of this commodity. The increasing demands of goods lead to economic stratification. The constant exchange of materials between villages creates a level of inter-dependence between communities. The exchange system was set up by the elites, and thus created a controlled environment for trade relations between sites.

Redistribution. As already discussed, elites set up a distribution system that allows them to maintain control of the movement of goods. Inter-exchange of merchandise occurs both within a center, and are distributed among other sites. Elites were expected to maintain this system of exchange, and to promote the specialization of craft productions. At Monte Alban, the elites set up pottery workshops located within the main centers, thus moving the specialists to a controlled environment, and ensuring both the production and distribution of merchandise at the market within the site.

Trade Routes. Both land and water routes were utilized through Mesoamerica for economic exchanges. International trade can be traced to the Late Preclassic, with the Zapotecs in the Oaxaca region, engaging in economic exchange with the Olmec, on the Gulf Coast. During the Postclassic, the Aztecs and the Maya had ongoing trade relations. Commerce continued into the Colonial phase, salt trade exchange was documented in the Soconusco region from the Northern Lowlands (Andrews 1983). Controlling trade routes was a major motive for political gain, and a reason for warfare. Additionally, protecting the routes was a responsibility of the local polity. Whitfield (2004) proposed that fortresses were set up on a network of trade routes, known as the Silk Road, on the

Central Asian desert (Whitfield 2004; Stein 1907). The fortified sites were meant to serve as resting points for the traveling merchants towards their final destination, and to protect the route from opportunistic thieves (Whitfield 2004). Hassig (1992) suggested a similar scenario for ancient Mesoamerica.

Trade Wars. These types of conflicts refer to one polity trying to impose more favorable economic terms by using force on another center. It may also be used to gain control of valued resources, and trade routes.

Economic and / or Resource Wars. This type of action refers to one polity trying to weaken the enemy's economic system by attacking their trade routes, resources, and agricultural zones. This is carried out in order to slow the political and economic growth of a perceived enemy. In other words, it is a race to keep a competitor from becoming a major power, and a more dangerous future threat. Additionally, this is a strategy utilized in a time of war to weaken the military potential of the enemy's force. In a time of extreme duress, this may force the weaker polity to agree to unfavorable terms to restore peace, and economic sanctions.

Warfare Patterns

The following section will cover warfare patterns discerned within the dataset. This includes all of the sites that have evidence of fortifications throughout the Maya lowlands during the Late Preclassic until the Terminal Classic, and including the case study: Xuenkal.

The Southern Lowlands

H^2: War is more likely to occur when the power of the regional polity fluctuates sharply.

The Dos Pilas' elites began to assert their political power in the Petexbatun Region, by making alliances with the established local centers. Their next step was to state their military prowess by carrying out campaigns against other sites. Ruler 1 was able to establish a firm control on the region. Calakmul could have attacked Tikal directly, but chose to attack the younger inexperienced brother at Dos Pilas. At the time, Dos Pilas was not fortified, and had a smaller population than Tikal. It was a strategic move by Calakmul's ruler to conquer, and divide. It is possible that the original hope was to establish a Tikal-twin capital within the Petexbatun region, and to extend the Motul's regional control. By Calakmul attacking Dos Pilas, the ruler thwarted Tikal's expansion, and separated Tikal from his allied brother. Calakmul's campaign against Tikal began by weakening their control of the region. Dos Pilas was successful in retaining control of the Petexbatun region. Unfortunately, once Ruler 4 went against the already agreed alliances, and made enemies of his allies. The political stability began to decrease, setting the stage for the siege of Dos Pilas, culminating in his capture and untimely demise. Once the Dos Pilas polity's power fluctuated in controlling the region, the subsidiary centers began to vie for control. This situation was exacerbated even more once the site of Aguateca fell. A few of these centers even went as far as to use the Motul title in their monuments. **H^2** can be applied to various periods in Mesoamerica, very similar to a cyclical system. During the Protoclassic, various large centers suffered politically, economically, and

from depopulation. This series of events allowed smaller centers the opportunity to fill in the power gap, and thus rise to power.

The Central Lowlands

H^1: War is more likely to occur when the advantage lies with the first side to attack.

H^3: War is more likely to occur when the control of resources enables the acquisition of other resources.

I suggest that both **H^1** and **H^3** theories fit the patterns for this region. Sites in this region seem to have been affected by a series of power struggles. The region nearby Muralla de Leon was affected by an influx of people, possibly from the Highlands due to the volcanic eruption of Ilopango, and subsequent environmental issues. The Usumacinta region in the Late Preclassic has evidence of fortifications protecting both small and large sites. The evidence within this zone suggests that Yaxchilan was trying to consolidate the region around it, especially the northern area under its political power. It would be of interest to investigate what prompted these actions by the Yaxchilan ruler. Was it just to consolidate the region under one polity or fear of powerful newcomers? For instance, the elites at Teotihuacan organized campaigns throughout Mesoamerica. The arrival of the Teotihuacan emissaries and warriors had a large impact on the Peten region, such as El Peru, Tikal, Uaxactun, Cival, Montana, and many more sites. Although, Teotihuacan maintained "friendly" economic and political relations with some sites, others were not so lucky. Montana, in the Soconusco region, was documented to have been taken over by Teotihuacanos (see Chapter 2). I propose their main goal was to acquire resources by force when it was deemed possible: H^1. If they encountered sites that were too

formidable to attack, then economic and trade alliances were set up. Teotihuacanos visited Monte Alban, and set up an economic relationship with the elites, but they did not attempt a siege of the site. As discussed in Chapter 2, Monte Alban was shielded by two protective walls, the site was located on high defensible elevation, and had quite the collection of carved monuments portraying captured prisoners. If acquiring a resource is too risky and or too expensive in time, labor, and human casualties, then the commodity loses its economic value. Alternatively, the Tikal ruler is recorded to have died at the same time of the arrival of the foreigners indicating a hostile takeover. Similarly, Uaxactun was subjugated by the newly appointed Tikal ruler, presumably sponsored by the Teotihuacan ambassadors. If the earthworks at Tikal were indeed fortifications, then there must have been ongoing altercations between Tikal-Uaxactun, and Tikal-Yaxha. Both Uaxactun and Yaxha must been formidable adversaries to warrant such large constructions. Once the new dynasty was set up at Tikal in A.D. 378, the new ruler carried out a direct assault on Uaxactun before their elites could assemble their forces and allies, and attack the Motul kingdom: H^3.

