Title

Connecting the Local and the Global: A History of Continuity, Change, and Interaction at a Small-Scale Settlement on the Pacific Coast of Chiapas, Mexico

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Connecting the Local and the Global: A History of Continuity, Change, and Interaction at a Small-Scale Settlement on the Pacific Coast of Chiapas, Mexico

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy

in

Anthropology

by

Mikael David Hayden Fauvelle

Committee in charge:

Professor Guillermo Algaze, Chair
Professor Jonathan Friedman
Professor Claudia García-Des Lauriers
Professor Paul Goldstein
Professor Thomas Levy
Professor Elizabeth Newsome

2019

The Dissertation of Mikael David Hayden Fauvelle is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California San Diego

2019

DEDICATION

This dissertation is dedicated to my loving parents, Anne Marie Fauvelle and Davis Hayden.

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ACKNOWLEDGEMENTS

A dissertation in archaeology is by nature a collaborative project. The work represented in this manuscript would not have been possible without a multitude of people. In the following pages, I will briefly thank the many scholars, mentors, and friends who have helped me during my time at UCSD. As I am certain to leave people out, I would like to start by openly thanking everyone who has helped me over the course of my dissertation work. I could not have done this without you!

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Fracción Mujular sits on the property of Carlos Ruiz Pinada, and I am very thankful for his permission to excavate on his land. I would also like to thank the late Felix de los Santos, who was the former owner of the property and always welcomed our field crew with cheerful jokes and good conversation. Don Ausencio Zambrano deserves special thanks for his constant friendship and insightful knowledge of the history of Cerro Bernal.

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VITA

EDUCATION

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PUBLICATIONS

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An Archaeology of Abundance: Re-evaluating the Marginality of California's Islands. University Press of Florida, Gainsville.

2019 Fauvelle, M. and Perry, J.
Material Conveyance and Trade in the Channel Region. In *An Archaeology of Abundance: Re-evaluating the Marginality of California's Islands*. Gill, K.M., Fauvelle, M., and Erlandson, J., eds. Pp:1-30. University Press of Florida, Gainesville.

2019 Erlandson, J.M., Gill, K.M, and Fauvelle, M.
Responding to Stress or Coping with Abundance? Re-excaminig the Marginality of the California Islands for Maritime Hunger-Gatherers. In *An Archaeology of Abundance: Re-evaluating the Marginality of California's Islands*. Gill, K.M., Fauvelle, M., and Erlandson, J., eds. Pp:191-225. University Press of Florida, Gainesville.

2019 Fauvelle, M.
California's First Highways: 12,000 Years of Maritime Exchange in Southern California. *Mains'l Haul: A Journal of Pacific Maritime History* 52(1-4):6-13.

2017 García-Des Lauriers, C. and Fauvelle, M.
Siguiendo las Huellas de Navarrete: Estudios Arqueológicos en el Cerro Bernal del 2005 al presente. In *Historia y Cultura: Ensayos en Homenaje de Carlos Navarrete Cáceres*. Editado por Roberto López Bravo y Marx Navarro Castillo. Pp:101-115. UNICACH, Tuxtla Gutierrez.

2017 Fauvelle, M., Esch, E., Somerville, A.D.
Climate Change and Subsistence Exchange in Southern California: Was Western Sea-Purslane a Channel Island Trade Good? *American Antiquity* 82(1):183-188.

2016 Fauvelle, M.
Review of *First Coastal Californians*, edited by Lynn Gamble. *Journal of California and Great Basin Anthropology* 36(2):365-366

2015 Smith, E.M., and Fauvelle, M.
Regional Interactions between California and the Southwest: The Western Edge of the North American Continental System. *American Anthropologist* 17(4):710-721

2014 Fauvelle, M.
Acorns, Asphaltum, and Asymmetrical Exchange: Invisible Exports and the Political Economy of the Santa Barbara Channel. *American Antiquity* 79(3):573-575

2013 Fauvelle, M., Fisher, C., and Braswell, G.E.
Return to the Kingdom of the Eagle: Archaeological Investigations at Nim li Punit, Belize. In *Research Reports in Belizean Archaeology Volume 10,* edited by John Morris, Jaime Awe, George Thompson and Melissa Badillo, pp. 243-251. National Institute of Culture and History, Belmopan.

2013 Fauvelle, M.
Evaluating Cross-Channel Exchange in the Santa Barbara Region: Experimental Data on Acorn Processing and Transport. *American Antiquity* 78(4):790-798.

2013 Somerville, A.D., Fauvelle, M., Froehle, A.W.
Applying new approaches to modeling diet and status: Isotopic evidence for commoner resiliency and elite variability in the Classic Maya lowlands. *Journal of Archaeological Science* 40(3):1539-1553.

2012 Fauvelle, M., Pitcavage, M.R., and Braswell, G.E.
Dynastic Capital, Minor Center, or Both? Recent Investigations at Nim li Punit, Toledo District, Belize. In *Research Reports in Belizean Archaeology Volume 9,* edited by John Morris, Jaime Awe, George Thompson and Melissa Badillo, pp. 51-59. National Institute of Culture and History, Belmopan.

2012 Fauvelle, M., Smith, L.M., and Des Lauriers, M.R.
Primary and Secondary Uses for Ground Stone: A Possible Case of *Zostera marina* Exploitation on Isla Cedros. *Journal of California and Great Basin Anthropology* 32(2):187-195

2012 Fauvelle, M., Smith, E.M., Brown, S.H., Des Lauriers, M.R.
Asphaltum Hafting and Projectile Point Durability: An Experimental Comparison of Three Hafting Methods. *Journal of Archaeological Science* 39(8):2801-2809

2012 Fauvelle, M.
Myths of an Island Chiefdom: Super Chert and Golden Acorns, A Response to Arnold. *California Archaeology* 4(1):149-151

2011 Fauvelle, M.
Mobile Mounds: Asymmetrical Exchange and the Role of the *Tomol* in the Development of Chumash Complexity. *California Archaeology* 3(2):141-158

RESEARCH GRANTS

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ABSTRACT OF THE DISSERTATION

Connecting the Local and the Global: A History of Continuity, Change, and Interaction at a Small-Scale Settlement on the Pacific Coast of Chiapas, Mexico

by

Mikael David Hayden Fauvelle

Doctor of Philosophy in Anthropology

University of California San Diego, 2019

Professor Guillermo Algaze, Chair

The archaeological site of Fracción Mujular is composed of several small residential plaza groups and a monumental ballcourt located near the Pacific Coast of Chiapas, Mexico. Long known for the Central Mexican iconography found on its carved stelae (Navarrete 1976, 1986; García-Des Lauriers 2005, 2007, 2016; Taube 2000), the survey and excavations conducted during the course of this dissertation represent the first extensive and systematic investigations of the site. Situated on top of the mountain of Cerro Bernal between the Pacific Coast and the Sierra Madre de Chiapas, the residents of Fracción Mujular would have had close access to important trading routes used throughout Mesoamerica's history. My analysis of the

site's ceramics, obsidian, and other excavated artifacts shows a long history of interaction with both local and distant polities from across Mesoamerica. We now know that Fracción Mujular was occupied from the Early Classic through Late Postclassic and that the site's inhabitants maintained strong ties to Central Mexico throughout these periods, including during times of considerable political upheaval. Fracción Mujular outlasted its larger neighbor of Los Horcones, entering a period of florescence following that latter site's decline at the end of the Early Classic. An analysis of the ceramics of Los Horcones emphasizes the site's long chronology, as well as its history of regional interaction. Obsidian sourcing from Fracción Mujular indicates that the settlement had access through trade to at least 11 different sources from across Mexico and Guatemala; a very high level of diversity for such a modest site. Obsidian source distributions also display a strong spatial and temporal pattern throughout the settlement, which may correspond to regional political and economic shifts during the Early Classic to Late Classic transition. Work at Fracción Mujular shows how small-scale settlements can be active players in regional exchange systems while displaying considerable resiliency in the face changing political and economic landscapes.

Chapter One

INTRODUCTION

In a world increasingly characterized by conflicts between globalized interests and assertions of local autonomy, it is important to understand the origins of large-scale systems of social inequality. Archaeologists are especially well suited to study the development of such systems as we can trace the growing network of trading connections and political alliances that were made between ancient states and empires. Many studies of ancient interaction have taken a top-down approach, focusing on connections between ancient city centers and on the abilities of metropolitan elites to control frontier areas. There is a growing interest, however, on cases of interaction between ancient states and areas on their margins, peripheries, and boundaries (Parker and Rodseth 2005; Stein 2005). Ancient periods of globalization (Jennings 2011; Hodos 2017) would have affected wide segments of society, from metropolitan centers to remote villages. Understanding systems of regional integration, therefore, necessitates an examination of how small sites in intermediate areas negotiated their interactions with large-scale historical processes.

This dissertation examines a small-scale settlement with substantial evidence for long-term and long-distance connections. Drawing on data collected during three field seasons of survey, excavation, and laboratory analysis, I build a history for the site of Fracción Mujular, located on the Pacific Coast of Chiapas, Mexico (Figure 1.1). Although Fracción Mujular was never a major center, it maintained trade connections with distant areas of Mesoamerica for more than one thousand years. Despite its small size, Fracción Mujular survived the collapse of its large neighbor at Los Horcones at the end of the Early Classic, entering a period of florescence in the absence of any large controlling regional center (see Figure 1.2 for Mesoamerican chronology). Throughout its long history, Fracción Mujular also maintained a strong trading relationship with Central Mexico, importing large amounts of obsidian from the Pachuca and then Zaragoza sources, despite the presence of closer obsidian sources in the highlands of Guatemala. The story of Fracción Mujular is thus one of resilience during periods of regional collapse and continuity in the face of substantial economic and political change. As with many small sites, Fracción Mujular was an active participant in wide ranging trade networks and forged its own way across the many twists and turns of Mesoamerican history.

Coastal Chiapas is an excellent location to study patterns of long-distance interaction in ancient Mesoamerica. Stretching from southern Oaxaca to El Salvador, the Pacific plain forms a natural trade corridor that connects Central America with the Isthmus of Tehuantepec and routs leading to the Caribbean Gulf Coast and the highlands of Central Mexico. By following the coast, ancient traders could travel on flat land or through marine estuary systems, avoiding the rugged paths through the Highlands of Chiapas and Guatemala. This natural geography shaped a long history of regional interactions (see Chapter 2). During the Middle Preclassic, Olmec-style artifacts can be found throughout both the Gulf Coast and the Pacific Plain and there was a robust trade between the two areas (Clark and Pye 2000; Clark 1997; Blomster et al. 2005; Lesure 2004; Rosenswig 2017). The Early Classic saw a Central Mexican presence on the coast, with Teotihuacan-influenced settlements at Los Horcones in Chiapas and Montana in Guatemala (Bove and Medrano 2003; Bove 2000; García-Des Lauriers 2016, 2012a, 2007, 2012b). During the Late Postclassic, the region was once more influenced by Central Mexico, as the southern coast of Chiapas was conquered by the Aztecs and incorporated into their empire as the province of Xoconochco (Voorhies and Gasco 2004; Voorhies 1989). Evidence for many of the major periods of regional integration in Mesoamerican history can thus be seen in the archaeology of the Pacific Coast (Love 2007).

Protruding from the Sierra Madre de Chiapas into the coastal Pacific plain, the mountain of Cerro Bernal would have formed a rare natural impediment for movement up and down the coast. During the Early Classic, the site of Los Horcones dominated this landscape, positioned near the base of Cerro Bernal at the natural chokepoint between its slopes and the hills of the Sierra Madre de Chiapas (García-Des Lauriers 2019). Recent work by García-Des Lauriers (2016, 2012a, 2007, 2012b, 2008, 2019) has identified a strong Teotihuacan influence at Los Horcones, with local architectural plans paralleling those at Teotihuacan and over 40 percent of the site's obsidian coming from the Teotihuacan-controlled Pachuca source in central Mexico (García-Des Lauriers 2007:169, 2008). Many of the site's stelae are also carved in a distinctive Central Mexican style that many scholars have associated with Teotihuacan (García-Des Lauriers 2005; Navarrete 1976, 1986; Taube 2001, 2000; García-Des Lauriers 2007). This evidence has lead Garciá-Des Lauriers (2012b:63, 2007) to describe Los Horcones as a "gateway community" facilitating interaction between Central Mexico and southern Mesoamerica during the Early Classic.

The site of Fracción Mujular is located roughly 2 kilometers southeast of Los Horcones, further up the rugged slopes of Cerro Bernal. The site was first documented by Carlos Navarrete who surveyed the region of Tonalá in the 1950's and 1960's (Navarrete 1959, 1976, 1986). Navarrete was primarily interested in the site's carved stone monuments which, like those from Los Horcones, he identified as being carved in a Central Mexican style. Navarrete published photographs and drawings of Fracción Mujular stelae 1, 2, and 3, which he compared with drawings of art found at both Teotihuacan and Xochicalco (Navarrete 1986:20). Navarrete suggested that the sites found on Cerro Bernal likely represented at Teotihuacan presence on the Pacific Coast of Chiapas, possibly associated with controlling trade routes to Kaminaljuyu (Navarrete 1986:25). Other than his descriptions of the stone monuments, Navarrete did not conduct any scientific investigations of the site, which remained unexcavated until the 2017 field season reported in this dissertation.

I first visited Fracción Mujular together with Claudia Garciá-Des Lauriers during the summer of 2014, while looking for possible dissertation field sites on the Pacific Coast of Chiapas. At the time, I imagined Fracción Mujular to be a single occupation Early Classic settlement, similar to Los Horcones, and envisioned a project focused on understanding the role of Teotihuacan influence in the area on non-elite settlements. I returned to Fracción Mujular in 2015 with a survey permit from the Consejo de Arqueología (Oficio 401.B(4)19.2015/36/0696) and funding from the University of California Institute for Mexico and the United States (UCSMEXUS). As this was the first systemic archaeological project conducted at the site, the primary goal of the 2015 field season was to produce a map of Fracción Mujular. Our survey identified four different groups at the site. Group A is a monumental area with a large ballcourt, a restricted plaza space, and a principal pyramid. Group B is a small lookout area with two mounds. Group C is a residential plaza group with numerous plain stelae and altars, and Group D is a larger residential area with some monumental architecture. Our survey also collected abundant domestic ceramics from surface contexts, reinforcing the concept that the site was largely residential in nature.

I returned to Fracción Mujular in the winter of 2017 with an excavation permit from the Consejo de Arqueología (Oficio 401.B(4)19.2016/36/1282) and funding from the U.S. National Science Foundation (BCS-1651647). Our excavations focus on the two residential groups of the site (Groups C and D), with the goal of collecting material from a range of different house-mounds. Excavations targeted the flanks of houses with the goal of identifying middens and collecting large amounts of domestic refuse (Scarborough and Robertson 1986). As the structures in Group D are larger than those in Group C, our excavations were split between these two areas with the hope that our results would allow for the comparison of different social strata within Fracción Mujular. All together, we excavated 12 2x2 meter test pits and one 12x1 meter trench associated with 8 different structures in groups C and D (See Chapter 4). During excavation, it quickly became apparent that the occupational history of Fracción Mujular was considerably longer than had been assumed. Many of our excavations exceeded three meters in depth, and we found diagnostic ceramics from the Postclassic, Late Classic, and Early Classic Periods. Moreover, variations in architecture between Groups C and D seemed to mainly be due to chronological differences, rather than social status.

Our two seasons of fieldwork at Fracción Mujular produced a total of 11,125 artifacts which were analyzed at the New World Archaeological Foundation (NWAF) laboratory in San Cristobal de las Casas during the summer of 2017. The primary goal of the laboratory field season was to produce a working ceramic type description and chronology for the site. This was done by conducting a modal sort of all excavated ceramics, which identified 26 modal categories that were given formal descriptions (See Chapter 5 and Appendix A). A secondary goal was to use a Bruker Traver IV portable X-Ray Spectrometer to source the 502 obsidian artifacts collected from Fracción Mujular (See Chapter 6 and Appendix C). Our laboratory work greatly expanded our understanding of the chronology of the site and a detailed discussion of the chronology of Fracción Mujular can be found in chapter 5. In what follows, I briefly outline the logic of this dissertation.

Chapter two sets the stage for our discussion of Fracción Mujular by reviewing and presenting an overview of the history of the Pacific Coast of southern Mesoamerica. This chapter introduces the physical landscape of the coastal plain, describing how the region's geography has facilitated the movement of goods and people between the Isthmus of Tehuantepec and the Highlands of Guatemala throughout Mesoamerican history. This chapter is not meant to be an exhaustive summary of work on the coast, but instead focuses on evidence for long-distance interaction and periods of regional integration on the coast of Chiapas. This focuses the discussion on the Olmec presense in the area during the Formative, Teothuacan intrusions to the coast during the Early Classic, and the Aztec conquest of the region during the Late Postclassic. Throughout, an emphasis is played on the importance of the region's geography in shaping a long history of long-distance connections with distant polities.

Chapter three reviews archaeological approaches to understanding regional interactions with a focus on the importance of small-scale settlements in intermediary or marginal areas. Fracción Mujular was never a major center yet interacted with a wide range of trading partners from across Mesoamerica over the course of its long history. The story of Fracción Mujular, therefore, shows the importance of incorporating small sites into narratives of long-term change and ancient regional exchange. In this chapter I review both top-down and bottom- up approaches to understanding long-distance interaction. I also discuss the resiliency and continuity through time that can often be seen in small-scale settlements compared to their larger neighbors.

Chapter four discusses the two seasons of survey and excavation conducted at the site of Fracción Mujular. I review my survey and excavation strategies, outline the goals and discoveries of each field season, and present the results of our fieldwork. This chapter includes an overall map of the site, as well as more detailed maps of each occupation group, photos of our excavations, and drawings of our excavation profiles. I present detailed descriptions of each of the four occupation groups of Fracción Mujular, with interpretations of each area's overall role within the site. I also discuss interpretations of the site's architecture and construction history based on the results of my excavations. From the results of this work I begin to piece together an initial history for Fracción Mujular, which is further elaborated in Chapter five.

