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A tale of three plazas: the development
and use of public spaces in a classic
Maya ritual and residential complex at
Xultun, Guatemala

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BOSTON UNIVERSITY
GRADUATE SCHOOL OF ARTS AND SCIENCES

Dissertation

**A TALE OF THREE PLAZAS: THE DEVELOPMENT AND USE OF PUBLIC
SPACES IN A CLASSIC MAYA RITUAL AND RESIDENTIAL COMPLEX AT
XULTUN, GUATEMALA**

by

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To Graham, for his infinite patience
and my parents, for their unconditional support

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(Order No. _____)

JENNIFER CAROBINE GROEGER WILDT

Boston University Graduate School of Arts and Sciences, 2015

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ABSTRACT

In this dissertation I examine the social functions of neighborhood plazas by tracing the development of a Classic Maya (AD 200-900) ritual and residential complex at the ancient city of Xultun, Guatemala. In ancient as in modern times, public open spaces were essential to urban life; yet their functions and meanings could vary within and among societies. Using archaeological and architectural data from three plazas and an adjacent residential complex, I identify a shift towards increased public spaces in the Late Classic period, and link this to the rising importance of displays of power for Xultun's growing population.

Located on the northern periphery of Xultun, Los Aves, the focus of the study, is an architectural group consisting of a central residential area with three adjacent plazas to the east, west and northwest. During the Early Classic (AD 250-600) period, only one of the plazas had been built and the layout of the complex was balanced between public and private space. Residents carried out domestic activities within six modest patio groups and used a round platform in the western plaza, Plaza Colibrí, for group rituals.

The construction of two new plazas during the Late Classic period (AD 600-900) dramatically changed the composition of Los Aves, tripling the amount of public space. Dominating the neighborhood was a new, larger plaza, Plaza Tecolote, with monumental, ritual architecture that opened to the south towards the city center, easily accessible to those outside of Los Aves. An increase in population at this time necessitated the construction of more domestic structures within the house groups, reducing the amount of proximate patio spaces. Such activities now took place in a new, smaller plaza, Plaza Loro, located in the northwest of the complex, that contained broad steps for seating.

In the Early Classic period, Los Aves contained equal parts public and private space, while in the Late Classic period public plazas dominated. I argue that as populations grew, public displays of power became increasingly important, and new, larger plazas were built to accommodate these events. This development broadens our understanding of Classic Maya urbanism.

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Chapter 1. Introduction

1.1 Introduction

Plazas are where rulers are crowned, where revolutions take form, where people gather together to reaffirm their group identity and create shared experiences. Yet, studying ancient plazas is difficult because little material culture remains from the events that take place within them. This dissertation combines multiple theoretical approaches with a variety of datasets to try to understand the roles of plazas in society.

For thousands of years, cities have been built around plazas, which serve as flexible spaces for residents to gather together. In ancient, as in modern times, they have been essential to commerce, politics and religion, and the importance of attending public gatherings there has not waned. Despite their ubiquity, the social functions of plazas are not fully understood; however, new studies are taking a broader approach to plazas. Innovative archaeological methods are being incorporated, such as remote sensing, soil chemistry, micro-artifact analysis, and comparative studies of multiple ancient civilizations (Blake et al. 2006; Garrison et al. 2004; Keller 2014; Sever and Irwin 2003; Smith 2007; Terry 2014). Archaeologists and modern urban studies scholars have begun to recognize the complementary nature of each other's data and to integrate each other's methods into their work.

In this dissertation, I trace the development of a Classic Maya (AD 250-900) ritual and residential complex at the ancient city of Xultun in order to determine the social functions of neighborhood plazas there. Using archaeological and architectural

data from three plazas and an adjacent residential complex, I identify a shift towards increase public space in the Late Classic period (AD 600-900), which I link to population growth and increasing social hierarchy.

1.2 The Problem Statement

Human beings are social animals. Understanding the roles that gathering together plays in human society is central to understanding how societies function. In order to determine the social mechanisms governing ancient groups of people, we must study the spaces in which they gathered.

Although large, seasonal gatherings were important for nomadic groups, in ancient urban centers we see the first use of permanent, architectural spaces as tools for social cohesion (Trigger 2003; Whitelaw 1994). The presence of plazas in ancient cities worldwide indicates their significance to all early people, however we lack an understanding of what that significance is. For years, scholars have assumed that plazas and public spaces were important in ancient times, but only recently have they sought to understand the mechanisms behind public gatherings there (Tsukamoto and Inomata 2014).

In the past several decades, a shift from formal studies of plazas to more holistic studies of the built environment has brought a social approach to the discipline (Lawrence and Low 2000; Smith 2007). Studies of the interaction between the environment and human behavior have demonstrated the recursive nature of this relationship (Bourdieu 1977; Rapoport 1982, 2007; Smith 2007). The communication of

non-verbal coded messages through architecture was a very important factor in the planning of ancient public spaces and buildings (Hillier and Hanson 1984; Rapoport 1980, 1988, 1990; Smith 2007, 2011). The limits of interpersonal communication have also been shown to have had a great influence on the design of ancient space (Childs 2004; Moore 1996; Smith 2011). Performance studies encourage us to move beyond architecture by focusing on the actions that took place within these ancient settings (Inomata 2006). On a larger scale, our understanding of the organization and development of ancient urban environments has profited from spatially and temporally comparative studies (Smith 2007, 2011; Stanley et al. 2012).

1.3 The Project Statement

This project is a comparative study of three ancient Maya plazas and an associated, elite residential complex with the aim of understanding the different roles that the plazas served in the lives of their users. This archaeological and architectural study combines a multivariate analysis of plaza attributes with an examination of the domestic areas of those living nearby, shedding light on the roles that the plazas played in the daily lives of their users and their functions in ancient Maya society. My research examines the spatial arrangements of the plazas as well as the structures within, to explore the different activities that took place in each. The plazas are looked at holistically as well as by individual feature, in order to ascertain the different meanings these spaces held and understand why they merited such an investment of labor. Given that any one of these plazas could have fit the entire population of the associated residential area, I hypothesize

that there were social, political or religious reasons for building multiple plazas. To shed light on the motivations of the plaza users, I carried out excavations in the three plazas and the adjacent residential area.

In addition to these problems, my research addresses further questions related to plazas and society. Whether smaller, neighborhood plazas served the same role that monumental plazas did, or if they had different functions. If certain plazas were used for more formal or public ritual gatherings, while others were for local groups or served more secular needs. How the ancient Maya decided what rituals and activities would take place in which plazas, and what the relationship was between the residential and ritual spaces here.

1.4 Setting

The residential and ritual complex, Los Aves, located at the Classic period Maya site of Xultun in northeastern Guatemala, provides an ideal setting for a comparative study of plaza use (Figure 1.1). Los Aves is comprised of three intermediate plazas (*sensu* Stanley et al. 2012), each with distinctive architectural features surrounding a core of six contiguous patio groups. This architectural group is located on the northern periphery of Xultun, near a monumental Early Classic ancestral shrine. The proximity of Los Aves to this structure in an isolated area suggests that the two may have been part of a coherent architectural plan. At the same time, the juxtaposition of the residential area and the plazas within Los Aves indicates that those inhabitants were the principal users of the plazas. The proximity of the three plazas to each other, along with the distinct

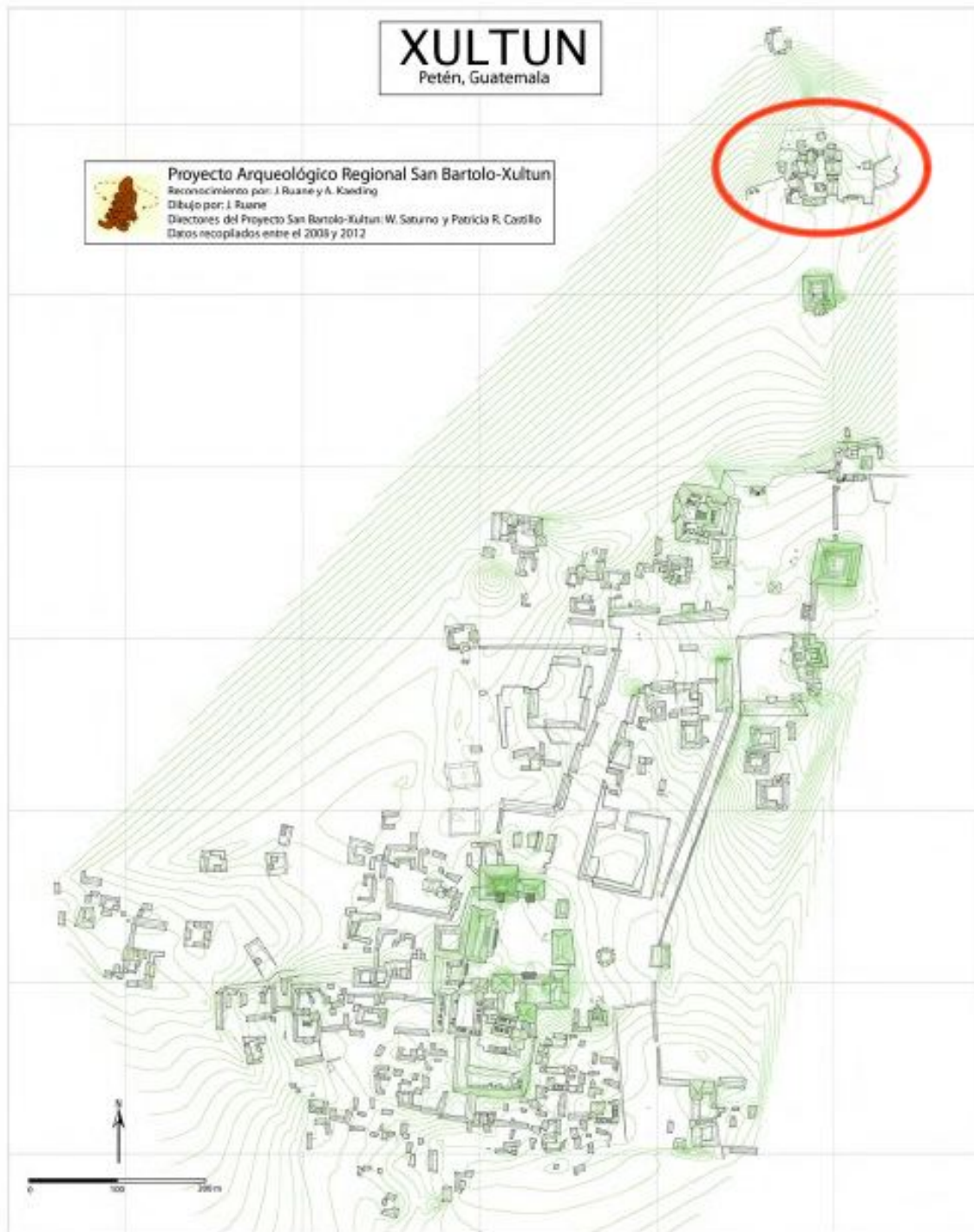


Figure 1.1. Map of Xultun, by Jonathan Ruane and Adam Kaeding, with study area highlighted

architectural features in each, suggests that they facilitated different ritual and quotidian activities and served to reinforce different social mores.

1.5 Theoretical Background

At the heart of this inquiry is the question of the function of social gatherings in human culture and the part that public space serves in this relationship. The ubiquity of public open spaces indicates that they are vital to society but we lack a deep understanding of how they work (Stanley et al. 2012: 1095). Ancient plazas have traditionally been studied from an art historical point of view (Coggins 1980, 1982; Kubler 1984; Zevi 1957), which lacks a behavioral aspect. Recently archaeologists have turned to social theories and studies of modern spaces to focus on how people use and interact with space. Drawing on a variety of disciplines, archaeologists are broadening our understanding of ancient gathering spaces (Moore 1996; Peuramaki-Brown 2013; Smith 2007, 2011; Smith 2008; Stanley et al. 2012). Drawing on a variety of disciplines, archaeologists are broadening our understanding of ancient gathering spaces.

My work on ancient plazas is grounded in a structural-functional paradigm (Lawrence and Low 1990; Turner 1969), but moves beyond this to incorporate both archaeological studies of performance and modern studies of urbanism and public space (Bell et al. 1978; Childs 2004; Clark 2004; Cooper Marcus and Francis 1998; Hall 1966; Inomata 2006; Inomata and Coben 2006; Kaplan and Kaplan 2009; Lynch 1984; Nickelson et al. 2013; Proshansky et al. 1970; Raudenbush and Sampson 1999). Combining these approaches helps to offset the weaknesses of both ancient and modern

studies, resulting in an understanding of space that incorporates time-depth and human behavior. Recent studies have integrated the archaeology of ancient urbanism with modern studies, while at the same time focusing on data driven results (Mills 2007; Moore 1996; Peuramaki-Brown 2013; Smith 2007, 2011; Smith 2008; Stanley et al. 2012). These include comparative studies of ancient plazas, which usually consider monumental plazas in various sites, generating useful methodologies and general conclusions (Coggins 1967; Houk 1996; Moore 1996). In order to produce more specific results, archaeologists need to compare more closely related open places. By examining plazas within the same architectural group, my study reduces the number of variables, isolating one group of users for all three spaces.

1.6 Statement of Significance

This dissertation contributes to our knowledge of ancient Maya public space and suggests new ways to approach this research. Although plazas are ubiquitous in both time and space, determining their function in society is a complex problem and recent work “suffers from a lack of specificity on the spatial configurations, scale and functions of different kinds of urban spaces” (Stanley et al. 2012:1095). The analysis in this dissertation aims to broaden our thinking about the datasets we use to study the activities that took place within ancient Maya plazas. By collecting a wide range of data from a variety of contexts, I hope to build a solid foundation of empirical data to answer questions that have been seen as too theoretical to resolve.

Studies of large, central Maya plazas are usually impeded by the palimpsest of ritual features contained within, obscuring the features' individual significance (Stanley et al. 2012). Additionally, since these plazas are used by the entire city, for many different occasions, their layouts must be flexible enough to accommodate many different arrangements of people (Smith 2008). My analysis takes place in a way from the site center of Xultun, with three intermediate plazas that each have distinct ritual features, suggesting that particular rituals took place in each plaza. By segregating the ritual features, I am able to compare the plazas more easily, addressing the types of activities that each plaza may have facilitated. Furthermore, public spaces that serve small groups of people are more likely to reflect the needs of those people rather than the entire city (Stanley et al. 2012). Involving fewer people means that consensus-making is more efficient and since these plazas are not large, fewer resources were required, allowing for easier and faster changes.

The juxtaposition of these settings with a residential group links the residents with certain architectural features, suggesting the types of social activities they may have undertaken in their local setting. Certain public activities such as communal feasting or speaking from an elevated position can be linked to social trends. Thus, tying knowledge of the residents to features in plazas provide an excellent opportunity to identify some of the perceived needs of the users, or the intentions of the designers.

This work highlights the value of other disciplines to archaeological research on open spaces. Increasingly, archaeologists are turning to modern studies of architecture, environmental psychology and sociology to expand our methods for approaching ancient

spaces (Inomata 2006; Moore 1996; Peuramaki-Brown 2014; Smith 2007, 2011; Stanley et al. 2014). This dissertation includes a wide variety of studies and the latest work on open spaces, to contribute new methods for studying ancient plazas.

1.7 Research Design

This study was designed to answer questions about the use of space, through both traditional archaeological methods and modern architectural methods. Recent archaeological research on plazas has included varied approaches such as spatial analysis, performance studies and accessibility. By combining these methods with the study of an associated residential group, this project addresses not just the types of activities that could have taken place in plazas, but also the identities of the people participating. The study of residential and public architecture coupled with artifactual data from residential areas and public plazas offer several different data sets, providing a solid foundation on which to build. While previous studies have tended to look at one plaza in detail, or compare multiple plazas in different cities that have similar functions, I am excavating three associated plazas. My study breaks down plazas into their component parts and explores our ideas of what public space means and how it is used.

The research area, Los Aves, comprises the three plazas and an associated residential complex (Figure 1.2). It was chosen for the variety of different approaches that could be taken to learning about plazas. Because the architectural group was a manageable size, excavations could be executed in all three plazas as well as the residential area. This enabled me to collect spatial and chronological data for all of the

areas to compare their development. Therefore, I not only created a depiction of how the public and private areas changed through time, I also was able to link differences in the public spaces during each period to trends in the residential area.

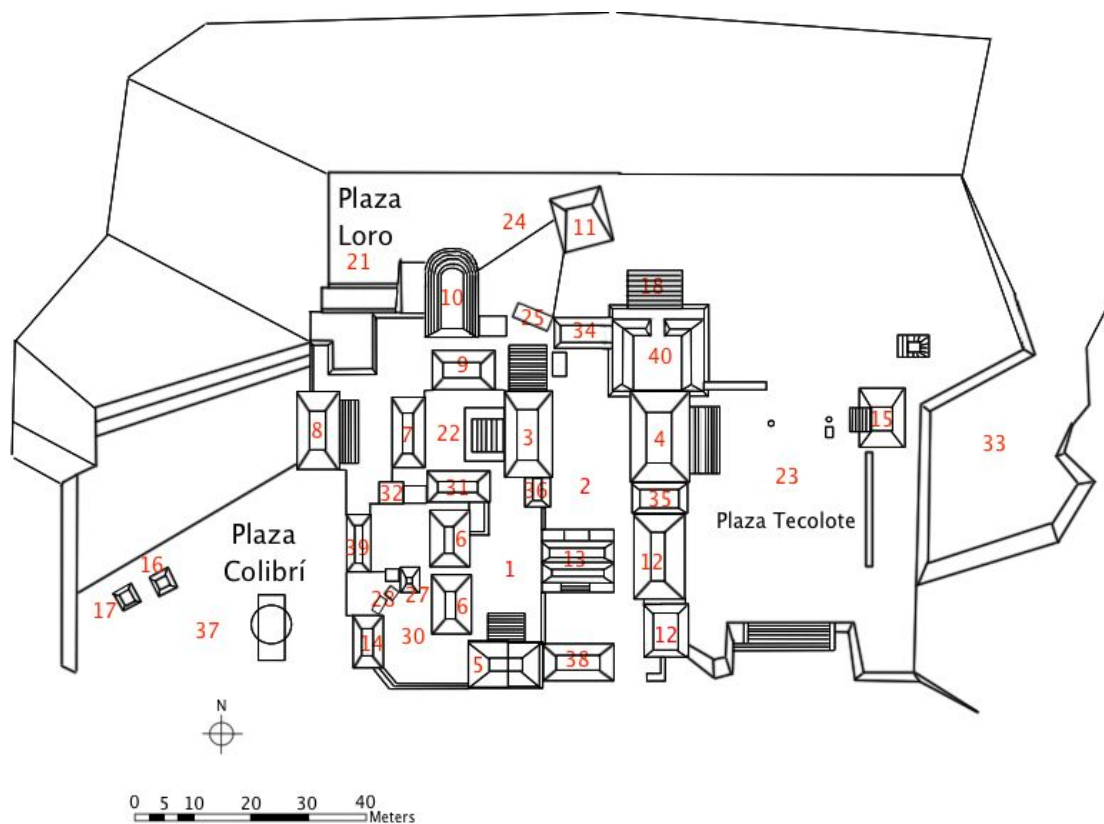


Figure 1. 2 Map of Group 12F-1, Los Aves

Ritual architecture was not limited to public open spaces. Ritual structures and architectural features were found within the residential area as well. Comparing ritual features within the plazas to those within the residential area provides a complementary

picture of the relationship between public and private ritual for these people, and how that changed through time.

The contiguous nature of Los Aves enabled me to study access patterns within the residential group, between the residences and the plazas, and through the public spaces. Therefore, in addition to investigating the actions taking place within each plaza, I was able to identify ways in which they were connected to or excluded from other spaces.

Field research was conducted over the 2010 and 2012 field seasons, with two preliminary test pits dug in 2008. In the spring of 2010, a program was initiated to establish a preliminary ceramic chronology, by excavating down to bedrock in each patio and plaza. Results from this field season guided the research design employed during the 2012 field season, which was expanded to include investigations of looters' trenches and buildings. The excavation objectives were to determine the development sequence of public architecture, and to record architectural metrics. As the 2012 season progressed, the discovery of a sweatbath in the residential area shifted priorities to understanding structures in that area and expanded our understanding of the ritual landscape of this group.

1.8 Research Questions

The evolving political situation at Xultun forms the backdrop for the investigation of public space as a social and political tool in this community. It is in this context that I study changes in the use and meanings of public space, which I address in my three chief research questions:

**Did Plazas Tecolote, Colibrí and Loro play different roles
in the lives of the residents of Los Aves?**

Combining knowledge of plaza activities with information about the residents of Los Aves provides a foundation for understanding the roles that plazas played in their lives. Moving beyond a study of the evolution of only the ritual or domestic aspects of this group makes it possible to tie changes in residential life to changes in public life, two research areas that have been heretofore divorced in Maya studies.

I had hypothesized that Plazas Tecolote, Colibrí and Loro were contemporaneous, all having been built in the Early Classic period and used through the Late Classic period. I anticipated that the design and architecture of each plaza would remain relatively stable and unique, reflecting the different role that each served for the residents of Los Aves. However, excavations revealed that Plaza Colibrí was built during the Early Classic period, while Tecolote and Loro were built during the Late Classic period. There was a shift in architecture between these two periods, suggesting that the residents had different public space needs through time.

Did the residents of Group 12F-1 use the plazas in different ways?

In order to understand how the residents of Los Aves used each plaza, I focus on understanding their architectural features and development. Determining the chronological development of each individual plaza and their interrelationships reveals how public space was used and how this changed through time. The three classes of data

that I examine are plaza shape, structures built within plazas, and special deposits within the plaza area, such as caches and offerings.

In contrast to monumental, central plazas, which host a variety of activities in one large, flexible space, I hypothesized that each of these smaller plazas, with their unique architecture, was designed to support one aspect of group activities. Therefore, I expected that each plaza had a stable ‘identity’ and would have been used for similar activities throughout its life with little change through time in the types of architecture found in each one. This was true of Plazas Tecolote and Loro, which were constructed during the Late Classic period and abandoned at the end of that period. However, Plaza Colibrí was founded during the Early Classic period and underwent several architectural phases throughout its life-use that changed its identity dramatically.

**Were the residents of Los Aves elite ritual specialists
connected with Str. 12F-19 (Los Arboles)?**

To learn more about the identities of the residents of Los Aves, I follow four main lines of evidence: household architecture, household artifacts, skeletal/burial evidence, and caches/offerings. Changes in residential architecture are explored through excavations in patios and looters’ trenches, producing data that define the phases of architecture and the growth of buildings. Artifacts recovered from fill are examined chronologically and by density throughout the site to identify activity areas. Offerings that included skeletal remains excavated from termination ritual caches in buildings, provide extra information because of their association with particular ritual objects.

Following the work of Ashmore (1991) at Copan, I hoped to identify architectural features and motifs within this group that would link it cosmologically to the monumental ancestral shrine to the south. Finding burials with grave goods could indicate the status of individuals, and particular demographic trends could imply restrictions in group membership.

In the end, architecture in the residential area of Los Aves proved most important in linking it to Los Arboles (Str. 12F-19) to the south. The discovery of an elaborately decorated sweatbath dating to the Early Classic period strongly suggested a ritual link. During the Late Classic period, ritual seemed to become more formal and moved out of residential quarters into Plaza Tecolote. Among household artifacts, the presence of some luxury goods indicated the elite status of the residents, but there was no obvious professional toolkit identified. The information gleaned from burials proved less conclusive; human remains were recovered from several individuals in various contexts, but no complete skeletons were found. The tombs that we encountered were looted and had a few elite artifacts.

1.9 The Organization of this Dissertation

This initial chapter sets out the research design of my project and introduces the theoretical background from which I approach my work. It also explains my research methodology and justifies the approaches that I took in structuring this project. The remainder of this chapter is dedicated to outlining the main tenets of the proceeding chapters and establishing the framework of my dissertation.

Chapter 2 discusses the theoretical background and approaches that I apply to this study. I review the development of the architectural study of the built environment and its importance in the evolution of modern cities. I then illustrate the continued importance of public spaces, highlighting the connection between ancient and modern plazas.

In addition to establishing the importance of this approach in the study of ancient spaces, this chapter explores a variety of disciplines that have contributed to our methodology. Although studies of the built environment are only now becoming a regular part of archaeology, they have been common in other disciplines since the 1970s. I look at modern architectural studies of public space and highlight the ways in which some archaeologists have begun to apply these to our work.

Amos Rapoport's levels of meaning in the built environment (1988) are used to structure my discussion of architectural approaches of space. I examine a variety of methods that may prove fruitful in understanding ancient spaces, adapting some to meet the needs of archaeologists.

Chapter 3 focuses on studies of ancient Maya town planning and architecture. To begin, I discuss the factors that affect site planning, looking at physical, political and cosmological influences. I begin with the more tangible influences such as geographic and economic factors, which had the greatest effect on site placement. I then move onto socio-political factors that affected site layout and could be related to political changes or ethnic shifts. Finally, I look at cosmological and astronomical stimuli which shaped Maya cities. A brief discussion of Maya cosmology and religion provide the background for this discussion.

I then turn to the ways in which archaeologists have approached the study of ancient Maya town planning. Low-level models of economic and environmental factors are discussed (Rapoport 1988). Middle-level studies examine patterns in site layouts across the Maya region, looking for political or social motivations. Finally, high-level studies include established models of Maya architectural groupings and town planning.

This is followed by an overview of Maya public architecture, beginning with an in-depth discussion of plazas. I then consider other important elements of Maya architecture, highlighting those that were found at Los Aves. I close with a consideration of Maya residential architecture and attributes of different structures.

Chapter 4 presents the background for understanding Xultun's culture and history. First, a summary of ancient Maya history is given to provide a framework for Xultun's setting. The focus is then narrowed to development of Xultun itself: its kings, relations with other polities and eventual decline. Since Xultun is only now being archaeologically investigated, I provide a thorough discussion of its history.

This is followed by an introduction to the nature and geology of the study area, beginning with the Maya lowlands and then focusing on the area immediately surrounding Xultun. An overview of the site layout is provided, focusing on major architecture, then introducing the study area of Los Aves. I report on the previous work carried out at Xultun, from its discovery to the recent archaeological field seasons, and finally to the excavations at Los Aves.

Chapter 5 is dedicated to presenting the archaeological and architectural data from the site of Los Aves. I begin with a description of the methodology used for excavations

and surface surveys undertaken during the 2010 and 2012 field seasons. The site of Los Aves is broken down into sub-areas, comprising the three plazas, residential areas and miscellaneous open areas. These sections are each described in detail, along with reports of the excavations and surface surveys in each area.

Excavations were carried out in all areas of the site, including each of the plazas, all patio floors and some buildings; however, some areas were excavated more intensively than others. As a result, some parts of the site rely more on excavation data, while others acquired most of their data through surface survey. Excavations for each area are presented holistically, with data from all units in an area combined to create a cohesive account of what was found (technical data is included in the appendices). Surface surveys are dealt with separately, since they provide only general, architectural data. Nevertheless, given the large area covered in this study, they were an essential part of understanding the built environment.

Chapter 6 focuses on interpreting the archeological and architectural data presented in Chapter 5. This chapter ties together the excavations and surface surveys, presenting each area as a cohesive unit. Beginning with the public spaces, I apply previously discussed methods for studying the built environment. Each plaza is considered in its component parts and as a whole to determine the meanings in each feature and what these can tell us collectively. Plaza Colibrí was the earliest plaza, contemporaneous with the early levels of the residential group, and so these areas are viewed chronologically and spatially. Plazas Tecolote and Loro were built in the Late Classic period and do not show much development, so these rely more heavily on spatial

data. Then the residential area is discussed by patio group and through time, with the evolution of the ritual sweatbath tied to changes in public space throughout the site.

This chapter concludes with a final synthesis of Los Aves through time and space. First, I characterize the site during the Early Classic period, looking at the relationship between public and private spaces. I then describe Late Classic period Los Aves, which was greatly enlarged, particularly in its public space. The layout of the group during this period presents a very changed picture of the relationship between public and private space and rituals.

For the spatial analysis of Los Aves, I consider public and private space separately through time. The transformation of each type of space from the Early to Late Classic periods is examined to identify changes in how they were used and the meanings they held for the residents. These are then used to establish what public and private space meant to the ancient residents of Los Aves and how their use of space changed through time.

Chapter 7 ties together the theoretical and methodological approaches taken in this study to assess their utility in archaeology. The argument for the incorporation of more modern theoretical studies is reiterated in light of the data presented. The importance of exploiting methods from other disciplines to extract information from our data is advocated. I also argue that archaeology can make significant, positive contributions to the field of public space design today. Archaeologists and architects should make a more concerted effort to incorporate each other's research into their own in order to expand their fields.

I then return to the Maya region to highlight the archaeological importance of moving beyond the site core to excavate intermediate public spaces throughout sites and seeking comparative methods to enable archaeologists to approach plaza studies from multiple angles. Public spaces do not exist in a vacuum; tying them to their surroundings adds necessary context to our studies.

Chapter 2. The Built Environment

2.1 A History of Public Space Studies

In his seminal work “The Art of Building Cities” (1889[1945]), Camillo Sitte made one of the first efforts to systematize the study of public space. His study was prompted by the construction of monumental boulevards and public spaces in his native Vienna, which he felt were not on a human scale (Cooper Marcus and Francis 1998). In order to systematize his study of public squares, Sitte included maps of dozens of squares across Europe, comparing them to each other by their attributes. He recognized the importance of looking at features within the plazas as well as at plaza shapes and the surrounding buildings. One of the most important characteristics of ancient plazas was their integration into the surrounding built environment, which shaped how they were used. The functional aspects of contemporary plazas, he argued, were being ignored as urban planners designed city layouts with a uniform geometric approach that moved traffic around plazas rather than through them. Although Sitte’s work was heavily influenced by Classical art and architecture, he recognized that certain aspects of public spaces could be beneficial or detrimental to town centers.

This approach continued until the mid-20th century, when Paul Zucker (1970[1945]) considered the study of public space from a psychological point of view. His study traces the development of town squares from ancient Greece to the present, arguing that the “psychological function of the square is as true for the present and future as it has been for the past” (1970[1945]:3). The main contrast that Zucker highlighted in his work was between “organic squares,” which expanded gradually over centuries, and

“planned squares,” which were designed by architects and built in one construction episode. Organic squares generally reflected the needs of the inhabitants with changes made when more space or a different arrangement was needed. Planned squares, on the other hand, were purposely designed and were more likely to reflect artistic trends or the goals of the person or people who commissioned them (Zucker 1970[1945]).

In order to compare these squares, Zucker divided public squares into five types based on how space was limited and oriented. The “Closed Square” was one in which the space was self-contained. The space of the “Dominant Square” was directed towards a certain feature on the periphery, while the “Nuclear Square” was focused around features in the center of the square. “Grouped Squares” comprised multiple public spaces associated with one another, and the “Amorphous Square” had no limits to its space (Zucker 1970[1945]). In his discussion of the “Dominant” and “Nuclear” squares, Zucker refers to space as being oriented in particular directions, towards a stage or focal monument. This was a preliminary step in considering the significance of the orientation of people within the square and moving away from an art historical approach to architecture and towards a more psychological and sociological one.

Urban activism during the mid-to-late 20th century brought increased focus to the role of the streets and public space in the daily lives of neighborhoods (Jacobs 1961; Whyte 1980). Sociologists began to study the impact of architecture on communities, children, crime, and poverty. This broadened the discipline of architecture from the study of design to include all aspects of the built environment.

Environmental Psychology grew out of studies of efficiency and work performance and tried to predict the effects that certain settings would have on people (Bell et al. 1976; Simpson 1966). It was an integrative, problem-oriented field, using methods and theories from ecology, biology, and behavioral psychology among others (De Young 2013). Environmental psychology has received more attention as planners and environmentalists from widespread cities have created websites such as Planetizen (2015) and Streetsblog (2015) that support community-based public space projects and explore the roles of urban spaces in communities today. Recently, landscape architecture has begun to occupy some of the same area, taking a more psychological and sociological look at outdoor spaces (Ormsbee Simonds and Starke 2006).

To encourage the positive development of the built environment, town planners and zoning boards need resources that will allow them to easily access strategies for designing beneficial spaces. As interest in the design of public space has grown, a number of groups have been formed to investigate different aspects of it. The foci of these groups range from practical planning of neighborhood spaces to theoretical approaches to political economies. One group, the Neighborhood Plaza Partnership supports the creation of small plazas throughout the boroughs of New York City. They work with the NY Department of Transportation and local communities to find suitable spaces and community-based partners to establish and maintain the plazas (Neighborhood Plaza Partnership 2015). The Project for Public Spaces (2015), which takes a general applied approach, supports a website with guidelines for creating “successful” public spaces, including the presence of public seating, food vendors, and an assortment of

different use areas. Other groups, like the Sustainable Cities Collective (2015), focus on encouraging environmentally responsible design, while at the same time recognizing the social factors that play a large role in how people interact with the environment. A more academic approach is taken by the CUNY Graduate Center for Human Environments, directed by the environmental psychologist and anthropologist Setha Low, which was one of the first organizations established with the express purpose of studying links between humans and the built environment. It has generated important work establishing a theoretical background for the study of the built environment, and their incorporation of archaeological studies to provide a broad, cross-cultural basis for understanding space has encouraged interdisciplinary work (Lawrence and Low 1990). One of their subgroups, the Public Space Research Group (2015), conducts ethnographic research social processes in public spaces, looking particularly at issues of control, conflict and access. Adding time-depth to such studies, in the School of Human Evolution and Social Change at Arizona State University, the transdisciplinary research project “Urban Organization through the Ages: Neighborhoods, Open Space, and Urban Life,” (2015) brings scholars from archaeology, geography, sociology and political science together to compare ancient and modern urban spaces and neighborhoods.

2.2 Public Space in Modern Architecture

Public open spaces are some of the most enduring features of the urban landscape, playing a major role in many aspects of public life. Despite what some claim is the death of public space, associated with digital and remote communications becoming more

popular (Chidister 1988), public open spaces continue to play an essential role in our cities (Hillier 1996; Hillier and Netto 2002; Miller 2007; Mitchell 2003; Norberg-Schulz 1971). They are sites of political debate and protest, social displays, commerce and more. During the Egyptian uprising of 2011, over 250,000 people protested in Tahrir Square, in Cairo. This square became the focus of attention worldwide, demonstrating the magnitude of opposition to the government and unifying supporters to overthrow President Hosni Mubarek (Al-Jazeera 2012).

In Manhattan, a newly opened public park shows the range of impacts of developing green open spaces. The High Line park, an elevated rail line converted into a promenade lined with grasses, has been described as a throwback to the days when strolling was a common part of social life (New York Times 2011). Residents take advantage of the High Line as a stage for displaying social status and for the quiet contemplation of New York architecture from a different perspective. The park has generally been well received, with design critic Michael Kimmelman commenting in the New York Times that it has “reshaped New Yorkers’ thinking about public space and the city more profoundly” than anything since Central Park (New York Times 2014). However, at an estimated \$273 million (nyedc.com 2014), over half of which was provided by the government, the High Line is one of the most expensive parks, per acre, ever built (New York Times 2014). The park has also been criticized by new urbanists and followers of urban activist Jane Jacobs as taking away from the liveliness of the urban street (Better Cities and Towns 2011) and has earned the ignominy of “Eyesore of the Month” in May 2009 from social critic James Howard Kunstler (Kunstler 2009).

A lack of understanding of the social mechanisms of public space has led to failed housing projects, urban blight, crime, and millions of dollars in wasted public funds (Brolin 1976; Jacobs 1961; Jenks 1984). To avoid this, architects need to analyze the social psychology of urbanism and how it relates to public space. Decisions based on architectural studies are used by government agencies, public housing commissions, and schools (Brooks 2002; Rutledge 1981).

To illustrate, in the mid-20th century, architects were presented with the challenge of housing large numbers of people in limited, urban spaces (Peterson 2003). To overcome the problems of the crowded slums of the Victorian era (Brolin 1976), planners sought to cure social ills with “sky, space and greenery” (Le Corbusier 1952, 1970). They built high-rise apartment buildings surrounded by vast, empty lawns, but the towers soon turned into vertical slums with violence in the hallways rather than on the streets (Yancey 1978). Urban housing projects failed to serve as “ideal cities” in large part due to poor awareness of the roles that the built environment plays in society (Hall 2004; Holston 1989; Jencks 1984; Kunstler 1994). As Randolph Hester notes, “concentrating on aesthetics, we have ignored those factors that make a space suitable and usable” (Hester 1984:x). Beginning in the 1970s, studies of the urban landscape have led to many fruitful reports of the social effects of urban design (e.g. Byerts 1970; Jeffery 1971; Low 2011; McQuade 1971; Mazingo 1976). Unlike art, which can thrive by reacting to what has come before, architecture deals with social mechanisms and ways in which we function as a species (Kaplan et al. 1998). Understanding the significance of different aspects of

public space throughout the development of architecture provides a foundation on which architects can build.

2.3 Linking Ancient and Modern Plazas

Open communal spaces within settlements are one of the oldest forms of architecture, providing room for people to gather together and participate in a wide variety of activities. As with plazas today, open spaces in early settlements and camps tended to be located in the middle of a group of structures, decreasing the maximum distance between the dwellings of their users and plazas (Hillier 2007). As settlements became larger and more permanent, so, too, open spaces grew and became more formalized (Zucker 1970[1945]). The growth of open spaces has been linked to historical and political events in many societies, even to the extent that they determine the nature of these spaces (e.g. religious, totalitarian, democratic) (Mandanipour 1996). Despite the different historical trajectories and uses of plazas worldwide, they all provide the same basic necessity for our social species: a place to gather together. Because the functional origins of plazas can be traced back to early gathering spaces, it is appropriate and often fruitful to study both ancient and modern plazas. Studies of how contemporary humans interact with their physical surroundings provide a foundation for understanding how ancient people might have done so. While societies have changed through time, cultures throughout the world provide a broad sample of metrics for how space might have been used.

2.4 Introduction to Plaza Theory in Archaeology

Plazas are built to hold large numbers of people for a variety of activities, and the lack of permanent architecture within allows for many different configurations of groups of people; however, this lack of permanent buildings makes it difficult for archaeologists to determine the types of activities that may have taken place there. The study of plazas has traditionally focused on monumental, central plazas, often approaching them as part of larger architectural cosmograms (Ashmore and Sabloff 2002; Coggins 1980, 1982, 1988, 1990; Smith 2005) or studying artwork located within them (Schele and Freidel 1990; Stephens 1841).

More recently, archaeologists have developed an interest in the communicative power of architecture (Tsukamoto and Inomata 2014), which I break down by levels of meaning below. Drawing on Edward T. Hall's (1968) work on proxemics, archaeologists have begun to look at functional aspects of gathering spaces. Michael E. Smith (2007, 2011, 2012), who works in the highlands of Mexico, advocates for an "empirical urban theory" for archaeologists, bridging the gap between empirical data and high-level theory. Jerry Moore (1996, 2005) uses Hall's (1968) guidelines regarding spatial relations and limits of human communication to examine types of rituals that may have taken place in Andean plazas.

Complementing proxemics is the study of performance and political theater in Maya architecture (Inomata and Coben 2006). Plazas were not just cohesive gathering places – they were also important stages for rulers and elites to assert their positions in society and for the people to confirm or resist these assertions. Ethnoarchaeological data

provides Takeshi Inomata (2006) with examples of the roles that performance plays in modern societies, which he imposes onto public spaces in archaeological sites.

Although monumental temples and plazas throughout the Maya region are well known as the sites of large integrative festivals, smaller public architecture may have played an equally important role in social cohesion (Aimers et al. 2000). Community-level architecture is found in all levels of Maya settlement from hamlets to capitals (Canuto and Fash 2004). While monumental architecture can bring together and reinforce social bonds among members of an entire polity, “charismatic, community-focused” (Aimers et al. 2000) social cohesion is perhaps even more important for the function of society. Communities are “dynamically socially constituted institutions that [are] contingent upon human agency for [their] creation and continued existence” (Canuto and Yaeger 2001:5).

2.5 Levels of Meaning

In order to understand the variety of factors that influence city planning, Amos Rapoport (1988) developed a system to differentiate among geographical, economic, political and religious stimuli. He divided influences into different levels of meaning: low (practical decisions), middle (political/psychological), and high (abstract factors). Generally, site planning is shaped by several different levels of meaning, with low-level meanings being the most consistent cross-culturally, since they tend to rely on economic factors. Influences that have higher levels of meaning are more cultural-specific and are based on more supernatural and nonphysical causes (Rapoport 1988; Smith 2011).

In the discussion below, I consider the different approaches to site planning studies in light of Rapoport's levels of meaning. My discussion is heavily weighted towards low-level studies, since these include many different and physically discernable approaches. Middle-level meanings are also covered in some detail as these approaches are based in psychology and politics. Because high-level approaches deal with culture-specific beliefs, they are introduced briefly here and discussed more in-depth in my discussion of Maya architecture in Chapter 3.

2.6 Low-Level Meaning

Low-level meaning refers to the recursive relationship that humans have with the built environment: how our behavior influences and is influenced by architecture (Kaplan and Kaplan 1974; Rapoport 1982; Smith 2007). It is the most empirical of the three levels of meaning (Smith 2011), providing solid data from which to build an understanding of people's relationships with space in ancient times. The data-oriented approach of studies in this level makes them attractive to a variety of disciplines. Contemporary architects and town planners use such methods to organize the movement of people through landscapes and urban areas (Hillier 2007; Hillier and Hanson 1982; Whyte 1980). In studies of ancient spaces, archaeologists attempt to recreate the use of space and the movement of people within sites (Smith 2007).

2.6.1 Environment-Behavior Studies

Environment-Behavior Studies, developed by Rapoport, refer to the ways in which the design of the built environment is influenced by human behaviors, how human behavior is then influenced by the places they have created and the mechanisms that link humans to their environments (Rapoport 1982, 2007). This heading comprises studies of environmental psychology and architectural sociology, as well as some practical studies intended for professional designers. Analyzing these influences addresses the “relationship between activities and architecture as mediated by culture” (Rapoport 1990:11).

Rapoport studies this relationship through what he argues are the four main variables in the design of the environment: space, time, meaning and communication (Rapoport 1994); however, he stresses that architecture does not have a deterministic hold over action. Architecture is described by Rapoport as having a “*low criticality*” (Rapoport 1990:11), only loosely containing behaviors, and one system of settings can serve for a variety of activities. A single space may take on different attributes depending on the time of day or the season. Aspects of space change based on the time of day and lend themselves to different activities, providing sunshine or shade, attention or concealment. For example, the Back Bay Fens in Boston is a mixed-use area utilized by different communities during the day and night. The garden plots there are used during the day for growing vegetables or flowers and strolling; however, at night it has recently become a “well-known gay cruising site” (Ramakrishnan 2009).

Seasonal activities can transform entire cities, disrupting the normal flow of life and access patterns. The streets of Antigua, Guatemala, normally busy with traffic, are closed off during Easter Week, while different religious groups make elaborate sawdust carpets to celebrate the season. Such events are difficult to detect archaeologically, but in cases where spaces are regularly used for multiple activities (as in the Fens), material culture left behind can suggest this duality. Rapoport emphasizes understanding not just a single building or setting but also a “system of settings,” and not just a single activity but “activity systems” (Rapoport 1990:18). This is particularly applicable to archaeology, where discerning a single activity and how it pertains to a single structure may be impossible.

The effect of the built environment on behavior is another approach to environment-behavior studies. Environmental psychologists Stephen and Rachel Kaplan argue that one’s surroundings have a “profound effect on human cognition, action and well-being” (Kaplan and Kaplan 2009:329). Their “reasonable person” model is based on the idea that by supporting humans’ sensory input (“information”) needs, people will be more likely to behave in a reasonable and non-violent manner (Kaplan and Kaplan 2005). Most importantly, people need to be in surroundings that are comprehensible and that allow them to participate meaningfully in social life. They have applied this model to social problems such as urban blight and have found that design solutions incorporating the meaningful involvement of the social “shareholders” tend to be more successful than non-participatory designs (Kaplan and Kaplan 2009).

On a more practical level, the Kaplans have identified a number of factors that can influence people's preferences for locations (Kaplan and Kaplan 1974). They have determined that people tend to prefer areas that are familiar and appear to have a coherent plan with ample visible space. However, people also like to see a variety of elements and the more "mystery," or hidden information prompting them to explore, the better. Finally, "smoother" textures in a setting are preferred to rougher or less well kempt areas (Kaplan and Kaplan 1974). Their observations, some of which are intuitive, should be considered when studying the development of ancient public spaces to explore the types of planning decisions that may have been made.

Increasingly, modern architects are recognizing that their work must be grounded in the biological and psychological needs of humans, not just the demands of their clients, if it is to be successful. Clare Cooper Marcus and Carolyn Francis (1998) focus on using urban public spaces to fulfill the people's needs, investigating a variety of types of spaces from plazas to childcare areas. Their book, *People Places* (Cooper Marcus and Francis 1998), incorporates numerous case studies of both flourishing and failed spaces, breaking them down by features and users, to determine how and why they operate. They examine the activities that take place in each area and what concerns these may raise, as well as listing guidelines for designing the spaces more effectively. Their study of plazas found that while a slightly sunken plaza can be an inviting, intimate space, when it is too far below street level people feel divided from the street level and scrutinized by those above. They use these findings and others to make recommendations for architects about plaza depth and placement.

2.6.2 Space Syntax

Methods and theories of spatial syntax were developed by Bill Hillier and Julienne Hanson in the 1980s in order to understand the types of activities that occur in particular spaces and why they happen there (Hillier and Hanson 1984). They posited that there is an underlying “spatial logic of society” (Hillier and Hanson 1984) that governs how people move through and interpret space. This approach is related to access studies in that it looks at the channeling of movement, which includes restricting it. Spatial syntax was developed to help architects and town planners design spaces that would serve the populations for which they were being designed. Understanding the social consequences of architectural decisions affecting built form and spatial organization allows designers to create situations that encourage social “success” (Kaplan and Kaplan 2005). Archaeologists have applied these methods to identifying how ancient people moved through sites, although Smith argues that they are applied too generally to complex architectural groupings, which allow for only vague conclusions to be drawn (Smith 2011:176).

2.6.3 Proxemics

Developed by Edward T. Hall (1963, 1966, 1968), proxemics is a method of understanding how humans interact with and use space in order to better understand communication in society. Proxemics divides space into categories of distance that affect different methods of communication. Hall’s distance classification is divided into

“Intimate,” “Personal,” “Social-Consultive” and “Public” spaces (Table X) with each of these categories divided into “close” and “not close” ranges (Hall 1968). These are broken down by social receptor: postural-sex, sociofugal-sociopetal, kinesthetic, touch, retinal, thermal, olfactory, and voice loudness (oral/aural) (Hall 1968). Some of these social receptors depend greatly on the culture in which they occur; for example, certain types of touches may be labeled “personal” in one culture but “social-consultive” in another (Hall 1968). More universal limits, such as visual and oral/aural measures, are more useful for determining the types of communication that may have taken place. Hall used biological limits of aural and visual reception to establish the types of communication that could have taken place in certain settings (Hall 1966). The application of these methods to the study of public performance can help to establish the types of messages that were communicated. For example, in small public spaces, where an observer might only need to communicate over a distance of 5 meters, this means a difference between communicating with the audience in a “formal style” versus a “frozen style” at seven or eight meters distance (Hall 1968: 92). The shorter the communication distance, the more detail and subtlety can be conveyed, while rituals in spaces covering great distances reduce communication to large gestures and formulaic, cultural elements that are easily understood (Moore 1996).

To enable this sociological and ethological research to be used on a practical level, architects have extended Hall’s measurements from their limit at 12.2 m (40 ft) to over 1219 m (4000 ft) and have expanded the discussion from distances between people to distances in the public spaces in which such communication might have taken place

Table 2.1. Room Size and Perceptual Distances

Room Type	Distance (m)	(ft)	Interaction
Intimate nook	0 – 3.7	0-12	
<i>Close personal distance</i>	0 – .75	0-2.5	People can easily touch each other; whisper
<i>Far personal distance</i>	.75 – 1.2	2.5-4	Soft voice
<i>Close social distance</i>	1.2 – 2.1	4-7	Normal voice
<i>Far social distance</i>	2.1 – 3.7	7-12	Begin to raise voice
Neighborhood courtyard	3.7 – 12.2	12-40	
<i>Near public distance</i>	3.7 – 7.6	12-25	Raised voice; formal style
<i>Far public distance</i>	7.6 – 12.2	25-40	Full public speaking voice; frozen style
Town forum	12.2 – 24.4	40-80	
	12.2 – 24.4	40-80	“Pleasant human scale”
	19.8 – 24.4	65-80	“Maximum distance to read facial expressions”
Spectator square	24.4 – 137	80-450	
	70 – 100	230-330	“Maximum distance to clearly follow events” (eg. sports event or gestural performance); limit of a civic room
	< 137	< 450	“Limits of successful historical enclosed squares”
Civic fields	137 +	450+	
	1219	4000	Mass audiences; maximum distance to detect a person

Adapted from Childs 2004; Gehl 1987; Hall 1966; Lynch (Kevin) 1971

(Childs 2004; Gehl 1987; Lynch 1971). Mark Childs' classification includes "intimate nook," "neighborly courtyard," "town forum," "spectator square" and "civic field" (Table 2.1) (Childs 2004). The first two distances are within the limits of Hall's classification, but the last three cover distances more commonly encountered in public open spaces. Kevin Lynch refers to "town forum" as a "pleasant human scale" and notes that 24.4 m is the furthest distance from which facial expressions can still be read (Lynch 1971:194). "Spectator squares" up to 100 m are the limit for clearly following events, such as sports or gestural performances (Lynch 1971:194), while he lists 137 m as the maximum distance of "successful historical enclosed squares" (Lynch 1971:194). "Civic fields" best accommodate "mass audiences" in which all attendees watch a central figure, such as the inauguration of a head of state or a large rock concert (Lynch 1971:194). They are also used by separate, smaller groups of people for discrete activities, such as picnicking or team games.

The distances over which communication can take place can be used to calculate potential capacities of these spaces. I calculate the distances squared to determine the amount of space available for participants and using Moore's estimates of personal space, figure out how many people would have fit within these spaces (Table 2.2). Figures given below use the minimum estimate of $.46 \text{ m}^2$ and the maximum estimate of 3.6 m^2 to calculate the capacities and are rounded down to whole persons.

Table 2.2 Room Size and Capacity

Room Type	Low Capacity	High Capacity
Intimate nook	0-0	3-29
<i>Close personal distance</i>	0-0	0-1
<i>Far personal distance</i>	0-1	0-3
<i>Close social distance</i>	0-3	1-9
<i>Far social distance</i>	1-9	3-29
Neighborly courtyard	3-29	41-323
<i>Near public distance</i>	3-29	16-125
<i>Far public distance</i>	16-125	41-323
Town forum	41-323	165-1296
<i>Close</i>	41-323	165-1296
<i>Far</i>	108-852	165-1296
Spectator square	165-1296	5213-40802
<i>Close</i>	1361-10652	2777-21739
<i>Far</i>	(no lower limit)	5213-40802
Civic fields	5213-40802	412766-3230350

2.6.4 Access

In addition to distance, the study of access and privacy is important in determining how space is used (Hillier 2002; Hillier and Hanson 1984). Access patterns can be designed to control movement throughout a site, channeling traffic through or away from particular areas. This can be accomplished by building large city walls, connecting important areas with major roads, or taking advantage of changes in elevation. In ancient Maya cities, controlling access patterns was often achieved through the construction of causeways that facilitate movement and barriers that inhibit it.

Different access patterns can indicate the dominant types of movement in a city, revealing the priorities of the builders (Lynch 1971). In modern cities, access is generally designed to expedite entering and leaving the central area. Because the catchment area of

cities for goods and workers is so large, roads may need to efficiently accommodate millions of vehicles a day. In pre-modern cities, such as the pedestrian cities of Mesoamerica, different designs were used, reflecting their needs. Central Tikal is comprised of several large temples arranged roughly in a triangle, connected by three large causeways, plus another causeway leading out to a peripheral temple (Carr and Hazard 1961). These four causeways served to facilitate movement between the temple areas, which were central places of commerce and politics (Sabloff 2003). The causeways were also used for ritual processions to enable more people to observe ceremonies. Thus, the main access through Tikal focused on moving people around the city center, facilitating access to different political, religious and economic locations.

In smaller areas, access patterns can determine the degree of privacy of a location and reflect social changes. Within architectural complexes, privacy is increased by channeling visitors through multiple rooms before reaching their destination. Tallying the number of access points required to pass through in order to reach a room can suggest how private it is. Elite areas are often difficult to access, reflecting their desire to segregate themselves from the rest of society.

Types of access can also reinforce the ritual or political significance of structures. For example, large Maya temple-pyramids can generally be accessed only by monumental staircases in public plazas. Climbing such a staircase transforms a normal activity (walking up stairs) into a ritual act. The public nature of the space means that the ritual is witnessed by many people, which implies the citizenry was monitoring who is

allowed to use the temple. Therefore, anytime a person wanted to enter the temple, he or she needed to participate in a ritual without warranting public objection.

2.6.5 Systematizing Studies of Architectural Features

To make architectural studies more easily comparable, efforts have been made to systemize the inventorying of architectural groupings. These have been designed for a variety of types of architecture and can be adapted to suit different needs. An inventory of neighborhood features by Jen Nickelson and colleagues includes a number of features related to public space and can be adapted to archaeology. They divide characteristics by domain, “a broad category of similar environmental characteristics” and subdomain “the individual items comprising a domain” (Nickelson et al. 2013:180). Twenty domains of neighborhood features were identified, each containing between one and 36 subdomains, comprising specific elements or characteristics of neighborhood architecture. To modify their study for archaeological use, I have selected 12 domains and numerous subdomains that are applicable to Maya public spaces (Table 2.3). This list also encourages archaeologists to move beyond studying only the space of a plaza and the surrounding buildings. It reminds us of aspects that are easily overlooked, such as the formality of pedestrian approaches, attractiveness of views, and the availability of outdoor seating. While many of the features, such as civic buildings, are readily perceivable, important but ephemeral attributes including smell, noise, and signs or banners, are also included. Even though we cannot recover data for all of these items, they played significant roles in the

Table 2.3. Inventory of Archaeological Spaces

DOMAINS	SUBDOMAINS
Recreational uses/public spaces	
	Civic/institutional buildings
	Plaza/square/courtyard
	Sports/playing fields
Architecture/building characteristics	
	Height of borders
	Surrounding buildings (decoration, façade, size)
Landscaping/art/natural features	
	Stelae, altars
Amenities for outdoor public spaces	
	Benches, seating
	Dining or play areas
Barriers	
	Bridges
	Rivers/aguadas
	Social barriers
Maintenance/appearance	
Pedestrian pathways	
	Formality of approaches
	Size, material of streets/paths
	Traffic
	Architectural/artistic symbolism
Neighborhood identification/legibility	
Views/enclosure	
	Attractiveness of views, long sight lines
	Views of important structures/locations
	Places to observe public spaces
Signs	
	Political, religious signs and banners
Smell/pollution/noise	
	Middens
	Quarries
Ethnic identification	
	Architectural configurations

Adapted from Nickelson et al. 2013.

ancient Maya's interaction with public space and archaeologists should be aware of their absence.

2.7 Middle-Level Meaning

Middle-level meaning includes political and psychological messages encoded in architecture that would be understandable cross-culturally, as well as using architecture to achieve social ends (Rapoport 1988). Information is transmitted through the design and arrangement of structures, which affects how people experience a city or place.

Causeways, pyramids, formal entrances and monumental staircases were all used in ancient cities to evoke different reactions. Pyramids and other features that raised a performer above a crowd created a sense of power in the performer and divided the crowd and the performer both physically and psychologically (Smith 2007). Causeways could be used to provide a grand entrance to a celebration or to divide a ritual into two parts by serving as a liminal space connecting one supernatural realm to another (Van Gennep 1960).

Political and psychological messages encoded in architecture continue to be important in the construction of modern cities. Governments copy ancient buildings to tie themselves to past political systems and traditions (Zucker 1970[1945]). Museums have frequently been built in Classical styles, linking them with the centers of learning in the ancient world (Fitch 1966-72). Some of the most remarkable modern examples come from communist countries, striving to create a strong group identity. Political and psychological influences can be seen in the design of Tiananmen Square in Beijing,

which is so large that individuals feel dwarfed, losing their identities and becoming part of the mass audience (Childs 2004; Lynch 1971).

2.7.1 Architectural Communication Theory

The idea of using architecture to communicate social and political messages, which Michael E. Smith terms Architectural Communication Theory (Smith 2011:175), is most well known in terms of monumental architecture (Trigger 1990). Political leaders ordered monumental buildings to be constructed in order to demonstrate their power and also the amount of labor that they could command. Such political statements continue to be used in modern times with stiff, formal, isolated, monumental statues of leaders being popular in totalitarian regimes (Frampton 1980). Smith (2007) argues that, in the case of Aztec cities, monumentality not only reinforced the power of the king but it also created a sense of involvement in civic life for those who built the structures. Additionally, by designing uniform buildings and architectural complexes in cities throughout the Aztec empire, the Mexica emphasized their control over the region (Lefebvre 1991).

Nevertheless, the relationship between monumentality and power is not absolute; leaders might eschew overt signs of strength or power might not be very centralized and some public architecture encourages group cohesion. Diminutive, low structures that accommodated small groups of people in neighborhood settings can foster a sense of closeness.

2.7.2 Visibility

Visual connections to prominent sites can tie places together psychologically. Even at a distance, views of important buildings in a city skyline or nature raise a property's value, while less desirable views decrease it. Viewshed analysis has recently demonstrated how important it was for the ancient Maya to have a visual link to the ceremonial center of a site, even influencing the placement of monumental architecture (Doyle 2012; Estrada-Belli 1998; Yaeger 2000). The Maya thought of having visual access as having power, "the individual who 'sees' is always someone of high status, an overlord or crucial visitor" (Houston & Taube 2000:287). Although proximity to a site center was important, the concentric model of city layout is an oversimplification of how they valued land (Arnold and Ford 1980). Even minor outlying hamlets or architectural groups favored locations from which central temples could be seen (Yaeger 2000).

2.7.3 Performance

Influenced by ethnographic studies of public ritual, the study of performance in plazas shifts the focus from the setting of rituals to the meaning and purpose of acts taking place within (Inomata 2006;Looper 2001). Public performances are essential parts of community life, bringing people together to share experiences, creating a sense of *comunitas*, and solidifying relationships (Turner 1969; Yaeger and Canuto 2001). Takeshi Inomata defines performance as "creative, realized, achieved acts which are interpretable, reportable and repeatable within a domain of cultural intelligibility"

(Inomata 2006:806). This can take many forms, from ritual processions and dances to mundane actions that present a particular identity (Goffman 1959; Pearson and Shanks 2001). By approaching performance as a dialogue between performers and observers, it can be viewed as a constant renegotiation of relationships rather than a unidirectional flow of information (Lawrence and Low 1990).

Theatrical events could be used to encourage cohesion at expanding sites or during times of change, particularly internal change (Baron 2013). City-wide events reinforced the power of the ruler, offsetting the difficulties of bringing together rapidly increasing populations (Inomata 2006). This helps to establish the political system as well as highlight the roles of elites in generating *comunitas* (Morton 2012:142).

Public performance played an important role in the growth of early Maya kingship (Freidel and Schele 1988). According to Lisa Lucero, “Emerging leaders may replicate and expand traditional rituals to integrate increasingly large numbers of people, advance political agendas, and situate political change within known cultural constructs” (2003:523). However, while rising elites sought power, this needed to be sanctioned by the people (Bell 1992). In many cases, open dissent may have resulted in punishment, so participants could be obliged to attend events, but this was not always the case. There was a risk associated with public performances in that the audience could reject or subvert the actions of the performer by ignoring or mocking the performance, or by declining to attend (Van Gennep 1960).

Ancient Maya depictions of performances often show displays of power (Reents-Budet 1994). The Bonampak murals portray a ruler presiding over the display of

prisoners of war on a monumental staircase (Miller 1986, 2012; Miller and Brittenham 2013). Placing himself above the prisoners demonstrates his power over them, while putting them on display in public adds to their humiliation. Ritual performances were also times for elites to express their political power and connections by choosing viewing locations that highlighted their importance, such as grandstands in parades.

In order to gain political support, rulers often used architecture to create a sense of theatricality that would appeal to observers. Exciting interactions with structures and the use of dramatic effects turned public events into exhilarating shows rather than tedious, political productions (Houston 1998;Looper 2001; Miller 1986). Architectural elements were important features in performances and were used to convey political messages. Tall pyramids were used to generate a sense of physical and psychological separation between a ruler and the crowd in the plaza below. Climbing the stairs of the temple may have served as a metaphor for climbing to the heavens. Small temples on top of the pyramids were only entered by ritual specialists and rulers, implying that only they were holy enough to participate in rituals or to communicate with the gods.

Processions are effective ways to connect spaces and to break down proxemical limitations on communication (Morton 2012). Actors are able to travel through space and time by moving through different spaces and by visiting sites that have particular ritual associations. Diego de Landa recounts a procession in Maní, in the northern Yucatan, in which chiefs, priests and townspeople walked from the house of the chief to the Temple of Kulkucan, on top of which they placed banners (Landa in Tozzer 1941:74). Architectural features were important points in procession rituals serving as endpoints or

way-points to build metaphors of travels through sacred realms and time (Morton 2012). Processions, defined by Ronald Grimes as “ritualistic movement through space” (Grimes 1992:62), take different forms in order to tell different stories. These places may have retained meaning for people long after a performance ceased. Circumambulatory processions connect sacred points around a mountain, temple, or house, following a path that delineates the space of the chosen area (Carrasco 1990; Morton 2012:149). This honors the space, sacralizing the site and recalling the creation of the world. Processions that originate on the periphery of an area and end in the core are emphatically connecting the outer place, or “cosmic node,” to the center representing the *axis mundi* (Morton 2012:150). They serve to reinforce the significance and sacred nature of the outer area by physically associating it with the center. Base-to-summit processions recreate the layered cosmos by metaphorically traveling from one’s own world into the supernatural realm, allowing practitioners to directly appeal to the gods (Reese-Taylor 2002:1959).

2.8 High-Level Meaning

High-level meaning refers to esoteric cosmological and supernatural symbolism designed into city plans (Rapoport 1988). The symbolism of these plans tends to be culture-specific and may not be widely known, even within their own society (Rapoport 1988). Mircea Eliade (1959) described the general views of traditional societies regarding the importance of recreating the celestial archetype on Earth. According to Eliade, individuals in traditional societies believe that the heavens and Earth are linked by an *axis mundi* and function in similar ways. The heavens are organized according to the cardinal

directions, and humans should emulate this in our cities and also make offerings at sacred places on Earth (Eliade 1959).

Paul Wheatley applied Eliade's principles to the study of Khmer and Chinese cities, asserting that the Khmer designed their temple complexes as "plastic representations of heavenly prototypes" (Wheatley 1970:6). He argues that pre-industrial, non-western capitals served as backdrops for ritual performances that would liberate people from earthly problems (Wheatley 1970:16).

However, when dealing with societies in which little or no textual data are available, interpreting the cosmological significance of architectural arrangements can be difficult (Smith 2007: 33). In the Maya region, the study of cosmological symbolism is possible because of continuity in cosmological principles and artistic representations of their worldview (Ashmore 1991; Coggins 1980; Landau 2015).

2.9 Conclusion

This chapter has considered the theoretical frameworks for understanding the built environment in archaeological contexts. The built environment is the setting for human cultures, and our recursive relationship with it continues to shape our lives (Bourdieu 1977). Early studies of public space show an intuitive understanding of the positive and negative effects that it can have on society, and recent architectural studies have expanded upon them. Architects and psychologists undertaking applied studies of the built environment have much to offer archaeologists: their observations of people interacting with space provide us with data that we are unable to recover from our

excavations. Particularly, studies of the influences of low-level meanings on town planning are effective cross-culturally, as they deal with basic human needs and limitations.

Studies of ancient public spaces can also contribute to the design of modern architecture. Public space has continued to play an integral role in society, but frequently spaces are poorly designed and do not effectively serve their communities. Understanding how public space was developed in past societies throughout the world provides a foundation to finding commonalities in our use of space. As archaeologists increasingly embrace an interdisciplinary approach to the study of the built environment, our studies will become more applicable to those outside our discipline.

In the next chapter, I will discuss several different aspects of Maya architecture. I begin by looking at the factors affecting site planning and then review archaeological studies of site planning influences. I organize these into the low-, middle-, and high-levels of meaning introduced in this chapter. I then move onto a discussion of ancient Maya public architecture, highlighting elements that will be discussed in later chapters and close with a review of Maya household architecture.

Chapter 3. Ancient Maya Architecture

3.1 Introduction

Architecture is a central feature of the ancient Maya material record, not only because it served as the setting for people's lives, but also because it both reflected and influenced their actions. The residents of Xultun laid out their site based on economic, political and religious and other factors that influenced their decisions from overall site layout to details of building decoration.

This chapter provides a broad survey of ancient Maya architecture for readers to understand the layout of large urban centers such as Xultun, as well as smaller architectural assemblages and households. This background will allow the architectural data from Los Aves to be contextualized within a theoretical discussion of the built environment and public space.

In the following discussion of Maya town planning, I review established models and explore issues that affected how sites were laid out (Aveni and Hartung 1986; Carlson 1982; de Montmollin 1988; Houk 1996; Sorenson 2007). More recent research brings new scientific methods to geographical studies and current social theories to work on political and religious influences (Dunning 2008; Parmington 2011). Following the work of Michael E. Smith (2007), I consider the manners in which archaeologists have treated the study of site planning using Amos Rapoport's (1988, 1990) levels of meaning, situating my discussion of Maya architecture within the context of the built environment.

Next, I provide a broad overview of some elements of Maya public architecture, providing detailed descriptions of structure types found at Xultun, particularly at Los

Aves. By examining a number of forms of monumental architecture, I lay the foundation for understanding their development as well as the recursive relationship between architecture and society.

The ensuing discussion of ancient Maya households establishes architectural and artifactual criteria to identify dwellings. Household architecture, artifacts and iconography are reviewed in greater detail to provide a basis for analyzing social aspects of the lives of the ancient Maya residents of Los Aves.

3.2 Site Planning: Factors and Approaches

Throughout the history of urbanism, the layout of cities has depended on a wide range of factors, from the immediate surroundings to cosmological concepts. Analyzing the locations, arrangements and orientations of towns and structures enables us to discuss potential factors that influenced ancient planning decisions. Scholars approach the study of site planning from a variety of angles, including local topography, economic factors, regional site patterns, astronomical alignments and cosmological models (Aveni and Hartung 1986; Carlson 1982; Coggins 1980; de Montmollin 1988; Houk 1996). To better understand the different influences, I build on the work of Michael E. Smith, sorting them in the manner of Amos Rapoport's levels of meaning in the built environment discussed in Chapter 2, and apply them specifically to the Maya region (Rapoport 1988, 1990; Smith 2007). Low-level factors influencing site planning include town-planning decisions based on geographic and economic concerns. Middle-level factors are socio-political and psychological messages, identity, and society. High-level factors include supernatural

beliefs, cosmology and astronomy (Rapoport 1988, 1990; Smith 2007). The particular topography, climate, economic resources, and political stability of each site created limiting factors and affected decision-making on the local level. Town planning decisions were frequently influenced by a number of elements.

3.2.1 Low Level Factors Affecting Ancient Maya Site Planning

Low-level factors affecting site planning include the influences of a site's surroundings on the town's layout, and focus on practical matters (Rapoport 1988, 1990; Smith 2007) related to landscape, environment, economic resources, defensibility, ease of travel and other non-ideological factors. The ability of cities to function efficiently is affected, but not determined, by many different factors, which affect where sites are placed and how they are laid out. They can include the ease of travel to and through cities, access to and control of water, the ability to grow or import food, and the ability of a city to defend itself (de Montmollin 1988; Houk 1996).

Some of the first observations about town planning in the New World focused on low-level planning. Diego de Landa, the archbishop of Yucatan, described a Maya settlement:

The Indians lived together in well ordered communities... The habitation was as follows: in the center of the town were the temples, with beautiful plazas, and around the temples stood the houses of the chiefs and the priests, and next those of the leading men. Closest to these came the houses of those who were wealthiest and most esteemed, and at the borders of the town were the houses of the common people... They lived in these communities for fear of their enemies, lest they be taken in captivity (Landa 1978[1566]: 26).

As Landa noted, economics and defensibility played important roles in determining the layout of the settlement, with the wealthy residing in the centers of communities. This allowed greater access to resources and activities in the center of town, as well as better protection from possible attacks.

Geographic factors influence decisions made about the locations and organization of sites as well as the orientation and placement of specific structures within them. On the small scale, these influences can include specific topographic features in the local landscape, while on a larger scale, climate can also play a role. The form of the landscape affects water flow and access, the types and abundance of vegetation, the amount of land available for building and agriculture, viewsheds and more (Scarborough 1991). On a regional level, larger geographic differences affect site placement: coast vs. inland; highland vs. lowland; jungle vs. desert.

Within the Maya area, sites were usually placed to take advantage of geographic features, particularly fresh water and a heterogeneous landscape (Fedick 1996). Sites built along the shores of lakes and *bajos* tended to spread out, allowing more people to take advantage of aquatic resources (Dunning et al. 2002; Garrison 2007; Kunen et al. 2000). The Maya used a range of agricultural strategies, including farming, orchards and gathering, which required access to a variety of land types (Fedick 1996), influencing site placement and layout. The location and organization of marketplaces, workshops, farmland, orchards and *aguadas* within and around cities determined who had easy access to particular resources (Hirth 1998).

Access to transportation enabled quick and easy travel over long distances, facilitated trade, and allowed Maya polities to extend their political power. Within Maya sites, large *calzadas* (processional causeways within sites) and *sacbeob* (processional causeways leading out of sites; singular *sacbe*) (Gómez 1996) were used for ceremonial processions and may have facilitated movement through *bajos* during the rainy season (Hansen 1998). The placement of buildings and walls in Maya cities directed movement and determined levels of privacy, particularly within palaces and elite compounds (Liendo Stuardo 2003).