The Northern Lowlands

H^2: War is more likely to occur when the power of the regional polity fluctuates sharply.

H^3: War is more likely to occur when the control of resources enables the acquisition of other resources.

Garcia Campillo refers to the transitional period between the Late and Terminal Classic as the “mini-hiatus” for the northern lowlands (Garcia Campillo 1991:75). There were several sites that have Teotihuacan influence, as with other regions of Mesoamerica. The

architecture at Oxkintok had Teotihuacan elements. Furthermore the inhabitants used Teotihuacan ceramics, which might have been local imitations or imports. During the Early Classic, Oxkintok was influenced by Teotihuacan architectural and cultural elements. This phenomenon was documented at other Puuc centers (Carmean, Dunning, and Kowalski 2004). There were various regional centers in the northern Yucatan. Trade amongst these sites was present as can be corroborated through the archaeological record. Oxkintok was one of the major powers in the Western Cehpech region. It is unclear what relation Oxkintok had with Uxmal. Mulchic is a small center located between Uxmal and Kabah.

Traces of evidence of warfare in the Yucatan region can be traced to the Late Classic. Ek Balam is located 25 km east from Xuenkal. Two concentric walls at the site core of Ek Balam and Stela 21 attest to the regional conflict at the time (Table 6.1). Yo'okop is located south of Xuenkal. There are segments of defensive walls within Group B, one of the residential areas at the site. Coba was the regional center on the eastern Yucatan during the Late Classic. Based on epigraphic work at Coba, various monuments have war-themed iconography (Thompson, Pollock, and Charlot 1932). Table 7.1 illustrates the political propaganda endorsed by the elites to promote their power over their surrounding region. While the material deciphered from these monuments may be the elites' exaggerated version of the truth, these carved stones serve to exemplify the ongoing conflict between polities during the Late Classic. Additionally, the murals at Mulchic have a militaristic theme, which has been interpreted as part of

collaboration with Uxmal to consolidate power within the region (Kowalski 1991). Kabah also has warfare iconography dating to the end of the Late Classic (Table 7.1).

Table 7.1. Iconographic and Epigraphic Evidence of Conflict in the Yucatan

Site	Sculpture	Time Period	Position	Reference
Coba	Stela 6	E.C.	Facing P.F. at bottom left	Thompson, Pollock, and Charlot 1932
Coba	Panel (East)	L.C.	Principal (sole) figure (P.F.)	Thompson, Pollock, and Charlot 1932
Coba	Panel (West)	L.C.	Principal (sole) figure	Thompson, Pollock, and Charlot 1932
Coba	Stela 2	L.C.	supporting P.F.	Thompson, Pollock, and Charlot 1932
Coba	Stela 4	L.C.	supporting (2) and facing P.F. (L)	Thompson, Pollock, and Charlot 1932
Coba	Stela 8	L.C.	supporting (2) and facing P.F.	Thompson, Pollock, and Charlot 1932
Coba	Stela 21	L.C.	Facing P.F. at bottom, L and R	Thompson, Pollock, and Charlot 1932
Coba	Stela 5 -front	L.C.	Facing P.F. at bottom, L and R	Thompson, Pollock, and Charlot 1932
Coba	Stela 5 -back	L.C.	Facing P.F. at bottom left	Thompson, Pollock, and Charlot 1932
Coba	Stela 12	L.C.	supporting (2) and facing P.F.	Thompson, Pollock, and Charlot 1932
Coba	Stela 15	L.C.	supporting (2) and facing P.F.	Thompson, Pollock, and Charlot 1932
Coba	Stela 1 - front	L.C.	supporting (2) and facing P.F.	Thompson, Pollock, and Charlot 1932
Coba	Stela 1 - back	L.C.	supporting (2) and facing P.F.	Thompson, Pollock, and Charlot 1932
Edzna	Stela 19	L.C.	supporting P.F.	Proskouriakoff 1950
Coba	Stela 20	L.C.	supporting (2) and facing P.F.	Thompson, Pollock and Charlot 1932
Ek Balam	Stela 1	L.C.	bound captive below main figure facing right	Ringle 2004
Edzna	Stela 1	L.C.	supporting P.F.	Proskouriakoff 1950
Edzna	Stela 7	L.C.	supporting P.F.	Proskouriakoff 1950
Oxkintok	Stela 26	L.C.	Facing P.F. at lower left	Proskouriakoff 1950
Oxkintok	Stela 3	T.C.	depicts warriors / no prisoners	Garcia Campillo 1991:70; Carmean, Dunning, Kowalski 2004
Kabah		T.C.	Main Figures with a captive between them	Pollock 1980
Uxmal	Stela 2	T.C.	P.F. standing a captive w. his hands tied behind his back	Graham 1982:87

(PF = Principal figure)

The Terminal Classic was a tumultuous period in the northern lowlands. Only two known sites were fortified during the Late Classic, while ten sites were refurbished with defensive works during the Terminal Classic. The data suggests Peten cultural elements, architecture and artifacts were used during the Late Classic. A series of events caused a change in trade from the southern lowlands to the northern region during the beginning of the Terminal Classic. During this time period, there appears to have been a power struggle between major powers within the region. A power vacuum was left from the previous phase (H^2), and polities vied for control of the region, and resources. The large powers in the region during the Terminal Classic are: Puuc, Coba, Chichen Itza, and quite possibly Kabah (Carrasco et al. 1993). Cehpech ceramics were documented at most of the sites in the northern lowlands that have defensive features. The only ambiguity at some sites was whether or not the ceramics were Eastern or Western Cehpech. It is clear from architectural data (fortifications) and iconography at Puuc sites that there was a power struggle within these two Cehpech regions. The sites located within the frontier zones most likely served as a buffer between these two zones.