Three lines of data from Fracción Mujular's stone sculpture, ceramic assemblage, and carbon dates, are combined in chapter five in order to tell the history of the site's occupation. I overview the art and architecture from the region of Tonalá and suggest that the three calendrical stelae from Fracción Mujular likely marked the initiation of construction events dating to the end of the Early Classic. Combining data from carbon dates and the sites ceramic chronology, I argue that there was an ephemeral Formative period presence at the site, followed by the construction of one to two modest house-mounds in the Early Classic. The majority of construction at Fracción Mujular dates to the Late Classic, when the site enjoyed a period of florescence following the decline of its larger neighbor at Los Horcones. This was followed by a secondary period of major occupation during the Late Postclassic. This chapter also details how I constructed a preliminary ceramic type system and chronology for Fracción Mujular, as well as my strategy for selecting carbon dates. Descriptions of each of the 26 modal ceramic categories that were designated for the Fracción Mujular ceramic assemblage can be found in Appendix A. Calibration curves for the ceramic dates discussed in this chapter can be found in Appendix B.

Chapter six continues to draw on my analysis of the material assemblage of Fracción Mujular in order to discuss the site's interactions with different areas of Mesoamerica. I begin with a discussion of the relationship between Fracción Mujular and Los Horcones, arguing that during the Early Classic the site was a small outlying village within the Los Horcones political sphere. Next, I discuss how Fracción Mujular expanded its trade connections after the decline of Los Horcones, importing ceramics, jade, and copal from nearby regions on the Pacific plain and the Highlands of southern Mesoamerica. Finally, I present the results of portable X-Ray florescence (PXRF) sourcing of the site's large obsidian assemblage. A total of 11 different sources were identified at Fracción Mujular, representing a high degree of diversity for such a small site. The obsidian source distribution is especially interesting when broken down by chronological period. Although the site showed a preference for Mexican rather than Guatemalan sources throughout its occupation, there is a marked sift through time away from the use of Pachuca obsidian and towards a preference for obsidian from the Zaragoza source. Several possible interpretations for these patterns and their implications for the political and economic landscape of the Tonalá region are discussed at the end of chapter six.

This dissertation reports the results of the first systemic survey and excavations conducted at the site of Fracción Mujular. As such, much of the work presented here concerns the history and development of the site. Prior to this research, Fracción Mujular was mainly known for its carved stelae, and was thought to be an Early Classic settlement contemporary with Los Horcones. We now know that the site had a much longer history, spanning over one thousand years. We also know that Fracción Mujular outlasted Los Horcones, entering into a period of florescence following the decline of its larger neighbor. Over the course of this history Fracción Mujular displayed considerable continuity, maintaining trade connections with various interlocutors throughout Mesoamerica and consistently importing the majority of its obsidian from Central Mexico despite the availability of closer sources in Guatemala. The story of Fracción Mujular thus shows the resilience of small-scale settlements in the face of local economic and political change and emphasizes the degree to which commoner and non-elite sites were part of processes of ancient globalization and interregional exchange.

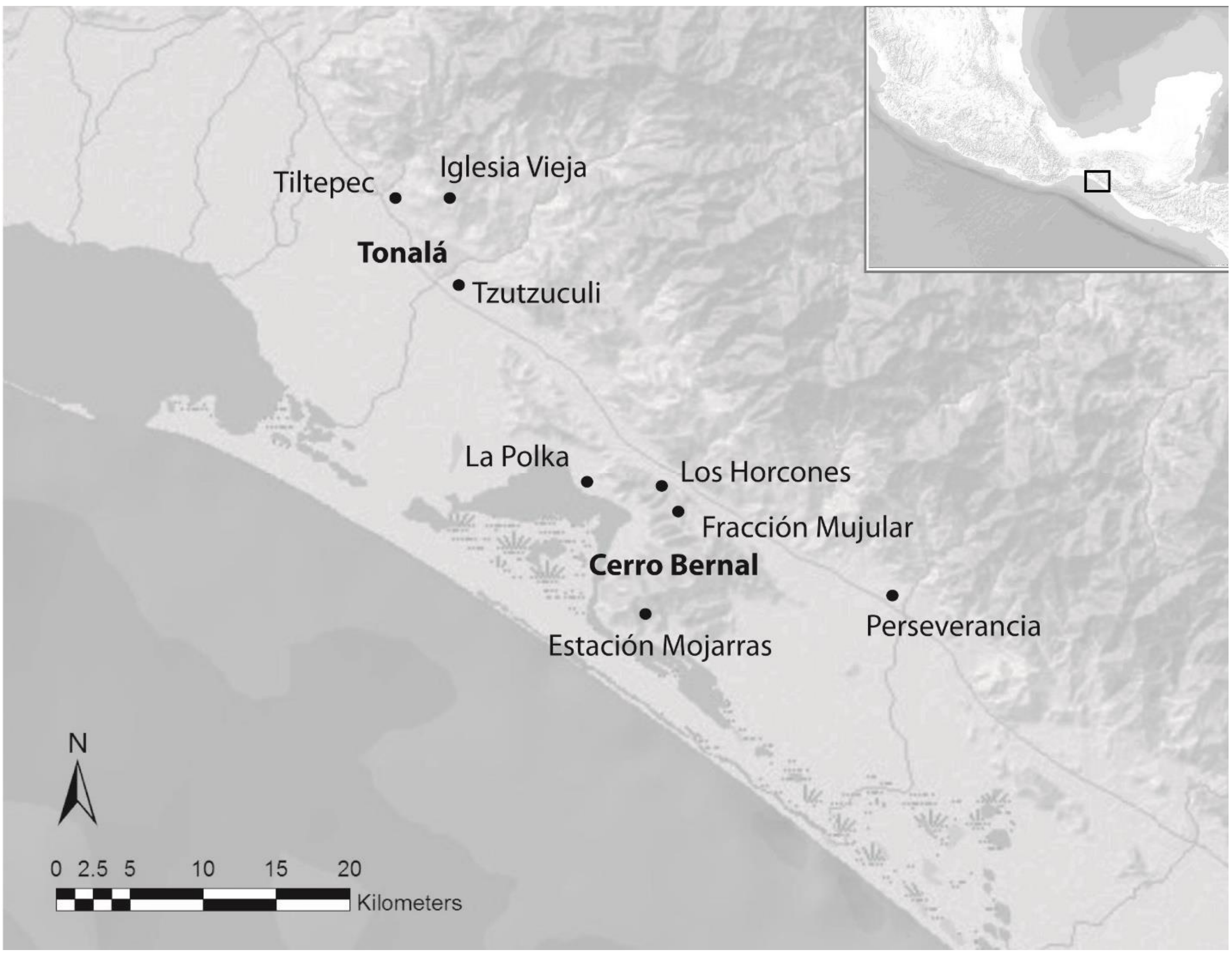


Figure 1.1: Regional Map showing sites of interest

Date	Mesoamerican Chronology	Fracción Mujular Ceramic Types	Soconusco & Izapa
	Colonial		Colonial
1521			
	Late Postclassic	Pochota	Acapetahua
1200			
	Early Postclassic		Remanso
900			
	Late Classic	Chencho & Vassallo	Peistal
600			
	Early Classic	Bernal	Metapa Loros Kato Jaritas
250			
CE / BCE			
	Late Formative	Waxy Red & Waxy Beige	Itstapa Hato Guillen Frontera Escalon Duende
400			
	Middle Formative		Conchas Jocotal
1200			
	Early Formative		Cuadros Cherla Ocos Locona Barra
1800			
	Archaic		Chantuto

Figure 1.2: Chronological Table

Soconusco and Izapa chronology based on (Lowe et al. 2013, 1982; Love 2007; Voorhies and Gasco 2004)

Chapter Two

THE SOUTHERN PACIFIC COAST: A HISTORY OF INTERACTION, INTEGRATION, AND COLLAPSE

Driving east through Oaxaca along the Pacific highway, one encounters a drastic change in scenery near the small town of Tehuantepec. Gone are the rugged hills, secluded golden beaches, and dangerous curving roads of the Oaxacan coast. Instead, a great coastal plain stretches ahead, bounded by an endless strip of glistening black sand to the west, and the rolling green peaks of the Sierra Madre to the east. A modern motorist would soon be greeted by the massive La Venta wind farm, with towering white turbines profiting from the windy expanse of flat land. An ancient traveler, however, would also have encountered an anthropogenic environment, dotted with small farmsteads, towns, and cities, living off the rich alluvial soils and benefiting from the commerce brought by merchants plying coastal trade routes. Continuing for over 600 kilometers, this vast coastal plain covers portions of modern Oaxaca, Chiapas, Guatemala, and El Salvador, forming what Love (2007) calls the southern Pacific region. Inhabited at different times by diverse cultural and linguistic groups, the region is well known as the home of some of Mesoamerica's earliest transegalitarian societies (Blake and Clark 1999; Clark and Blake 1994), and is characterized by a shared history as an important artery for long-distance interaction between many different areas of wider Mesoamerica.

The history of Mesoamerica's southern Pacific coast has largely been shaped by its social and environmental landscape. Located southeast of Central Mexico and bordering the

Highlands of Guatemala, the region was situated in-between some of the most important political and economic centers in Mesoamerican history, making it an obvious pathway for long-distance trade. Such conveyance was greatly facilitated by the area's geography, with flat flood plains allowing for more rapid travel than would have been possible in the rugged and mountainous interior. Drawing on the terminology offered by Braudel (1972) (see Chapter 3), the *longue durée* of the southern Pacific coast can thus be described as a history of exchange and inter-regional entanglement heavily influenced by the geographic landscape. Alluvial plains and coastal estuaries provided both abundant food and easy transportation, while the ocean and mountains shaped the region into a long corridor of interaction; attractive to merchants and travelers, as well as foreign incursions by invading armies and migrating peoples.

If the *longue durée* of the southern Pacific coast is seen as shaped by its environmental landscape, then its medium-term history, or *conjoncture*, can be mapped closely to the geopolitics of wider Mesoamerica. Many of the most famous states and empires in Mesoamerican history had strong interests on the region, with various intrusions attributed to the Olmec, Teotihuacan, the Aztec, and of course the Spanish (Bove and Medrano 2003; Cheetham 2010a; García-Des Lauriers 2007, 2016, 2012a; Gasco 2017, 2005). World-systems theory has often been used to describe the expansion and contraction of imperial polities in Mesoamerican history, with the southern Pacific region seen as an intermediary between different core regions (Blanton and Feinman 1984; Schortman and Urban 1994; Smith and Berdan 2003; Peregrine et al. 1996). In the Old World, world-systems approaches have underlined the importance of both geography and path-dependency in shaping historical connections between regions, with routes such as the Silk Road facilitating interactions between distant cores over many millennia (Kohl 1987; Rowlands et al. 1987; Abu-Lughod 1991). Drawing on Kohl (1987), Rosenswig (2012) makes a similar argument for the southern Pacific coast, suggesting that the legacy of long-distance contacts starting in the Formative period heavily impacted later developments in the region. Under this logic, Olmec connections between the Gulf Coast and the Pacific set the stage for later interactions, causing the pacific corridor to become the go-to route for trade between Central Mexico and the Highlands of Guatemala. What followed was a long history of foreign connections and inter-regional interactions.

Describing the story of the southern Pacific coast in relation to the actions of highland states, however, risks overlooking the region's own history and its indigenous contributions to wider Mesoamerica. The tendency of macro-spatial frameworks such as world-systems theory to place greater agentive emphasis on core regions rather than intermediary or peripheral ones has been heavily critiqued for presenting biased and unbalanced views of historical interactions (e.g. Stein 1999, 2002). On the southern Pacific coast, it is clear that external influences played a critical role at numerous historical junctures, yet it is important to recognize that any such entanglements were negotiated with local actors. In addition, describing of the region as an "interaction corridor" (Demarest 2004), "port-of-trade" (Chapman 1957), or otherwise casting its history in terms of foreign connections, risks undermining the impact that the Pacific coast had on its regional interlocutors. Indeed, the archaeological record of the southern Pacific coast includes the first known use of ceramics, chocolate, and ballcourts in Mesoamerica (Clark and Blake 1994; Clark and Gosser 1995; Hill and Clark 2001; Powis et al. 2007); contributions universally seen as central to the Mesoamerican way of life. In addition, the region boasts what may be the earliest Maya long-count date at Guatemalan piedmont site of Takalik Abaj

(Graham et al. 1978). While they might have been geographically and politically peripheral compared to the stately power centers of the highlands, these contributions show that the peoples of the Pacific coast were clearly central to the cultural development of Mesoamerica as a whole.

It is noteworthy that despite its rich resources and interest to foreign powers, no indigenous expansionist state seems to have developed on the southern Pacific coast. Although the region’s rich farmland supported numerous cities and some early states at sites such as Izapa (Rosenswig et al. 2015) and El Ujuxte (Love 1998), imperial and colonial powers in the region tended to come from either the Highlands or Gulf Coast lowlands. This is a direct contrast with the pattern described by Scott (2009) for Southeast Asia, where anarchic highland groups were able to use rugged terrain to avoid the stratified social systems of their lowland, rice dependent, neighbors. It is possible that the environmental and social landscape of the long coastal plain played a role in this pattern, impeding the ability of state centers to consolidate power over long distances and across various cultural or linguistic areas. This degree of balkanization might also explain the relative lack of archaeological work that has been done on the southern Pacific coast, and the tendency of archaeologists to describe its history in terms of intrusions from elsewhere. The fetishization of state power in archaeology is a well known theme (Angelbeck and Grier 2012; Fowles 2010), and it may be that periods of supposed population collapse, such as the Late Postclassic (Voorhies and Gasco 2004) more accurately represent declines of centralized authority rather than demographic shifts. Work at small sites with long chronologies such as Fracción Mujular shows that populations persisted throughout these periods, at times unassociated with any larger polity.

At the time of Spanish Conquest, the people of the southern Pacific Coast most likely spoke a language belonging to the Mixe-Zoquean family (Campbell 1988; Lowe et al. 1982; Voorhies 1989a; Gasco 2016). Unfortunately, the Spanish conquest decimated indigenous groups on the coast complicating the reconstruction of the area's linguistic history (Campbell 1988; Voorhies 1989a). Mixe-Zoquean languages were spoken in a wide area including portions of the Gulf of Mexico, the Isthmus of Tehuantepec, and the southern Pacific coast, and are still spoken be people in some of these areas today (Campbell 1988; Voorhies 1989a; Lowe et al. 1982). As this broad region generally overlaps with areas of Olmec influence, some scholars have suggested that languages from the Mixe-Zoquean family may have been used in the region since Formative times (Blake and Clark 1999; Clark 1997; Campbell 1988). During the Spanish colonial era, several other languages were also spoken on the coast. One of these was Nahuatl, which was used as a *lingua franca* in many areas of Mesoamerica that were under the influence of the Aztecs (Voorhies 1989a:11; Gasco 2016). Other languages spoken in various parts of the southern Pacific Coast included Pipil, Chiapanec, and Mam (Campbell 1988; Voorhies 1989a; Gasco 2016). Mam, a Mayan language, seems to have arrived in the region during the Late Postclassic, while Pipil may have arrived with migrating Nahua people during the Early Postclassic (Gasco 2016:129). Chiapanec, which belongs to the Oto-Manguean language family, was spoken during colonial times in the town of Huixtla (Voorhies 1989a:10; Gasco 2016:131). As is noted by García Des-Lauriers (2007:5), the linguistic diversity of the area during the colonial era likely reflects the region's long history of interaction. A Mixe-Zoquean affiliation for the ancient inhabitants of Fracción Mujular may also make sense considering the site possible connection to Gulf Coast and Isthmian obsidian trading networks during the Late Classic and Postclassic periods (see Chapter 6).

This chapter overviews the history of the southern Pacific coast from the Archaic through the Late Postclassic periods. I describe both the geographic and cultural diversity that shaped this area over the course of its occupation, emphasizing how various social and environmental landscapes influenced the experiences of people living in the region. Throughout, I try to show how the region was closely entangled with the geopolitics and history of wider Mesoamerica, while also highlighting the ways in which these relationships were negotiated by local people on the coast. This story of regional entanglement and disintegration is not meant to be an exhaustive review but is instead intended as a backdrop for my discussion of Fracción Mujular, a site that persisted for over one thousand years of Mesoamerican history. Through the course of this chapter, it will become clear that much of the work in the region has focused on its relationship with foreign places. Although it is true that the southern Pacific coast was a long-standing center for regional interaction, I hope that the data presented in this dissertation will help fill in the gaps between episodes of wide-spread integration, showing the resiliency of local populations on the coast across numerous historical conjunctures.

Forests, Floodplains, and Estuaries: The Environmental and Cultural Landscape

As a geographic region, the southern Pacific coast of Mesoamerica runs northwest to southeast, bounded by the volcanic mountains of the Sierra Madre to the northeast, and the Pacific Ocean to the southwest. Following the geographic profile of Central America, this region starts as the coast curves from east to southeast near the Isthmus of Tehuantepec, and continues along the modern coast of Chiapas and Guatemala, ending in modern El Salvador. Much of the northern extent of this area is covered by the Soconusco, named after the Aztec province of Xoconocho, which was centered in southern Chiapas and incorporated much of the modern Chiapan coast, and parts of northern Guatemala (Voorhies and Gasco 2004; Voorhies 1989b). The northern part of this region, including modern Tonalá, is sometimes further designated as the *Despoblado* (Love 2007), or *despoblado del Soconusco* (Orellana 1994), indicating a relatively more arid region with less fertile soils which was heavily depopulated during Spanish colonial times. The degree to which the term "*despoblado*" represents any pre-Conquest reality rather than being a product of the disruption caused by Spanish rule is a question that needs to be addressed with future work. As a whole, the region has been referred to as the "peripheral coastal lowlands" (Parsons and Price 1971), the "southern corridor of interaction" (Demarest 2004), the "southern Pacific region" (Love 2007), and the "Southern Pacific Coastal Region" (Rosenswig 2012). In this chapter, I follow both Love and Rosenswig in referring to the area as the southern Pacific coast.

Starting at sea level, elevation increases as one moves east across the coastal plain, creating a number of different ecological zones. The coast is dominated by estuaries and swamps, creating a highly productive environment that was home to some of the regions first inhabitants and greatly facilitated the conveyance of trade goods throughout the region's history (Voorhies 2004; Lesure 2011). Moving east, the region is dominated by wide alluvial floodplains, laced with numerous river systems depositing rich volcanic soils from the highlands. Generally, these plains are some of the richest farmlands in Mesoamerica, possibly explaining the early origins of early sedentism in the region (Love 2007). Such high productivity is not universal, however, with some areas such as the *Despoblado* characterized by markedly lower rainfall and thinner, less productive soils (Rosenswig 2008). In Guatemala and southern Chiapas, a wide piedmont intercedes between the coastal plain and the Sierra

Madre del Sur with higher elevations producing increased rainfall and considerable productivity (Love 2007). Volcanic peaks bound the region to the east, including some of the highest points in Central America.