Economic considerations affected many decisions in ancient Maya site planning, particularly those regarding access to resources and trade routes. Coastal fish and shells were collected along the Atlantic and Pacific coasts in Mesoamerica, providing food and important elite goods, including spondylus shells and stingray spines, both of which were found at Los Aves. Inland lakes and *bajos* provided access to fresh water and aquaculture. At Tikal there was a Classic period trend of building houses along the edges of *bajos*, suggesting that they were seen as a valuable resource (Carr and Hazard 1963; Dunning et al. 2002). Some sites were chosen for their access to lithic resources such as obsidian, chert and limestone (Hansen 2000). Several quarries were found in the vicinity of Los Aves, suggesting that this was a factor in the placement of the complex.

3.2.2 Middle-Level Factors Affecting Ancient Maya Site Planning

Middle-level factors that influence town planning can demonstrate ethnic and political elements of culture (Houk 1996; de Montmollin 1988:353-354). The

introduction of new forms of architecture (such as plaza layouts), new architectural styles and features, and changes in site organization, often reflect the spread of ideas and people (Becker 2004; Smyth 2009). Specialized architecture can indicate the presence of new types of politics or ritual. Middle-level and high-level factors can influence the same architecture and sites, but where high-level factors are related to religious significance, middle-level factors are linked to shifts in ethnicity or political changes.

Changes in site alignments in the Maya lowlands from the Preclassic to Classic periods demonstrate how these factors can be seen. During the Preclassic period, early, large cities including Nakbe and El Mirador were founded in the Mirador Basin in the northern Petén (Hansen 2001). Unlike concurrent sites Cuello and Blackman Eddy in Belize, which had north-south alignments, the Mirador Basin sites were laid out on an east-west axis, with *calzadas* connecting major architectural groups (Hansen 1990, 1991, 1998, 2001). This east-west layout continued to be used during the Late Preclassic period, and is seen at San Bartolo. During the Early Classic period there was a shift to north-south site layouts at lowland sites such as Xultun, Tikal and Copán that suggests a political or religious shift (Ashmore 1995; Houk 1996).

Sites with north-south orientations were concentrated in the central Maya lowlands around Uaxactun and shared a common site layout (Coggins 1967). The cores of these sites comprised a palace group at the southern end and a plaza with ceremonial structures in the north. They were often connected by a *calzada* with a north-south oriented ballcourt just north of the palace group (Coggins 1967; Houk 1996). Karl

Ruppert (1940) observed a similar distribution of E-groups in relation to Uaxactun, supporting the idea that these site plans may have indicated political unity.

3.2.3 High-Level Factors Affecting Ancient Maya Site Planning

High-level factors in site planning include cosmological concepts and astronomical alignments, particularly site and building planning (Aveni 2001; Carrasco 1990; Cohodas 1980; Rivera Dorado 1995). These concepts of town planning were sometimes esoteric astronomical alignments known only to a select few, but could also have informed the building of recognizable holy places that served as backdrops for ritual performances (Rapoport 1988 1990; Smith 2007).

A quadripartite division of the world is seen in indigenous cultures throughout Asia and the Americas (Coe 1999; Coggins 1980; Gordon 1971; Hall 1997). The antiquity of this idea is suggested by the common colors associated with cardinal directions throughout these cultures, indicating that this may have been established many thousands of years ago (Aveni 2001; Carrasco 1990; Freidel et al. 1993). This idea is seen again in the Maya creation story, *Popol Vuh*, with the delineation of the world: “All then was measured and staked out into four divisions... Thus were established the four corners, the four sides...” bringing order to the world (Christenson 2003:65). The establishment of square fields or *milpas*, four-sided houses, plazas and other socially constructed spaces were part of wresting good and safe spaces from the wild forests and creating settings in which ideas of ethically correct behavior grew (Taube 2003:462).

The Maya conceived of a universe divided into three realms: a Celestial realm, the Natural world and an Underworld. The Celestial realm, where the ancestors lived, consisted of 13 layers; the Earth was flat and floated in the primordial sea, and the Underworld, where the gods dwelt, had 9 layers (Christenson 2003). Connecting all of these was the World Tree, a *ceiba*, which represented the *axis mundi* and linked the movements of celestial bodies as they passed from one realm into the next (Mathews and Garber 2004).

Twin Pyramid Groups are believed to have been built in the shape of a cosmogram of the Maya idea of Heaven, the Earth, and the Underworld (Ashmore 1991, 1992; Coggins 1980; Cohodas 1980; Jones 1969). Groups of this type, found mainly at Tikal and dating to the Late Classic period, were built to mark 20-year *katun*-endings (Coggins 1980). They consisted of a square plaza between east and west radial pyramids that mimicked the path of the sun (Guillemin 1968). On the south side of the plaza was a nine-door range structure, which represented the Underworld and its nine lords, while the northern building was a walled-in courtyard containing a stela depicting the ruler and an altar, symbolizing heaven (Coggins 1980:737). The construction of these architectural groups provided permanent spaces in which the ruler and other celebrants could symbolically move through the different layers of the universe, interacting with ancestors and gods (Ashmore 1991).

Wendy Ashmore's 1991 study of site planning in the Maya lowlands identified further use of the Heaven-Underworld dichotomy and noted five principles of organization based on the cardinal directions:

1. Sites were oriented north-south.
2. North and south architectural elements/groups were balanced in form and function.
3. Structural features to the east and west formed a triangle with the north (the southern part of this was often suppressed).
4. There was often a ballcourt between the north and south elements.
5. *Calzadas* (causeways) connected important elements, “underscoring the symbolic unity of the whole layout” (Ashmore 1991:200).

Ashmore (1991) explored the north-south dichotomy and noted that in a residential section of Copan with a north-south pairing, the north is associated with open, above, heaven, females, larger plazas, transition and rebirth. The south house group was more closed, related to the underworld, males, had taller structures, more portraiture and burials. This pattern will be compared to the Los Aves and the monumental temple, Los Arboles, which exhibit some similar traits.

To the Maya, natural features in the landscape could also represent sacred places. Caves, springs, *cenotes* and volcanoes were seen as embodying gods or cosmological features and could affect site placement or be integrated into site plans (Brady 1997; Brady and Ashmore 1999). When such natural features were unavailable, the Maya sometimes built architectural representations of them, which they integrated into the sacred landscape of central ritual precincts (Carrasco 1990). Maya temples were conceived of as sacred mountains, which rulers or priests could climb to commune with the gods (Carrasco 1990; Schavelzón 1980). Sweatbaths, such as the one in Los Aves,

could be viewed as points of entry to the Underworld, emphasized by imagery on the façade linked to Underworld animals (Clarke 2013).

3.3 Ancient Maya Public Architecture

Having presented a discussion of Maya town planning, I now describe specific features of their public architecture. I begin with a review of Maya plazas followed by architectural groupings and components found within these plazas. The development, use, and social function of each element are traced to shed light on the circumstances under which they were built.

3.4 Ancient Maya Plazas

Ancient Maya plazas lay at the centers of their cities, both socially and geographically, and they were often large enough to accommodate the entire population of the city and its surrounding hinterlands (Andrews 1975; Chavéz 1992; Cohodas 1985; Houston et al. 2003; Inomata 2006; Tsukamoto and Inomata 2014). Central plazas were bounded by temples, palaces and acropolises and often contained ritual features such as stelae, hieroglyphic staircases and ballcourts (Andrews 1975; Arancón Garcia 1992; Becker 1972, 2003; Hansen 1998; Kubler 1984). People gathered in plazas to celebrate religious and political events, for markets, and for other social activities (Grube 1992; Houston 1998;Looper 2001; Lucero 2003). Some Maya cities had multiple large plazas in their centers that were connected by ceremonial causeways, which may have been parts of architectural cosmograms (Chase and Chase 2010; Gómez 1996; Inomata 2006;

Ruane 2012). Beyond the ritual center of a Maya city, smaller neighborhood plazas served the needs of their local residents, but due to the dense jungle that covers much of the Maya region these plazas have been difficult to locate (Stanley et al. 2012).

3.4.1 The Development of Maya Plazas

The first Maya plazas were built during the Middle Preclassic period (Hansen 1998; Inomata et al. 2013). While previous research (Hammond 1991) held that they evolved from small residential patios, recent work from Ceibal has shown that these spaces could be built independent of domestic origins (Inomata et al. 2013). The urban ceremonial core of Maya cities may also have arisen independently of the Olmec during the Middle Preclassic period (Inomata et al. 2013). Given the domestic core of Los Aves, I look at the development of public spaces as they related to residential areas.

At the site of Cuello in Belize, there is an observable progression from outdoor household space to public space in the site core during the Preclassic (Hammond 1991). Platform 34, in the center of the site, began as a residential platform with perishable superstructures during the Swasey/Bladen phase (1200-600 BC). Around 400 BC, during the Lopez Mamom phase (c. 600-400/300 BC), the superstructures on the platform were burned, human sacrifices were deposited, and a larger platform was constructed over this same space (Gerhardt and Hammond 1991; Hammond and Cartwright 1990; Hammond et al. 1992). This new platform measured 70 meters by 80 meters and was 2.5 meters tall, with a 6 meter tall stepped pyramid on its west side (Hammond 1990). Using a 1 square meter per person estimate of personal space (Moore 1996; Inomata 2006), the platform

could have held almost 5,500 people, many more than the several hundred estimated to have lived there at the time (Hammond 1991).

This construction episode has been interpreted as showing “how a residential patio group grew into an elite compound with its own ceremonial precinct” (Gerhardt and Hammond 1991:117). However, this diminishes the importance of the platform for the community as a whole. Gerhardt and Hammond acknowledge that this was “undoubtedly a communal project” (1991:112) and that its function as “a plaza is obvious” (1991:112) but that “the motive for its construction is not” (1991:112). I argue that the plaza served a social function for the community as a whole, and while it may have been associated with an elite compound, it would have been understood to belong to all the residents of the village.

During the Middle Preclassic period, as Cuello grew in size and complexity, additional social mechanisms were needed to keep the community together and to prevent social unrest (Hammond et al. 2000). By uniting to build this plaza, the residents of Cuello actively participated in civic life and invested in a shared space where they could gather to reaffirm ties to their community and reinforce social bonds (Arendt 1958; Hammond et al. 2000). Analysis of the structures of Platform 34 shows that the mass of the platform was ten times greater than the mass of the pyramid built on top (Hammond 1990). The decision to expend so much more energy on the construction of this platform than on the temples indicates that plazas and buildings were of comparable status in the ceremonial centers of Maya sites.

As Maya cities increased in size, changes were made to plaza size and layout in order to accommodate a growing population. The Great Plaza at Tikal was originally laid down in the Late Preclassic period (400 BC – AD 250) as a large, open space (Coe 1990; Laporte and Valdes 1993). During the Early Classic period (AD 250 – 600), royal architectural complexes were built, forming the northern and southern borders of the plaza, underscoring its importance (Coe 1990; Harrison 1970; Haviland 1982). At the same time, new temple building cut off the Great Plaza from its adjacent East and West Plazas, decreasing the number of people who could have been accommodated for public celebrations. With the construction of Temple 2 during the reign of Jasaw Chan K'awiil I (c. AD 679-734) and Temple 1 built over his tomb (c. AD 734), the Great Plaza became an even smaller and more restricted space (Coe 1990). Simultaneously, the population of Tikal was increasing rapidly and could no longer fit in the plaza, a problem that its rulers attempted to manage by constructing additional plazas (Culbert et al. 1990; Harrison 1996, 1999); however, uniting its citizens to share in the same ritual was increasingly a challenge. Takeshi Inomata (2006) suggests that to solve this problem, the Maya built the Maler, Mendez, Maudslay and Tozzer Causeways, turning stationary ceremonies into processions. This created a mobile, shared experience, uniting those in the plazas with audiences along the causeways (Inomata 2006; Reese-Taylor 2002).

3.4.2 Plaza Attributes

The architectural attributes of plazas are important indicators of how they were used (Arancón Garcia 1992; Moore 1996). The size and dimensions of a plaza determine

the number of people who can take part in, or witness, ritual activities. By calculating a plaza's size, it is possible to determine how many people could have fit within, and thus, what percentage of a population could have observed or participated in ceremonies (Inomata 2006; Moore 1996). The placement of a plaza, either within or in front of a group of temples, affects the relationship between people and ritual. When a plaza is placed within a group of structures, for example in the case of E-groups (see below), those in the plaza are more active participants in the "dialog" among the temples (Chase and Chase 1995; Hansen 1998). Plazas located in front of temple groups, such as Triadic groups (see below), would therefore be less participatory, with a greater emphasis on witnessing rituals being performed by specialists on platforms (Rice 2004). In site cores, plazas are in prime locations and are therefore surrounded by buildings, but the boundaries of plazas in less densely occupied areas can be formed by walls or natural features, such as drop-offs or steep hills (Stanley et al. 2012). Beyond the ritual sphere, plazas are used for secular activities such as marketplaces and other non-ceremonial gatherings (Arancón Garcia 1992; Becker 2003; Jones 1996; Smith 1982).

3.4.3 Architectural Features Associated with Maya Plazas

Examining specific architectural features within plazas enables scholars to compare and contrast different plazas and determine the types of activities that might have taken place within (Arancón Garcia 1992; Becker 1971, 1972, 1999, 2003, 2004; Moore 1996). The urban core of Xultun contains a number of important structures and architectural features that provide context for understanding the setting of this study.

A key indicator of the presence of kingship and statehood at a site is the palace, which “reflect[s] the way in which royal courts establish, proclaim, reinforce, and manipulate political messages” (Runggaldier 2009:1) (Christie 2003; Flannery 1998; Inomata 2001). During the Late Preclassic period, palaces began to appear at sites in the Maya lowlands along with other trappings of royalty, forming “the seat of a royal court” (Runggaldier 2009:11). Palaces, such as Structure 11J-2 in Group A at Xultun, border monumental plazas in site centers, showing their importance in daily life, as well as in ritual (Christie 2003).

Ballcourts, the sites of the pan-Mesoamerican ball game, first appear in the Early Preclassic period and remain a ubiquitous architectural form throughout the Maya region that is still seen in the present day (Hansen 1998; Hill et al. 1998; Hill and Clark 2001; Leyenaar 2001; Miller and Houston 1987). As part of the ritual cycle, they were used for multiple activities, particularly competitive feasting by elites (Fox 1996:484). Ballcourts were located in both public areas and restricted, elite locales, playing a significant role in religious and secular performance (Fox 1996; Hansen 1998; Zender 2004). Houk (1996) notes that ballcourts were symbolically important in town planning in the region around Uaxactun. In north-south oriented sites such as Xultun, ballcourts are often located to the north of a palace complex, between major architectural groups (Morley 1921).

3.5 Caches

Caches are deposits of debris intentionally deposited in specially constructed repositories during public rituals that removed objects from potential use, similar to

“potlatching patterns” (Coe 1959, 1965; McParland 2002; Moholy-Nagy 1997; Sidrys 1976). Ancient Maya caches contained a variety of objects ranging from a few broken sherds of utilitarian ceramics to human remains, large deposits of obsidian debitage and imported elite goods (Becker 1992; Coe 1965; Moholy-Nagy 1997, 2003; Moholy-Nagy et al. 1984). They were frequently interred within buildings and under stelae or plaza floors and were symbolically linked to associated constructions (Aoyama 2001; Becker 1988; Chase and Chase 1998). The three plazas at Los Aves were all shown to contain caches deposited during their building, laid down in different manners and containing different offerings.

The first Maya caches date to the Middle Preclassic period and were often parts of dedicatory rituals associated with new construction phases (Coe 1959, 1965; Mock 1998). Buildings associated with elite or royal power often have caches containing prestige goods (Becker 1988; Pendergast 1998). Symbolism was a central aspect of caches, including one from 600 BC found at Cival in a cruciform pit with water jars and jade celts, representing the ideology of kingship (Estrada-Belli 2006). Trade between the highlands and lowlands provided the elite with important goods, such as jaguar pelts, quetzal feathers, green obsidian, seashells and stingray spines, although many imported goods were perishable and have been lost to the archaeological record (Drennan 1984; Tourtellot and Sabloff 1972). Cache 140A at Tikal contained the remains of a crocodile, a turtle, a large snake, and offerings of chert and obsidian eccentrics, obsidian blade cores, jade, *Spondylus* shell debitage and pottery cache vessels, in addition to a large amount of lithic debitage indicating trade with a variety of regions (Coe 1990). During the Early

Classic period, masses of obsidian flakes were deposited in caches at Tikal (Coe 1965), and in Late Classic Copán, a cache of 700 macroblades and macroflakes was deposited in the center of the Great Plaza (Aoyama 2001).

3.6 Performance Platforms

Low, round structures were used as ritual performance platforms from the Middle Preclassic (1000 – 400 BC) to Early Classic (AD 250 – 600) periods in the Maya lowlands (Aimers et al. 2000; Hendon 1999, 2000; Pollock 1936). These structures are concentrated along the Rio Hondo and Belize Rivers but have been found as far away as Altar de Sacrificios to the southwest and Komchen on the northern coast of the Yucatan Peninsula (Aimers et al. 2000).

3.6.1 Physical Description of Performance Platforms

Preclassic and Early Classic round structures found in the Maya lowlands generally range from 15 centimeters to 3 meters tall and anywhere from 3 meters to 8 meters in diameter (Aimers et al. 2000). It is not clear if all of the structures that have been found were used as performance platforms; some of them may have been surmounted by perishable superstructures, including dwellings, but frequently the stucco layer covering the platform was removed when its life-use ended (Aimers et al. 2000). These structures generally had a rubble, soil or marl interior and were faced with cobbles or courses of stone, often roughly cut (Aimers et al. 2000). They were then covered with a high-quality plaster, marl or *sascab* (unlike that of house platforms, which often lacked

an applied, exterior surface), and were sometimes painted (Hendon 1999). The surface treatment of stucco could be several centimeters thick, as seen in SL-13 Structure 6 at San Lorenzo, Xunantunich, which had a marl covering 5-7 cm thick (Yaeger 2000). In the case of BA-20, Structure 2 at Rio Azul, the plastered surface was also painted red, a color frequently used in the decoration of ritual buildings (Hendon 1989).

These structures could consist of a simple, round platform or include additional architectural features. “Keyhole” structures, seen at Uaxactun, Barton Ramie, Rio Azul, Altun Ha, and Cahal Pech among other sites (Awe 1992; Aimers et al. 2000; Hendon 1989; Pendergast 1982; Ricketson and Ricketson 1937; Willey et al. 1965), comprise a round platform with a small rectangular step projecting out about a meter from one side of the platform (Aimers et al. 2000; Glass 1965; Ricketson and Ricketson 1937). Two variations of this are present at Cahal Pech: Structure 2/2nd, a round structure with an elliptical stairway consisting of two steps on its west side and Structure 14, which has a keyhole-like extension on its south side with four projections, one each to the east and west and two facing south (Aimers et al. 2000: fig. 5, 9). A unique “barbell” arrangement is seen in Structure G at Uaxactun, which consists of two round structures connected by a “bar”-shaped stucco platform (Ricketson and Ricketson 1937: 117).

During the Middle Preclassic period, before the Maya developed the characteristic civic-ceremonial site core seen in later cities, ritual structures were more evenly spread throughout sites. Round structures played a significant role in local group identity, and as such, were integrated into residential areas, though in some cases they were still set apart from dwellings (Hendon 1999:112-113). At Uaxactun, Structures E, F and G were

separated from the residential area by a wall, while BA-20, Str. 2 at Rio Azul was slightly elevated above the residential area (Hendon 1989; Ricketson and Ricketson 1937).

The ritual importance of round performance platforms is underscored by the offerings frequently found within and around these structures. Burials, caches and offerings could be deposited before, during or after a structure was built, with intrusive burials frequently present (Aimers et al. 2000; Coe 1959). At Altun Ha, 14 burials and two caches were found within Structure C 13/4th, while the Zotz Structure 2/2nd at Cahal Pech contained 18 burials in total, placed both during and after construction through to the Late Classic period (Aimers et al. 2000; Pendergast 1982). Ritual use is further suggested by evidence of feasting associated with a round structure at Gran Cacao, Belize. Early Classic ceramic sherds from over 222 vessels were found in a midden associated with a round structure there, Platform A-19 1st (Lohse and Sagebiel 2006 :319). Many of the vessels were slipped servingware used in “festival-type social presentations” (Lohse and Sagebiel 2006:319), suggesting that feasting may have been an important activity associated with these platforms.

3.6.2 Life-Use of Performance Platforms

The ancient Maya believed that buildings had souls, therefore they could not simply abandon a building without conducting some kind of termination ritual (Craig 2010; McAnany 1995; Stanton et al. 2008; Stross 1998). At the end of their life-use, most round structures were partially destroyed and often much of their stucco was chipped off in a precise and careful manner (Hendon 1999). Acts such as careful dismantling or the

deposition of ritual objects were part of the symbolic death of the structure (McAnany 1995). The plaster surfaces of Structures E and F at Uaxactun were present only around the edges of the platforms, while the interiors of the surfaces had been carefully removed (Ricketson and Ricketson 1937:115). At Cahal Pech, all of the exterior plaster covering Structure 15 was removed before that structure was buried by the construction of Structure 14 (Aimers et al. 2000).

Once round platforms were symbolically killed, the Maya frequently built rectangular structures over them, reflecting changes in both construction methods and ritual practice (Hendon 1999; Lohse and Sagebiel 2006). Rectilinear, cut stones made rectangular structures easier and more economical to build, while rituals became more focused on tracking the path of the sun, rather than observing the whole cosmos (Klein 1980). These rectilinear platforms sometimes supported closed superstructures, which hid rituals from the public, allowing specialists to communicate privately with ancestors and gods (Klein 1980). The keyhole-shaped platform, Structure C-13-3rd at Altun Ha, was replaced by a quadrilateral temple platform (Pendergast 1982: 190). At Cahal Pech, Structure 2/2nd of the Zotz group dates originally to the Middle Preclassic period, but during the Early Classic period it was built over with a rectangular platform (Aimers et al. 2000:75).

Ultimately, most round performance platforms and subsequent buildings were covered over by plaza and patio floors, hiding them from view. At Uaxactun, Structures E, F and G were covered over by the Main Plaza Floor III during the Chicanel phase (c. 400 BC – AD 100) when the monumental radial pyramid, Str. E-VII-Sub, was

constructed (Ricketson and Ricketson 1937). Raymond Sidrys and John Andresen note that due to these further building episodes, “most of these structures are only discovered through excavation” (Sidrys and Andresen 1973:649).

3.6.3 Use and Theory of Performance Platforms

Although the many different types of round structures served various functions, including dwelling platforms, settings for civic affairs, astronomical observatories, and sepulchral mounds (Aimers et al. 2000:71), I concentrate on those believed to have been used as performance platforms. Preclassic and Early Classic low, open, round performance platforms were the sites of important family and local group rituals.

These structures were parts of residential groups, but the fact that they were often in a special delineated area (Hendon 1999), implies that although they were associated with these groups, they served a special or non-quotidian role. Around the platforms, there was room for spectators to congregate and most of the people from the nearby area could be accommodated. There is no evidence of superstructures having been built on these round platforms, so activities that took place on top would have been open to view (Hendon 2000). This indicates that the ceremonies associated with round structures were not restricted to ritual specialists, but were something that all members of the audience could witness and understand.

Round performance platforms could have accommodated several people standing on top, depending on whether rituals were stationary or involved movement. The range of sizes of round structures from 3 to 10 m in diameter, implies that there was an inherent

flexibility in either the activities taking place on the platforms, or the number of participants involved, or both.

The low height of these structures meant that performances would only have been visible to spectators in the immediate vicinity (Aimers et al. 2000; Hendon 2000). Performance platforms at San Lorenzo, Xunantunich were only 15 cm above the surrounding area (Yaeger 2000), providing no real elevation for audiences to view performances and making the separation between actors and observers seem more symbolic than functional. This lack of division between performers and observers would have provided little sense of separation between them and would have allowed for frequent and easy role reversal. This suggests that the labels “performers” and “observers” may not have been valid to the ancient Maya, because all the members of a group might have been performing, either on the platform or around it.

This functional analysis suggests that only particular types of rituals may have taken place on or around these performance platforms. Aimers (1996) argues that the primary function of these structures was as a stage and suggests that they may have been used for speeches by local political leaders or for shamanic ritual performances (Aimers et al. 2000:82). Given the lack of specific-use architecture associated with these structures, it is likely that their use was flexible, for multiple types of rituals. Ethnographic records of dancers on top of round platforms present another probable ritual activity (Landa 1978[1566]; Sahagun 1969–1982 [1540–1585]). During the Middle Preclassic period, when rituals were more community focused, group dancing was likely an important activity.

3.6.4 History of Performance Platforms

Round platforms were first built as early as 650 BC, during the late Middle Preclassic period, when the Maya were establishing their first cities and beginning to erect monumental architecture (Aimers et al. 2000). They were part of the “less hierarchical, more charismatic, community-focused” (Aimers et al. 2000:82) society and ritual that predated the rise of kings (Szymanski 2010). These platforms served as places where the ancient Maya could communicate with their ancestors, as attested to by the numerous interments within (Aimers et al. 2000). Among less complex societies, especially those with celestial-focused religions, round structures are more common (Klein 1980). This reflects a religion that embraces the entire cosmos and the association of “socio-political power with key cosmic concepts generally expressed in circular form” (Klein 1980:12). As cities grew larger and societies more stratified, political power was concentrated in a single, powerful ruler, and rituals associated with the heavens focused on the axis mundi and the path of the sun (Klein 1980). According to Jan Szymanski, “Their disappearance during the Preclassic/Classic transition was caused by ongoing social stratification, and a shift in religious doctrine” (2010:67).

During the Late Preclassic period, the Maya continued to build these round structures, although at large sites, elaborately decorated monumental temples became more common places for people to communicate with their ancestors (Aimers et al. 2000). In this functional sense, round platforms may have been precursors to larger temples.

The rectilinear structures that were often built over round structures frequently had superstructures, hiding ceremonial activities from view (Aimers et al. 2000). While performers on top of open platforms were able to convey messages to observers through their actions, rituals on monumental temple platforms often took place within small shrines, and religious ideas were instead displayed in art on their façades.

Few round structures were built during the Early Classic period, and these may have been restricted to specific subsets of the population. Klein states:

“Round buildings become less common, smaller, more expensive, and more exclusive as well. Thus circular structures increasingly come to be directly associated with, and even reserved for, certain powerful subgroups or, finally, individuals whose social control identifies them with the most important celestial bodies and most strategic places” (1980:12).

Klein’s comment on the cost of building circular structures relates to architectural developments in the Maya region. While circular structures are more efficient shapes when building with cobbles or a mixture of earth and stone, once cut-stone masonry architecture became widespread, rectilinear buildings became standard. Building in straight lines was more efficient when using rectangular stones, and it was easier to build multiple-room structures and to add to existing buildings (Aimers et al. 2000).

Although round structures were again built in the northern Yucatan and along coastal Belize during the Late Classic (AD 600 – 800) and Postclassic (AD 800 – 1100) periods, these structures were not the simple platforms seen in earlier times (Harrison-Buck and McAnany 2006; Pollock 1936). Buildings, such as the Casa Redonda and the

Caracol at Chichen Itza and Structure 9 at Nohmul, were surmounted by round, masonry superstructures that often opened to the west and are believed to have had an astronomical significance, perhaps even functioning as observatories (Aveni 1980; Hammond 1985; Pollock 1936; Shook 1954). In contrast, early round performance platforms lack superstructures, have no astronomical artifacts found in association, and were not advantageously placed to observe the skies (Aimers et al. 2000).

3.6.5 Ethnohistoric Records of Round Structures

Historical records of activities taking place on round structures date back to the time of the conquest of Mexico (Fuentes y Guzmán [in Pollock 1936]; Landa 1978[1566]; Sahagun 1969–1982 [1540–1585]). Most accounts from this time period refer to round structures in the highlands of Mexico, dedicated to the god Quetzalcoatl. The round structures that the early chroniclers mentioned were taller and more elaborately decorated than those found in the Maya lowlands. They do not appear to be part of the same architectural tradition, but records of activities that took place on these structures present cases that allow scholars to compare and contrast the functional aspects of similarly-shaped structures. Fray Bernardino de Sahagun described a small round temple in Tenochtitlan on which a future sacrificial victim played the flute and “burned incense toward the four parts [cardinal directions] of the world” (Sahagun 1969–1982 [1540–1585]). Sahagun also observed a platform on which a “buffoon” dressed as a squirrel danced (Sahagun 1969–1982 [1540–1585]), noting that neither one of these temples had any superstructure. In his “*Relación de las Cosas del Yucatán*,” Fray Diego

de Landa recorded dances performed on round towers with pulpits, with costumed dancers playing musical instruments and burning *copal* incense (Landa 1978[1566]). Francisco Fuentes y Guzman witnessed a tribunal of judges sitting on a round, open pedestal, giving public audiences, passing sentences, and hearing civil and criminal trials (Fuentes y Guzmán [in Pollock 1936]). All of these accounts have in common raised, open, round structures around which those below witnessed ritual performances and heard important pronouncements.

3.6.6 Archaeological Research of Performance Platforms

In 1936, H.E.D. Pollock published *Round Structures of Aboriginal Middle America*, the first attempt at a comprehensive, archaeological look at round structures. Pollock divided known round structures into seven different types, based on their architectural features (Pollock 1936). However, Pollock only deals with Postclassic period round structures, predating by just one year the publication of the discovery of the first early, lowland, round performance platforms. In 1937, Oliver Ricketson and Edith Ricketson published their account of the excavations of Group E at Uaxactun, which includes descriptions of the round structures E, F and G (Ricketson and Ricketson 1937). Since then, most early round structures have been recorded in site reports, with few broad discussions about trends in these buildings. Notable exceptions are Julia Hendon (1999, 2000), James Aimers, Terry Powis, and Jaime Awe (2000), who have attempted to identify as many of these structures as possible and also to frame a theoretical discussion of how they were used and what roles they played in Maya society and ritual. Aimers

recorded 48 Middle Preclassic to Late Preclassic round structures in the Maya Lowlands, and since then similar structures have been recorded at Baking Pot (Colas et al. 2002), Gran Cacao (Lohse and Sagebiel 2006), Lagartera and Margarita (Villamil 2005) and Xultun (Wildt 2010). It has been suggested that due to their low height and the Maya tendency to build over existing structures, round performance platforms are “far more abundant in the Maya area than previously believed” (Sidrys and Andreson 1973:649).

3.7 Sweatbaths

Precolumbian sweatbaths have been found throughout Mesoamerica and range from small, ephemeral structures in residential groups to substantial masonry buildings in royal precincts (Houston 1996). Sweatbaths in the Maya region date back to the Middle Preclassic period; however most records of sweatbath use are either ethnohistoric, from early Spanish accounts by Fray Diego Durán (1971[1576-79]) and Fray Bernardino de Sahagun (1950-82[1547-85]), or ethnographic, from more recent anthropological studies (Lopatin 1960; Scott and Brady; Tedlock 1987).

To the ancient Maya, sweatbaths were important for both functional and symbolic reasons (Houston 1996). Functional sweatbaths were used to promote good health, for cleansing rituals, and for childbirth, while symbolic sweatbaths were intended for the use of deities (Houston 1996). Only by studying these dual aspects of sweatbaths is it possible to understand their use and ritual meaning.

Since ancient Maya times, sweatbaths have been valued for purification rituals as well as for their “curative and therapeutic properties” (Houston 1996:139), particularly in

correcting a “hot-cold disequilibrium” in people (Bucko 1998; Groark 1997; Tedlock 1987). The heat of the sweatbath was seen to restore heat to a cold or ill person, while the sweatbath would consume the illness (Child 1987; Foster 1987). Users took enemas or emetic drinks before entering in order to purify themselves; once inside, they beat each other with leaves or twigs to cleanse the skin and encourage circulation (Houston 1996; Carrasco 1946, Pihó 1989, Virkki 1962). Ethnographic studies have recorded the use of sweatbaths for purification after convalescences or before rituals and ceremonial dances (Bucko 1998:82; Tedlock 1987).

One of the primary roles of the sweatbath, as recorded in the Florentine Codex, was in childbirth (Sahagun 1950-82[1547-85]). Women entered the sweatbath during pregnancy for relaxation and massage and often gave birth within, a practice still seen in the Guatemalan highlands (Tedlock 1987). After birth, the placenta was sometimes buried under the floor, creating a long-term connection between the child and the sweatbath (Ichon 1973). Parturition was seen as a dangerous time for both the woman and the community; sweatbaths were used to correct a perceived disequilibrium in the mother and to purify her in order to protect the community from the ill effects of her state (Sahagun 1950-82[1547-85]; Tedlock 1987).

3.7.1 Sweatbaths and Rebirth

The Maya associated sweatbaths with caves, which they viewed as entrances to the Underworld and places of divine origin and birth, imbuing sweatbaths with powerful meaning (Brady and Prufer 2005; Bricker 1973; Child 2006; Groark 1997; Heyden 1976;

Houston 1996; Vogt and Stuart 2005). Entering a sweatbath recreated the act of descending into the Underworld, allowing a person to communicate with deities and deceased ancestors (Brady and Stone 1986). Emerging from a sweatbath was equated with Maya notions of the creation of the first men and women, which occurred in a cave, as well as the act of giving birth (Taube 1986). Thus sweatbath use symbolized death, cleansing and rebirth. Façades of Maya and Aztec sweatbaths have been found depicting animistic faces, with the doorway representing a mouth or navel through which the participant would enter, emphasizing the cave/Underworld and death/rebirth metaphors (Brady 1989; Bricker 1973).

3.7.2 The Etymology of Sweatbaths

The Yucatec Maya word for sweatbath, *pib na*, was found in hieroglyphs at the Classic period Maya site of Palenque and was translated by David Stuart and Stephen Houston (1989). The word is a combination of *pib*, a Yucatec term that refers to “a very hot bath for women,” especially new mothers, and *na*, which means “house” (Houston 1996:136; Stuart and Houston 1989). The Aztecs refer to sweatbaths with the Nahuatl term *temazcal*, from *temazcalli*, which refers to an oven-like house used for bathing (Houston 1996; Karttunen 1992). Sahagun notes that the Nahuatl word *xochicalli*, meaning “flower houses” was also used in referring to sweatbaths, alluding to the ritual herbs used in curative rituals (McCafferty and McCafferty 2008; Sahagun 1950-82[1547-85]).

3.7.3 *The Ethnohistory of Sweatbaths*

Precolumbian and early Colonial codices depict sweatbaths being employed in various ways, which permits insights into how sweatbaths were used as well as their ritual associations (McCafferty and McCafferty 2008). The Codex Magliabechiano depicts a sweatbath decorated with the head of Tlazolteotl (Fig. 3.1) - the goddess of new mothers, curing and purification - above the door, along with illustrations of the cleansing rituals required for entering (Codex Magliabechiano 1983, plate 77r). Sweatbaths are also shown in the Codex Borgia, the Codex Mendoza and in a Mixtec codex depicting offerings, curing of the ill, tending to fires, and in one case, a murder (Houston 1996; Nuttall 1975). In many scenes water is flowing out, and furnaces are commonly shown as an attached building on the same platform as the sweatbath (McCafferty and McCafferty 2008).



Figure 3.1 Sweatbath in the Codex Magliabechiano

3.7.4 The Form of Sweatbaths

Sweatbaths tend to have similar features and follow a similar form. The basic parts of a sweatbath are the steam chamber, the main room where bathing is done, and the heat source, which can be a fire box, fire hearth, or furnace, usually an adjoining structure in which water is poured over heated stones to produce steam (Alcina Franch et al. 1982:110; Houston 1996:138). Sweatbaths are usually small structures, averaging about 2 meters in width and depth, with a height of 1.3 meters (Satterthwaite 1952:15). One enters a sweatbath through a low, narrow passage or door, and the steam chamber is kept tightly sealed, with only a drain in the floor to remove water and a flue in the roof to allow steam and heat to be adjusted. The steam chamber is typically lined with low benches for participants to sit or lie down on (Houston 1996:138).

3.6.5 The Archaeology of Ancient Maya Sweatbaths

Ancient Maya sweatbaths date back to 900 BC at the site of Cuello in the central lowlands of Belize (Hammond and Bauer 2001). This sweatbath was a small round structure with an attached fire box and a drain cut down into the floor (Hammond 1991). The walls were probably made of branches covered with a limestone coating (Hammond et al. 1992). Based on their widespread use by indigenous peoples throughout North and Central America, it is likely that sweatbaths were a significant part of health and ritual for thousands of years prior to the Cuello example (Child 2006; Lopatin 1960).

At Cerén in El Salvador, archaeological excavations uncovered an exceptionally well-preserved sweatbath with its roof dome still partially intact, dating to AD 600 (McKee 2002; Sheets 1992). Several other Maya sweatbaths, dating from the Preclassic

to the Late Postclassic periods, have been found from the northern Yucatan Peninsula to the southern Guatemalan highlands. Notably, eight functional, masonry sweatbaths were excavated at Piedras Negras (Child 2006; Mason 1935; Satterthwaite 1936). These sweatbaths, which Houston (1996) suggests may each correspond to a different Late Classic period ruler, were monumental in size, with multiple chambers surrounding a central chamber in which the firebox was located (Satterthwaite 1952). Although no stucco decoration remains on the façades, the masonry support of Str. P7 has two high niches on either side of the low entryway, creating the impression of a face with two eyes and a mouth (Child 2007; Satterthwaite 1952). Thus by entering the sweatbath, one was symbolically consumed by the god or animal depicted on the façade. The Piedras Negras sweatbaths were associated with ballcourts, dance platforms and temple complexes, indicating that the sweatbaths played an active role in the ritual process (Child 2007).

The Cross Group at Palenque contains three symbolic sweatbath sanctuaries, which surmounted the temple platforms of the Temples of the Sun, the Cross and the Foliated Cross (Houston 1996). These sanctuaries, with layouts similar to the masonry sweatbaths seen at Piedras Negras, were viewed as the birthplaces of the Palenque triad of gods (Houston 1996). The floor plans of these buildings mimicked that of a sweatbath, with a small chamber representing the firebox located within a sweat chamber and a vestibule surrounding these two smaller rooms. However, the lack of a flue for steam to escape or a channel for water to flow out meant that these structures could not have functioned as sweatbaths (Houston 1996). The hieroglyphic inscriptions in these buildings name them as belonging to the gods of the Palenque triad served by the ruler

Kan Balam, while the iconography refers to supernatural birth, purification, and a “primordial beast,” the caiman (Cohodas 1976; Houston 1996; Taube 1989:9).

3.8 Household Archaeology

Complementing the study of public architecture, household archaeology in Mesoamerica developed as archaeologists realized that in order to fully understand Maya society, they would need to expand their research beyond the site core (Rathje 1983; Wilk and Rathje 1982). Settlement studies, pioneered by Gordon Willey, focused on understanding the population that lived in the hinterlands outside of Maya sites in order to understand the extent and scale of occupation (Ashmore and Willey 1981; Becker 1979; Coe 1967; Haviland 1970; Kurjack 1974; Sabloff 1983; Willey et al. 1965). Studies of small neighborhoods grew into the archaeology of communities, which approached households processually, looking for universal laws governing household function (Wilk and Ashmore 1988). More recently, archaeologists have looked at the social functions of these groups, as well as commoner agency and ritual (Canuto and Yaeger 2000; Carballo 2011; Lohse and Valdez 2004; Manzanilla and Chapdelaine 2009; Plunket 2002; Wells and Davis-Salazar 2007). Current developments are taking advantage of new scientific methods and uniquely preserved sites to shed new light on Maya life (Barba 2007; Canuto et al. 2010; Dahlin et al. 2007; Hutson and Terry 2006; Parnell et al. 2001; Parnell et al. 2002; Robin 2002, 2003; Wells 2004). Rapidly abandoned sites, such as Aguateca and Cerén have presented archaeologists with much

more complete and detailed pictures of Maya life (Brown and Sheets 2000; Inomata et al. 2002; Inomata and Triadan 2000; Sheets 1992, 2002).

In this section, I discuss the architectural and artifactual attributes of dwellings and residential areas. I then examine the evidence that artifacts found in domestic contexts can yield about household activities. Finally, I discuss residential architecture and other architectural features found in association with residential groups.

3.8.1 Attributes of Dwellings

Dwellings are the physical structures that serve as the settings for domestic activities (Wilk and Ashmore 1988). Unlike houses, dwellings can contain co-residential groups of people who do not consider themselves a household. Households, according to Wilk and Ashmore are the social units that are the “fundamental elements of human society” (1988:1). They participate together in activities that can include production, consumption, reproduction, resource pooling, co-residence, and ownership (Wilk and Ashmore 1988). However, households need not always share a residence; conversely, multiple households may live together.

The identification of dwellings in ancient Mesoamerica depends on the presence of certain architectural and artifactual features. In a study of the development of households at Seibal, Gair Tourtellot identifies several architectural elements that are indicative of dwellings, including a rectangular floor plan with an area greater than 23 square meters, a structure between 1-2 levels high, a hearth feature, orientation to

cardinal points, placement in the center of a patio edge, and a broad C-shaped bench (Tourtellot 1988).

Harvard archaeologists working at Copán in the 1970s developed a formal typology of sites based on construction materials and the size and number of mounds present (Leventhal 1979). Richard Leventhal's four-part typology ranges from sites with 3-5 mounds under 1 meter tall and constructed of cobbles or masonry (Type 1) to sites with 8-100 mounds, multiple courtyards, some mounds over 5 meters tall, vaulted structures and architectural sculpture (Type 4) (Leventhal 1979) enabling scholars to communicate more easily about the diversity of household groups.

3.8.2 Residential Artifacts

Artifacts associated with dwellings reflect the range of people living there and the domestic activities in which they participated. Frequently, they include *manos* and *metates*, ceramics used for cooking and serving food, many utilitarian items, few production items, middens behind the structures, and burials reflecting the ages and sexes of the inhabitants (Tourtellot 1988). Beyond identifying dwellings, recovered artifacts can suggest the class, occupation, and demographic makeup of residents (Brumfiel and Nichols 2009; Hirth 2009; Inomata and Triadan 2000). However, limits to the utility of artifacts were shown in a study by Leventhal and Baxter, in which they attempted to identify structure function at Copán based on ceramics found there (Leventhal and Baxter 1988). Excavating in a variety of plaza groups, they were unable to find a correlation between ceramic type and building function; however, they did find that there was some

evidence of status differences evident in the range of ceramics (Leventhal and Baxter 1988).

When the city of Aguateca was attacked in AD 800, its residents left behind many objects which they would have carried away had they abandoned the site more slowly (Inomata and Triadan 2000). The variety of artifacts that archaeologists have found there includes carved shells and human skulls, bone needles, spindle whorls, shell clothing ornaments, an array of axes used in stone carving, and pyrite for making mirrors (Inomata and Triadan 2000). Most of the artifacts were found *in situ* in the side rooms of the elite residences, indicating that this was where the majority of the crafting and food production took place.

3.8.3 Residential Architecture

Beyond the identification of dwellings, architectural features can inform scholars about wealth, class, occupation, and ritual practices of the occupants. Two studies of elite residences at Copán highlight the significance of architecture, noting that “as elsewhere in the Maya Lowlands, architecture and sculpture are better indications of status than artifacts or burials” (Webster et al. 1990:340) and that the multifunctionality of buildings makes them hard to identify based on artifacts – architectural features must also be taken into account (Leventhal and Baxter 1988).

Residential architecture can be ranked according to the amount of energy expended in house building, which Elliot Abrams (1994) links to the use of different materials and construction techniques. He divides houses into five categories ranging

from the most elite dwellings made entirely of stone to those with mostly perishable structures and little stone architecture:

1. Superstructures with dressed stone walls and vaulted roofs
2. Superstructures with dressed stones walls and beam-and-mortar-roofs
3. Superstructures with rough stone walls and beam-and-mortar roofs
4. Superstructures with rough stone walls and thatched roofs
5. Superstructures with only partial stone walls supporting perishable daub upper walls and roofs of thatch. (1994:14)

Tourtellot (1988) explored the significance of architectural elements in order to determine the differences between features related to family development and those related to elite status. He found that factors that were related to social status were vaulted rooms, structure height, cost of construction materials and techniques, and the presence of ritual architectural features. However, the number of dwellings in residential groups and the floor area were a result of the development of the architectural group over several generations as family population increased (Tourtellot 1988). Patio groups often began modestly, with a small patio and single structure and were added to during frequent building episodes occurring every 25 to 35 years (Haviland 2003). Additionally, not all structures in patio groups were residential; some served as kitchens, storehouses or shrines (Haviland 1970).

3.8.4 Diversity in Residential Groups

The organization of residential groups can reflect the social and economic strategies of the residents. In much of ancient Mesoamerica, cities were relatively

compact in order to maximize economic potential and maintain a defensible area (Drennan 1988); however, Maya sites tended to be more dispersed with residential groups scattered across agricultural areas in which each family managed its own fields (Drennan 1988). Unlike farming families, those involved in crafting and politics tended to live closer to the site center and in close proximity to other residential groups, as their vocations did not depend on land (Carr and Hazard 1961; Chase et al. 1990). Thus, the location and setting of a residential group can also be suggestive of economic activities.

The ritual landscape is another factor that affects residential location and meaning. Wendy Ashmore's study of two different elite residential compounds at Copán illustrates this point (Ashmore 1991). Similar artifacts related to domestic activities were found in both groups, but their architecture and iconography were distinct. Group 8L-10 was located in the north and Group 8L-12 to the south, and much like in larger site plans, represented heaven and the underworld, respectively (Ashmore 1991).

The northern group, 8L-10 was associated with the heavens and was more "oriented toward ritual activity" (Ashmore 1991:215). Iconographic themes include sacrifice, ritual, rebirth, and the heavens, with images of a bejeweled Vucub Caquix, a deceased Waxaklajuun Ub'aah K'awiil, a stingray spine, and the sun and moon deities. In addition to the lack of personal portraiture, burials in this group were mostly double tombs, which suggests a "diminished importance of individual identity" (Ashmore 1991:211). The plaza in this group was larger, and the structures were lower than those in the southern group, creating an open, more public atmosphere.

In contrast, to the south, Group 8L-12 had architecture more typical of an elite residential group. Iconography in this group includes personal portraiture, presumably of a resident of this area, as well as an image of the Jaguar God of the Underworld adorning a shield. Burials in this group contained richer grave goods, including several jade pieces, suggesting that individual status was important. The buildings in this group were taller, with a smaller plaza than that of 8L-10, giving the group a more private feel. The juxtaposition of similar artifacts and distinct architecture suggests that it was the setting, rather than the objects, that was key to ritual events in Group 8L-10.

Cerén, a rapidly abandoned site in Honduras, was buried under volcanic ash during an eruption in AD 600, creating a well-preserved, Pompeii-like site (Sheets 2000, 2002). The inhabitants left all of their belongings behind, enabling archaeologists to recreate the material record of daily life (Sheets and Simmons 2002). Based on artifacts found within, two of the structures located within the residential area of this site were identified as ritual buildings; one of the structures was used in preparation for community festivals, while the other was a place for ritual divination (Brown and Gerstle 2002; Brown and Sheets 2000; Simmons and Sheets 2002). These findings suggest that ritual structures may be more prevalent in residential areas than was previously thought. However, at present, it is impossible to say if this applies only to non-elite residential groups, or if there are similarly overlooked ritual structures within elite residential groups. Brown and Sheets (2000) determined the architectural features present in these ritual structures that might indicate a ritual structure in a gradually abandoned site:

1. Location: on the east of its architectural group

2. Building Plan: antechamber, enclosed corridor, hearth
3. Height of subplatform: taller than domestic structure platforms
4. Increasing floor elevation: floor elevation increases from the antechamber to interior rooms
5. Elaborate construction techniques: columns, walled enclosures, painted walls
6. Presence of altars, subfloor caches, burials.

3.9 Discussion

This chapter provides the background necessary to contextualize individual structures within the architectural complex of Los Aves and Los Aves within the larger site of Xultun. The relationship among the plazas in Los Aves, as well as their connection to the nearby monumental ancestral shrine (Los Arboles) will be analyzed below to shed light on the types of planning decisions that went into this layout.

The diversity revealed in recent household studies demonstrates that there was a greater variety of building types within residential areas than was previously believed (Ashmore 1991; Brown and Gerstle 2002; Brown and Sheets 2000; Simmons and Sheets 2002). These studies emphasize the potential for using architecture and iconography to look for heterarchical, rather than hierarchical differences in households. The presence of a sweatbath with Underworld iconography within the residential area of Los Aves offers an interesting avenue for exploring both of these ideas.

The dataset generated by excavations at Los Aves affords me the opportunity to explore diversity in both public and household architecture. Current plaza research tends toward generalizations because monumental plazas in site centers accommodated such a wide variety of activities. The redundancy of plazas and the variety of plaza architecture

at Los Aves presents an opportunity to begin to understand the variety of different types of plazas.

In the next chapter I discuss the background and archaeology of the Xultun region. I begin with a brief summary of Maya political history, which serves as a framework for the history of Xultun, as we currently understand it. A description of the local environment gives context to the layout of Xultun and Los Aves. The chapter concludes with a summary of archaeological work done at Xultun and an introduction to excavations at Los Aves.

Chapter 4. Xultun Background

4.1 Introduction

Located in the heart of the central Maya lowlands, Xultun was an active player in the political sphere of the ancient Maya. The rise of the Maya during the Preclassic period dramatically changed the region, with the foundation of the first urban settlements and the emergence of complex political systems. Numerous city states developed during the Early Classic period, forming a complex web of political connections that stretched to the highlands of Mexico. Xultun was positioned between the political superpowers Tikal and Calakmul and undertook diplomatic and military activities in the region. The intensification and destabilization of the Late Classic period brought about the collapse of the Maya heartland, although Xultun was one of the last cities to be abandoned.

Following a more in-depth review of the history of the ancient Maya and Xultun, I describe the geography and environment of the central Petén and Xultun itself. I then discuss the discovery and excavation of Xultun through the present era and describe the layout of the site as a whole. Finally, I briefly describe the archaeology and layout of Los Aves.

4.2 Geography of the Maya Lowlands

Xultun is located in the sub-tropical rainforest of northeastern Guatemala, within the Maya Biosphere Reserve in the northern Petén region (Garrison 2007). The Petén covers an area of about 36,000 square km and is an area of significant biodiversity, home

to over 800 tree species, 500 bird species and many large mammals, including jaguars, tapirs, mountain cows, anteaters and pumas (Saturno et al. 2006).

This area, known as the Central Maya Lowlands, sits at the base of the Yucatan peninsula and is the location of many of the most important ancient Maya sites. The Yucatan peninsula is a limestone karst plateau formed by millions of years of coral reef growth, pushed up out of the ocean by tectonic shifts (Dahlin 1983; Vivó Escoto 1964; Weyl 1980). There are few permanent rivers above ground and the water table is very deep, making the digging of wells an impossibility. Due to thin soils and the permeability of limestone, water rapidly moves into the groundwater system, with rare accessible locations, such as the lakes in the Central Petén and *cenotes* in the northern Yucatan (Dunning et al. 2002; Siemens 1978). The chain of lakes that run across the central Petén, including Lake Petén-Itza, Lake Yaxha and Lake Sacnab, were formed by the folding of limestone ridges creating troughs in which water collects, providing an important locus for early Maya settlement in this region (Fedick 1996; Fedick et al. 2003; Siemens and Puleston 1972). The general lack of surface water creates a situation in which non-lacustrine settlements are completely dependent on rainfall; variations in annual rainfall can therefore have devastating results (Gill 2000). In the low-lying coastal areas of the Yucatan there are rivers which have their origins in the uplands and flow seasonally there (Dunning et al. 2002).



Figure 4.1. Map of Xultun area (adapted from Garrison 2007)

4.3 The Setting and Environment of Xultun

Xultun sits within the Three Rivers region, an area that comprises the major tributaries of the Rio Hondo, flowing eastward into the Caribbean in present day Belize. Each of the rivers in this drainage, Rio Azul (Rio Ixcan) (Fig. 4.1), Rio Bravo and Booth's River, has its own distinct watershed (Dunning et al. 2002) and the area is made up of "distinct physiographic provinces" (Garrison 2007: 257-8) defined by changes in elevation, vegetation and position in the river system.

The site of Xultun is situated in a well-drained upland area, about 270 meters above sea level (masl), with easy access to several *bajos*, which would have provided valuable resources not found in the drier uplands (Garrison 2007; Ruane 2012) (Figure 4.). Three permanent and two seasonal *aguadas* are located within a couple of kilometers of Xultun: El Delirio is 2 km north, Los Tambos is 2 km south, Petipet is 3.5 km west-southwest, with the two seasonal *bajos* to the south and southwest (Von Euw 1978). The central area of the site covers over 16 km², although settlements continue beyond this area. To the north, settlement extends until it reaches the *aguadas*, while 2 km to the east the site stops at a steep *arroyo* (Von Euw 1978). The southern boundary of Xultun is not yet well understood, but as mapping continues in coming years, the full extent of the site will be determined.

The landscape surrounding Xultun is made up of horst cliffs and graben bottom lands, which descend from the central Petén to the Belize coast in levels (Dunning et al. 2002; Garrison 2007) Through alternating climate cycles of cool and warm conditions, the decomposition of the limestone bedrock has formed thin and clayey soils (Beach 1998; Beach et al. 2003; Brenner 2002), in which the Maya grew seasonal crops and planted orchards for food (Fedick 1996; Harrison and Turner 1978).

The only perennial sources of water at interior lowland Maya sites were *aguadas*, either natural or man-made depressions in the ground in which water was stored (Dunning et al. 2002). Natural reservoirs were frequently enlarged by nearby residents in order to better exploit the rainy season. Quarries, created by extracting limestone for building materials were often turned into *aguadas*, including several at San Bartolo and a

couple near Los Aves (Garrison and Mejia 2002). Because so much limestone was required for building monumental structures in the centers of sites, large *aguadas* were often created there, providing much needed water to the sites' residents, particularly the elites who lived there (Dunning et al. 2002).

Local topography is defined by alternating *bajos*, or lowlands, and *montañas*, the uplands (Garrison 2007). *Bajos* are seasonal swamps named for their dense undergrowth and short canopy, compared to *montañas*, which are drier, with less undergrowth and taller trees. The Xultun region supports scrub and palm *bajos* (Kunen et al. 2000), which can be found together. Scrub *bajos* are dominated by species such as *pucteal*, *tintal* and *huechal*, while palm *bajos* support *escobal* and *botonal*, among others (Garrison 2007). These swampy graben bottom lands contain fine clay Vertisols (Beach 1998), which results in severe cracking, allowing water to drain quickly into the bedrock and contributing to seasonal shortfalls in water (Dunning et al. 2002).

Many ancient Maya sites, including Xultun, Tikal, Calakmul, and San Bartolo, were built along the margins of *bajos*, (Carr and Hazard 1963; Hansen 2002). Recent research (Dunning et al. 2002) suggests that in the past, *bajos* were perennial wetlands, possibly marshlands (Hansen 2002). These areas may have been important for transportation, aquaculture, canalization, and defense, in addition to providing fresh water (Dunning and Griffin 2009; Dunning et al. 2002; Hansen 2002; Pope and Dahlin 1989, 1993).

Montañas, in contrast, were well-drained upland forests in which most Maya settlements have been found. Vegetation in these regions consisted of taller, hardwood

tree species, including mahogany, cedar, chicozapote and breadnut, with less dense undergrowth than the *bajos* (Garrison 2007). The trees in the *montaña* provided the Maya with building materials, fruits, and shade (Fedick 1996; Garrison 2007).

Local environments are most heavily influenced by climatic variations between the wet and dry seasons. The Petén receives between 1,500 and 2,000 mm of rain per year, with consecutive years varying widely (Dunning et al. 2002; Hansen 2002). Ninety percent of the rain falls during the wet season, which lasts from June to December (Vivó Escoto 1964; Wauchope et al. 1964). This season provides essential drinking water to settlements and is when vegetation and animal resources are most abundant and water transportation is the most extensive (Dunning et al. 2002). During the dry season, from January to May, there is so little rainfall that the *bajos* dry out (Pohl and Bloom 1985). The average temperature is 26.5 degrees Celsius (Vivó Escoto 1964).

4.4 The Ancient Maya: Preclassic Period

The Preclassic period (2000 BC-AD 250) was an era of major growth and change in the Maya world, when the first kings were crowned and states began to form. During the Middle Preclassic period (1000-400 BC), the first monumental architecture appeared in lowland cities such as Ceibal, with the development of formal ceremonial space and Nakbe, where an 18-meter high temple and wide causeways (*sacbeob*) were built (Hansen 1998; Inomata et al. 2013). The Late Preclassic (400 BC-AD 250) saw the building of the most massive pyramids ever made by the ancient Maya, including a 72

meter tall pyramid, Danta, at El Mirador (Hansen 1998) with elaborate stucco masks and friezes decorating the facades.

As the population increased significantly, coalescing in urban centers, social stratification became more pronounced and entrenched. The institution of divine kingship is first seen at this time, shown alongside early hieroglyphic writing in mural paintings at San Bartolo (Saturno 2009; Saturno et al. 2006; Taube et al. 2010) (Fig. 4.2). The most important attribute of lowland Maya rulers at this time was their connection to gods and the supernatural, through public rituals. By contrast, in the southern highlands, there was a greater focus on rulers as individuals, and they were buried in elaborate tombs and depicted on stelae and shrines.

Long distance trade provided elites with access to status and ritual goods, such as obsidian and jade, which were imported from the Guatemalan highlands. Widespread ceramic and artistic styles were developed, indicating cultural similarities over large areas (Estrada-Belli 2011).

Towards the end of the Late Preclassic period, rising populations and the lavish use of stucco in the decoration of monumental architecture were taking their toll on the environment (Beach et al. 2006; Grube 1995). Forests were cleared for agriculture and to provide the wood needed to burn limestone and make stucco (R. Hansen 1998; E. Hansen 2000). In addition, AD 100 was the height of a dry period (Dunning et al. 2002) and there may have been additional droughts c. AD 250-300 in the region (Dahlin 1983:261; Garrison and Stuart 2004; Hansen 1990). These hardships caused the collapse of many Maya sites, particularly those in the Mirador Basin (Hansen et al. 2002). The

abandonment of such important sites interrupted trade routes, destabilizing other areas that relied on the Maya lowlands for goods (Pring 2000; Reese-Taylor and Walker 2002).



Figure 4.2. Inscription from the coronation scene on the West Wall of Pinturas Sub-1A, with the last glyph depicting the "ajaw" title of rulership used by Late Classic Maya kings (drawing by Heather Hurst)

4.5 The Ancient Maya: Early Classic Period

In the Early Classic period (c. A.D. 250 – 600), populations in the Petén rebounded and large urban centers grew (Houston and Inomata 2009). It was during this time that the Maya developed the long count calendar and the stela cult, with regular erections of stelae marking political and historical occasions (Coggins 1975, 1976). Maya epigraphic texts have revealed complicated political dynasties linking polities throughout the lowlands (Martin and Grube 2008; Proskouriakoff 1960). Maya states were ruled by kings with administrative hierarchies and royal courts (Inomata and Houston 2001). many of which were connected through royal marriages, creating alliances. Although these polities extended from Honduras to Mexico, they were never allied under one unified state. Two of the most important Early Classic polities, Tikal and Calakmul, ruled the central lowlands, with political connections as far away as Palenque and Copan (Martin and Grube 2008). Both states attempted to takeover large territories to gain control of overland trade across the lowlands.

The biggest political upheaval in the Early Classic period happened in AD 378, when a military force from Teotihuacán traveled through the Petén to Tikal (Coggins 1975; Guatemalan Ministry of Culture and Sports 2014; Laporte and Fialko 1990; Stuart 2002). Teotihuacán, an immense city of over 125,000 people in central Mexico (Millón 1973), sent envoys whose visits are recorded at several lowland Maya sites (Estrada-Belli et al. 2009), and when their journey ended at Tikal, they installed a new ruler (Stuart 2002).

This visit transformed Tikal into a superpower and a rival to Calakmul, a relationship that would affect all major lowland polities.

4.6 The Ancient Maya: Late Classic Period

The Late Classic was the time of the highest population density for the Maya, increasing demands on farmers and the environment (Culbert and Rice 1990). Cities grew more crowded and adapting architecture to meet the needs of their increasing inhabitants. In order to feed such populations, croplands were expanded, leading to deforestation and environmental degradation (Deevey et al. 1979; Abrams and Rue 1988). Increasingly marginal areas were occupied, stressing the landscape and ecosystem. Competition over land grew, creating conflicts between polities.

In AD 562, Calakmul and its allies encircled Tikal, cutting off the polity from trade and conquering the city. This began a 100-year hiatus in dedicatory stelae at Tikal. During this time, Calakmul was the most powerful state in the region, but never expanded to include its vassal states within its political boundaries. In AD 695, having regained its strength, Tikal defeated Calakmul and continued to expand its military influence over other polities, including Waka and Naranjo. Lowland Maya rulers competed with each other for political power, trade routes, and a tribute and tax base, while nobles increasingly established petty fiefdoms (Demarest et al. 2004; Sabloff and Henderson 1993). Further conflicts drew in surrounding polities, and in regions such as the Petexbatun, states grew increasingly Balkanized, eventually rendering the area uninhabitable (Demarest et al. 2004).

4.7 The Ancient Maya: Terminal Classic Period

At the end of the Late Classic (c. AD 800/900) and through the Terminal Classic periods (AD 800/900-1100), Maya civilization in the central and southern lowlands collapsed (Culbert 1973; Demarest et al. 2004). The stresses of warfare, overpopulation and environmental degradation had already made Maya states vulnerable when a series of droughts struck, including one in AD 810 that lasted for nine years (Gill 2000; Gill et al. 2007). These devastating conditions led to the end of support for divine kingship and the collapse of political systems. Maya cities were abandoned as populations dispersed in search of resources and habitable land. By the mid-9th century, the Petexbatun had lost 90% of its population (Demarest et al. 2004). Monumental construction and the erection of stelae decreased in quality and quantity, eventually ceasing throughout the lowlands. The scenes depicted on later monuments lack the divine aspects of those from the Late Preclassic and Early Classic periods. Instead, they show rulers with subordinate vassals, indicating a decentralization of royal power (Martin and Grube 2008). The last stela was placed at Tonina in AD 909 (Hamblin and Pitcher 1980).

As polities in the Maya heartland collapsed, trade shifted from inland routes to a sea trade around the peninsula, further contributing to the end of cities in the central and southern lowlands (McKillop and Healy 1989). In the northern lowlands and along coastal Yucatan, Maya society thrived for a few hundred years more, with some migration from the central and southern lowlands, boosting populations there (Chase and Rice 1985). However, much had changed due to the Collapse and after the abandonment

of the southern cities, the institution of divine kingship was rejected in favor of shared and decentralized authority (Andrews 1990; Andrews et al. 2003; Demarest et al. 2004).

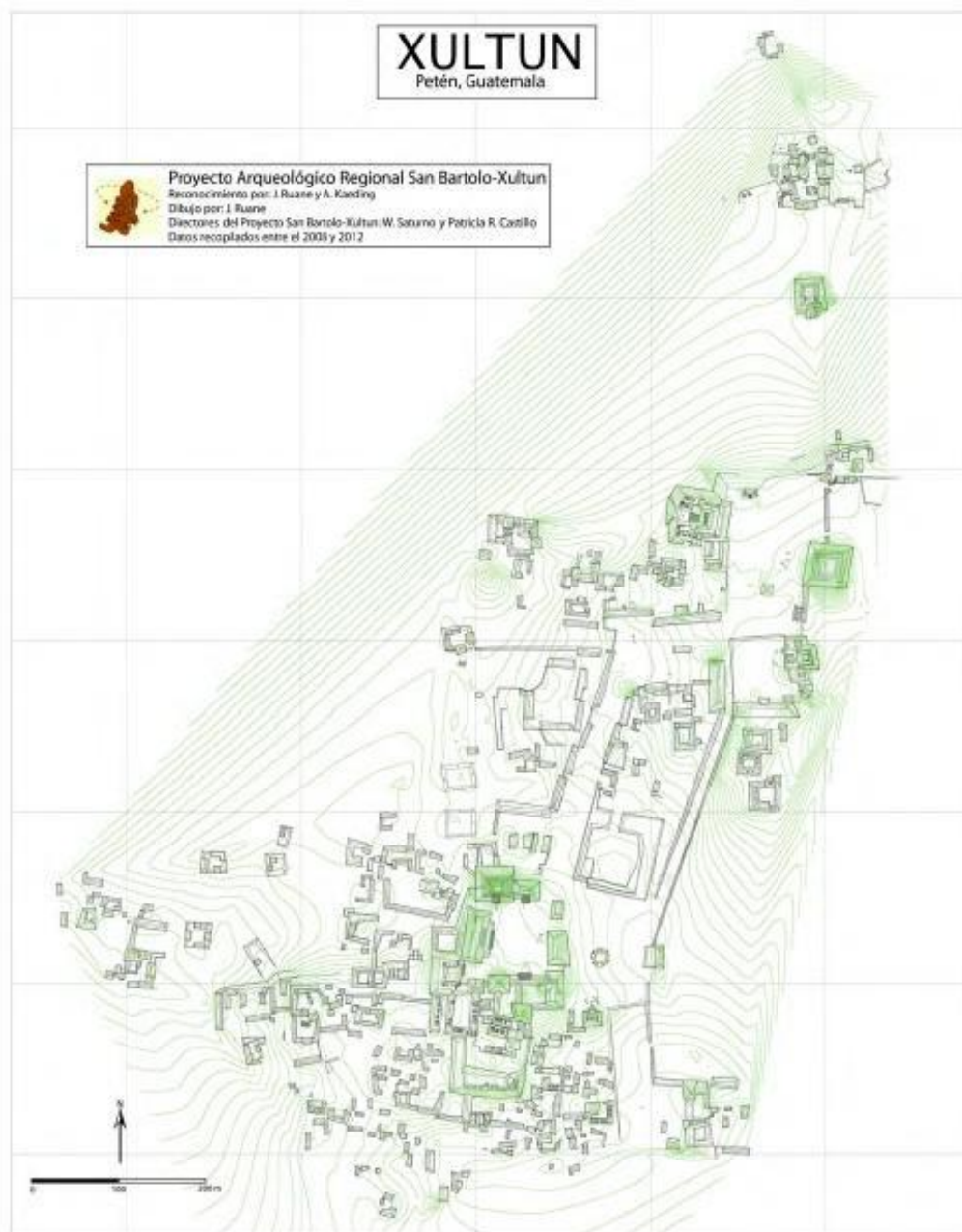


Figure 4.3. Map of Xultun (by Adam Kaeding and Jonathan Ruane)

4.8 An Overview of Xultun's History

Xultun (Fig. 4.3) was first settled during the Middle Preclassic period (1000-400 BC), but remained a relatively modest town until the end of the Late Preclassic (400 BC-AD 250) (Rivera 2010, 2012). In the Early Classic period (AD 250-600), Xultun grew to be a major Maya capital and an important political center. It survived until the end of the Late Classic (AD 600-900) (Morley 1920), later than most other polities, before finally being abandoned during the Terminal Classic (AD 900-1100) (Garrison 2007; Rivera 2010, 2012).

4.8.1 Xultun During the Preclassic Period

Recent excavations (Del Cid et al. 2012; Rivera 2012) at Xultun have uncovered ceramics from the Mamom tradition (600-300 BC), pushing back the date of the earliest known settlements there from the Late Preclassic to the Middle Preclassic. Xultun was likely a modest town during the Middle Preclassic and the Late Preclassic, even as nearby settlements such as San Bartolo, Uaxactun, and Tikal grew larger and more influential (Laporte and Valdes 1993). However, towards the end of the Late Preclassic, environmental crises may have upset the balance of power (Brady et al. 1988; Pring 2000). As populations grew, erosion became a significant problem, degrading croplands and silting up *aguadas* and *bajos* (Beach and Dunning 1995; Dunning and Beach 1994; Dunning et al. 1998). This was likely compounded by water shortages c. AD 100 and AD 250-300 (Dunning et al. 2002; Garrison and Dunning 2009), which resulted in major population shifts and the abandonment of sites, including San Bartolo (Cardona and

Rivera 2002). Xultun, with its multiple *aguadas*, providing plentiful water, must have been an attractive site for displaced people, and was possibly the new site of the dynasty of San Bartolo (Urquizú and Saturno 2008).

4.8.2 Xultun During the Early Classic Period

During the Early Classic period, Xultun also eclipsed Uaxactun in size, growing into a regional power with a population in the tens of thousands. Much of Xultun's monumental architecture dates to this period, including a pyramid in Plaza B (Str. 12H-3), the most massive building in the site, as well as the elaborately decorated ancestral shrine, Los Arboles (Str. 12F-19) (Rivera 2010, 2012). Plaza B is also the site of six early stelae at Xultun, three dated stylistically and three dated using calendrical information (Garrison and Dunning 2009; Garrison and Stuart 2004). Stela 20 was erected there in AD 435 to celebrate the ending of the 9th baktun; nearby Stela 12 is believed to be contemporaneous (Garrison and Dunning 2009).

Evidence of Xultun's early dynastic history comes from the 6th century AD, on Stela 18. The inscription on this monument names a Xultun ruler, Akhnal, "33rd in the line of the founder of the Xultun dynasty" (Garrison and Dunning 2009:540; Garrison and Stuart 2004). This claim of great antiquity would place Xultun's dynasty among the longest-lived in the Maya world (Martin and Grube 2008[2000]). As Xultun was a relatively modest town in the Late Preclassic, it has been suggested that the Xultun dynasty might have originally come from San Bartolo (Garrison and Stuart 2004). The murals in the Pinturas structure in San Bartolo show that divine kingship was an

important institution by 100 BC (Saturno 2008, 2009; Taube et al. 2010) and if Xultun's dynasty survived the Preclassic to Early Classic transition by relocating from San Bartolo, Stela 18 may be accurate.

According to Karl Taube one of the main temples at Xultun exhibits Teotihuacán imagery, suggesting that they were aligned with Teotihuacán and Tikal (Garrison 2007). Along with Tikal, Xultun had a stela hiatus at the end of the Early Classic period. Stela 6 (AD 501), which depicts a royal ascension to a jaguar throne and demonstrates ties to Tikal, was the last stela dedicated at Xultun for over 100 years (Garrison and Stuart 2004). In AD 642, the 9.10.10.0.0 period ending was celebrated with the erection of Stela 7 (Garrison and Stuart 2004). Then in AD 672, the same year that Tikal conquered Calakmul and ended its own stela hiatus, Xultun dedicated Stela 5, which depicts the sacrifice of lesser nobles from Calakmul (Garrison and Stuart 2004; Martin and Grube 2008[2000]). The iconography of Xultun's Late Classic stelae is comparatively static, with most rulers presented in a dancing pose and carrying a baby jaguar and a K'awiil, a Chaak, or a serpent, often with an attendant dwarf, possibly part of an established period-ending ritual (Garrison and Stuart 2004).