After Chichen Itza was settled, the elites there embarked on a series of military campaigns. I propose these operations were carried out to take advantage of the trade shift from the south to the north, and to acquire resources within the northern lowlands. Chichen Itza began setting up various ports of trade along the shoreline. The known ports of trade located along the Yucatan coast are Cozumel, Isla Cerritos, Champoton, Campeche, Jaina, Punta Canbalam, Xcopte, Punta Cerrito, and Isla Alegre (Andrews 1978). This meant yet another change on the trade routes, which in turn bypassed other

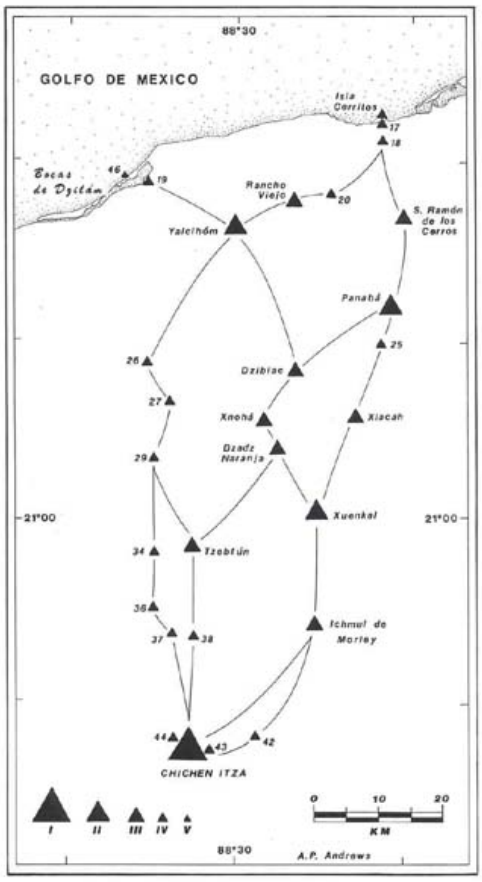
sites, and left them out of the new trade-network, such as Coba. This process affected sites that were unable to keep up with the change in commerce. The coastal trade ports allowed the Chichen Itza's elites access to marine resources to support their daily livelihood, and access to salt, which was traded to other parts of Mesoamerica (Andrews 1978, 1983).

Xuenkal

While research is still ongoing at Xuenkal, and my analysis is preliminary, there is enough data to discuss a probable date for the construction of the fortifications, and the relationship the local elites had with their political neighbors. There is an overlap of Cehpech and Sotuta ceramics at the site noted in both elite and commoner households. The interesting pattern at Xuenkal is that the Sotuta occupation is located adjacent to the wall, on the North Palace, and outside of the fortifications. It does not make sense if the local inhabitants were trying to repel a Chichen Itza military campaign that there is a documented Sotuta presence both within and outside the wall. Unless, segments of the wall at Xuenkal were built during the Late Classic, especially towards the end of this time period when there was a documented increased level of conflict in the Northern Lowlands. It is possible the wall was enlarged to cover more of the site core during the Terminal Classic. As discussed in Chapter 6, the north settlement at the site shifted from the north to the central and southern parts of the site during the Terminal Classic. This indicates a growing concern and thus a change to concentrated settlement pattern.

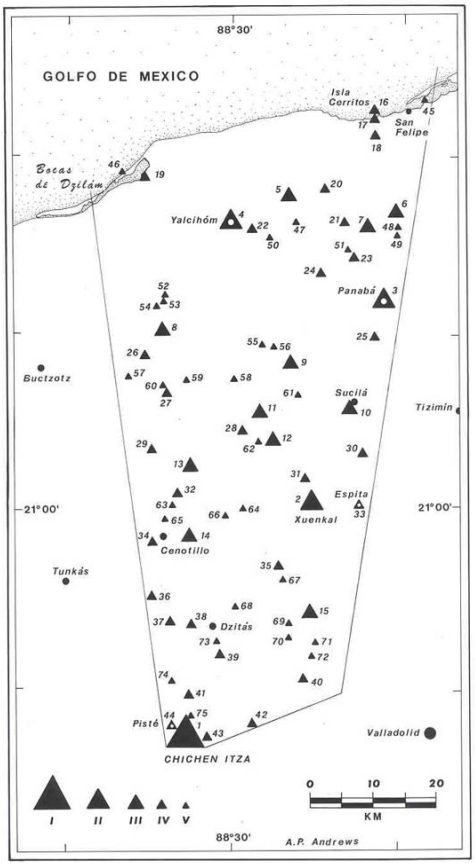
Regardless of any imminent threats, Xuenkal was one of the major nodes participating within the Cupul economic trade network (Figures 7.1a and 7.1b).

Figure 7.1a. Cupul Trade Routes



(After Andrews 1989)

Figure 7.1b.Sites within the Cupul Survey



(After Andrews 1989)

Correlations between Trade Routes and Fortified Sites

As discussed in Chapter 1, I utilized Geographical Information Systems (GIS) software in order to find correlations, if any, between trade routes, fortified sites, and resources'

locations. The results of each of the queries discussed below were organized by time period including the mean, minimum, maximum, and standard deviation.