The environmental richness of the region, coupled with its natural gradient of elevation-based ecological niches, meant that the ancient inhabitants of the region were able to exploit and export a wide variety of important goods. Cacao was the region's most famous export, and the Soconusco was probably the most famous cacao-producing region in all of Mesoamerica (Gasco 2006; McNeil 2009). Indeed, it was likely control of the production and trade of cacao that drove the Aztec to conquer the region in 1486 (Voorhies 1989c). In addition to cacao, cotton was an important export, especially during Aztec times, while salt and fish were likely to have been important coastal contributions from as early as the Archaic Period (Love 2007; Pye 1995; Voorhies 1989c). Ceramics were another important export from the region, especially during the Postclassic when the famous plumbate tradeware was produced in the Soconusco region and exchanged throughout Mesoamerica (Neff and Bishop 1988; Shepard 1948). Other important coastal goods traded during early modern times include crocodile hides, dried shrimp, and iguanas, as well as tribute items such as feathers and pelts (Voorhies 1989c; Navarrete 1978).

Long-distance trade was conveyed over a number of well-used routes, facilitated by the region's geography. The primary trade route through the area followed the base of the Sierra Madre del Sur, taking advantage of the alluvial plain's flat and straight topography (Navarrete 1978; Pye and Gutiérrez 2007; Rosenswig 2012). This route would have been essentially identical to the course of the modern highway, and was the path taken Pedro de Alvarado from Mexico City to Guatemala in 1524 (Navarrete 1978). This road passes directly beneath Cerro

Bernal and is likely to have major impacts on Fracción Mujular throughout the site's history. An alternate, Highland Route, also closely follows modern highways, turning inland from Tehuantepec and traveling through Chiapa de los Indios (modern day Chiapa de Corzo), Comitan, Huehuetenango, and terminating in Kaminaljuyu (Pye and Gutiérrez 2007). As anyone who has traveled both routes in modern times can attest, this long and winding road through the rugged highlands makes for a far longer and more difficult journey than wide and straight highways of the coast. The coastal route, therefore, would have been one of the most important pathways for trade in all of southern Mesoamerica.

In addition to moving overland along the base of the Sierra Madre, trade along the Pacific coast also occurred via the region's waterways, with canoes taking advantage of many protected estuaries, bays, and canals. As described by Navarrete (1978), this system of canals once connected the entire coast, from northern Chiapas to El Salvador. In the mid-twentieth century, Navarrete recorded the accounts of a number of merchants who informed him that these coastal routes were their primary means of transportation before the construction of the coastal railroad in 1908. In the wet season, going by boat was often the only way to travel the coast, as floods made it impossible to transverse the region's many rivers. Navarrete's informants recalled that convoys of up to forty canoes would carry goods and passengers across the region, with regular trade occurring between Tonalá in Chiapas and Escuintla in Guatemala. These canals continued to be used to transport shrimp and fish during the early twentieth century, and Navarrete himself traveled by canal from Tonalá to the Guatemalan border. Canal maintenance declined gradually following the construction of the railway, however, and the waterways were abandoned completely after the opening of the coastal highway in 1964

(Navarrete 1978). According to Navarrete (1978), very little evidence of this integrated canal system remains today.

Fishers, Foragers, and Farmers: The Region's Earliest Inhabitants

The earliest inhabitants of the southern Pacific coast undoubtedly arrived during the end of the Pleistocene. As sea levels rose in Beringa and Icecaps retreated in Alaska and Canada, populations migrated along the coast, following a "Kelp Highway" of rich marine resources and reaching southern Chile by 14,500 years ago (Dillehay et al. 2008; Erlandson et al. 2007). Although such a route would necessarily have passed along the coasts of Chiapas, Guatemala, and El Salvador, we currently have no evidence of these early coastal travelers, possibly due to low population levels, mobile lifestyles, and the difficulties of preservation in tropical environments. By at least 12,500 years ago, however, we know that paleo-point using people inhabited the interior of Chiapas, with a Clovis and Fishtail point having been recovered from the cave of Los Grifos in the Central Depression of Chiapas (Acosta Ochoa 2008, 2011, 2012)

One of the best documented early groups in the region are the Chantuto who occupied the coast of southern Chiapas during the Late Archaic (Voorhies 2004). The earliest dates come from the Cerro de las Conchas site, which was occupied between 7460 and 4840 BCE (Voorhies 2004). The Chantuto are known for a number of large costal shell middens located in mangrove estuaries. These middens are dominated by clam shells with some evidence of fishing and hunting. They do not, however, display any evidence of residential activity, leading Voorhies (2004) to suggest that they served as logistics camps for residential camps located further inland. As seen by Voorhies (2004), the Chantuto were mobile hunter-gatherers with a fairly wide subsistence base. Economically, the Chantuto were already connected to a regional exchange system. Highland obsidian has been found in Chantuto sites, with salt and shrimp being suggested as possible Chantuto exchange goods (Nelson and Voorhies 1980; Pye 1995).

Hunting and gathering economies seem to have gradually transitioned towards horticulture during the end of the Archaic period. Pollen data samples taken from lakebed cores provide evidence for the use of cultigens such as maize, squash, and amaranth from as early as 3500 B.C.E. (Blake and Neff 2011; Neff, Pearsall, et al. 2006). These cores also show an increase in charcoal around the same time, indicating that land may have been cleared to provide space for these new cultigens (Neff et al. 2006). Neff and colleagues (2006) associate this evidence with the start of a climatic warm period and suggest that environmental changes led the way to increased sedentism. Of course, a clear transition may never have occurred as mobile hunter-gatherer groups could have coexisted for centuries with horticultural neighbors. What is clear is that by the beginning of the Early Formative there was an increasing number of sedentary communities along the Pacific Coast subsisting on domesticated resources such as maize, squash, chili peppers, and avocado (Love 2007; Lesure 2011a; Lesure and Wake 2011).

The first ceramics appeared on the southern Pacific coast at the start of the Formative Period (Clark and Gosser 1995; Love 2007; Lowe et al. 1982). The first two ceramic complexes on the southern Pacific Coast are known as Barra and Madre Vieja, dating to between 1900 and 1600 B.C.E. (Clark and Gosser 1995; Love 2007). These early ceramics are finely crafted and decorated, which seems counterintuitive for a nascent ceramic tradition. This has led to the suggestion that ceramics on the southern Pacific coast may have been introduced from elsewhere in Central America, yet no clear path for introduction has been identified, and the current consensus seems to support local development (Clark and Gosser 1995). Early

Barra ceramics are heavily reminiscent of gourds, and may have been developed in imitation of previous gourd vessels (Clark and Blake 1994). Most of these vessels are *tecomates* and were likely used to serve and display food and drink for feasts as part of emerging elite traditions.

In addition to the adoption of ceramic technology, the Early Formative on the southern Pacific Coast also saw a marked increase in social inequality. The Mazatan region of the Soconuso seems to have been especially precocious in this respect, with the Mokaya (people of corn) culture building numerous sedentary settlements during the Barra and Locona phases between around 1700 and 1500 BCE (Clark and Blake 1994). Clark and Blake (1989) have argued that ideas and possibly people from the Mokaya of the Socunusco had a heavy impact in the later formation of Gulf Coast Olmec cultures. In addition to sedentary life and the adoption of limited maize agriculture, these villages were characterized by settlement hierarchies, elite or public architecture, and other characteristics of social inequality and complex society (Blake et al. 1992; Blake and Clark 1999; Clark and Blake 1994; Hill and Clark 2001; Lesure 2011b). Most prominent among these sites is Paso de la Amada, which Clark and Blake argue was the seat of a simple chiefdom (Clark and Blake 1994). Clark and Blake (1994) argue that the use of ceramic tecomates is indicative of competitive feasting between aggrandizing elites, which would have led to certain individuals amassing economic and political control. In support of this claim, they point to Paso de la Amada structure 6, a large residence that they argue was the home of an elite individual who likely had some control over the settlement.

Archaeological evidence for status differentiation or social hierarchy at Paso de la Amada, however, is fairly thin. In a reanalysis of the distribution of prestige goods from across the site, Lesure and Blake (2002) found no significant differences between platform and non-platform residences. This was true for exotic trade items such as greenstone celts and beads, as well as for decorated ceramic feasting vessels. Instead of clear hierarchy and elite aggrandizement, they suggest that all households were likely participant in public events such as community feasts. Such community activities may have included the construction and use of a large ball court, to date the earliest found in Mesoamerica (Hill and Clark 2001). Together, these developments have highlighted the possibility that political organization at Paso de la Amada was characterized by corporate and heterarchical organization. Clark (2004:60), for example, has conceded that his previous aggrandizer model "may have drastically understated the case for cooperative labor projects, managerial imperatives, and the impact of these work opportunities in bringing people of a dispersed village together as a cohesive, self-perceived community" (2004:60). What is clear, however, is that Early Formative people on the coast were living in progressively more elaborate and densely populated communities, and where importing increasing numbers of exotic goods, including jade, obsidian, and other rare minerals such as mica and galena (Lesure and Blake 2002:12).

The Olmec Question and Regional Interaction

The nature of regional interactions between the southern Pacific coast and the Gulf of Mexico during the Early Formative has been a long-standing question in Mesoamerican archaeology. During this period, the Gulf Coast site of San Lorenzo grew to become the largest settlement in Mesoamerica, covering 7 square kilometers and containing over ten thousand inhabitants (Clark and Bryant 1997; Coe and Diehl 1980; Diehl and Coe 1995; Symonds et al. 2002). With monumental sculpture depicting likely rulers, and up to a four tiered settlement hierarchy, a strong case can be made that San Lorenzo was the first state in Mesoamerica, giving it a critical role within the history of the Americas (Clark 1997; Diehl and Coe 1995;

Coe and Diehl 1980; Pool 2007). San Lorenzo and other nearby sites on the Gulf Coast are characterized by a material culture and artistic style that archaeologists associate with the Olmec culture, including figurines and sculpture with cleft heads and downturned mouths, as well as deeply incised carved ceramics (Clark and Pye 2000). Similar artifacts and artistic styles, however, appear in several regions of Mesoamerica around the same time, ranging from Central Mexico to El Salvador. This regional horizon has led to numerous questions regarding the influence of the Gulf Coast on the development of Mesoamerica writ-large, and the degree to which Olmec style artifacts found throughout Mexico can be conflated with the culture of Olmec peoples from the Gulf Coast (Blomster and Cheetham 2017; Clark and Pye 2000; Lesure 2004). Nowhere are these questions more relevant than on the southern Pacific coast, where numerous Early Formative sites displace Olmec style sculpture, figurines, ceramics, and other forms of material culture (Agrinier 1984; Clark and Pye 2000).

The best case for the direct interference of the San Lorenzo polity on areas outside of the Gulf Coast Olmec heartland has been found at the recently investigated site of Canton Corralito in the Mazatan region of the southern Pacific coast (Cheetham 2010a, 2010b; Cheetham and Coe 2017). Following the decline of Paso de la Amada, Canton Corralito grew to be one of the largest centers in the Mazatan region, with an aerial extant of over 25 hectares and a population of up to 1000 individuals (Cheetham 2010a). Excavations have found evidence of strong connections between Canton Corralito and San Lorenzo, based primarily on the analysis of ceramic figurines and carved pottery at the site. A detailed comparison of ceramics from Canton Corralito and San Lorenzo showed strong stylistic and typological similarities between the two sites, suggesting that potters at Canton Corralito were either from the Gulf Coast, or had been in close contact with individuals who had made such a journey

(Cheetham 2010b; Cheetham and Coe 2017). Furthermore, Instrumental Neutron Activation Analysis of 675 ceramic objects from San Lorenzo and Canton Corralito showed that while no foreign items were present at San Lorenzo, numerous ceramic artifacts were traded from the Gulf Coast to Canton Corralito (Cheetham 2007). Indeed, of the 566 Canton Corralito ceramics submitted for INAA, 24% percent were imported from the Gulf Coast, suggesting a remarkable level of exchange (Cheetham 2007). These results have led Cheetham (Cheetham 2007; 2010a) to describe Canton Corralito as an Olmec colony, suggesting that Gulf Coast Olmec established the site in order to control trade routes on the Pacific Coast; possibly influenced by long-standing connections between the two coasts dating to the earlier heyday of Paso de la Amada (e.g. Clark 1997).

Discoveries from Canton Corralito have revigorated the debate over the role of San Lorenzo and the Gulf Coast Olmec in the wider social evolution of Mesoamerica. Ever since the early 20th century, archaeologists have argued over the relative importance of the Gulf Coast Olmec in spreading distinctive political and artistic ideologies throughout Mesoamerica. Supporters of the "mother culture" approach argue that sites such as San Lorenzo were different from their contemporary peers not only in degree, but also in kind (Blomster and Cheetham 2017; Cheetham 2010a; Clark and Bryant 1997; Coe 1966; Coe and Diehl 1980; de la Fuente 1975; Neff 2011). Under this model the Olmec heartland was the center of some of the most complex polities of its time –possibly the first states in Mesoamerica- and interacted with other regions on an asymmetrical basis. On the other hand, advocates of a "sister culture" approach suggest that while San Lorenzo may have been the largest site of its time, it was organizationally similar to many of its contemporaries and interacted with them on equal footing (Flannery 2000; Hammond 1988). In an influential paper, Blomster et al (2005) conducted INAA analysis to source 725 ceramic artifacts from seven areas across Mesoamerica. They found that while ceramic products from San Lorenzo were found in all seven areas, no other ceramics from their sample group seem to have been traded outside of their place of origin. This result strongly suggests that San Lorenzo had a unique footing in trade relations with its contemporary peers. These findings have proved controversial, with several critiques (Flannery et al. 2005; Stoltman et al. 2005) being rigorously rebutted (Neff, Blomster, et al. 2006b, 2006a). Recently, Cheetham's work at Canton Corralito has given more credence to a mother culture approach, although it is unlikely that the debate will ever be settled in its entirety.

Wherever one stands on the mother culture / sister culture debate, it is clear that the Early Formative was a period of intense and escalating regional interactions, and that the southern Pacific coast was a central component of these emerging interaction networks. During this period, goods such as ceramics, hematite, and obsidian were circulated between regions in increasingly high quantities. Perhaps more importantly, similarities in artistic styles across broad regions of Mesoamerica hint at the spread of ideas –possibly political or religious- between adjacent areas. Nowhere is this more evident than on the southern Pacific coast, where decorated ceramics, figurines, and carved stone sculpture from numerous sites indicate a high degree of interconnectedness between coastal Chiapas and Olmec polities of the Gulf Coast. According to Rosenswig (2017) this high degree of contact between the two regions can be described as Mesoamerica's first period of "ancient globalization", with Olmec imagery, ideals, and trade goods spreading between a number of "islands of complexity" dispersed between the Gulf Coast, the Pacific, and other areas of Central Mexico. Rosenswig (2012) correctly points out that geographical distribution roughly corresponds to maps for Teotihuacan and Aztec areas of influence, suggesting that the trade routes that developed during the Olmec period helped facilitate later histories of regional integration.

The Middle Formative continued to be a period of strong regional interaction and economic intensification. Populations and social stratification grew as subsistence economies became increasingly dependent on maize agriculture, supplemented by dog and deer meat (Love 2007; Rosenswig 2012). In the Soconusco, the site of La Blanca grew to become a major regional center, with a size of over 300 hectares (Love 2002; Love and Guernsey 2007). The site had a complex settlement system, monumental rammed earth mercury pools, and a massive 30 meter tall central pyramid, making it a comparable center to the more famous and contemporary Olmec site of La Venta on the Gulf Coast (Love 2002; Love and Guernsey 2007; Rosenswig 2008). Further north, the massive Middle Formative site of Perseverancia is also indicative of the considerable population growth that took place during this period, while smaller sites such as Tiltepec and Tzutzuculi contain Olmec style stone sculpture that displays continued connection between the Pacific Coast and cultural styles associated with the Gulf Lowlands (Clark and Pye 2000; Kaneko 2009; McDonald 1983).

Economic intensification continued into the Late Formative period, with numerous sites –such as Izapa, Uxujte, Takalik Abaj, Chocolá, and Chalchuapa- growing to sizes large enough to be described as true cities (Love 2007; Rosenswig 2012). Many of these sites also present clear evidence of state-level organization. Ujuxte, for example, was founded after the collapse of nearby La Blanca, and was characterized by a gridded city plan and the movement of ritual practice out of the household and into the public sphere, indicating considerable higher levels of elite control over daily life (Love 1998). Mayan influence on the coast is also evident during this period, as can be seen in several stela from Takalik Abaj (Schieber de Lavarreda and Corzo

2010). The special relationship between the southern Pacific coast and the Gulf Lowlands that existed during the Early and Middle Formative may have dissolved during this period, which was characterized by stronger local traditions as well as connections with more southern areas of Mesoamerica (Rosenswig 2012). Usulután ceramics from Central America, for example, proliferated across the coast during this period, distinguishing the region from the Mayan or Gulf lowlands (Rosenswig 2012). Compared to the period immediately before and after, the Late Formative may thus have represented a degree of considerable regional autonomy and independence.

The site of Izapa is one of the largest and best understood of these Late Formative cities (Clark and Lee 2018; Ekholm Miller 1969; Lowe et al. 2013, 1982; Rosenswig and Mendelsohn 2016; Rosenswig et al. 2015; Rosenswig and Guernsey 2018). Early work at Izapa directed by the NWAF during the 1960's established the city as a powerful center with a long chronology spanning the Formative Period and continuing in the Classic Period (Lowe et al. 1982; Ekholm Miller 1969). Izapa has one of the most wide-ranging and firmly established ceramic chronologies on the southern Pacific cost and many of the ceramics from Fracción Mujular were compared to Peistal and Remanso phase collections from Izapa held at the NWAF (see chapter 5). Although the site's chronology has been questioned by Inomata and Henderson (2016) based on cross-referencing their new dates from Kaminaljuyu, recent excavations and Bayesian modeling of carbon dates by Mendelsohn (2018c) has supported the chronology established by Lowe and colleagues (Lowe et al. 2013, 1982). During the Late Formative, Izapa was a powerful center with trade connections to epi-Olmec areas in the Isthmus of Tehuantepec as well as the Maya region (Pool et al. 2018). During the Early Classic, there seems to have been a shift towards more intense trade with the highlands of Guatemala and El Salvador (Mendelsohn 2018a) and it is notable that most obsidian at Izapa was imported from Guatemalan rather (Mendelsohn 2018b) than Mexican sources as was the case at Fracción Mujular and Los Horcones (see chapter 6). Recent survey data (Rosenswig and Mendelsohn 2016; Rosenswig and Guernsey 2018; Rosenswig et al. 2018) suggests a drastic decrease in population at Izapa dating to the end of the Early Classic, although several caches and burials with Teotihuacan-related imports have been found from this period (Clark and Lee 2018). According to Rosenswig and Guernsey (2018:261) this period saw a shift in power towards sites such as Los Horcones in Chiapas and Montana in Guatemala, both of which forged strong connections to the great and distant city of Teotihuacan.