Xultun was also mentioned in stelae elsewhere in the lowlands. Stela 17 at Tikal references a Xultun lord Upakal K'inich who may have been a caretaker for Wak Chan K'awiil, a young king from Tikal (Martin 2001). Caracol has two instances of Xultun women on stelae at that site (Martin and Grube 2008[2000]). In AD 514, a stela was dedicated by Yajaw Te' K'inich I that mentions his mother, Yohl Ch'e'n (Lady Penis-head) from Xultun (Martin and Grube 2008[2000]), who had married K'ahk' Ujol

K'inich I (c. AD 470) (Garrison and Stuart 2004; Martin and Grube 2008[2000]). Later, Stela 16 at Caracol, which marked the 9.5.0.0.0 katun ending (AD 534), refers to a “royal woman from Xultun” (Martin and Grube 2008[2000]: 87), presumably part of an attempt to strengthen alliances through family ties.

4.8.3 Xultun During the Late Classic Period

However, during the Late Classic, sites became increasingly bound to one another and conflict between Tikal and Calakmul had regional consequences, drawing in their respective allies and further destabilizing the region (Culbert 1991; Demarest et al. 2004). Victories over Calakmul and Naranjo in AD 736 and 744 are recorded on Tikal stelae, while Naranjo marks the sack of Yaxha in AD 710 (Martin and Grube 2008[2000]).

At this time, populations reached their peak throughout the Maya lowlands (Culbert and Rice 1990). Feeding so many people required farmers to move further out into the hinterlands to enlarge the catchment zone providing Xultun with food (Garrison 2007). This put additional stress on both the people and the environment, as land around Xultun was used more intensively and agricultural techniques such as terracing became widespread (Dunning and Beach 2004; Fedick 1996; Garrison 2007; Garrison and Dunning 2009; Wingard 1996).

Further stress was caused by the droughts of the early AD 800s, which had less of an impact on Xultun than they did the rest of the Maya lowlands (Garrison and Dunning 2009). The five *bajos* surrounding the site likely buffered the people from the worst effects of the droughts, but even so the destabilization of the rest of the Maya polities

brought an end to the trade networks that helped to support the elites, eventually leading to the collapse of Maya urbanism (Demarest et al. 2004; Gill et al. 2007). Xultun was able to endure the effects of this for longer than most sites: Stela 10 was dedicated in AD 889, one of the latest dates recorded in the Maya lowlands (Morley 1920, 1937-38). Within the next 100 years the center of Xultun was abandoned and by AD 1100 the whole region was empty of settlements (Garrison 2007; Garrison and Dunning 2002).

4.9 The History of Archaeology at Xultun

In 1915, Aurelio Aguayo answered an advertisement offering \$25 in gold to anyone who could guide archaeologists to ancient ruins with carved stone monuments (Morley 1920). Sylvanus C. Morley, an archaeologist with the Carnegie Institute of Washington, had posted these fliers in the Petén, where harvesting *chicle* was a seasonal activity that took men into the jungle for weeks or months at a time. Aguayo, a local *chiclero*, reported to Morley the previously unknown site of Xultun which, like many major Maya sites, has several carved stelae in the site core (Morley 1920).

The Carnegie Institute of Washington (CIW) made three expeditions to Xultun in order to record the stelae and to do limited mapping. In 1920, Morley and archaeologist C.E. Cuthe traveled to the site with the Fourth Central American Expedition, at which time they partially mapped Group A and located stelae 1-17. On Stela 10, Morley and Guthe were able to make out the date AD 889, then the latest date recorded on a stone monument in the central Maya lowlands. Because of this, they named the site Xultun: “xul” meaning “end” and “tun” meaning stone” (Morley 1920). In 1921 the Fifth Central

American Expedition of the CIW returned to record five more stelae and take additional data (Morley 1921). In 1923, the Seventh Central American Expedition, visited Xultun again, and the results of these visits were published in the *Inscriptions of the Petén* (Morley 1937-38).

It was not until the 1970s that archaeologists returned to Xultun. Eric von Euw of the Corpus of Maya Hieroglyphic Inscriptions project spent 10 days in 1974-75 mapping the site center and photographing and drawing the stelae (Von Euw 1978). During the late 1970s, however the Guatemalan civil war halted archaeology in the area and the site was very heavily looted (Graham and Von Euw 1984).

4.10 Current Archaeological Investigations at Xultun

The current era of archaeological work at Xultun began in 2008, under the direction of William Saturno and the Proyecto Arqueological Regional San Bartolo y Xultun (Urquizú and Saturno 2008). It is a multi-year, multi-phase project with excavations undertaken throughout the site, in order to gain a holistic understanding of the city. To date, projects have studied the political history of the site, diplomatic relations with other Maya sites, the Maya calendar and astronomy, ritual activities, use of the environment, and households (Romero and Saturno 2010; Rivera and Saturno 2012). Limited investigations began in 2008, including re-mapping the site with a total station, excavating a few test units, and cleaning out some looters' trenches (Urquizú and Saturno 2008). During the 2010 field season, more extensive excavating began throughout the site, which has continued in 2012. Because of the massive area covered by the site and

the dense occupation of the site center, these two field seasons represent only a small portion of the work that needs to be undertaken in order to understand Xultun (Rivera and Saturno 2012).

Mapping during the 2008 field season focused on re-mapping areas that Von Euw had covered in order to increase accuracy and to gather digital data points for computer mapping and digital reconstructions (Kaeding 2008). During the 2010 and 2012 field seasons, mapping by Jonathan Ruane filled in many gaps in Von Euw's map, providing a clearer picture of building density in the site center (Ruane 2010, 2012). Ruane (2012) has also extended the map beyond previous borders, allowing us to better understand the area covered by the city. Future field seasons will continue to expand the map to determine the extent of the site and the nature of its hinterlands.

4.11 The Layout of Xultun

Central Xultun is divided into a grid system of 200 meter square blocks, with letters (A-T) running north-south and numbers (1-20) west-east (Ruane 2010). The site center was originally divided into two main ritual areas around Plazas A and B (Morley 1937-38; Von Euw 1978)

Group A

Group A, to the south, comprises a large plaza surrounded by ritual and administrative buildings (Fig. 4.4). The northern edge of Plaza A is dominated by two ritual structures that appear to be large pyramids surmounted by temples, Str. 11J-3 and

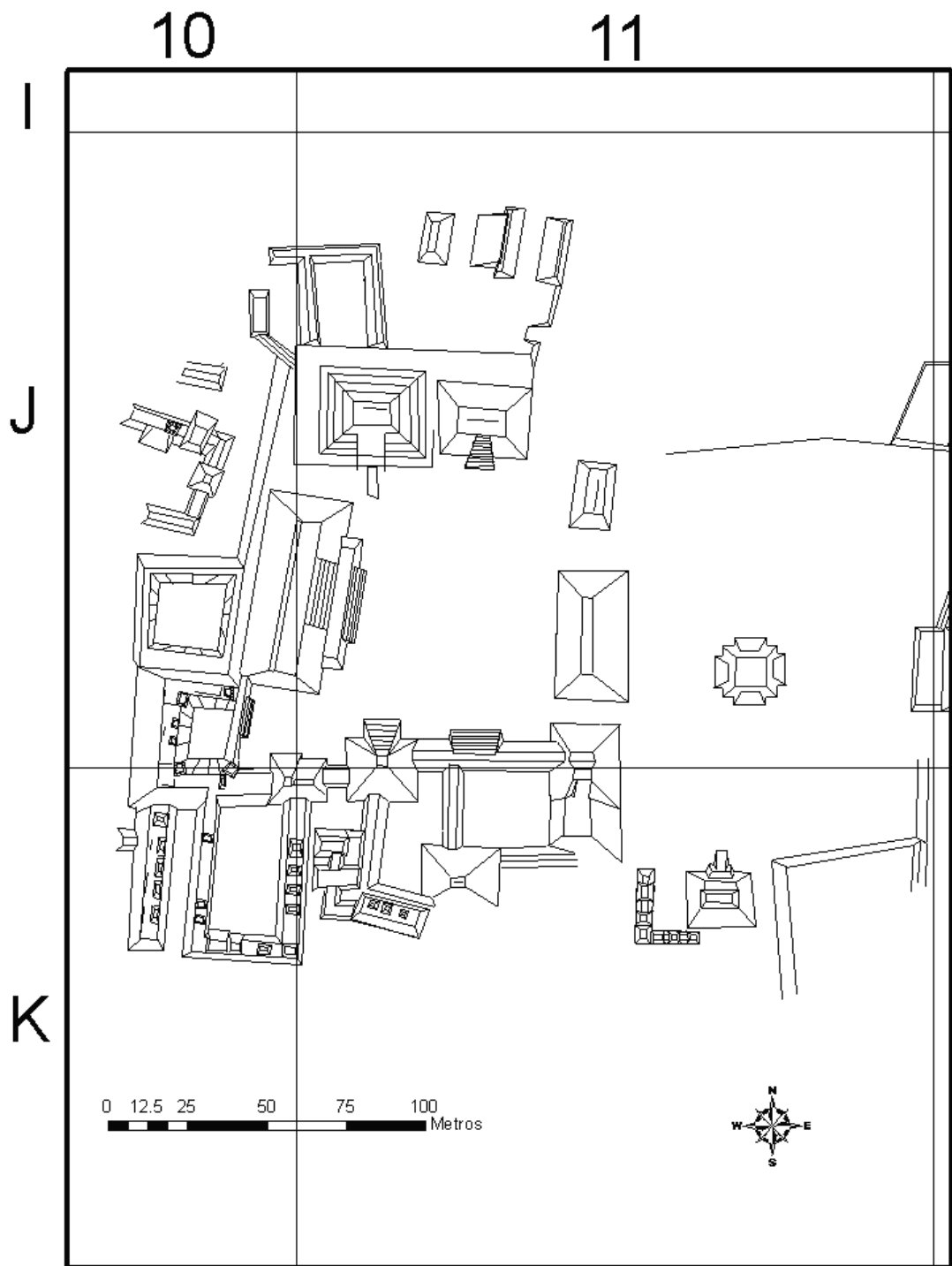


Figure 4.4. Map of Xultun, Group A (from Kaeding 2008:224)

11J-4. Str. 11J-3, the final phase of which likely dates to the Late Classic, is the tallest structure at the site, standing 30 m tall. Stelae 1 and 2, depicting leaders of Xultun, are located at the base of this structure (Morley 1937-38). Directly to the east of this is Str. 11J-4, the roofcomb of which is still partly intact. This roofcomb, which is in the form of a sun crest, is an iconographic element associated with Teotihuacán, suggesting a possible political connection with either that site or Tikal (Taube 2000). Occupying the entire west side of the plaza is the palace (Str. 11J-2), a massive structure 74 m long and 15 m tall. In front of this structure was Stela 10, looted between 1974 and 1975, which depicts the last known king of Xultun and displays the AD 889 date that gave Xultun its name (Morley 1920; Von Euw 1978). A raised area of range structures and earthen mounds defines the south side of Plaza A. This architectural group was built up over time, growing increasingly restricted (Casasola 2012). On the east side of Plaza A are two elevated range structures (11J-5 and 11J-6) that also have stelae in front of them. To the east of these structures is a smaller plaza with a radial pyramid in the center (11J-11). On the northern edge of Plaza A are a ballcourt and a large reservoir for collecting rainwater. Flanking these features are two *calzadas* (causeways) leading northeast to Plaza B (Ruane 2012).

Group B

Plaza B is the largest plaza at Xultun, covering over 2.2 hectares (Kaeding 2008) (Fig. 4.5). Dominating this plaza on the east side is Str. 12H-3, a radial pyramid resembling Mundo Perdido at Tikal (Laporte 1999; Laporte and Fialko 1995). Str. 12H-3



Figure 4.5. Map of Xultun, Group B (from Kaeding 2008:228)

measures more than 50 m per side, is 26 m tall and had two stairways leading up the east and west sides (Del Cid et al. 2012). In front of this pyramid are four stelae carved with standing figures and hieroglyphs (Morley 1937-38). A raised acropolis fills most of the west side of the plaza, while smaller structures form its southern edge. The north side of the plaza is defined by a sharp drop off of about 10 meters. As in Group A, the open space in Group B is divided into sections, possibly related to different functions, including markets, based on the organization of the architecture (Ruane 2012:441).

Residential Xultun

West of the central ritual areas are mostly residential areas with two reservoirs (Ruane 2010). Residential structures also continue to the south of Group A, which presumably served as housing for elites, based on the fine construction materials used and their proximity to central areas (Romero 2010). One such unassuming residential setting, the Los Sabios Group (Group 10K-2) was the site of a major find during the 2010 field season and is the subject of Boston University student Franco Rossi's dissertation (Rossi 2015; Rossi et al. 2015; Saturno et al. 2012c; Saturno et al. 2015). During survey, Boston University undergraduate student Max Chamberlin discovered a fragment of a mural, which upon further investigation was found to include a life-sized painting of a king and his courtiers as well as numerous calendrical notations (Saturno et al. 2012c). Associated with this mural were a bark beater for paper making, and several burials, including one that appears to be one of the courtiers depicted in the painting (Rossi 2012). The calendrical calculations on the walls show the first "Ring Number," used in calculating dates in the distant past, as well as calculations for the Mars cycle extending into the

future (Saturno et al. 2012c). Such important finds in what appeared to be an average elite dwelling suggest that there is much more to learn about the Maya court.

The Acropolis: Los Arboles

North of Group B is a large acropolis, Los Arboles, which dates to the Early Classic and appears to be an ancestral shrine (Fig. 4.6). This monumental pyramid platform measures 40 m north-south by 30 m east-west and stands 15 m tall (Rossi 2010). Los Arboles was built in four phases and is covered in iconography of the underworld and portraits of the rulers of Xultun (Saturno et al. 2012b). The initial structure, known as Bayal, was flamboyantly decorated with masks and friezes on its southern façade. Flanking the basal staircase of this building are two monumental masks, measuring over four meters tall, painted in white, black, orange and red, including the pigment specular hematite (Saturno et al. 2012b). These masks, which are symmetrical in form, have a base formed by the head of the Jaguar God of the Underworld, with his distinctive de-fleshed mandible. Sprouting from his skull is a large quatrefoil tree with the glyph “Wak (6) Sa’al” shown five times: on four limbs extending from the trunk, and at the crown of the tree (Saturno et al. 2012a). Surrounding this underworld scene is a skyband narrating the iconographic journey implied in the frieze. The journey to the top of the temple begins at ground level with the Jaguar God of the Underworld, moving up through the World Tree, and finally arriving at the heavens. According to David Stuart, the signpost “Wak Sa’al” is meant to name this structure as a mythic place in the cosmological layout of Xultun (in Saturno et al 2012a). At the Maya site of Naranjo, “sa’al” is the principal sign in their

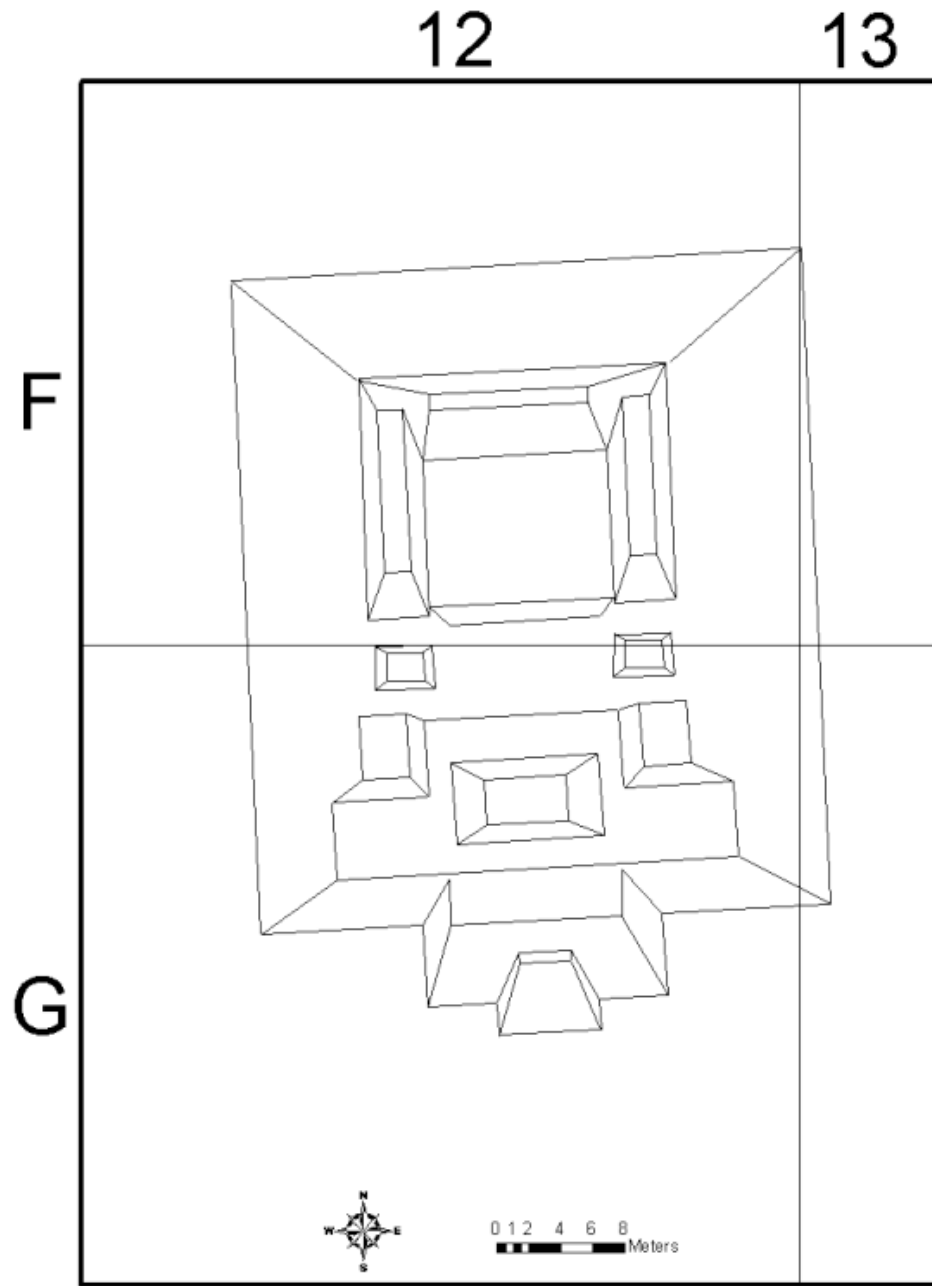


Figure 4.6. Los Arboles (Str. 12F-19) (Kaeding 2008:233)

emblem glyph and “Wak Sa’al” appears on Stela 45 there (Saturno et al. 2012a). Given the contemporaneity of Xultun and Naranjo, their long dynasties, and the characteristics of the Late Classic emblem glyph of Xultun, it is possible that these iconographic elements are important signs on the political landscape of the site (Saturno et al. 2012a).

Above the basal frieze, the structures Ramón and Corozal continue with underworld and sacrifice themed friezes, while Pimiento focuses on the historical and personal (Saturno et al. 2012a). Several masks depicting human faces are present that appear to represent deceased rulers of Xultun. Saturno (2012a) draws comparisons between the depictions of rulers here and those on the Popol Nah structure at Copan.

4.12 A History of Excavations at Los Aves (Group 12F-1)

Initial excavations at the architectural complex Los Aves (Fig. 4.7) began in 2008, the first excavations at Xultun since the Carnegie Institute’s visits (Simms 2008). Two test pits were excavated in residential areas of Los Aves, in addition to several others dug in Plazas A and B, with the goal of establishing a preliminary ceramic chronology (Simms 2008). The units in Los Aves produced only ceramic artifacts dating mostly to the Classic period, with some Late Preclassic fragments in the lower levels (Rivera 2010 personal communication; Wildt et al. 2010).

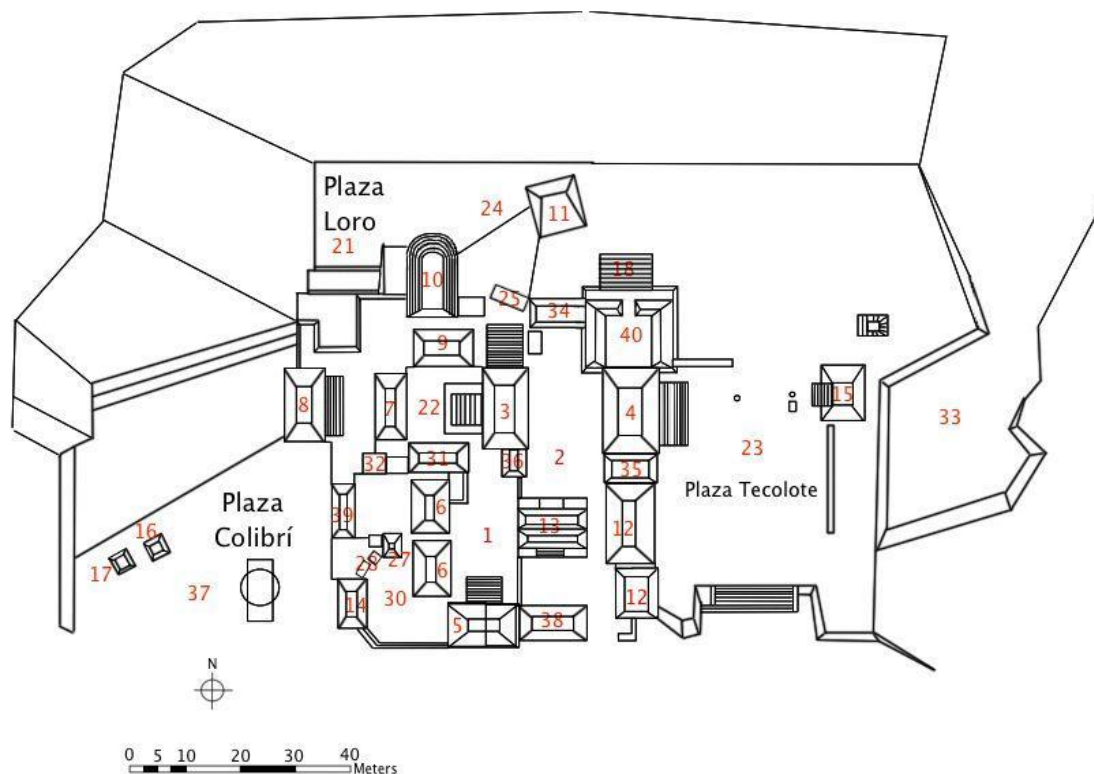


Figure 4.7. Map of Los Aves Group, showing Plazas Colibrí, Loro and Tecolote

During the 2010 field season, excavations in Los Aves were expanded with the goal of digging test pits in all patios and plazas in order to create a more complete ceramic chronology of the group and to understand how the group developed architecturally (Wildt et al. 2010) (Fig. 4.8). Artifacts recovered included both residential and ritual artifacts as well as important architectural features. Most excavations consisted of 1.5 meter square units dug in natural levels to the bedrock (with minor adjustments based on the terrain), however upon encountering the Round Structure in the Plaza

Colibrí, a series of connected units were dug in order to expose this architecture (Wildt et al. 2010).

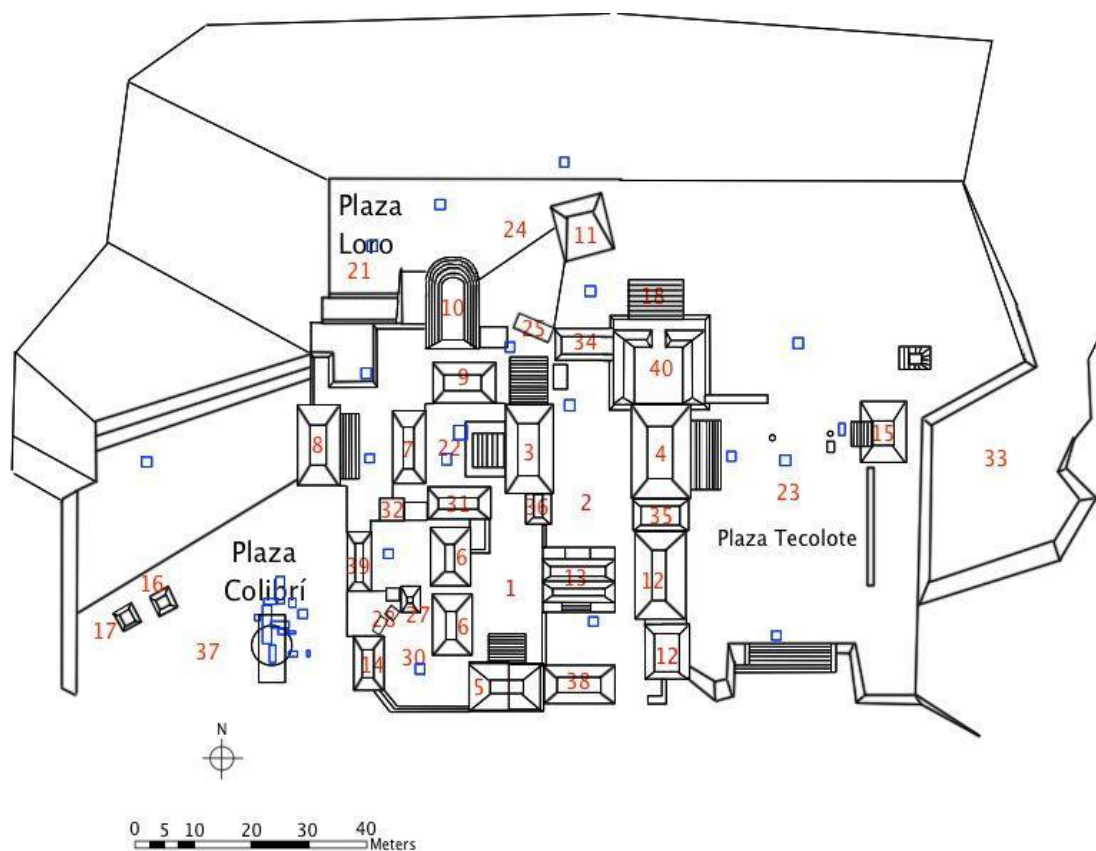


Figure 4.8. Map of Los Aves, showing 2010 excavations

In 2012, the focus of excavations shifted to understanding the plazas and the development of architecture (Cifuentes 2012; Wildt et al. 2012) (Fig. 4.9). Excavations were carried out within all plazas and on some surrounding buildings; looters' trenches were cleaned out, mapped and photographed. Few excavations were carried out within the residential area, but these proved to be some of the most informative of the season,

revealing important ceremonial architecture and architectural changes. Some features noted in previous years were investigated further, such as Structure 12F-5 and Patio 12F-22, yielding information about significant ritual structures and architecture. Additional architectural data in the form of notes, videos, narrations, drawings, maps and photographs were collected.

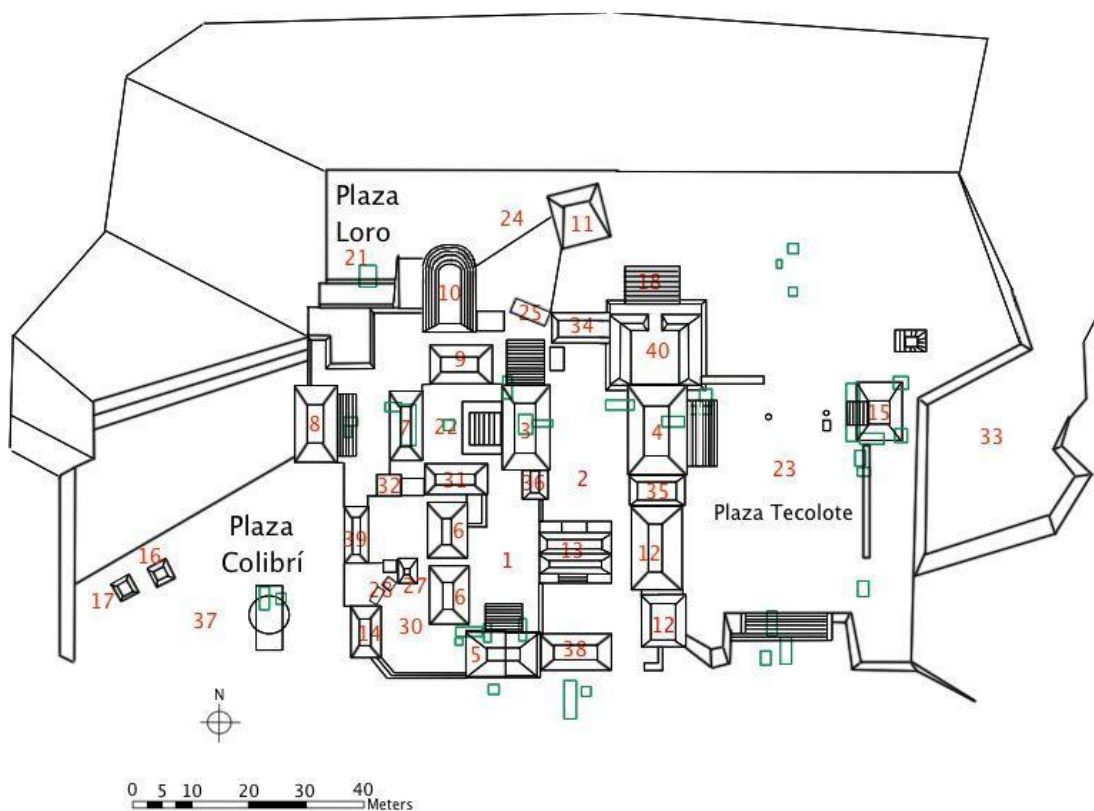


Figure 4.9. Map of Los Aves, showing 2012 excavations

4.13 Xultun's Los Aves Group (12F-1)

Los Aves is a residential and ritual architectural group located in the north of Xultun, approximately 50 m north of the ancestral shrine Los Arboles. Between the two

is a flat area in which two low platforms have been found, but with little other visible evidence of building on the surface. Los Aves sits on a gentle slope that descends to the north, in some parts cut down into the hillside, in other parts built up. The west side is defined by a sharp descent to a now-dry streambed, while the east is bordered by *canteras* (quarries) cut into the bedrock. There are other *canteras* to the north of this group, as well as a small house group, some range structures and a few other isolated mounds. Beyond this is the *bajo*, into which the stream flowed (Wildt et al. 2010).

The Central Patios Area

The residential core of this group consists of about 24 mounds, which were likely dwellings and administrative structures. Several of the mounds appear to have had masonry walls, now visible as collapse, and large limestone roof blocks are visible on four of the mounds, indicating that there were four structures with vaulted roofs. The structures were arranged around seven patios with plaster floors, access to which was further defined by walls and passages (Wildt et al. 2012).

The buildings in this area that were likely dwellings varied from large, elevated structures with masonry walls and vaulted roofs in the center of the group to small, structures for which only a stone footprint is visible, the superstructure having been built of perishable materials.

On the southern edge of the group is a ritual sweatbath, or *temazcal*, Los Sapos, decorated with underworld imagery. The structure was originally discovered in 2008 (Simms et al. 2008) and excavations in 2012 exposed its northern façade, leading Heather

Hurst to suggest that it might be a sweatbath (Hurst, personal communication 2012). Excavations during the 2014 season uncovered the firebox, proving its function (Clarke 2014). This sweatbath would have been used for purification rituals and may be part of a larger ritual practice (Clarke 2013). Another possible ritual structure (Str. 12F-13) sits in the adjacent patio, its visible architecture suggesting the presence an antechamber and porch, similar to those seen at Cerén (Brown and Sheets 2000; Wildt et al. 2012).

The patio groups on the western edge of the residential area are surrounded by the lowest and smallest structure mounds in the residential area. They appear to be somewhat peripheral to the core patios, and are also open to the south, accessible by a few steps down into Patio 12F-30.

In the center of the residential area, Patio 12F-22 is a large, raised patio, showing multiple building episodes with meters of fill. Str. 12F-3, on the east side, underwent at least four renovations, including filling rooms, closing doorways, and re-orienting the entry. Across Patio 12F-2 from Str. 12F-3 is Str. 12F-4, a large administrative structure with monumental staircases on its east and west sides. This building was open to both the interior patios and to Plaza Tecolote and was also significantly raised. Abutting Str. 12F-4 to the north is Str. 12F-40, an elevated compact patio group that seems not to have had access onto Patio 12F-2, but was only accessible by a substantial staircase on its northern side.

Plaza Tecolote

Plaza Tecolote, on the east side of Los Aves, measures 40 meters east-west by 42 meters north-south, bordered on the east by a limestone quarry. The ground slopes gently down to the north while to the south, a monumental staircase opens toward the ritual structure Los Arboles (Str. 12F-19). On the east side of the plaza is a small, undecorated ritual structure, Str. 12F-15, similar to a ritual building found at La Joyanca (Cifuentes 2012; Gamez 2008). Projecting south from this is a low wall, which may have been either a seating area or the base for a barrier made of wood. To the north of Str. 12F-15 is a small rectangular cut depression, which has not been excavated, but may have been a small ritual pool. The northern boundary of the plaza is a low, 10 m long wall that extends east-west from Str. 12F-40, which may again have served as seating or as the base of a taller, wooden wall. The south side of the plaza is formed by a monumental staircase 10 m wide and 4 m tall. This staircase leads south, up toward Str. 12F-19. The west side of the plaza is dominated by Str. 12F-4, a multi-phase, masonry building with a monumental staircase forming its east façade. There is no visible architecture in the interior of the plaza, but at the center of the north-south and east-west axes, there is a small, round stone that looks like an altar. In front of Str. 12F-15 are the shattered remains of what appear to be a stela and an altar, which were associated with a partial cache of 67 obsidian blades and over 1000 ceramic sherds.

Plaza Colibrí

The west portion of Los Aves is formed by Plaza Colibrí, which measures about 35 m east-west by 25 m north-south. The northern and western edges both descend down to a dry streambed, while the southern edge remains undefined due to the jungle. Two unexcavated, small mounds in the northwest corner may have ritual significance. Near the center of the plaza, below the current ground surface, a low, round platform measuring 6 m in diameter by 20 cm high was excavated, which was covered over by a plaster floor and then built over with a low, rectangular platform which was 4 m wide by 9 m long and 35 cm tall.

Plaza Loro

Plaza Loro is the northernmost, smallest plaza, measuring about 20 m east-west by 35 meters north-south and descending in levels to the northwest. The northern border is defined by a gentle slope down to the north, which grows steeper toward the western edge and descends sharply down to the dry streambed. The west façade of Str. 12F-10 faces this group and there appear to be doorways that open onto Plaza Loro, while the southern side of the plaza is open to Structures 12F-7 and 12F-8. The architectural form of Plaza Loro is defined by L-shaped levels carved into the limestone bedrock. These levels descend to frame a small sunken rectangle occupying the northwest portion of the plaza. Carved into the bedrock of this area are a looted *chultún* (a storage pit dug into the ground) and a small offering pit, which contained some ceramic sherds and crude chert hand axes in a *sascab* matrix.

4.14 Conclusion

This chapter has described the history of the ancient Maya and Xultun, to provide the background necessary to understand the growth of Los Aves. Xultun existed in the middle of a politically turbulent world and was an active player in regional politics. The rise of cities in the central Maya lowlands spurred the creation alliances and rivalries between polities. Interference by Teotihuacán had a profound influence on the region, both through political or military action and by providing an important long-distance trading partner. This involvement is visible in many aspects of the site, from layout to building styles to iconography. In the next chapter, I present details of the data and excavations at Los Aves that form the basis for this dissertation. Building on the introduction to archaeology given above, I review the public space and residential areas of Los Aves.

Chapter 5. Data

5.1 Introduction

In this chapter I present the data from excavations and surface surveys undertaken at Los Aves during the 2010 and 2012 field seasons. I discuss the methods that were used and explain why they were suitable for this project. Los Aves is a large architectural group, covering approximately 1.65 hectares, and necessitating a multivariate approach to the collection of data. It was essential to gather detailed information on some specific areas of the site, but it was also important to have basic information about all its aspects. To accomplish this, I undertook both excavations and surface survey, relying on a mix of the two throughout the site to create a balance of data in all areas.

The data are presented by area within the site in an attempt to holistically consider the classes of activities that may have taken place together. Within each section, I provide a brief overview of the layout of the area being discussed. I then describe the excavations and surface surveys that took place in each area to provide the reader with a context for the architectural discussion that follows. So as to present a cohesive interpretation of how Los Aves (Fig. 5.1) was built, I discuss architecture from initial construction episodes through to the final stages of each building or area, rather than by excavation unit. Where there are complicated sequences of construction, I consider buildings and patios individually.

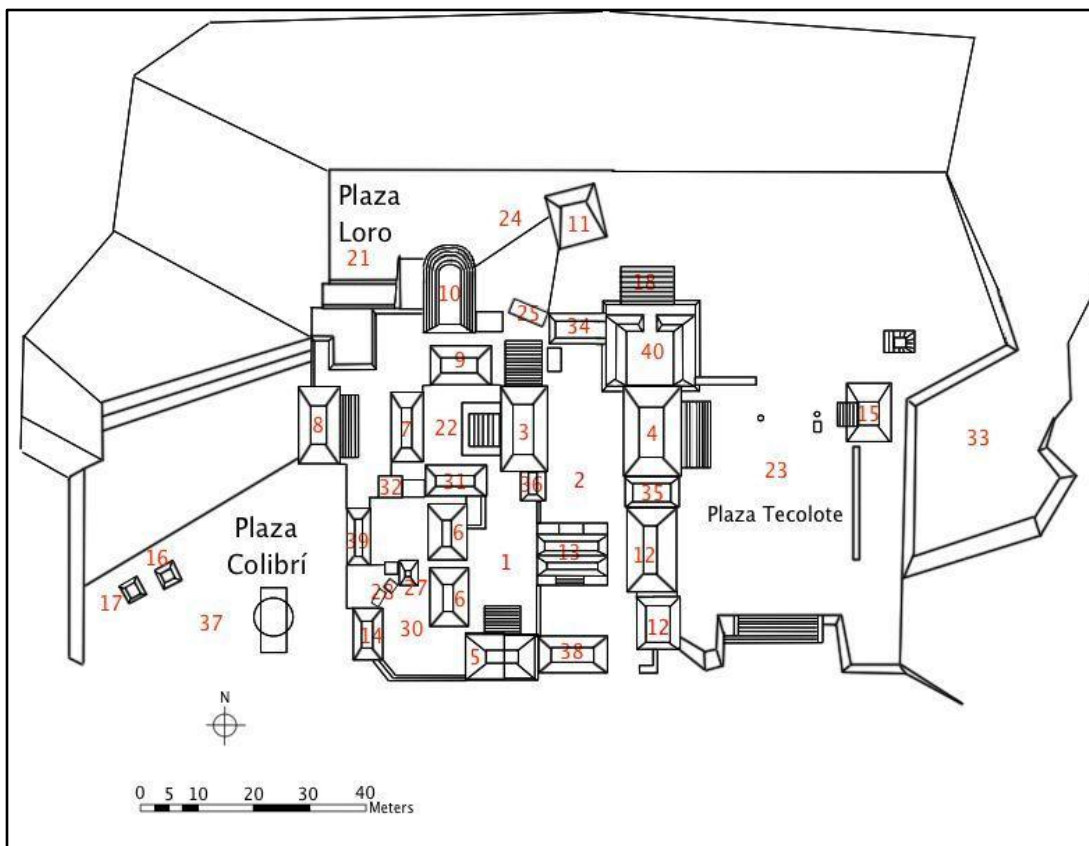


Figure 5.1. Group 12F-1, Los Aves, showing Late Classic structures

5.2 Introduction to Field Research

In 2010 and 2012, I directed excavations at Los Aves with a team consisting of Boston University semester abroad students, Guatemalan undergraduate students from the Universidad de San Carlos, Guatemalan archaeologists, experienced local excavators and local assistant excavators. The data for this project were collected mainly during the 2010 and 2012 field seasons, with preliminary test pitting having taken place in 2008 under the direction of Stephanie Simms. Data gathered include notes from excavations of patios, plazas and architecture, artifact types and counts, notes and observations from

surface surveys, photographs of excavations and surface features, and narrated videos of architectural features during surface surveys. I also make use of maps of Xultun made by Adam Kaeding (2008) and Jonathan Ruane (2010, 2012).

In 2008, Stephanie Simms excavated two units in Patios 1 and 2 in order to obtain a preliminary ceramic chronology (Simms 2008). This program of patio test pits continued in 2010, when I excavated in six of the patios and in all three plazas. In addition to finding diagnostic ceramic artifacts, these excavations revealed architectural sequences of households and ritual features in the plazas. In 2012, the focus shifted from chronology to architecture, exploring structures in the residential area and the three plazas, as well as cleaning out looters' trenches to document construction phases and building methods. Excavations continued in the 2014 field season under the direction of Mary Clarke (2014), concluding the study of the sweatbath (Str. 5); however at the time of writing, those results were not yet available and are not included in this analysis.

5.3 Nomenclature

The site of Xultun is divided into an arbitrary grid oriented cardinally with quadrants of measuring 200 m on a side. The grid lines are designated by numbers, running east-west and letters, running north-south. Excavations are named by the quadrant in which they are located (e.g. 12F), then the associated structure number and orientation to that structure (A = tunnels; B = north; C = west; D = south; E = east; F = center). They are then given unit numbers, which run sequentially within the quadrant, beginning with the excavations in 2008. In 2010, unit extensions were designated with

letters (e.g. 1, 1a, 1b), but in 2012 in accordance with a new project guideline, each extension was given its own unit number. Finally, levels were numbered, with the uppermost layer being level 1, increasing as units were dug deeper. Burials were numbered sequentially throughout the entire site of Xultun.

5.4 Excavation Methods and Recording

Excavations throughout Los Aves were conducted using methods conventional in the Maya region (Black 1990). Units were usually dug in natural layers down to bedrock, which is shallow in this part of Xultun. Masonry architecture was left in place, although plaster floors were removed. Sediment was screened through ¼” mesh screens and artifacts were separated by material. All artifacts found were collected, except ceramics smaller than 2 cm in diameter and chert flakes and cores (although points, hammers, blades, etc. were collected). Each level was given its own context sheet on which were recorded the measurements, a general description of the level’s context (e.g. humus, collapse, fill, floor, bedrock), soil/sediment texture, Munsell color, types and numbers of artifacts collected, drawings and photos taken and other observations. Photographs were taken at the completion of every level and plan views were drawn when necessary. At the close of every unit, a representative profile of the unit was drawn, with additional profiles drawn to highlight features. Depth measurements were taken at every level. In 2010, since excavations were generally in patios on flat surfaces we took measurements from each corner. In 2012, more excavations took place on architecture and were on inclines, so all depths were measured from a datum, usually located in the southeast corner. In

special cases, including burials, *chultúnes*, and looters' tunnels, we adapted excavation methods to fit the context. The *chultún* was excavated in quadrants, based on location and depth.

Dozens of looters' tunnels were found throughout the group and these provided important architectural details. Looting has had a devastating effect on archaeological sites throughout the Maya lowlands, but the examination of looters' trenches can allow archaeologists to observe building interiors with minimal excavation. Most looters' tunnels revealed walls, doorways and floors, giving information about building phases and orientations. They also formed the foundation for the most in-depth excavations, in Structures 4 and 5. Looters' tunnels were generally cleared out and expanded when needed, with sediment inside the structure screened and recorded separately from sediment outside the structure. These tunnels were then mapped in plan and profile. The author excavated and recorded all human remains and recorded data using Buikstra and Ubelaker's 1994 *Standards for Data Collection from Human Skeletal Remains*.

The standard size for excavations on flat ground in patios and plazas was 1.5 m². Patio and plaza excavations were intended to collect ceramics that we could use to expand our chronology of this area and to determine the architectural sequence of plaster floors. Depending on their proximity to architectural mounds, some of these units were covered in a lot of overburden, while those in plazas had almost none, thus the contexts of the first levels of dirt varied. Generally, Level 1 was a thin level of natural soil, covering alternating levels of floors and fill, although the uppermost floor had often completely deteriorated. Bedrock formed the bottoms of these units, sometimes covered

over with a dark layer of *bajo* mud. Some small masonry walls and steps were encountered within patio units, which were left in place. Artifacts found in these units hinted at the activities that took place in these spaces. Some units had concentrations of thousands of ceramic sherds and dozens of obsidian flakes, and appear to have been part of a ritual area. Others had fewer artifacts and more household goods, suggesting that they were regularly cleaned and used as domestic spaces.

The dimensions of architectural excavations varied based on the objective of that unit. Excavations on buildings were conducted to determine the architectural development, forms and features. Several looters' trenches dug into structures in Los Aves were cleaned out to better understand building sequences. Some of these were expanded, revealing more of the building interiors and facades. These units were full of looters' backfill covering construction fill and floors, which continued down to bedrock or masonry architecture.

5.5 Surface Survey Methods

Surface survey was a key part of recording the architecture of Los Aves. Throughout the season I conducted tours of the site, drawing structures and features, taking measurements, recording observations, photographing architectural features and narrating videos of architectural observations.

Despite covering such a large area, all of the flat areas and many of the structures within Los Aves were raked to remove sticks and leaf matter. The removal of debris from structures revealed architectural details, particularly stone placements, so that I could take

exact measurements. Machetes were used to clear the site of small plants that were deemed environmentally and economically expendable, but as this site is in the Maya Biosphere Reserve, no trees were cut. Seeing the plazas and patios clearer, closer to what they would have been in ancient times, made it easier to understand how the different spaces in this group might have affected people experiences of them. Additionally, cleaning these areas enabled me to take panoramic photographs of open spaces that are normally obscured by the jungle.

All of the buildings within Los Aves were investigated to record details such as construction methods, orientations, alignments and how they related to other buildings. Special attention was paid to identifying passageways between buildings which facilitated access from one area to another. Walk-through videos were made to recreate how the ancient Maya might have moved within the spaces. Photographs were taken of all the looters' trenches, highlighting visible architecture within.

5.6 Plaza Tecolote

The eastern part of Los Aves is formed by Plaza Tecolote, which measures 40 m east-west by about 42 m north-south. At the southern end, a monumental staircase cut into the hillside leads up out of the sunken plaza, providing access between this plaza and Los Arboles (Str. 12F-19), the large ancestral shrine to the south. The eastern edge of the plaza drops off a couple of meters into a quarry where limestone was cut for construction. Structure 15, a ritual structure, is located in the middle of this side, with a crumbled altar

and stela in front of its western façade. There is a rectangular depression cut into the bedrock about 10 m to its north-northeast.

Along the western side of Plaza Tecolote, Structures 12, 35, 4, 40 and 18 form a row separating the plaza from the Central Patios Area. Structure 4, which dominates this side of the plaza, sits directly across from Structure 15, and between them, along the north-south axis of the plaza is a small, broken, round altar. The northern limit of the plaza floor is probably in line with Structure 18.

5.6.1 Excavations

Structures around the edges of Plaza Tecolote were extensively investigated and the floor of the plaza was also tested to shed light on its development. Since the 2010 field season focused on determining the ceramic chronology, those units were excavated in the plaza floor. Along the central axis of the plaza, Unit 9 was located at the southern end of the plaza, just north of the monumental staircase. Units 10 and 11 were placed in the middle of the plaza and Unit 21 was directly in front of Structure 4. Unit 22 was situated in front of Structure 15, between the structure and the shattered altar, to see if offerings were deposited there.

In 2012, attention shifted from the plaza floor to the architecture surrounding Plaza Tecolote. The southern staircase (Units 38, 42, 53, 54) and the higher ground surface at the top of the stairs (Units 31, 32, 33, 35, 37, 59) were extensively investigated to ascertain their construction methods and to establish if there was any processional architecture to the south of the plaza. Structure 15 was excavated to shed light on its form

and construction sequence (Units 45, 47, 49, 56, 57, 61, 64, 66, 67, 68, 81) and to determine how the plaza was delimited on this side (Units 69, 70, 77, 78). Structure 15 is the only sizeable structure in Los Aves not to have been looted, perhaps because of its isolated position in the east of Plaza Tecolote. It was extensively excavated and recorded by Rosalba Yasmin Cifuentes Arguello (2012), to determine the size and form of the structure.

The central structure on the western side of the plaza, Structure 4, was examined through the cleaning of a large looters' trench (Units 46, 65) and the excavation of its staircase (Units 48, 50, 52, 55, 58). Additionally, three more units were excavated in the northern part of the plaza floor to determine the dimensions of the plaza (Units 39, 40, 71).

5.6.2 Surface Survey

Surface survey was important for understanding the borders of Plaza Tecolote. The shape of the plaza was investigated by studying the axes of the plaza, the monumental staircases and the low walls along the edges. Architectural features of the structures on the borders of the plaza were noted, along with how they related to the plaza. A depression to the north-northeast of Structure 15 was recorded.

5.6.3 Architecture Viewed through Excavation Data and Surface Survey

Plaza Tecolote was carved down into the hillside at its southern end, with a monumental staircase leading up out of the plaza. The natural terrain descends gently to

the north, where the bedrock was built up with rocky fill to extend the level surface. In the south of the plaza much of the plaster floor was laid down directly on top of the bedrock or with only a thin layer of fill beneath.

A monumental staircase 10 m wide and 4 m tall, with seven steps, dominates the southern end of the plaza. The foundation of the staircase was carved into the hillside, but it appears that most of the steps were made from shaped limestone blocks. The staircase was flanked by thin, cut stone, stepped balustrades. Just beyond the balustrades, even with the 5th step, the hillside was cut down at a 45-degree angle to meet the plaza. On the west side, there is a low pile of rubble on top of this area, which may have supported a low platform or structure. To the west of the rubble, an indentation 2 m wide by 2 m south was cut into the hillside before projecting out again. The top two steps of the staircase extend all the way to the edge of the platform on the west. At the top of the stairs to the south of Plaza Tecolote there was a plaster floor and a line of cut stones that were covered over with rocky fill and another floor. The line of stones runs east-west, but appeared to be oriented slightly to the west of the axis of Plaza Tecolote.

At the southeast corner of Structure 12, facing onto Plaza Tecolote, there appears to be an isolated, small room with access into the plaza. Visible low limestone walls suggest that if the room were enclosed, it would have had a wattle-and-daub superstructure. The interior of this room measures 2 m north-south by 1 m east-west and a 50 cm wide gap in the east wall was probably a doorway leading into Plaza Tecolote. This small room does not sit on the platform with the rest of Structure 12.

Structure 4

Structure 4, on the west side of the plaza, measures about 13 m east-west by 16 m north south and is fronted by a monumental stairway, measuring 8 m wide (north-south). The architecture of this structure is not well understood, but excavations have enabled us to make some general conclusions about several phases. Structure 4 was built on bedrock that rose up above the level of the plaza floor, taking advantage of this to gain height. The initial floor was built about 20 cm above the bedrock, with dark gray (5Y 4/1) fill used to level the area.

The succeeding observable construction drastically increased the size of the building. Several different retention walls and levels of organized fill were laid down in order to provide stability for the building.

The next visible exterior architecture is a landing 2.80 m above the level of the initial floor that consists of a well-prepared stucco floor, measuring 16 cm thick. The poor state of preservation of this building prevents me from drawing conclusions about its façade at this point in its development, whether it had been comprised of a staircase or shaped into terraces.

This floor was covered over as part of a construction event which incorporated a burial. A hole measuring approximately 1.50 m east-west by at least 1.75 m north-south was cut into the landing, about 2 m from the eastern edge. Within this pit a cyst tomb was constructed, with large limestone slabs forming its east wall and its top. The Maya then covered over the tomb with layers of rocks and dirt fill and a thin layer of chert flakes,

which was all sealed under a thick plaster floor about 20 cm above the initial floor. The new floor ended 1 m short of the edge of the initial landing, forming a low step.

Eventually, a room with masonry walls running north-south was built about 65 cm above this higher floor with a landing on its east side overlooking the plaza. The final stage of architecture visible on the east façade of Structure 4 was a monumental stairway made up of large limestone blocks, some measuring over 110 cm long. While most of the stairs were laid with the limestone strata running horizontally as usual, the first step was laid with its strata running vertically, in order to offer greater support to the stairs above (Gendrop 1997).

To the north of Structure 4, projecting out to the east from Structure 40, is a low masonry wall 10 m long, by 80 cm wide, and protruding 20 cm above the modern-day ground surface. This seems to indicate a northern boundary for Plaza Tecolote, blocking Structure 40 from access.

Structure 15

Structure 15 (Fig. 5.2, 5.3), a pyramid platform, sits alone on the east side of Plaza Tecolote and was excavated during the 2012 field season by Yasmin Cifuentes Arguello. It measures 9.4 m east-west by 10.2 m north-south and is 1.7 m tall, with a 7 m wide stairway projecting out from its western façade (Cifuentes 2012). As part of the preparation for the building, the bedrock on its western side was built up with dirt fill paved over with limestone slabs. Where the bedrock was shallower, it was leveled and the structure was built directly on top. An offering of 67 obsidian blades and over 1,000

ceramic sherds dating to the Late Classic period was deposited in front of the staircase (Fig. 5.4) (Rivera Castillo 2012; Wildt et al. 2010). Over this, an altar was placed, and a stela was installed a meter to the south, which have since become rubble. Two round stones sit on the surface of the structure along the east-west axis, one at the base of the stairs and in the other in the middle of the staircase. These stones, which measure about 40 cm in diameter, are also aligned with an altar in the middle of Plaza Tecolote.

Structure 15 has inset corners on the west side where the four-step stairway meets the façade, which consists of two terraces. This building appears to have been built in one episode with no further construction episodes. There is no evidence that Structure 15 had a superstructure on top of its platform.

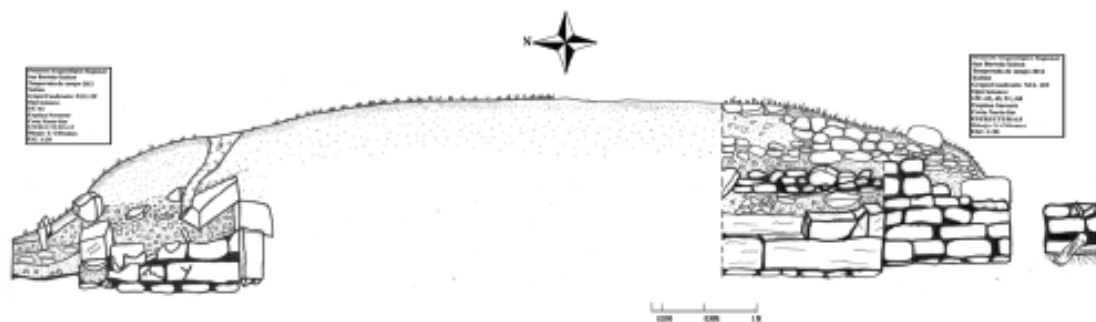


Figure 5.3. Structure 15, North-South axis with profile illustrations of excavations, by Rosalba Yasmin Cifuentes Arguello 2012

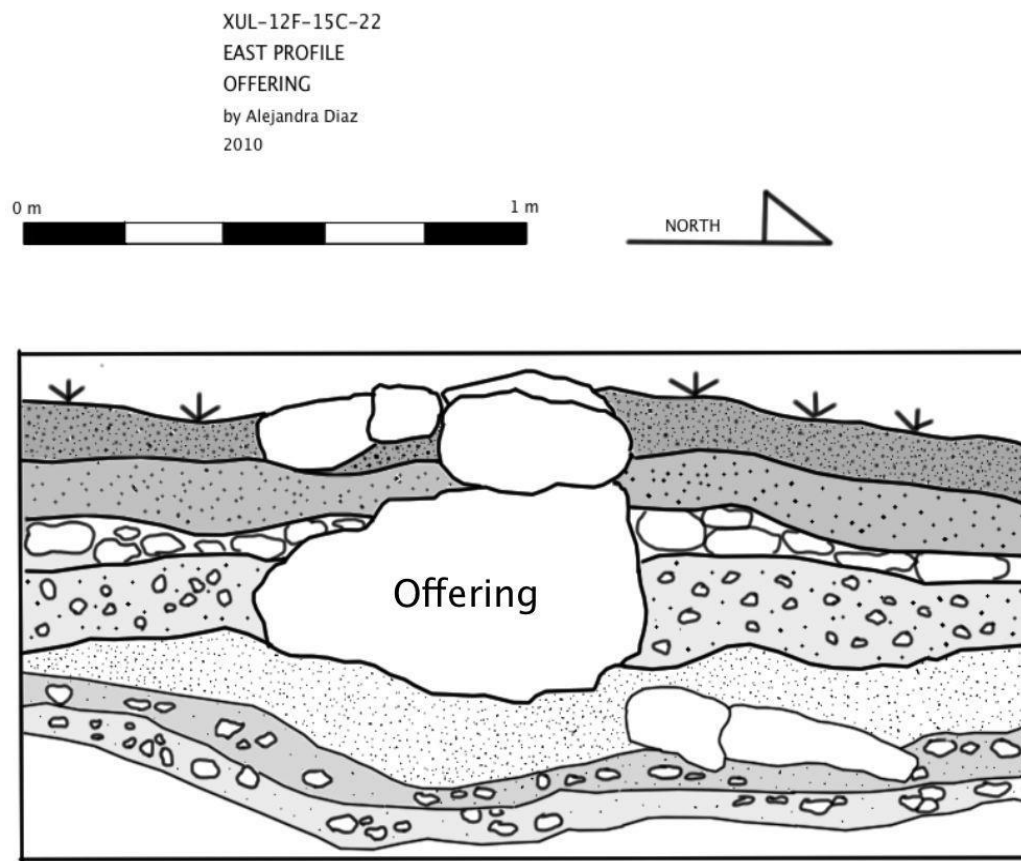


Figure 5.4. XUL-12F-15C-22 East Profile. Levels of sediment with large area of ceramics offering in the middle of drawing, surrounded in Level 3 by limestone paving

Fifty cm to the south of Structure 15, there is a low, cut-stone wall that runs north-south along the eastern edge of Plaza Tecolote. This wall, which resembles the wall on the north side of the plaza, stands 80 cm tall by 60 cm wide. It extends at least 8.40 m to the south, and possibly as far as 25 m.

At the end of the life-use of Structure 15, a 30 cm coating of ash was deposited along its south side, along with a variety of artifacts including polychrome and bichrome

ceramics, some with the “Ik” sign, a fragment of green obsidian, chert points, a granite grinding stone, a worked bone, ceramic figurines in zoomorphic shapes, and ceramic whistles, including an intact owl and an example shaped like a human head.

About 10 m north-northeast of Structure 15 in the corner of Plaza Tecolote, there is a rectangular depression cut into the bedrock, measuring 5 m north-south by 8.65 m east-west and at least 1 m deep.

5.7 Plaza Colibrí

The western portion of Los Aves is formed by Plaza Colibrí, which abuts the Central Patios Area on its east side. The plaza is trapezoidal in shape, with the northern edge running diagonally northeast-southwest, and it measures approximately 35 m east-west by 25 m north-south. The little surface architecture remaining in this plaza consists of two small rubble mounds in the northwest corner (Structures 16 and 17), both of which measure about 2 m by 2 m and appear to be oriented to 325 degrees.

The western border of Plaza Colibrí consists of two steps down, the lower step being about 1 m wide. A few meters further west is an open, round *chultún* 2 m in diameter. This lower border continues around to the northwest edge of the plaza, where it extends out 3 or 4 m and then descends more steeply. The northern and western edges then descend to a now-dry streambed that forms the western edge of Los Aves.

Plaza Colibrí is separated from the residential area to its east by Structure 14, Patio 30-W and Structure 39. Structure 14 forms the southern end of the east side of Plaza Colibrí and there is a line of stones forming a rectangle visible on the ground that

juts out of the middle of Structure 14 toward the plaza. Between Patio 30-W and Plaza Colibrí there is a line of rocks visible on the surface that may have supported a wall, separating the two areas. To the north of this, Structure 39 sits almost flush with the ground, with a low footprint of cut limestone blocks.

Although there is no clear southern border to Plaza Colibrí, the ground does seem to rise slightly, a few meters to the south of where Patio 30-S ends. There are also a few limestone rocks in the brush there that may have had architectural significance.

5.7.1 Excavations

During the 2010 field season, 19 excavation units were opened within this plaza, and one unit was excavated just outside of the plaza on its northern slope. During the 2012 field season, part of the 2010 excavation area over the Round Structure was re-opened in order to explore the possibility of sub-floor features that are common to such structures (e.g. Aimers et al. 2000; Hendon 2000).

Excavations in Plaza Colibrí encountered the Round Structure almost immediately and for the rest of the season, we focused on defining the architecture of the Round Structure and the Rectangular Structure in the middle of the plaza (Fig. 5.5). The Round Structure was initially encountered in Unit 17, which was expanded to the north and south in order to uncover more of the Round Structure. This resulted in a trench that extended over an area of 13.20 m north-south by 6.80 m east to west. The trench consisted of three parts, a main north-south trench, off of which were an eastern extension and a further northern trench. The northern trench, which looked for the

northern edges of the Round and Rectangular Structures, measured 3 m north-south by 1 m east-west (Units 24, 24A, 24B). To the west of Unit 24B, Unit 17H connected the northern trench to the main trench (17, 17A, 17B, 17C, 17D, 17E, 17F, 17G). The eastern extension was excavated to find the southern border of the Round Structure and extended further to the east to locate the east wall of the Rectangular Structure (Units 23, 23A, 23B, 23C). The other units in the plaza (25, 26, 26A, 27 and 28) were strategically placed to the east of the trench to find architectural features that would enable me to accurately establish the dimensions of the Round and Rectangular Structures. Unit 20 was excavated on the northern slope of Plaza Colibrí, in order to determine the plaza boundaries and surrounding architecture and topography.

During the 2012 field season, Units 17, 17A, 17C, 23, 23A and 23B were reopened and the 2010 backfill above the Round and Rectangular Structure was removed. These units were then excavated down to bedrock so that the interior of the Round Structure could be investigated to look for caches, offerings and burials.

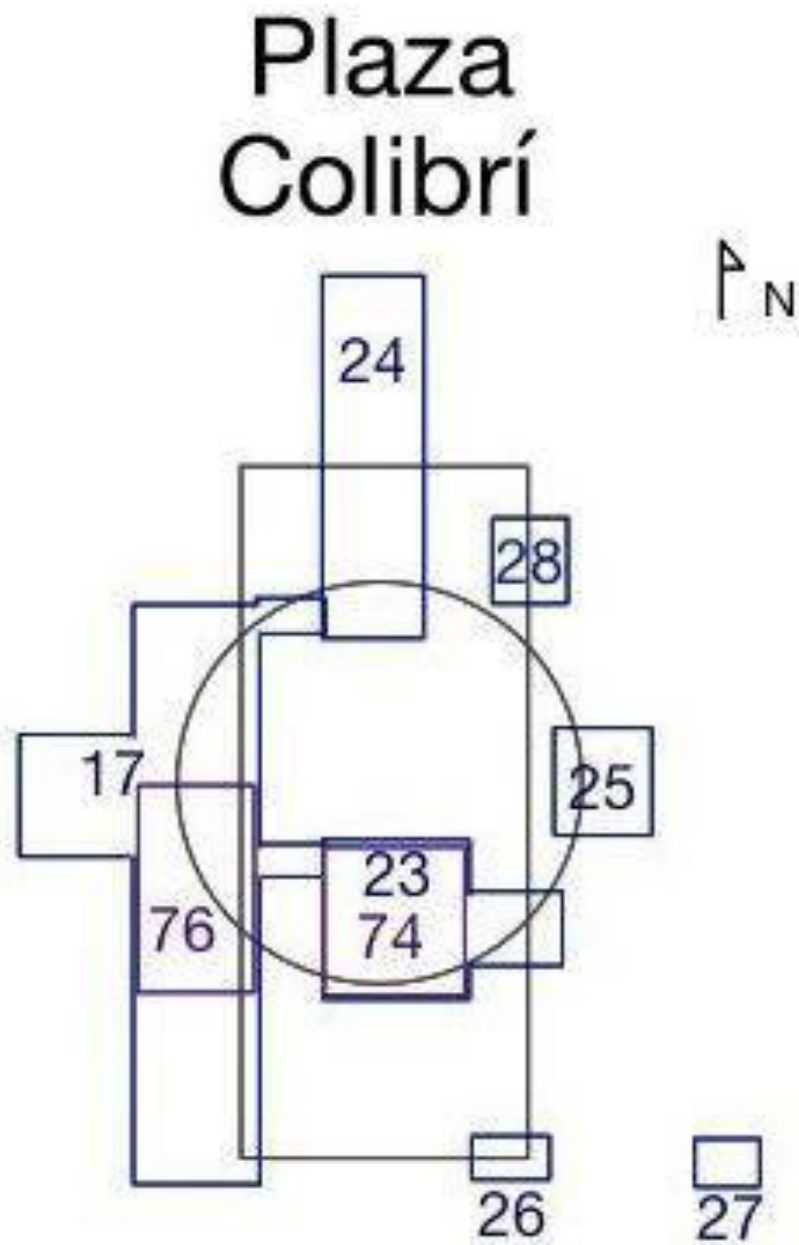


Figure 5.5. excavations in Plaza Colibrí, with outlines of Round and Rectangular structures in black

5.7.2 Surface Survey

Plaza Colibrí had little visible architecture, so the surface survey focused mainly on defining the borders of the plaza and understanding its relationship with surrounding areas. The two small shrines in the northwest were also measured and observed. They appeared almost identical, both standing under a meter tall and about two meters square. They appeared to be in line with the northwest boundary of the site, about 30 degrees to the west of north.

5.7.3 Discussion of Architecture Based on Excavation Data and Surface Survey

Construction Episode 1:

Unlike Plazas Loro and Tecolote, the bedrock underlying Plaza Colibrí was not leveled. On top of this, an initial layer of compact, dark gray (10YR 4/1) fill with small limestone rocks was laid down to create a flat surface. Concentrations of ceramics were found where the ground was deeper, but no evidence of specially prepared pits was observed.

The initial building here was of a low Round Structure (Fig. 5.6, 5.7, 5.8) in the middle of the plaza and a floor extending out from the base of the structure. The exterior wall of the Round Structure measures 6.9 m east-west in diameter and stands one course high, about 15-20 cm. The wall is composed of roughly shaped limestone blocks approximately 15 cm wide by 30 cm long by 15 cm tall. The fill inside the Round Structure was made up of chert nodules, which was capped by a 4 cm thick layer of plaster that covered the entire structure.