- The first series of queries were based on the distance of all available resources from each fortified site.
- The second query explored the distance of rivers from each fortified site with the assumption that rivers were also utilized as trade routes.
- The third query investigated the distance of land trade routes from each fortified site.

Query Results

The first query indicated resources were located at a mean distance of 317 km from fortified sites during the Late Preclassic (Figure 7.2). There was not a high variation between sites and the resources, with a standard deviation of 14.2 km. Only Itzan and Cival appear to have resources within closer proximity to each site. As discussed in Chapter 3, there are only two sites with fortifications during the Early Classic. Calakmul has a wall on the northern part of the site that may or may not be a fortification. The site was included in the calculations as a possible defensive feature. Drennan (1984a, 1984b, 1985) proposed a maximum of 275 km for moving food items. Any distance higher than 275 km would be deemed an economic deficit on the product, as it would require too much energy to move the produce, thereby decreasing its value (Drennan 1984a, 1984b, 1985). This is a reasonable distance to move food, but this would not fit an economic exchange of non-edible items. My analysis indicated that resources were located at a

mean distance of 347 km from the three sites, with a standard deviation of 18.5 km during the Early Classic (Figure 7.3).

Figure 7.2. Late Preclassic Distance of Resources from Fortified Sites

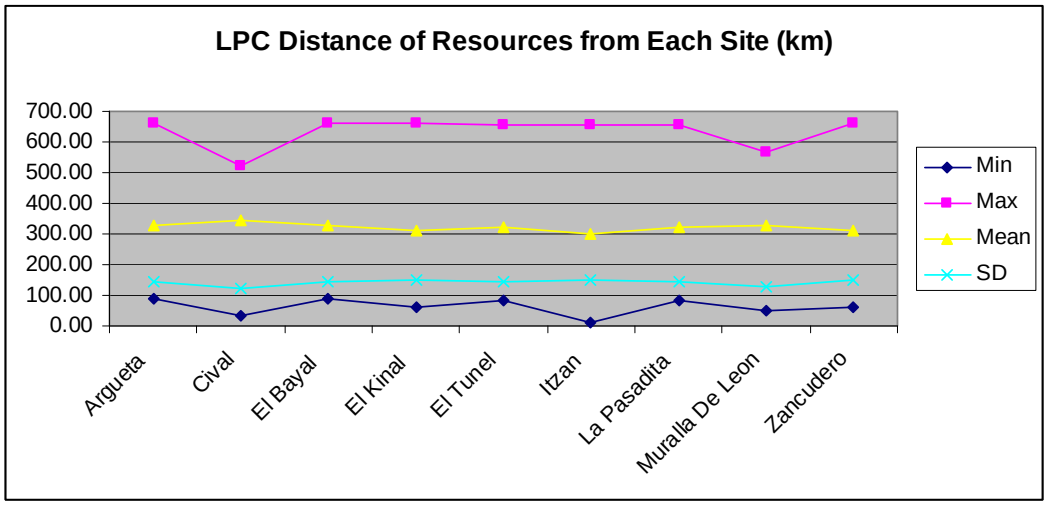
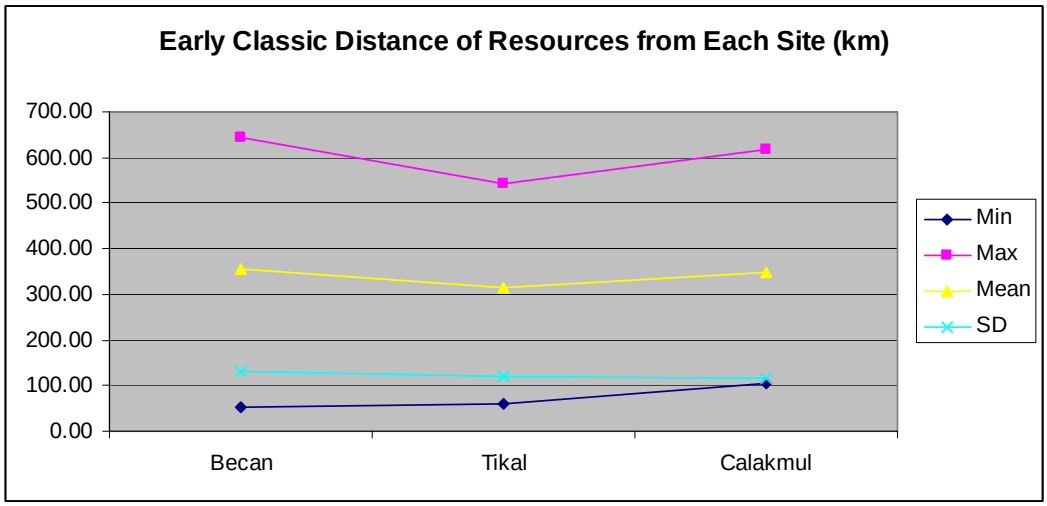


Figure 7.3. Early Classic Distance of Resources from Fortified Sites



During the Late Classic, there were a total of ten settlements with defensive features (Figure 7.4). El Duende was excluded from this analysis, due to the fact that this complex is located within Dos Pilas. Resources were found within a mean distance of 303 km from fortified sites, and with a standard deviation of 19.4 km. There were a total of fourteen fortified settlements during the Terminal Classic throughout the Maya Lowlands (Figure 7.5). Edzna was included within the statistical analysis as a possibility. The site has canals, which have been surmised to be fortifications, but more in depth investigations need to be carried to determine if these features are for hydraulic or defensive purposes (Adams 1971; Webster 1979). Resources were found at a mean distance of 411 km, and with a standard variation of 22.9 km.