Teotihuacan on the Coast

The Early Classic saw the rise of the great central Mexican state of Teotihuacan, whose influence would reach areas stretching from the Maya lowlands to the southern Pacific Coast. The regional extent of Teotihuacan's influence has been acknowledged and debated ever since excavations at Kaminaljuyu in the early 20th century (Kidder et al. 1946). The presence at Kaminaljuyu of *talud-tablero* architecture, as well as Teotihuacan style ceramic vessels, led many midcentury archaeologists to suggest that resident Teotihuacanos lived at the site (Sanders and Michels 1977), although this interpretation has been rigorously debated (Braswell 2003). Other major Maya centers such as Tikal (Stuart 2000; c.f. Iglesias Ponce de León 2003) and Copan (Bell et al. 2004; Fash and Fash 2000; Sharer 2003) have also been associated with Teotihuacan influence during the Early Classic. In general, interpretations of possible connections between different areas of Mesoamerica and Teotihuacan can generally be grouped into "internalist" perspectives, which downplay any role Teotihuacan might have had on local developments, and "externalist" perspectives, which emphasize evidence for Teotihuacan interactions in local histories (Stuart 2000). Outside of the Maya region, areas with evidence for Early Classic connections with Teotihuacan include Oaxaca (Joyce 2003; Marcus and Flannery 1996), the Gulf Coast (Santley 1983; Santley and Arnold 2005; Stoner 2011, 2013; Stoner et al. 2015), and West Mexico (Brambilia and Velasco 1988; Filini 2004; Folan et al. 1987). Exactly what these connections meant for each of these areas probably varied across both time and places and is likely to have differed considerably between elite and non-elite populations (Marcus 2003).

Numerous sites on the southern Pacific coast display evidence of Teotihuacan influence during the Early Classic. In Guatemala, the sites of Balberta and Montana show strong evidence of Teotihuacan colonialism, possibly linked to the control of trade routes to Kaminaljuyu. The site of Balberta was originally seen by Bové as a possible Teotihuacan settlement due to the presence of large amounts of imported Pachuca obsidian and fine orange ware ceramics (Bove 1989). Subsequent investigations, however, showed that the construction of much of the site predated any possible Teotihuacan influence. The nearby center of Montana, however, seems to coincide with the start of Teotihuacan interaction with the region, and displays strong evidence for militaristic connections with Central Mexico. For example, excavations at Montana have returned numerous Teotihuacan associated artifacts, including Pachuca obsidian, thin orange ware ceramics, twin-chambered *candeleros* and numerous Teotihuacan style warrior portrait figurines (Bove and Medrano 2003; Bove 2000). One spectacular find was an intact Teotihuacan *incencario* with militaristic iconographic elements (Bove and Medrano 2003). Other similar incensarios have been reported from the area without being verified by controlled archaeological excavations. The extensive presence of these artifacts at Montana, especially when compared to their more limited distribution at the nearby site of Balberta, have led Bove (Bove 2000; Bove and Medrano 2003) to suggest that the region may have been conquered and colonized by Teotihuacan (c.f. Cowgill 2003). In this model, the site of Montana may have represented a military garrison of Teotihuacanos protecting coastal trade routes connecting the Maya Highlands with Central Mexico.

Further up the coast, considerable evidence for interactions with Teotihuacan can be found in southern Chiapas. At the site of Mirador, excavations by Agrinier (Agrinier 1975, 1970) discovered an abrupt reorganization of the site during the Laguna-Nuti phase of the Early Classic, corresponding to the construction of new buildings, the reuse of elite tombs, and the intrusion of some foreign ceramic styles. Notably, 4.7 percent of the ceramics excavated from Mounds 9, 10, and 20 matched Teotihuacan styles, including 26 distinctive slab-footed tripod cylindrical vessels. Agrinier (1975) is quick to point out that an equal percentage of the site's ceramics was likely imported from the Maya region, and that the Teotihucan-style ceramics share as much in common with similar vessels at other Teotihuacan associated sites such as Kaminaljuyu as they do with the Central Mexican metropolis itself. However, the sudden nature of the Launa-Nuti change in ceramic assemblages and its association with possible foreign imports suggests some distinctive historical change that connected the southern Chiapas region to distant places such as Central Mexico. Agrinier (1975) argues that a lack of evidence for warfare or intrusive violence suggests that there was no direct conquest of the region by foreign powers. On the other hand, the site's location on a valley linking the inland Grijalva Basin with the Pacific Coast would have made the area a natural corridor for trade traveling between inland areas and the Chiapan coast. According to Agrinier (1975), therefore, Mirador was likely home to elites who were either controlling or profiting from trade heading between Central Mexico and the costal corridor linked to the Guatemalan Highlands.

On the coast of Chiapas, some of the strongest evidence for interactions with Central Mexico can be found at the monumental center of Los Horcones, where recent investigations by García-Des Lauriers (García-Des Lauriers 2008, 2012a, 2007, 2005, 2012b, 2016) have established multiple lines of evidence for interactions with the city of Teotihuacan. Excavations in the site center, as well as at a nearby plaza groups, have returned large amounts of central Mexican obsidian, as well as Teotihuacan-style ceramics and figurines (García-Des Lauriers 2012b). One excavated offering in plaza Group B, for example, included a number of Teotihuacan-related artifacts, including a three-handled tapaplato, as well as Teotihuacan style figurines, including some with military style Platelet headdresses (García-Des Lauriers 2012a; García-Des Lauriers 2012b). Additionally, the organization of Group F, one of the sites most central plazas, mirrors that at the Pyramid of the Moon complex at Teotihuacan; a connection reinforced by the presence of monumental stelae with Teotihuacan associated iconography (Navarrete 1976, 1986; García-Des Lauriers 2012a, 2007). The "international signature" of architecture and artifacts found in public plazas at Los Horcones has led García-Des Lauriers to suggest that Los Horcones may have served as a gateway community, facilitating trade between Central Mexico and the Maya region (García-Des Lauriers 2007, 2012b).

The monumental iconography of Los Horcones was the first line of evidence to suggest the possibility of connections between the site and Central Mexico (García-Des Lauriers 2005; Navarrete 1976; Navarrete 1986; Taube 2000). As discussed by García-Des Lauriers (2005; 2007; 2012a; 2012b) and Navarrete (1976; 1986), four carved monuments at Los Horcones bear Teotihuacan-like stylistic elements. In fact, the similarity of some elements on stelae at

Los Horcones to Central Mexican artistic features has led Cowgill (2003) to suggest that sculptures at Los Horcones were either carved or closely supervised by artisans from Teotihuacan itself. Of the sculpture at Los Horcones, stela 3 stands out as especially noteworthy, consisting of a 4.73 meter tall depiction of the Central Mexican rain god, Tlaloc. Depicted with characteristic elements such as goggle eyes and a fanged mouth with a water lily tounge, Navarrete (1986) describes stela 3 as one of the "best representations I know of this diety." Carved as a full bodied stela in low relief, yet depicting a front facing individual, the stela combines elements of by Maya and Central Mexican artistic traditions. Aquatic themes are also emphasized by a lightning bolt held in the figure's left hand, and a typical hourglass shaped effigy jar clutched in the right, from which water pours down the side of the monument (García-Des Lauriers 2012b, 2012a, 2007; Navarrete 1976, 1978). As discussed by Taube (2000), these aquatic themes may be connected with cultivation, and by extension concepts of political governance. Also notable on stela 3 are no less than nine circular glyphs with enclosed horizontal and vertical lines. Interpreted variably as turquoise markers (Navarrete 1976; Navarrete 1986) and tilled-earth signs (García-Des Lauriers 2005; Taube 2000), these glyphs can be found on numerous stela throughout the Cerro Bernal region, suggesting the possibility that they may be a form of toponym or place marker (García-Des Lauriers, personal communication).

Perched high on the rugged foothills of the Sierra Madre, just 25 kilometers northwest of Los Horcones, the site of Iglesia Vieja was another major Early Classic center on the southern Pacific coast (Kaneko 2009, 2011). In contrast to the internationalist style of Los Horcones, Iglesia Vieja seems to have been a highly local development (Kaneko 2009, 2011; García-Des Lauriers 2016:63), with the architecture of the site's center dominated by relatively unique features, including megalithic construction and stone ramps rather than steps (Kaneko 2009) (see Chapter 5 for discussion of Iglesia Vieja's architecture). Based on carbon dates and the sites ceramic sequence, Kaneko dates Iglesia Vieja's main period of occupation to the beginning of the Early Classic, from roughly 250 to 400 C.E. (Kaneko 2009, 2011). This would place the main occupation of Igleisa Vieja immediately prior to that of Los Horcones and raises the question the relationship between the two centers. Considering their close proximity and the striking differences between the two sites, it is possible that the rise of Los Horcones may have directly led to the decline of Iglesia Vieja, although future research would be needed to support such a hypothesis. The general similarity between Fracción Mujular sculpture 1 and zoomorphic altars at Iglesia Vieja (see Chapter 5), as well as the presence of megalithic architecture at the poorly documented site of Ciudad Perdida (see Chapter 7), complicates this picture as it points to the possibility of interaction between Iglesia Vieja and settlements on Cerro Bernal.

Evidence from sites such as Los Horcones and Montana makes a strong case for a considerable Teotihuacan presence on the southern Pacific coast. Smaller sites, such as Rio Arriba also show evidence Teotihuacan influence, with locally made imitations of Teotihuacan style vessels present in Early Classic ceramic collections (Pfeiffer 1989:238). What exactly the nature of such a presence was, however, remains unclear. Evidence of direct imports and strong cultural ties suggests that there may have been resident Teotihuacanos living on the cast, yet such a scenario has not yet been proven with household excavations or isotopic sourcing of human remains. Even if Montana was the site of a colony set up by invading Teotihuacan soldiers it would be difficult to determine if the area was under direct the political control of Central Mexico, as resident foreigners may have been fleeing from Teotihuacan or acting as independent agents. What is clear, is that for several centuries there was a wide spread Teotihuacan influence on the coast, stretching from the Escuintla region of Gutaemala to the coast and highlands of Chiapas. Such a broad distribution of influence indicates a considerable investment by Central Mexican interests into the Pacific Coast. Furthermore, evidence of Central Mexican influence at small sites such as Fracción Mujular suggests that Central Mexican influences were not limited to the elite areas of regional centers, but also impacted second tier settlements and commoner households.

Balkanization and Reconsolidation

The city of Teotihuacan was burned around 550 CE, and fell into a rapid period of decline immediately thereafter (Cowgill 2015). At Los Horcones, most radiocarbon dates fall in the 5th and 6th century, with only a single date in the early 600s, suggesting that the fate of that site was closely tied to the fortunes of Teotihuacan (García-Des Lauriers 2007). The following Late Classic period has been described as one of "balkanization" (Rosenswig 2012; Marcus 1989), with the retreat of foreign powers such as Teotihuacan and the rise of smaller independent centers. Part of this narrative of disintegration may be due to the fact that there has been relatively little work done on the Pacific Coast targeting Late Classic sites (Love 2007). In fact, Love (2007:301) suggests that this period may have been one of high population densities on the coast, as numerous uninvestigated sites with Late Classic ceramics have been identified in regional surveys. The political and social organization of these populations, however, remain poorly understood. Work at Fracción Mujular contributes to this discussion, with a robust Late Classic occupation with evidence for continued trade connections with both Guatemala and Central Mexico (See Chapters 5 and 6).

Despite the relative lack of work on the coast focused on the Late Classic, the region was famous throughout Mesoamerica during this period for its production and exportation of plumbate ceramics (Shepard 1948). Produced using partial reduction firing and a high-alumina and high-iron slip, plumbate ceramics area unusually hard and have a metallic luster; a unique and technologically advanced mix that has been described as "the pinnacle of the potter's craft in the New World" (Neff 1995; Neff and Bishop 1988). Although plumbate ceramics were produced only in a small region of the southern Soconusco, they were traded throughout Mesoamerica, with finely crafted vessels and effigies jars often found in Late Classic tombs and caches from Central Mexico to the Maya lowlands (Shepard 1948). Two types of plumbate can be distinguished stylistically and chemically, were likely produced from slightly different clays, and have overlapping but different chronological affiliations (Neff 1995). San Juan plumbate dates begain to be used in the Late Classic, and tends to be simpler in form that Tohil plumbate, which entered circulation during the Terminal Classic (Neff and Bishop 1988). Both types of plumbate are found at Fracción Mujular, which is located about 200 kilometers north of the plumbate producing region of the coastal plain (for a formal description of plumbate ceramics at Fracción Mujular, see Appendix A).

Plumbate ceramics were produced in a relatively small area near the modern day border between Guatemala and Mexico (Neff and Bishop 1988). Love (2007:301) reports a heavy occupation density in the region during the Late Classic, with a multi-tiered settlement hierarchy centered at a site named Santa Clara. Unfortunately, little is known about the organization of this polity as most known Late Classic sites were identified in surveys primarily focused on Formative period settlements. Likewise, little is known about Late Classic settlements further up the Chiapas coast, although my excavations at Fracción Mujular show that there was a brisk trade in the area during this time period (see Chapters 6). Recent work by Navarro Castillo (2014, 2015) indicates that plumbate was produced in the Soconusco for both local consumption and export by specialized workshops. Unlike other parts of Mesoamerica where the presence of Plumbate ceramics is seen as a marker of status, Navarro Castillo reports that plumbate at the site of Miguel Alemán was readily used across social strata. This may have been the case further up the Pacific coast as well, as plumbate ceramics were found associated with all houses at Fracción Mujular, albeit in much lower frequencies than at Miguel Alemán (See Chapter 5).

Further south, dense, yet relatively unstudied, Late Classic occupations can be found on the eastern Guatemalan coastline (Estrada Belli 2002; Love 2007). On the central Guatemalan coast the Cotzumalguapa culture, flourished during this time, yet is also relatively poorly understood (Chinchilla et al. 2006). Stylistic similarities in stone sculpture from Cotzumalguapa and Central Mexico have led some scholars to suggest that the site may have been connected with Mexican polities through trade, or that its residents may have descended from previous Mexican immigrants at sites such as Balberta and Montana (Neff 2005; Love 2007). INAA analysis, however, has shown that the vast majority of the site's imported ceramics came in the form of plumbate from further up the coast, with no analyzed sherds originating in Central Mexico (Chinchilla et al. 2005).

Very few sites on the southern Coastal plain have been identified as dating to the early Postclassic (Love 2007; Voorhies and Gasco 2004). The reason for this apparent gap is unclear. One possibility is that a severe drought may have affected the coast during this time, causing populations to relocate to the highlands (Love 2007; Neff et al. 2006). Voorhies and Gasco (2004:12), on the other hand, are skeptical of the suggestion that populations decreased during this period, and instead attribute the lack of known early Postclassic sites to sampling bias. First of all, as most regional studies have historically focused on Formative period sites, it is possible that many Postclassic sites may have been missed or misidentified by regional surveys. This problem is compounded by the fact that many postclassic and historic sites lack large mound construction, making them much more difficult to identify than Formative period settlements (Gasco 1997; Voorhies and Gasco 2004). The lack of a clear ceramic chronology for the Postclassic also complicates this problem, and some Voorhies and Gasco (2004:12) suggest that some postclassic ceramics may be misattributed to the Late Classic. With an occupation spanning both the Late Classic and the Postclassic, work at Fracción Mujular fills this lacuna to some extent, although further work is needed to fully understand the Classic to Postclassic transition at the site (See Chapter 5).

By the start of the Late Postclassic, the southern Pacific coast seems to have been divided into many small competing polities (Voorhies 1989c; Voorhies and Gasco 2004). Due to the records contained in Aztec codices, the Soconusco area of southern Guatemala is by far the best understood region of the coast during this time period. Aztec documents relate the capture and subsequent tribute payments of eight different centers in the Soconusco, which indicates that prior to their conquest each of these settlements was acting as an independent center (Voorhies 1989c). Voorhies (1989c) suggests that each of these towns as at the center of a complex polity controlling regions stretching from the piedmont to the coast. The site of Acapetahua was seat of one of the largest and most complex of these polities, with a center covering 42 hectares and a settlement hierarchy with at least three levels (Voorhies 1989c; Voorhies and Gasco 2004). These polities would have participated in robust regional economies, with the production and exportation of cacao being a major driver for long-distance trade (Gasco 1996, 2006, 2017). Cacao, colored feathers, and other coastal trade goods were readily available throughout Mesoamerica before the Aztec conquest, and inhabitants of the coast would likewise have had access to wide array of imports as part of a bustling trade economy (Gasco 2017).

Perhaps attracted by this burgeoning trade economy, parts of the region were briefly conquered by the expansionistic K'iche' Maya state during the middle of the 15th century (Voorhies and Gasco 2004). The history of this conquest is recorded in the *Títulos de la Casa Ixquin-Nehaib*, and was carried out under the auspices of the ruler Q'uik'ab, who expended the K'iche' kingdom to its greatest territorial extent between 1425 and 1475 CE (Carmack 1981; Recinos 1984; Voorhies and Gasco 2004). Coming from the highlands of Guatemala, K'iche' warriors conquered three to four centers on the coastal plain all centered around the modern boarder between Guatemala and Mexico (Recinos 1984; Voorhies and Gasco 2004). The K'iche' collected tribute from their new territories in the form of cacao, colored feathers, and imported jade (Carmack 1981; Gasco 2017).

The K'iche' intrusion onto the coast was short lived, as the Aztec conquered the region in 1486, incorporating the area into their empire as the province of Xoconochco (Voorhies 1989c). Why the Aztec chose to conquer the region is unclear, as it was geographically isolated from the rest of their empire and the trade goods they collected in tribute were already being provided to Tenochtitlan through robust trade (Gasco 2017; Voorhies and Gasco 2004). One possibility might have been that the Aztec were concerned that their interests in the region would be threatened by K'iche' expansionism, leading them to conquer the area in order to assure their continued access to its resources and to deny access to those resources from their regional rivals (Gasco 2017). Whatever their original intentions, the newly conquered province began paying considerable tribute consisting of greenstone beads, exotic bird feathers, blocks of amber, jaguar pelts, ceramics, and massive amounts of cacao (Voorhies 1989c; Voorhies and Gasco 2004).