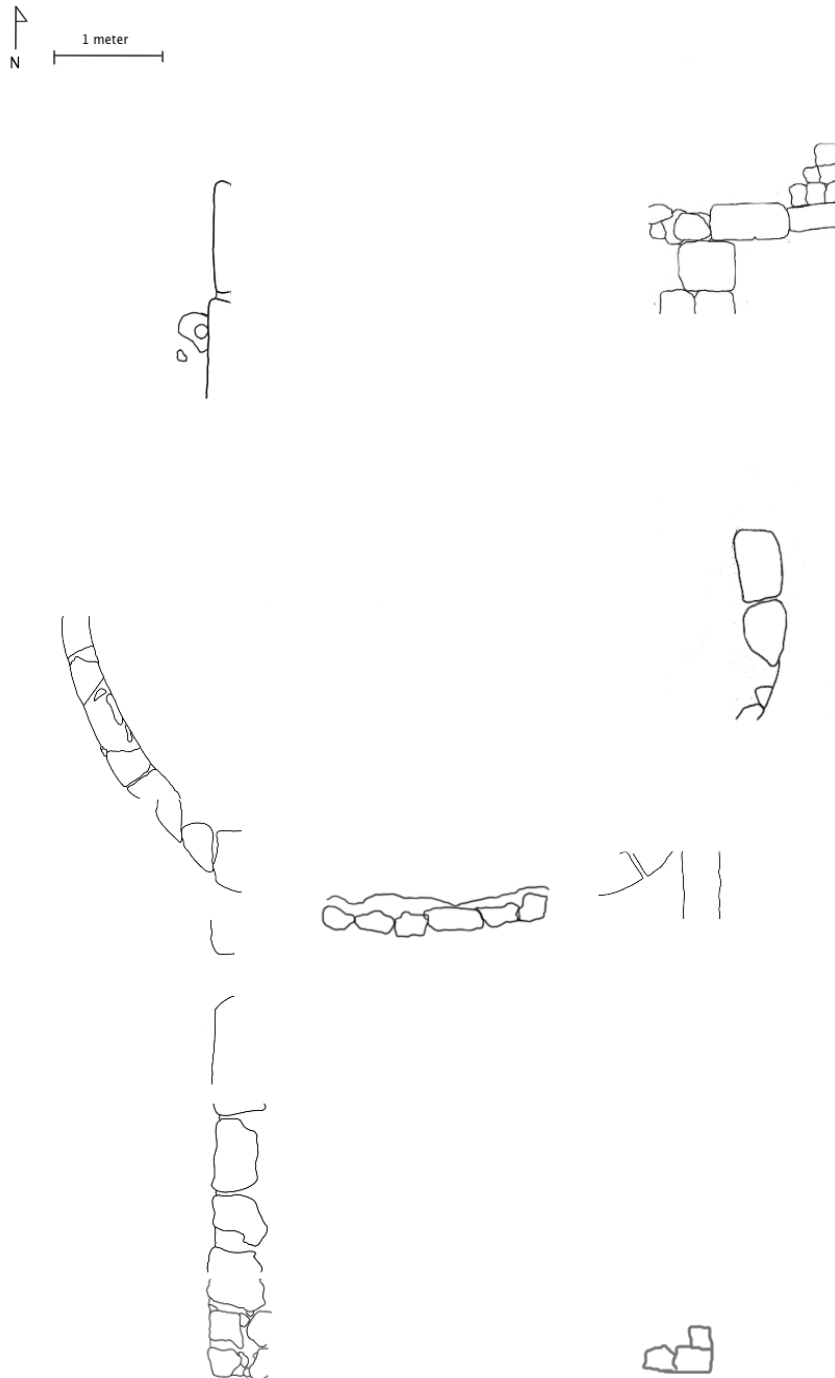


Figure 5.6. Plan view drawings of excavated areas of the Round and Rectangular Structures

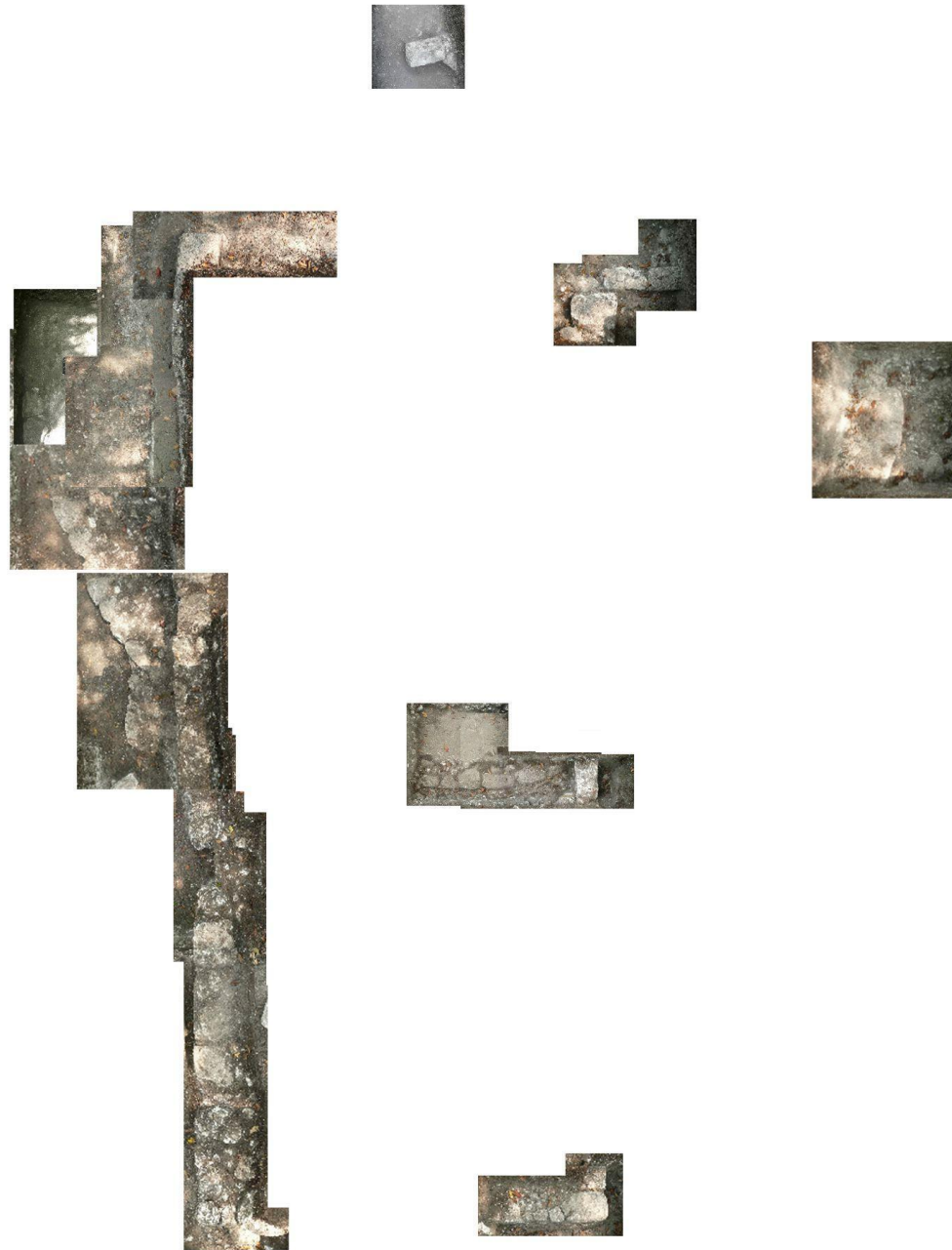


Figure 5.7. Plan views of excavations of Round and Rectangular Structures in Plaza Colibrí

Construction Episode 2:

At the end of its life use, the Round Structure was partially dismantled with the stones that formed the northern half of its exterior wall removed. The holes left in the wall were filled in with a layer of small limestone rocks. Around the Round Structure, brown (10YR 3/2) sediment and larger limestone rocks, measuring up to 50 cm on a side, were placed on top of the floor, building this area up the level of the exterior wall of the Round Structure. This was then covered by a plaster floor, which met the edges of the Round Structure, creating a level floor surface.

Construction Episode 3:

Either at this point or during Construction Episode 4, the plaster surface covering the wall of the southern half of the Round Structure was chipped away, exposing the limestone rocks that formed its outline. That activity notwithstanding, on top of the plaster floor from Construction Episode 2, a fill of many small limestone rocks and gray (10YR 6/1) sediment was laid down and covered over with another plaster floor, about 3 cm thick.

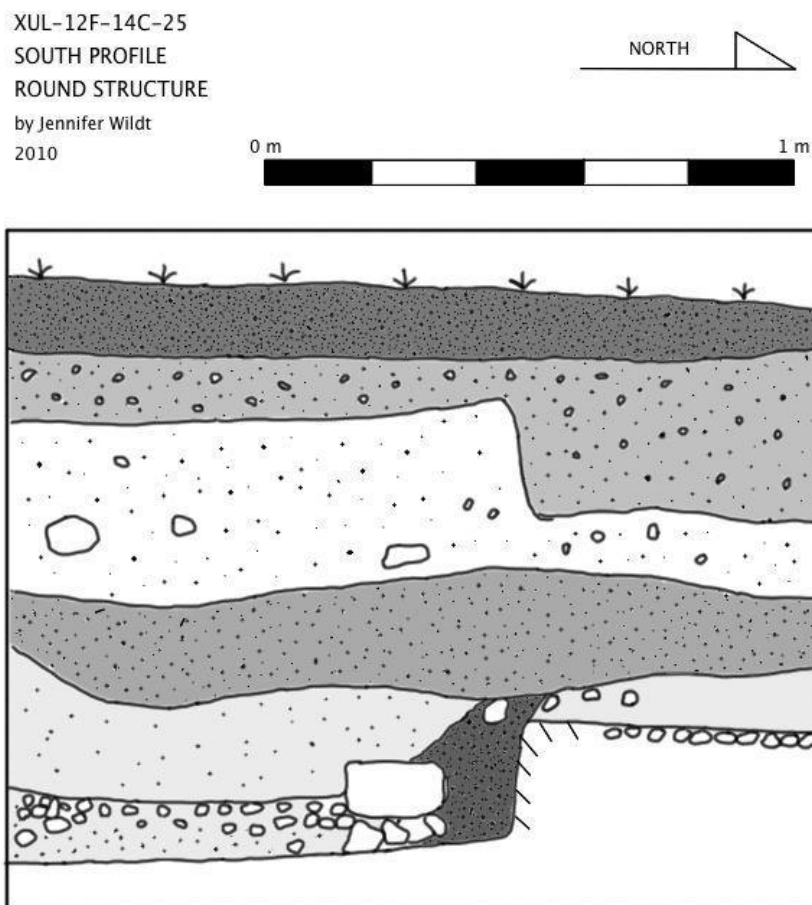


Figure 5.8 XUL-12F-14C-25, south profile, showing eastern edge of Round Structure at bottom right. The cut down in Level 2 was related to uncovering the Rectangular Structure after it was built over.

Construction Episode 4:

Just to the south of the Round Structure the plaster floor in Construction Episode 3 was cut and removed along with the fill covering the Round Structure. No evidence of this floor was found anywhere to the north of that line, suggesting that the inhabitants did

not uncover only the Round Structure, but that they also lowered the level of the entire northern part of the plaza.

The builders then laid down a thin layer of grayish brown (2.5Y 5/2) sediment over the Round Structure to build up this area to the level of the cut floor. Centered on the Round Structure, sitting on top of the dirt fill and cut floor, they built a Rectangular Structure measuring 4.0 m east-west by 11.9 m north-south. This structure had exterior walls made of one course of well-cut rectangular limestone blocks, measuring up to 80 cm long, 30 cm wide and 25 cm tall. The fill inside this building consisted of densely packed, small to medium-sized limestone rocks, and the structure was probably covered by a layer of plaster, although none of it remains. The dirt fill supporting the northern portion of the Rectangular Structure was less solid than the cut floor underlying the southern portion, resulting in the northern part of the building currently being 20 cm lower than the southern part.

Construction Episode 5:

As with the Round Structure, when the life-use of the Rectangular Structure was over, it was partly dismantled, and its northern wall and the northern ends of the west and east walls were removed (Fig. 5.9). The plaza around the Rectangular Structure was built up with limestone rocks and dark grayish brown (10YR 4/2) sediment and covered over with a plaster floor, creating a flat, open area.

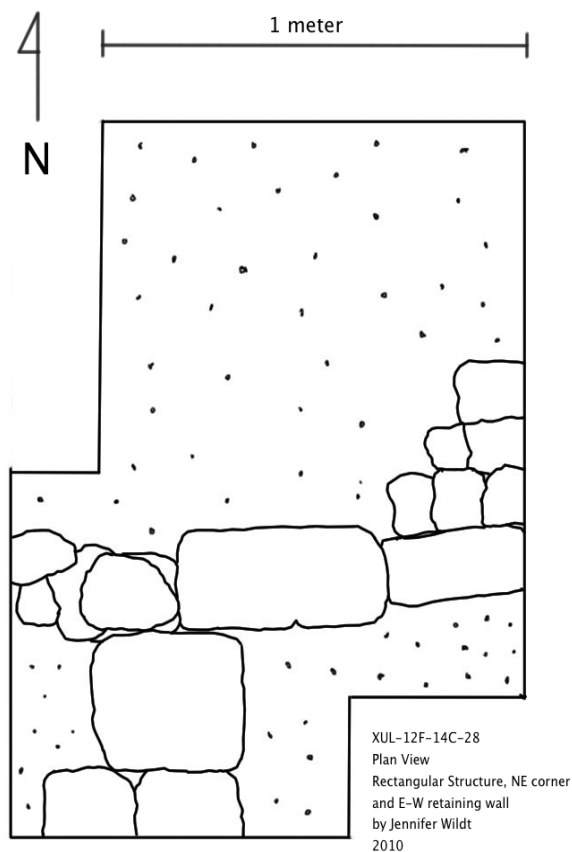


Figure 5.9. XUL-12F-14C-28, plan view of the northeast corner of the Rectangular Structure with an east-west retaining wall built after the Structure was dismantled

Construction Episode 6:

Eventually, this plaza was built over again. To prepare the site, the Maya chipped away the plaster covering the outline of the extant walls of the Rectangular Structure (Fig. 5.8). They filled in the outline and placed an additional layer of dark brown (10YR 4/2) fill over the Rectangular Structure. This was then covered with a plaster floor, creating the final, flat appearance of the plaza floor.

5.8 Plaza Loro

Located in the northwest corner of Los Aves, Plaza Loro is the smallest of the three plazas, measuring 40 m north-south by 20 m east-west (Fig. 10). While the other plazas in this group feature large flat areas, Plaza Loro is divided between a sunken flat area in the northwest corner and two broad steps on the south side descending down to it. Along the eastern edge, a ramp leading up towards the south links the sunken area to the broad steps and the higher southern edge of the plaza.



Figure 5.10 Excavations in Plaza Loro

A steep slope leading down to the dry streambed defines the western edge of this plaza, with a gentler slope down forming the northern border. Structure 10 abuts the plaza on the east side and to the south, at the top of the broad steps, Structures 7 and 8 form a boundary. Along the higher, southern edge of Plaza Loro, there is a small step up to the south. At the edge of this step, there is a rectangular cut from the lower level jutting into the higher step, creating a small, sunken, rectangular area, centered on the north-south axis of the plaza.

5.8.1 Excavations

Three units were excavated within Plaza Loro; in 2010, excavations were opened in the center (Unit 14) of the sunken area and at the southern end (Unit 12) of the plaza, within the indentation at the interface of the lower and higher steps. During the 2012 field season, a *chultún* to the south of Unit 14 was investigated (Unit 60). A small, rounded opening on the northern side leads down into the chultun, which is round, measuring 2.5 m north-south by 3.4 m east-west with a domed ceiling 1.80 m tall. The present ground level is 3.15 m above the lower *chultún* floor.

5.8.2 Surface Survey

Surface survey in Plaza Loro concentrated on understanding the levels of bedrock and how these would have affected plaza activities. All visible changes in elevation were noted, particularly the steps in the plaza and how the ramp on the east side related to

them. Structure 10, to the east, was intensively surveyed to shed light on both its shape and its interface with Plaza Loro and the North Area.

5.8.3 Architecture Viewed through Excavation Data and Surface Survey

Plaza Loro descends in four levels from south to north. The southernmost part of the plaza abuts Structures 7 and 8 with no observable walls between them. Three meters north of these structures, the floor descends one step, with a rectangular indentation jutting into the middle of the higher step. The edge of this step is formed with limestone blocks on the west and south sides. Another 4 m to the north is the first level that is carved down into the bedrock, descending 1.5 m and forming a mezzanine 1.5 m wide before descending another 1.5 m to the flat, rectangular area in the northwest. A long slope 2 m wide runs along the east side of the plaza next to Structure 10, with a step down every few meters. By the time it reaches the northern end of Structure 10, this slope is at the same level as the plaza.

The rectangular, sunken area that makes up the northwest of Plaza Loro was cut down into the hillside and leveled out by the residents to create a smooth surface. The bedrock was covered over with a thin layer of grayish brown (10YR 5/2) fine silt and then before a level of specially prepared fill of even finer grayish brown (10YR 5/2) silt with inclusions of ceramic sherds was laid down.

In the center of this area, the ancient Maya carved two cavities into the bedrock. A small pit, measuring 59 cm north-south by 80 cm east-west and 51 cm deep was hollowed out as part of the initial construction of the plaza. At the bottom of this pit was

a level of light grayish brown (10YR 6/2) *sascab*, about 10 cm deep, which contained artifacts dating to the Late Classic period, including 39 ceramic sherds, a grinding stone, some pieces of stucco and some rough stone tools (Rivera Castillo 2012; Wildt et al. 2010). In the 25 cm above this, the pit was divided between light grayish brown (10YR 6/2) *sascab* on the west side and grayish brown (10YR 5/2) fine silt on the east side. The fine silt then covered over the *sascab* and continued another 15 cm to the surface of the bedrock, where it joined the level of grayish brown (10YR 5/2) fine silt covering the plaza floor. Within the silty portion of the pit, 17 sherds and a piece of carbon were found.

About 5 m to the south of this offering pit was a *chultún*, also dug into the bedrock. This *chultún* consisted of a small, domed room with a higher, circular entryway leading up through the bedrock to the surface. There were two levels of dirt found within the *chultún*. Covering the floor of the domed room was grayish brown (10YR 5/2) fine silt, ranging from 15 cm to 45 cm deep. It had little organic matter, but contained a variety of household artifacts, including ceramic sherds, fragments of manos and metates, chert implements, obsidian blades and human and animal bones. Some animal bones, probably deer, appear to have been burned.

On top of this level was an olive gray (5Y 4/2) looser, organic soil found in both the domed room and the entryway. It contained a similar number and variety of household artifacts; however this level also had a partial burial deposited on the shallower floor of the entryway. This burial was of a robust adult, but because the skull and pelvis were missing, the sex could not be determined. Additionally, because the

limestone cap of the *chultún* was removed, the bones were exposed to the elements, degrading their condition and preventing any height estimates from being made. Several bones believed to belong to this individual were found in the loose soil within the domed room, while others were in the more compact level below. This was likely caused by bioturbation resulting from animal activity within the *chultún*. Both of the cavities and the rest of the bedrock were then covered over with a plaster floor. Two more levels of fill and floors were subsequently built on top of this initial floor.

There were several more building episodes in the southern, higher part of Plaza Loro than were seen in the northern part. The bedrock in this area is 1.11 m below the current surface, deeper than in the north, but still at a higher elevation. Covering the bedrock was a layer of black (10YR 2/1) mud, similar to “wet fill” seen in constructions. This was covered by a layer of gray ((2.5Y 6/1) sediment with many small pieces of limestone that created a level surface on which a well-preserved floor, 5 cm thick, was laid down. Two layers of fine, light brownish gray (10YR 6/2) fill were laid down over this. The subsequent levels of fill in this area contained high concentrations of ceramic sherds and obsidian pieces, including a projectile point.

Structure 10, which forms the eastern border of the ramp, runs about 15 m north-south by about 7 m east-west. Its base consists of a masonry platform with a rounded northern end and at least 5 steps along the bottom. The collapse on top of Structure 10 seems to undulate, and it is unclear if the rooms here opened to the North Area on its east side or onto Plaza Loro to the west.

5.9 Central Patios

Between the plazas and the Southern and Northern areas sits a group of structures known as the Central Patios Area (Fig. 5.11). This group, which measures about 50 m east-west by 60 m north-south, is made up of a number of patios surrounded by adjoining range structures. These buildings range from large, vaulted-roof masonry buildings to ones built of perishable materials from which only the foundation survives.

The main part of the Central Patios Area, Patios 22, 1, 2-South and 2-North, is characterized by taller masonry architecture. Patio 1, in the southwestern part of the main area, is bordered by Structure 5 (Los Sapos) to the south, Structures 6-North, 6-South, to the west and Structure 31 to the north, with a low wall defining its eastern side.

East of Patio 1, Patio 2-South is centered around Structure 13. Structure 38, a range structure contiguous to Structure 5, forms the southern edge of this group, with Structures 12 and 35 making up the east side.

Directly to the north of Structure 35, the monumental Structure 4 and Structure 40, an elevated patio group, form the eastern boundary of Patio 2-North. The northern limit of this patio is formed by Structures 25 and 34, which are smaller and incorporate less masonry architecture. Structure 18 projects off the north side of Structure 40, while Structure 26 is just north of Structure 25, forming a small enclosure with Structure 3. Both of these structures are associated with the northern edge of Patio 2-North, but lie at a lower level, interfacing with the Northern Area.

Structure 3 forms the boundary between Patio 2-North and Patio 22 to the west. Patio 22 is also bordered by Structure 9, on its northern side, Structure 7 to the west, and

Structure 31 to the south, with Structure 32 extending out from the inset southwest corner between Structures 7 and 31. Structures 41 and 10 extend north from Structure 9, between Plaza Loro and the Northern Area. To the west of Patio 22, Structure 7 sits opposite Structure 8, forming the southern border of Plaza Loro.

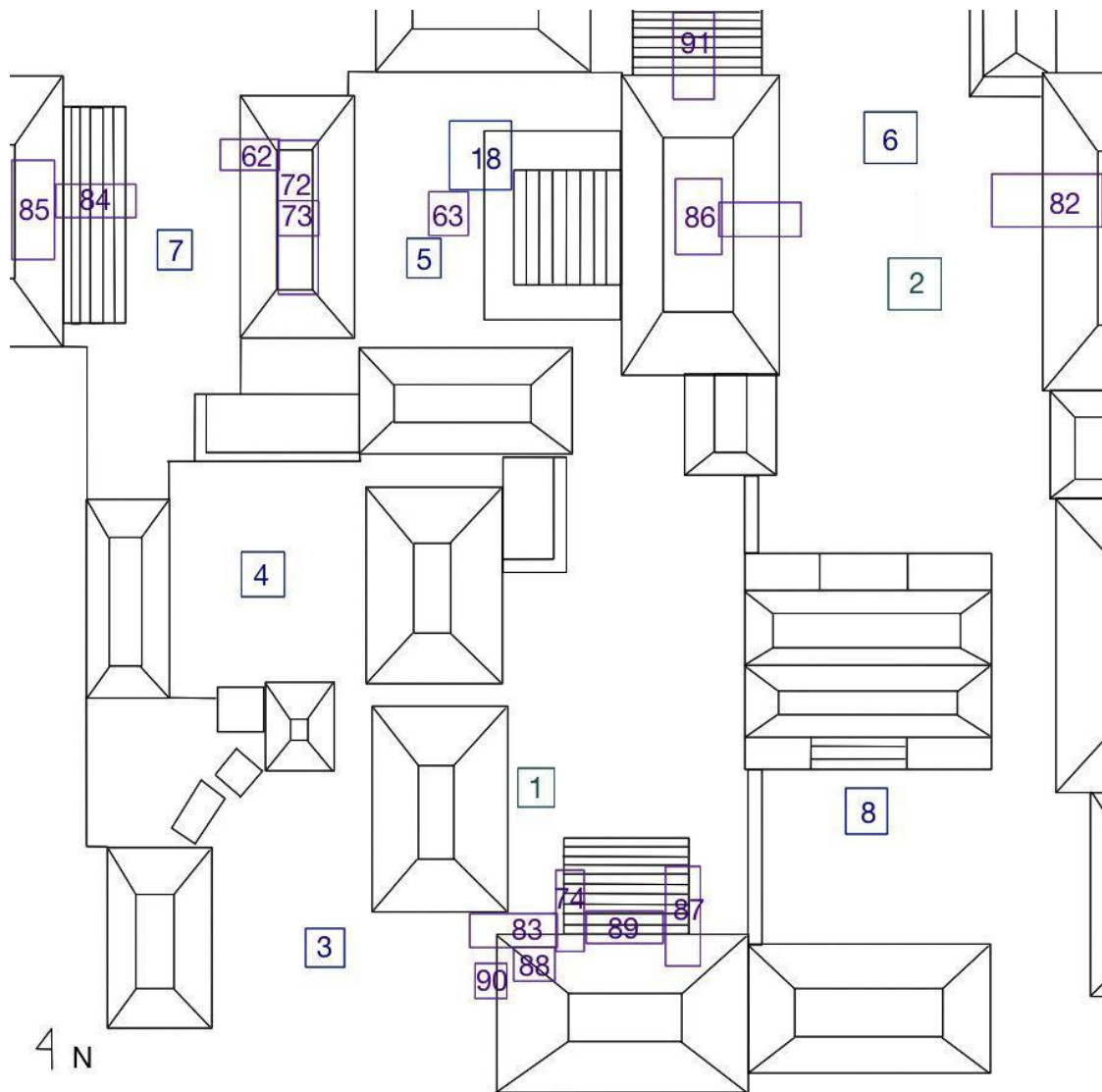


Figure 5.11. Excavations in the Central Patios

South of these two structures were three interconnected patios containing structures that were lower and smaller. Patio 30-North is bordered by Structure 32 to the north, Structure 39 to the west, Structure 27 to the south, and Structure 6-North to the east. Patio 30-West is a small nook between the Structures 39, 27 and 28 and the eastern edge of Plaza Colibrí. Structure 14 separates Plaza Colibrí from Patio 30-South. The smaller Structures 28 and 27 form the northern border of this patio, while its eastern border consists of Structure 6-South and the western end of Structure 5. A couple of steps up lead to the south out of Patio 30-South into the Southern Area.

5.9.1 Excavations

Excavations within the Central Patios Area in 2010 were focused on developing the ceramic sequence of the group and shifted to understanding the buildings in 2012. Stephanie Simms excavated the initial two test pits (Units 1, 2) here during the 2008 field season, when preliminary investigations at Xultun began. In 2010, we continued this excavation program, digging eight units in patio floors (Units 3-8, 15, 18). We moved on to excavating buildings in 2012, focusing on cleaning out looters' trenches to establish architectural sequences.

In Patio 1, the looters' trenches on the north side of Los Sapos (Str. 5) were intensively excavated and enlarged (Units 74, 80, 83, 87, 88, 89, 90). They revealed an elaborate, zoomorphic stucco frieze and helped to determine the construction sequence of the building and to shed light on the preservation of the northern façade. The looters' trenches (Units 74 and 89) exposed the eastern and western sides of a late monumental

staircase and both pierced the north façade of Structure 5. Unit 83 exposed the stucco façade to the west of the western looters' trench (Unit 74), while Unit 80 expanded the trench to the east. Connecting both looters' trenches was a tunnel (Unit 87) under the staircase, which exposed the sequence of buildings connecting Structure 5 with Structure 38. Within and around the doorway of Los Sapos, offerings were found that included human remains from multiple individuals of various ages. The partial remains of two juveniles were found in front of the structure on the last day of excavation and were fully excavated, but an associated offering of ceramics, lithics and animal bones was only excavated during the 2012 field season. During the 2014 field season, Mary Clarke returned to Los Sapos to finish the excavation of the structure and offering in front (Clarke 2014).

Two large looters' trenches in Patio 2-North were cleaned out to expose architectural phases. The looters' trench in Structure 4 (Unit 82) penetrated the northern portion of the west façade reaching an early, interior room. The trench was peripheral to where any central architecture might have been built and did not cut through the monumental staircase there. In Structure 3, looters' trenches on the east (Unit 86) and north (Unit 91) sides were explored. The eastern trench (Unit 86) was extensive, with small interior offshoots to the north and south, and exposed five floors. The northern trench (Unit 91) was partially cleaned out and we were able to expose a late-phase staircase on this side, but where the trench entered a masonry doorway, the fill became unstable and excavations were halted.

In order to expose the long sequence of development of Patio 22, three units were placed in the northeast (Unit 18), center (Unit 63) and southwest (Unit 5) of the patio and were dug down to bedrock. These excavations showed varied patterns of ceramic densities, suggesting different practices of artifact deposition (Fig. 5.12-5.15). All three units reached the area of bedrock in the middle of the patio that was covered with dark, wet fill. In Unit 5, this fill level produced more than twice as many artifacts as any other level, and also contained charcoal, suggesting a ritual deposit that may have included burning. Some of the upper levels in this unit also contained a high concentration of ceramics, which was also seen in Unit 63, to the northeast. The artifact distribution in this unit was not dissimilar, but the concentration above the bedrock was much less intense. Unit 18, the northeasternmost unit in the patio shows a steep drop off in the density of artifacts at the lowest level. This trend suggests that the original builders may have concentrated their ceremonial deposition of ceramic sherds in the southwestern corner. This unit displays a greater peak in ceramic density in the upper levels than is seen in the other two units; however all three show a marked increase in their upper halves.











Color										
Sherd Density	8999	5999	3999	1999	999	749	499	249	99	1
Density	6000	4000	2000	1000	750	500	250	100	50	49

Figure 5.12. Key to Ceramic Density Tables

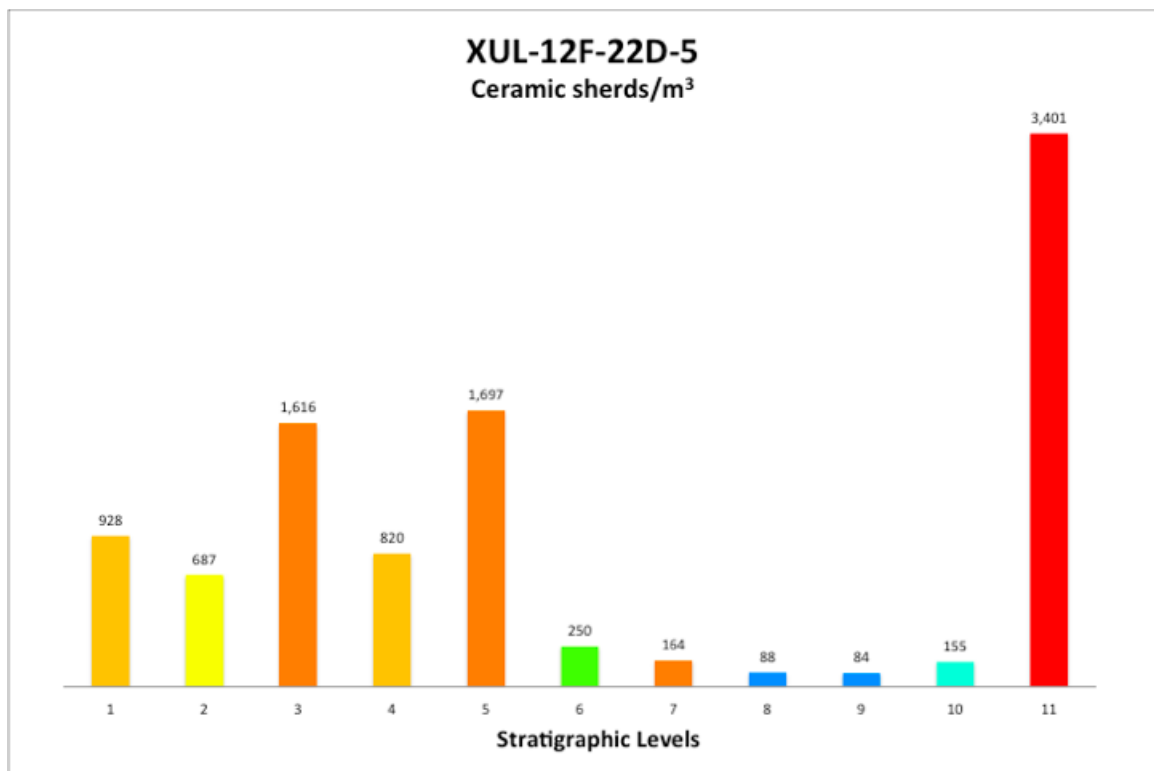


Figure 5.13 Density of ceramic sherds in Unit 5

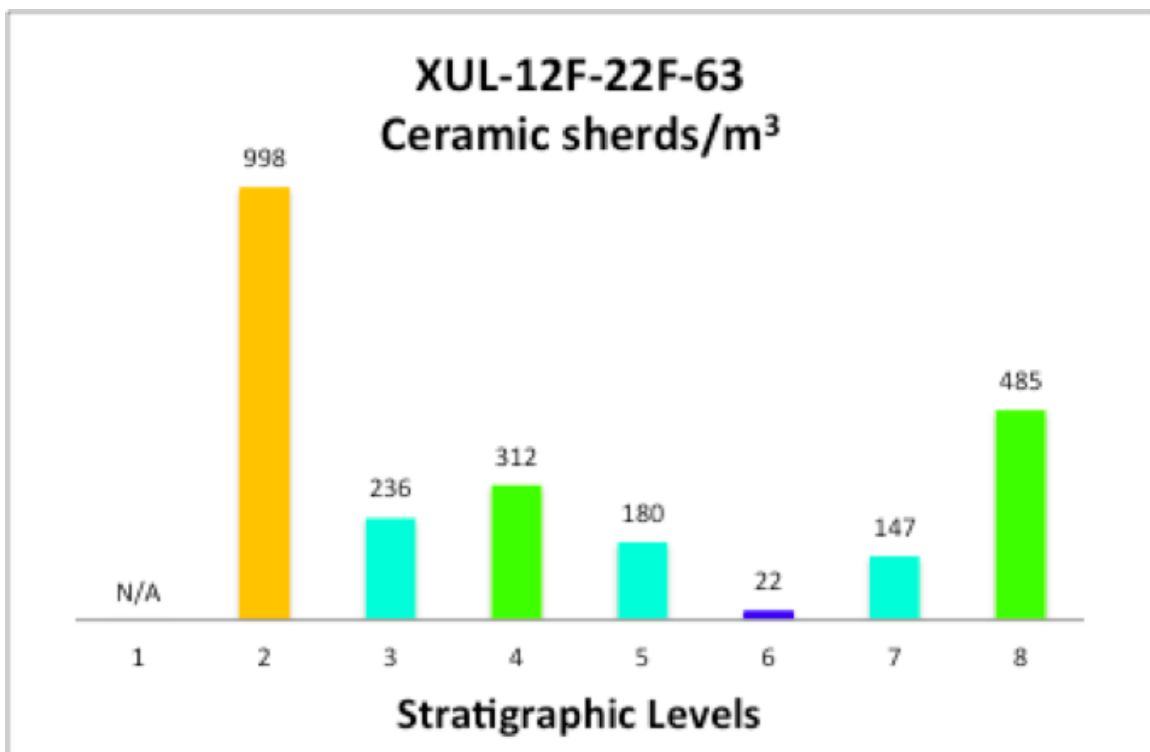


Figure 5.14 Density of Ceramic Sherds in Unit 63

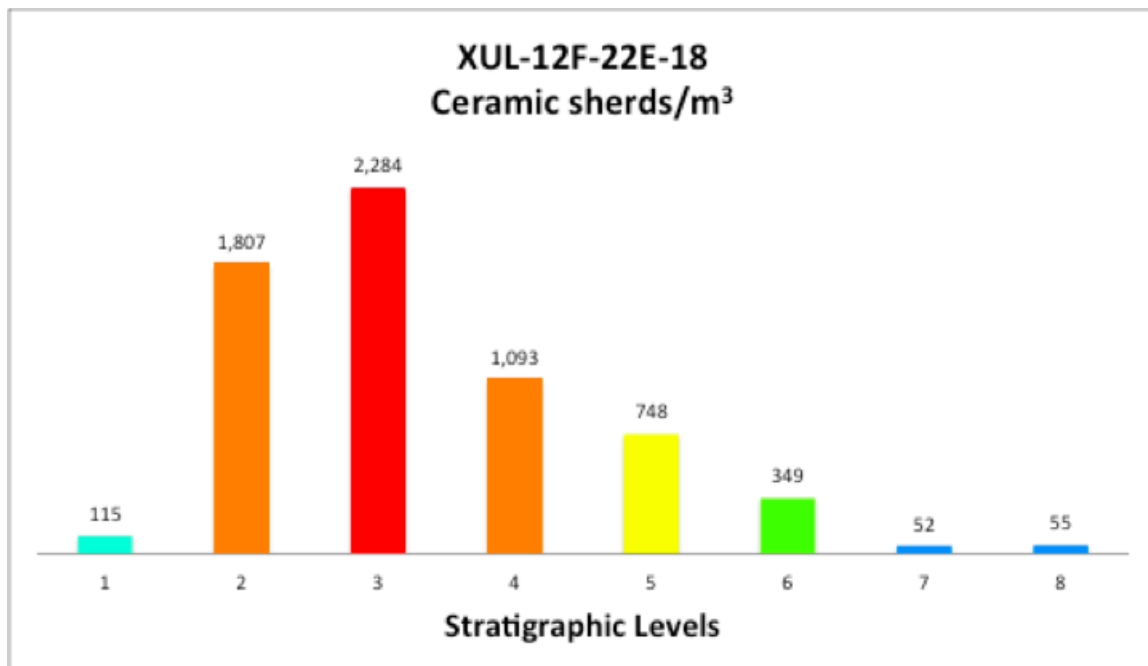


Figure 5.15 Density of Ceramic Sherds in Unit 18

To the west of this patio, and directly south of Plaza Colibrí, Structures 7 and 8 were both found to contain tombs. Looters' trenches had been dug into both structures, and these trenches were cleaned out and mapped (Str. 7: Unit 62; Str. 8: Unit 84). A unit was excavated inside of Structure 7, in the middle of the tomb (Unit 73), but skeletal remains were few and fragmentary. Large, broken vessels were found throughout the tomb, and a small sherd of a finely painted cylinder vessel found near a niche in the south wall suggested that the tomb originally contained finer goods (Unit 72). The tombs inside Structure 8 were mapped and the soil in the looters trench was screened. The fine sediment inside the structure was only partially screened, eventually causing breathing problems for the student in charge of excavations there, and work was halted (Unit 85).

5.9.2 Surface Survey

Surface survey was most important in the Central Patios Area, providing architectural observations to supplement excavation data. It was critical to recording architectural techniques and materials used in construction and in identifying small features that were not initially recorded on the site map or noted during the total station mapping. Recognizing points of access between the patios was important to understanding which areas were closely related and which were more isolated from each other.

5.9.3 Architecture Viewed through Excavation Data and Surface Survey

The Central Patios Area was built just over the bedrock of this area, with a few patios significantly elevated over time through successive building episodes. Many of the initial levels of fill appeared to be dark brown *bajo* mud, similar to that used to make “wet fill.” The bedrock in this area appeared to be relatively flat and wet fill further flattened this for laying down plaster floors. In Patio 22, the bedrock was flattened and the patio floor was laid directly on top, but most other patios were built up somewhat.

5.9.3.1 Patio 1

In the northwest corner of Patio 1, there is a low platform 3 m east-west by 5 m north-south that abuts the bases of Structures 31 and 6-N. It is about 50 cm high, with two lines of stones forming the south and east borders. In the center of Patio 1, there appears to be another low platform, measuring 2 m east-west by 3 m north-south. No cut

limestone blocks were used in the construction of these platforms and there is no evidence of stone foundation walls.

Structure 5

Construction Episode 1

Patio 1 was built on shallow bedrock that was leveled in some areas and filled in with dark, rocky fill where it was lower. The initial construction here was Los Sapos, a roughly square building with a low platform that extended out to the east, which formed the southern border of the patio. Los Sapos was elaborately decorated with painted, zoomorphic stucco friezes on its north façade and continued around to the east façade. It measures 6.62 m east-west and about the same north-south and sat on a low platform that extended out 65 cm and was 24 cm taller than the patio floor. In the center of the north façade, there was a small doorway, measuring 1.10 m tall by 72 cm wide with 75 cm deep walls. The floor in front of and within the doorway was the same level as the floor of Patio 1, with a 24 cm step up into the room at the interior wall. The interior of the room measured 5.10 m east-west and had a vaultspring 1.50 m above the floor level and a ceiling that was at least 3.20 m tall.

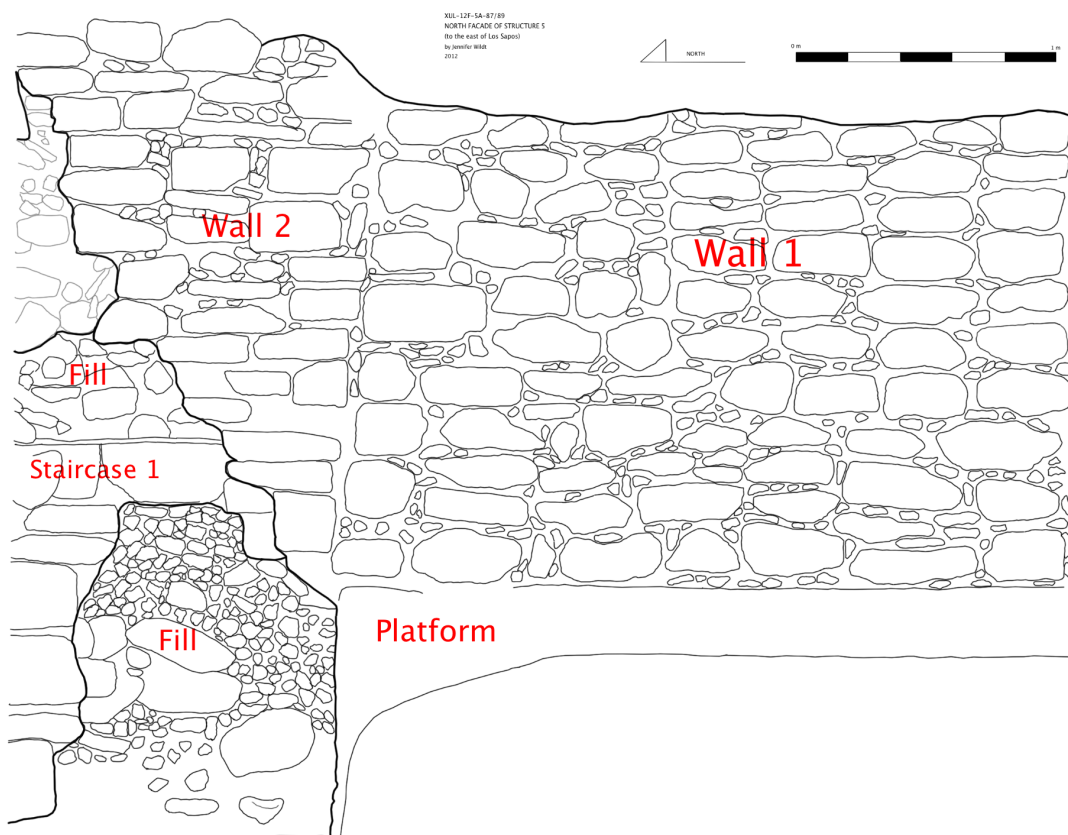


Figure 5.16. Units XUL-12F-5A-87/89, south profile. Eastern portion of Structure 5, north façade, showing Wall 1 to the east of Los Sapos

A platform extended 2.85 m to the east of Los Sapos, where it descended 97 cm down to bedrock. The platform comprised at least two steps up to the south, the initial step of which was flush with the façade of Los Sapos. This step was 30 cm tall and extended 40 cm to the south, where it lips up to another step, the dimensions of which are unknown (Fig. 5.16)

Decoration

The northern façade of Los Sapos is covered with a painted, modeled stucco frieze in the form of a large, crouching toad-like creature with smaller toad-like creatures on its limbs, recorded and interpreted by Mary Clarke (2013). The large creature covers the entire façade, with its head in the middle, knees in the top corners and elbows in the bottom corners. Its four feet frame the low doorway that is positioned where the creature's abdomen or genitals would be.

The composition is complicated, with the larger creature in a crouching position and its forelegs folded in front of its rear legs. Its forearms contain clear images of smaller toad-like creatures, and these creatures seem to be mirrored on its upper limbs. The large creature appears to be a composite of an animal with human or deity characteristics (Clarke 2013). It has zoomorphic limbs with five-toed (or clawed) feet resembling those of a toad or iguana, and its forearms have scales along their edges. On each of its ankles, it wears bracelets decorated with diagonal lines molded in the stucco. The head of the creature was destroyed in antiquity, but its four-strand necklace and one earflare remain.

The smaller creatures sitting on the limbs of the large toad-like creature appear to be the same type of animal, but lack human or god-like characteristics or accessories (Clarke 2013). These figures are shown in profile, with their snouts pointing outward to form the elbows of the larger creature. They have scaly bellies and legs, with the same clawed feet as the larger figure and volute-like joints. Between their eyes and shoulders lies an ear-like circle, molded and painted orange with red and black outlines and three

black circles in the middle. Within the ear circle, shallow circles, about 1 cm in diameter were etched. Red lines radiated down from the bottom of the circle (as though the creature were bleeding). The stucco forming the eye orbit projects out from the wall, with a thick, scaled upper eyelid and an eye of concentric semi-circles below. The figure has at least eight teeth, which were painted orange and outlined in black and at where it meets the wall, a small, molded nostril is visible.

Most of the stucco relief on this façade is less than 10 cm thick, but the head of the large creature appears to have projected out at least 20 cm. Four different paint colors were used on the façade: lustrous red-orange, orange-yellow, black and white. On Los Sapos, the red paint was used to outline the figures and add details, such as scales, and derives its shimmery appearance from mica, which was mixed with hematite, a low-reactivity red pigment (Goodall et al. 2006; Vandenabeele et al. 2005:2352). The bodies of the toad-like creatures were painted orange-yellow, likely a blend of hematite with the yellow minerals limonite or goethite (Vandenabeele et al. 2005). The black pigment was derived from carbon found in charcoal and was used similarly to the red, for outlining and to create details. White paint, made from crushed and burned limestone, was used sparingly to highlight details and may also have been part of the preservation of the structure when it was built over.

Construction Episode 2

A wall (Wall 1) was added on top of the first step of the eastern platform to extend the north façade of Los Sapos. The wall ran 2.85 m, the entire length of the

platform, cutting off access from the north, also hiding the east façade of Los Sapos. It was made of large, shaped limestone blocks measuring up to 25 cm tall and up to 45 cm long. They were laid down in even rows and was covered with painted, modeled stucco in a similar style and color scheme to that seen in Los Sapos, although the design on this wall is unknown.

Construction Episode 3

A staircase (Staircase 1) leading up toward the south was added to the east of the wall (Construction Episode 2) supported by dark gray wet fill with large limestone rocks (Fig. 5.17). The stairs were made of limestone blocks ranging from 10 to 30 cm tall and covered over with plaster. The average rise of the stairs was 39 cm with a tread of 43 cm. It is not yet known what the stairs led to.

Construction Episode 4

Another wall (Wall 2) was added onto the east of Wall 1, extending the northern façade of Structure 5 even further to the east and covering the stairs. Wall 2 was of poorer quality than the previous wall (Wall 1), with smaller limestone rocks that were not as evenly laid down and a dry rocky fill inside made up of small to medium-sized limestone rocks.



Figure 5.17. XUL-12F-5A-89, Str. 5, eastern looters trench, showing different construction episodes

Construction Episode 5

Eventually, the northern façade was covered over with a retaining wall that protected the decoration of Los Sapos (Fig. 5.13). This wall (Wall 3), which ran parallel to the north wall of Structure 5, began 1.10 m to the north and was about 60 cm thick, standing at least 2.45 m tall, and was made of large limestone blocks. Almost all of the painted, molded stucco covering the wall in Construction Episode 2 was removed at this point, but the stucco façade of Los Sapos was left in place. Much of the painted stucco on the northern façade of Los Sapos was exceptionally well preserved, however, the western corner appears to have been destroyed during a later construction. Additionally, the face of the main figure in the stucco frieze was not present, having been removed during a later building phase and likely related to its pronounced projection out from the wall.

It was probably at this point that the interior room of Los Sapos was filled in with very dark brown sediment (10YR 2/2) and offerings were made around it as part of a termination episode. The lintel, probably originally of wood, was taken from the low doorway of Los Sapos and the doorway was reconstructed with three smaller stones,



Figure 5.18. XUL-12F-5A-88-2, offering of adult leg bones and beads

transforming it into a vault for a burial offering. Inside the structure, alternating layers of light gray (10YR 7/2), grayish brown (10YR 5/2), and brown (10YR 4/3) fill were laid

down. A large stone was laid down diagonally within this doorway and the articulated leg bones of an adult human from the cut, distal ends of the femora to the feet, were deposited on top (Fig. 5.18). The stone, which measures 45 cm by 45 cm and was 20 cm thick, was angled down 45 degrees to the north, resulting in the feet, towards the interior, lying higher than the knees. Between the feet the inhabitants deposited five small bone beads and one small jadeite bead along with some dark organic material. More of the body may lie behind the stone, where the distal end of an atlas vertebra was observed at the end of the field season (Fig. 5.14).



Figure 5.19. XUL-12F-5A-83, offering with skull of older juvenile visible on top of bones of infant body

Outside of the doorway of Los Sapos, to the east and west, two small walls were built delimiting the space for offerings. Within this area a complex offering was left that included human and animal remains as well as a variety of artifacts. The skull of a juvenile human (Fig. 5.19), aged approximately 12 years was deposited on top of the postcranial skeleton of another juvenile human, aged approximately 1.5 to 2 years of age (ages based on tooth eruption and vertebra fusion, respectively) (Scheuer and Black 2004) (Fig. 5.20). The older child exhibited a compressed frontal bone, indicative of cranial deformation. Its skull was deposited facing to the east, in a north-south orientation. Its mandible was below it, not in articulation. The body of the younger child was laid in a prone position, with an approximate east-west orientation.

A number of ceramic sherds and chert flakes were comingled with the remains or laid in the brown (10YR 5/3) sediment underneath. Bones of a large bird, possibly a turkey, were also deposited in the same episode. The ground under the offering appeared to have been scraped away to leave a shallow basin that was black from burning organic material. This area was then covered over with stones resting on the sidewalls, to create a vault and protect the offering. Directly in front of the entrance, the vault consisted of a large limestone draining stone, 93 cm long by 46 cm wide and 26 cm deep.



Figure 5.20. Offering, mandible of older individual and postcranial skeleton of younger individual. Vertebrae visible in distinct pieces and ribs indicate prone position.

To the east of this offering, the area between Structure 5 and Wall 3 (the retaining wall) was filled in with a light brownish gray (10YR 6/2) dry fill of small to large limestone rocks. In front of Wall 3, a monumental staircase was built that was 4.6 m wide, projecting 2.3 m further north (Fig. 5.21). This staircase covered all of Wall 1, the eastern half of Los Sapos and the western edge of Wall 2. It was built on top of the patio floor, with a base layer of cut limestone blocks that projected out 15 cm from the east and west façades of the staircase. This staircase probably provided access to the Late Classic

construction, raised significantly above earlier constructions by building on top of them. This is substantiated by the presence of a plaster floor inside of Los Sapos 3.20 m above the original floor. After this room was mostly filled, the vaulted ceiling was removed at that height, and the floor was laid down for the new structure.

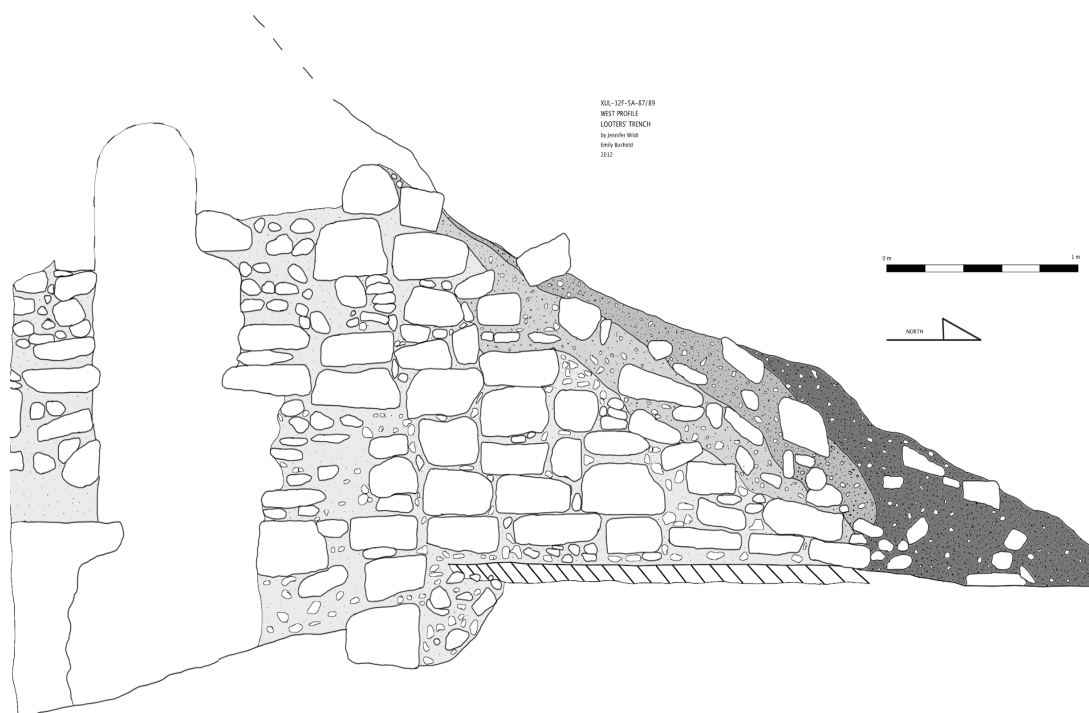


Figure 5.21. XUL-12F-5A-87, west profile, looters' trench on the east side of the monumental staircase from the final phase of architecture on the north side of Str. 5. Showing east façade of the staircase with tunnel on left side.

Termination Ritual

Evidence of a termination ritual associated with Structure 5 was found during the excavation of its west side. A distinct level of ash was discovered on top of the initial plaster floor associated with Los Sapos. The ash layer extended about 1 m out from the

wall at a diagonal, beginning at 48 cm high at wall and ending when it reached the ground (Fig. 5.22). This layer consisted of a gray to light brownish gray (10YR 6/1-6/2) fine, compact ash that contained no artifacts.



Figure 5.22. XUL-12F-5D-90-5, triangular ash deposit on west side of Str. 5

Structure 6-North, 6-South

Structures 6-North and 6-South form the west side of Patio 1. These buildings, which each measure about 10 m long by 7 m wide, are separated by a 1 m wide passageway leading from Patio 1 into Patio 30-South/North. Along the east wall of the

top of Structure 6-North, lines of limestone blocks, laid with the short ends out, are still visible.

Structure 31

Structure 31 was a low, masonry platform about 9 m east-west by 4.5 m north-south. It separated Patio 1 from Patio 22, with a narrow passageway on its east side allowing access between the two. There is a depression suggestive of a doorway on the south side of the structure leading into Patio 1; this building did not seem to open into Patio 22.

5.9.3.2 Patio 2-South

Patio 2-South measures about 15 m east-west by 9 m north-south and is centered around Structure 13. This area is very shallow, with only a couple of floors built on top of the bedrock, which showed evidence of having been leveled. The patio is separated from Patio 1 on its west side by a low masonry wall, which probably supported a higher perishable wall in antiquity. This wall extends from Structure 38 in the south, past Structure 13, to Structure 36 in the north. To the north of Structure 13, there is a chultun with a small opening that could have been in either Patio 2-South or 2-North. There are no surface indications of how Patio 2-South and Patio 2-North are related, but the architectural differences between the two suggest that they were not a single group.

Structure 36

In the northeast corner of Patio 2-South, there was a small, low platform, that abuts Structure 3 to the north. It measures 4.0 m east-west by 5.2 m north-south and was made of the same poor construction quality seen in the platforms in Patio 1.

Structure 13

Structure 13 sits in the center of Patio 2-South, not connected to any other building, but bordered on the west by the low wall that divides Patios 1 and 2. There was probably a wooden or wattle-and-daub extension on top of this wall, creating a more effective barrier between the two spaces. This structure has a distinctive, rectangular form, 11.2 m east-west by 9.2 m north-south, with a series of architectural features visible on the surface. Both the north and south sides have what appear to be central entryways, with low, rubble platforms on either side. The limestone blocks forming first step on the south side are oriented vertically in order to more effectively support the platform of the structure. On the south side, there is then a depression running east-west that may have been a room, possibly a porch. This depression is closed off on the west side by the wall that separates Patios 1 and 2-South, but on the east side, it is open. This suggests that either the structure was open on this side, or that the walls may have been made of a perishable material. To the north of this open space, was another room, this one with partial masonry walls and an entrance in the middle of the south façade.

Structures 12 and 35

The eastern border of Patio 2-South is made up of the modest platform Structures 12 and 35. Structure 12 forms the southeast corner of the patio, with Structure 35 continuing north to Structure 4. Structure 35 was a low platform, 10.7 m east west by 6.1 m north-south, that may have supported a range structure or it may have served as a passageway between Patio 2 and Plaza Tecolote. Structure 12 was a slightly higher platform, measuring 10.6 m east-west by 18.0 m north-south, that was built over a layer of dark fill with small limestone rocks and covered with a plaster floor. It had half-masonry walls and at least one doorway that opened into Patio 2-South.

At the southern end of Structure 12, a passage is visible between this building and Structure 38, providing access between Patio 2-South and the Southern Area. This area has a few low walls that suggest that there may have been smaller ancillary buildings here. Running south from Structure 12 are a low platform and a low masonry wall, 80 cm thick, which turns west as it reaches the southern end of Structure 38, reducing the width of the entryway.

Structure 38

Structure 38 forms the southern boundary of Patio 2-South, measuring 11.9 m east-west and 7.3 m north-south. It abuts Structure 5 to the west, but stands a couple of meters lower and may have no relation to the early, ritual use of Structure 5, particularly if Patios 1 and 2-South were separated by a wall at that time. Structure 38 had a plaster

floor, on which a low, masonry wall was laid down, indicating a room. This was eventually filled in and built over.

5.9.3.3 *Patio 2-North*

Patio 2-North was laid down on unfinished bedrock, with a layer of dark *bajo* mud and small limestone rocks used to create a level surface for the first plaster floor. Terminal Preclassic sherds were collected from this first fill layer, while all the fill above contained Late Classic sherds. A second floor was built directly on top of the first floor, with a posthole in the plaster surface. A third plaster floor was built directly on top of the second floor, leaving the posthole open. At this point in construction, the floors seem to have begun to subside to the north, where the bedrock was deeper. To combat this, a 35 cm-tall wall running east-west was laid down across the patio. The wall consisted of two courses of limestone blocks each measuring 20 to 35 cm long and 15 to 20 cm high. Abutting the wall to the south, and covering the first row of stones, a floor was built to even out the area where the patio had begun to sink, while the upper row of stones served as a step up to the northern area of the patio. Eventually, the upper portion of the wall was hidden as well, when the southern part of the patio was filled in with 20 cm of rocky fill and covered over with a floor. A high concentration of chert flakes was found in the upper layers in the center of this patio.

Structures 25 and 26

On the northern side of Patio 2-North, Structures 25 (5.4 m east-west by 3.8 m north-south) and 26 (6.9 m east-west by 3.6 m north-south) appear to be either small walls or parts of a staircase leading down to the North Area. The early vaulted room in Structure 3 opened to the north, suggesting that this area would have provided some kind of egress. Later, when this doorway was covered over, it is possible that the area was blocked off, but during the last phase of architecture another staircase was built leading from the top of Structure 3 down to the north.

Structure 34

This structure, which measures 8.8 m east-west by 5.7 m north-south, forms the northern border of Patio 2-North and appears to be a masonry platform that may have supported an ephemeral superstructure.

Structure 4

Structure 4 dominates the east side of Patio 2-North, although it is unclear if it opened to both the east and west sides. On the west side there is a low room, measuring 2.10 m tall by 1.60 m east-west, with unknown north-south dimensions, at about the height of the patio floor, but no door has been found to indicate the room's orientation. The interior walls and floor of the room were covered in stucco and offerings were burned on the floor before the room was filled in and built over. Beginning about 70 cm to the west of the western wall of the room, a supporting exterior terrace with a smooth

stuccoed façade descends into Patio 2-North. A 1.0 m wide landing surmounted this façade and a masonry wall running north-south sat on top of the landing. This wall appeared to end over the looters' trench, and another masonry wall begins about 1.5 m to the south. These two walls may represent the entrance to one room or different rooms separated by a passage; both upper rooms were eventually filled in and covered over. A later staircase built over the whole façade contained a low vertical support wall originating at the bottom of the western terrace.

During the final phase of architecture, a staircase was added to Structure 4's west façade for easier access to the room on top of the building. At the top of Structure 4, there is a line of collapsed vaultspring stones, from the base of the vault, that fell to the west, indicating that the room was on the west side of Structure 4. The stones were substantial, measuring 70 cm deep by 55 cm long.

Structure 3

On the opposite side of Patio 2-North from Structure 4, Structure 3 is another imposing masonry edifice, measuring 10.0 m east-west by 14.0 m north-south. This building, which has doorways on its north and west façades, appears to face onto Patio 22 and to present its back to Patio 2-North.

The earliest plaster floor observed was to the north of Structure 3 and was built over a gray, rocky fill. This floor ended with a wall that descended straight down. Forty cm higher, another floor was laid down, that ended at the same point as the previous floor, raising the height of the wall. This floor was also visible on the east side of

Structure 3, where it descends one step down into Patio 2-North. The position of this step was used as the limit for three future floors laid down there. The fills of the lower layers are darker and seem to contain wetter fill, growing lighter as they get higher, due to increased amounts of lime mixed in with the dirt.

Two meters and 10 cm to the east and facing the wall of Structure 3 is another low wall, which supports fill in Patio 2-North, and may have been part of a platform there. Eventually a floor was laid down to fill in the space between the wall of Structure 3 and Patio 2, covering a rocky fill that contained less dirt, indicating less investment in building quality here. At the point of the previous steps of Structure 3, a new plaster floor heading west was laid down over the previous floor. The final floor of Structure 3 observed on the east side of Patio 2-North began about 10 cm to the west of the previous steps and walls, with a 20 cm level of small limestone rocks over the preceding floor. Before this floor was covered over with a later fill, limestone slabs (c. 30 cm x 40 cm x 10 cm) were placed over the edge of the step, creating a protected, hollow triangular space at the base of the step. Then a light fill of large limestone rocks and sediment with a high lime content was laid down.

No other floors were laid down on the north side of the structure, but a vaulted, masonry room was built on top of the higher floor, 2.5 m to the south of the end of the platform. A thin layer of plaster was laid down at the base of the exterior north wall of the structure, lipping up to create a seamless transition from floor to wall. The room was open to the north, and the vaulted ceiling ran north-south. The vault consisted of two steps up, measuring 22 cm and 20 cm wide and 32 cm in total height. The interior of the

room measures 1.62 m east-west, but its north-south dimension is unknown. The doorway is 72 cm wide with interior walls that extended out 45 cm on either side, and the exterior walls are 77 cm thick. Eventually this room was filled in with large limestone rocks, and the northern doorway was closed off. The final phase of architecture on the northern side of the building was a large staircase that went down to the north, covering the façade of the building and the floors around it. Within the fill of the staircase, retaining walls were built to support the weight of the construction and the large limestone blocks that formed the treads of the stairs.

At the northern end of the structure there is a room running east-west, at the same level as the room with the vault. There was a standing wall on the east side of the uppermost room, with vaultspring stones that had collapsed down to the west. In the eastern wall of the room there was a depression where a doorway would have been and a landing in front of that, with stairs going down into Patio 2-North. Lines of stones run east-west at the northern and southern ends of the roof, possibly forming part of a platform on which the highest room was built.

5.9.3.4 Patio 22

Patio 22 sits at the center of Los Aves and was the most substantial house group. At the present ground level, the distance between the walls visible in the looters' trenches in Structures 7 and 3 was 14.6 m east-west.

XUL-12F-22E-18
 WEST PROFILE
 CENTER OF PATIO 22
 by Kathleen Scanlan
 2010

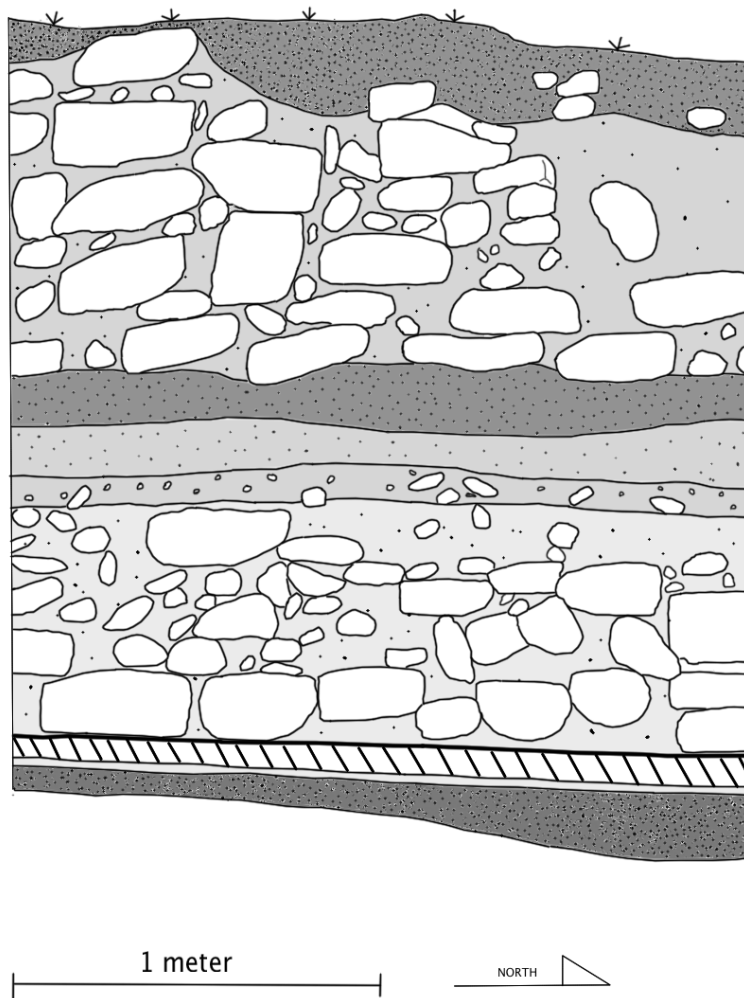


Figure 5.23. XUL-12F-22E-18, west profile, middle of Patio 22, showing large fill episodes with floors below and between

During the Early Classic period, the Maya leveled out the bedrock under this patio, carving out a rectangle 2.5 m east-west (north-south dimensions were not determined) and 15 cm deep in the center (Fig. 5.23, 5.24). They filled this with a special

preparation of very dark gray (10YR 3/1) mud containing with pieces of bone, a tooth from a small carnivore, a carved ornament made from a spondylus shell, painted and incised ceramics, obsidian blades, and burnt offerings. The mud and flattened bedrock were covered over with a plaster floor about 4 cm thick, in which two postholes were found.

The next construction phase was the addition of two concentric steps up around the patio, creating a two-tiered, sunken rectangle. The first step was 32 cm tall and 38 cm deep and the second step was 34 cm tall. They were made of limestone blocks and covered with plaster. At this point, the postholes in the initial floor were still accessible.\

During the Late Classic period, these steps were filled in with large limestone rocks and light brownish gray (2.5Y 6/2) dirt, raising the floor in the center of the patio by about 70 cm. There was only a modest amount of artifacts included in this fill, but towards the southeast corner, directly on top of the floor, there was a pocket of very fine, dry, pale brown (10YR 6/3) silt that contained animal bones and ceramic sherds. This fill was covered over with a plaster floor at the level of the top step, creating a flat surface.

Above this floor, layers of grayish brown (10YR 5/2) fill were laid down along with offerings of thousands of ceramic sherds, dozens of obsidian blades, shells, manta ray spines, jade beads, bones, and fragments of *manos* and *metates*. These layers were covered by a thin plaster floor.

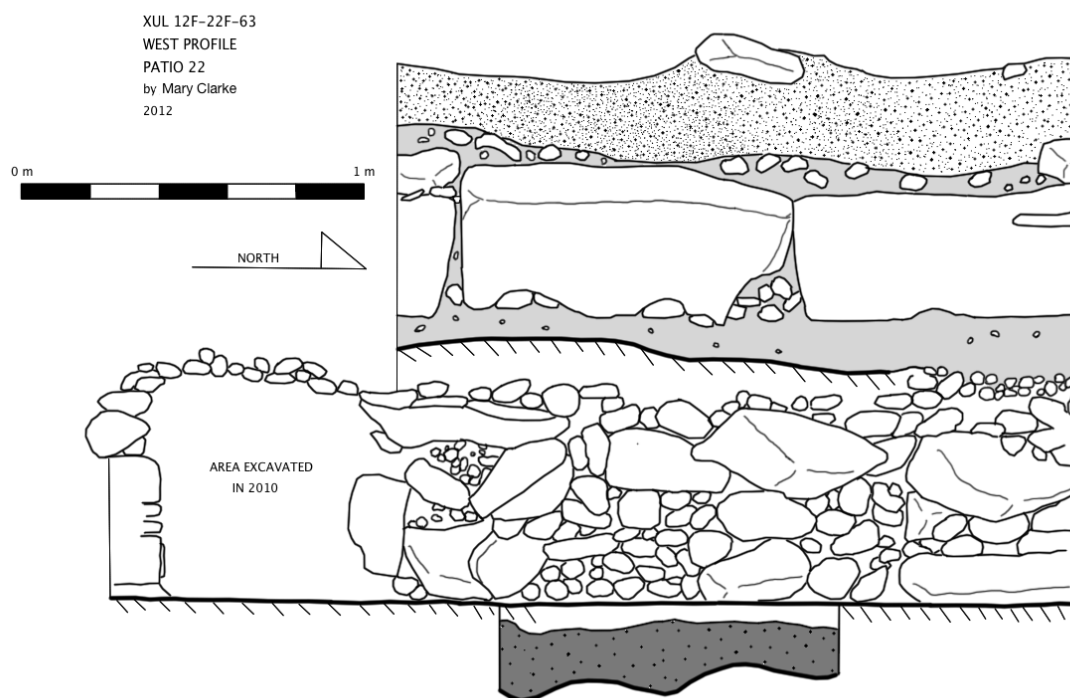


Figure 5.24. XUL-12F-22F-63, west profile, showing bedrock, floor, initial large fill episode, upper floor and cut stones of north-south wall of later phase of architecture

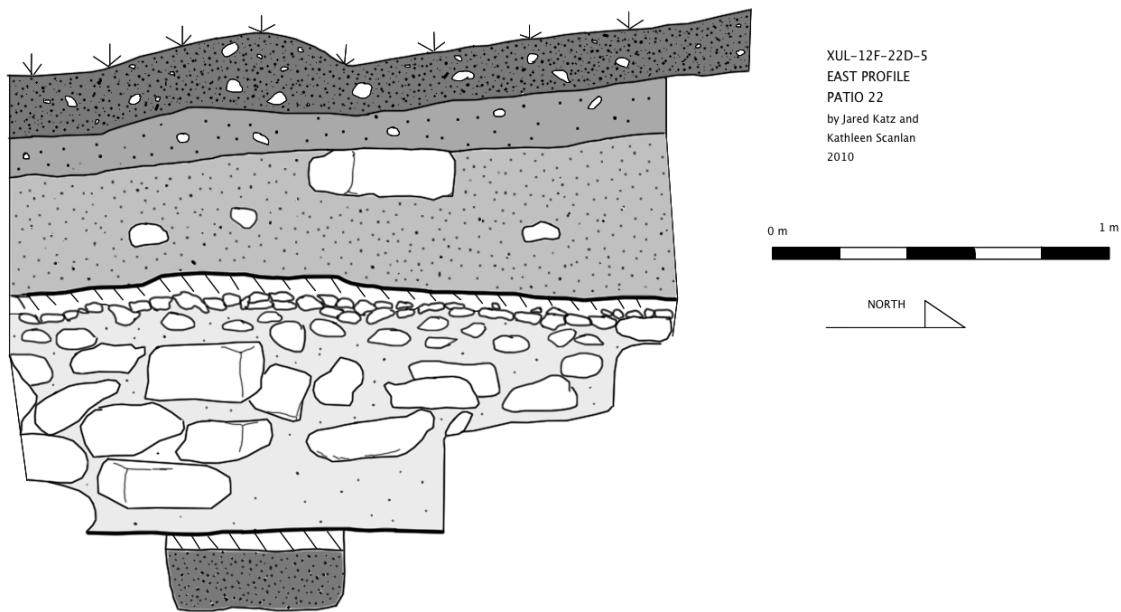


Figure 5.24. XUL-12F-22D-5, east profile, showing bedrock, initial floor and two stairs up on the right side

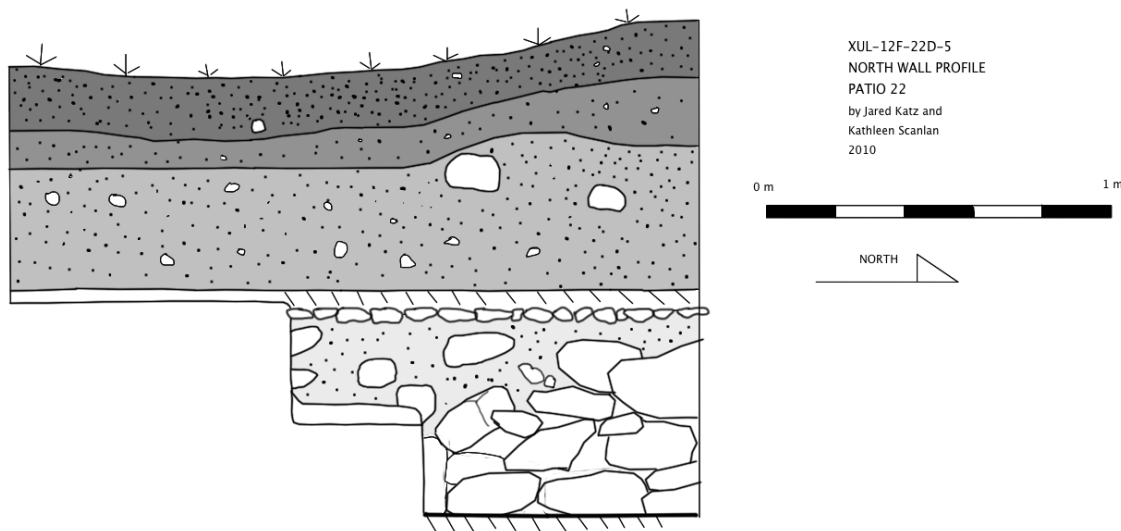


Figure 5.25. XUL-12D-22D-5, north profile, showing bedrock, initial floor and two stairs up on the left side

At this point, the western half of the patio appears to have been raised up a step, with a line of well-cut limestone blocks running north-south through the middle of the patio. To the west of these blocks, a layer of fill was laid down, measuring 35 cm deep and consisting of grayish brown (10YR 5/2) dirt with some medium to large limestone rocks. The limestone blocks and this fill were covered over with a floor (Fig. 5.25, 5.26).