Figure 7.4. Late Classic Distance of Resources from Fortified Sites

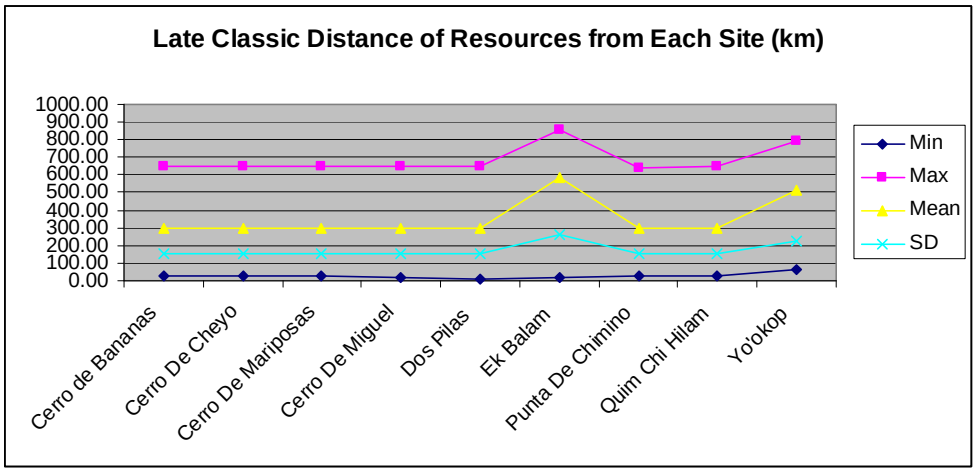
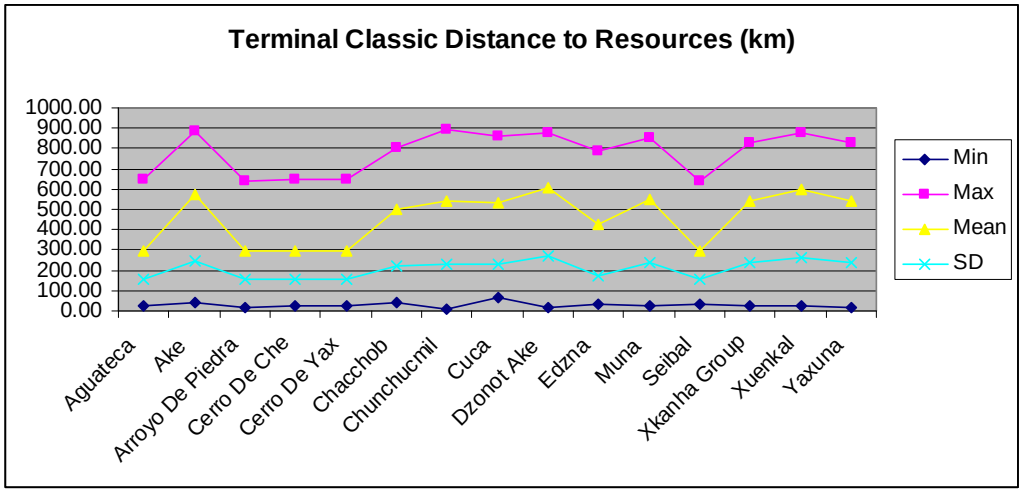
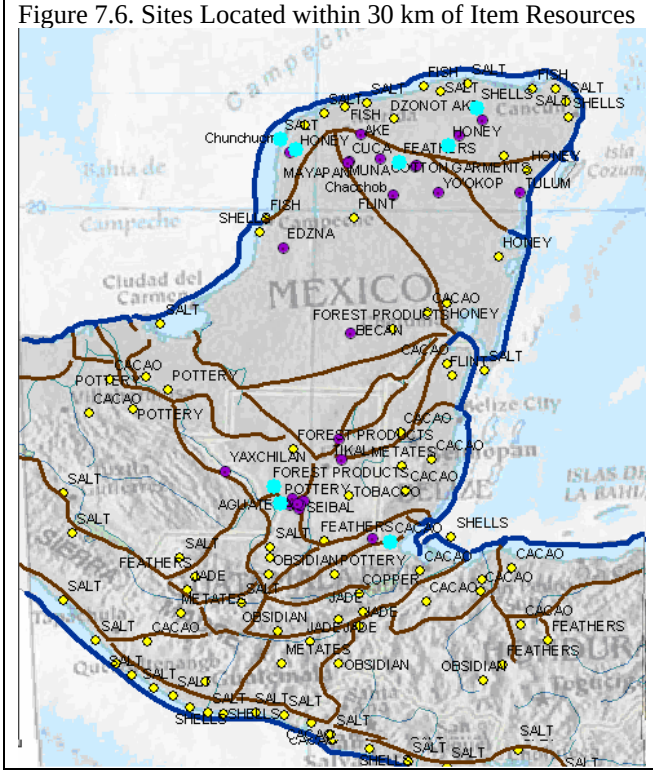


Figure 7.5. Terminal Classic Distance of Resources from Fortified Sites



The resources query indicated that there were not any sites located within one to five km. Chunchucmil and Itzan are the only site located within 12 km range of item source locations. The majority of the sites were found to be situated about 25 to 30 km from key resources. The sites highlighted in blue are those located within close proximity to the assets (Figure 7.6). The results indicated that fortified settlements were not found within close vicinity of the resources. During both the Early Classic and Terminal Classic the mean distance from resources to fortifications increased. This indicates that close proximity to resources was not a high factor in settlement patterns during both time periods.