The Aztec made their provincial capital at a center called Xoconochco, designated on tribute documents by a three headed flowering cactus (Gasco and Voorhies 1989). The same documents indicate that two high ranking military officials were stationed at this capital to oversee tribute payments (Gasco and Voorhies 1989). For the Aztec this was an unusually heavy handed degree of imperial intervention into local politics that suggests that there may have been a significant local resistance to their authority. Spanish documents also suggest that there was a garrison of Aztec soldiers stationed at Xoconochco although its existence and exact location was long subject to dispute by historians (Voorhies and Gasco 2004). Recent archaeological work has indicated that the provincial capital of Xoconochco may have covered an area previously identified as containing three separate sites: Soconusco Viejo, Soconusco Bajo, and Las Gradas (Gasco 2017). Test pits in areas between these sites have returned dense domestic middens, leading Gasco (2017) to suggest that the sites were connected by non-mound domestic structures. Archaeological evidence for an Aztec presence at these sites includes large amounts of imported Mexican obsidian, especially at Las Gradas. Excavations at Las Gradas also returned an unusually high number of arrowheads, as well as a lower ceramic diversity than Soconusco Viejo, leading Gasco (2017) to suggest that it may have been the location of the Aztec garrison.

The role played by Fracción Mujular and the surrounding region of Tonalá in the Aztec conquest of the Soconusco is difficult to determine. The town of Tonalá is not mentioned as paying tribute to the Aztec and sits just north of the area generally attributed to the

Xoconochco. On the other hand, Tonalá itself is a Nahuatl term meaning “the hot place”, and it is likely that the region was named as such by Aztec merchants or soldiers unused to the hot temperatures of the coastal plain. Alternately, the name may have been assigned during the Spanish conquest, during which Nahuatl speaking Tlaxcallans accompanied Alvarado’s forces. Whether or not an Aztec army would have passed through Tonalá on their way to conquer the Xoconochco is unclear, as documentary accounts have the Aztec army arriving from the east, suggesting that on their initial intrusion to the area they followed either an inland route or traveled a considerable distance by boat before making landfall further down the coast (Voorhies and Gasco 2004). Tonalá seems to have been an important area by the time of the Spanish conquest, however, as it may have been the site of a major battle fought between the conquistador Pedro de Alvarado and local forces as he marched down the coastal plain on his way to conquer Guatemala (Lowe and Mason 1965). Two archaeological sites in the Tonalá region, Cabeza del Toro and El Paredón, are known to date to the Late Postclassic and contain Aztec associated artifacts, but are heavily looted and poorly understood (Voorhies and Gasco 2004). Carbon dating clearly indicates that Fracción Mujular was occupied at this time, and there are strong ceramic similarities between the postclassic assemblages at Fracción Mujular and the southern Soconusco (See Chapter 5, Appendix A). Conversely, obsidian at Fracción Mujular was mainly acquired from the Zaragoza source; a considerable difference from the Pachuca and Pico de Orizaba sources apparently preferred at Aztec influenced sites such as Las Gradas (See Chapter 6). All considered, even if Tonalá was not immediately inside the sphere of Aztec political control, it seems likely that it was heavily influenced by the Aztec, possibly profiting as an independent trading center on the periphery of the Xoconochco province.

Critiquing the Cultural Archipelago

Writing about the Olmec, Rosenswig (2017; 2010) describes the southern Pacific coast as being part of an "archipelago of complexity", with important centers such as Paso de la Amada and Canton Corralito interacting with distant powers such as San Lorenzo as part of a wide ranging network of precocious Formative period polities. Areas in-between, he suggests, were inhabited by hunter-gatherers and part-time agriculturalists who were not yet part of the increasingly interconnected Mesoamerican world. Marcus (2003) tells a similar story for Teotihuacan regional interactions during the Early Classic, suggesting that any ties between Teotihuacan and foreign places likely took place between ruling families in elite centers. In many ways the history of the southern Pacific coast fits this narrative of elite connectivity. The region's geography greatly facilitated transport between several important political centers in Mesoamerica, and made the area attractive for powers interested in controlling long-distance trade. Successive foreign powers such as the Gulf Coast Olmec, Teotihuacan, and the Aztec triple alliance all had interests in the area following similar patterns of hegemonic influence (Rosenswig 2012). The results of these intrusions can be seen in many of the most intensely studied sites in the region, such as Canton Corrilito, Los Horcones, Montana, and Soconusco Viejo. Hopefully, the summary of past archaeological work presented in this chapter has shown how the development of the southern Pacific coast was deeply connected to the geopolitics of wider Mesoamerica throughout its history.

Focusing primarily on major periods of integration and primary centers of foreign influence, however, paints a skewed picture of the history of the region. Although we know that Olmec influence was strong at Canton Corrilito, and Teotihuacan may have held sway over Montana and Los Horcones, it is difficult identify the organizational nature of these incursions without investigating second-tier sites and non-elite centers. With respect to Teotihuacan, for example, Cowgill (2003) has called for a renewed focus on the study of intermediary sites between major centers of influence. Fracción Mujular is one such site, with evidence for heavy interaction with several distant powers found in a modest and non-elite residential settlement (See Chapter 6). The inhabitants of Fracción Mujular were not at the top of any settlement hierarchy, and built little monumental architecture, yet were plugged into numerous Central Mexico trade networks over the course of their 1,000 year occupation history. This resilience in the face of the geopolitical turns of history coupled with continuity in long-distance trade ties suggest that small and intermediary sites interacted with foreign powers in distinct ways from elite centers, yet were no less connected to globalized economic systems.

Periods of imperial collapse, disintegration, and balkanization may also warrant additional attention, especially on the southern Pacific coast. It is easy to characterize the history of the region as one of foreign intrusions, with the Olmec, Teotihucan, and Aztec periods of influence receiving considerable attention in the archaeological literature (e.g. Rosenswig 2012). It is notable, however, that some of the periods highest population levels seem to have been reached during times of considerable political disintegration, such as during the Late and Terminal Classic (Love 2007). Such periods of balkanization were hardly times of cultural or economic decline, as evidenced by the exportation of plumbate ceramics from the Soconusco to across wider Mesoamerica. Small sites such as Fracción Mujular were also closely integrated into globalized economies during these periods, as evidenced by the fact that obsidian from 11 different sources across modern Mexico, Guatemala, and Honduras can be found at the site during the Late Classic (See Chapter 6). Clearly long-distance trade was not only occurring between elite centers or during times of foreign intrusions.

Studying long histories of interaction while maintaining a focus on local agency can be a difficult task. Theoretical models within archaeology tend to emphasize either macro-scale approaches, such as world-systems theory, or micro-scale approaches such as practice theory. Attempts to bridge the gap between such extremes are far and few in-between. Pauketat's historical-processual approach represents a step in this direction, as it combines an emphasis on the agentive nature of social processes with a focus on broad historical narratives (Pauketat 2001; Pauketat 2007). Pauketat (2007:15), for example, calls for a "Big History" of the indigenous Americas, comparable to that which has always been told for the Old World. This emphasis on different scales of analysis is evocative of the older model of Annales history proposed by Braudel (1972) and championed by some archaeologists in the 1990's (Knapp 1992). More recent approaches to macro-scale studies have combined elements of these older models using the language of globalization (Hodos 2017; Jennings 2011) to discuss the cross-societal impacts of long-distance interaction. In the following chapter, I will build from these models to argue that a theoretical framework that incorporates local perspectives and small-scale sites can strengthen our understanding of macro-scale processes of regional interaction.

Chapter Three

BIG HISTORIES AND SMALL SITES

Situated around 30 kilometers east of the town of Tonalá, the imposing outcrop of Cerro Bernal juts out from the coastal plain of Chiapas like a lonely mountain standing guard over the passage east and west along the coast. Its rugged peaks are often covered in clouds, and one almost expects Smaug – or perhaps a feathered serpent- to fly out from behind the massive sword-shaped spire that dominates the mountain's eastern edge. Fracción Mujular sits near the foot of this shield shaped spire, its domestic spaces arranged along ridgelines on small areas of flat terrain. From this position on the side of the mountain, the site commands an impressive view, yet is also relatively protected, tucked away from the considerable commerce that passes through the valley below. Covering no more than 15 hectares, Fracción Mujular is a relatively small settlement, with low lying house mounds arranged around domestic plazas. In these plazas lie numerous stone slabs; ancient altars, sculpture, and stelae that seem out of place in such a modest site. Three of these stelae, which have long since been moved from their original resting places, were carved with circular glyphs that have been stylistically attributed to the famous Central Mexican city of Teotihuacan, located over 700 kilometers away (Navarrete 1976, 1986; Taube 2000). The questions posed by these stelae and their carvings are what originally drew me to work at Fracción Mujular. Why did such a small site have so many monumental stelae? What was the nature of the relationship between the site and other centers near or far? And finally, how could such a small and seemingly insignificant settlement be influenced by great cities located so far away? What I found was a site that persisted through at least one thousand years and interacted with not one but several distant powers, maintaining strong ties with Central Mexico over the twists and turns of Mesoamerican history.

Questions of scale are central to the study of archaeology. Perhaps more than any other discipline, our work reaches across both spatial and temporal boundaries. In the same excavation, for example, we might find an ash lens corresponding to sweepings of a single feast, while simultaneously collecting soil samples from sedimentary layers spanning thousands of years. Likewise, we pride ourselves in being able to discern the activities of single households, while also tracing the movement of goods across entire continents. This breadth of scope is one of archaeology's great strengths. In reality, however, our theoretical and methodological approaches tend to emphasize one temporal or spatial extreme over another. Often, what scale archaeologists emphasize in their work changes with the popular theoretical frameworks of their era. Evolutionary approaches of the mid-twentieth century told teleological stories of sweeping social change, whereas post-processual archaeologists of the 1980's and 1990's tended to focus on the details of individual moments in history. Numerous attempts have been made to combine multiple scales into single models of analysis (Hegmon 2003; Knapp 1992; Robb and Pauketat 2013) yet these conceptually fraught approaches often fall short of tackling the practicalities of interpreting archaeological data emerging from field surveys and excavations.

With a thousand years of occupational history and trade connections with locations throughout Mesoamerica, Fracción Mujular's story cannot be told without incorporating multiple scales of analysis. Small sites such as Fracción Mujular, however, are often left out of large-scale historical narratives. Traditional descriptions of long-term change have often emphasized major cities and royal cities, treating small sites and non-elites as the bystanders of history. In recent decades, an emerging focus on household and commoner archaeology has done much to incorporate non-elites into our understanding of the past. Informed by practice theory and post-structural anthropology, however, these approaches have tended to have a narrow temporal lens; explaining how commoners lived in specific moments, rather than building models for understanding social change through time. Likewise, the study of regional interactions has also given primacy to elite cities and market centers through which that interaction was often funneled. Discussions of peripheral areas tend to focus on asymmetries between distant regions, rather than commoner and elite divisions within any given area. Big histories, however, affected people living on all levels of society, and in the past just as today, globalizing processes had critical ramifications for both major city and rural areas. As will be discussed in the subsequent chapters of this dissertation, Fracción Mujular was clearly affected by such large-scale geopolitical processes, despite being a small site and non-elite center.

The primary goal of the chapter is to overview approaches to the archaeology of the large and small scale, with respect to approaches that will be useful for unpacking the history of Fracción Mujular. I first discuss models for understanding long-term change, with a focus on recent approaches that emphasize the importance of historical contingency and the role of commoners and marginal areas in periods of rapid social change. Next, I review archaeological models for regional interaction, focusing on recent calls for the study of ancient periods of globalization. Finally, I discuss approaches to household archaeology, with an emphasis on recent models for understanding differences in scale between neighborhoods, districts, and other types of communities in Mesoamerican cities. Throughout, I argue that the history of Mesoamerica can be told from the perspective of sites such as Fracción Mujular, as the geopolitical twists and turns of history affected small sites in ways that were just as significant as large ones.

Approaches to the Long Term

Fracción Mujular was occupied for over a thousand years, with an ephemeral presence dating to the Formative Period and major occupations dating to both the Late Classic and Postclassic (see Chapter 5). Over the course of this history, the region surrounding Cerro Bernal saw considerable change. Formative sites such as Perseverancia and Tzutuzculi collapsed, and the Early Classic centers of Iglesia Vieja and Los Horcones both rose and fell as regional powers. Fracción Mujular also saw considerable change, developing from a small hamlet under the influence of Los Horcones to a moderately sized independent residential center. Throughout this time Fracción Mujular also displayed considerable resilience, maintaining trade connections with Central Mexico over the course of several periods of regional economic instability. Change and continuity, therefore, are both central themes in the story of Fracción Mujular.

Archaeological approaches to studying long term change during the mid-20th century were dominated by approaches based in processual archaeology. Influenced by the neo-evolutionary anthropology of scholars such as Leslie White (White 1943), Morton Fried (1960, 1967), and Elman Service (1962), processual archaeologists sought to understand how human populations throughout the world developed from groups of mobile hunter-gatherers into many highly complex and stratified social systems. In order to address social evolution, processual archaeologists tended to focus on big questions such as the origins of agriculture, social inequality, and the state. Such efforts have greatly expanded our knowledge of the past, and these questions continue to be central to the study of archaeology today. Processual archaeology, however, has tended to take rather reductionist approaches to explaining change through time. Prime movers, such as graduate climate change or demographic pressure, have often been promoted as casual mechanisms at the cost of more nuanced or complex understandings of history (e.g. Johnson and Earle 1987). Additionally, a focus on single variables and the analysis of testable analysis tended to narrow archaeologist's focus to single sites, emphasizing autochthonous development over external influences or historical contingency. Unfortunately, attempts to address these problems by post-processual archaeologists during the 1980's and 1990's focused on incorporating individual agency in rich but temporally limited frameworks for the past (Hodder 1991; Leone 1996; Shanks and Tilley 1987), without presenting clear models for explaining long-term change.

Some of the longest-lasting and most impactful processual frameworks have been those that incorporate shifting or multi-scalar approaches in an attempt to avoid the pitfall of appearing overly reductionist or teleological. The concept of cycling between periods of integration and disintegration, for example, has long been popular in processual models (Anderson 1994; Marcus 1998). Such approaches explain how continued accumulation of wealth and power leads to periods of booms and busts in both small scale and state level societies. Likewise, models such as the dual-processualism (Blanton et al. 1996) posit the existence of different poles of social organization and suggest that societies can transition back and forth between them. Teotihuacan, for example, is described by Blanton et al. (1996) as a corporate society, with a more heterarcharical structure than that found in the contemporary Early Classic "network-oriented" Maya Kingdoms. Although these models are welcome modifications of previous processual approaches, they still work within an overarching evolutionary framework that tends to downplay both the role of individual agency as well as the importance of historical actions and events in effecting change through time.

More recently, historical-processual approaches have attempted to bridge the gap between long-term process and event-based history (Alt 2010; Pauketat 2007; Sassaman and Holly 2011). Following in the conceptual footsteps of Marx (1852)(1972) historical-processualists see the past as path dependent, with actors working within the constraints of historically inherited conditions and structural processes. Historical events and individual actions are given equal explanatory footing with long-term factors such as demographic stress and climate change; a move that Pauketat (2007) argues is necessary to place archaeologically studied cultures on the same footing as that of historically documented societies. The historical-processual approach is extremely useful for dealing with sites that exhibit long term change through time, punctuated by important historical events. Fracción Mujular, for example, could not be explained without accounting for the impact that the collapse of Teotihuacan had on the region of Cerro Bernal; an occurrence that would generally fall outside of most processual or evolutionary models. Building the kind of fine-grained information that is necessary for detailed historical analysis called for by historical-processualists, however, can often be a difficult task considering the real-world constraints of field archaeology.

Another historically based approach to understanding long-term change can be found in the *Annales* school of historical analysis. Most famously associated with Fernand Braudel (1972), the Annales approach examines the past through three different scales of analysis. The *histoire événementielle* is the smallest scale of analysis and covers major events and occurrences, as well as the day-to-day actions of individual lives. Next, the *conjuncture* covers the history of institutions, organizations, and political polities that take place on the scale of decades or centuries. Finally, the *longue durée* incorporates long term processes such as demographic pressure, climate change, and geological and environmental constraints. At Fracción Mujular, for example, the raising of individual stelae or the occupation of a given house may fall within the *histoire événementielle*, the rise and fall of neighboring polities such as Los Horcones would represent a *conjuncture*, while the long term shaping of regional trade by the geographical and environmental corridor of the Pacific Coast would function on the level of the *longue durée*. The multi-scalar approach offered by the *Annales* school has been usefully applied by numerous archaeologists (Bintliff 1991; Knapp 1992). As cautioned by Robb and Pauketat (2013), however, many archaeologists working in the *annales* framework have tended to emphasize the *longue durée* over other scales of analysis, facing the risk of falling into environmental reductionism.

Another multi-scalar approach to understanding long-term change can be found in Resiliency Theory, which came to archaeology largely from the field of conservation biology (Redman 2005; Redman and Kinzig 2003; Bradtmöller et al. 2017). Resiliency theory posits that socities exist in a cycling equilibrium between phases of rapid growth, conservation, collapse, and subsequent reorganization. Often used with relation to human exploitation of the environment, resiliency theory offers a useful heuristic for understanding cycles of collapse and subsequent stability. It should be noted, however, that such fluctuations are not experienced in the same way across all factions of society. Indeed, when we discuss social collapse, most analysis is often conducted on the level of ruling dynasties and elites. During the Terminal Classic Maya collapse, for example, isotopic data shows elite diets undergoing drastic change while commoner diets were relatively unaffected (Somerville et al. 2013). As the old saying goes, elites residing in their pyramids and palaces may simply have had farther to fall during times of crisis and stress.