The final phase of architecture visible in this patio shifted the orientation from the center to the east and raised this side dramatically, corresponding to the construction of a much higher building on top of Structure 3 (Fig. 5.27). Fifty cm to the east of the previous north-south wall, a new wall measuring 80 cm tall was built of large, roughly shaped limestone rocks. Between the two walls, the residents laid down dirt and medium-sized limestone rocks. To the east of the wall, large limestone rocks and dark brown (7.5YR 3/3) fill were deposited with thousands of ceramic sherds, dozens of obsidian blades, bones, shells, a jade bead and a manta ray spine. Sitting on top of the center of this thick fill, a staircase of cut limestone blocks continued even higher to the east, to the new structure on top, no longer present.

In the southwest corner of the patio, to the south of Structure 7 and the west of Structure 31, there was a small nook, at the same elevation as Patio 22. This area may have contained a small platform or perishable structure and appears to have included a passageway leading down into Patio 30-North.

northern doorway discussed in Patio 2-North. During a later phase of architecture, this room was partly filled in and a plaster floor was built about 50 cm below the top of the western doorway. The final phase of architecture of this building was a high structure accessed in Patio 22 by the final elevated staircase leading to the east.

Structure 7

Structure 7 (discussed more fully below) is a north-south running range structure that forms the western boundary of Patio 22. The structure measures 5.7 m east-west by 12.1 m north-south and it contains a vaulted tomb over 7 m long within its base. On top, there is a plaster floor and a low masonry wall with a doorway 1.32 m wide that opened into Patio 22. This wall was probably part of a room with a wattle-and-daub upper wall and a thatch roof.

Structure 9

On the north side of Patio 22, Structure 9 was a masonry structure with a vaulted roof made out of limestone blocks. It measured 10.4 m east-west by 6.9 m north-south and the final construction episode included a staircase on its north side.

5.9.3.5 Structures 7 and 8

The alley between Structures 7 and 8 was initially laid down with a 10 cm-thick plaster floor built directly over bedrock. Two steps of cut limestone rocks led up from the floor to the west, an arrangement which may have been mirrored to the east. The first step

was better made, with larger cut blocks of limestone, while the upper step consisted of multiple stacked blocks suggesting that the two steps were from different construction episodes. These steps were both eventually filled in to the east and covered over with successive stucco floors. The first step was divided by a balustrade jutting out from the level of the second step to the east, but this did not project any further east than the edge of the first step. The uppermost floor in this area appears to have been cut north-south and the western portion, which would have covered the upper step, was removed by the ancient residents.

Structure 7

Structure 7, on the east side of the alley, contained a tomb with a vaulted ceiling, measuring 7.35 m long by 95 cm wide and 1.15 m tall, measured from the plaster floor (Fig. 5.28, 5.29). The vaulted ceiling was not plastered and consists of slabs of limestone laid horizontally, with lighter gray fill in the bottom half of the vault and darker brown-gray fill in the top half. The diagonal walls of the ceiling sit directly on the floor, which underlies the east wall of the tomb out to the exterior edge of the building, where it stops. This exterior wall measures about 1.5 m thick and consists of a rubble fill with limestone rocks of various sizes and a western face of larger, cut rocks, stacked vertically. Another phase of architecture was built over this wall, but is not well understood and does not seem to have included a staircase.



Figure 5.27. Vaulted tomb inside of Str. 7, view south

The tomb runs the length of the building and included a niche in the middle of its southern wall, extending another 55 cm south and measuring 50 cm wide. Fine, painted and incised polychrome sherds dating to the Early Classic period (personal communication Runggaldier 2012) were found within the niche. Hundreds of sherds from

large ceramic vessels were scattered throughout the rest of the tomb. Small fragments of bones were found in the dirt that had accumulated on the floor, but no substantial human remains were found, and these were probably taken by the looters.

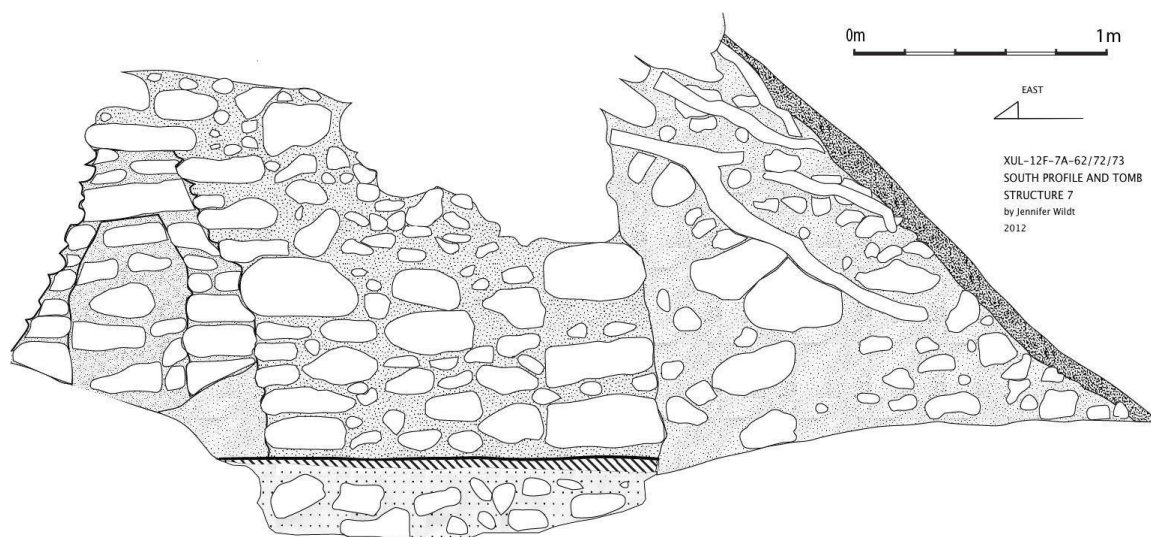


Figure 5.28. XUL-12F-7A-62/73, south profile of looters' trench and tomb, showing a cross-section of Str. 7 with the tomb and southern niche visible on the left.

Structure 8

Sitting across from Structure 7, Structure 8 was taller and squarer with a base of 9.7 m east-west by 13.0 m north-south. It had a small summit made up of two different levels: the higher, northern platform of this structure measures about 3 m north-south by 2 m east-west, with a slightly lower level to the south 2 m north-south by 2 m east-west.

Structure 8 was originally built around a tomb, with another tomb added to the building at a later date. The main tomb in Structure 8 measured 2.38 m north-south by

1.22 m east-west and stood 1.46 m tall. The interior space had a plaster floor and straight walls 1.19 m tall with a vaulted ceiling extending another 27 cm to the vault stones.

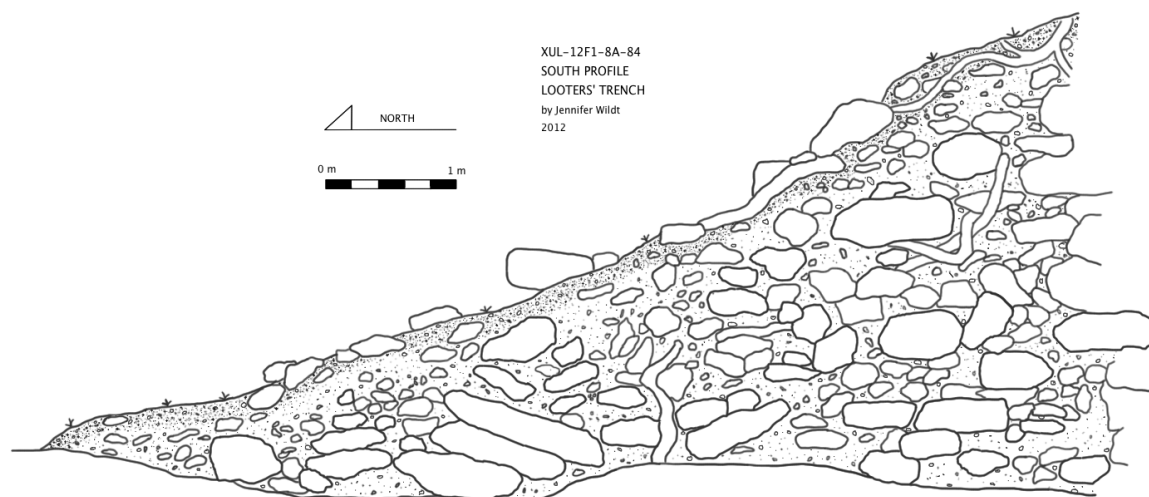


Figure 5.29. XUL-12F-8A-84, south profile of the eastern side of Str. 8

Later, an additional tomb was added by breaking through the northern end of the east façade of this building. The tomb, which was 55 cm north-south, projected out 1.68 m to the east and used one of the vaultspring stones from the east wall of the main tomb as the top of its vault, 1.19 m above the plaster floor. This floor continued east for another 55 cm, which constituted the width of the original exterior wall and a small edge beyond it. At this point, the floor steps down 20 cm and continues east into the alley at that lower level, presumably part of the original structure and patio in front. The ceiling of the secondary tomb descended in steps to the east until it was 90 cm tall at its end. The final

few stones of the eastern end of the vault also appeared to be the steps of the exterior staircase. This staircase covered the east façade, concealing the additional tomb (Fig. 5.30). Over 100 pieces of ceramics were collected from this tomb, including several finely painted polychrome sherds, but no human remains were encountered.

5.9.3.6 Patio 30-South

There are three steps down from the Southern Area into Patio 30-South, which contained at least four floors. The lowest level of fill, covering the rough bedrock, was very dark brown (10YR 2/2) *bajo* mud. A high concentration of ceramic sherds was found, particularly in the fill of the second and third floors, and this area also contained many times more chert than was seen in any other unit in Los Aves.

Structure 14

Structure 14 measures 3.6 m east-west by 9.2 m north-south and separates Patio 30-South from Plaza Colibrí to the west. The building seems to be a low platform with low masonry walls that may have supported an ephemeral superstructure.

Structure 28

Structure 28 is a low, rubble mound jutting of the northeast corner of Structure 14, between Patio 30-South and Patio 30-West. It extends 3.5 m northeast-southwest and 2.8 m northwest-southeast and appears to be connected to Structures 14 and 27 by low platforms or walls.

Structure 27

Structure 27 is low platform mound made of rubble and faced with limestone blocks that measures 3.6 m east-west by 5.0 m north-south. It divides Patio 30-South from Patio 30-North, and is just to the west of the passage leading through Structures 6-South/North into Patio 1.

5.9.3.7 Patio 30-West

Patio 30-W borders Plaza Colibrí to the east. They appear to be separated by a line of limestone rocks that are visible on the surface, which may have been the base of a perishable wall or it may have allowed access. Another line of limestone rocks leads from the southeast corner of Structure 39 to the northwest corner of Structure 27 forming the northeast corner of the patio.

5.9.3.8 Patio 30-North

Patio 30-North contained at least 6 floors and a step up to the west about 30 cm tall, running north-south. This step was eventually filled in, and a floor was laid down at that level, creating a flat patio surface. There may have been another step built on top of that earlier step, but oriented slightly towards the east. This could indicate a change in axis of the site in its later days, which is suggested in another poorly-preserved line of stones just south of the Plaza Tecolote. In the northeast corner of the patio was a low platform, running east-west that jutted out from Structure 6-North, also bordering

Structure 32. This platform, which measured 3 m east-west by 2 m north-south, had two low steps around its edges, but no visible architecture on top.

Patio 30-North had access to Patio 30-South on the east side of Structure 27, where a passageway also led into Patio 1. On the north side, Patio 30-North faced Structures 7 and 8 and appears to have been connected to them by a step down. Just to the south of Structure 7, there may have been an entry point to Patio 22. It is not known if there was easy access to Plaza Colibrí, but the plaza seems to have been open to the north of Structure 39. Thus, this patio had relatively easy access to Patio 1, Plaza Colibrí, Plaza Loro and Patio 22.

Structure 39

Structure 39 divides Patio 30-North from Plaza Colibrí and consists of a single course of limestone blocks visible on the ground surface measuring 3.6 m east-west by 9.2 m north-south. On its east side, there is a gap in the foundation that indicates a doorway that opened into the patio. This structure appears to have been built close to the ground level, slightly elevated from Patio 30-North, but with no visible platform.

5.10 Northern Area

The Northern Area is the open, relatively flat, plastered space that extends north for about 20 m from the Central Patios Area, between Plazas Loro and Tecolote. This area is bounded on the west by Structure 10 and runs about 40 m east, although this edge

is not yet well defined. Structures 26, 34 and 40 form its southern border, and Structures 11 and 18 are contained within the plaza.

5.10.1 Excavations

Three units were excavated in this area in order to clarify our understanding of the construction sequence. As these units were located away from architecture, there was less overburden covering them. No masonry architecture was found in any of these units, but floors and substantial fill were present. Unit 13 (12F10-B13) was located due north of Structure 10, close to where the terrain starts to slope gently down. Unit 16 (12F11-D16) was situated to the south of Structure 11 and to the west of Structure 18, on a slightly higher part of the Northern Area. To the north of Structure 11, Unit 19 (12F11-B19) was dug to explore the limits of this exterior floor.

5.10.2 Surface Survey

Surface survey helped in identifying the different levels of the North Area and shedding light on Structure 40. Since there was no architectural excavation in this area, it also provided the only information about the structures there.

5.10.3 Architecture Viewed through Excavation Data and Surface Survey

The southern edge of the Northern Area, close to the Central Patios Area, was built up over several construction episodes, generally employing medium to large limestone rocks, mixed with hundreds of ceramic sherds as fill. An offering of several

bone fragments, possibly human, was found on top of the bedrock in a matrix of grayish brown (10YR 5/2) fine silt just north of Structure 37. The plaster floor of the Northern Area was found to extend at least a couple of meters further north than previously believed, although the actual extent remains unknown. In this area, there were fewer floors than were found near the Central Patios Area, resulting in the bedrock being closer to the surface.

The ground in the Northern Area is rather even, but steps are still visible on the surface, indicating that it was broken up into a series of levels. A step up to the east runs from the southwest corner of Structure 11 south to Structure 26. A couple of meters to the north of Structure 11, there is a low step down to the north cut into the bedrock, and the plaster floor continues to the north of this step.

The only constructions within the Northern Area are modest platforms. Structure 11 measures 9.5 m east-west by 8.8 m north south and consists of a low, isolated structure with a platform on top of 10 m² that is oriented about 15 degrees west of north. Structure 18 is 9.5 m wide, projecting 7.4 m out from the north side of Structure 40 and may have been a platform added to support the staircase leading down from Structure 40.

Structure 40

Structure 40 was a large, raised, square room that abutted Structure 4 to the south and opened onto Structure 18 to the north. It measures 17.5 m east west by 13.3 m north-south and sits about 4 m above the surrounding area, with steep east and west sides. To the north of the doorway is a landing that extends 2.3 m further north and ends at a

stairway leading down (Structure 18). The interior measurements of the room are 7.9 m north-south by 6.85 m east-west, with low, masonry walls 80 cm thick. Dips in the middle of the east and west walls suggest that there were windows that looked over Plaza Tecolote and Patio 2-North. The room probably had upper walls of wattle-and-daub, with a thatch roof.

5.11 Southern Area

The Southern Area lies between Los Aves and Los Arboles, the monumental ancestral shrine located 60 m to the south. This area faces the back of Los Arboles. The south side of Los Aves abuts this area, with a monumental staircase adjoining it to the southern edge of Plaza Tecolote. In the Central Patios Area, Structures 5 and 38 border the Southern Area, while Patio 30-South is open to the south with a couple of steps up. The connection between the Southern Area and Plaza Colibrí is unclear and more excavation would be necessary to understand it, but there is no surface architecture forming a visible barrier between the two. The Southern Area itself was relatively flat, with little visible architecture. Two low mounds, under 1 m tall were found in this area, neither one of which was excavated archaeologically.

5.11.1 Excavations

Two excavations were carried out in this area to look for middens and establish how this area was used. Two initial units were placed to the south of Structures 5 (Unit 29) and 38 (Unit 30), although after architecture was encountered south of Structure 38,

Unit 30 was expanded into an 8 m long, north-south trench (Units 34, 36, 41, 44), with one additional unit opened next to the trench (Unit 43) (Cifuentes 2012). Units 29 and 30 showed about equal ceramic densities, with peaks in the middle layers (levels 3-4) of 1500-2000 artifacts per cubic meter. When Unit 30 was continued to the south, the density of ceramics dramatically increased, with several units having levels of over 5000 artifacts/m³, while one unit (Unit 44) had 8750 artifacts/m³ in Level 3 (Fig. 5.31). While no excavations contained the solid artifact levels indicative of a midden, they do indicate repeated dumping episodes in this area.

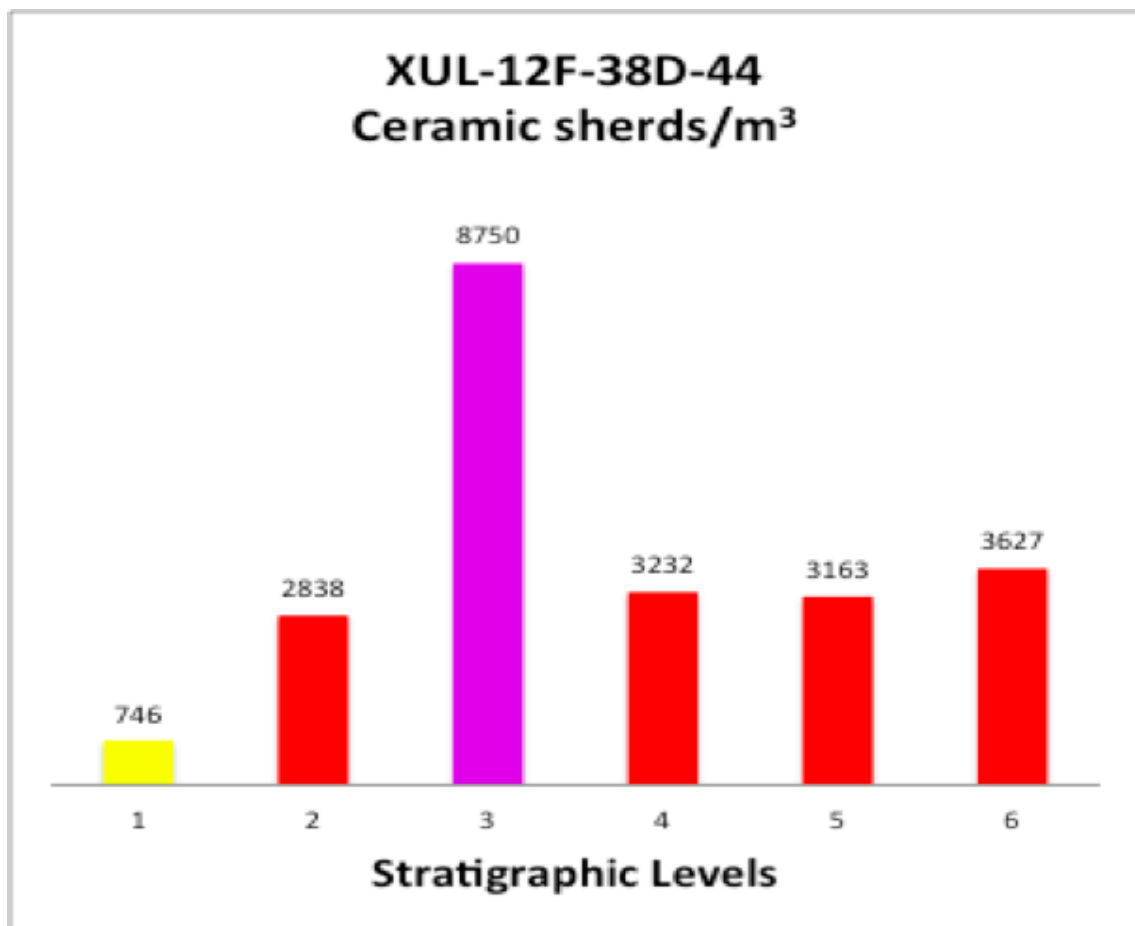


Figure 5.30. Density of ceramic sherds in XUL-12F-38D-44

5.11.2 Surface Survey

Between Los Aves and Structure 12F-19, little architecture was thought to exist, but surveying the landscape revealed small structures. Overall, the area appears to be very flat compared to the surrounding topography, suggesting that it may have been leveled.

5.11.3 Architecture Viewed through Excavation Data and Surface Survey

The bedrock in this area sloped down from the east to the west. To the south of Structure 5, it was between 85 cm and 1.10 m below the ground surface. Initial construction in this area was a deposit of large limestone rocks in the western portion of the unit to build up the bedrock. This was then covered over with a finer limestone and dark grayish brown (10YR 4/2) silt fill, which created a level surface for a plaster floor, about 60 cm deep. At least three more floors separated by dark grayish brown (10YR 4/2) and brown (10YR 4/3) fill levels were built over the initial floor, although the upper floors have deteriorated and were detected based on fill episodes. We encountered fragments of bones and ritual artifacts in this area, including part of an animal figurine (probably an ocarina), which may be due to its proximity to Structure 5, a sweatbath.

The bedrock in this area continues to become shallower as it moves east, and the fill used to create a level surface becomes thinner, until it is at the same level as the bedrock (about 50 cm below the modern ground surface). This transition happens to the south of Structure 38 and leveled bedrock served as the initial patio floor to the east. An ancillary platform was built on top of this floor and extended 7.10 m further south (its

east-west dimensions are unknown). A small wall running east-west, possibly part of a minor structure, was encountered on top of this platform, close to Structure 38.

Thousands of Late Classic ceramic sherds were deposited on top of this platform during building episodes (Cifuentes 2012), and it may have been used for occasional trash dumping.

Although the space between Los Aves and Structure 12F-19 seems empty, there is some architecture visible on the surface. About 30 m due south of Structure 38 there is a low platform that measures about 20 m north-south by 3 m east-west and stands 1 m high. The ritual nature of this area suggested that this structure could have been part of an E-Group, but no radial pyramid was found in association with this structure. Forty-five meters south of the presumed southern border of Plaza Colibrí lies another structure, which is 6 m north-south by 10 m east-west and about 1 m high.

5.12 Summary

The architectural development of Los Aves shows a dynamic history of construction, termination and reorientation. Early Classic period trends in the architecture of Los Aves include the presence of ritual structures in both residential and public areas. The sweatbath, Los Sapos, shows the importance of private rituals within a residential setting. The façade of this structure provides valuable information about the nature of sweatbath rituals and symbolism. Public space at this point is limited to Plaza Colibrí, which covers less ground than the residential area. The Round Structure, discovered under the plaza floor, was an important site of early public ritual.

As time went on, these structures were enlarged and added to. The stucco façade of Los Sapos was extended to the east, while the Rectangular Structure covered over the Round Structure. Levels and steps were built in residential patios, dividing and elaborating space within.

Los Aves grew dramatically during the final, Late Classic phase of building. Early Classic ritual structures were buried under new constructions, both preserving and concealing them. Important offerings, including human remains, were deposited at ritual buildings. Plazas Loro and Tecolote were built, greatly increasing the amount of open space around the residential center. Many early buildings were built over with new structures, particularly Structures 3, 4, and 5, within the central area. Residential patios were leveled and raised, providing larger flat spaces on which small platforms were built.

During the 2010 and 2012 field seasons, a variety of approaches were taken to understand Los Aves. Fieldwork focused on both understanding the occupation period of the group and determining how the architecture there evolved. Since this study covered such a large area with many structures, it was necessary to prioritize the collection of information and develop methods that would allow me to draw conclusions about the whole of the group without excavating in all areas. The complementary approaches of excavation and surface survey allowed me to develop a thorough understanding of some subterranean features as well as basic knowledge of all the buildings in the group.

Excavations throughout the group uncovered evidence of important ritual behavior. Offerings and caches were found in all three plazas as well as in the residential

core. Previously unknown ritual architecture was found in the residential area, reinforcing the idea that a variety of structure types were present near dwellings.

The surface survey yielded information about building construction methods within the residential area. It was also key to understanding movement through architectural groups and how different areas related to each other based on access.

In the next chapter, I apply the data presented in this chapter to draw conclusions about architecture. I discuss how buildings were used and what meanings they may have held. I look at different groupings of structures to determine what sorts of activities may have taken place in each and how they related to each other. These ideas are used to develop a comprehensive picture of architecture and ritual within this group, which is then applied on a larger scale.

Chapter 6. Discussion

6.1 Introduction

Based on the archaeological research presented in Chapter 5, I now discuss the meanings, relationships and uses of the architecture in Los Aves, as well as the people who lived there. I consider the data spatially and chronologically when possible, in order to build a picture of how each area of Los Aves was used, how different areas were connected, and how these uses and relationships changed through time. In this chapter, I combine the architectural and artifactual data in order to present a cohesive image of each separate area. Public and private areas are then looked at holistically to understand larger themes within the group. Creating a comprehensive representation of a large ritual and residential group enables us to recognize how these dual aspects of people's lives interacted with and affected each other.

Los Aves was a dynamic architectural complex (Fig. 6.1, 6.2) that doubled in size from the Early Classic to Late Classic periods, primarily by increasing public space. As populations rose during the Late Classic period, available space within the residential area was used to build more housing and support structures, while private ritual spaces were eschewed in favor of larger, public ritual settings. Plazas were constructed and structures were enlarged, requiring massive investments of labor and presenting an impressive face to the public. These changes were associated with alterations to ritual activities within Los Aves and also between this group and Los Arboles to the south. No longer was ritual in Los Aves small and community-focused; now monumental structures and processions tying the two groups together were more important.

For the sake of clarity, this chapter is organized along the same lines as in Chapter 5, with public space discussed first, then the private patio groups, and the northern and southern areas last. Plazas and patio groups are approached differently because of their different architectural arrangements and uses. An effort is made to synthesize different types of data in order to create a holistic understanding of each area and to highlight the inter-relatedness of the architectural elements.

6.2 Public Space

The public space of Los Aves includes Plazas Colibrí, Tecolote and Loro, which are ordered chronologically, with Plaza Colibrí discussed first. This plaza is the only one in the group that showed substantial changes and is therefore considered chronologically, while the other two are examined spatially. I explore multiple aspects of public space in each of the plazas, including visibility, access, layout, capacity, proxemics and ritual offerings.

6.2.1 Plaza Colibrí

Plaza Colibrí was part of the initial construction of Los Aves, built during the Early Classic period along with the Central Patios area (Fig. 6.1). When this group was founded, public space constituted only about one-third of the total area, rather than majority that it covered during the Late Classic period. Additionally, public space did not surround the residential area as it appears now; rather dwellings made up the east portion of the group, and this plaza projected out to the west.

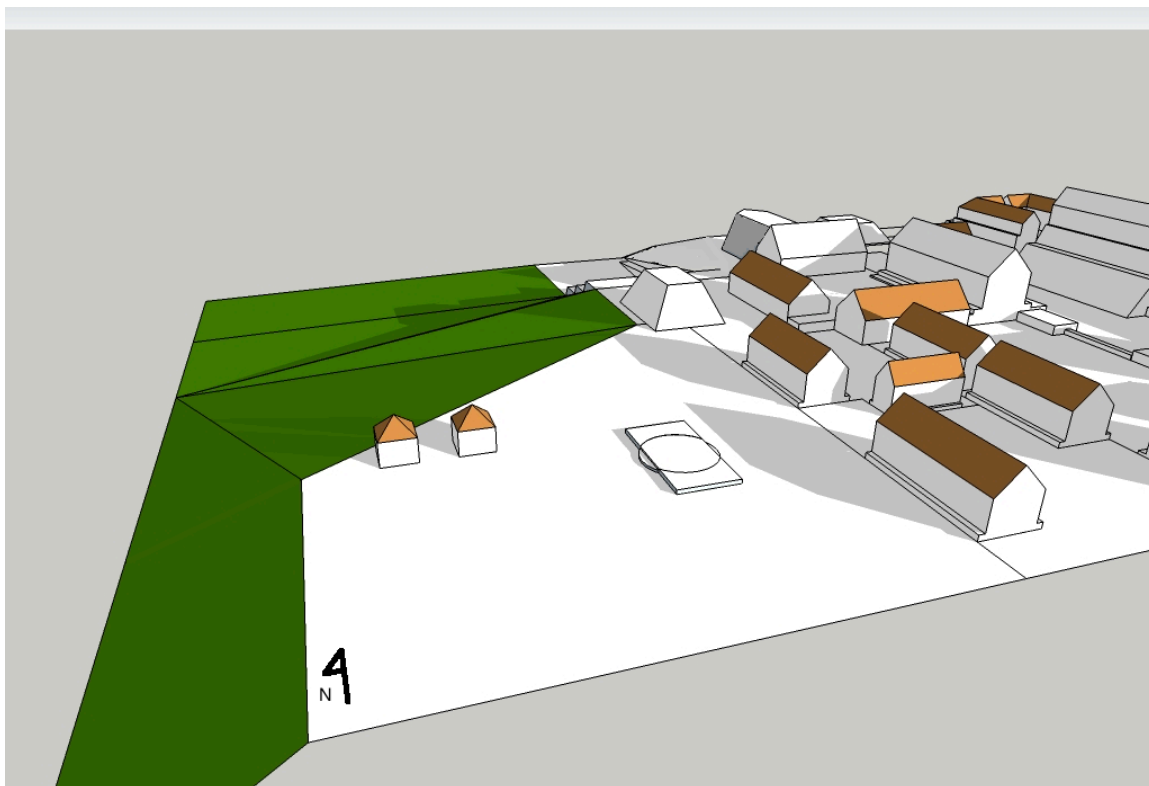


Figure 6.1. Plaza Colibrí, with Round Structure superimposed over the Rectangular Structure

Plaza Colibrí was built on the same level as the surrounding areas, with no leveling of bedrock or excavating down to create a sunken space. Instead, as in the residential area, the flat surface for this plaza was created by filling in depressions in the bedrock with concentrations of ceramic sherds, presumably meant as ritual caches dedicated during the building of this area. The shape of the plaza seems to have been determined by a natural hill and the western border of the residential group. There is no clear southern boundary and delimiting space may not have been considered important,

nor are cardinal directions emphasized by the design of the plaza. Within the estimated area, the plaza could have accommodated from a minimum 300 to a maximum of 2400 tightly packed people (Inomata 2006; Moore 1996). Using Moore's middle figure of 1 m² per person, still suggests a crowd of over 650 people in Plaza Colibrí, which seems high. Given that Moore's studies were based on central plazas, these numbers may not apply equally well to peripheral areas, where crowding may have been less.

6.2.1.1 The Round Structure

The first structure built here, the Round Structure, was probably used as a performance platform during local group rituals (Aimers et al. 2000; Hendon 1999, 2000). It has been suggested that such platforms may have been used as oratories or stages (Aimers et al. 2000); however based on the low height of this structure (15-20 cm) above the plaza floor, the increase in visibility or audibility for those standing on top would have been minimal. Such a low platform also created little sense of separation between performers and observers, unlike monumental Maya temple platforms on which ritual specialists were inaccessible. Additionally, the round shape of this structure and its location in the middle of the plaza imply that it would have been surrounded by people on all sides. This would result in the performers having their backs to some observers at times, so they could not properly observe or participate in rituals. Although there were theaters in the round elsewhere in the ancient world, such as the Colosseum in Rome or the amphitheater in Pompeii, these monumental spaces were sunken stages accompanied

by angled stadium seating which both allowed the audience to look down over the performers and improved acoustics (Bomgardner 2000; Vitruvius 1999).

These observations suggest that the line between performers and observers may have been blurred during rituals on the Round Structure, with attendees possibly playing both roles. Group dances are a flexible activity in which one can participate and observe, with performers possibly taking turns on the platform. The platform focused attention on a particular person or people, without segregating them from people in the plaza. Rather than creating a divided stage/observation area dynamic, the whole plaza could be used as a performance space. As Sahagun and Landa observed ethnographically, dancing was an important part of rituals on later round structures, and may have been a frequent activity here (Sahagun 1969-1982 [1540-1585]).

Determining the specific activities that took place on this structure might require more data, but results from similar architectural arrangements suggest some further possibilities. At Gran Cacao in Belize, evidence of feasting was found associated with another low, round platform (Lohse and Sagebiel 2005). This structure, like the one in Los Aves, was located in a relatively open area, leading the researchers to describe the type of feasting as “probably inclusionary, rather than exclusionary or diacritical” (Lohse and Sagebiel 2005:324). This supports the idea that Plaza Colibrí accommodated a variety of group activities and encouraged unity among the participants.

Capacity

Ethnographic observations of plaza activities have been used to calculate the capacity of ancient plazas, with the amount of space used by each person ranging from .46 m² to 1 m² to 3.6 m² per person (Inomata 2006:812; Moore 1996:147). These estimates were based on people in plazas whose activities ranged from passive observation to dancing and performances on top of the Round Structure may have been active, possibly involving groups of people. Thus, I use Moore's middle estimate of 1 m² per person as the minimum space required for each actor, resulting in a maximum of 37 people on top of the Round Structure for a crowded ritual. However, the space described by a person spinning in a circle with his or her arms outstretched is just over 3 m², which would provide enough space for a person to dance, while remaining stationary. The more likely 3.6 m² per person allowance suggests a maximum of 10 people and allows more room for movement, particularly if they were wearing large costumes such as those seen in the murals at Bonampak.

Proxemics

Str. 14 sits about 15 m to the east of the center of the Round Structure and the western border of the plaza was 30 m away. Expanding on Hall's proxemics guidelines, Childs (2004:124) describes spaces of this size as "town forum" size and Lynch (1971:194) refers to it as a "pleasant human scale" within which one can still read facial expressions. This suggests that if a person were declaiming from this platform, he or she would not yet need to rely solely on the common tropes and simple ideas that

characterize communication over long distances. However, Hall points out that at distances greater than 6 m, one must use a “full public speaking voice” (Hall 1968:92), suggesting that at full capacity, communication from the Round Structure would not have been very nuanced. Additionally, auditory communication over long distances is usually accompanied by gestures and visual cues in order to make the message more intelligible (Hall 1966), but these would not have been visible from such a low platform, lending further support to the idea that the Round Structure was probably not used as an oratory platform.

Plaza Colibrí is focused inward, with no major structures along the northern and western edges, no apparent southern border and an eastern border likely formed by the backs of residential buildings. Observers probably faced the Round Structure and Rectangular Structure in the center of the plaza and would have been able to see each other, heightening the sense of shared experience and reinforcing their group identity (Bell 2009; Inomata 2006; Kertzer 1988). Such an arrangement would, “physically bring together numerous individuals and allow them to sense the presence of others and to share an experience... [which] presents moments of a ‘real’ community” (Inomata 2006:807-808).

Following the ritual termination of the Round Structure two phases of flat plaza surfaces were laid down, but it has not yet been determined if there were other structures elsewhere in the plaza or if the entire plaza was flat. Before the Rectangular Structure was laid down later in the Early Classic, the higher floor covering the Round Structure was cut and removed and the earlier plaster surface of this structure was chipped away to

expose its outline. In this way, the builders commemorated the Round Structure and meaningfully tied together the constructions. No special offerings or interments were found within the Round Structure, although this may be due to sampling issues rather than their absence, as they are a common feature of such structures at other sites (Aimers et al. 2000).

6.2.1.2 The Rectangular Structure

The new Rectangular Structure may have been part of a shift in the ritual focus of the practitioners, from an inclusive cosmological view, to one more emphatically tracking the path of the sun (Klein 1980; Szymanski 2010). Since this structure was about as tall as the Round Structure had been, it suggests that if there were no superstructure, the Rectangular Structure would also have been used for interactive, group rituals, as it was large enough to hold up to 47 people on top in a crowded situation ($1\text{m}^2/\text{person}$). Moore's more generous 3.6 m^2 per person suggests that a maximum of 13 would have been more likely, close to the number of people who might have participated in rituals on top of the Round Structure. The plaster surface of this building was later removed, erasing any record of a superstructure; it is not known if rituals were moved behind closed doors.

As part of the termination rituals of the Rectangular Structure during the Late Classic period, the northern portions of the east and west walls were removed, as was part of the north wall, although at least one stone was left in place. It is not clear why certain portions of the building were dismantled and not others. Plaza architecture seems to have been different on the east and west sides of the building, which may be related to

differential treatment. Termination rituals here included leaving a Late Classic ceramic offering (*cantero*) near the northern end of the extant west wall as well as placing a deposit of ritual ceramic sherds in the fill at the northern end of the east wall. These included at least one incense burner of the *candelario* type (Rivera Castillo personal communication 2010). After the Rectangular Structure was concealed by another plaster floor, the plaza again seems to have lacked central standing architecture and it is not known how the plaza was used during the Late Classic period.

6.2.2 Plaza Tecolote

The construction of Plaza Tecolote during the Late Classic period increased the amount of public space in Los Aves by about 30%. This plaza, which is the largest in the group, extended from the eastern edge of the Central Patios Area to the drop-off at the quarry to the east of Los Aves (Fig. 6.2). It was open to the south, providing access for people from outside the residential group, unlike its contemporaneous counterpart, Plaza Loro.

Plaza Tecolote was dug down into the bedrock on its southern end, obscuring previous structures and deposits and making it impossible to say if there was any Early Classic period occupation of this area. The northern end of the plaza is not well defined, but in front of Structure 15, the plaster surface of the initial plaza appears to have been built up about 50 cm above the ground surface. Only one or two substantial construction episodes are visible in this plaza. Dating for the plaza was established based on the ceramics from the Late Classic cache in front of Str. 15, which extends from just above

the bedrock to a shattered altar which sits on the ancient ground surface. At the end of its life-use, almost identical Late Classic period owl (*tecolote*)-shaped ocarinas were deposited at the southwestern corner of Str. 15 and at the center of the base of the monumental southern staircase.

The construction of Plaza Tecolote during the Late Classic suggests an interesting shift in the relationship between Los Aves and Los Arboles. Los Aves began as a “behind the scenes” support place for Los Arboles and did not initially have a public ritual connection; therefore its placement behind Los Arboles was appropriate. In the Early Classic period, preparatory rituals took place in the sweatbath accessed by a patio group and were not public. As religious specialists became more powerful during the Late Classic period, the residents of Los Aves sought to make their connection to Los Arboles more explicit by performing public rituals. There is no evidence of a processional path between the two areas in the Early Classic, but the layout of Late Classic period Plaza Tecolote strongly suggests that processions from this area to Los Arboles in the south were an important part of ritual activities in this plaza. The perpendicular arrangement of the plaza and complementary staircases at the northern and southern ends of the space indicate that this plaza was probably the northern end of a mobile ritual. The plaza is behind Los Arboles, but is offset to the east, so that a procession heading due south would arrive at the southeast corner of the temple platform at the base of the stairs. This architectural connection could indicate an increasing formality between the two areas; during the Early Classic, traveling from one area to the other was not part of public ritual.

It could also denote increasing power of the residents of Los Aves and a shift in their roles in rituals at Los Arboles.

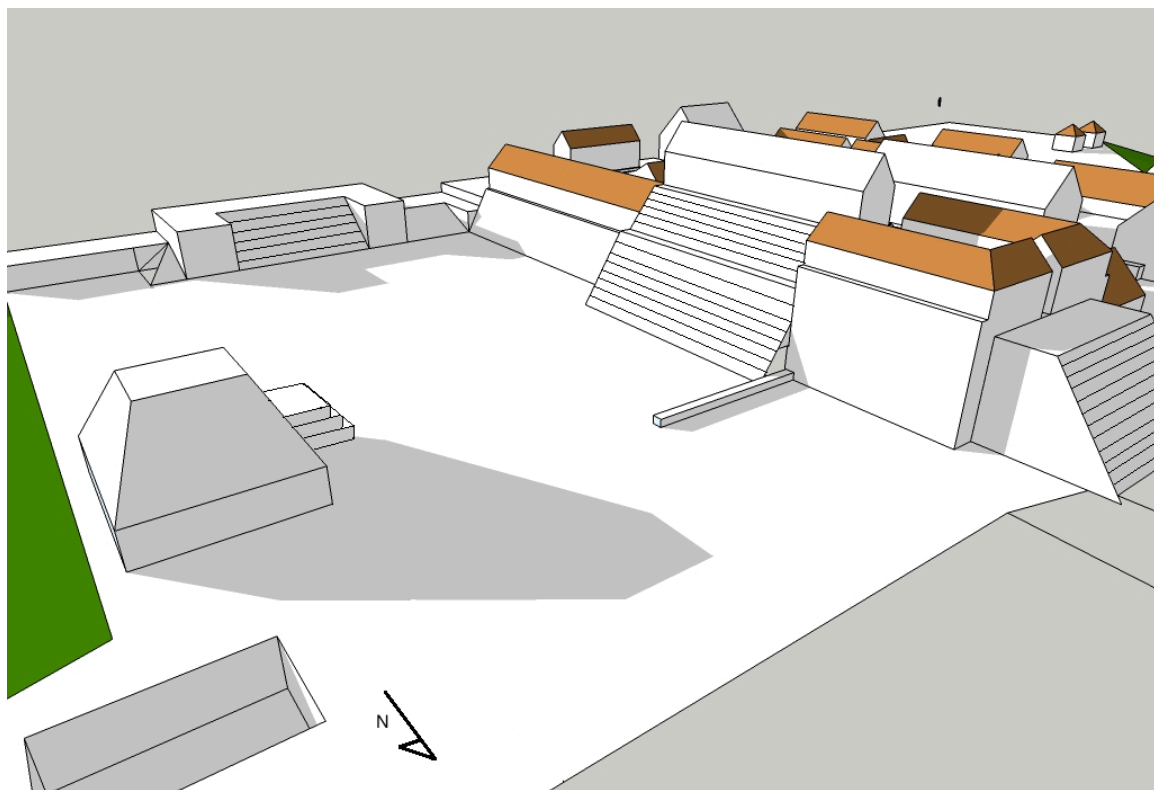


Figure 6.2. Plaza Tecolote

Visibility

The sunken southern end of Plaza Tecolote was overlooked by the Southern Area between Los Aves and Los Arboles. The monumental staircase and large baulks to either side provided places to observe activities taking place down in the plaza; however, as this staircase provided access between two ritual areas, it is more likely used for passage,

rather than observation. A line of structures (Strs. 12, 4, 40) along the west side of Plaza Tecolote may have provided seating along their platform bases and staircases. The landing and monumental staircase on the eastern façade of Str. 4 presented seating possibilities facing the ritual Str. 15. These stairs and landing may have also served as a stage, visible to those in the plaza below. The presence of the landing in Structure 4, maintained even after the insertion of the cyst burial, indicates that performance or audience activities taking place there persisted through time. Several Late Classic period vases show important personages seated at the top of stairs, including K767 and K3412 (Fig. 6.3, 6.4), which depict rulers passing judgment over captives (Kerr 1989).



Figure 6.3. Vase - Kerr 767, showing a seated figure looking down from the top of a staircase.



Figure 6. 4. Vase Kerr 3412, showing a seated figure looking down from the top of a staircase.

On the northern end of the plaza, a 10 m long, low wall juts out from the southeast corner of Str. 40. This wall may have provided seating for those observing plaza activities or it could have served as the base of a taller, wooden wall or both (Martín Rangel, personal communication 2012). It effectively served as the northern extent of the plaza, making it 42 m in length. A similar wall, about 50 cm tall, is present on the east side of the plaza, extending south from Str. 15. This wall creates an eastern boundary and if it were surmounted by further wooden construction, may have hid ritual activities taking place on a slightly raised area behind it; giving the plaza a width of 29 m. The rectangular depression to the northeast of Str. 15 may have been visible during plaza activities, or this may have been blocked off from view by another barrier. Based on the

steps down into the depression on its western side, I hypothesize that this structure may have been filled with water and served as an area for ritual ablutions.

Access

Access to Plaza Tecolote was principally by way of the southern monumental staircase. This staircase, similar in width to the stairs of Str. 4, was likely built for ambulatory rituals between Los Aves and Los Arboles. Plaza Tecolote may have been used for preparatory rituals in which the officiants processed from the northern end of the plaza to the south and then up the stairs and out of the plaza. The staircase would have served as a liminal space (Bell 2009:99), where the actor ascends from the plaza as part of the journey of processing to Los Arboles

In constructing such a staircase, the builders transformed entering or leaving the plaza into a ritual or performative act (Van Gennep 1960). By descending into the plaza, one was already committing a ritual act and engaging with the plaza. Ascending out of the plaza would recreate part of the ritual path from Plaza Tecolote to Los Arboles. Thus, even if this plaza were used for quotidian activities, all those who entered or left the plaza by way of the monumental staircase participated in a ritual.

There may have also been access on the north side of the plaza, to the east of the low wall. The wall reaches almost to the center of the plaza and could have formed part of a northern entryway to the plaza, providing balance to its composition. This opening would have linked Plaza Tecolote to the Northern Area and raises the possibility of a

mobile ritual circumventing the residential area, leading from Plaza Tecolote to Plaza Loro and Plaza Colibrí, although this would be difficult to determine.

Layout

Plaza Tecolote is characterized by a large, flat floor, overlooked by higher structures on the east, south and west so that, although the plaza is spacious, there is still a sense of being contained. In order to spatially analyze this plaza, I define its interior as the area bounded by the monumental staircase on the south, the low wall on the east, the low wall on the north and the line of Strs. 12, 35 and 4 on the west. This space is rectangular, measuring approximately 40 m east-west by 30 m north-south; however, if the low walls are ignored and measurements are taken from the *cantera* in the east and the northern extent of Str. 40 to the north, it measures 40 m east-west by 55 m north-south.

Although the interior of Plaza Tecolote appears to be uniform, particular areas had different ritual meanings. The monumental staircase in the south suggests that the southern border of the plaza was a liminal area, highlighting the passage out of Los Aves towards Los Arboles during rituals. At other times, the staircase could have functioned as a raised seating area and its use may have been flexible throughout the day or season. The northern part of the plaza is where ritual remains are concentrated, with the staircases of Strs. 4 and 15 in alignment, a round altar equidistant between them and an altar and stela, now rubble, in front of Str. 15. This layout suggests that there may have been movement between the two structures with ritual activities in between. Because precise,

equal movements are an important part of mobile rituals (Bell 2009), processions that originated at the northern end of this plaza could have stopped at the central altar, then turned 90 degrees and headed south. Placing Los Arboles-bound rituals at the northern end of the plaza would maximize the distance of the ceremonial procession within Plaza Tecolote. Increasing the proportion of the procession in Plaza Tecolote would heighten the ritual importance of the plaza and lengthen the procession, as well as causing officiants to pass closely by more observers, providing them with a more personal connection to the rituals.

There seems to be a balance between the more explicitly ritual east side of this plaza and the monumental west side connected to the residential area. Nevertheless, despite possible differences in association, Strs. 4 and 15 were tied together by participation in, or observation of, rituals. The alignment of these two structures with the altar in the center of the plaza suggests that these three places may have been part of the same ritual.

Outside of the central area of the plaza were areas that may have been used for support and in preparatory acts. Behind the eastern wall to the south of Str. 15 the slightly raised area may have supported ephemeral buildings used for storing ceremonial materials. To the northeast of Str. 15, the rectangular depression has steps down on the western side, suggesting that it may have been used for ritual bathing, similar to structures seen in the palace at Cancuen (Alvarado Najarro 2011; Barrientos 2013). In the southwest corner of the plaza, at the southern end of Str. 12 there is a small room about 1 m east west by 2 m north-south that opens onto the plaza. This room, which is too small

to have served as living quarters, may have been used for storage of ritual materials, a function seen in structures at Cerén (Brown and Sheets 2000).

Capacity

The flat expanse of plaster floor in the interior of Plaza Tecolote covers 1200 m² of open space. If the plaza were crowded, it could have held up to 2608 people (.46 m²/person), 1200 people with moderate crowding, and with more personal space (1 m²/person), 333 people (3.6 m²/person). During events that involved processing through and out of the plaza, aisles would have been left for the practicants, reducing the space available for the audience. If the landing in the middle of the east façade of Str. 4, which measured approximately 8 m by 3 m, were used for observation, it could have held between 6 and 52 people.

Proxemics

There are significant geometric distances in this plaza between Structures 4 and 15 as well as the central altar and the southern staircase. The altar is located about 18 m from both the landing on Str. 4 and the platform on top of Str. 15, suggesting that it was important to both structures. The distance from the landing and the platform was 36 m but, as both were elevated, communication may have been easier. The center altar was also 36 m from the southern stairs, suggesting that their placement was based on careful measurements.

Communicating with people over distances as far as 40 m in the corners of the plaza, meant that those in the back of the audience would probably not hear anything a speaker said. Spaces larger than 25 m are what Childs (2004) calls “spectator squares” and are too large to make out facial expressions, although still well within the range of following events (Gehl 1987). Methods of communication that are used over such distances include costumes, banners, fire and music (MacAloon 1984). In the case of Plaza Tecolote, either the group of observers may have been small enough to allow for verbal communication, or performers may have worn costumes for rituals, perhaps moving to Los Arboles, where crowds would have been more distant than those in this plaza. Even within the confines of Plaza Tecolote, the size of the plaza indicates that observers would have behaved as a “mass audience responding to a performance” (Childs 2004:23).

Ritual Offerings

Ritual offerings marked the founding and retiring of this plaza. The cache of obsidian blades and ceramics, which was part of the larger project of building Str. 15, represented a large investment of wealth. Owl ocarinas were buried as part of the ritual decommissioning of Str. 15 and the southern staircase, both in very good condition, suggesting that care was taken with their deposition (Fig. 6.4). Ocarinas such as these were common during the Late Classic period and were probably used in ritual (Willey 1978).



Figure 6. 3. Owl-shaped ocarina found in Plaza Tecolote

Backfill from the looted, cyst burial in Str. 4 produced a bone needle and a chert eccentric, both elite goods (Fig. 6.5). The construction methods used in this tomb, including well-cut limestone slabs and a layer of chert flakes, also point to the high social status of the individual. The location of the burial, on a high level of one of the most important buildings in the group support this, and the association with Plaza Tecolote suggests that he or she may have played an important role in rituals there.



Figure 6. 4. Chert eccentric found in looted tomb on east side of Str. 4

6.2.3 Plaza Loro

Plaza Loro was also built during the Late Classic period, extending Los Aves to the northwest and it was probably part of the overall expansion and building taking place in the group then (Fig. 6.6). Plaza Tecolote was built around the same time, suggesting that the two plazas may have served complementary, important roles in the lives of the inhabitants of the group. They also increased the privacy of the residential area of the group by insulating it from surrounding areas to the north and east.

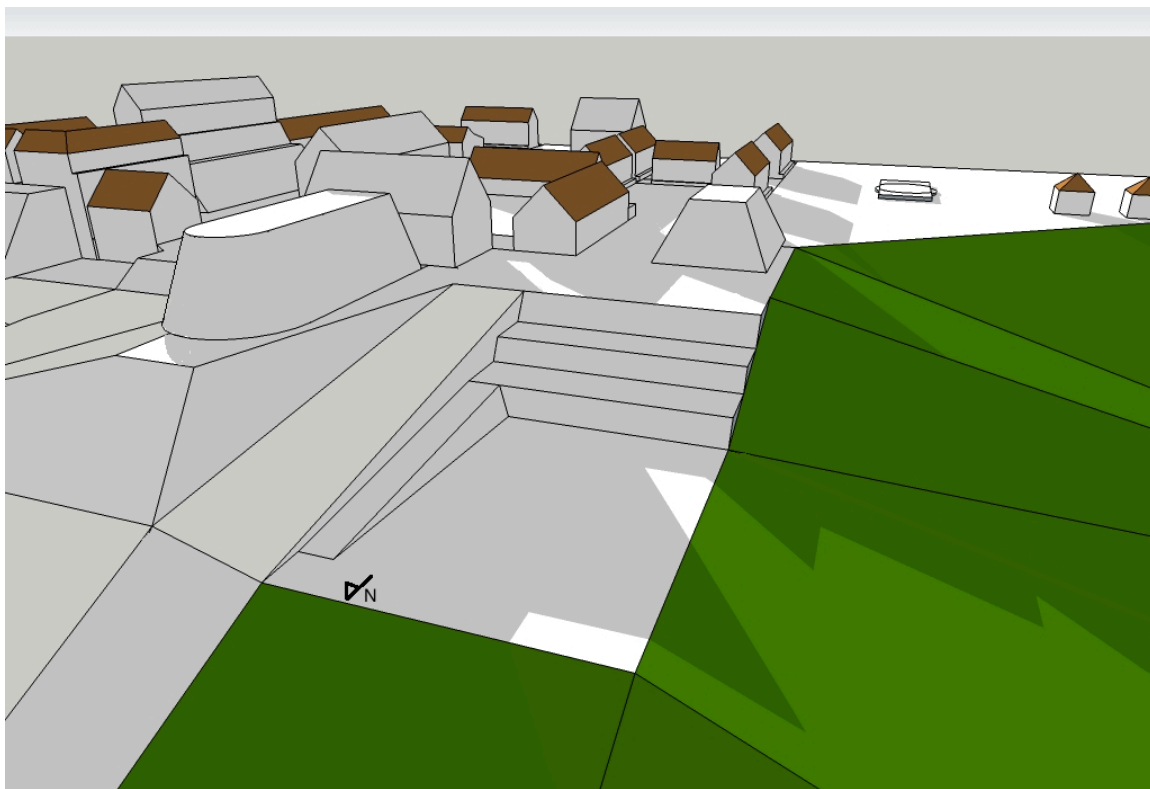


Figure 6. 5. Plaza Loro divided into levels

Like Plaza Tecolote, Plaza Loro was dug down into the bedrock, erasing any evidence of earlier activities or structures in this area. Unlike the northern end of Plaza Tecolote, the whole floor of Plaza Loro appears to have been leveled. Str. 10, which forms the eastern border, has not yet been excavated, so it is not yet known if this building predates Plaza Loro, constraining the amount of space available for the plaza, or if it was built afterwards in order to offer an easier view of plaza activities. To the south, Strs. 7 and 8, which date to the Early Classic period, abut the plaza but do not appear to

have any special relationship with it, nor do they restrict access to it. It is possible that the tombs in these structures added layers of ritual meaning to the plaza.

Visibility

Because Plaza Loro was dug down into the hillside it did not provide any vantage points for observing activities to the south or east. It was entirely visually cut off from Los Arboles (12F-19) to the south, suggesting either that activities taking place in the plaza were unrelated to those at Los Arboles, although it could be included in processional rituals running through the three plazas, among other possibilities.

The sunken rectangle in the northwest of the plaza was looked down on from the south and east, suggesting that it may have been the focal point of the plaza, but it does not dominate the plaza layout. Str. 10 overlooked it from the east side of the plaza and may have been used for observing activities within. There were views out of the plaza to the north and west. Beyond the low streambed forming the western border, the land rose up creating a hillside that would have been visible to those in Plaza Loro. The open north end faced a small residential group, 12E-1, about 80 m away.

Access

The northeast and southern access points to the plaza were open and not marked by any special architectural features that might ritualize entering or leaving the plaza. Of the three plazas in this group, Plaza Loro appears to have been the most open to the residential area, with access on two sides. Str. 10 appears to have faced the plaza and may have been related to activities taking place there. The ramp passing through Plaza Loro

provided access to all levels of the plaza as well as easy passage around the plaza without having to enter any flat spaces or participate in plaza activities. Thus, a person walking through the plaza on the ramp was not fully within the plaza – he or she occupied a more liminal position, able to observe activities taking place within, but neither interrupting them nor being obliged to participate (Van Gennep 1960). The plan of this plaza therefore allowed for activities within to be casually observed by passersby, suggesting that there was not a sacred or exclusive aspect to them. This integration into the residential area and the informal nature of this space suggest that this plaza was frequently used by the residents of Los Aves in a casual manner and probably had little to do with rituals at Los Arboles (12F-19).

Layout

Plaza Loro is oriented north-south, twice as long as it is wide. The shaping of it eschewed a large gathering area or stage, instead dividing the plaza into four areas: the elevated southern area, the wide step down, the sunken northern area, and the ramp on the east side connecting these areas and the southern and northeastern access points (Fig. ____). The more equal division of space in Plaza Loro suggests that it was not simply split into an area for spectators and one for actors, but rather was divided into a series of smaller spaces that may have been used differently. By breaking down a plaza into different levels, the builders divided the space into “outdoor rooms” on a more human scale (Cooper Marcus and Francis 1998:46). These areas could have been used for various activities, including performance, observation, play, relaxation and transit.

The sunken area in the northwest of the plaza occupied 49% of the available space, although the northeast corner of the plaza, which occupied 6% of the space may have been considered part of the access into the plaza, rather than part of the sunken area. This would reduce the sunken area to 43% of Plaza Loro's space. If people were crowded into this plaza (.46 m²/person) it could have fit up to 835 people, while a more generous use of space (3.6 m²/person) would have accommodated 106 people). However, high-density estimates are generally applied to a standing audience watching a performance, whereas in this case those in the sunken area were probably the ones being observed. The wide step that sits adjacent to the south occupied about 6% of the plaza, with a potential capacity of between 12 and 101 people. If it were used for seating, an estimate on the low side would be more appropriate. Running from the sunken area in the north to the higher southern border, the ramp occupied 7% of the plaza. If it were used to accommodate people during plaza activities, it could have held between 15 and 119 people. The lower step of the elevated southern portion was about 11% of the plaza and had a potential capacity of 24 to 190 people. However, the centered position of the indented area in the higher step suggests that this area may have been important and therefore possibly not crowded. The higher step in the southern portion of the plaza covered 26% of the total space and could have held from 57 to 447 people. The south area could have held a total of between 83 and 652 people, which provides us with an estimated total plaza capacity of 214 to 1573 people, although the different spaces probably tended towards different levels of crowding, ranging from lone performers to crowded observing areas.

Proxemics

Although the methods and loci of communication within this plaza are not well understood, some aspects of architecture suggest ways in which it may have taken place. The maximum potential distance over which people may have communicated, from the northwest corner to the southeast corner, was 45 m, but most communication likely took place over smaller distances. From the center of the sunken area to the middle of the wide step, the distance was 13.5 m and it was another 10 m to the center of the indented step to the south. Distances of about 12 m are what Childs refers to as “neighborly courtyards” (2004:124), well within what Lynch refers to as a “pleasant human scale” (1971:194). Thus, within the lower levels of Plaza Loro, communication would have been relatively intimate. Interacting over the length of the plaza falls into Childs’ “town forum” scale, signaling that louder, more formal communication would have been necessary.

Plaza Use

Architecturally, this plaza differs from the others in a two important ways: the floor has multiple levels and there is no freestanding architecture inside. This has several implications for how the plaza was used. In Plazas Colibrí and Tecolote, raised structures were the foci for ritual activities; the absence of any such structure in this plaza suggests that it was used differently. The sunken rectangle may have been used as a performance area, but unlike a raised area, this does not create a power dynamic in which the performer is looking down on the audience. Having an audience at eye height or looking down can be a more intimate experience or might place the audience in the position of

power (Cullen 1961). The multiple levels of the plaza created convenient areas for seating and may have been used for crafting activities that could no longer be accommodated within the crowded household patios.

It is also possible that the “observers” were not watching a performance in the strict sense, but were overseeing others, possibly children, who need constant supervision. Assessing the surface architecture using modern studies, may suggest this plaza was a daytime locale for domestic activities and children. It meets many of the requirements of modern-day public spaces intended for use by children and families (Cooper Marcus and Francis 1998). The sunken rectangle is a large enough area for children to move about in, so that they could play freely. The wide step provides an adjacent area where caregivers could easily observe children, while engaging in their own activities. Access into the plaza and throughout the different areas is via a gentle ramp that is easily navigable and averts possible injuries from falling down stairs. Ramps are consistently recommended for children in negotiating differences in elevation (Allen 1968). This is the most private of the plazas in Los Aves, situated in the northern part, away from more trafficked areas of Xultun. Additionally, water sources are often an important part of children’s play areas, particularly for children ages 6-12 (Cooper Marcus and Francis 1998:98), and the plaza users could have gone down the hill to play in the creek.

The residents of Los Aves may also have used this space for afternoon or evening gatherings, since it is located on the western side of the group and would have retained sunlight later in the day. Studies of plaza use have shown that occupants can have a very

strong inclination towards sunlight or shade, depending on the temperature (Whyte 1980). Additionally, the casual spatial arrangement of the plaza would have lent itself to less formal gatherings among group members.

Ritual Offerings

The ritual deposits in this plaza were dug down into the flattened bedrock as part of the initial formation of the plaza. *Chultunes* could be used to store food or water; however the placement of a *chultun* in the middle of the plaza suggests that it may have been intended for ritual use. The burial found inside, which appears to be a robust adult, was interred just under the opening of the *chultun*, probably as part of a closing ritual. With the subsequent looting of the *chultun* and disturbing of stratigraphy, it is not possible to determine if the closing ritual took place as part of the initial construction of the plaza or if the chultun was kept open while the plaza was in use. Additionally, the bones of the individual were scattered and the skull and pelvis were not located, precluding sex determination.

6.3 Private Space

In this section, I discuss the patio groups in the center of Los Aves. The architecture of these structures and the artifacts found within indicate that these groups were mainly for residential use, although private ritual structures were also located in this area. The patios are organized by importance, with more in-depth discussions of areas of social and ritual significance.

6.3.1 Patio 1

Patio 1 was founded during the Early Classic period and was occupied through the Late Classic period and its function was transformed through time. When Los Aves was founded, Patio 1 contained the most important structure in the group, Los Sapos, the ritual sweatbath. This structure sits on the south side of the group, presumably bolstering its connection to Los Arboles, located 60 m further south.

Since Los Sapos is the only ancient Maya sweatbath that has been found with its façade still intact, the structure presents an important opportunity for archaeologists to learn more about the Maya's iconographic associations with sweatbaths. Below, I present a detailed discussion of Los Sapos, looking at its iconography, form, history, and offerings, including analysis by Mary Clarke (2013). Understanding the iconography of Los Sapos will help to shed light on the meanings of activities that took place within and the roles that sweatbaths may have played in their ritual lives.

6.3.1.1 Structure 5

Los Sapos was a place of birth, death and rebirth. The structure was covered with underworld and birth symbolism and was the site of important offerings. Its façade decoration ties it to Los Arboles (12F-19) to the south and it may have been the most important building within Los Aves during the Early Classic period. The stucco frieze on the northern façade presents monumental toad- or frog-like creatures with attributes of jaguars and caimans, and deities grounded in rebirth and creation (see Clarke 2013 for a

more in-depth discussion of its possible role in birthing). The Maya word for sweatbath, “*pib naah*” translates to “earth pit oven house” (Houston 1996) which suggests a further link to earth-related goddesses.



Figure 6.6. Basal frieze on south side of Str. 12F-19 (Los Arboles) showing color and stylistic similarities to Los Sapos (photo del Cid)

Given the similarities in paint and stucco art between Los Sapos and Los Arboles (Figure 6.7), they were likely built at around the same time, during the Tzakol 1 period (AD 250-350) (Saturno et al. 2012a). Links in colors and styles as well as a scale motif are visible on both friezes. Examining the two buildings together puts the symbolism of Los Sapos within a larger iconographic landscape (Clarke 2013), with the sweatbath playing a complementary role.

The link between the two areas suggests that rituals at Los Sapos and Los Arboles were also connected. The residents of Los Aves may have used the sweatbath for cleansing rituals before communing with supernatural beings at Los Arboles. Regular cleansing in sweatbaths was important in ancient Mesoamerican society and the sweatbath was probably used on a regular basis by the inhabitants.

Los Sapos Through Time

After the initial structure of Los Sapos was built, additions were made expanding the building, and eventually it was covered over, concealing the sweatbath. The wall that extended the northern façade of the structure to the east contained more stuccowork in the colors and style of the original creatures. Unfortunately, the images on this new section were destroyed in antiquity, so it is unknown if the iconographic program changed through time.

Eventually, a monumental staircase 7 m wide was built over the north façade of Los Sapos and a new structure built over the sweatbath. The preservation of the buried structures was executed with care, although the different sections were not equally preserved. The initial structure of Los Sapos was left essentially intact with only the top of the western wall destroyed, but its northern façade was so well protected that the colors were still vibrant over 1000 years later, despite being close to the surface. Conversely, the stucco decoration of the façade extension to the east, located under the stairs and directly behind the retaining wall, was almost completely removed, with only one piece of painted stucco left still attached to the wall. Logistically, this program

required a much greater output of energy than if the Maya had reversed the treatment. The extension of the façade to the east was covered by the staircase and was easy to protect, but was almost completely removed. The initial structure was much more exposed, but it was meticulously preserved. This effort speaks to the importance of the initial structure of the sweatbath.

Ceremonial Offerings

The termination offerings that the residents left when they covered of Los Sapos reflect their complicated notions of birth, death and rebirth. Human remains from three different individuals were found, in most cases having been dismembered while the bodies were still in articulation (it is unclear in the case of the adolescent). The bodies reflect multiple stages of the human lifespan, beginning with an approximately 1.5 year old, then a juvenile about 12 years of age and finally an adult (Bass 1995; Scheuer and Black 2004). They were located in meaningful but different areas, suggesting that they may have symbolized different parts of the passage through the birth canal or out of the Underworld.

The juveniles found in front of the door of the sweatbath were joined together in an unusual manner, with the infant's body facing down and the head of the older child placed on top of its back, facing up to the east. Together, these bones could be interpreted as forming a complete skeleton encompassing multiple life phases. The position of these bodies in front of the entrance to the sweatbath suggests that this individual may already have been symbolically born. Tracy Ardren (2008:18) notes "there is tantalizing

evidence that childhood held tremendous potential for numinous power, as evidenced by the prevalence of sacrificial remains of children throughout the region.” Offerings associated with these skeletal remains are traditional in Maya caches and offerings, with ceramic sherds, animal bones pieces of *metates* and some chert flakes frequently appearing (Child 2006).

The leg bones of an adult found within the doorway were positioned so that the feet were closer to the interior of the building, while the knees and distal ends of the femora were oriented towards the exterior. This may be in imitation of a vaginal birth, in which the head should exit the birth canal first. It is unclear if this offering is connected with the offering of the juveniles, since the infant appears to be a complete postcranial skeleton. Additionally, there is a gap of about 50 cm between the two offerings, which suggests that while they may be related, they are not intended to represent parts of the same individual.

The Form of the Sweatbath

The architectural attributes of Los Sapos: the low doorway, low vaultspring, and side platform, all support it being for functional, rather than symbolic use (see Clarke et al. 2014 for the most recent finds). Los Sapos consists of a square chamber with a platform extending 2.85 m to the east, on which people prepared for and recovered from the steam room. This platform would have been seen as an active part of the sweatbath ritual, where people could cleanse themselves through activities such as drinking special liquids, including emetics (to induce vomiting) and taking enemas, for further cleansing

(McCafferty and McCafferty 2008). The extension of the stucco frieze from the northern façade of the sweatbath around to the east side facing the platform, further supports the ritual aspect of this area.

Although few elite, masonry sweatbaths have been excavated in the Maya region, this sweatbath shares their diagnostic features (Child 2004). To prevent steam from escaping, the doorway of Los Sapos is just 1.10 m in height, unlike doorways in regular masonry structures, which are typically about 2 m tall. To ease entry through the low passage, the floor there was built 24 cm lower than the surrounding step, allowing people to enter in a more upright position. Inside the room, the vaultspring is extremely low, just 1.50 m above the floor level. Vaults always originate above the door, so in buildings with average door heights, the vault would be at least 2 m high.

The ceiling, however, stands over 3.20 m tall, a more normal height for a room. This may have been related to a particular design for the sweatbath that would allow the steam to rise higher, making the air easier to breathe and encouraging water to flow down the walls. During childbirth, this would ease the stress on the mother as well as promote cleansing by increasing the flow of water out of the room.

Iconography of Los Sapos

The iconography of Los Sapos is linked to the underworld, birth and rebirth. Its composition features a large animalistic figure with smaller, similar creatures sitting on its limbs. This may represent a mother and babies, emphasizing the fertility of the mother figure. The body of the large figure covering the façade resembles a zoomorph in many

aspects, but there are important features suggesting that the creature may have been a human or god hybrid as well (Clarke 2013). This likely would have been shown in the face of the large creature, now missing. No stucco from the face was found in the fill and collapse in this area, indicating that it was removed in antiquity or deteriorated.

Frequently, human or deity faces were defaced when a building was ritually killed (Just 2005), because objects linked to important people “accumulated power [that] became so intense and dangerous” (Schele and Miller 1986:43).

Mark Child (2004, 2006) names God N and Goddess O as the male and female gods of sweatbaths. God N was associated with caimans and is “a divining grandfather deity of the mountain who purges inner fluids from the body through the four corners of the earth” (Child 2006:355). Goddess O is associated with “birth, creation and destruction” (Houston 1996:145) as well as “the sweatbath, motherhood, water symbolism, [and] old age” (Child: 2006:360).