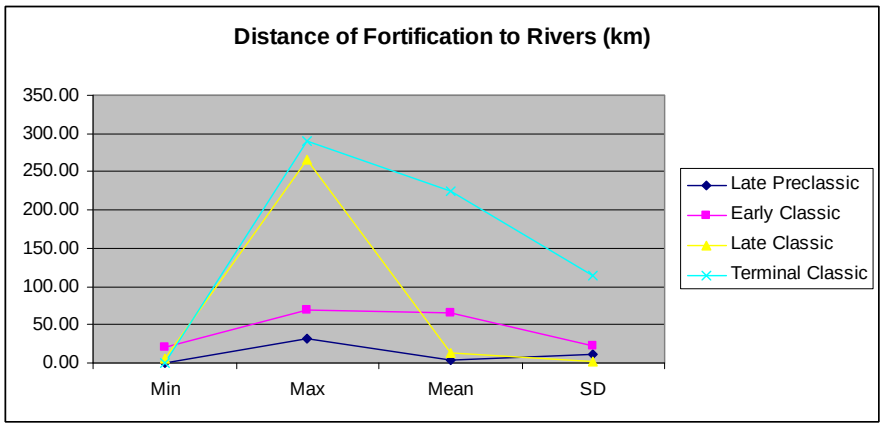
Figure 7.6. Sites Located within 30 km of Item Resources



The second query explored the distance between fortified sites and rivers, which were used both as communication, and economic exchange routes (Figure 7.7). During the Late Preclassic and Late Classic, riverine routes were particularly closer to the sites in the dataset. Cival and La Pasadita were situated closer to rivers during the Late Preclassic. Tikal was the closest site to a river during the Early Classic. The results for this time period may be skewed due to the minimal amount of sites with fortifications during this phase. The majority of the sites in the Petexbatun were situated nearby a river during both the Late and Terminal Classic. In the northern lowlands, most of the sites are found within 13 to 28 km from rivers during the Terminal Classic. Coastal routes were

also used during this phase. Trading ports were set up along the coast as exchange nodes within the economic network.

Figure 7.7. Distance of Fortifications to Rivers



The third query had the most interesting patterns. During the Late Preclassic, Early Classic, and Late Classic, the mean distance of the sites to the trade routes remained consistent (Figure 7.8). A minimal increase of 10 km in the mean distance is noted during the Terminal Classic. The standard variation is the highest during the Early Classic (18.03 km). During the Late Preclassic, five sites are within five km of trade routes, and the rest are within 15.50 km (Figure 7.9). It should be noted that the site that is located within one km of a trading route was Tikal. This site was one of the most important centers in the Maya lowlands. As discussed in chapter 3, the defensive features at this site are a series of earthworks. One of the barriers is located 4.5 km north from the center of the Great Plaza. The other earthwork is located approximately 6 km to the southeast of the site core (Puleston and Callender 1967).

Figure 7.8. Distance of Fortified Sites from Land Trade Routes

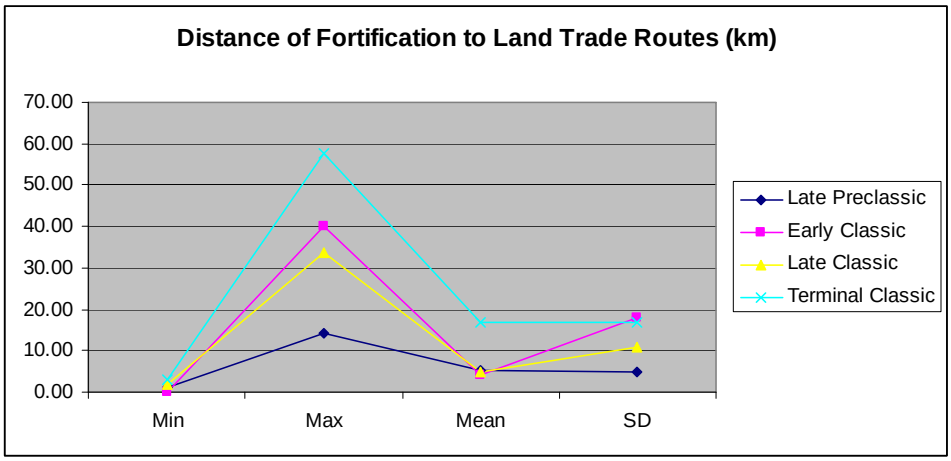
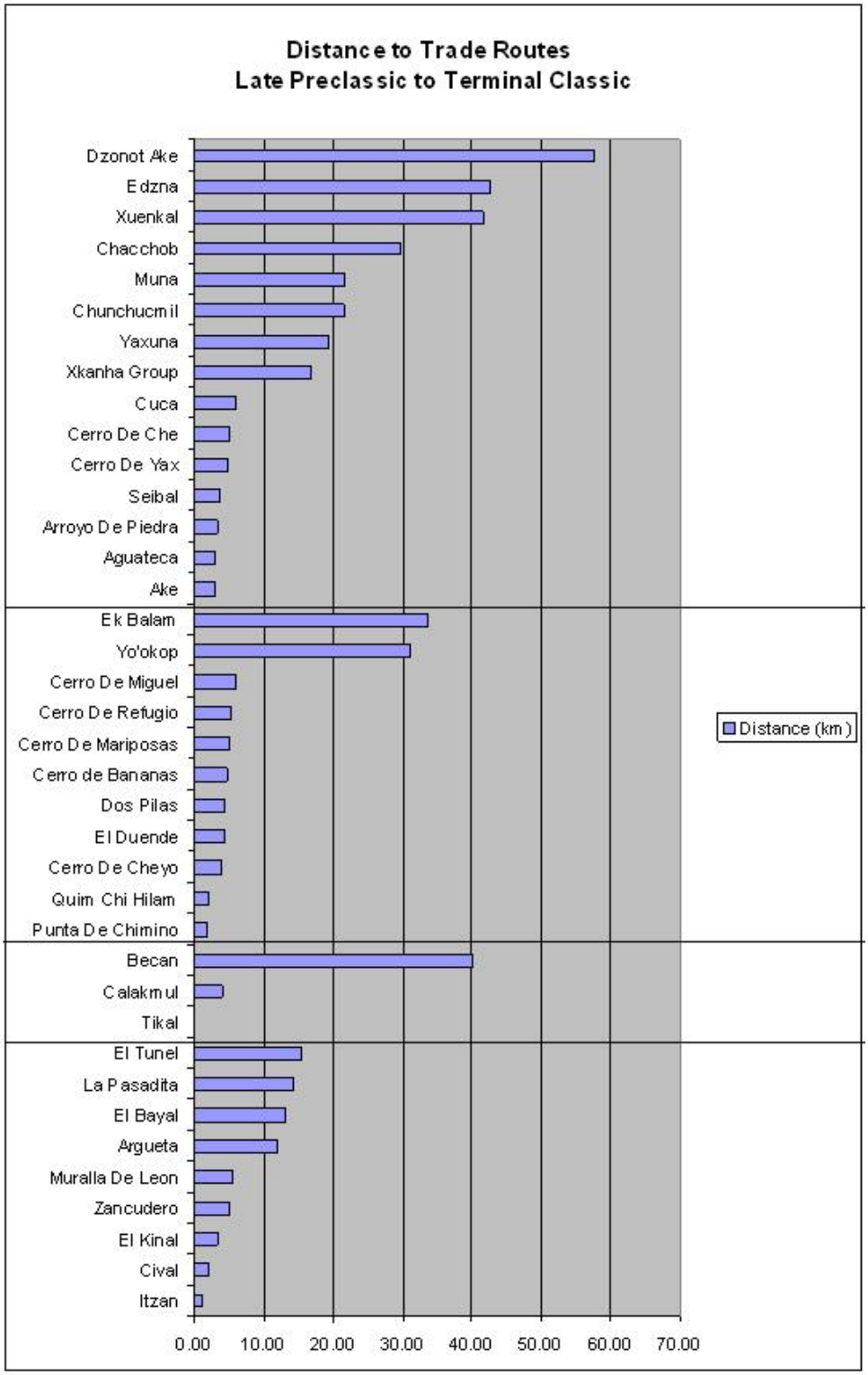