The role of commoners and non-elite areas in processes of regional regeneration and resilience have been discussed in areas around the world (Schwartz and Nichols 2010). In the Near East, Cooper (2006) has argued that continuity in rural and commoner areas facilitated the regeneration of urban society following regional collapse during the Early Bronze period. Likewise, Van Buren (2000) has argued that commoners maintained ideological traditions during times of elite cultural collapse in the Andes. Many scholars writing from anarchic perspectives have also emphasized the continuity and resilience of small-scale communities. Currás and Sastre (2019) have argued that the egalitarian ethos of Iron Age agrarian societies in northwest Iberia buttressed those groups against the encroachment of aggressive outside forces. Likewise, Fowles (2010) describes how anarchic organization in the North American Southwest led to the resistance of concepts of hierarchy from outside areas. On a similar note, Clendinnen (1987) has also argued that the Spanish conquest of the Mayan region took considerably longer than in central Mexico due to the dispersed and more heterarchical nature of Mayan polities compared to the hierarchy of the Aztec Empire. As discussed by James Scott (2009), commoner strategies to resist elite control may work as buffers against collapse. Apparent dark ages, during which major centers collapse, may in fact have been periods of florescence for rural areas and non-elites. Such a scenario certainly fits with the history of Fracción Mujular, which seems to have undergone its greatest period of expansion following the collapse of the regional power of Los Horcones (See Chapter 6).

I would like to emphasize two common themes that emerge from more recent approaches to understanding long-term change in anthropology. One is the importance of accounting for historical contingency, or the fact that major events and happenings can greatly upset trajectories of social change. The role of historical events is heavily emphasized in historical-processual approaches, and comes through in the *histoire événementielle* in the *annales* school. The second theme is the usefulness of incorporating multiple scales of analysis, best exemplified by the Braudelian approach, but also seen in Pauketat and Robb's (2013) "history as multi-layered process", and some applications of resilience theory. Both of these themes will be important for understanding the history of Fracción Mujular. Situated on a natural trade corridor on the margins of several important historical regions, the site was heavily shaped by both its cultural and environmental landscape. On the other hand, residents of the site were forced to content with several key historical events, finding ways to continue life at the site over the course of several periods of inter-regional instability. Approaches to dealing with such regional interactions will be the subject of the next section of this chapter.

Approaches to the Large Scale

Human societies have always been on the move. From our dispersal throughout the world from Africa to the modern global economy, a near constant feature of human history has been the movement of goods, ideas, and people over both small and large distances. Archaeologists have always had to grapple with the exchange of goods across the landscape, as foreign artifacts often stand out amongst the material assemblages that we excavate. Approaches to understanding the importance of such imports, however, have been variable. Many mid-century processual archaeologists tended to downplay the roll of long-distance connections, preferring to see individual sites as closed systems where models for autochthonous social change could be tested. Such approaches often saw non-local artifacts as the result of ephemeral "down-the-line" (Renfrew 1975) trade rather than the result of intentional or sustained long-distance contacts. Another common assumption concerns the level at which any regional interaction occurred, suggesting that most long-distance contacts were between ruling elites (e.g. Marcus 2003) and had little if any affect on commoners. Neither of these assumptions made sense at Fracción Mujular; a small and relatively non-elite site whose inhabitants had a clear preference for long-distance trade with Central Mexico over closer polities in Guatemala. The following section reviews several useful approaches to the archaeology of the large-scale as well as pointing towards explanations for why such interactions seem to have been central to the human experience.

Early 20th century archaeologists placed the long-distance movement of ideas and peoples at the center of their models for social change. Key technological concepts and cultural traits, such as ceramic styles, mound architecture, or maize agriculture, were seen as originating at key places or moments in history and moving to different regions through either the spread of ideas or the movement of peoples. Childe (1925), for example, saw diffusion as a primary mechanism spreading new technologies and ideas throughout Bronze Age Europe. Likewise, Boas (1911) argued that North American cultures could be understood as interwoven tapestries of traits arising both from independent innovation and diffusion from adjacent peoples. Although diffusionism proved highly useful for understanding many periods of rapid change in prehistory, it rapidly fell out of favor with the development of procuessual archaeology in the 1960's, which sought to describe social change as the result of *in situ* adaptation to local environmental or economic conditions. Reacting against earlier racist and Eurocentric models, many mid-century archaeologists also sought to emphasize the developments of the indigenous cultures they studied, downplaying the idea that key cultural developments may have arrived from outside areas.

The early 21st century has seen a resurgence in interest in diffusion as a mechanism for social change and cultural interaction, with neo-diffusionists arguing that a rich ethnohistoric and archaeological record shows ample evidence for the wide-spread movement of both goods and ideas in the ancient past (Jones and Klar 2005; Kehoe 2002, 2010). Important innovations such as maize agriculture (Matsuoka et al. 2002), and the bow and arrow (Bettinger and Eerkens 1999; Kennett et al. 2013), are well documented as having spread across the North American continent from single origins, carrying with them wide-spread social implications. Even mound architecture, once held up as a key example of independent innovation, is now thought to have originated in the American Southeast before spreading from there to other areas of North and Central America (Pauketat 2007). Significant quantities of goods are also known to have moved large distances, interlinking the economies of adjacent areas (Smith and Fauvelle 2015). Ethnohistoric sources show the wide spread movement of people and ideas, with Nahuatl spoken in regions as far north as Kansas during the late Postclassic (Kehoe 2002), and individuals from coastal California regularly traveling to the Colorado river region of the American Southwest (Flint and Flint 2012). It is now clear that both goods and people traveled great distances in the prehistoric Americas, and that these movements had important social and political implications.

One of the most popular models for understanding the movement of goods and people across the ancient landscape is the World-Systems approach, most famously advocated by Wallerstein (1974). Drawing on Frank's (1966) critiques of development theory, and the broad historical perspective of Braudel (1972), Wallerstein developed World-Systems Theory to explain the mechanisms behind the economic development of Europe during the modern era. The application of World-Systems analysis was expanded to prehistoric case studies by Schneider (1977), who correctly emphasized the importance of long-distance trade in prestige goods and preciosities for ancient economies. Traditionally, World-Systems studies have focused on understanding the relationship between resource-consuming core regions and resource-producing peripheral areas. The core is the most complex component of the system, and is the most politically and economically complex, specializing in the production of labor intensive, value added, finished goods which are exported to other parts of the system. In turn, the periphery specializes in the production of raw resources for export to the core, often with a low return on labor inputs. Semiperipheries act as buffer regions, with close ties to the core yet a considerable degree of economic autonomy.

A related but also very different approach can be found in the World Systems model of Andre Gunder Frank and Barry Gills (Frank and Gills 2000; Frank 1998, 1993; Gills and Frank 1991). Frank and Gills distinguish their model from that of Wallerstein through the lack of a hyphen. For Frank and Gills (1990, 1991),there has only been a single world system; an interlocked system of accumulation that slowly grew in size and scale until it incorporated polities across the globe. As seen by Frank and Gills, this world system is not characterized by clearly demarcated zones as argued by Wallenstein (1974:100-108), but instead is comprised of multiple interacting and interlinked polities. Frank and Gills argue that centers of accumulation have existed throughout history, but that these core regions have shifted within the overarching world-system, originating in the Near East, primarily settling in Asia, and only recently having temporarily shifted to north Atlantic Europe. Rather than positing a static division of labor between hierarchically organized geographical regions, therefore, Frank and Gills propose a more fluid and open model, where varying realtionships between multiple areas impact social developments across a known world.

Currently, there are a wide array of approaches to World-Systems analysis, and the perspective has been applied to case studies from around the world (Algaze 1989, 2005; Blanton and Feinman 1984; Peregrine et al. 1996; Chase-Dunn and Hall 1991; Kardulias 1999; Levy 2006; Levy et al. 1997; Schortman and Urban 1994, 1992). Most contemporary applications of the World-Systems approach have modified the original versions employed by Wallerstein in order to adapt to specific historic or regional case studies. In a similar fashion to Gills and Frank (1991), for example, Chase-Dunn and Hall (1991, 1993) have argued for the existence of multiple overlapping world-systems, consisting of polities engaged in various degrees of symmetrical and asymmetrical trade (1993:856). Another modified version of World-Systems analysis can be found in Kristiensen's (Kristiansen and Larsson 2005; Kristiansen 1998) work on the European Bronze Age, which takes a multi-scalar approach to examining different kinds of relationships between cores and their peripheries. As Hall and colleagues (2011:238) have pointed out, as the number of approaches to World-Systems analysis expands, scholars have tended to describe the approach as a "perspective", rather than a "theory", in order to account for the wider range of usage. Hall et al. (2011:239) prefer to describe World-Systems analysis as a paradigm, which they describe as a "model for asking questions" based on a shared and coherent body of assumptions and perspectives.

Criticisms of World-Systems approaches generally cluster around two key issues. First, since the model was explicitly developed to describe the modern world-system, scholars have contended that its use for past societies incorrectly casts a diverse array of ancient peoples as acting in accordance with modern capitalist economic behavior (Jennings 2011; Kohl 1987;

Stein 1999). This is a problem that was acknowledged by Wallerstein himself (1991), but has been critiqued by advocates of world-systemic approaches who argue that the ramifications of prehistoric economic behavior can parallel modern patterns (Algaze 2005; Gills and Frank 1991; Hall et al. 2011). A second line of criticism focuses on the emphasis placed on core regions in macro-systemic explanations for social change (Stein 2002, 1999). The terms of "core" and "periphery" have themselves been described as presupposing the agentive primacy of cosmopolitan centers in organizing regional interactions (Stein 2002). These problems have caused Stein (2002) to distinguish between "top-down" perspectives that emphasize macro-scale changes from "bottom-up" approaches that focus on local agency and group dynamics. Although Stein correctly argues that both approaches are needed to understand interaction, the bottom-up approach is especially useful for dealing with issues of cultural and political affiliation in past societies.

Perhaps due to the many criticisms of the use of world-systems analysis in archaeological case-studies, some recent attempts to grapple with long-distance connections have chosen to avoid the debate entirely and couch their arguments in new terminology. Pauketat (2007), for example, has called for archaeologists to build a "Big History" of North America, which accounts all the various movements, events, and actions that shaped shared experiences of people across the continent (c.f. Christian 2011; Spier 2015). For Pauketat, such detailed yet sweeping history is needed to place the past of the America's on the same footing as Europe or Asia. No historian of would attempt to tell the story of the 19th century without accounting in some way for the individual actions of Napoleon, or the widespread revolutions of 1848. Likewise, a historical-processualist approach would argue that the history of Mesoamerica would need to weave important events such as the destruction of Cuicuilco by the eruption of the Xitle volcano or the arrival of Siyaj K'ak' at Tikal into a similar wide-ranging historical narrative. Attempts to realize this approach can be found in the work of Peregrine and Lekson (2004; 2012), who describe Central Mexico, the American Southwest, and the Mississppi region as forming an inter-connected North American Oikoumene during the second half of the first millennium. Smith and Fauvelle (2015) adopt a similar approach in examining connections between coastal California and the American Southwest, describing both regions as forming the western edge of a North American Continental System of interaction.

Another archaeological approach to long-distance interaction that more explicitly traces its roots to the World-Systems model describes past periods of integration as "Ancient Globalizations." This approach has been most clearly articulated by Justin Jennings (2011), who argues that periods characterized by both heavy increases in long-distance interactions, together with what he calls a "global culture," should qualify as periods of ancient globalization. Similar to Gills and Frank (1990), Jennings sees periods of globalization as having occurred in many different times and places through history, pointing to periods of integration such as the Wari expansion in Peru and Teotihuacan's wide-ranging influence in Mesoamerica as examples. According to Jennings (2011), ancient globalizations are characterized by two primary phenomena: a strong increase in regional interactions and integration, as well as the existence of a shared regional discourse or "Global Culture". Jennings (2011:121-242) describes the formation of global cultures as a complex process involving a combination of eight criteria including space time compression, deterritorialization, standardization, unevenness in connectivity, homogenization through space, cultural heterogeneity, the re-embedding of local culture, and vulnerability to collapse. For Jennings, ancient globalizations do not need to be top-down phenomena, and he suggests that many non-state examples of ancient interactions, such as wide use of Venus Figurines during the Upper Paleolothic in Europe as possible evidence for periods of Ancient Globalization (Jennings 2011:17). Likewise, it is clear that Jennings' concept of ancient globalizations applies not just to interactions between major centers, but also encompasses developments in smaller sites such as Fracción Mujular.

The Ancient Globalizations approach outlined by Jennings (2011) has recently been applied to a range of case studies from throughout the world in an extensive volume edited by Hodos (2017). Case studies range from Jomon period Korea and Japan (Bausch 2017), to Formative period Mesoamerica (Rosenswig 2017), to medieval West Africa (MacEachern 2017). In the introduction to this volume Hodos (2017a:4) describes globalization is a "process of increasing connectivities that unfold and manifest as social awareness of those connectivities." The emphasis on social awareness is important, as it shows how globalization is a transformative phenomena that affects all levels of society. Indeed, one important advantage of these approaches for understanding the history of Fracción Mujular is that they do not bias elite culture in their interpretation of regional integration. Much like our contemporary period of globalization, these theorists see ancient globalizations as encompassing society-wide phenomena, affecting commoners and rural populations in different but no-less intense ways than elites and urban centers.

A final question involves what drove people in the past to travel and maintain contacts over such great distances and at what could have been considerable personal risk. Some, such as Alice Kehoe (2002), point to the innate desire for travel and exploration which she sees as central do being human (see also Smith 1778:16). Others, such as those working under the World-Systems framework, are more likely to point to the economic benefit of acquiring unavailable resources or buffering their environment against the possibility of localized resource shortages. An alternative explanation is provided by Mary Helms (1979, 1998, 1993), who emphasizes that the knowledge of distant places can be just as important as the goods that one might acquire from them. Writing from the perspective of ancient Panama, Helms argues that the esoteric knowledge gained by chiefs during long-distance travel was used to reinforce differences between elites and commoners. The importance of such esoteric knowledge, and the prestige that comes with being associated with distant places, is a concept that likely has a strong amount of cross-cultural validity. Although Helms mainly writes about the desire for elites to maintain such networks, it is also likely to apply across all levels of society. Pilgrimages, heirlooms, and stories of distant places were shared not only by elites, but also by commoners from societies around the world and throughout history. Evidence for the importance of understanding and knowledge of distant places at small scale settlements can be found at places like Fracción Mujular, where there is both artistic and material evidence of long-term connections with distant places from across Mesoamerica.

Approaches to the small scale

Many approaches to understanding both long-term change and long-distance interaction emphasize the importance of building detailed historical narratives. In order to build such stories, many archaeologists turn to household archaeology. The study of households is one of the main ways in which archaeologists can move beyond macro-scale models of ancient behavior and approach a more nuanced understanding of daily life. Scholars working in Mesoamerica have long been on the forefront of household archaeology, developing many methodological and theoretical case studies employed by archaeologists around the world

(Carballo 2011; Flannery 1976; Netting et al. 1984; Robin 2003; Santley and Hirth 1993; Wilk and Ashmore 1988). Despite their central role in organizing most societies, it is important to recognize that households are also dynamic locations of political and factional contestation (Bowser and Patton 2004; Lyons 2007). Therefore, investigations of ancient households need to focus on the roles and activities conducted in domestic areas without presupposing their function (Hendon 1996; Pauketat 2007). The following section will briefly explore means of identifying households in the archaeological record, discuss some of the analyses that can be brought to bear on household studies, and examine how groups of households can usefully be examined as communities and neighborhoods.

Definitions of households vary depending on the theoretical frameworks used to describe them (Carballo 2011; Rapoport 1969; Wilk and Rathje 1982). A popular definition comes from Hammel (1984) and defines the household as a "task-oriented, co-resident, and symbolically meaningful group" that forms "the next bigger thing on the social map after an individual." Identifying households as task-oriented and co-resident groups reduces some degree of nuance found in the ethnographic literature (e.g. Bender 1967), but allows archaeologists to usefully investigate households through the excavation of domestic structures. The organization and layout of domestic buildings varies considerably between the highland areas of Central Mexico and the lowlands of southern Mesoamerica (Carballo 2011; Robin 2003; Santley and Hirth 1993). In general, however, Mesoamerican houses are often identified as relatively small mounds (Ashmore and Wilk 1988), sometimes clustered around shared patios or work areas (Flannery 1976). As will be discussed in greater detail in chapter 4, the plaza groups found at Group D and especially Group C at Fracción Mujular fit both of these characteristics, making them near text-book examples of Mesoamerican domestic plaza groupings.

After the household, the next largest unit of social organization in ancient Mesoamerica was the community, district, or neighborhood (Arnauld et al. 2012; Canuto and Yaeger 2000; Flannery 1976). Starting from the largest scale, communities are sets of super-household interactions characterized by a shared sense of identity and place (Anderson 1991; Yaeger and Canuto 2000). Within an urban community, districts form residential zones that carry an additional degree of administrative function or identity (Smith 2010; Smith and Novic 2012). Finally, neighborhoods are somewhat smaller residential areas characterized by a strong degree of face-to-face interaction (Smith 2010; Smith and Novic 2012). While it seems likely that Fracción Mujular formed a community with the nearby site of Los Horcones, the site seems to have been relatively small and lacking in public architecture during the Early Classic. This makes Fracción Mujular unlikely to have been a neighborhood or district of Los Horcones, and more likely to have been a second or third tier outlying settlement. A discussion on the relationship between Fracción Mujular and Los Horcones, drawing on the results of our excavations and survey, can be found in Chapter 6.

Archaeological investigations of households can range from full exposures of house floors and task areas, to targeted test excavations designed to uncover domestic refuse. At Fracción Mujular we did not have permission to excavate inside of structures, but instead sought to find middens associated with each structure. The excavation of middens associated with households is an excellent way to obtain data on the consumption of different types of materials in ancient societies (Hayden and Cannon 1984). Excavations in other parts of Mesoamerica have shown that sounding wells located on the flanks of structures are a good way to collect representative samples of cultural material (Scarborough and Robertson 1986). Refuse is often discarded outside of houses, accumulating in areas outside of plaza groups (Hayden and Cannon 1983). In order to recover as much domestic material as possible, we targeted our excavations on the flanks of structures, placing test pits on the centerlines of housemounds both inside and outside of the central plaza spaces. This strategy was successful in recovering large amounts of materials, through which we are able to begin telling the story of Fracción Mujular (See Chapter 5).

Big History at a Small Site

Fracción Mujular is not the typical site for sweeping archaeological narratives of either time or space; it was neither a royal seat nor a primary trade center. Our investigations targeting several of the site's ancient households, however, shows that the settlement has a large story to tell. Although it never became a major center, Fracción Mujular was occupied for over one thousand years, lasting throughout several periods of Mesoamerican history. Part of this longevity was likely due to its natural location on the major trade route of the Pacific Coast, coupled with a relatively protected position on the rugged slopes of Cerro Bernal. Similar geographical and cultural characteristics, however, did not help the much larger center of Los Horcones, which collapsed shortly after the fall of Teotihuacan. Fracción Mujular's considerable resilience, in fact, may have been due to its small size. Although larger sites such as Los Horcones was clearly closely interlinked with the fate of foreign powers such as Teotihuacan, small settlements such as Fracción Mujular may have had greater freedom to choose their trading partners, forging new relationships as previously powerful interlocutors collapsed.