Animal Symbolism

When depicting animals, the ancient Maya often combined characteristics of several species into a single creature, blending animals from different ecological niches to avoid ambiguity (Schele and Miller 1986:43). Iconographic links to animals, including frogs and toads, caimans and jaguars are evident in works of Mesoamerican art and in the characteristics of the animals themselves. Toad-jaguar conflation is seen in Olmec times (Furst 1981) and on statuary at Izapa (Miles 1965; Stirling 1943), underscoring the long-held ritual importance of both of these creatures throughout Mesoamerica. The most

likely candidate for these creatures is toads or frogs. The Maya languages did not clearly distinguish toads from frogs, and in several instances creatures with paratoid glands present on toads also possess teeth (Tokovinine personal communication 2014) (Kerr 1231, Figure 6.8).



Figure 6.7 Kerr 1231 showing a toad with scales, teeth, spots, and opposable thumbs and toes

The Figures on the Façade

The façade consists of a large, mythical creature, which supports smaller, more realistic creatures on its limbs. Anthropomorphic and ritual features on the large creature include the necklace, earflares, bracelets and anklets, its crouching posture and the entrance between its legs. Although the smaller creatures appear not to have specific anthropomorphic or divine qualities, they do have unnatural attributes including three-dot ears, stylized hemispherical eyes, and the small creature on the east side of the façade appears to be carrying something in one of its feet.

The Large Figure

The large figure is adorned with jewelry, which suggests that the creature has human or god-like characteristics (Schele and Miller 1986:43). Based on its presence on a *pib naah*, this toad-like creature may represent some sort of earth mother or bringer of life, possibly a goddess associated with the earth. The four-strand, beaded collar represents a green jade necklace of the type commonly seen in royal portraiture. That the necklace was painted orange more likely reflects the lack of green pigments to make paint than the material used (Clarke 2013). The use of this necklace in portraiture indicates that the face may have depicted a specific person (Schele and Miller 1986). The earflares worn by the figure are property qualifiers (Stone and Zender 2011:13-15). This symbol is associated with darkness, nocturnal and the underground (Schele and Miller 1986:43). On its wrists and ankles, the figure wears bracelets with diagonal lines that represent a fuzzy material (Heather Hurst, personal communication 2012). Stela 6 at Izapa shows a similar toad-like figure wearing bracelets and anklets, another indicator of the creature's non-animal aspects, and an indication of the long duration of these ideas (Fig. 6.9). Other similar depictions of toads and caimans are seen on the friezes at the House of the Four Kings at Balamku (Baudez 1996), which shown giving birth to kings from their mouths.



Figure 6.8. Izapa, Stela 6, Depicting a toad in anthropomorphic seated pose, wearing bracelets, its pitted, parotoid gland visible on its shoulder

The position of the creature reinforces its role in birth and transformation. Its hands and feet are drawn into the center, focusing attention on the doorway, which is located between the legs, representing the vagina of the creature. The link between toads and rebirth is noted elsewhere, as Michael D. Carrasco comments: “The use of toad

imagery to signal rebirth or sprouting is most overtly found in the logographic sign for birth which is a toad head” (2005:15).

The feet of the creature, which have opposable digits and resemble the feet of toads (Fig. 6.) may be intended to represent claws or talons as well (Clarke 2013) (Fig. 6.10). Ix Chel (Goddess O) is depicted in the Dresden codex once with clawed hands and feet (Dresden p. 74) and once with clawed feet (Dresden p. 67a). In both scenes she is pouring liquid out of a vase, and Child argues that “the symbolism of pouring water from a vase that is associated with Goddess O can be identified with the cleansing nature of the ancient Maya sweatbath” (2006:359).



Figure 6.9. XUL-12F-5A-83, right talon/foot of the large figure (bottom left) and small figure (right) on the north façade of Los Sapos

The Small Figures

The smaller animals on the limbs of the larger creature (Fig. 6.10) appear to be zoomorphic figures lacking human or god-like characteristics. They closely resemble toads or frogs possessing five-digit feet with an opposable digit as on the larger creature, similar to those on the Balamku frieze (Baudez 1996). Their arms and bellies have scales, similar to those of a caiman, but this is also present in depictions of toads on Maya vases as seen in Kerr 531, 1181, and 1231 (Figure 6.11, 6.12). These vases show scales along the lips of the creature, indicating that what resemble teeth on these figures were actually part of their skin. Vase 1231 in particular shows teeth protruding from these scales on a creature that is clearly a toad or frog, based on the presence of a parotoid gland.



Figure 6.10 Kerr 531 showing a toad with spots, scales, teeth, a 3-dot ear, opposable thumbs and toes, and a half-moon eye



Figure 6.11 Kerr 1181, showing a toad with spots, scales, teeth, a 3-dot ear, opposable thumbs and toes, and a half-moon eye

The three-dot circle behind the eye (Fig. 6.13) probably represents the liver-shaped parotoid poison gland of a *Bufo marinus* toad. Small pits were dug out within each of the black circles, similar to the parotoid gland of the carving at Izapa (Fig. 6.9). The venom has been shown to cause hallucinations and is used in shamanistic rituals (Dobkin 1974). It is also used to increase uterine contractions during childbirth, possibly making it a common substance for midwives to carry (Mann 1959). The elbows and knees of these creatures are shown in the form of scrolls, a convention to indicate the direction in which the joint flexes (Norman 1976:69), also sometimes representing water or foam in art (Schele and Miller 1986:47).

The 10 or more, red lines flowing out of the bottom of the ear may represent blood or be wrinkles at the edge of the mouth (Fig. 6.14). Stela 6 at Izapa portrays a similar toad, wearing bracelets, with clawed hands and feet and a round ear. This figure

has separate parotoid glands behind the ear (sometimes mistakenly interpreted as a cape [Kennedy 1982]). Scrolls of liquid flow out of the parotoid glands, which Gareth Lowe describes as “Fire and water (or blood)... later to become the ‘burning water’ sign of war” in Nahuatl (Lowe 1982:286).



Figure 6.12. XUL-12F-5A-80, Small figure, with noise pointing to bottom left corner



Figure 6.13. Three-dot circle ear/paratoid gland and red lines representing blood on small figure

6.3.1.2 Other Structures in Patio 1

Strs. 6-North and 6-South were the closest to Los Sapos. The use of large, well-cut limestone blocks in the construction of Strs. 6- North and South suggests that they were for elite use and architecturally associates them with Patio 1, rather than Patio 30-North and South. The passage between the two that facilitated access between Patio 1 and Patios 30- South and North, could have allowed for the transport of food and materials for sweatbath patrons.

Str. 31 sits between Patio 1 and Patio 22, and appears to have a doorway on its south side. The passageway to its east connected to two patios, suggesting that frequent movement between the two patios took place.

Based on their location and construction materials, the two, low platforms in Patio 1 were probably built during the Late Classic period after the sweatbath had been covered over and therefore were not related to those rituals. If the final phase of architecture of Str. 5 was residential, these platforms may have supported perishable structures where crafting, food preparation or storage took place. Because this was the time of peak population in the Maya lowlands, the residents may have taken advantage of open spaces to construct additional houses or supporting household structures (Culbert and Rice 1990).

6.3.2 *Patio 22*

Patio 22 was a patio group at the center of Los Aves, founded during the Early Classic period and occupied through the Late Classic period. Part of the initial construction of the complex, Patio 22 seems to have been the most elite of the patio groups throughout the occupation of Los Aves. This group included two vaulted-roof structures, a tomb and elite goods indicating long-distance trade.

Phase 1

The fill under first floor of this patio contained many elite goods, including fine ceramic sherds, obsidian blades and an ornament carved from a *spondylus* shell, possibly

from jewelry or clothing (Butler 1931). The obsidian came from the highlands in southern Guatemala and the *spondylus* shell originated on the Pacific coast, but while obsidian blades are utilitarian goods, the shell ornament was a luxury item.

The postholes in the plaster floor covering this fill were meant to support awnings for shade, showing a focus on patio-based activities. The number of domestic artifacts found in this patio group, including *mano* and *metate* fragments and utilitarian ceramics support its domestic use. The elite nature of the group is demonstrated by the investment in architecture as well as the high-value ceramics and other artifacts. There were vaulted ceilings present in all phases of Str. 3, a vaulted ceiling in Str. 9, high quality tomb construction in Str. 7 and large, well-cut stones used in construction. However, the similarity in elevation to the other patio groups indicates that the difference in status was not very great at this point.

Phase 2

The next major construction episode shows that the residents of Patio 22 were beginning to restrict access to their group (Fig. 6.15). The two concentric stairs that they built increased the height of the patio by 66 cm, requiring people to climb stairs in order to enter. This, in addition to the sunken center, meant that activities taking place within the patio were much less visible than they previously had been. Another result of the stairs was that by dividing the patio space into different levels, they greatly increased the amount of seating within. The steps faced each other, so that people occupying the patio

could easily socialize. Furthermore, stepping down into a smaller space creates an informal, intimate atmosphere, suggesting that this socializing was casual (Cullen 1961).

Compared to flat surfaces, sunken areas can be more of a challenge to clean, which may mean that fewer dirty tasks were undertaken within this patio. This could be related to the construction of small, ancillary buildings in the southwest corner of the group, between Strs. 7 and 31. Crafting and food preparation may have been moved from the patio center to this area in order to minimize cleaning; however, more secure dating is needed to support this.

Phase 3

During the Late Classic period, the center of the patio was filled in and an offering of animal bones and ceramics was deposited on the original patio floor to commemorate this episode. Eliminating the sunken steps restored the original size of the patio floor, probably making Patio 22 a more public place. Strs. 9 and 3 had full masonry walls and vaulted roofs at this point, with Str. 7 having only partial masonry walls.



Figure 6.14. XUL-12F-22D-5, Steps down into the sunken Patio 22

Phase 4

Towards the end of the architectural development of this group the east side was dramatically raised, making Str. 3 the focal point. East is an important direction to the Maya and this construction supports the idea that Str. 3 was prominent (Becker 2004; Coggins 1980). Significant amounts of labor and materials were used to change the orientation of the patio, although the quality of construction was lower than in previous episodes and may have resulted in some shifting of stones. This is consistent with building techniques seen during the Late Classic period, in which increasing the height of

a building was such an important priority that the quality of construction suffered (Abrams 1994).

The steps leading up to Str. 3 were built upon a couple of low platforms that occupied most of the patio, essentially turned it into the front porch of Str. 3. This changed how people moved through the patio and the sorts of activities that could have taken place there. This is in contrast to the earlier sunken area that brought people into the center of the patio. The stairs forced people to the margins of the patio and focused their attention up at Str. 3.

This major change in the orientation of the group indicates a transformation in the social structure of the group. Although Str. 3 had always been an important building, this elevation meant that it dominated both Patio 22 and the surrounding areas, rivaling Str. 4 in size. On a larger scale, the change in status that we see in this group may have been related to the growth of the petty nobility seen throughout the Maya region during the Late Classic period (Martin and Grube 2008).

Patio Function

One of the most important changes seen was to the nature of Patio 22 itself. There were essentially four significant stages to the patio defined by their shapes: the initial flat stage, the sunken stage, the second flat stage, and the raised stairs. These phases also increase in height through time.

Flat floors are essentially architectural blank slates, not favoring any particular activity, but allowing free movement through and within an area. They are also the most

flexible configuration of space, permitting a wide variety of uses (Rapoport 1990). When the patio floor was flat, the residents may have used perishable materials to create seating, tables, and workspaces within the patio, but no evidence of this has survived.

Small sunken areas create intimate, informal spaces and confine activities to a defined area (Cullen 1961). The arrangement of steps in Patio 22 would have forced people to face inward facilitating contact. This suggests that interaction, rather than passage through, was the main goal of this architectural arrangement. Stepping down into a space is a casual act, because it decreases one's expressed importance by lowering one's physical being. However, the enclosed area would have facilitated private conversations and personal discussions.

In contrast to this, the raised stairs added during the Late Classic period made a statement of power and control (Cooper Marcus and Francis 1998; Trigger 1990). Rather than encourage cohesion among members of the patio group, this construction focused attention on Str. 3 and greatly reduced the amount of space available for socializing. The steps covered most of the area of the patio floor, pushing people to the sides, marginalizing them. The focal point led the eye up to the east, at the same time partially blocking areas of the patio from view. This shift in patio dynamics reflects the increased importance of Str. 3 at the expense of the other structures. The stairs provided a grand entrance for Str. 3, but diminished the amount of activity space available for those in other structures. Such a dramatic decrease in space may have meant that the areas in front of the other buildings were mainly used for transit at this point and not for crafting.

It is important to note that while this change in building may have reflected a shift in power of some people, it may have also been due to changes in how patio space and rooms were used by the inhabitants. For example, crafting may have been done in Plaza Loro, or this group may have become more administrative rather than domestic.

The presence of artifacts associated with food preparation, such as fragments of utilitarian ceramics, as well as *manos* and *metates* in Patio 22, indicates that food preparation probably took place there. Findings at Aguateca show that peripheral areas in house groups were used for crafting and food preparation (Inomata and Triadan 2000). The small, divided area in the southwest corner of Patio 22 been used for food preparation or it may have provided access to Patios 30-North and 30-South where food preparation was taking place. This area may have also supported crafting activities and served for storage.

6.3.5 *Patio 2-North*

Although Patio 2-North is bordered by two of the most important structures in Los Aves (Strs. 3 and 4), preliminary findings suggest that it may have been used for more quotidian, rather than elite, activities. Based on the architecture and artifacts found in this area, it seems likely that Patio 2-North was used for daily support activities, including crafting and cooking. Str. 3 faced Patio 22 and Str. 40 opened the Northern Area. Str. 4 may have had an early room that faced Patio 2-North and a Late Classic staircase on its west facade, but it is not well understood. The structures that did seem to open onto this patio (Strs. 25 and 37) were low platform mounds on the northern end that

probably supported perishable superstructures. These platforms resemble others believed to date to the Late Classic period, which lack cut-stone bases and walls. The northwest corner of Patio 2-North probably led down to the Northern Area during the Early Classic period, when Str. 3 also had an exit to the north. During the Late Classic period, a low platform added to that corner may have supported an ancillary building which would have closed this off.

Artifact patterns here are similar to those seen in Patio 30-S, with above-average concentrations of ceramics and high levels of chert debris, suggesting that this area was used for crafting. A red pigment stone that was used to create inks and paints was found in one of the upper layers, which could indicate artistic or scribal activities during the Late Classic period. A posthole in the center of the patio would have supported an awning for outdoor activities.

6.3.3 Patio 2-South

Based on the information currently available, it is not clear if Patio 2-South was used for ritual or residential use, or a mixture of both. This patio is in close proximity to the ritual sweatbath in Patio 1, although there appears to have been a wall dividing them. The central structure of this group, Str. 13, may have been for ritual use, but the rooms surrounding it resemble dwellings.

Recent work at Cerén highlights the over-representation of domestic structures in residential areas and how this has masked the diversity of structural functions. Brown and Sheets (2000) present criteria that they noted in the ritual structures that they excavated in

Honduras, which may prove useful in the rest of the Maya region. An important point in the identification of non-residential structures is the presence of distinctive architectural features that do not appear to fit in with other residential architecture.

Based on its two entries and porches, as well as its shape, its location in the center of a patio and its separation from the other residential structures, Str. 13 presents a case of a building that does not fit the model of dwellings seen in Los Aves and may be a ritual structure. It is the only small structure with entries on two sides, and both south and north porches appear to have rubble platforms flanking the entry stairs. The middle of the structure appears to be made up of two or three rooms, one of which may be a porch.

The other structures in this patio, (12, 35, 38) all resemble small range structures or low platforms with low, masonry walls that were likely built up and roofed with perishable material. Evenly stacked stones in a looters' trench on the west side of Str. 12 indicate the presence of a doorway opening onto Patio 2-South, rather than Plaza Tecolote. Fill on top of these floors shows that these rooms were later built over.

In the southeast corner of this patio, an area of low, limestone walls suggest that there may have been additional alcoves or ancillary structures there. This corner opens out to the Southern Area, facilitating passage between the two places. Access to the Southern Area during the Late Classic period would have been important for providing this patio with food and other goods.

6.3.5 Structures 7 & 8

Strs. 7 and 8 are located outside of the patio groups and sit to the west of Patio 22, between Plaza Loro and Plaza Colibrí, and both are purpose-built tombs. The area

between them originally contained steps, but it is not clear if they were used for seating, divided the space, or provided access from a lower earlier floor level.

Strs. 7 and 8 sit on the edge of the Central Patios Area, adjacent to Plaza Loro. This may have been where people accessed Plaza Loro, as there does not appear to be any division between the two areas. After the vaulted tomb was built in Str. 7, a floor was laid down on top, and a room was built with low stone walls and a perishable superstructure that opened onto Patio 22. When the occupant of the tomb was laid to rest inside, he or she was deposited with several large, simple, ceramic vessels. Two finely painted, incised polychrome sherds were recovered near the niche, proving that this tomb possessed elite ceramics.

The initial tomb in Str. 8 was part of the original construction of the building and although small, it was well-made. The later, second tomb, which intruded into this earlier phase of architecture and projected out into the patio between Strs. 7 and 8, necessitated the building of a substantial new staircase on the east side of Str. 8. This tomb was smaller and less well constructed than the original tomb, but the association of these graves with each other suggests that the occupants were related. The intrusion of the secondary grave indicates that they died at different times. While the relative difference in investment of construction, and the size difference, suggests that the person in the original tomb was considered more important than the occupant of the second tomb.

6.3.6 Patio 30-South

Patio 30-South was a small, peripheral patio group with minor architectural features. It was very open, but also had access to important areas and contained abundant

ceramic and chert debris. The combination of low platform mounds and artifacts indicative of crafting indicate that this patio may have contained ancillary structures that were used to support the daily activities of the higher-status residents of Los Aves, and raises the possibility that the occupants could have been domestic employees.

On the southern end of Patio 30-South, there are steps leading up into the Southern Area, with no barriers restricting access. The presence not only of a passageway, but also a wide entrance, suggests that passage between the two areas was frequent and that inter-visibility was desirable. There may have been similar activities taking place in both spaces, or it may have been helpful to see what people in the other area were doing, for example, when crafting or supervising children. The presence of a high concentration of chert debris within this patio, reveals that the manufacture of chert tools took place here.

In the northeast corner of the patio, there is a passageway between Str. 6-South and Str. 6-North, leading into Patio 1, allowing people to move easily between these two patios and also Patio 30-North. This implies that it was important for the activities in Patio 1 to have easy access to goods or people in Patios 30-South and 30-North.

Within Patio 30-South, Strs. 27 and 28 may have been low platforms, or they may have supported impermanent structures, as there is no evidence of cut-stone walls. Str. 28 lacks a clear orientation, connecting Str. 27 and Str. 14. Str. 14 was somewhat more substantial and probably supported a rectangular room, serving both to provide interior domestic space and also to visually divide Patio 30-South from Plaza Colibrí.

6.3.7 *Patio 30-North*

Patio 30-North was similar to Patio 30-South, but with less masonry architecture. It was situated to allow access to important parts of the group, although it contains no notable buildings itself, thus it was probably another area where supporting activities for the plazas and elite patio groups took place. This group had access to Patio 30-South, Patio 1, Patio 22, Strs. 7 and 8 (and Plaza Loro beyond), and Plaza Colibrí.

The buildings in this patio had little masonry architecture and appear not to have been elite. Str. 39, located on the west side, had a masonry base, but its superstructure would have been made of perishable materials. It opened onto Patio 30-North and may have housed the people who worked in this patio. Based on its intrusion into the patio and modest building materials, Str. 32, in the northeast corner, was almost certainly a Late Classic construction. This low platform and others like it probably supported ancillary structures from this period. These new constructions could indicate that support structures were needed in different places than it had been during the Early Classic period, or that a higher population required more supporting structures.

This group had a concentration of ceramic sherds similar to that seen in Patio 30-South, but not as much chert debris. This pattern of artifacts suggests that some stone tool production took place here.

6.3.8 *Patio 30-West*

Patio 30-West is a small area behind the ancillary structures in Patio 30-South. It is unclear what this patio had access to, as there appear to be walls to the west and

northeast, and structures to the north, east, southwest and south. It may have been part of Patios 30-South and 30-North, or a storage or preparation area for Plaza Colibrí.

6.5 Northern Area

The Northern Area was situated on the more private side of Los Aves, blocked off from Los Arboles and Plazas Colibrí and Tecolote. Access was available to Plaza Loro, Patio 2-N, Str. 40 (and 18), and Plaza Tecolote lies to the east; it also led to constructions farther north. The ground surface of the Northern Area was plastered over and built up through successive construction episodes. The plaster surface was not a single level, but was divided into a series of wide, shallow steps or levels that led gradually from the lower level of Plaza Loro around to the slightly higher Plaza Tecolote. It is possible that the Northern Area was meant to connect the two areas and served as part of ritual processing between the two plazas, but it is unlikely that stationary rituals took place here, as there is no large, flat space for observers to gather.

Str. 40 is the only patio that opens directly onto the Northern Area, with a landing looking out over the area and a large staircase (Str. 18) leading down. Str. 40 appears to be a small, elevated patio group, but, unlike the rest of Los Aves, could only be accessed from outside the patios. More research is needed to determine who lived here, but they may have worked in the Northern Area, or had particular types of contact with people.

Str. 11, a low platform that sits in the middle of the Northern Area, is not clearly associated with any other structure and shows no evidence of walls on, suggesting that it did not support a permanent structure. It is interesting to note that about 18 m due north

of Str. 11 there is another low, earthen platform with no evidence of a building on top. If the structures had a ritual function, they may have been part of the same ritual, or they may have been associated with quotidian activities.

6.4 Southern Area

To the south of the Central Patios Area, the use of space changed from the Early Classic period to the Late Classic period. During the Early Classic period, there appears to have been a more formal division between Los Aves and the Southern Area, with no evidence of domestic activities here. In the Late Classic period, however, the Southern Area was developed and used for household activities, as well as for trash disposal.

Str. 5, which abuts the Southern Area, was built during the Early Classic period and was the most important building in the group at this point. Based on the eastward progression of building seen on the northern façade of Str. 5, Str. 38 may have been a later addition, possibly during the Late Classic period, although excavation be necessary to determine this. While Los Sapos was in use as a sweatbath, this area may have been more open, if the platform to the east of the steam chamber were open to the south. In that case, this whole area would have been associated with ritual and would therefore have been inappropriate for domestic tasks. If the platform of Los Sapos were walled off, this area may have faced a blank wall and be seen as an undesirable place to spend time.

During the Late Classic period, the ground surface in this area was plastered over and at least one low platform was built to the south of Str. 38, supporting an ancillary structure. This building was roughly made, in contrast to the buildings within Los Aves,

and was associated with cooking debris. To the south of Str. 5, the ground surface was plastered, but there was no evidence of cooking or crafting and no trash was discarded there. At this time, the sweatbath of Los Sapos had been built over with a large, elevated construction, probably an elite residence. The contrast in use patterns between the areas south of Str's 38 and 5 suggests that Str. 5 continued to be considered special, while Str. 38 may have been a domestic structure. Constructing additional spaces for preparing foods and engaging in household activities may have been related to the increase in population at this time and the need for more food as well as more space (Culbert and Rice 1990).

Movement between the Southern Area and the interior of Los Aves was fully open at Patio 30-South, which was used in crafting and household support activities. This would have given the residents of that patio easy access to the rest of the site of Xultun, which would have been necessary for those provisioning the group. Another entrance into the patios was through a narrow passage in the southeast corner of Patio 2-South, which contained a number of small chambers, possibly also related to support activities.

About equidistant between Los Aves and Los Arboles, two low mounds were noted. These were simple constructions, made of rubble cores, and with no visible superstructure. The platform to the south of Plaza Colibrí is large enough to have supported an enclosed structure, while the other structure to the south of Str. 38 may have supported a long, narrow structure but its use is not known.

6.6 Discussion

6.6.1 Los Aves During the Early Classic Period

When Los Aves was founded, ritual was group-focused and there was a more equal architectural emphasis on residential and public spaces within the group (Fig. 6.16). The most important ritual building, Los Sapos, was located within the residential area, and its decoration ties it to Los Arboles to the south and hint that the focus of the group as a site of important birth and ritual. Within the residential area, elite building practices were used in some structures, but residences did not display extreme wealth.

Plaza Colibrí was the only public space in Los Aves at this time, built around architecture that encouraged group cohesion and reflected a more inclusive, cosmological view of the heavens, instead of a linear, solar focus. Later in the Early Classic period, the Round Structure in Plaza Colibrí was covered over and replaced with the Rectangular Structure. This change indicates a shift from group-focused rituals to ones focused on the solar path which may be linked to the rising power of kingship at Xultun.

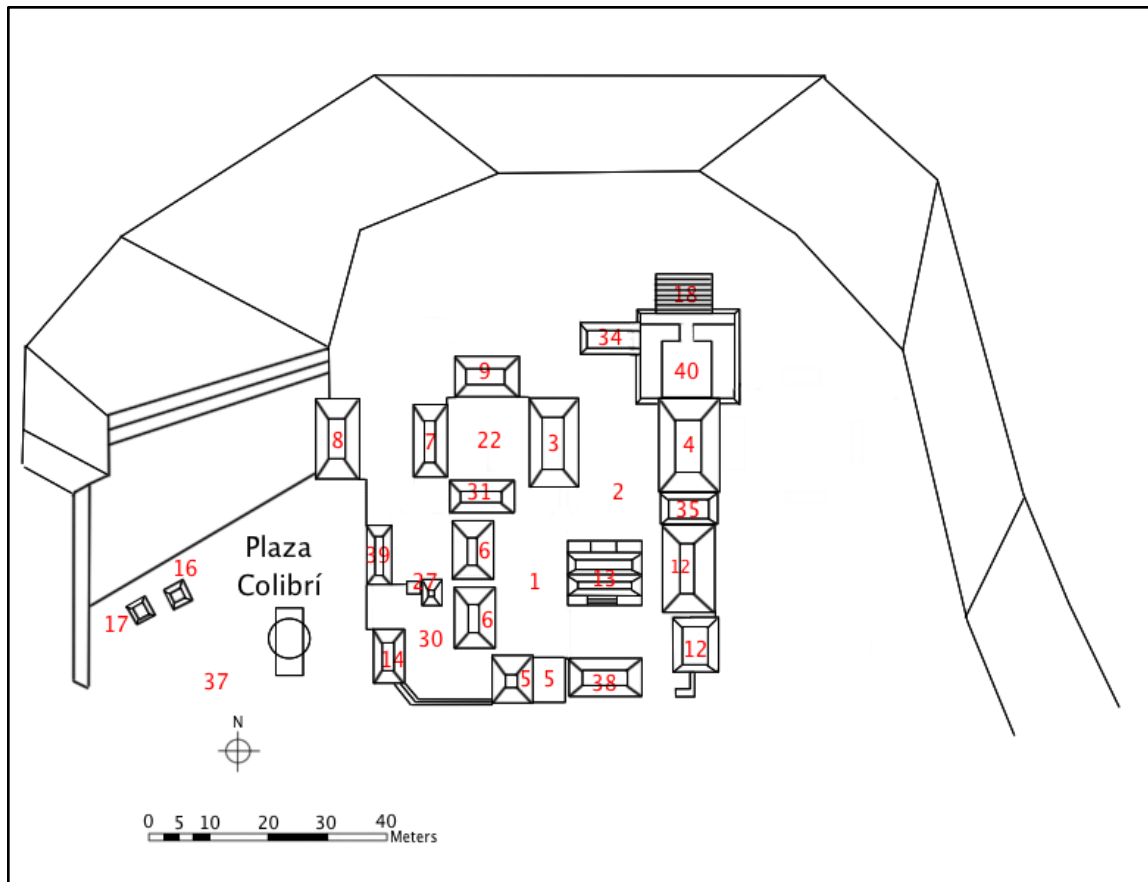


Figure 6.15. Los Aves during the Early Classic period

6.6.2 Los Aves During the Late Classic Period

During the Late Classic period, Plaza Colibrí was again covered over with a flat plaza floor and two new plazas were built, significantly increasing the amount of public space in this group (Fig. 6.17). The new plazas, Plaza Tecolote and Plaza Loro, appear to have been placed strategically, with Plaza Tecolote emphasizing the east side of the group and Plaza Loro located in a relatively private area. Emphasizing the east side of architectural groups with a shrine became common during the Late Classic period and may be related to changes in ritual (Becker 2003; Coggins 1980). Plaza Tecolote was

monumental and its southern staircase establishes a solid ritual link to Los Arboles, with Str. 4 providing a place for elites to observe the proceedings. This plaza emphatically changed ritual at Los Aves: instead of being casual and group centered, it grew to be formal, hierarchical and tied to a monumental shrine. In contrast to Plaza Tecolote, Plaza Loro is small, not accessible to the south, lacks a large plaza floor, and does not give primacy to any particular space within the plaza. I believe the residents of Los Aves built these two plazas to fulfill different social needs, with Plaza Tecolote displaying the ritual importance of the group to outsiders and Plaza Loro providing a private place for residents' activities. While plazas are inherently multi-use, these seem to have been intended for certain types of activities: Plaza Tecolote accommodated a variety of public, particularly hierarchical occurrences, while Plaza Loro held smaller, group-oriented and domestic activities.

The construction of Plaza Loro is linked to changes in the residential area in the Late Classic period. Following a Late Classic trend seen throughout the Maya lowlands, the residents built taller and higher structures, expending energy on increasing visibility. The population increase in this era necessitated the construction of more supporting buildings and the expansion of household activities around the buildings.

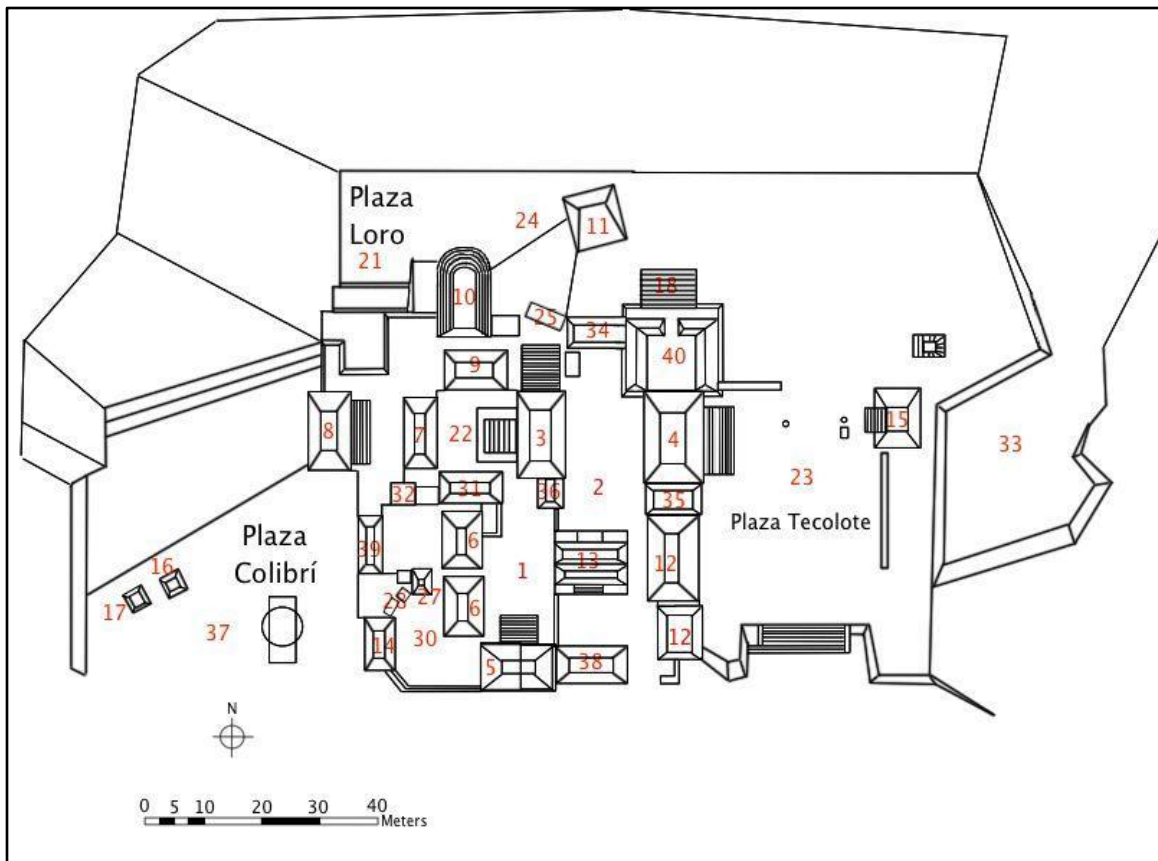


Figure 6.16 Los Aves during the Late Classic period

6.6.3 Public Space During the Early Classic Period

The use of public space in Los Aves changed dramatically over time in order to meet the varied needs of the residents. During the Early Classic period, Plaza Colibrí was the only plaza in the group and the only known public space there. Ritual activities in this plaza were focused around the Round Structure and later, the Rectangular Structure in the middle of the plaza. Unlike a stage, which separates performers from observers, these structures were low platforms meant to highlight the person(s) on top but not to isolate them. During ceremonies, such as group dances, people may have taken turns on top of

the platform. Activities that took place on and around the Round Structure focused the attention of the attendees on a central point, and they were able to see the faces of the other observers around the structure. They created a shared experience in which people witnessed and shared in each other's emotions strengthening the bonds between them and encouraging group cohesion. Feasting may have been an important part of ritual around the Round Structure (Lohse and Sagebiel 2005), serving as an important community-building activity.

6.6.4 Public Space During the Late Classic Period

During the Late Classic period, the construction of Plazas Tecolote and Loro dramatically changed how public space was used. The significant increase in plaza space enabled the residents of Los Aves to diversify their public interactions. Instead of one plaza that was open, with modest ritual architecture, the new plazas represented opposite ends of the spectrum: Plaza Tecolote was very open and designed for specific processional rituals, while Plaza Loro was more private with a flexible arrangement and no apparent permanent, ritual architecture. The designs of these two spaces suggest that behavior in public spaces was now more codified than it had been during the Early Classic period. It also reveals that the residents of Los Aves were making a more concerted effort to present a particular appearance to outsiders, while deeming certain activities private. Public activities were more hierarchical and formal, highlighting the ritual connections of Los Aves to Los Arboles, and reflecting a change in the relationship between the two. The construction of Plaza Loro shows that there may have been a need

to balance the increasingly public nature of activities in Plaza Tecolote. Private activities could now accommodate a larger group of people, while still maintaining isolation from the rest of Xultun. Plaza Loro may reflect changes in ritual, group structure, or external influences as the population peak during the Late Classic period brought changes to Los Aves and the rest of Xultun. Since more structures were built in the patios of Los Aves, gathering together inside the group would have become more difficult. At the same time, the high population of Xultun may have put pressure on the residents of Los Aves, creating a need for more group-focused unifying rituals.

6.6.5 Private Space During the Early Classic Period

The patios in Los Aves were founded during the Early Classic period and reflect the somewhat elevated status of the residents as well as the importance of private ritual. The sweatbath, Los Sapos, was contained within a patio, and yet was elaborately decorated in the same style as the very public façade of Los Arboles, the monumental shrine. The private nature of this connection to Los Arboles signals that the relationship between the two sites was significant to those participating in the rituals, but not something that needed to be witnessed by members of the public.

In the residential patios, deposits of valuable ceramics and some trade goods are seen in the foundations of buildings, but no structure is unduly elaborate or competing with Los Sapos. Substantial limestone blocks were used to build the structures in the central area, which reflects the elite nature of the group and is probably related to the nearby quarries.

6.6.6 Private Space During the Late Classic Period

There was a marked change in the use of private space during the Late Classic period. Los Sapos was concealed by a residential structure, indicating that the important private sweatbath rituals of the Early Classic period had ceased. The central Patio 22 was considerably elaborated and elevated, with the eastern structure dominating the patio, a pattern seen in other sites. Ceramic and chert artifacts from this period denote a greater concentration of household activities taking place within the patios. That, coupled with the construction of more ancillary structures in the same area suggests that the population of Los Aves reached its peak at this time. The increased crowding in patios may have been part of the impetus to build Plaza Loro, so that there would still be a private space where all the residents of Los Aves could gather.

6.7 Conclusion

Los Aves was founded as an elite residential and ritual group in which these two sides were balanced and interwoven. Initially, rituals took place in both areas and those that happened in the public space seem to have focused on group cohesion. As Los Aves grew, the ritual and residential sides became increasingly separate and enlarged. Population increases during the Late Classic period necessitated building more domestic structures. This may have been a factor in the decision to increase the public space, but the monumentality of Plaza Tecolote suggests that its size has more to do with conspicuous displays and increasing power. Plaza Loro, on the other hand, may have

served as a semi-private open space. The development of architecture in this group reflects the dynamics of society and how architecture reflects and influences people's lives.



Figure 6.17 Los Aves in the Late Classic Period

In this chapter, multiple lines of evidence were considered in order to reconstruct life in Los Aves and how space and practices evolved over hundreds of years. The three plazas were considered separately and in relation to each other, in order to show how they complemented each other and the import of so much public space. Residential and more private ritual areas were also examined to determine the types of activities in which the

residents may have participated and how changes here were related to developments in public architecture.

Public space was examined from many perspectives, ranging from ethnohistoric accounts to modern city-planning principles. Ancient public spaces present special challenges to scholars seeking to understand how they were used, but basic human needs of social interactions have remained the same through modern times. The application of modern studies to ancient spaces should be done judiciously, focusing more on human traits than culture-specific ones.

Domestic architecture and artifacts paint a complementary picture of the development of Los Aves, greatly increasing our understanding of the growth of this group. What began as a relatively small, elite group with an important, private ritual element, changed over time to a larger, elite group in which the residential area was more secular.

In the next chapter, I summarize the work done at Los Aves and the conclusions that I have reached. I evaluate the effectiveness of the methods chosen for my study and discuss how they might be adapted to other archaeological research. I also consider how the study of ancient public space can contribute to modern architectural and urban research, and what relevance it has in modern society. I finish by discussing future directions for my work with this dataset, including further excavation and artifact analysis.

Chapter 7. Conclusion

7.1 Introduction

The goal of this dissertation is to contribute to our understanding of the functions of public gatherings in society by examining ancient Maya neighborhood plazas. I have approached this issue from a comparative and materialist point of view, examining the places of ancient Maya public gatherings and a related domestic area (Low 2009; Peuramaki-Brown 2012). While Early Classic Los Aves contained equal parts public and private space, in the Late Classic period public space dominated the group. During the Early Classic period, residents participated in domestic activities within the patio groups and performed cohesive group rituals on the Round Structure in Plaza Colibrí. In the Late Classic period, two new public spaces were constructed, tripling the amount of open space. Plaza Tecolote, the monumental plaza with ritual architecture linking it to Los Arboles, was used for hierarchical rituals. Within the patio groups, new structures were built to house a growing population, decreasing the amount of patio space available. Instead, these activities took place in Plaza Loro, a new, smaller open space in the northwest corner of Los Aves. This plaza was smaller and contained broad steps for seating. The development of the plazas and domestic areas of Los Aves demonstrates the complicated relationship between public and private life. Plaza Tecolote shows the importance of hierarchical displays for Xultun's growing population, while Plaza Loro reveals that public open spaces were intended for diverse purposes.

7.2 Research Questions

In the previous chapters, I have addressed the following questions:

1. Did Plazas Tecolote, Colibrí and Loro play different roles in the lives of the residents of the Los Aves sector of the ancient Maya city of Xultun?
2. Did the residents of Los Aves use the plazas in different ways?
3. Were the residents of Los Aves elite ritual specialists connected with Str. 12F-19 (Los Arboles)?

To answer these questions, I undertook a program of research to compile enough complementary data to build a picture of public and private aspects of the group in order to first assess them separately and then to use these conclusions to answer larger questions. In the sections to follow I focus on the residents of Los Aves themselves, followed by the activities they may have undertaken in plazas, and finally combine these lower-level theory approaches to draw conclusions about the role of plazas in the lives of their users.

7.2.1 Did Plazas Tecolote, Colibrí and Loro play different roles in the lives of the residents of Los Aves?

Building on data gathered about the residents of Los Aves and their relationship to Los Arboles, I am able to interpret the roles of the plazas in the lives of the residents and how this changed from the Early to the Late Classic periods. In the end, the roles of public space were more varied than I had expected, and I found that I could not understand public space without also investigating private space.

During the Early Classic period, Plaza Colibrí served a ritual, cohesive role in the lives of the inhabitants of Los Aves. Public and private ritual complemented each other, both supporting important, but very different, activities. Public space was open and participatory, built for active involvement in performances. Private ritual space, on the other hand, was very restricted, admitting only a few people at a time, and involving restricted knowledge. Rituals taking place in the private and public areas were probably not directly related, as the public space was casual and open, while the private space was formal, small and artistically linked to Los Arboles. I conclude that the sweatbath was an important tie to Los Arboles through meaning or ritual, while Plaza Colibrí served only the community living in Los Aves.

The changes in public and private spaces during the Late Classic period are related to larger social changes in the Maya lowlands. The construction of Plaza Tecolote created a formal, ritual space that unambiguously incorporated Los Aves into the larger ritual landscape of Xultun. This connection changed the nature of public space in Los Aves from cohesive to hierarchical, although the impetus for these changes is unknown. Processions in Plaza Tecolote enabled the inhabitants of Los Aves to present a public persona to the attendees, although there is not yet enough data to determine the nature of their public image. The other open space in Los Aves at this time was the more private Plaza Loro. This plaza is instructive in the evolution of public space and its relation to private space. It appears that the construction of Plaza Loro was prompted by a lack of space within the patio groups, due to the increased population at this time. This plaza was built to serve as a substitute for private space where the residents of Los Aves could carry

out daily activities in relative privacy, on the north side of the group. Only in the larger context of the site of Xultun is it clear that this “plaza” was really intended to be used as private space.

These three plazas present a fascinating case study of the development of public space and its relationship to private space, as well as to the larger ritual landscape. Each plaza presents different aspects of open spaces and the different social functions that they may serve.

7.2.2 Did the residents of Los Aves use the plazas in different ways?

I determined the types activities that took place in the three plazas by looking at the plazas’ features and metrics, and then comparing these to other ancient plazas as well as to modern studies of public space. Overall, it was possible to discern some types of activities within plazas which will be complemented by future studies using chemical residues, microartifacts, ground penetrating radar, etc.

Activities that took place in Plaza Colibrí were ascertained based the size and shape of the plaza and on the ritual platforms within. Low, round platforms, such as the Round Structure have been found throughout the Maya lowlands and are believed to have been used for ritual, cohesive dances or other performances (Aimers et al. 2000; Hendon 1999, 2000). My architectural evaluation of the structures suggests that multiple members of the community participated in these dances, thereby fostering a sense of community (Canuto and Yaeger 2000; Handelman 1990). All the residents of Los Aves could have

been accommodated within the plaza, but if dances necessitated lots of space, there may not have been room for outsiders.

Plaza Loro was a quiet, relatively private, open space that served as a substitute for the now-filled-in patios of Los Aves. The architecture in this plaza would have supported the same types of activities that took place within patio groups. The additional architectural features in this plaza significantly reduced the flexibility of the space, making the application of functional studies more useful and the data they provide less speculative. The ramp on the right side of the plaza provided easy entry and passage through the plaza and the wide step in the middle could have been used for casual seating and the observing of activities taking place in the sunken rectangle. I hypothesize that this lower area was used, at least during the daytime, for childcare. At other times of day, the area might have been used for other casual group activities.

The activities in Plaza Tecolote were identified based mainly on plaza layout and the structures framing it. The arrangement of Structures 4 and 15, opposite each other, with an altar equidistant between them in the middle of the plaza, is significant. These structures both have ritual importance and include the only flat, elevated spaces in the plaza, suggesting that they or the altar were the sites of stationary rituals. This layout, coupled with the monumental staircase leading south to Los Arboles, forms an ideal setting for processions. Str. 15, on the east side of the plaza, isolated from the residential group, is also associated with some smaller constructions that may have been used for ritual preparations. It is possible that the sunken rectangle to the northeast of Str. 15

served as a pool for ritual ablutions. Additionally, the masonry foundations directly to the south of Str. 15 may have been hidden by a wooden wall and housed ritual objects.

7.2.3 Were the residents of Los Aves elite ritual specialists connected with Str. 12F-19 (Los Arboles)?

To answer this question, I sought data that would shed light on the eliteness of the residents, reveal activity areas, show evidence of long-distance trading or occupations, or tie them to Los Arboles. The limited nature of excavations within the residential area necessitated a target approach to data collection.

7.2.3.1 The Residents of Los Aves During the Early Classic Period

I determined that during the Early and Late Classic periods, the residents of Los Aves were elite, ritual practitioners; however the nature of their eliteness and the rituals that they practiced changed through time. Our knowledge of the Early Classic period inhabitants of Los Aves is based on the presence of the sweatbath, Los Sapos, masonry architecture throughout the group, and elite artifacts. The elaborately decorated, but relatively enclosed sweatbath denotes the importance of both the people using it and the rituals for which it was used. As discussed in Chapter 6, sweatbaths are associated with transformative rituals and birth. It has been hypothesized (Clarke 2013) that the sweatbath may have been reserved for royalty, in which case Los Aves would have had a specific purpose, supporting and preparing women for childbirth. Sweatbaths are also used in cleansing and preparatory rituals and may have been intended for ritual

practitioners before they performed celebrations at Los Arboles (McCafferty and McCafferty 2008). Whatever its actual use was, Los Sapos signals the importance of private ritual for those in the group, suggesting that restricted knowledge was a part of activities there and that they were not intended for lay people. Plaza Colibrí was the only plaza in the area at this point and its focus on cohesive ritual suggests that the residents of Los Aves may have worked together.

7.2.3.2 The Residents of Los Aves during the Late Classic Period

Information concerning the inhabitants of Los Aves during the Late Classic period comes from changes in residential and ritual architecture, elite artifacts, and ritual offerings. The burying of Str. 5 indicates that the inhabitants were no longer performing sweatbath activities. This could mean royal births were no longer celebrated as they were in the Early Classic period, or that ritual cleansing had moved elsewhere or was not being practiced.

The construction of several ephemeral structures within and around the residential area supports the idea of a population increase during this period, a trend seen throughout the Maya region. This decrease in patio space coupled with the construction of Plaza Loro signals that they may have moved household activities there, and I have suggested that, based on the architecture in this plaza, young children and their caregivers may have been the plaza's occupants.

The shifting of activities out of the residential area is lent further support by the re-orientation of Patio 22. When this patio was symmetrical, during the Early Classic

period, floor space was open and available to all inhabitants; however the erection of the large staircase and platform leading up to Str. 3 eliminated most of that space, pushing activities out of the patio group. This construction also ritualized the passage from the patio floor up to Str. 3, which suggests that activities in this patio had become formalized and focused on a single person or important office. This architectural change hints at changes in the social structure of the group, for example, in which power has been concentrated in a single leader.

This development is echoed in the construction of a new commanding space on the east side of Str. 4 in Plaza Tecolote. Its façade is covered in a monumental staircase with a landing in the middle of the building. These new features both focused attention on the person or people there, as well as providing this select group the opportunity to observe plaza activities and rituals from an elevated position. This is a far cry from the low platforms in Plaza Colibrí during the Early Classic period, and signals that the residents of Los Aves now valued displaying their power over participating in inclusive rituals.

Plaza Tecolote was also designed to connect this peripheral group to the ritual life of Xultun. The 10 m wide southern staircase leading out of this plaza was almost certainly constructed for procession rituals between Los Aves and Los Arboles. Physical ritual movement between the two sites would combine periphery-center and base-to-summit procession rituals, reinforcing the importance of Los Aves (Morton 2012; Ringle 1999).

7.2.3.3 Conclusions about the Residents of Los Aves

Given growing populations and increasing complexity, the residents of Los Aves shifted construction strategies in the residential area from a focus on group cohesion in the Early Classic period to an emphasis on privacy and aggrandizement during the Late Classic. Residents in the Early Classic period do not appear to have been overly concerned with presenting a façade of wealth and power to outsiders, instead using the most elaborate structure for private rituals. Conversely, public space at this time contained functional architecture to encourage unity.

By the Late Classic period, changes in the social structure of the group necessitated transforming the architectural setting. As the population increased, residential spaces became crowded and a new private, open space was constructed to accommodate daily activities. The private ritual structure was covered over, in favor of a monumental public space explicitly linking them to the important temple to the south. This new focus on public ritual allowed them to display their power, suggesting that reinforcing hierarchy was valued over encouraging group cohesion.

7.3 Biography of Los Aves

In order to understand the changes at Los Aves, I discuss its development in the context of Xultun and the Maya lowlands. This will help to explain the evolution of Los Aves, as well as how the Late Classic Maya there dealt with the upheaval of society.

7.3.1 Los Aves in Context in the Early Classic Period

During the Late Preclassic period, Xultun was still subordinate in the region to San Bartolo and Uaxactun and, slightly further afield, Tikal. Around AD 100, droughts in the region put stress on some local populations, prompting them to move from San Bartolo to Xultun, which had more consistent access to water (Cardona and Rivera 2002; Dunning et al. 2002; Garrison and Stuart 2004). By the Early Classic period Xultun had become the primary urban center in the area.

The Early Classic period in the Maya lowlands was a time of growth and change, when the political maneuverings of Teotihuacan affected alliances throughout the lowlands, bringing Xultun under the influence of Tikal (Vega 2014). During this period, Xultun grew rapidly, erecting much of its monumental architecture, including plazas and pyramids in Groups A and B as well as Los Arboles and Los Aves (Casasola 2012; Del Cid et al. 2012).

In the north of the site, the façade of Los Arboles was elaborately decorated with imagery of the underworld and the kings of Xultun. The same artistic style was employed at Los Aves to embellish the sweatbath, Los Sapos, revealing a link between the two areas and placing Los Sapos within the larger ritual landscape of Xultun.

Changes in Plaza Colibrí, on the west of Los Aves, signaled an increase in the prominence of kingship. A shift from a round, cosmologically-based platform to a rectangular, solar-based platform reflects the shift in ritual from being based on the larger cosmology to one with greater focus on the king, represented by the path of the sun

(Klein 1980, 1982; Whiting and Ayers 1968); however, this change still took place within the context of a smaller, integrative plaza, rather than one emphasizing hierarchy.

7.3.2 Los Aves in Context in the Late Classic Period

The Late Classic period in the Maya lowlands was in many ways the climax of Maya civilization, but it also led to their collapse (Demarest et al. 2004). Cities, including Xultun, reached their maximum populations, resulting in widespread deforestation and environmental degradation. Political destabilization brought constant wars between polities, notably Tikal and Calakmul and their allies, resulting in changing fortunes for Xultun. Additionally, as the political arena became increasingly splintered, lesser nobles sought more power, erecting stelae to themselves and constructing more lavish residences.

At Xultun, the iconographic programs of the Early Classic are largely buried. Two Late Classic phases of architecture at Los Arboles concealed the earlier king-portraits and underworld imagery (Saturno et al. 2012a). In Los Aves, the sweatbath, Los Sapos, was covered over, erasing traces of important, private ritual architecture. This event, and other changes in Los Aves, appear to reflect an increase in the visibility of the power of the residents. The massive expansion of public space at this time was a statement of their power, using monumental architecture to reinforce hierarchy and to increase the significance of their place in the ritual cycle of Los Arboles (Ringle 1999). The monumental staircase connecting Los Aves to Los Arboles brought this peripheral area

into the ritual and political sphere of Los Arboles and Xultun (Morton 2012; Ringle 1999).

The Late Classic population increase affected Los Aves as well, with additional structures constructed within and around the patios. This lack of private space, combined with the explicitly public nature of Plaza Tecolote, meant that the residents of Los Aves lacked private space for daily activities and leisure. The contemporaneous construction of Plaza Loro in the northwest corner of the group suggests that it was meant to compensate for this loss of private space within the group. I infer from this that Plaza Tecolote was not considered a suitable space for quotidian activities, necessitating the construction of a new, private area.

7.4 Future Directions

This study has presented multiple avenues for future investigations of public space. It suggests future research beyond studying monumental, central plazas at Maya sites should involve the investigation of smaller plazas associated with a variety of architecture. A productive methodological step in this direction would be for Mayanists to attempt to identify plazas and open spaces outside of site centers during site surveys. Given the challenges of working in the Maya lowlands, this may be difficult for some projects, but we may find that they are more common than previously thought. Exploring additional plazas and recording the features within will aid archaeologists in building up a body of data from which we will be able to make more comparative studies. Groupings with multiple plazas, such as Los Aves, will prove particularly helpful in determining a

typology of plazas. The presence of multiple, meaningful architectural elements has enabled me to associate changes in open spaces with social changes. This study has shown that there is not a strict line between public and private space and that investigating additional areas can shed light on the functions that all open spaces serve.

I have incorporated several approaches from modern studies of space and architecture into this study, which should be expanded upon as we identify additional effective methods. Archaeologists need to take advantage of modern studies of space in order to understand how people move through and react to different settings. While architecture does not always determine our actions, it does exert a continuum of influence, from restrictive, tall barriers to open, flexible spaces. Archaeologists can benefit from using a limited functional approach in places where architecture has a stronger impact. While such studies have sometimes been criticized, there does not need to be a conflict between functionalism and “practice theory” – multiple theoretical approaches reflect the complexity of society (Fox 1996).

Having looked at how we can benefit from studies of modern spaces, I reflect on how architects, psychologists, and sociologists can make use of archaeological studies. The failings of modern spaces that I discussed in Chapter 2 are linked to a lack of understanding of the social mechanisms of human beings. The need for gathering spaces has played a fundamental role in organizing human society since people first congregated in permanent settlements (Ucko et al. 1972). As studies of ancient public spaces develop and archaeologists build a cross-cultural database of early public spaces, we will be able to establish commonalities and points of variability. These can then be adapted to propose

criteria for the construction of modern spaces that respect the social needs of people. As I have shown, not all public spaces serve the same social functions, and modern builders designing for different settings and demographics need a variety of ways to approach open spaces. Finally, as modern communities continue to convert open spaces for commercial and residential use (Project for Public Spaces 2013), it is important to be able to advocate for the preservation of spaces for public gatherings. Despite the virtual connections brought about by technology, society still needs places to come together.

Within the area of Los Aves, a significant amount of work remains to be done. More excavations are needed in both public and private spaces in order to enable me to draw more specific conclusions about their use and to strengthen the arguments in this study. Additional research into patios will shed light on how their layouts changed from the Early Classic to the Late Classic periods. Chemical tests in plazas are proving increasingly valuable in plaza studies, generating data about use areas and activities (Terry et al. 2014). Performing such analysis in these three plazas may provide information unobtainable by excavation. Lastly, a more in-depth examination of the ceramics and other artifacts will allow me to establish a tighter chronology for the entire site, enabling me to draw specific conclusions about how it developed.

7.5 Contributions and Significance

This project contributes to our understanding of ancient Maya public space and suggests new ways to approach this subject. I have demonstrated that public space can serve a variety of roles including expanding the ritual landscape of a site, substituting for

private space, and encouraging group cohesion. This study also shows the complicated relationships between public and private spaces and rituals. Incorporating an associated residential area into a study of public space has allowed me to take an integrated and complementary approach to understanding the development of both areas.

An archaeological perspective on public space has several distinct strengths over modern architectural studies: it provides a time depth of hundreds or thousands of years for the evolution of space, the distinct origins of certain cultures means that we can study the independent development of public space. Because they are not subject to the influences of modern art movements, ancient spaces reflect the social needs of humans more accurately than those in modern architecture (Brolin 1976; Jencks 1984, 1985; Kostof 1995; Trachtenberg and Hymen 1986).

Public spaces are used for a variety of different activities and affect society in many different ways. Performances in public spaces bring members of a community together, reinforcing social bonds, but they can also be spaces of contention and negotiation (Inomata 2006; Low 2000; MacAloon 1984; Pearson and Shanks 2001). The ways in which built spaces influence behavior and the manners in which people create places that reflect their beliefs enable us to study their ideas of power and religion through material remains (Bourdieu 1977; Foucault 1977; Giddens 1984). In this study I have combined these studies with a limited functionalist approach, which suggests ways in which the built environment might constrain behavior (Lawrence and Low 1990).

Methodologically, I have shown the utility of moving beyond the site core to study the variety of public spaces on the periphery of Maya sites. Shifting my focus has

also enabled me to conduct a comparative study of plazas, which has been central to my findings. The incorporation of a variety of modern studies has demonstrated the utility in being open to functional approaches to archaeological studies of space. While such approaches should be used carefully, in the case of Plaza Loro in particular, it has offered new information that is essential to understanding how space was used in an ancient Maya city.

Appendix A: Excavation Data

Unit	Size m (NS x EW)	Location	Levels	Cera- mics	Other Artifacts
12F-1C-1	1.0 x 1.5	East of Str. 6	4	139	3 animal bones
12F-2E-2	1.0 x 1.5	West of Str. 4	2	231	
12F-30F-3	1.5 x 1.5	Patio 30	4	648	191 chert; 5 obsidian; 17 animal bones
12F-20F-4	1.5 x 1.5	Patio 20	7	640	47 chert; 1 obsidian; 1 alabaster;
12F-22D-5	1.5 x 1.5	Patio 22	11	1855	12 chert
12F-2B-6	1.5 x 1.5	Patio 2-N	8	1505	259 chert
12F-7C-7	1.5 x 1.5	Between Strs. 7 and 8	10	910	19 chert
12F-13D-8	1.5 x 1.5	South of Str. 13	5	77	6 chert
12F-23D-9	1.5 x 1.5	South end of Plaza Tecolote	2	91	6 chert
12F-23F-10	1.5 x 1.5	Middle of Plaza Tecolote	2	26	1 chert
12F-23B-11	1.5 x 1.5	North end of Plaza Tecolote	4	145	1 chert
12F-21D-12	1.5 x 1.5	South end of Plaza Loro	9	2405	1 chert
12F-10B-13	1.5 x 1.5	North of Str. 10	4	606	1 chert
12F-21F-14	1.5 x 1.5	Middle of Plaza Loro, with offering	7	938	1 chert
12F-3B-15	1.5 x 1.5	North of Str. 3, on lower landing	3	425	
12F-11D-16	1.5 x 1.5	South of Str. 11	7	913	5 chert
12F-14C-17	1.5 x 1.5	Southwest part of Round Structure	7	794	
12F-14F- 17A	1.5 x 1.5	West side of Round Structure	6	784	
12F-14C- 17B	1.5 x 1.7	West side of Round Structure	4	656	

12F-14C-17C	1.5 x 0.3	Round and Rectangular Structures	1	29	
12F-14C-17D	1.0 x 1.0	Extension west of U-17A	5	310	
12F-14C-17E	1.5 x 0.8	Norwest corner of Rectangular Structure	6	245	1 chert
12F-14C-17F	1.5 x 1.2	Southwest wall of Rectangular Structure	7	160	1 chert
12F-14C-17G	2.0 x 0.9	Southwest corner of Rectangular Structure	1	0	
12F-14C-17H	0.7 x 1.5	East of U-17E	6	111	3 chert (2 axes)
12F-22E-18	2.0 x 2.0	Northeast corner of Patio 22	10	3299	8 chert
12F-11B-19	1.5 x 1.5	North of Str. 11	3	144	2 chert
12F-16B-20	1.5 x 1.5	On descending slope north of Plaza Colibrí	2	41	4 chert
12F-4E-21	1.5 x 1.5	East side of Plaza Tecolote	3	25	
12F-15C-22	2.0 x 1.0	To west of Str. 15	7	1182	67 chert
12F-14C-23	1.5 x 1.5	South of U-23A	7	494	7 chert
12F-13C-23A	0.5 x 1.5	East of U-23B	4	87	
12F-14C-23B	0.5 x 1.5	Between U-17C and U-23A	3	112	1 chert
12F-14C-23C	0.6 x 1.3	East of U-23	5	113	1 spearhead
12F-14C-24	2.0 x 1.0	Extension north of U-24B	6	585	1 chert
12F-14C-24A	1.0 x 1.0	North of U-24	9	311	2 chert
12F-14C-24B	1.4 x 0.6	East of U-17H	7	168	
12F-14C-24/24A	3.0 x 1.0	Combined U-24 and U-24A	4	432	

12F-14C-25	1.5 x 1.5	East side of Round Structure	11	661	
12F-14C-26	0.6 x 0.5	Southeast corner of Rectangular Structure	2	0	
12F-14C-26A	0.6 x 1.0	Extension east of U-26	2	27	
12F-14C-27	0.7 x 0.5	East of U-26	5	46	1 chert
12F-14C-28	1.0 x 1.3	Northeast corner of Rectangular Structure	5	296	1 chert
12F-5D-29	1.5 x 1.5	South of Str. 5	7	1146	11 chert, 13 obsidian, 84 bone frags, 1 stucco frag, 1 ceramic figurine frag
12F-38D-30	1.5 x 1.5	South of Str. 38	5	1083	16 chert, 8 obsidian, 5 shell beads, 25 animal bone frags
12F-23D-31	1.5 x 1.5	To the south of Plaza Tecolote	3	52	2 chert, 1 obsidian, 1 shell
12F-23D-32	0.5 x 0.5	Extension east of U-31	1	6	
12F-23D-33	1.2 x 1.5	Extension south of U-31	3	79	3 obsidian, 3 bone frags
12F-38D-34	1.0 x 0.8	Extension south of U-30	4	783	10 chert, 10 obsidian, 3 bone frags, 3 shell, 1 stucco frag
12F-23D-35	1.5 x 1.0	West of U-31	2	119	1 obsidian
12F-38D-36	1.5 x 0.8	Extension south of U-34	5	1287	21 chert, 17 obsidian, 5 shell, 27 bone frags, 2 mano frags
12F-23D-37	1.0 x 1.0	Extension south of U-31	2	47	2 obsidian, 1 bone frag
12F-23D-38	1.5 x 1.5	On stairs at south end of Plaza Tecolote	5	200	1 owl ocarina
12F-23B-39	1.0 x 1.0	At north end of Plaza Tecolote	1	32	1 obsidian
12F-23B-40	1.0 x 1.0	At north end of Plaza Tecolote	4	107	3 obsidian

12F-38D-41	2.0 x 0.8	Extension south of U-36	4	1455	7 chert, 2 obsidian, 19 bone frags, 5 shell, 2 stucco frags
12F-23D-42	1.5 x 1.5	Extension south of U-38	2	33	
12F-38D-43	0.5 x 0.5	East of U-36	4	285	1 chert point, 4 bone frags
12F-38D-44	2.0 x 0.8	Extension south of U-41	6	2975	35 chert, 17 obsidian, 44 shell, 28 bone frags, 3 stucco frags
12F-15C-45	1.0 x 1.0	Southwest corner of Str. 15	5	612	72 chert, 1 chert bead, 3 obsidian, 8 shell beads, 3 figurine frags, 1 shell
12F-4E-46	N/A	Looters' trench, east side of Str. 4	2	1012	1 chert eccentric, 16 obsidian blades, 351 bone frags
12F-15D-47	1.0 x 1.5	Southwest corner of Str. 15	6	1303	31 chert (2 points), 10 obsidian (1 green), 17 shells. 6 bone frags (1 carved)
12F-4E-48	1.5 x 1.5	Base of stairs, east side of Str. 4	3	39	1 mano frag
12F-15C-49	1.0 x 2.5	Southwest corner of Str. 15	3	597	2 chert, 1 obsidian
12F-4E-50	1.5 x 1.5	Base of stairs, east side of Str. 4	2	18	
12F-15C-51	0.85 x 2.0	Southwest corner of Str. 15	4	1214	6 chert, 2 obsidian, 8 bone frags, 10 ceramic figurine frags
12F-4E-52	1.5 x 1.5	Base of stairs, east side of Str. 4	4	56	6 obsidian, 2 bone frags, 2 metate frags
12F-23D-53	2.0 x 1.5	On stairs at south end of Plaza Tecolote	1	20	
12F-23D-54	2.0 x 1.5	On stairs at south end of Plaza Tecolote	2	41	1 obsidian
12F-4E-55	1.5 x 2.0	Base of stairs, east side of Str. 4	2	13	









12F-15D-56	1.0 x 0.6	Southwest corner of Str. 15	3	420	3 chert, 1 obsidian
12F-15D-57	2.3 x 0.7	South side of Str. 15	4	1846	6 chert, 10 obsidian, 18 stucco frags, 5 bone frags, 2 ceramic figurine frags
12F-4E-58	1.5 x 2.0	Base of stairs, east side of Str. 4	1	16	
12F-23D-59	2.0 x 1.5	Base of stairs, east side of Str. 4	3	62	5 chert
12F-21F-60	N/A	Chultun in center of Plaza Loro	6	1383	3 chert, 9 obsidian, 158 human bone frags, 57 animal bone frags, 1 shotgun shell, 1 piece of hematite, 4 metate frags, 2 mano frags, 51 seeds
12F-15C-61	2.5 x 2.5	Northwest corner of Str. 15	3	926	7 chert, 3 obsidian, 5 bone frags, 1 mano frag, 1 metate frag
12F-7A-62	1.5 x 1.5	Looters' trench in west side of Str. 7	1	178	1 obsidian, 9 bone frags
12F-22F-63	2.0 x 2.0	Center of Patio 22	8	1886	5 chert, 9 obsidian, 55 bone frags (1 carved), 5 shells, 1 metate frag
12F-15B-64	1.8 x 1.5	Northeast corner of Str. 15	2	308	2 obsidian
12F-4E-65	1.0 x 2.0	Pit in looters' trench on east side of Str. 4	3	525	2 chert, 3 obsidian, 1 mano frag
12F-15B-66	3.0 x 2.0	North side of Str. 15	2	587	4 obsidian, 1 stucco
12F-15D-67	1.5 x 1.0	Southeast corner of Str. 15	2	295	6 chert
12F-15C-68	1.0 x 3.0	West side of Str. 15	2	397	3 chert, 2 mano frags
12F-15D-69	1.0 x 2.0	South of Str. 15	2	139	8 chert, 1 obsidian, 1 figurine frag
12F-15C-70	1.0 x 1.0	Southeast corner of Plaza Tecolote	2	38	1 mano frag

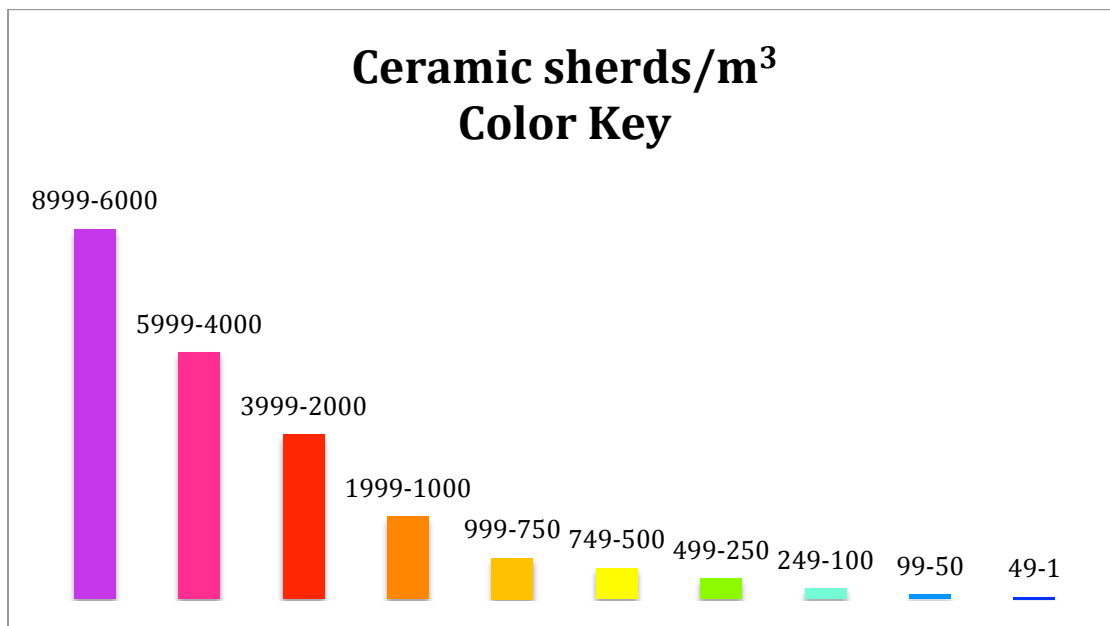
12F-23B-71	1.0 x 0.5	North side of Plaza Tecolote	1	35	
12F-7A-72	N/A	Tomb inside of Str. 7	1	215	
12F-7A-73	1.0 x 1.0	Pit in tomb inside of Str. 7	1	75	55 bone frags
12F-14C-74	1.6 x 1.5	South side of Round Structure	3	42	
12F-5A-75	N/A	Looters' trench in north side of Str. 5	1	116	2 chert
12F-14C-76	2.5 x 1.65	West side of Round Structure	4	67	2 chert
12F-15D-77	1.0 x 1.5	South of Str. 15	2	370	3 obsidian
12F-15D-78	0.8 x 1.0	South of Str. 15	3	280	1 chert, 5 obsidian
12F-15D-79	1.0 x 1.0	South of Str. 15	5	711	6 chert (2 points), 5 obsidian, 4 bone frags, 1 worked lithic
12F-5A-80	0.75 x 1.7	North facade of Str. 5 (Los Sapos)	1	83	3 chert, 1 mano frag, 1 bag stucco frags
12F-15F-81	0.8 x 0.8	Top of Str. 15	2	11	
12F-4A-82	N/A	Looters' trench in west side of Str. 3	3	252	1 chert, 5 obsidian, 18 bone frags, 3 stucco frags, 1 shell
12F-5C-83	1.4 x 2.0	North facade of Str. 5 (Los Sapos)	5	557	45 chert, 4 obsidian, 2 metate fragments, 42 animal bone fragments, 183 human bone fragments
12F-8A-84	N/A	Looters' trench in east side of Str. 8	1	40	1 obsidian
12F-8A-85	N/A	Tomb inside Str. 8	1	115	2 chert, 27 animal bone frags
12F-3A-86	N/A	Looters' trench in east side of Str. 3	2	1060	4 chert, 5 obsidian, 8 bone frags, 4 manta ray spine frags
12F-5A-87	N/A	North facade of Str. 5 (Los Sapos)	1	72	2 chert, 1 metate frag, 1 stucco frag