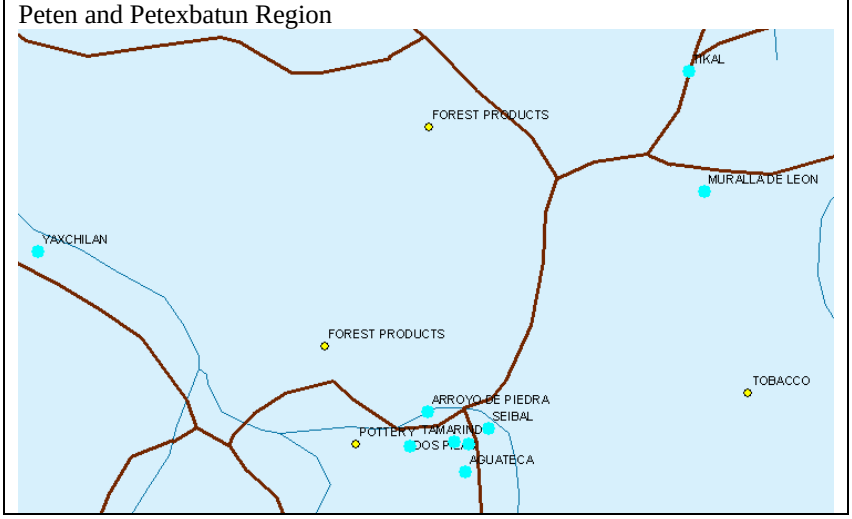
Figure 7.9. Distance to Trade Routes



On the Petexbatun region, most of the sites are located within 5 to 10 km from a trading route (Figure 7.10). Punta De Chimino is situated the closest to a land trading route, and a river route. This region has been documented to have suffered from endemic warfare from the Late Classic to the Terminal Classic (Demarest et al. 1997; Inomata 1997, 1999, 2006). There is abundant epigraphic evidence to corroborate these war-related events. As mentioned in Chapter 3, the Dos Pilas Ruler 1 established his control of the area by capturing the ruler of Tamarindo. Prior to this event, Tamarindo was the local regional center in control with Arroyo De Piedras as the secondary center. Dos Pilas was attacked and the remainder ruling elite escaped to Aguateca, which became the third regional center in the area. Aguateca had a couple of supporting satellite communities, which were also fortified. It appears that most villages followed in the fortification architectural trend. After the fall of Aguateca, Punta De Chimino seems to have taken over as the fourth regional center. This site survived the endemic wars from A.D. 760 – 830 (Demarest 2006).