Over the course of its history, Fracción Mujular was connected with numerous distant trading partners. Two stelae with possible calendar dates were likely erected to mark early construction at the site during the 6th century. Carved in a style attributed to Central Mexico, they show the clear cultural influence that Teotihuacan had over the site during its early history; a detail also supported by the overwhelming predominance of obsidian imported from the Pachuca source controlled by Teotihuacan (See Chapters 5 and 6). During the Late Classic, however, Fracción Mujular seems to have developed similar trade relations with new economic powers in either Central Mexico or the Gulf Coast, importing large amounts of obsidian from the Zaragoza source located in modern day Puebla. Over the course of many centuries, therefore, the inhabitants of Fracción Mujular showed a preference for trade connections with Central Mexico over more nearby polities in Chiapas or Guatemala, changing trading partners with the shifting winds of history. These long-distance connections affected both economic choices and artistic styles, suggesting that at least during some periods, Fracción Mujular may have participated in shared culture in economic integration similar to that discussed by world systems and globalization theorists such as Jennings and Gunder-Frank.

The history of Fracción Mujular can in many ways be seen as telling the story of Mesoamerica writ large. Important events, such as the collapse of Teotihuacan and the rise of other Central Mexican trade powers can all be seen in the material record of the site. On the other hand, Fracción Mujular’s story is clearly it’s own; the site persisted for over a thousand years despite periods of considerable regional turmoil. The people of Fracción Mujular were an active participants in many aspects of this history, choosing trading partners and how to interact with many key events. Sites such as Fracción Mujular thus can tell us much about geopolitics and global history despite their small and non-elite nature. Moreover it should be clear that small-scale sites are important for elite and global history just as elites are important for commoner and rural history. In the following two chapters I will describe the results of our surveys, excavations, and laboratory analysis at the site of Fracción Mujular that form the basis for the story that we can now tell about this small settlement on the slopes of Cerro Bernal.

Chapter Four

BUILDING A HISTORY FOR FRACCIÓN MUJULAR: SURVEY AND EXCAVATION

I first visited the site of Fracción Mujular together with Claudia García Des Lauriers during the summer of 2014, while in Chiapas searching for sites where I could do my dissertation fieldwork. Fracción Mujular was the last site that we visited that day, and the afternoon storm clouds were already gathering around the peaks of Cerro Bernal, promising an imminent downpour and giving us a sense of hurried urgency. We reached the site by way of a partially paved road which turns off the *Carretera Pacífico*, first passing through the monumental site of Los Horcones, and then winding up the increasingly steep slopes of Cerro Bernal until we were about half way up the mountain. On our first visit, we parked our car by the ranch of the late Don Felix de los Santos; the last location along the road that can be reasonably accessed without a four wheel drive. After securing permission to proceed through Don Feilx' gate, we continued on foot up a steep dirt road through grassy cattle fields, listening to the sounds of the *ganaderos* calling their cows drifting across the rolling hills. We reached the site as the first rain drops began to fall, coming around a bend in the road and seeing a wide flat terrace perched against the side of the mountain. Against a backdrop of sweeping views of the Sierra Madre, a cluster of small mounds were immediately visible, along with numerous stone slabs and basin metates. We could immediately see that the mounds were arranged in a rectangle around a central plaza; a clear example of a modest Mesoamerican residential group.

I returned to Fracción Mujular several weeks later, after having centered on the site as the best candidate for my dissertation work. I met with Don Felix and his wife, Doña Lourdes, in the shade on the patio outside their house, where we sipped freshly made watermelon juice while discussing the possibility and logistics of conducting archaeological fieldwork on the property of their ranch. I returned another four times over the following years, spending a total of 10 months doing survey, excavation, and subsequent laboratory work. I was initially attracted to the site due to its clear residential nature, thinking it to be an outlying domestic neighborhood associated with the larger site of Los Horcones. I was also interested in the role played by Teotihuacan at the site; two carved stela with Teotihuacan style iconography still stand by the driveway of Don Felix' house. Over the course of my investigations I found the site to be much more complex than I originally anticipated, with a long occupational history spanning over one thousand years. This chapter details the fieldwork that my team and I carried out at Fracción Mujular, focusing on my survey season in 2015 and my excavation season in 2017. For full accounts of these seasons of fieldwork, please refer to my two official reports to the Consejo de Arqueología (Fauvelle 2016, 2018). In the following chapter (Chapter 5) I will discuss my analysis of the artifacts that we recovered.

Survey and Surface Collection

The first season of fieldwork at the site of Fracción Mujular was carried out during the summer of 2015 with permission from the Consejo de Arquologia and funds from the University of California Institute for Mexico and the United States (UCSMEXUS) and the UCSD international center. As this was the first season of fieldwork, this project had two goals: 1) to create an architectural and topographical map of the site, and 2) to conduct limited surface collections to determine the basic chronology of the site and to identify any functional differences between occupation groups. Survey work took place during the months of July and

August, with a field crew comprised of Omar Leopoldo Molina Hernández from the Universidad de Ciencias y Artes de Chiapas, and Hans Hubbard from the University of Cambridge. We were also assisted in the field by José Alfredo Zavala Lopez from the community of San Francisco Tonala. Laboratory analysis took place at the New World Archaeological Foundation laboratory in San Cristobal de Las Casas, with assistance from Karleen Ronsario from California State University, Northridge. Our work produced a topographical map of Fracción Mujular (Figure 4.1), found the first evidence of a Post Classic occupation on Cerro Bernal, and strengthened our understanding of Early Classic connections between coastal Chiapas and Central Mexico.

The primary goal of the 2015 field season was to produce a map of the site of Fracción Mujular. This included both the mapping of architectural features as well as the topographic mapping of the areas around each occupation group. Mapping was conducted with a TopCon GTS229 total station and a TDS Recon data collector. Most mapping was conducted by a crew consisting of Omar Leopoldo Molina Hernández, Hans Hubbard, and José Alfredo Zavala Lopez, supervised by Mikael Fauvelle. Groups were identified by walking along ridgelines searching for mounds, as well as by speaking with local ranchers. Groups were named alphabetically in the order in which they were identified. Work at each group started with topography, during the course of which most mounds and architectural features were identified. Following topographic mapping, architectural features were mapped separately. The datum for Fracción Mujular was established on the top of the south mound of the ball court found in group A. This datum was set using concrete and a steel nail. The following section presents maps of each group as well as summaries of their architectural features. All maps are set to magnetic north, and all contour lines of group maps indicate 50 cm intervals. Contour lines on the overall site map indicate 20 meter intervals (See Figure 4.1). The following paragraphs describe the results from our mapping project in the four groups we identified at the site.

Group A

Group A was the first group that was surveyed for our project (Figure 4.2). This group seems to have been primarily public in nature, and is situated along a ridge with steep sides to north and south. The main architectural feature of this group is a ballcourt that is approximately 50 meters in length, and a large mound located on the same axis as the ballcourt. Together with the other ballcourts at Los Horcones (García-Des Lauriers 2007, 2012a), the discovery of this ballcourt brings the total for Cerro Bernal to seven; a large number by almost any standard. The Fracción Mujular ballcourt seems to have served as a portal through which individuals would have passed to access the plaza spaces on each side. The ballcourt has constructed steps on the interior side of the central axis of each mound. The two mounds of the ballcourt were designated as Group A structures 1 and 2. Group A structure 3 is a long platform extending from the north side of the south ballcourt mound. This structure is marked by visible stone architecture on the north end. It is possible that a similar structure extended from the north ballcourt mound, but has eroded into the very steep valley that marks the northwest side of this group. Structure 4 is a large and well-constructed mound located along the central axis of this group. It is characterized by large and well-cut stone architecture, and is approximately three meters in height. From the top of this mound there is a good view of the valley between Cerro Bernal and the Sierra Madre of Chiapas. South of the ballcourt there is a narrow plaza characterized by a well preserved retaining wall. Several other small retaining walls exist around the site.

The presence of a ballcourt, the symmetrical nature of the group's organization, and the monumental nature of structure 4 all indicate that this was a non-domestic space. The area in between the ballcourt and structure 4 would also have been very difficult to access due to the steep topography, and was likely only accessible by passing through the ballcourt. The public/ritual nature of this group was corroborated by surface collections, which found very few artifacts in this area, also indicating that it was not a domestic space. All of these characteristics indicate that Group A was likely a ritual space.

Group B

Group B is a small group consisting of just two mounds (Figure 4.3). This group was found while hiking the ridgeline between groups A and C looking for a place to establish a total station control point. From Group B it is easily possible to see all of the other occupation groups of Fracción Mujular. This is probably not a coincidence, and it is very likely that Group B was constructed as a lookout point. In fact, Group B has the best views of any place in Fracción Mujular. Structure 1 is the best constructed and seems to have been built in two construction sequences, with a front patio or retaining wall on the northeast side. All artifacts found in Group B were found around structure one. Structure 2 is poorly constructed and may have only served as a lookout location.

Group C

Group C is divided into Group C West and Group C East by a deep ravine. Both loci of Group C are situated on unusually flat areas which we initially thought to be natural but were found to have been artificially raised during excavation. A modern dirt road cuts through all of group C. Group C West is comprised of a single mound that has been cut in half by the modern road, as well a stone wall of unknown function. Group C East is characterized by 7 structures, including 5 mounds and 2 platforms constructed against a hill. Both loci are set against steep topography on their southwestern side. Concrete datums were established at each locus, on at CP8 and one at CP11.

Group C West is comprised of a single mound of modest size, the south side of which has been completely destroyed by the modern road. Systematic 2x2 meter surface collections were conducted along this road cut, yielding a large amount of cultural material, much of which was domestic in nature. The domestic nature of this area was corroborated by the presence of 7 mortars and 7 whole or fragmented metates. Additionally, a spindle whorl collected in the wash to the east of the site is indicative of a domestic area. A broken tohil plumbate effigy jar as well as obsidian blades with ground and pecked platforms indicate a possible post classic occupation in this area which was confirmed during excavation (see below). Two walls located north of this mound may have been foundations of a structure, or could be small retaining walls.

Group C East is comprised of a set of 7 structures arranged around a modest plaza. Of these, structures 1, 2, 3, 4, and 5 are mounds, while structures 6 and 7 are platforms constructed against the hillside. The plaza on which these mounds were constructed is leveled and substantially raised, and there is a large retaining wall on the northeast side. Like mound 1 at Group C West, structures 3 and 4 at Group C East have been damaged by road construction. During surface collection the domestic nature of this group was supported not only by the organization of the mounds, but also by the presence of 5 metates and 11 morteros. Many of the morteros are located immediately southeast of the site, in an arroyo with water. Some are also located at the top of the hill immediately southwest of the group and may have served a ritual function. The symmetry of the site seems to suggest that there should be a structure in the north corner of the plaza, where there is indeed a small rise in the topography. From a close inspection of the surface, however, this small hill seems to be entirely natural.

This group is characterized by three large stone altars. Altars 1 and 3 are made from large rectangularity cut stones, over a meter in size. According to Don Ausencio Zambarno, a local rancher who participated in Carlos Navarette's early expeditions, two of the Stelae from Fracción Mujular, likely stelae 1 and 2, were found in this group. Because of this it is possible that these large rectangular stones served as altars for these two stelae. A circular altar was also found in direct association with a buried zoomorphic sculpture. As this sculpture was buried it is difficult to determine what it represents, but it may be an amphibian sculpture similar to ones found at nearby Iglesia Vieja. The INAH centro in Chiapas was notified of the discovery of this sculpture, and the director of the museum, Fanny Lopez, visited the site to photograph and document it.

Group D

Group D is the largest most impression group at Fracción Mujular. It consists of 10 mapped structures, most of which surround a large public plaza. A very large seiba tree grows from the center of the plaza, giving it the local name "La Pochota." The site is characterized by a relatively flat area south of a dry arroyo. This area was leveled and turned into a plaza, with a large retaining wall characterizing the south side of the plaza. The north side of the plaza is marked by structures 4 and 5, as well as the dry arroyo. North of the arroyo is a relatively flat hill, which seems to lack any architecture. Many metates and surface ceramics were found in this area, however. Northwest of the group is a natural hill with structure 10 situated about half way up the hill. It is possible that additional platforms and terracing could be found on this hill, although heavy underbrush made surveying in this area difficult. A large number of mortars and metates were found north of this hill, as well as near a creek to the west of the site. It is likely that these areas were characterized by small non-elite dwellings, or possibly activity areas associated with domestic housework. This is also corroborated by a spindle whorl found near the creek east of the Group D plaza. A total of 17 formed metates and 36 morteros were found in Group D, strongly indicating that domestic functions to place here. The more monumental nature of its architecture initially made us think that Group D was of higher stature than Group C, although following excavations the difference between these two areas was shown to be largely temporal. A concrete datum was established at CP14.

Conclusions from Survey

Before the present project almost everything that was known about the site of Fracción Mujular came from its three stela, studied decades ago by Carlos Navarrete (1976, 1986). The goals of the 2015 field season were to expand this very basic knowledge by creating a map of the site and conducting surface collections to begin to determine the site's function and its chronological affiliation. Both of these goals were accomplished. The site map shows four occupation groups, each with different characteristics. Group A contains a newly identified ballcourt and seems to have had a public/ritual function. Group B was probably a lookout platform. Group C is a small domestic group. Group D is a domestic group with more monumental architecture. The domestic nature of Groups C and D were also supported by our surface collections, which found domestic ceramics, spindle whorls, and multiple metates in each of these two areas. Based on our survey, therefore, we determined that Fracción Mujular was primarily domestic in nature, but also had some public functions.

Based on our surface collections we were able to determine that Fracción Mujular persisted past the collapse of Los Horcones. The presence of plumbate ceramics, as well as obsidian blades with ground and pecked platforms, both indicated that the site had a substantial Postclassic component. Early Classic ceramics were also found, however, making the exact chronology of the site difficult to ascertain without excavations. While greatly expanding our knowledge of the site's layout, our survey thus raised almost as many questions as it answered.