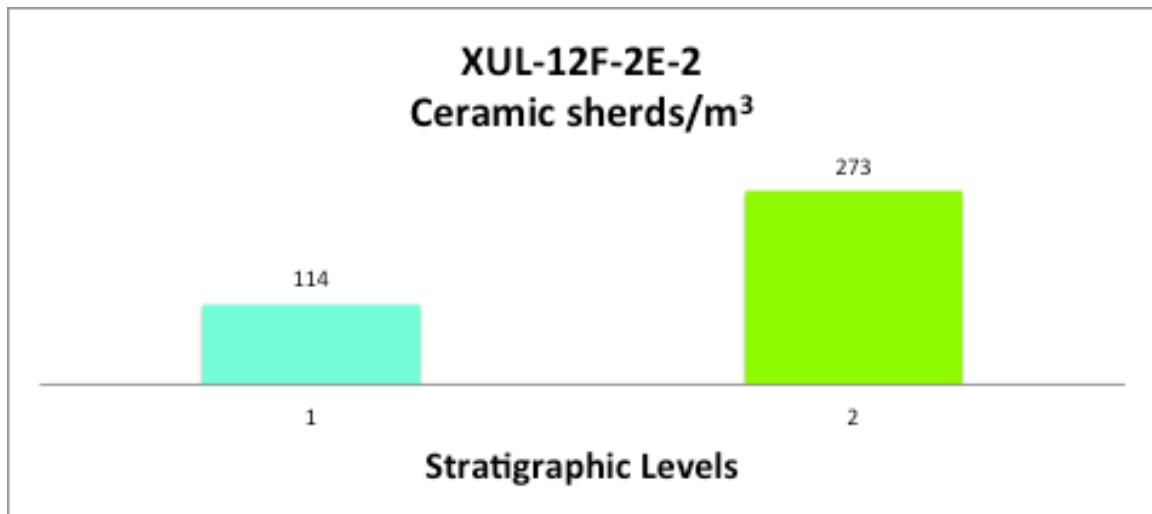
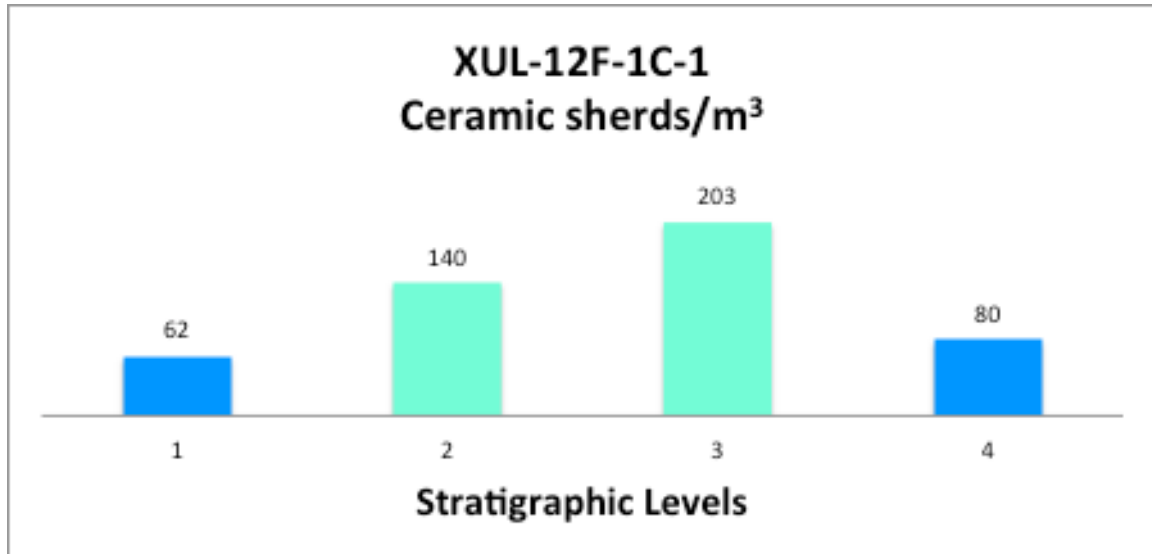
12F-5A-88	0.8 x 0.75	North façade of Str. 5 (Los Sapos)	3	51	74 chert, 1 obsidian, 1 jadeite, 120 human bone fragments; 2 shell
12F-5A-89	N/A	Looters' trench in north side of Str. 5	1	0	2 chert
12F-5C-90	1.0 x 1.5	West side of Str. 5 (Los Sapos)	6	216	216 chert, 1 obsidian
12F-3A-91	N/A	Looters' trench in north side of Str. 3	1	196	2 chert points, 4 obsidian, 1103 human skull bones, 1 worked lithic

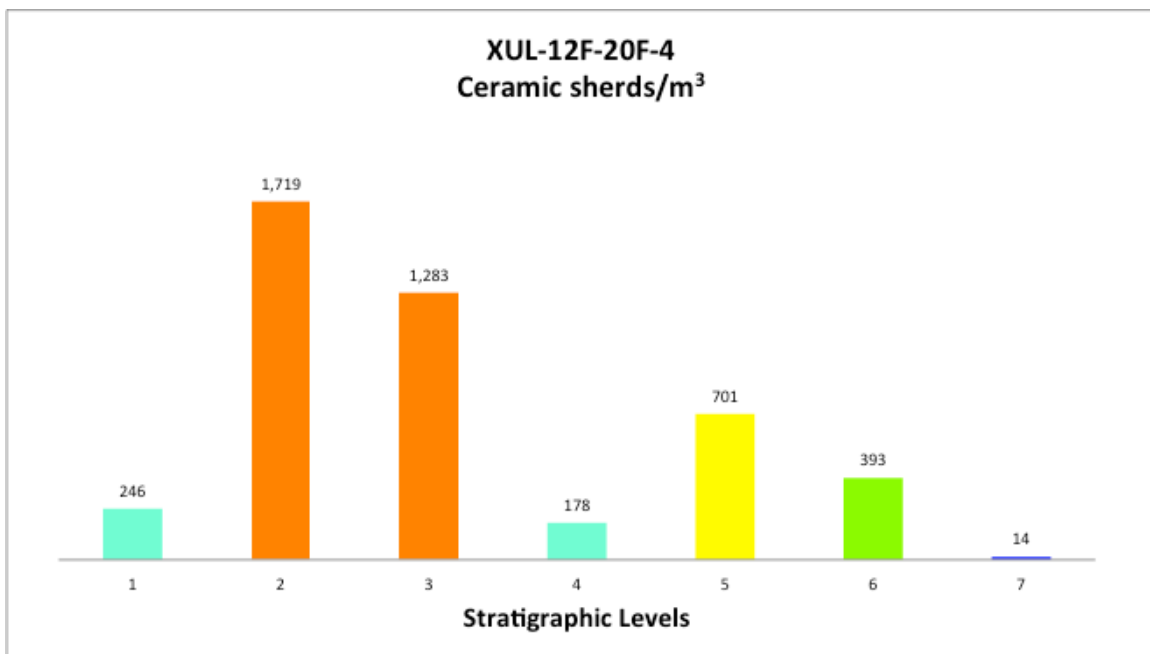
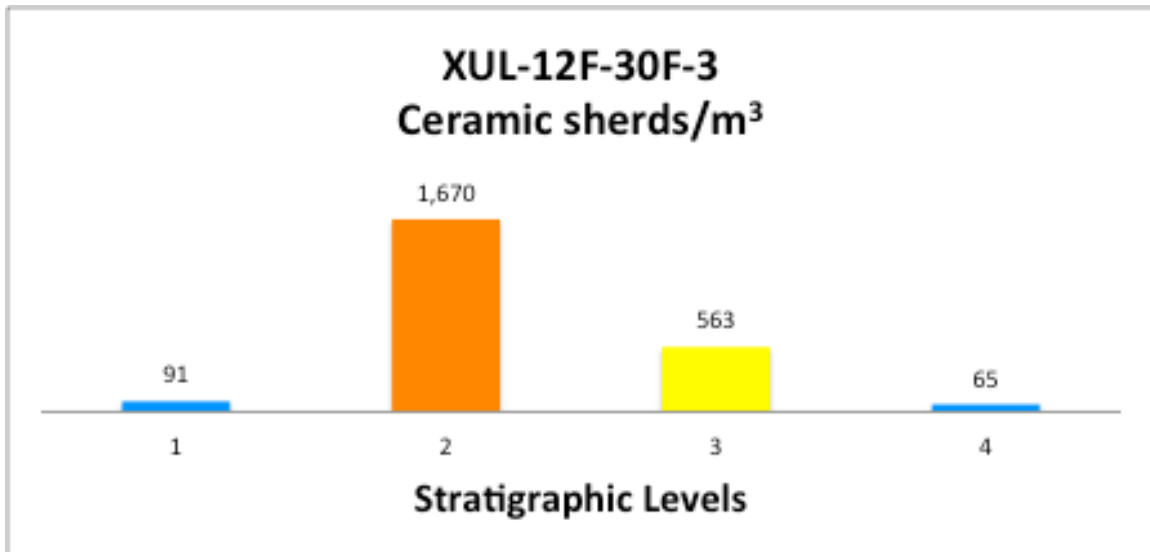
Appendix B: Ceramic Density Charts

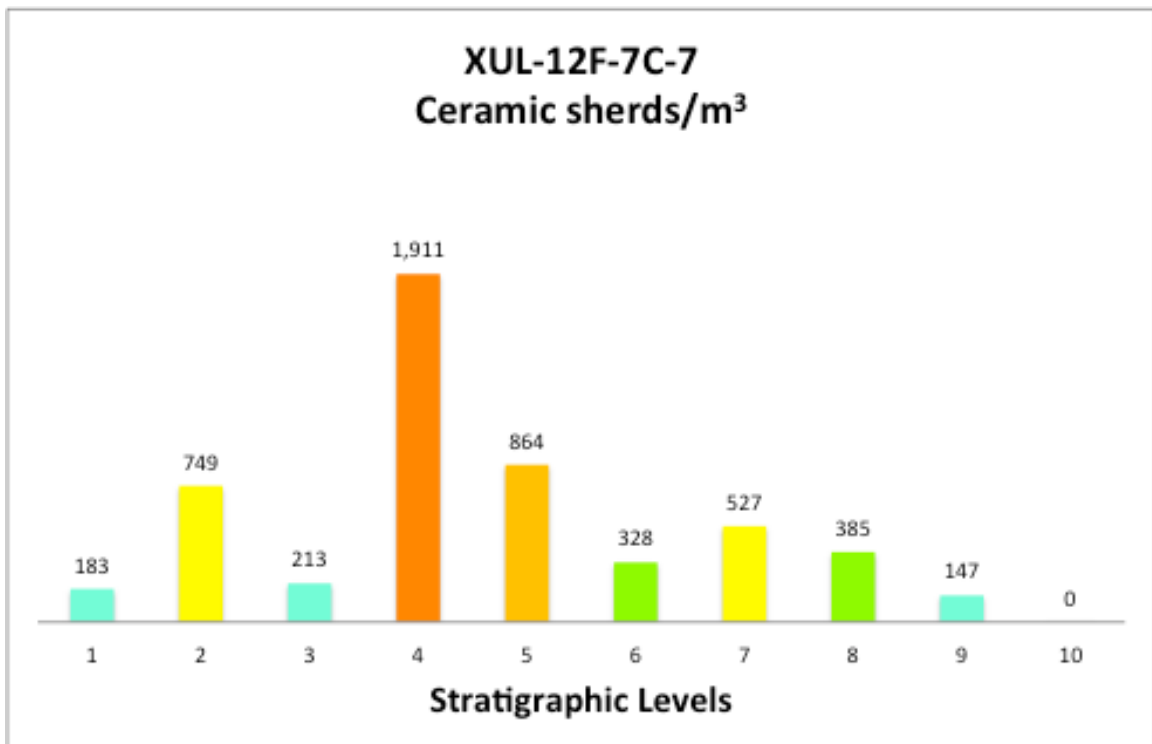
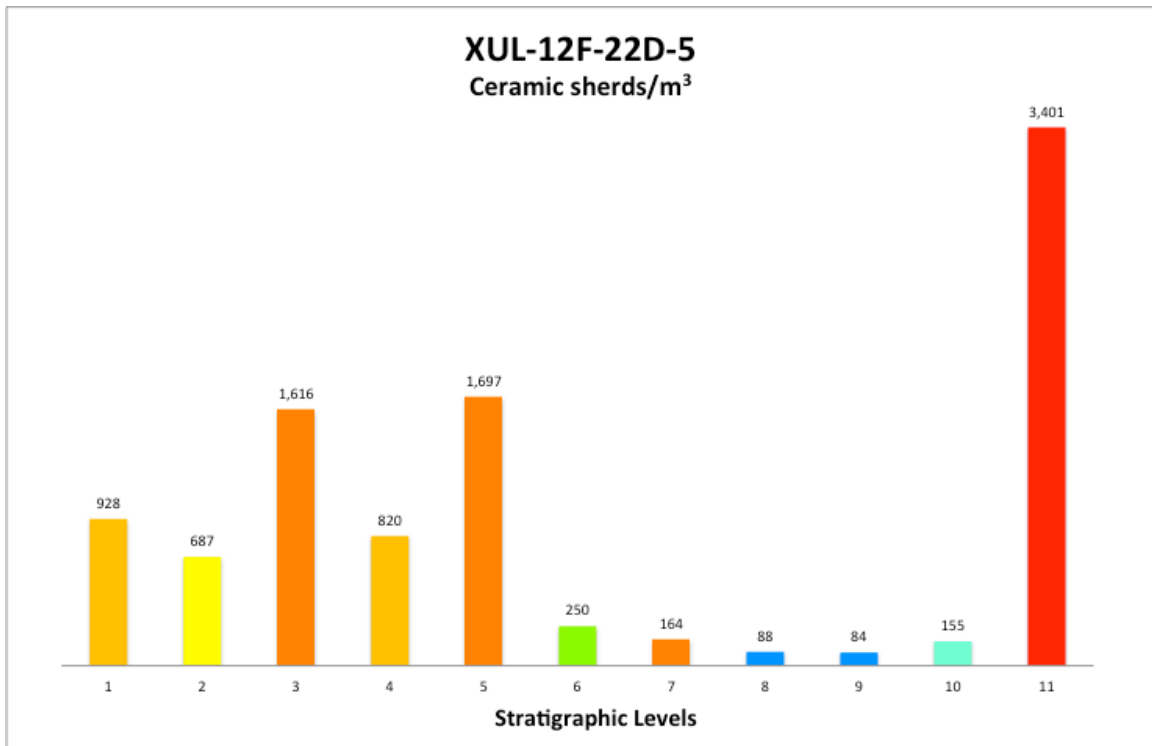
Due to the great range of ceramic densities between and within units, I have used a color coding system to make charts more easily visually comprehensible. Charts are not included for looters' trenches or for units with only one level.

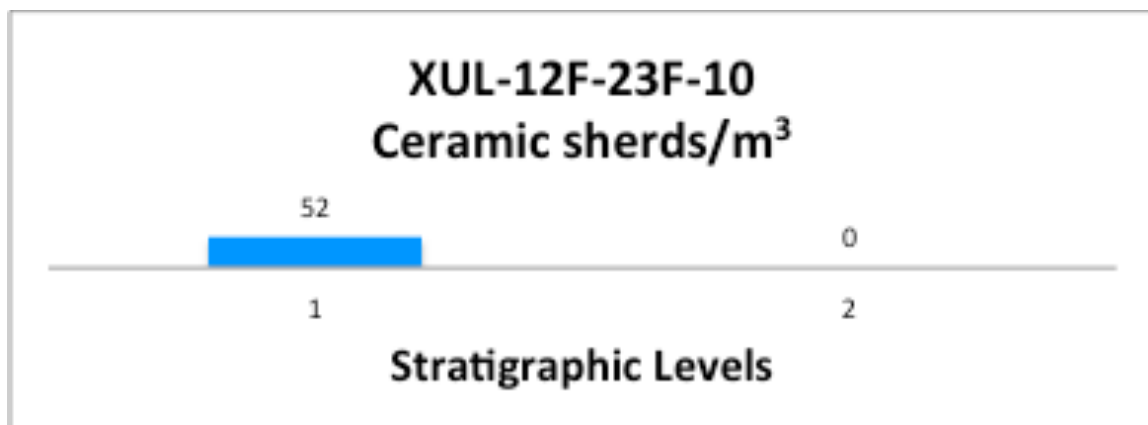
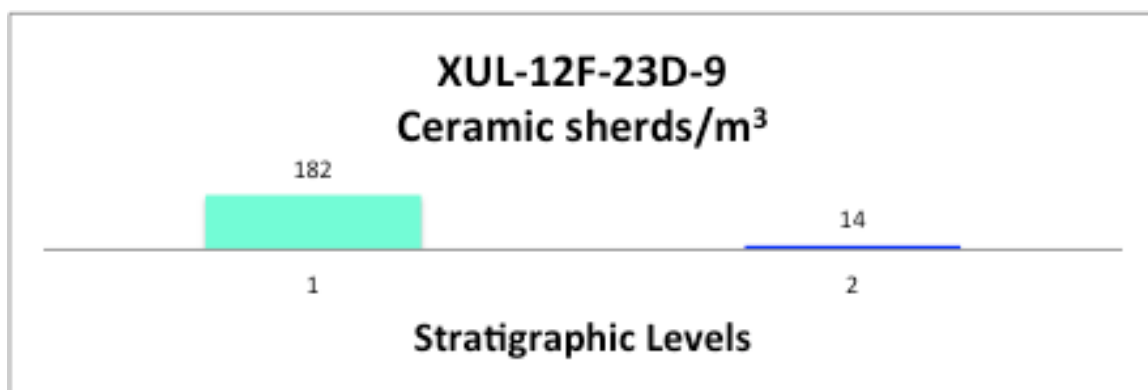
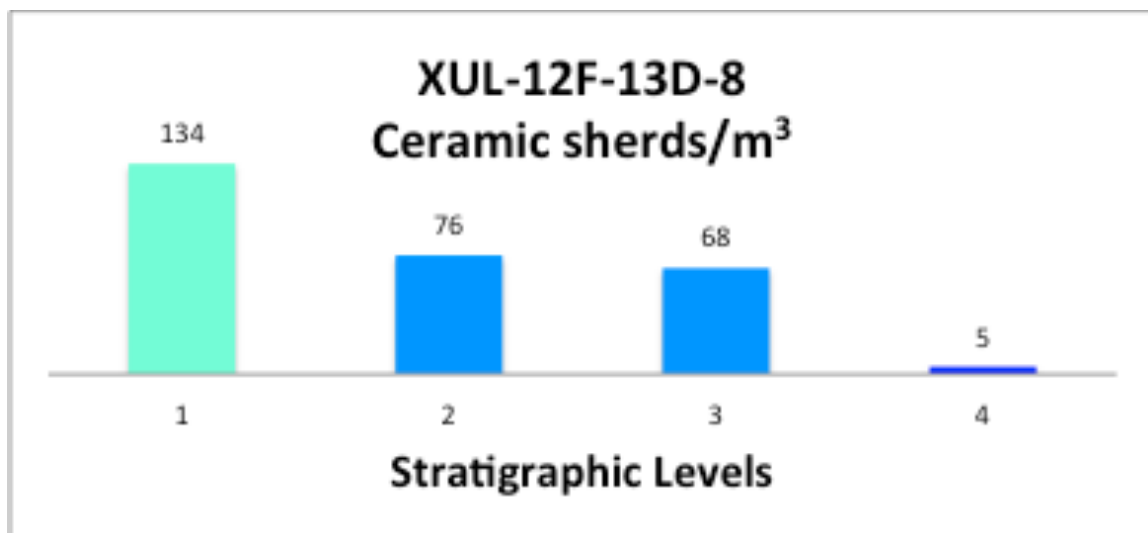
Color	Sherd Density
	8999-6000
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	3999-2000
	1999-1000
	999-750
	749-500
	499-250
	249-100
	99-50
	1-49

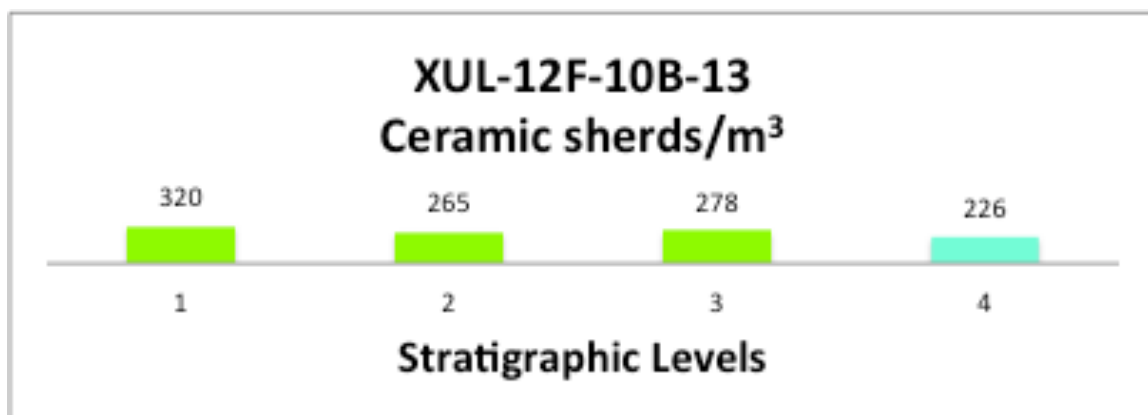
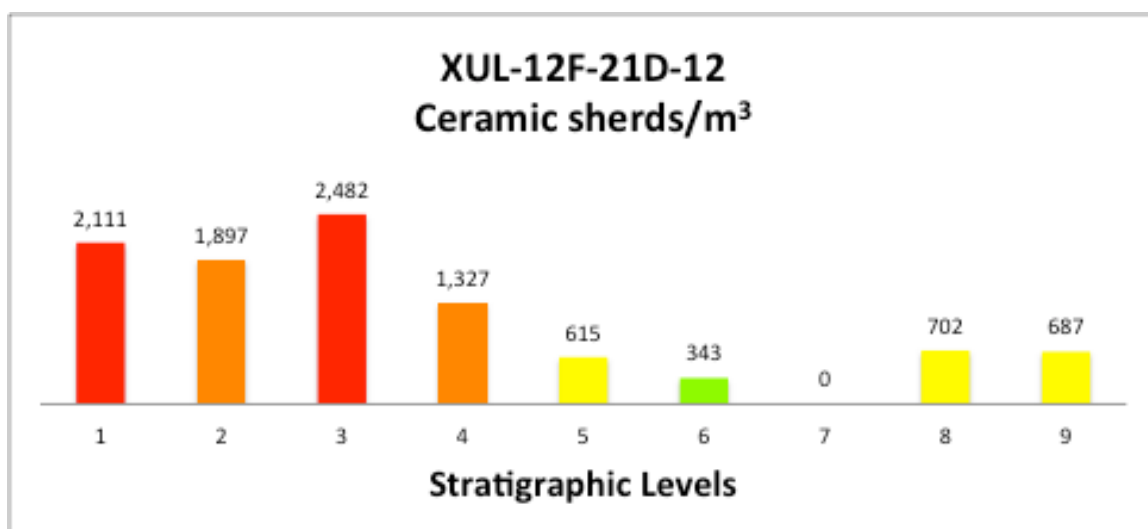
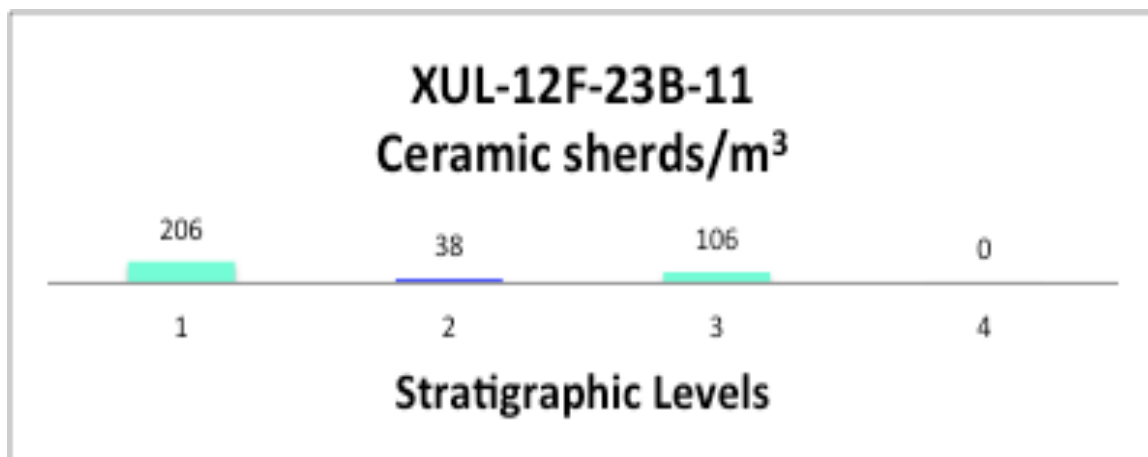


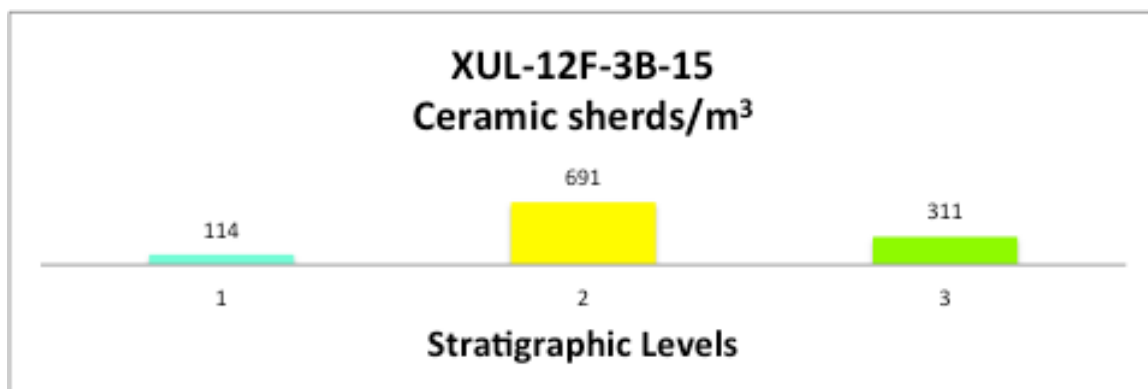
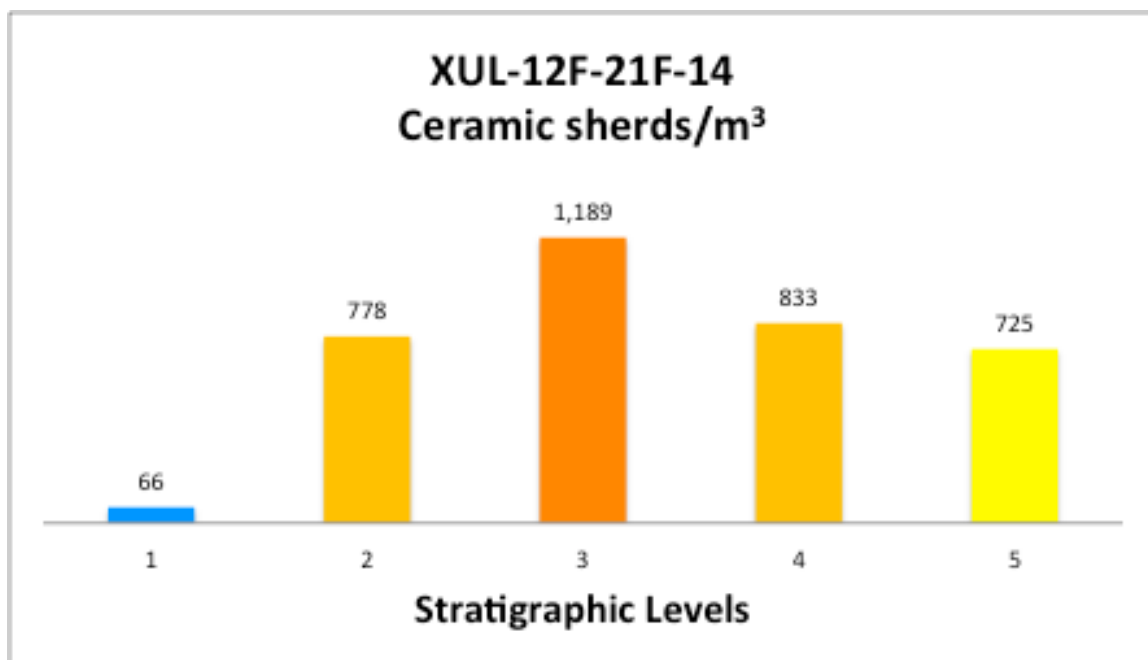
Units in Numerical Order

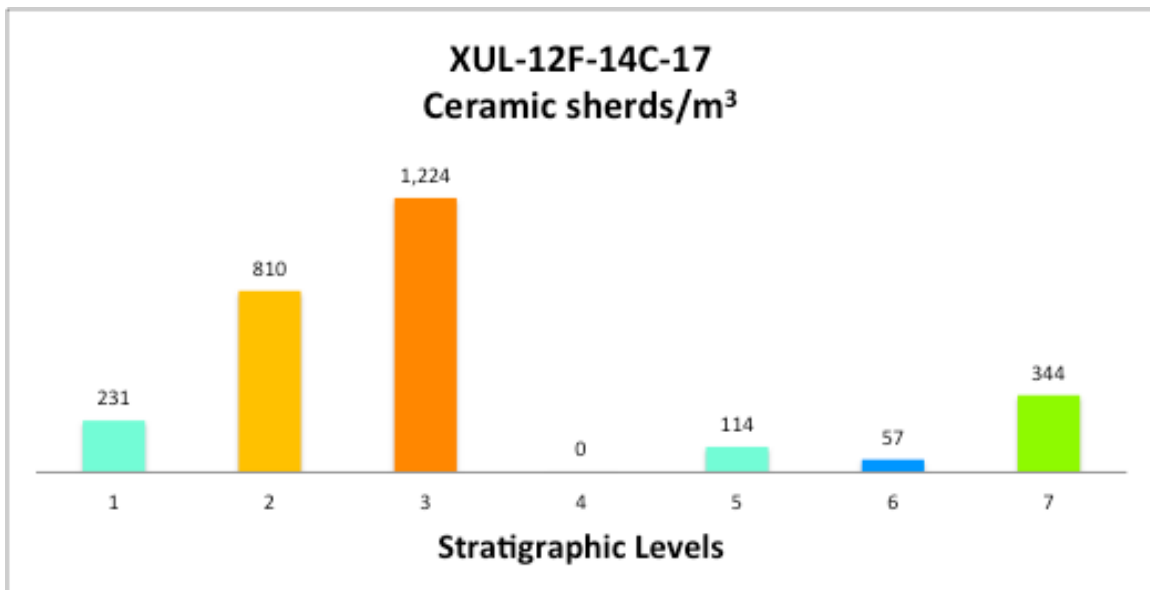
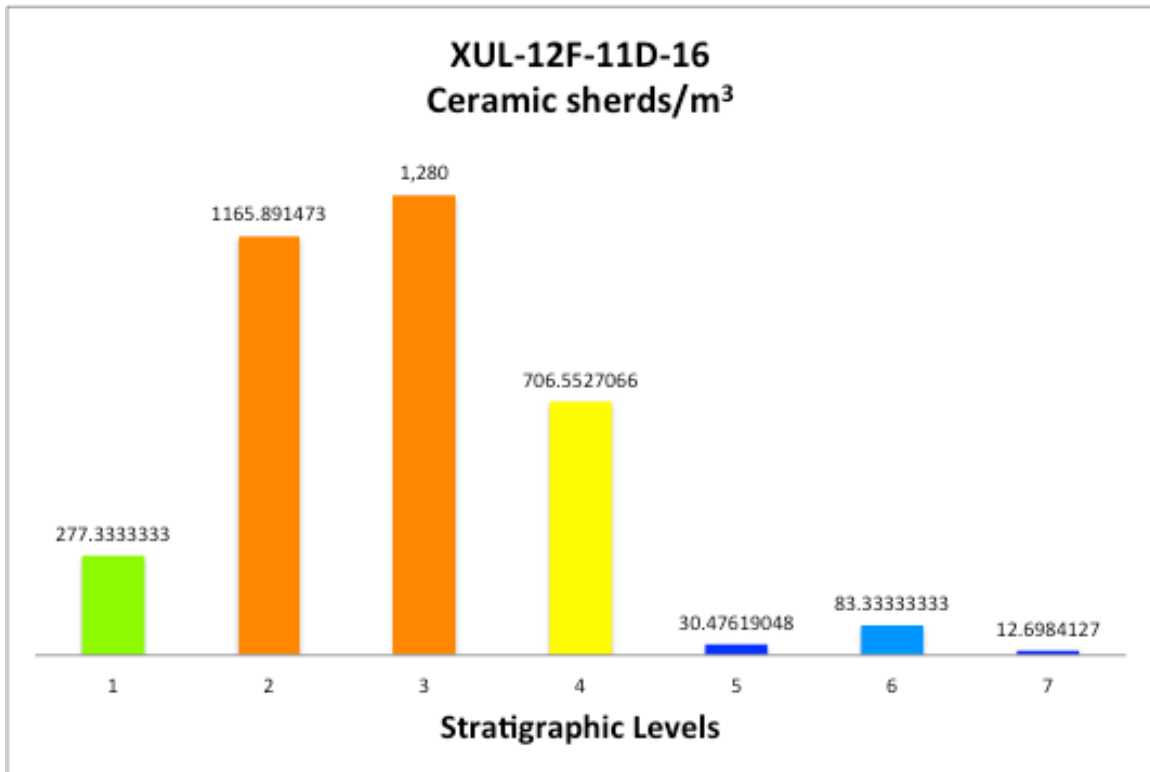


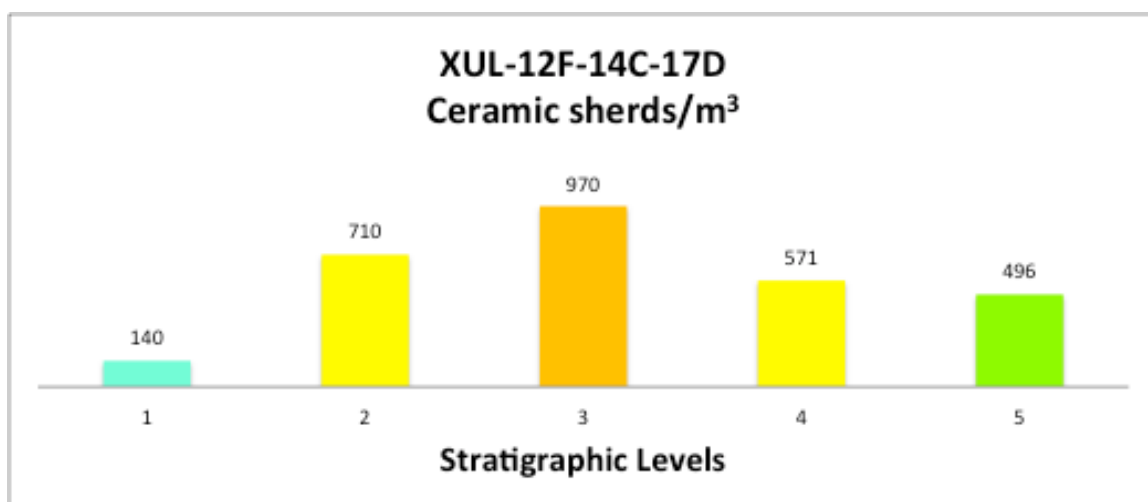
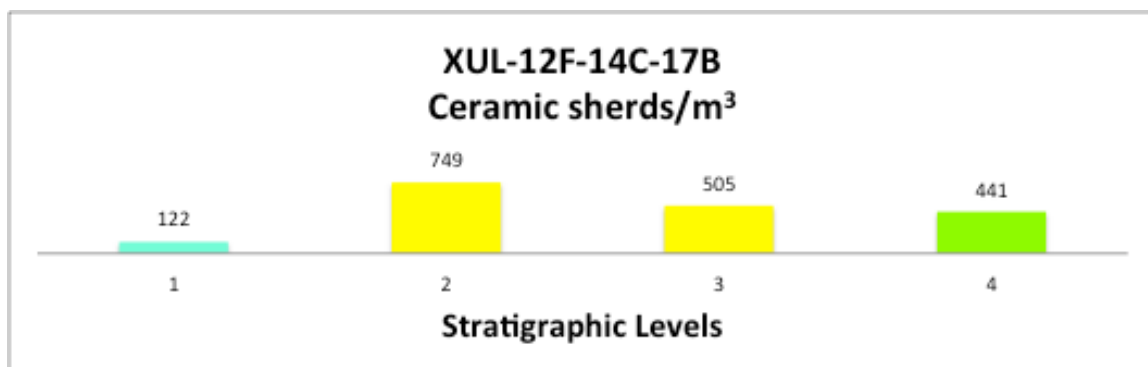
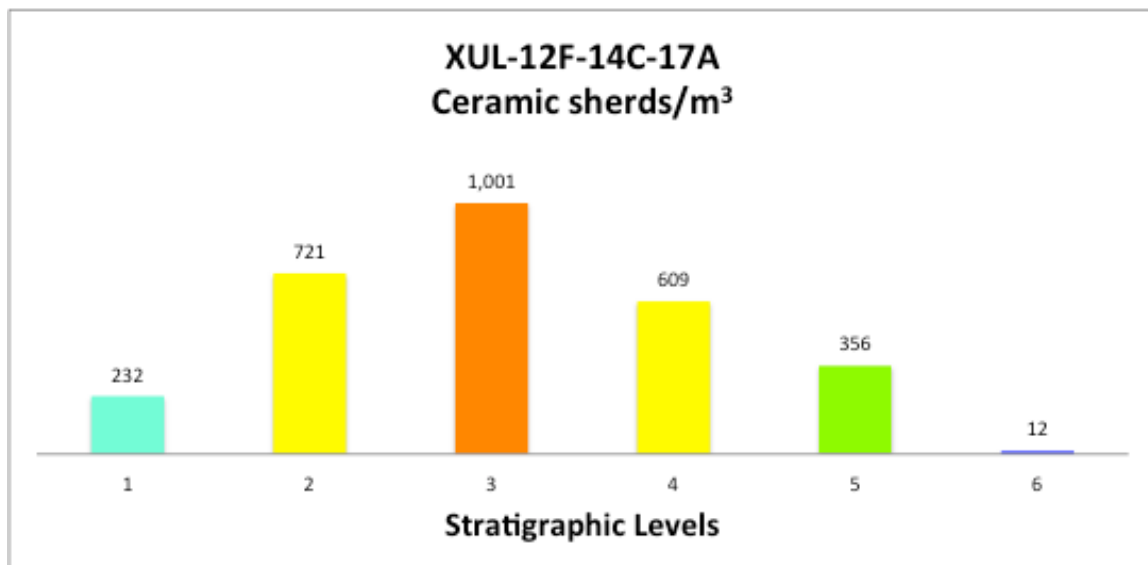


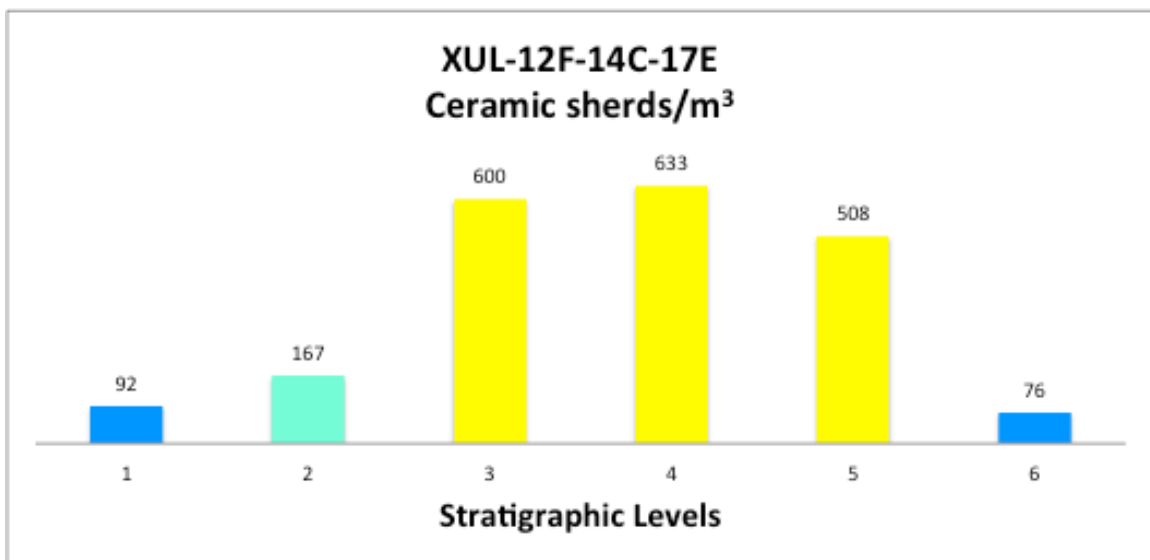
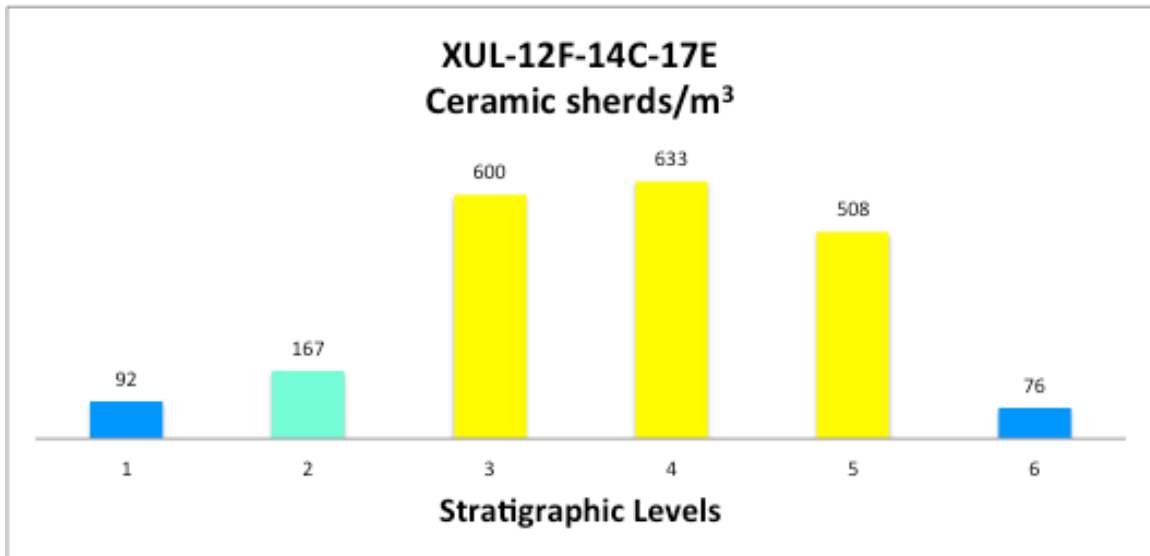


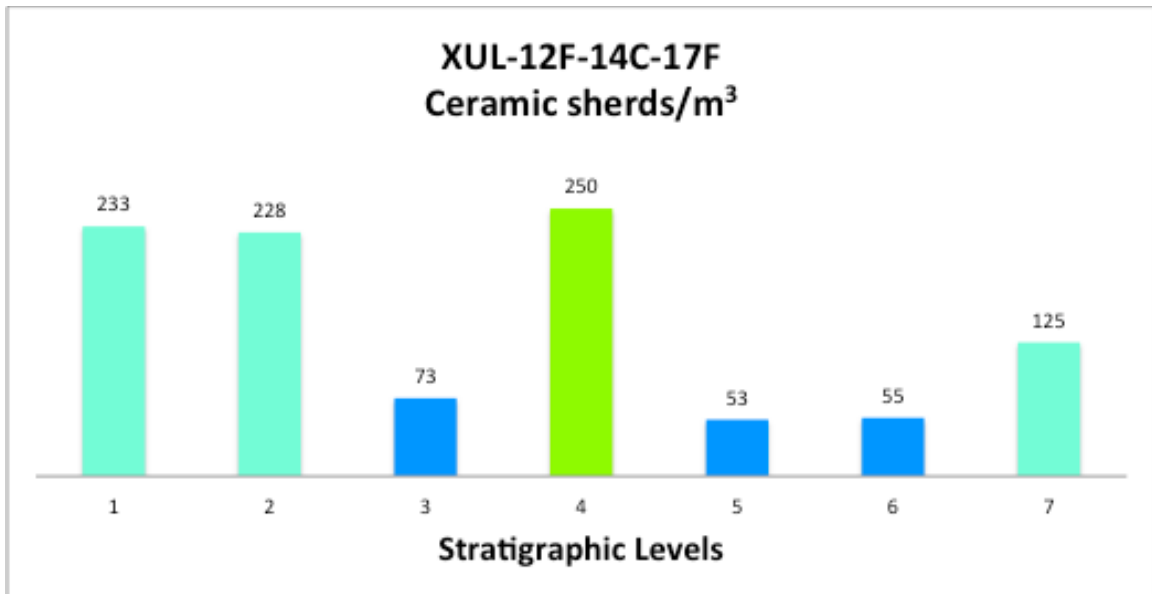




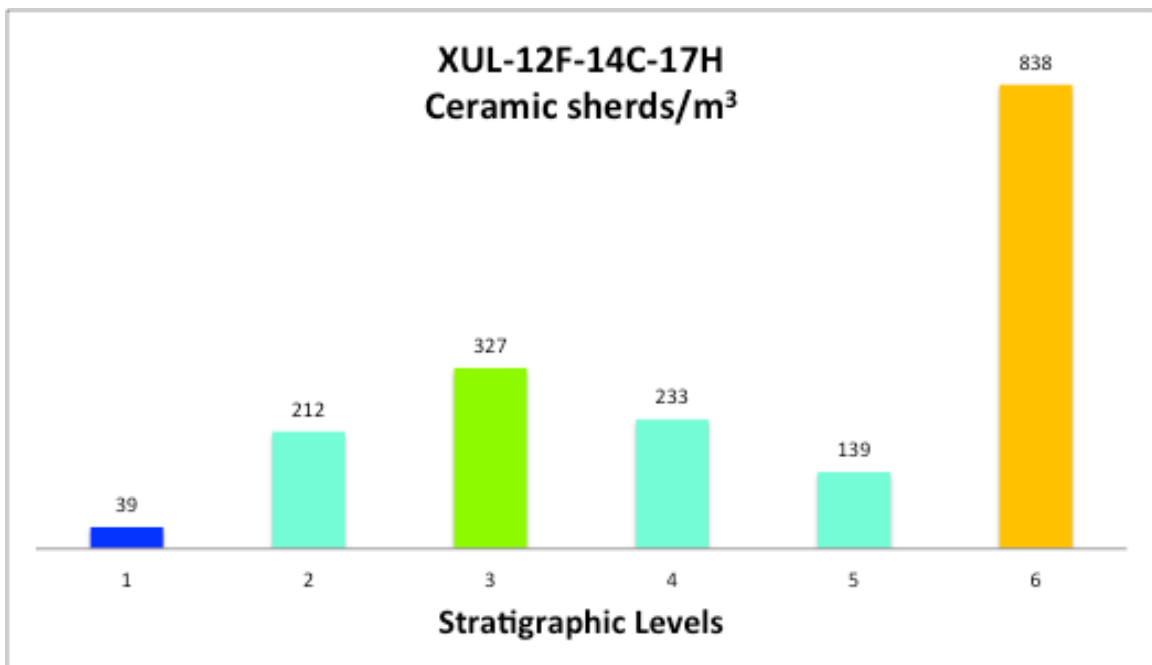


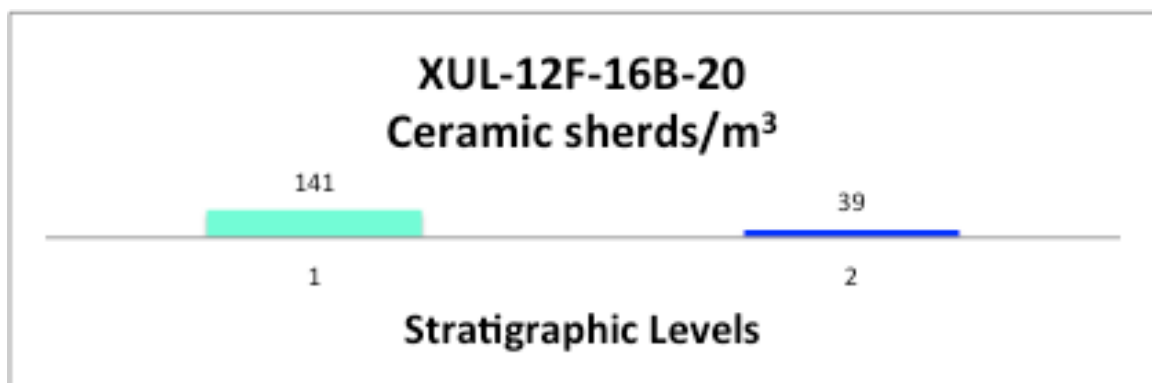
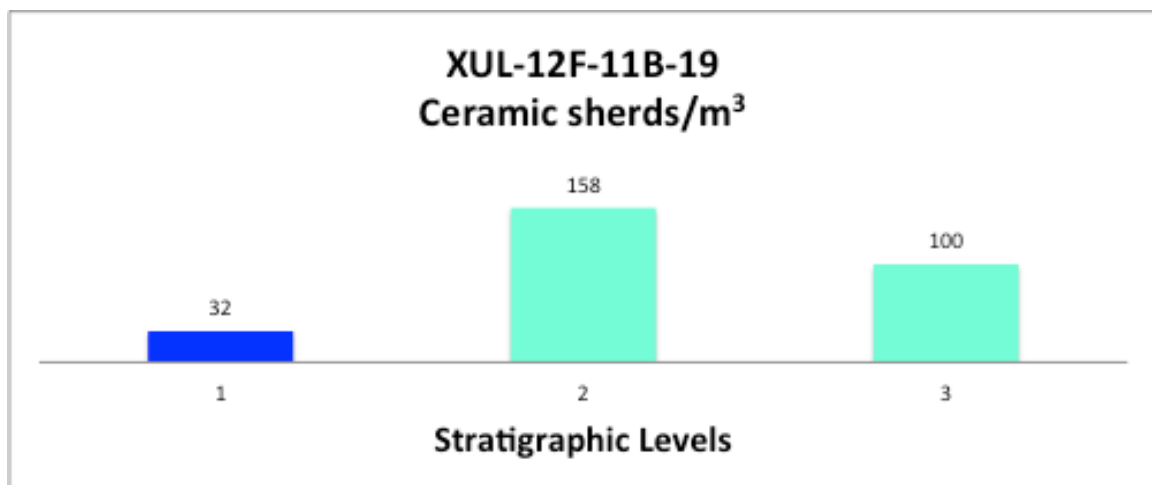
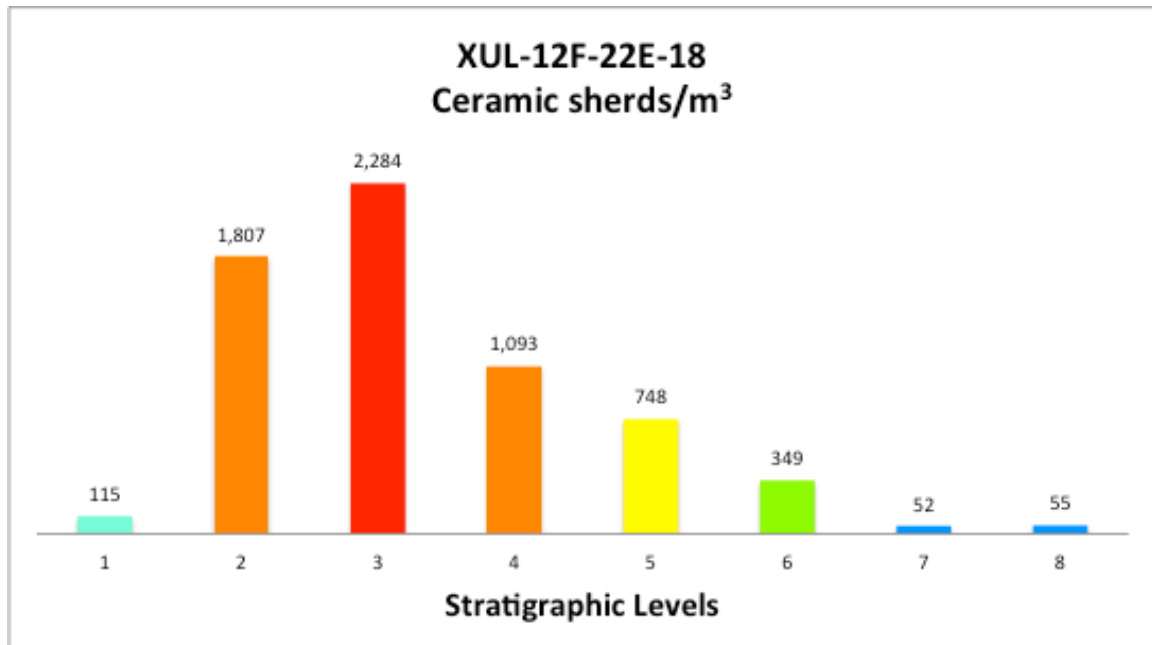


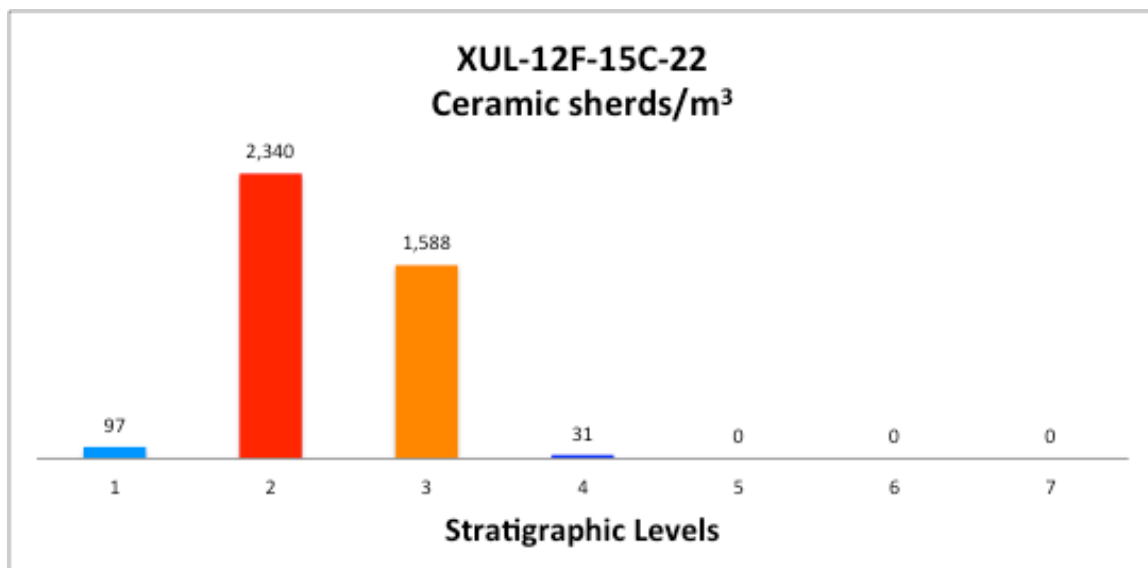
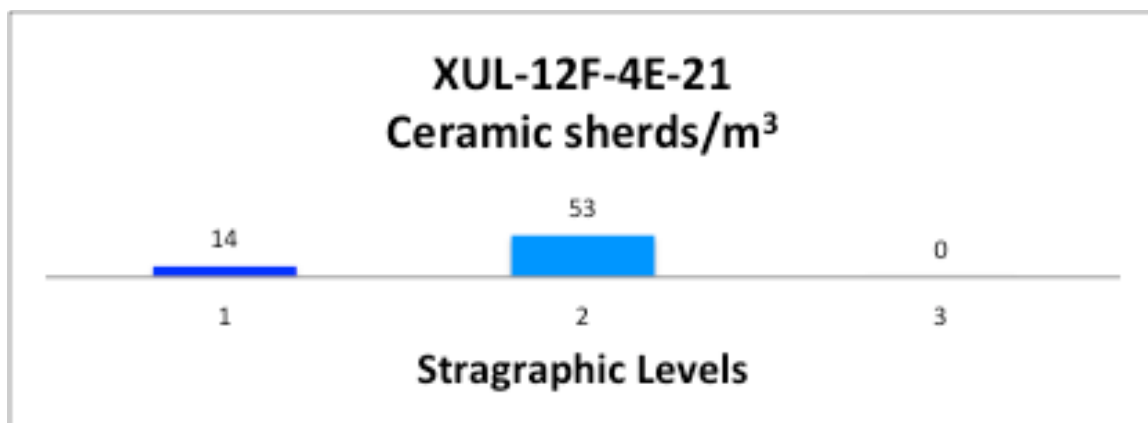


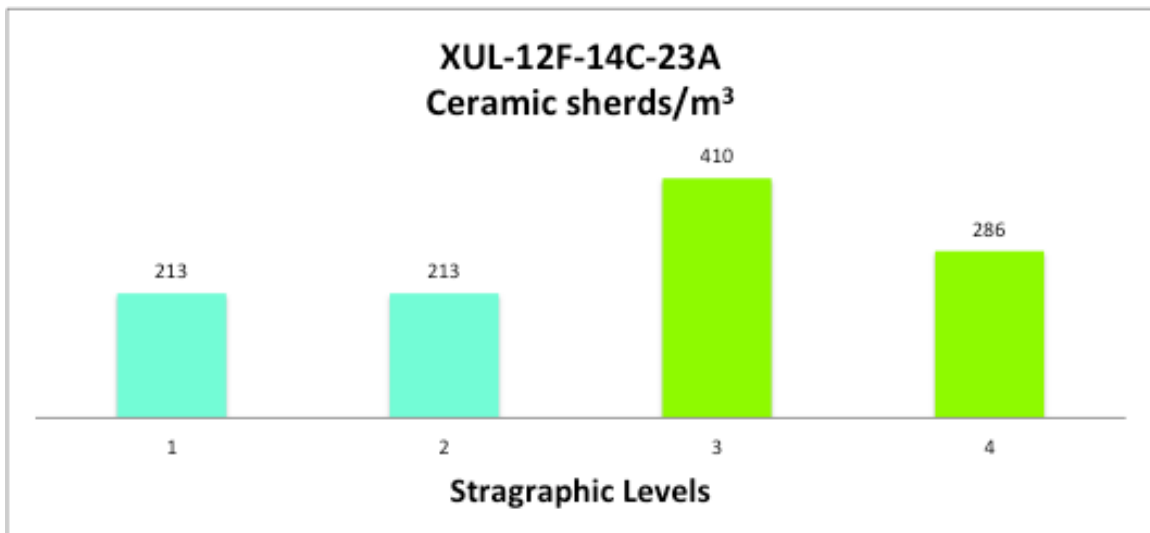
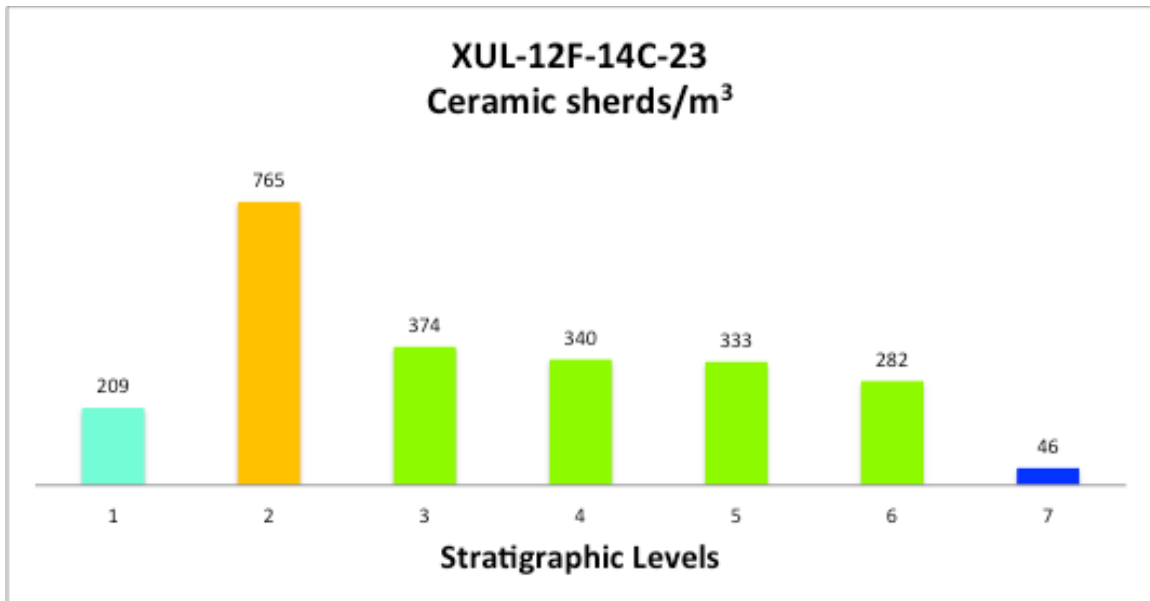


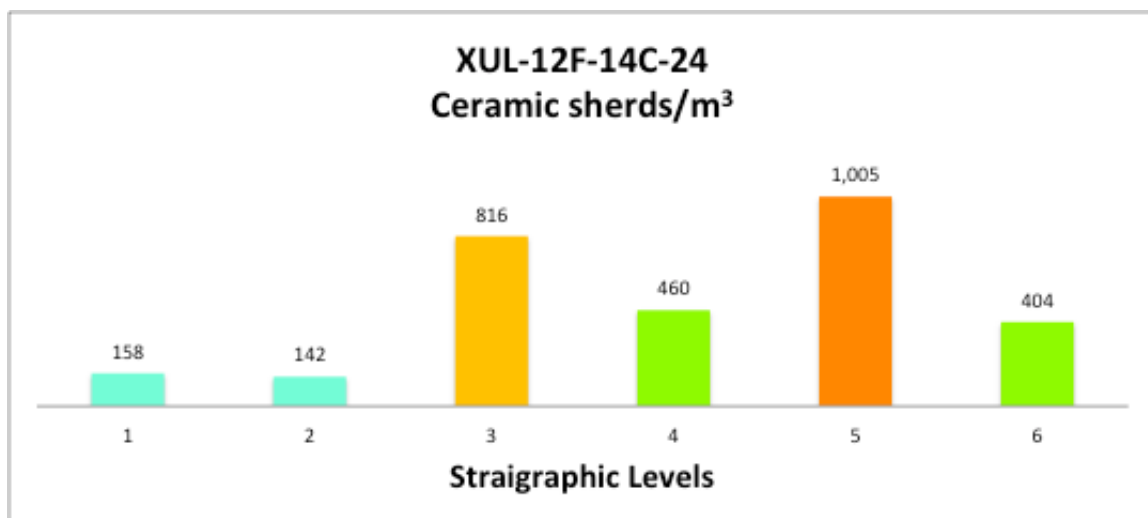
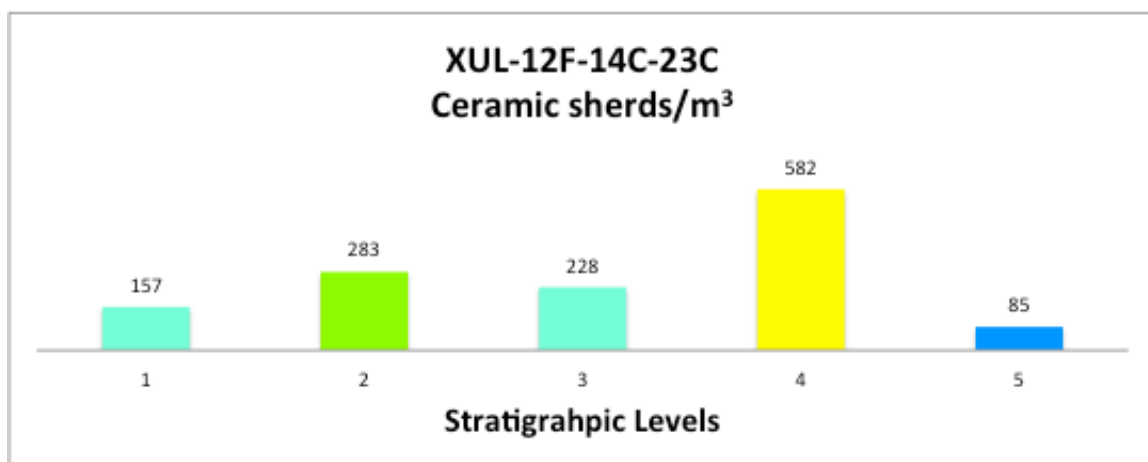
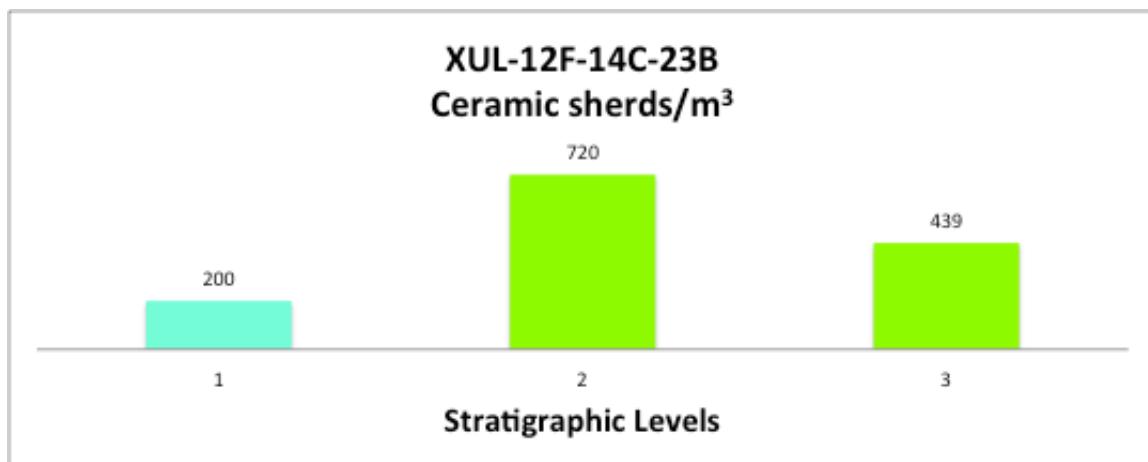
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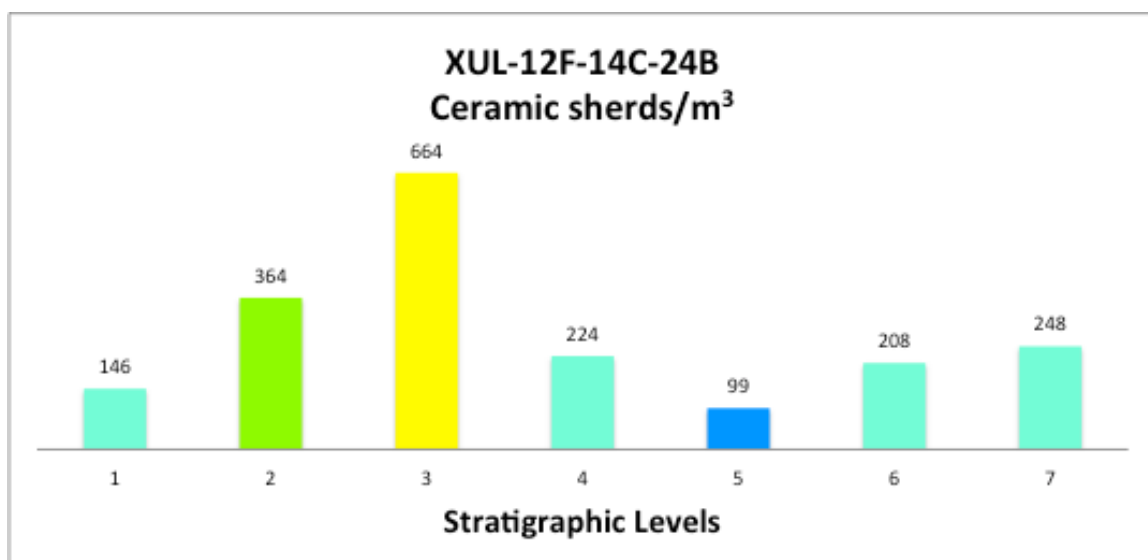
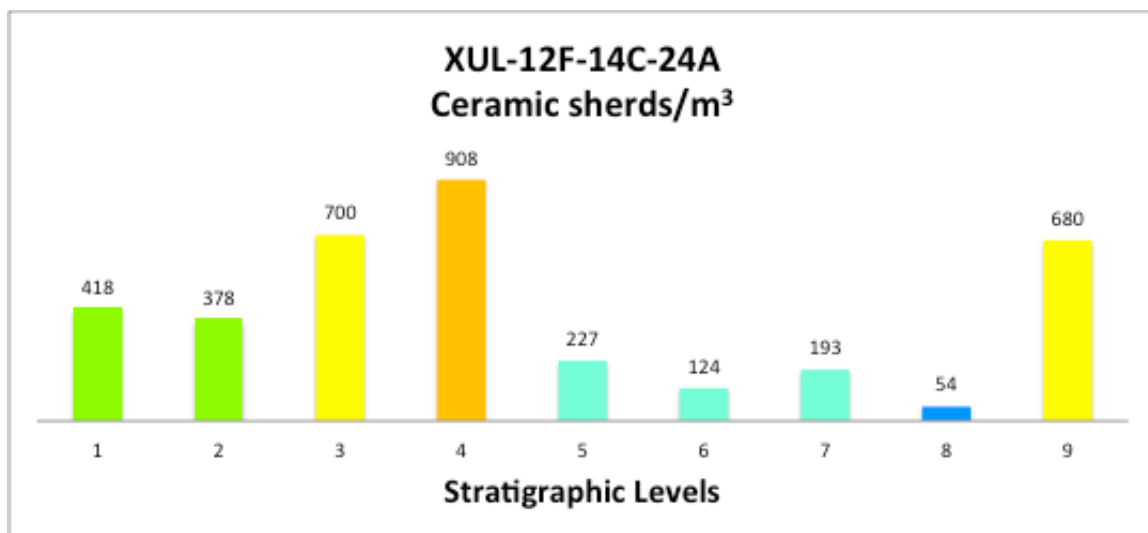