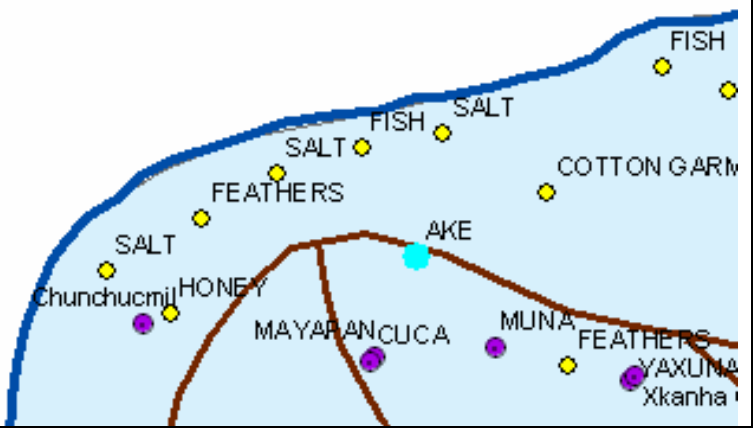
Figure 7.10. Fortified Sites within 10 km of Trading Routes

Peten and Petexbatun Region



On the northern lowlands, Yo'okop and Ek Balam are both located roughly 30 km away from a trading route during the Late Classic. In the Terminal Classic, the sites in the northern Yucatan appear to be closely situated to the trade routes, roughly 20 to 30 km (Figure 7.11). Only Ake is found within 3 km of a trading route. Xkanha Group, Yaxuna, and Chunchucmil are located 16 to 22 km from trade routes. The rest of the sites are found approximately 30 km away from economic nodes. The only anomaly is Dzonot Ake at 57.57 km away from trade routes.

Figure 7.11. Fortified Sites in the Northwestern Yucatan Region



Summary and Conclusions

I posited that during the Terminal Classic, resources would be located farther away from the fortified sites. During the Late Preclassic and Early Classic, the resources were located approximately 300 km away from the settlements. The results of the query from Late to Terminal Classic location of resources indicate that during the latter period there was a noted increase in distance. Most of the resources were located over 500 km away. This supports my first hypothesis, with a 200 km increase during the Terminal Classic.

The third query results corroborated my second hypothesis. Most of the sites that are fortified are located within five to ten km from trading routes. Controlling trade routes is a key factor in gaining power and economic stability. Cutting off trade to a site by taking over a trade route, and or making it too dangerous to take a specific route would strike at the heart of the enemy with an economic blow.

A range of issues, methodologies, and questions have been considered in this thesis: (1) The continuity of warfare throughout Mesoamerica; (2) Architectural innovations and evolutions in defensive features, and military strategies; and (3) Utilizing the study of warfare, and trade patterns to discern shifts in political boundaries at various time periods.

In this dissertation I have provided epigraphic, iconographic, and architectural data to show that warfare was an integral part of Maya political life throughout the Preclassic, and the Classic periods. I have applied a limited GIS analysis to the dataset, in order to show that economics was the prime motive to carry out war. While ideology and other esoteric elements were used to promote battles with other social units, the acquisition of resources was the major reason to declare combat. The construction of defensive works demonstrates an elite control over construction material, and most importantly: manpower. The fortifications were built, maintained, and manned by the Maya commoners. Increasing conflict in a specific region altered the nature of warfare, rules of engagement, and fortification systems per lowland zone, and time period. The creation of feudal territories around walled-sites demonstrates the implementation of fortified sites as a center of social, and political control. Fortresses serve both military and non-military functions. Walled fortifications were part of a survival strategy to sustain control over local resources, and region. These features serve to support, and manage the elites' economic interests, and ongoing control over the local population. The ingenuity of the defensive features at sites, such as Punta De Chimino, shows a determination, not only to survive, but to combat the constant conflict, and specific

modes of offensive methodology. Both the defensive features and the history of warfare vividly illustrate the dynamics that compelled the ancient Maya to invest so heavily in these types of architectural undertakings.

Future Work

I have limited my GIS analysis to distance computations but I will expand this work throughout my academic career to include more extensive spatial analysis. I would like to add more sites to the dataset, especially from the Postclassic period. I would also like to rank the sites based on the type of fortifications, in other words, to set up a typology of defensive sites. The sites will be ranked based on the complexity of their defensive features. Ideally, it would be a numerical tally based on the number of walls, moats, ditches, and other defensive features present. Availability of natural resources within the defensive system was recorded, as this was vital in order to withstand a short and long term attack. This poses an issue due to the fact that without field excavations on most of these features, it is impossible to test the functionality of the feature. Also, I must assume that some defensive features were taken apart or built over after the danger subsided. Additionally, dating these types of architectural features is quite problematic. Most of the walls do not encase any earlier buildings and or cultural material (with the sole exception of Becan; see Webster 1979). The majority of the fortifications have dry fill. Furthermore, the sites were divided by the time period(s) of occupation at the site, and by the time period that the defensive feature(s) were built.

The data provided within this dissertation contributes to the topic of warfare in the Maya lowlands by providing a chronological development of these features, and the possible associated events that led to war. As stated previously, defensive features were present as early as the Late Preclassic and continued to be constructed into the Postclassic and Colonial periods. The compilation of fortifications can shed light on the evolution of these features per time period, and regional area. The data allow us to postulate on both defensive and offensive strategies. Furthermore, we can utilize this information to reconstruct social, economic, and political dynamics during times of conflict. Moreover, we can use this information to test the function(s) of possible defensive features. There is physical evidence for war and the available data can extend our ideas on expansion, utilization of territories, and political and economic relations between polities.

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Vita

Marisol Cortes Rincon was born on June 16, 1975 in Pereira, Colombia, South America, the daughter of Margarita Galvis and Oscar Cortes. Her interest in archaeology was spurred by a field school trip to a local museum as a child in Colombia. She moved to New Jersey, when she was 13 years old, with her mother. Subsequent to completing work at Dwight Morrow High School, she enrolled at Montclair State University in New Jersey. She received a Bachelor of Arts degree from Montclair State University in May 1997. She enrolled at the same university during the fall of 1998, and received her Master of Arts degree in August 2000. In the fall of 2002, she enrolled at the University of Texas at Austin to complete a Ph.D. She is married to a wonderful man, Steven Rincon, and has two beautiful cats, Sixx and Spike Rincon.

Permanent address: 14 Rock Creek Terrace #105. Englewood, NJ 07631

This dissertation was typed by the author.