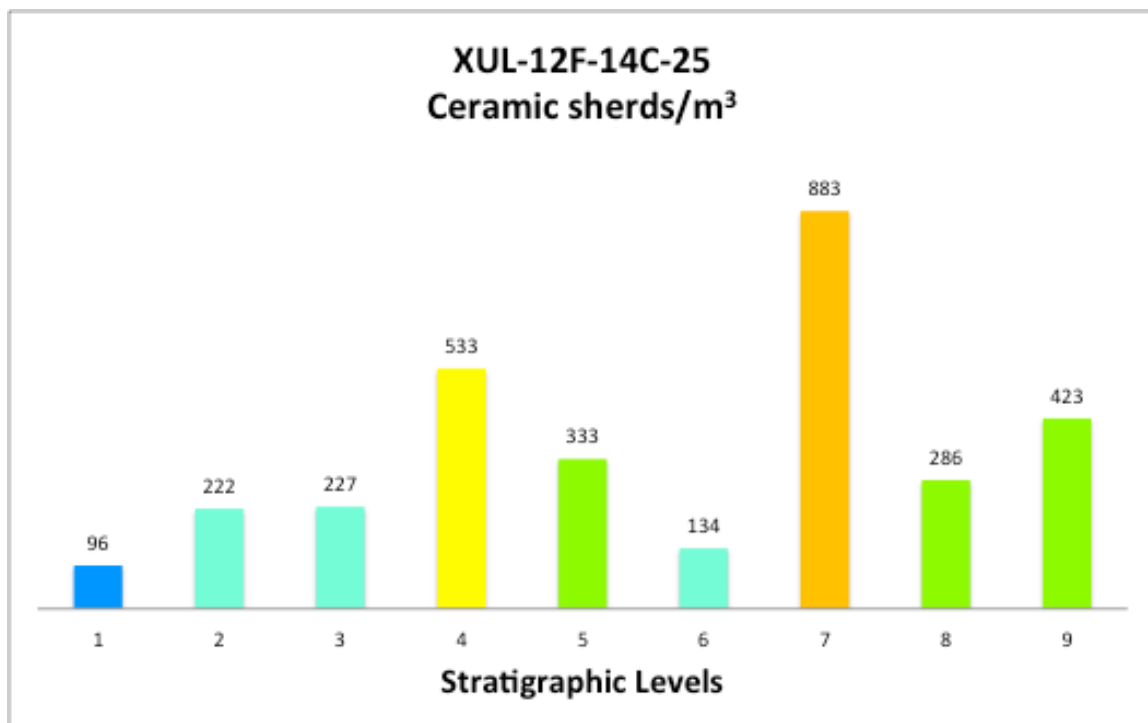
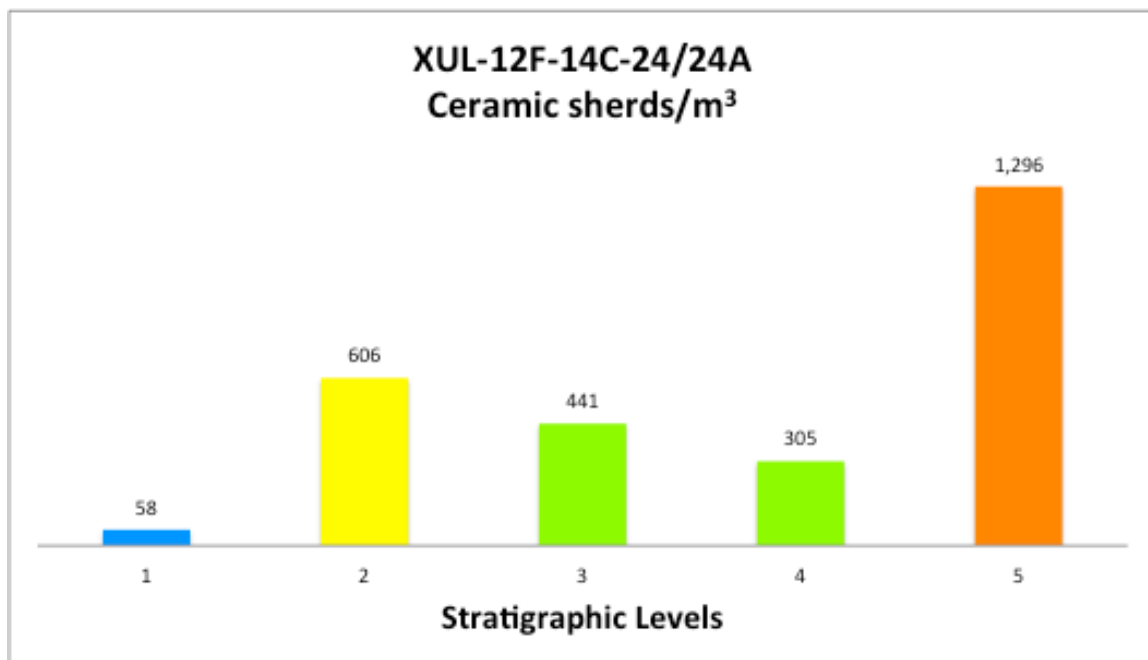




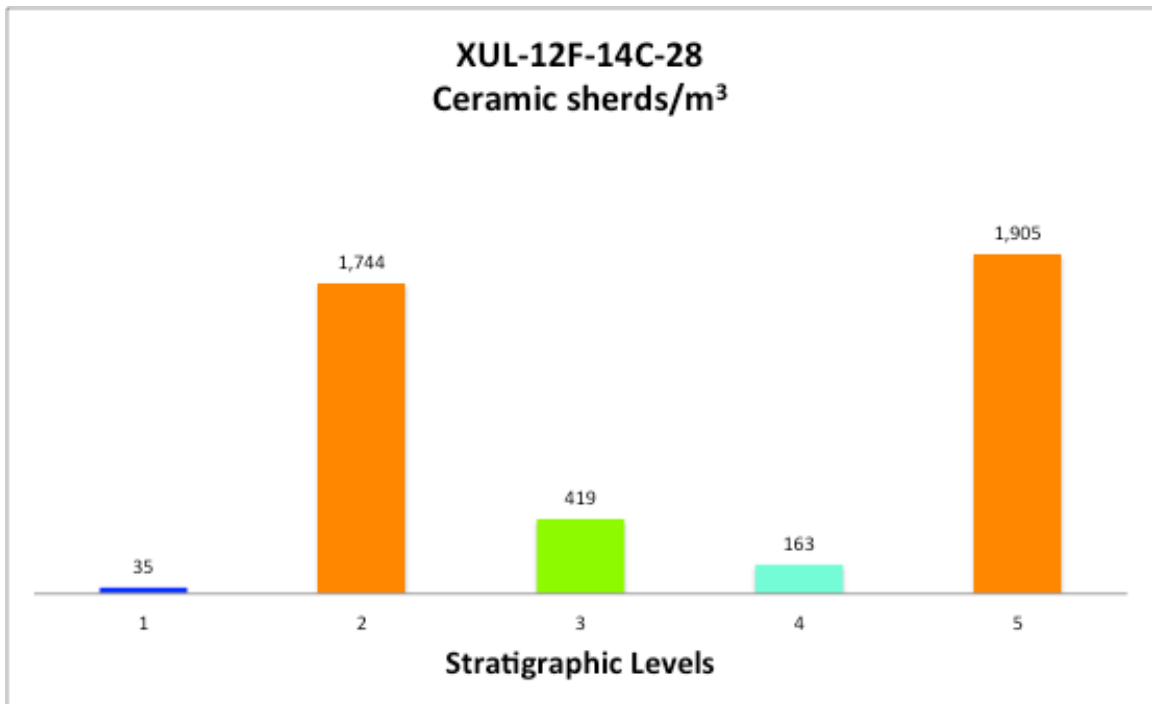
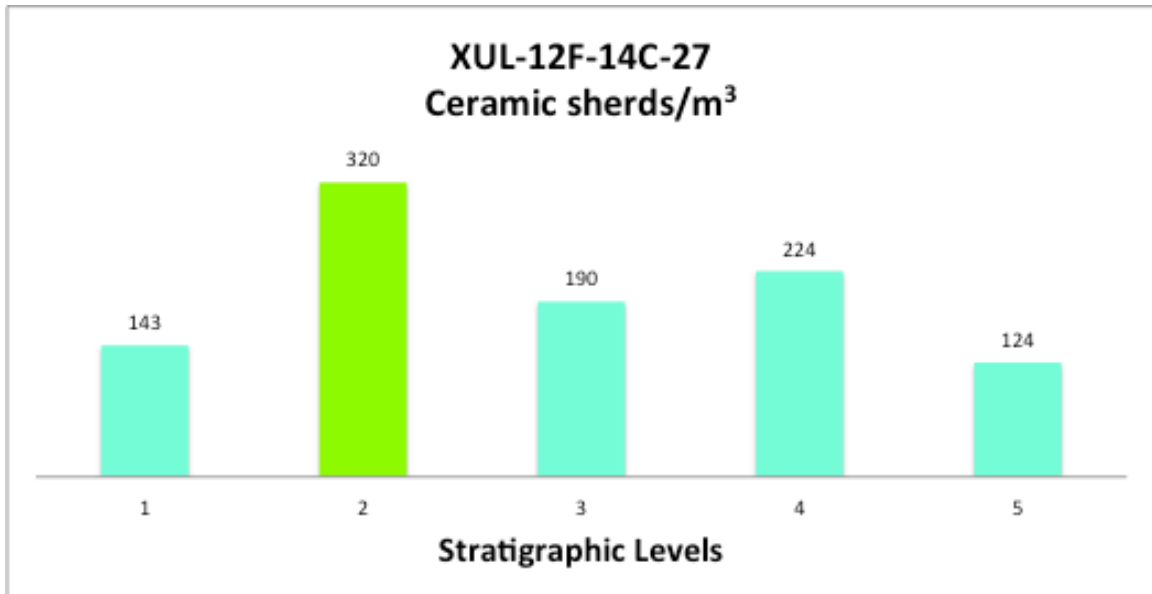


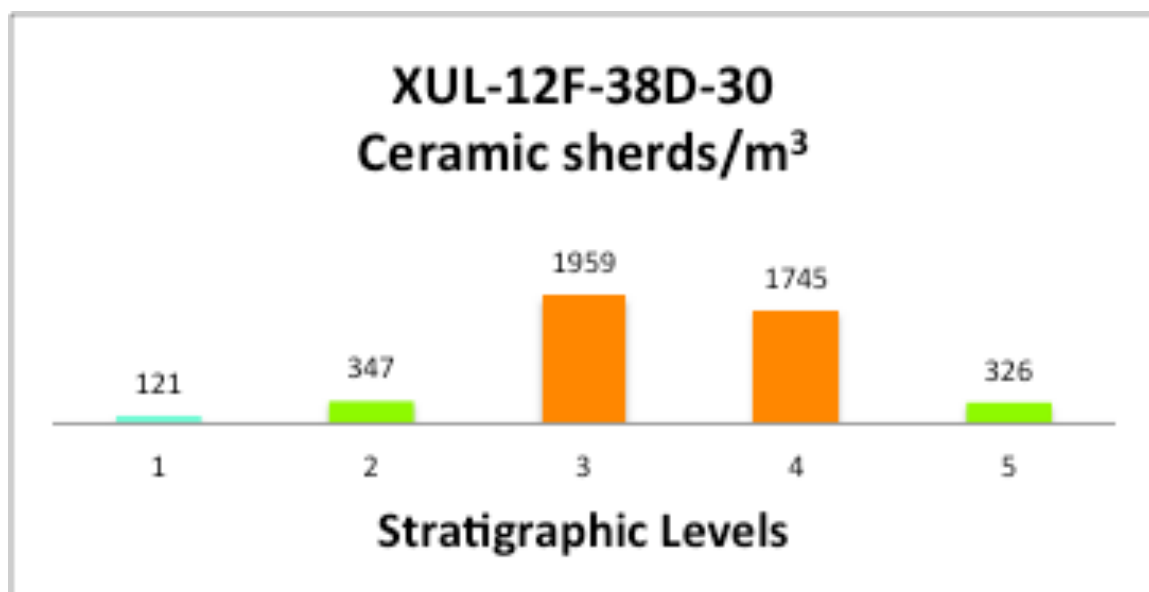
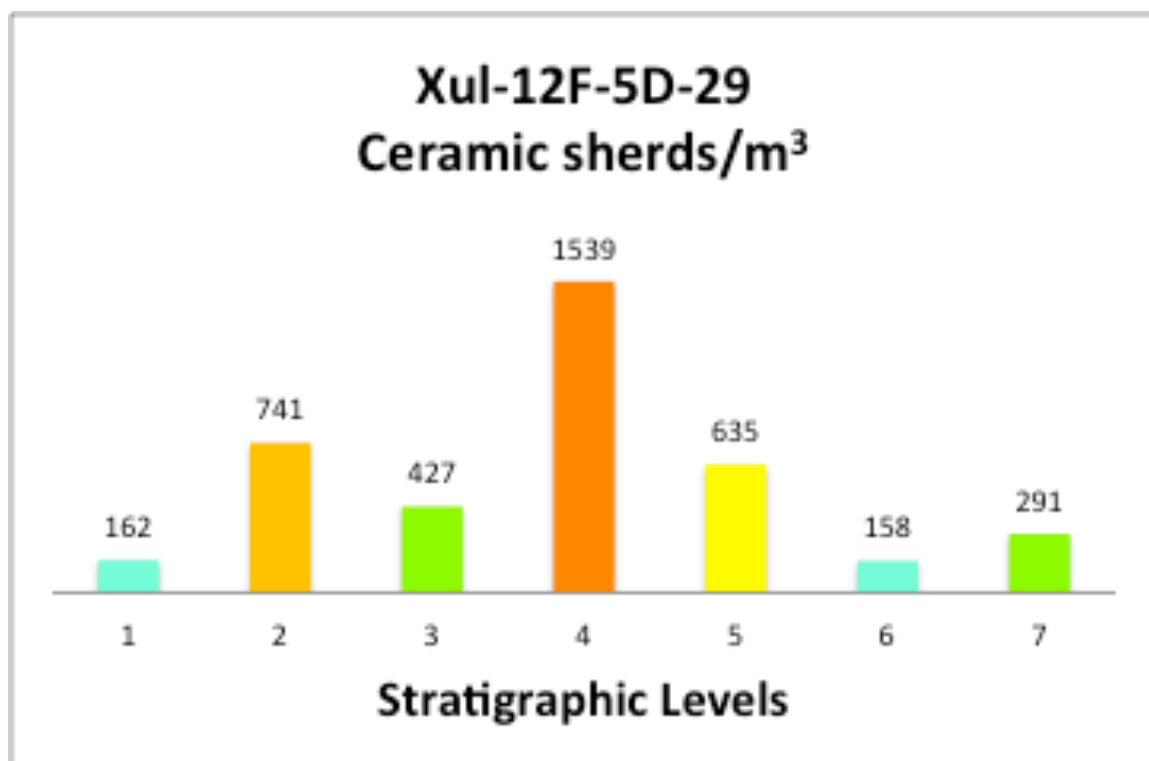


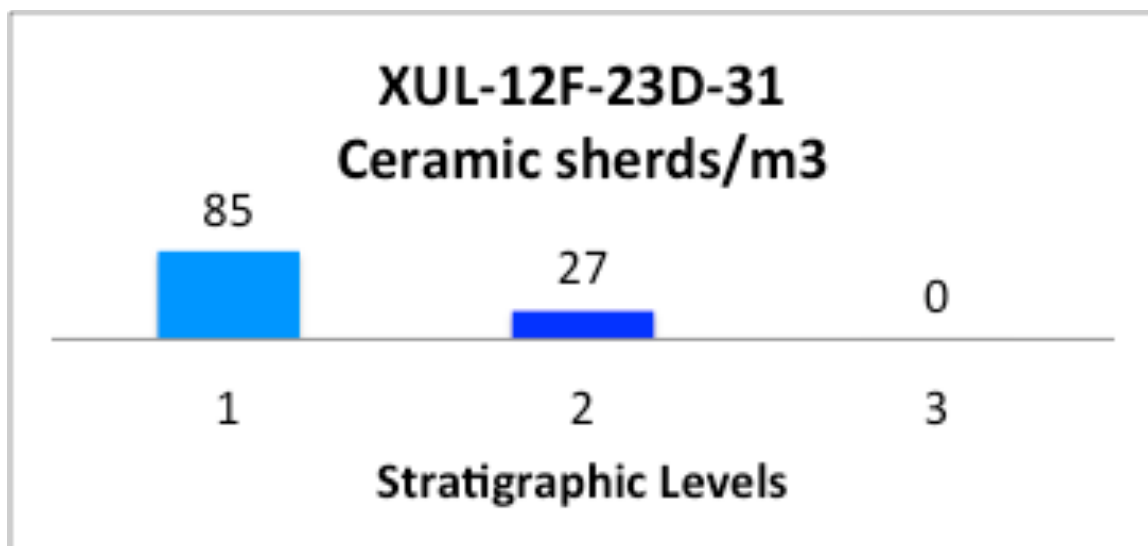




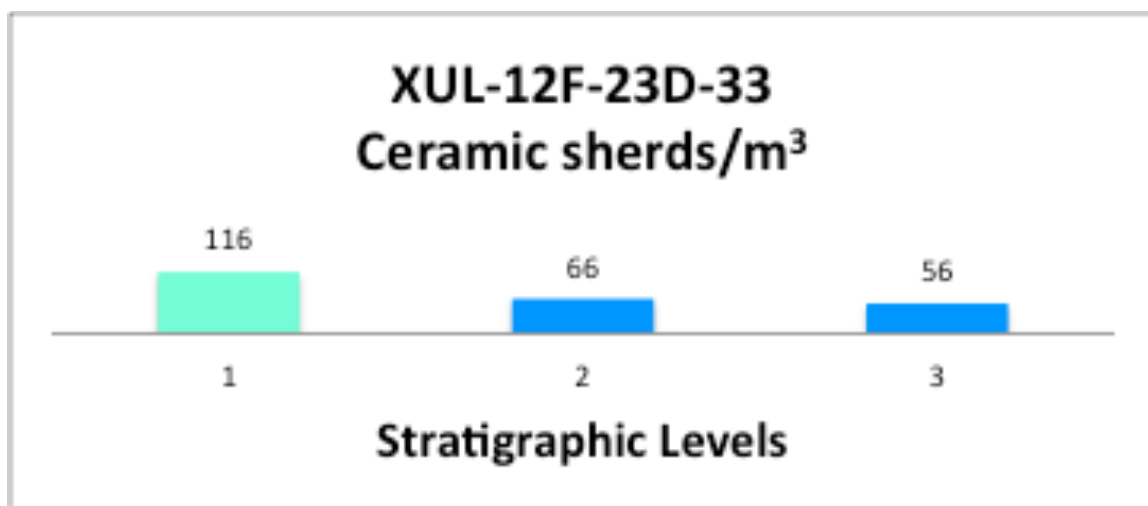
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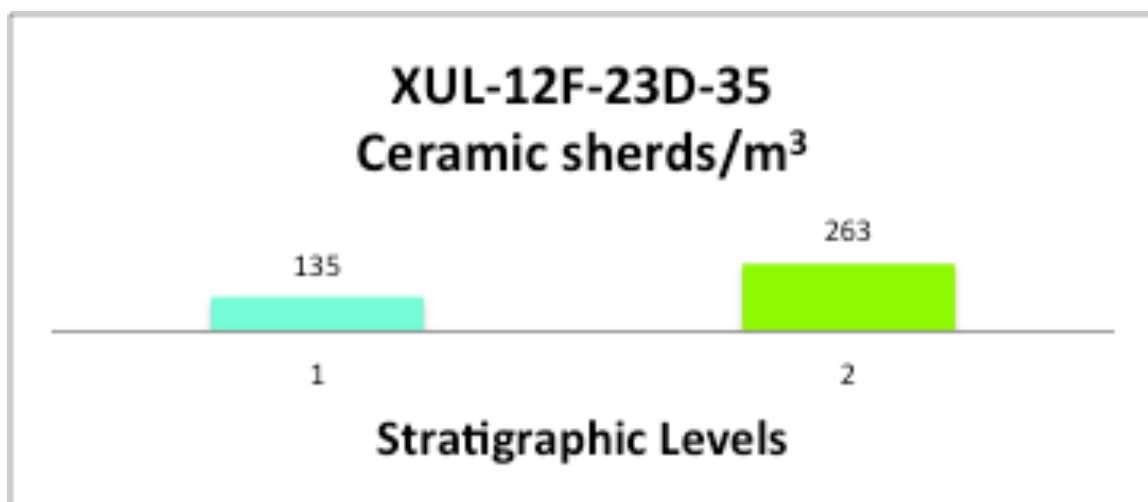
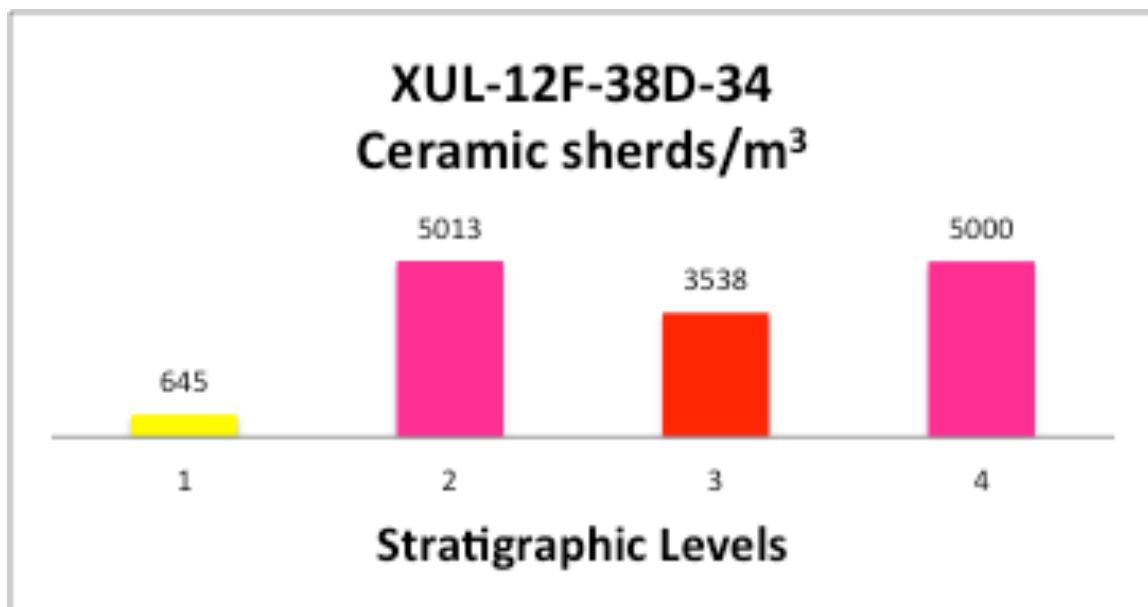


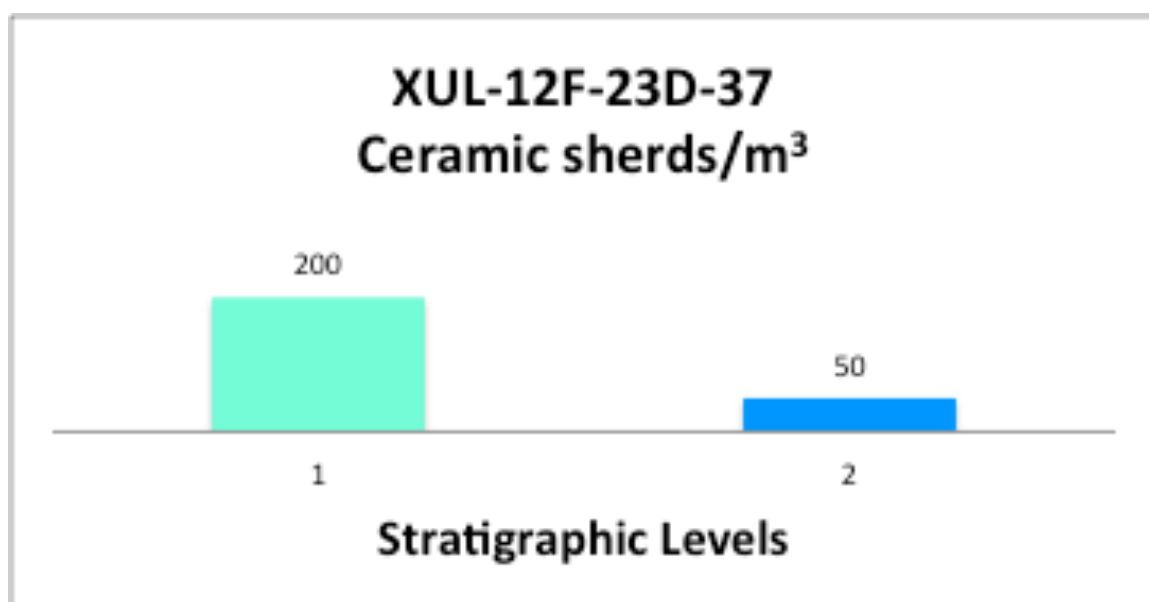
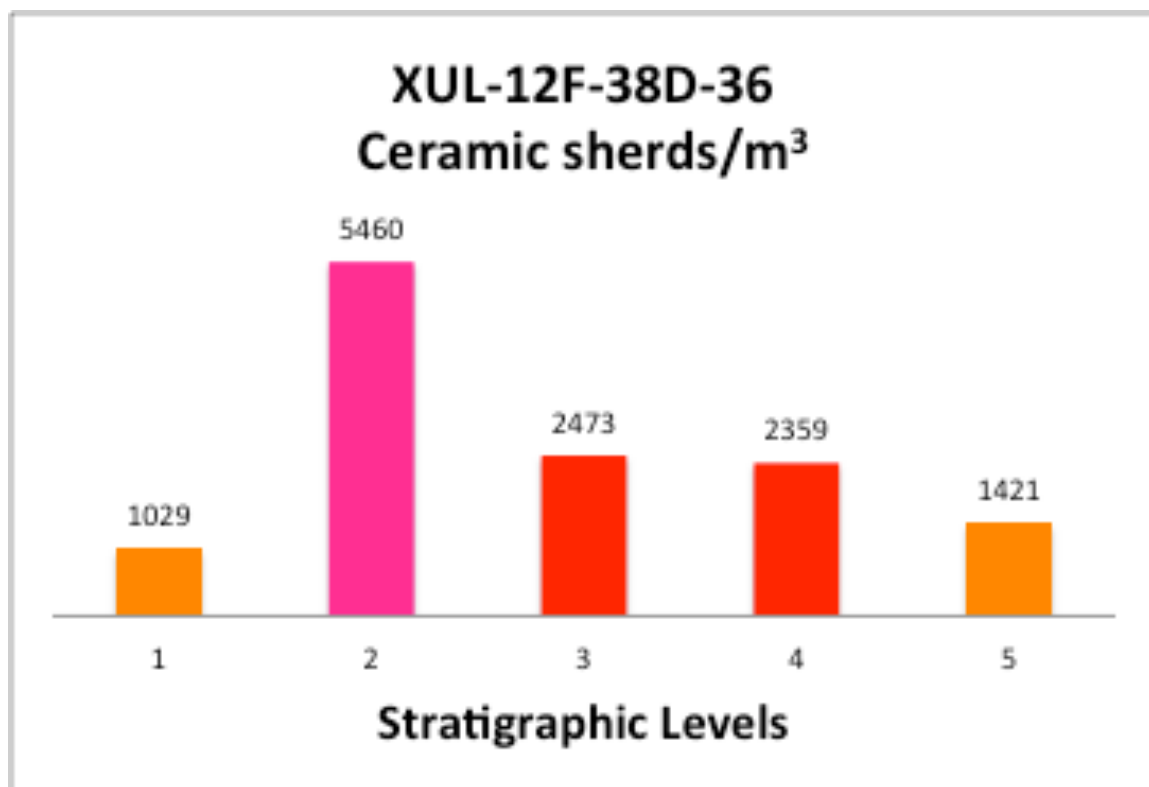


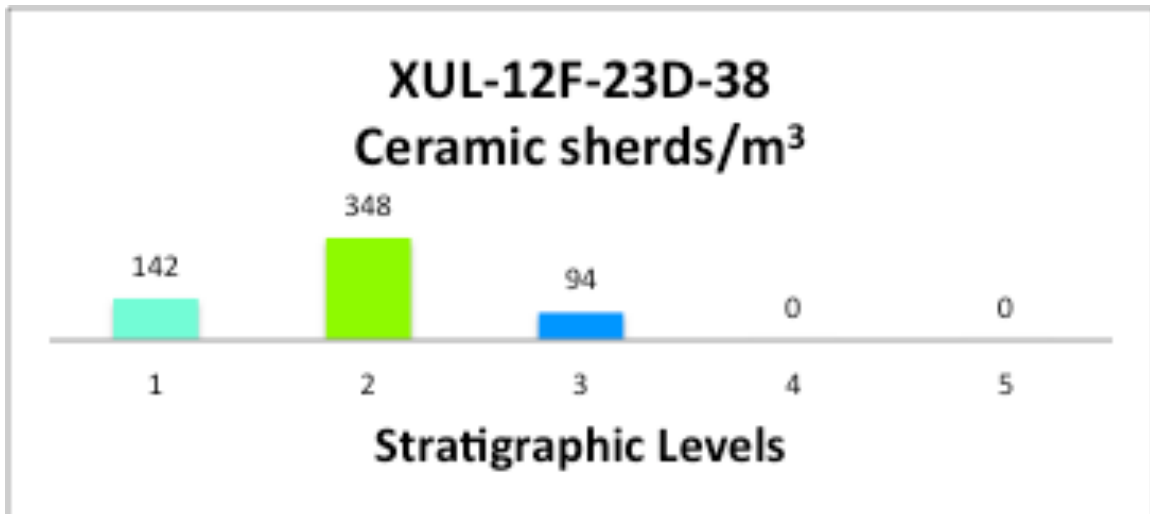


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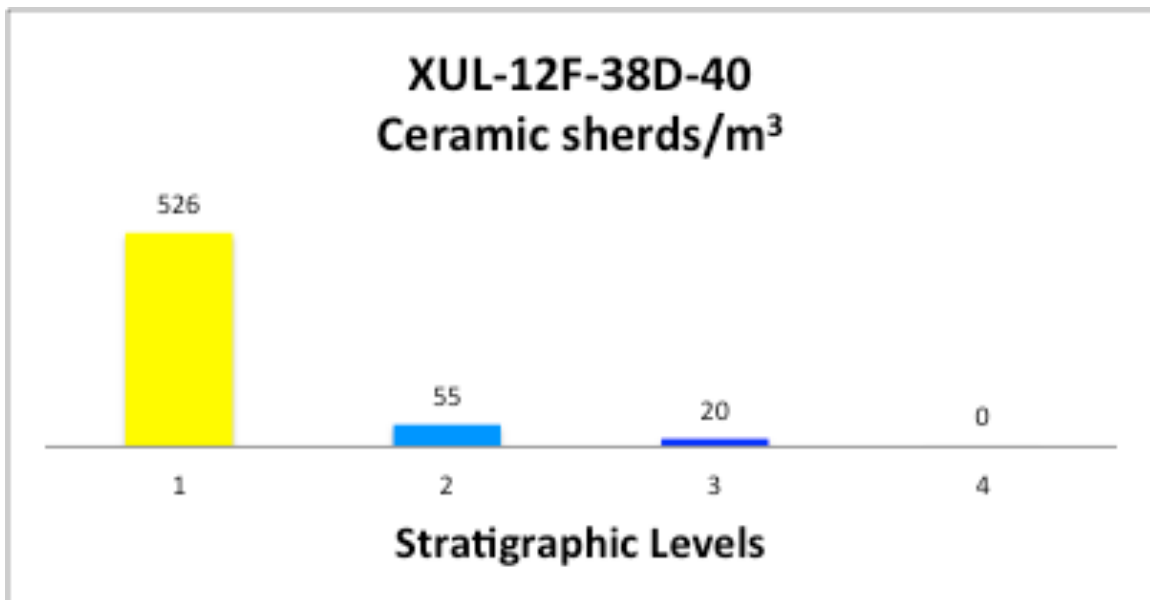


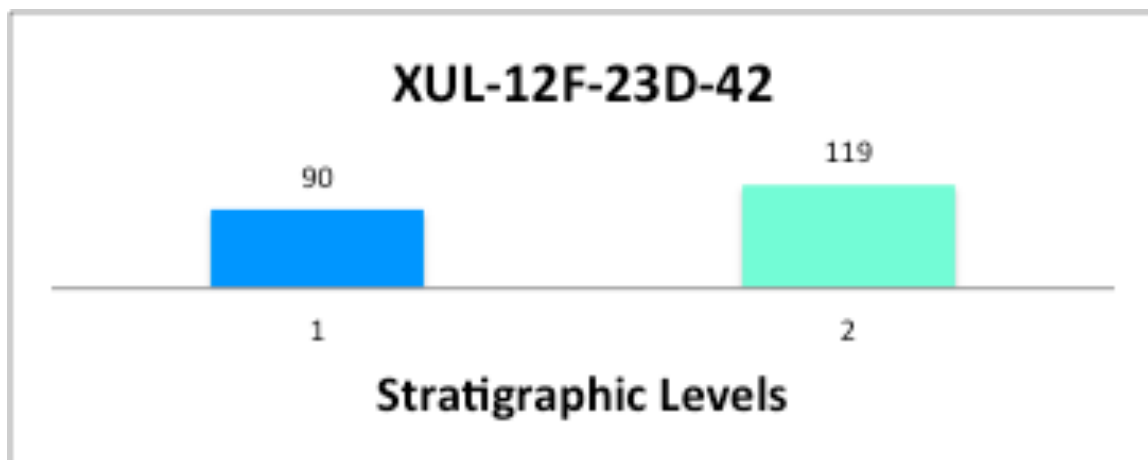
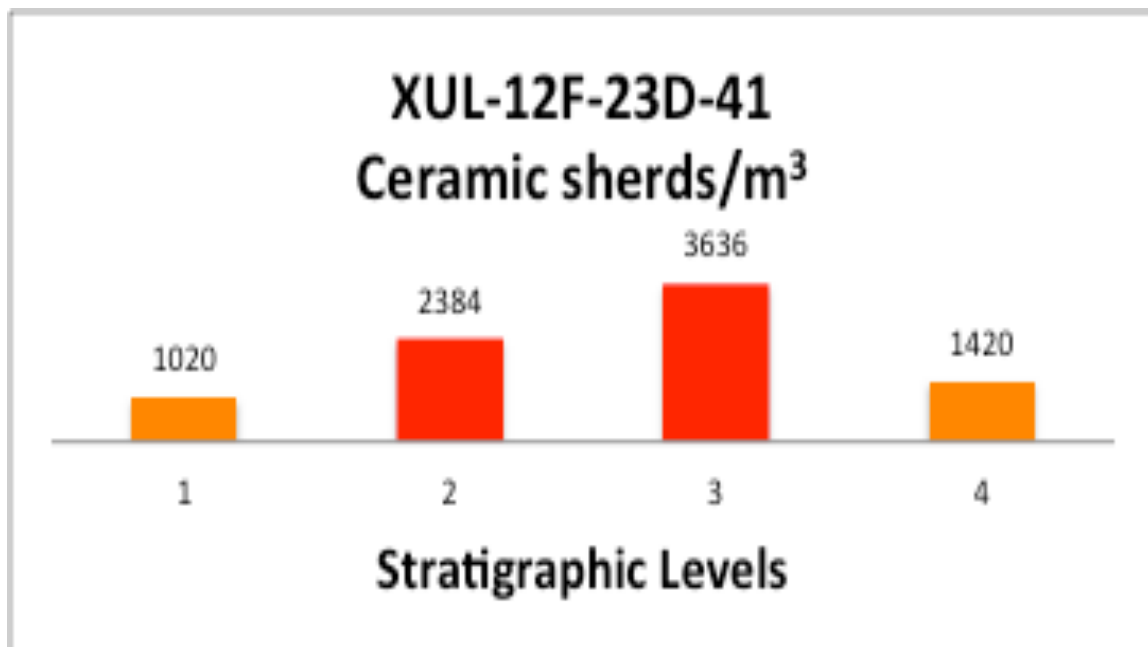


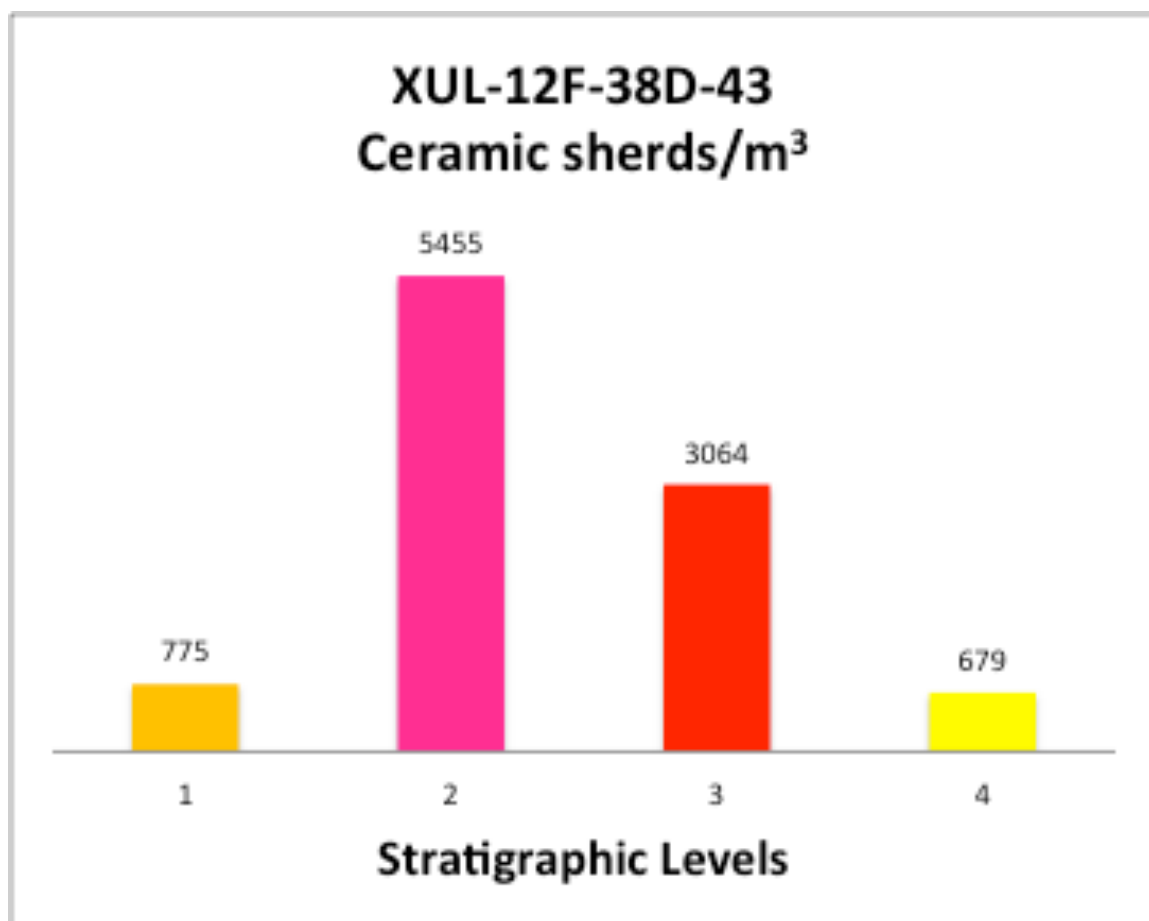


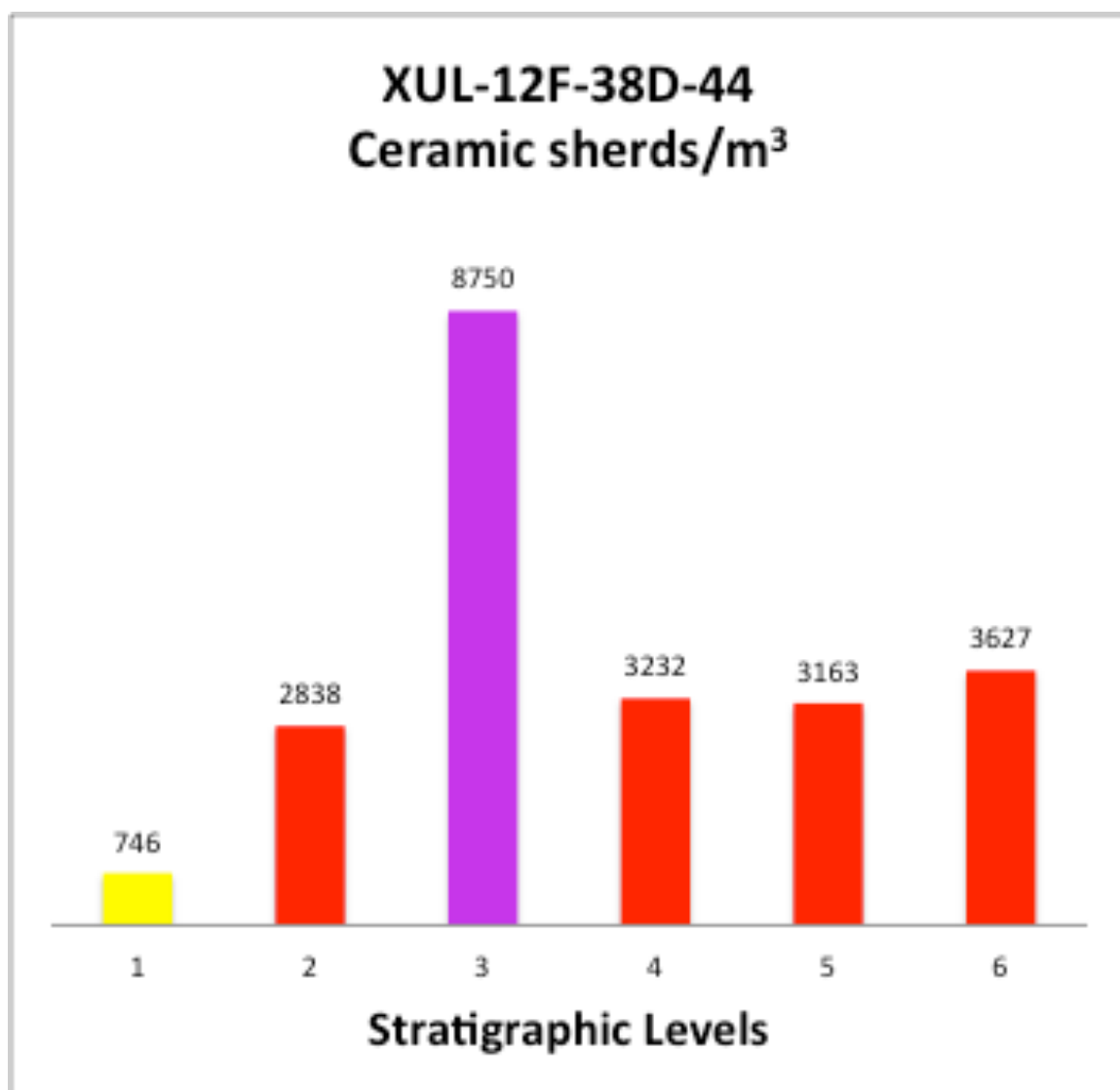


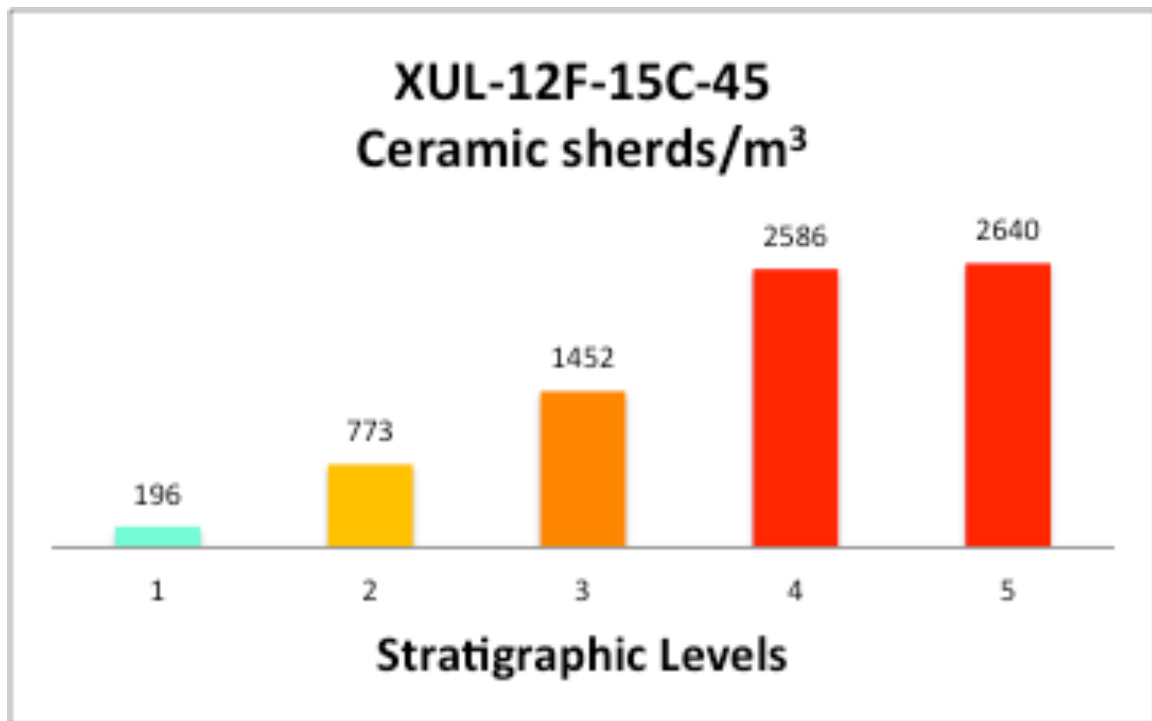
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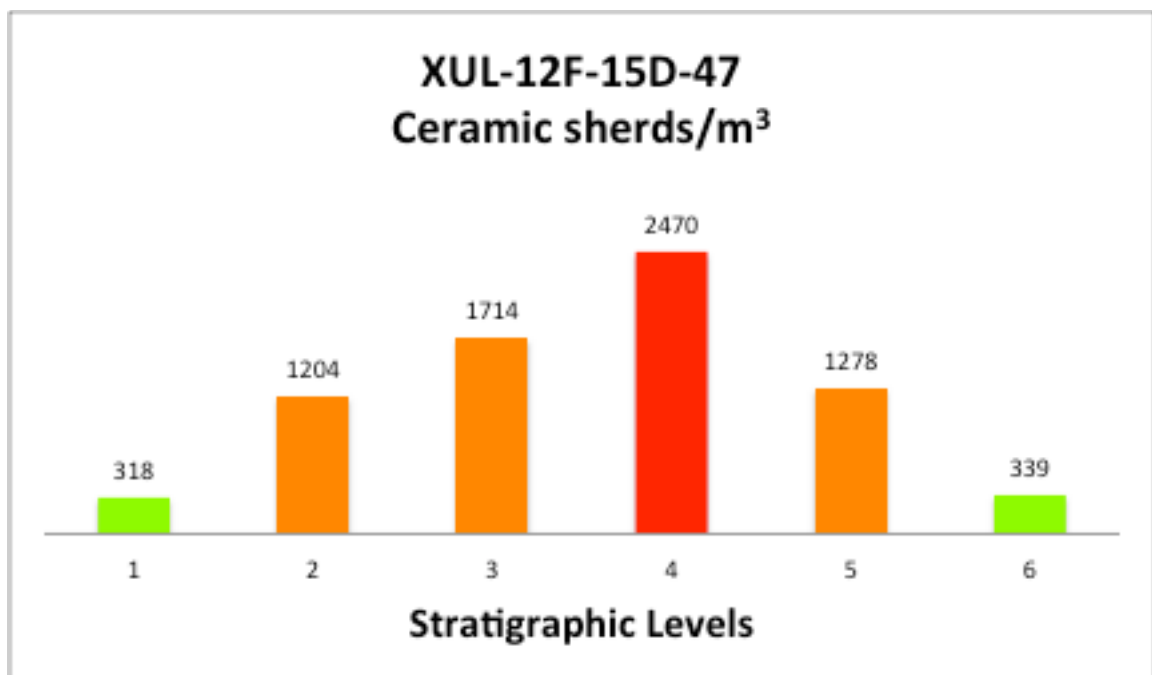


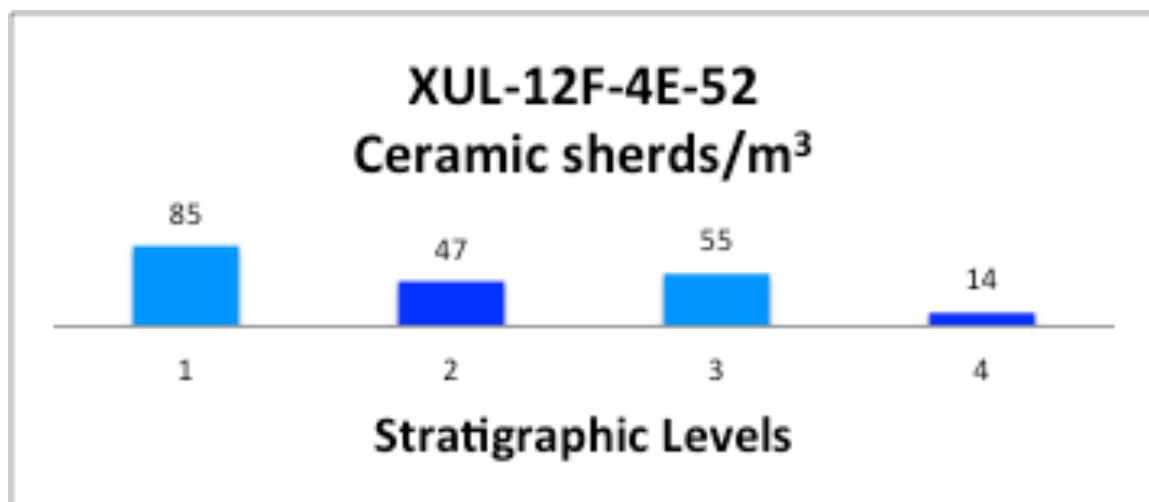
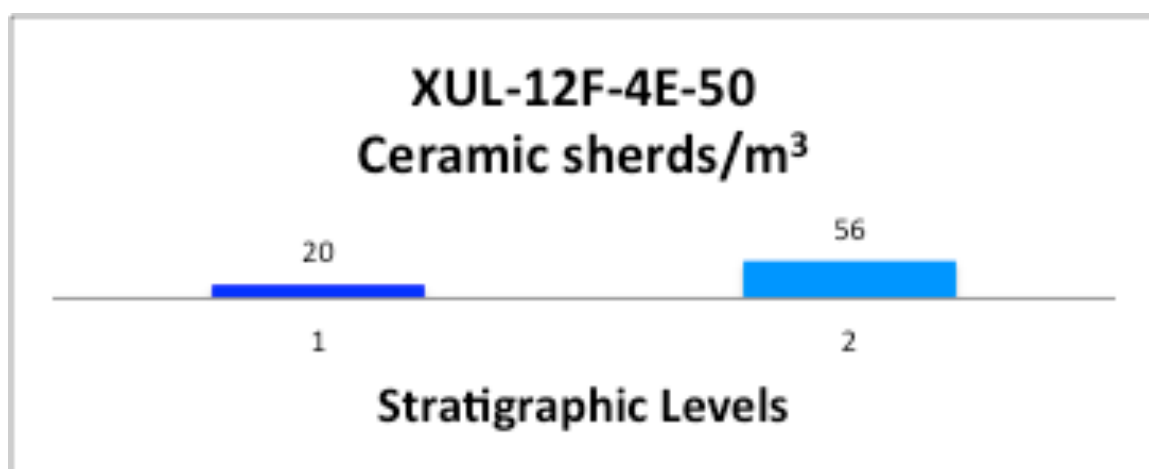
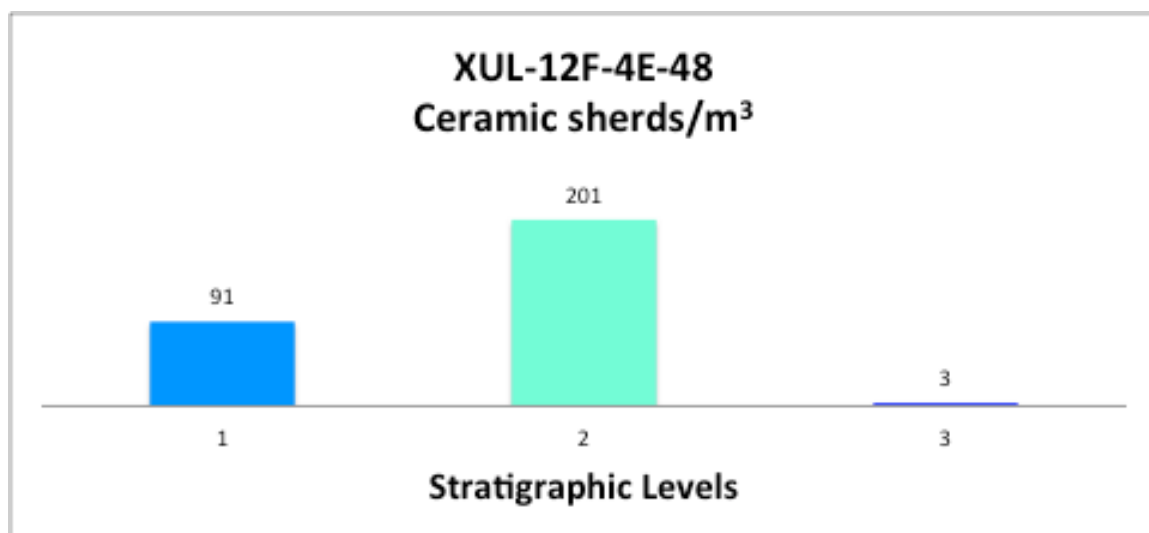




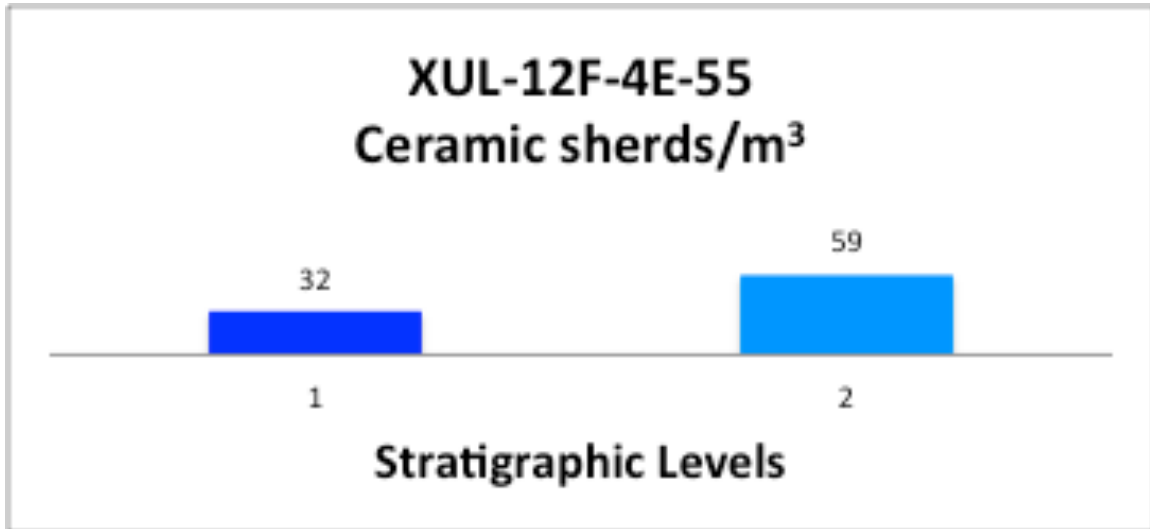


XUL-12F-4E-46: Not included, looters' trench



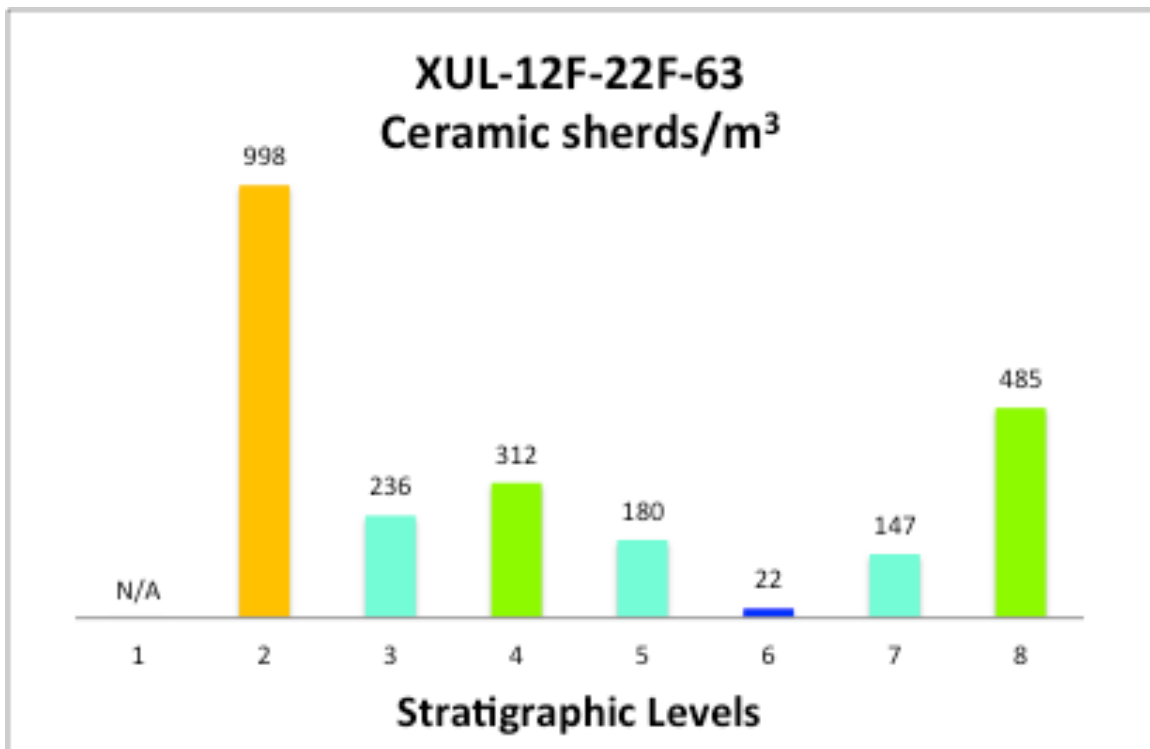


XUL-12F-23D-53: Not included, 1 level

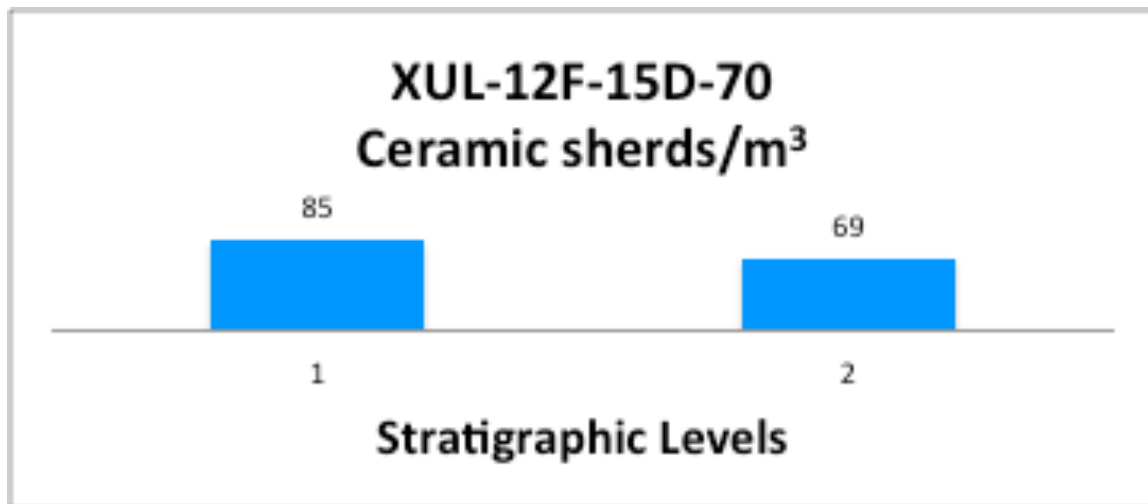


XUL-12F-4E-58: Not included, 1 level

XUL-12F-7A-62: Not included, looters' trench



XUL-12F-15B-64: Not included, 1 level

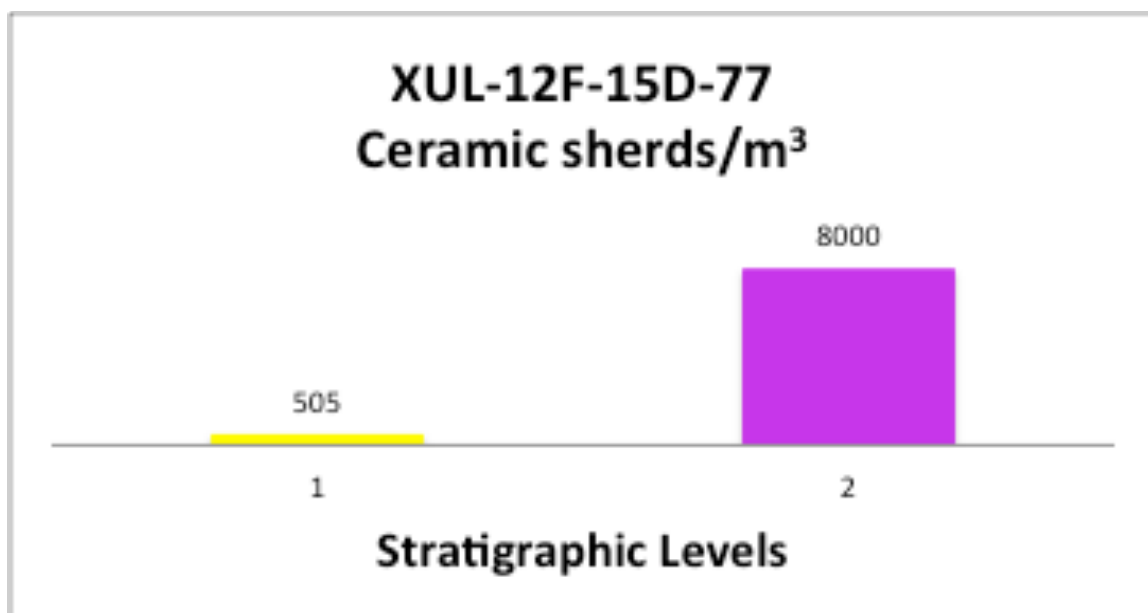


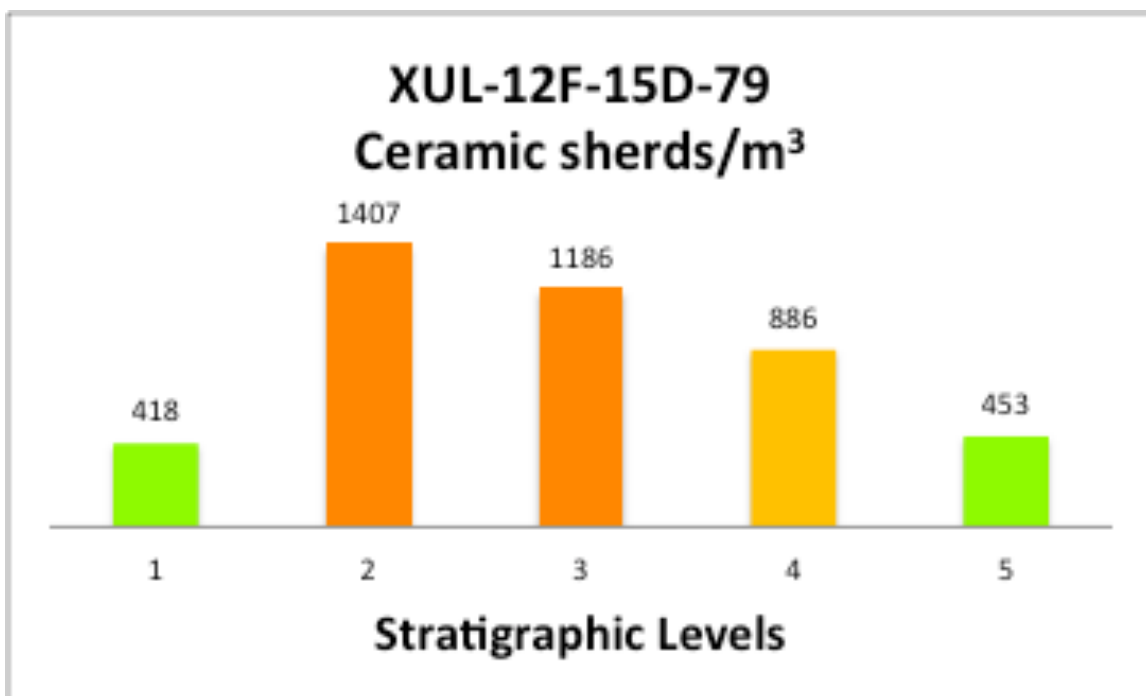
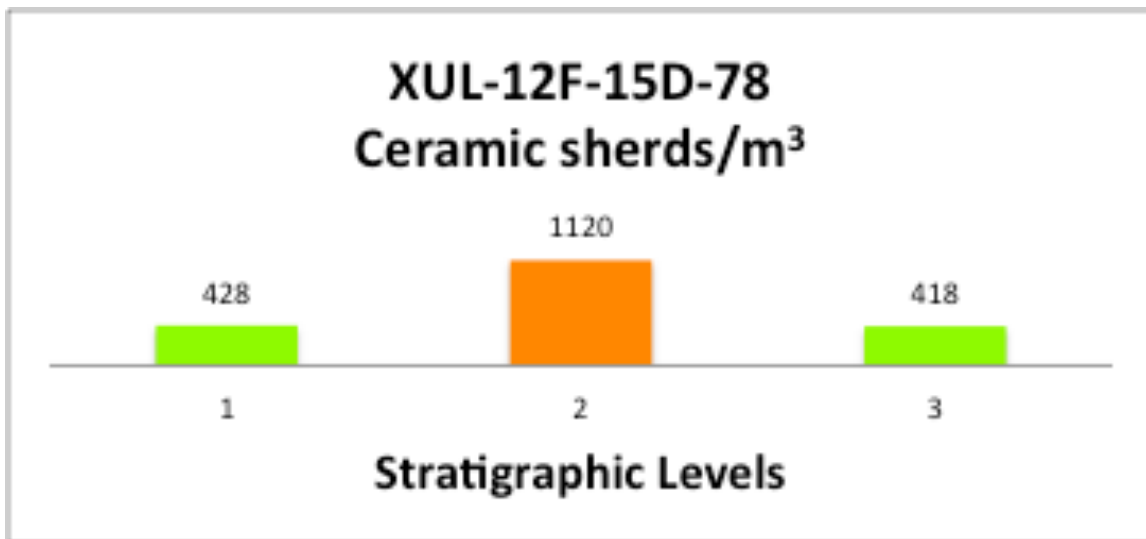
XUL-12F-23B-71: Not included, 1 level

XUL-12F-7A-72: Not included, tomb

XUL-12F-7A-73: Not included, 1 level

XUL-12F-5A-75: Not included, looters' trench





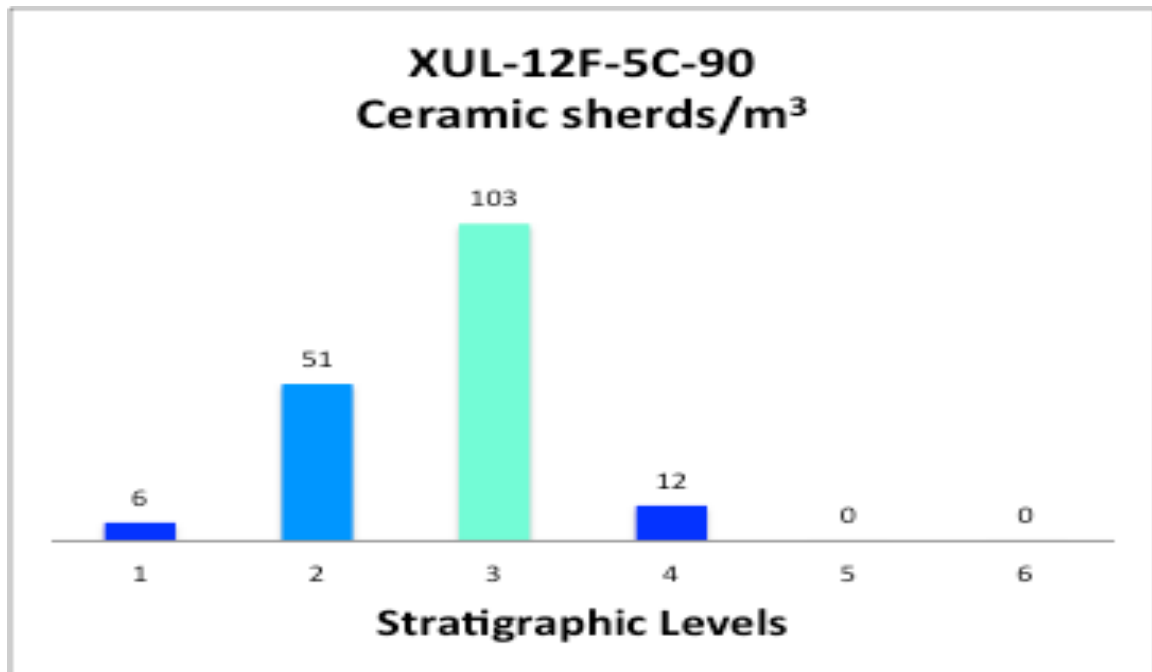
XUL-12F-5A-80: Not included, 1 level

XUL-12F-8A-84: Not included, looters' trench

XUL-12F-8A-85: Not included, looters' trench

XUL-12F-5A-87: Not included, looters' trench

XUL-12F-5A-89: Not included, looters' trench



XUL-12F-3A-91: Not included, looters' trench

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Curriculum Vitae