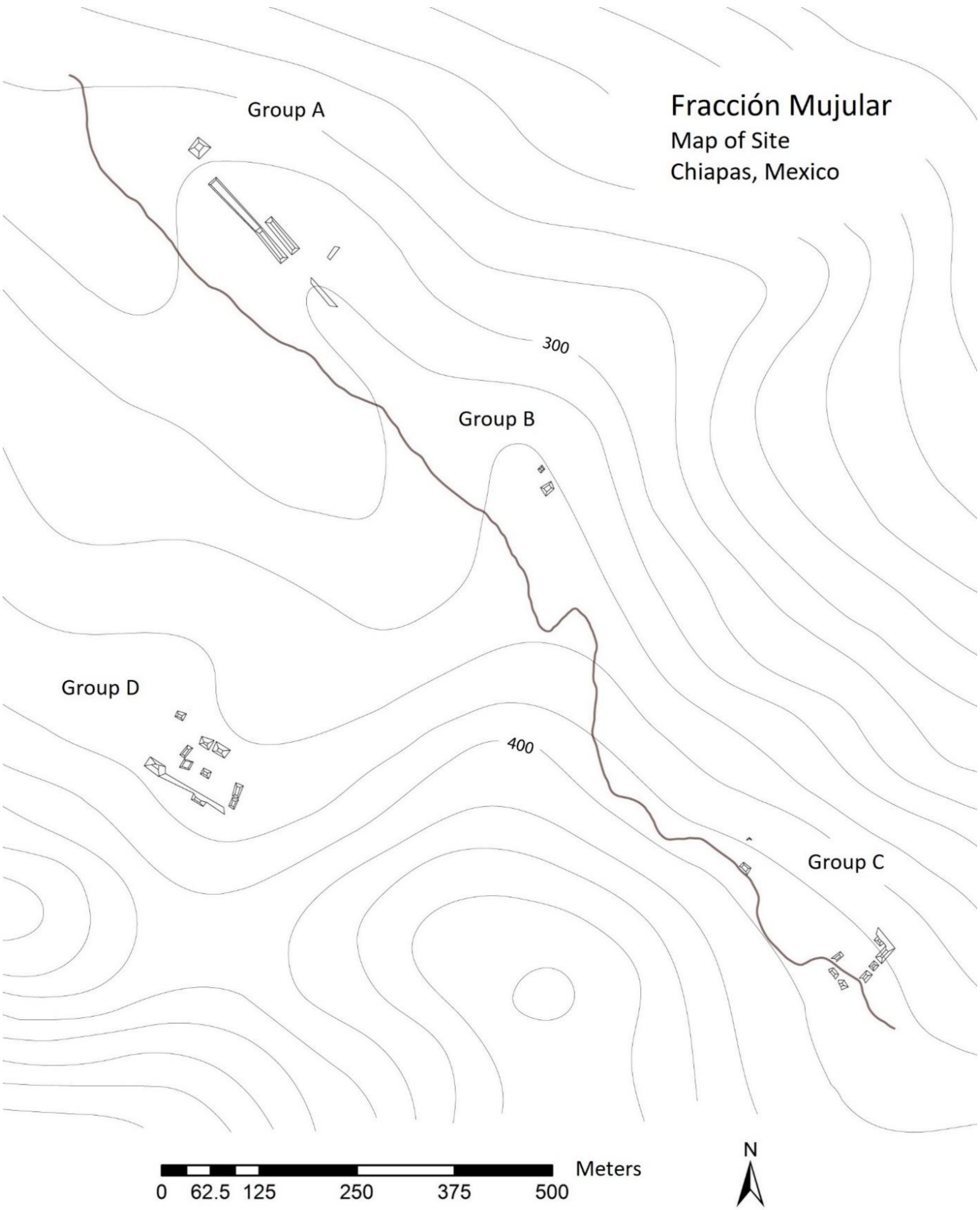


Figure 4.1: Map of Fracción Mujular

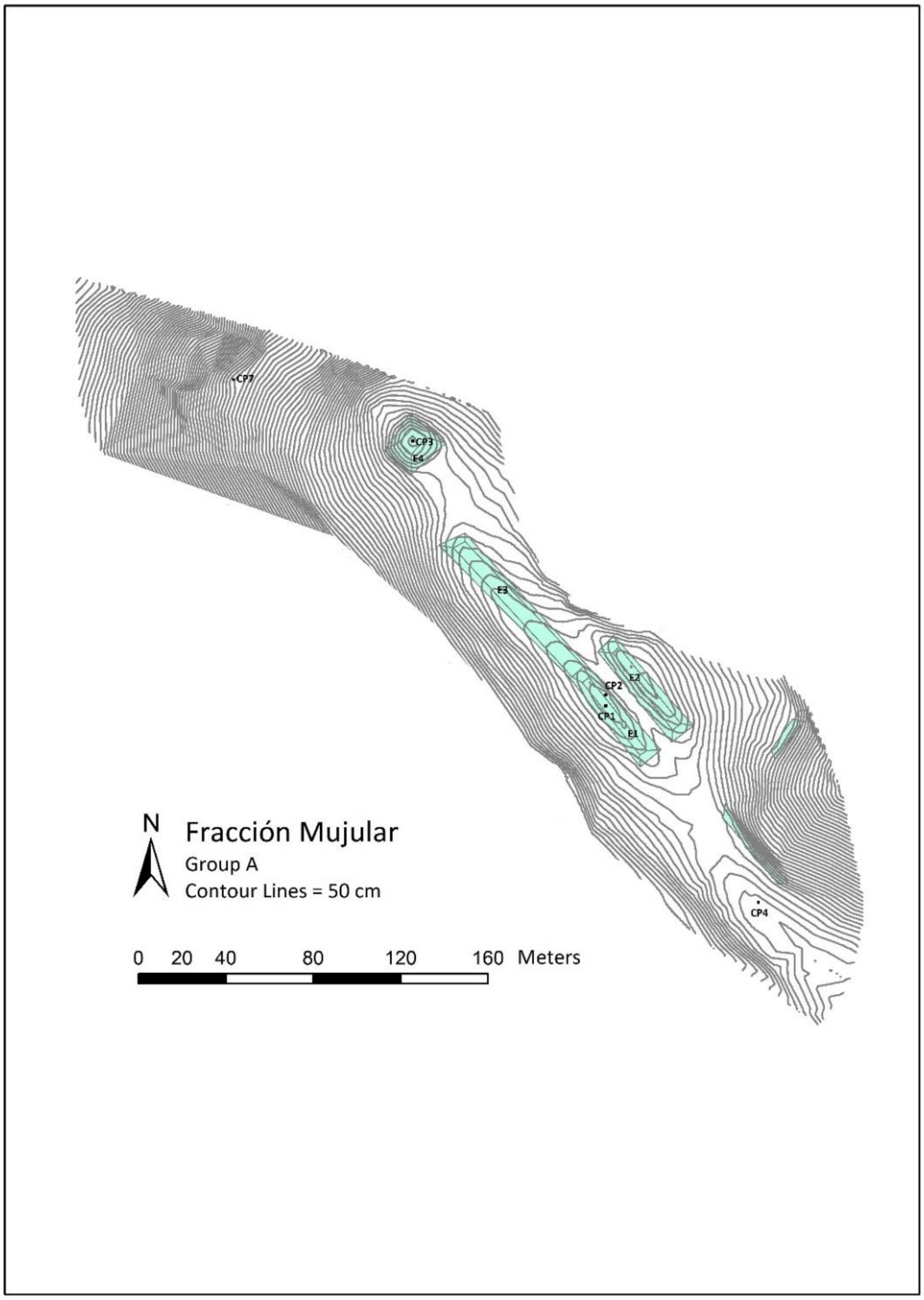


Figure 4.2: Map of Group A

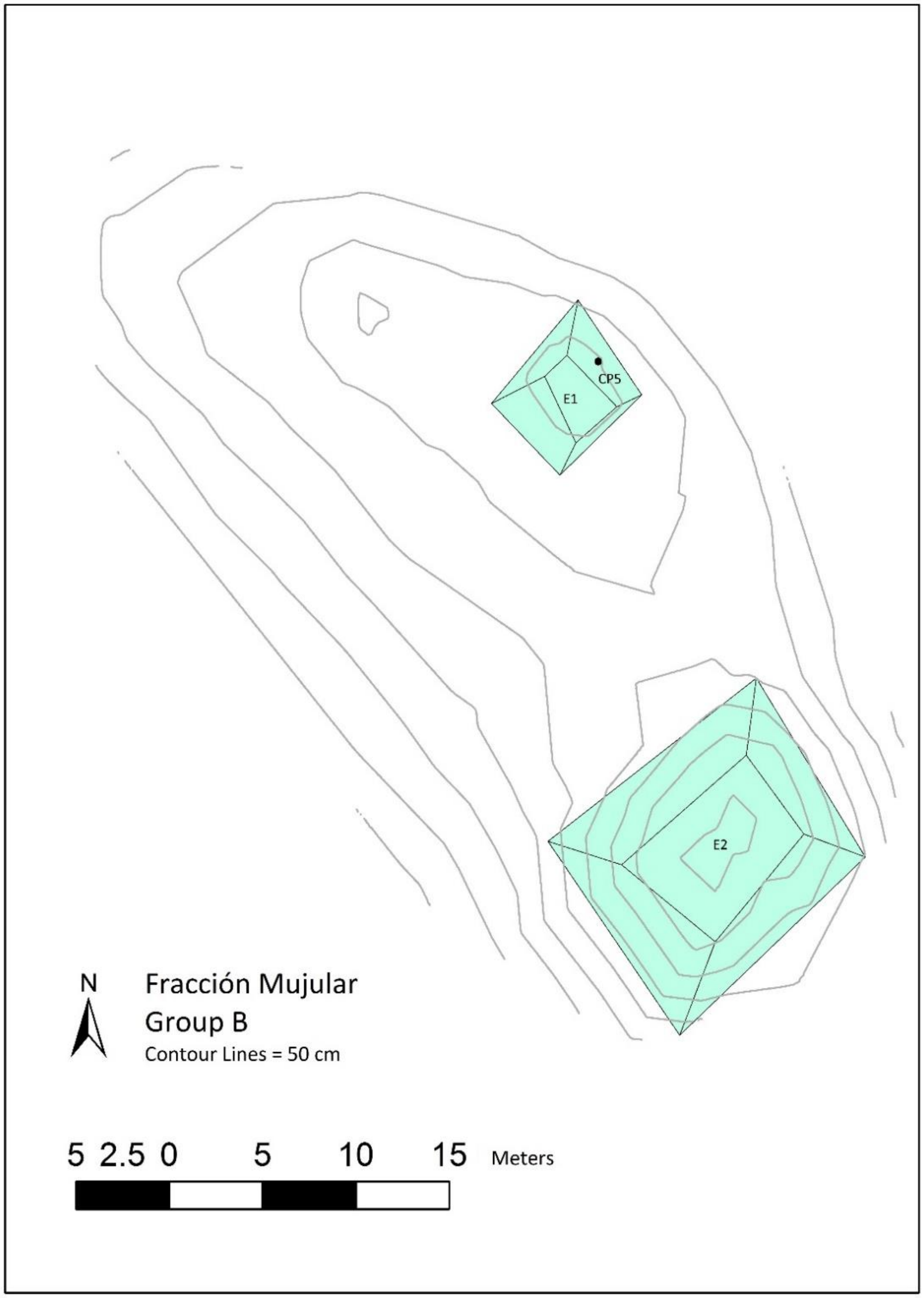


Figure 4.3: Map of Group B

Introduction to Excavations

Our second season of fieldwork was initiated during the winter of 2017 with support from the National Science Foundation of the United States and renewed permission from the Consejo de Arqueología. Excavations during the 2017 field season took place during the months of January, February, and March. I supervised all excavations as the director of the project, while individual units were excavated under the oversight of either Omar Molina or Darwin Velazquez, both archaeology students from UNICACH. Work was conducted by a team of 8 workmen from the community of San Francisco, including Elmer Lopez Alvarez, José Lopez Alvarez, Carlos Isai Pareyra Beltrán, Moises Beltrán Naturi, Francisco Ruiz Hernádez, José Alfredo Zavala Lopez, Elisio Lopez Quezada, and Elisio Lopez Alvarez. All units were placed on the sides of mounds with the goal of evading architecture. One exception to this was a 12 x 1 meter trench that was excavated along the side of a previously existing road cut. All test pits were initially opened as 2 x 2 meter units, and two were later expanded in order to investigate specific features. Most units were dug in arbitrary 10 centimeter levels, although 20 centimeter levels were occasionally dug depending on the conditions of the excavation. Sometimes levels were also dug to expose stratigraphic features. All excavated soils were screened through a 1/4th inch (6.35 mm) mesh. Carbon samples were point plotted and collected in tinfoil containers for AMS analysis. Ceramic body sherds of a size smaller than a 10 peso coin (circa 2.8 cm) were not collected, but all other cultural artifacts were recorded and collected.

Investigations at Fracción Mujular use a modified version of the Tikal System in order to record provenience. This consists of dividing collections into operations, suboperations, and lots. For the purposes of this season, each mound was designated as an independent operation, designated by the letters corresponding to the mound's occupation group and the number of the mound within that group. Surface collections were designated as "RS" standing for "Recoleccion de Superficie". Suboperations were designated by numbers corresponding to the number of the excavation associated with each mound. Finally, lots correspond with excavation levels within each unit. For example, the trinomial D5-1-2 would indicate the second excavation level from unit number one associated with mound five within plaza group D. The following section describes in detail the excavations that were conducted at Fracción Mujular during 2017.

Excavations in Group C West

As discussed in the survey section, Group C West consists of a single mound between one and two meters in height, located on a flat ridge adjacent to the main domestic plaza space in Group C East. The single mound in group C west has been heavily damaged by a modern road cut, which was excavated in order to expose a 12 meter long profile of the mound in suboperation CO1-2. Opposite the road cut we also excavated a 2 by 2 meter test pit in suboperation CO1-1. Both of these excavations indicate that the mound was constructed with an initial layer of large rock dry fill that was covered with a layer of artifact ridge wet fill. Laboratory work indicated that Group C West was the first area to be occupied at Fracción Mujular, and its construction and artifact assemblage suggest that it was an isolated housemound for the majority of its occupation.

CO1-1

This unit was started as a 2 by 2 meter pit on the median of mound 1, opposite the road cut that was exposed in operation CO1-2. CO1-1 was the first excavation unit opened at Fracción Mujular. This was the only unit during the 2017 field season that was oriented to magnetic north; all future units were oriented parallel to sides of structures. The goal of this excavation was to recover material culture associated with mound 1 in order to determine its function within the site and its chronology. The unit was mainly excavated in 10 cm levels. The original 2 by 2 meter size of the unit was changed to 1 by 2 meters in lot 4. In lot 7 we encountered two features, named as ceramic clusters 1 and 2. As these features were partially within the wall of the unit, we excavated a 50 cm extension to expose them. This extension was excavated in two lots. The stratigraphy of CO1-1 was fairly complex and some layers may have been part of mound construction. High levels of turbation and soil mixing also complicated interpretations. The vast majority of ceramics date to the Early Classic, but occasional Late Classic sherds were found that are likely the result of turbation. Ceramic cluster 1 consisted of a largely intact bowl, while ceramic cluster 2 consisted of two bowls stacked inside of each other. Both ceramic clusters were of the Bernal Crude type, which is similar to Type 23 from Los Horcones. Ceramic density decreased considerably with lot 10, which was switched to a 1 by 1 meter unit. The excavation was terminated in lot 13 following several levels with very few artifacts.

CO1-2

This sub operation consists of a 12 meter long trench excavated along a road cut on the southern side of mound 1. We excavated one meter into the side of the road cut in order to expose the profile of the mound. The suboperation was excavated in 6 lots, each being 2 meters wide. Each lot was excavated to a depth corresponding to the lowest original surface depth along the side of the road cut. As the road is slightly curved, we were not able to expose the full diameter of the mound. However, about 80% was exposed. Lots 1 through 3 fall primarily outside of the mound, while lots 4 through 6 are primarily inside the mound; a fact that can be observed in the differences in artifact density between these lots. The mound was constructed with a relatively shallow layer of dry fill, consisting of fairly large rocks averaging around 30 cm in diameter. Unlike other areas in groups C and D, this mound does not seem to have been built on a raise plaza. Above the initial layer of dry fill, there is an artifact rich layer which likely corresponded to a second construction stage of the building. This trench reveals the mound to have been between around 6 meters in diameter.

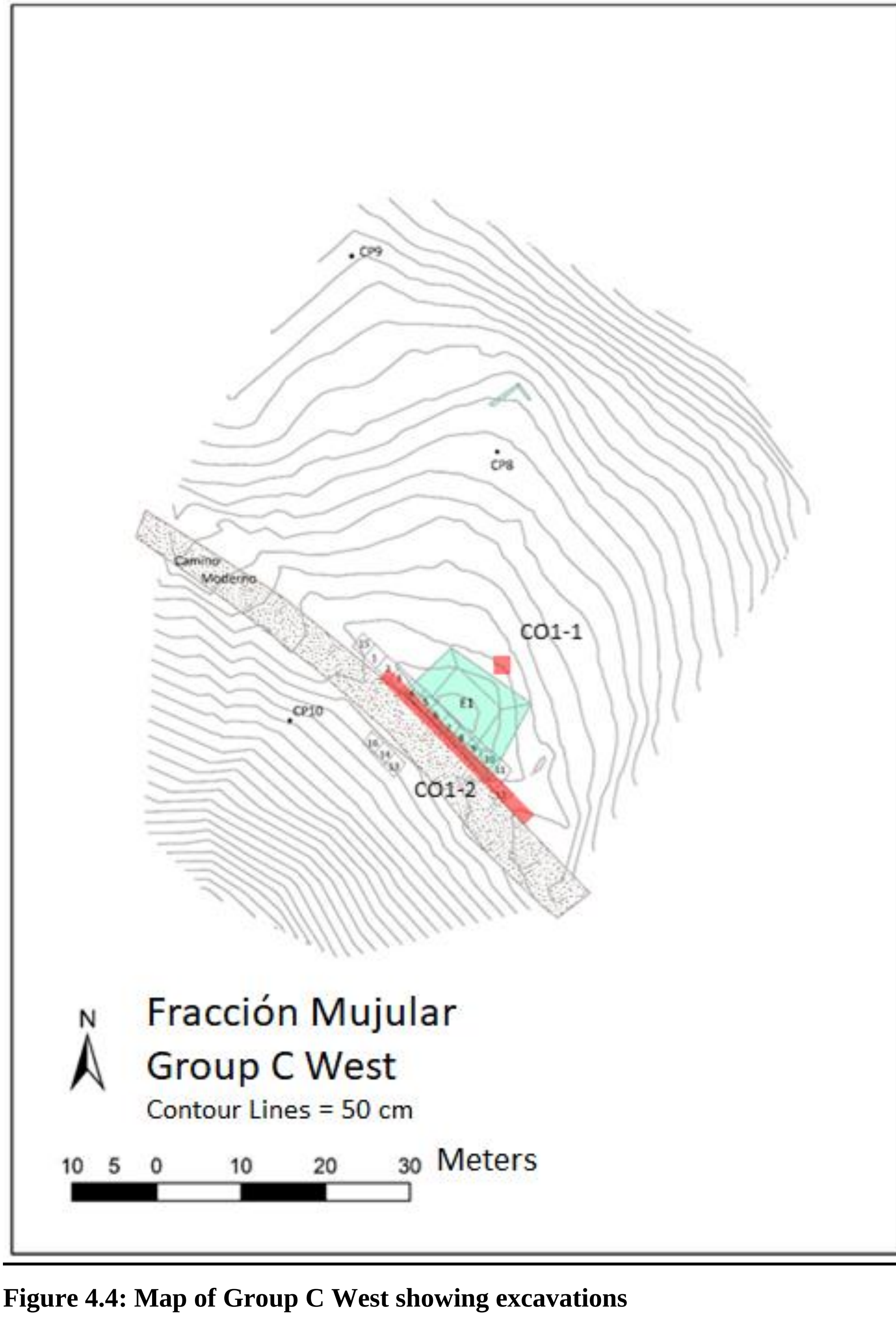
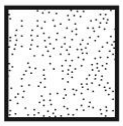


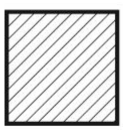
Figure 4.4: Map of Group C West showing excavations

CO1-1

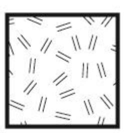


Stratum #1
Chronological Period: Late Classic / Early Classic
Carbon Dates: N/A
Soil Color: 10 YR 3/2
Soil Description: Fine grained and compact soil with high amounts of organic material.
Artifact Description: There is a wide range of ceramic types of the surface at group C west. This includes Tohil Plumbate as well as abundant Early Classic Bernal group ceramics. The surface assemblage is different from what is found in deeper contexts, which dates mainly to the Early Classic.

Stratum #2
Chronological Period: Late Classic / Early Classic
Carbon Dates: N/A
Soil Color: 10 YR 4/2
Soil Description: Fine to medium grained soils. Moderately to well sorted with small stone inclusions.
Artifact Description: There are occasional sherds of plumbate and other Late Classic ceramics, but this layer is dominated by Early Classic Ceramics from the Bernal Group. Ceramics from later periods likely from bioturbation. Lots of Pachuca green obsidian.

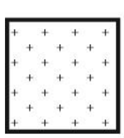


Stratum #3
Chronological Period: Early Classic
Carbon Dates: UCIAMS# 191456 collected at 83.5 cm. One sigma range calendar date at CE 778-987.
Soil Color: 10 YR 6/4
Soil Description: Loose matrix with many large stones. Possible dry fill. A possible stone floor was found and removed from the bottom of this soil layer. Occasional Late Classic sherds likely due to bioturbation. Majority of ceramics date to Early Classic.
Artifact Description:



Stratum #4
Chronological Period: Early Classic
Carbon Dates: UCIAMS# 191457 collected at 127 cm. One sigma range calendar date at CE 258-380. UCIAMS# 191458 collected at 130 cm. One sigma range calendar date at CE 772-867.
Soil Color: 7.5 YR 5/3
Soil Description: Loose matrix with many large stones. Possible dry fill. Fine to medium grain size.
Artifact Description: A large amount of Early Classic Bernal group ceramics were found at the bottom of this stratum, including partially complete vessels. It is possible these vessels were placed here prior to mound construction, although nothing was found inside them.

Stratum #5
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 7/4
Soil Description: Loose and poorly sorted soils with many small stone inclusions. Crumbly texture. Could be degraded rock.
Artifact Description: This is a natural soil layer.



Stratum #6
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 8/1
Soil Description: More compact and silty soil than found in Stratum 5. Few inclusions. Fine grained and relatively well sorted.

Figure 4.5: Key for CO1-1

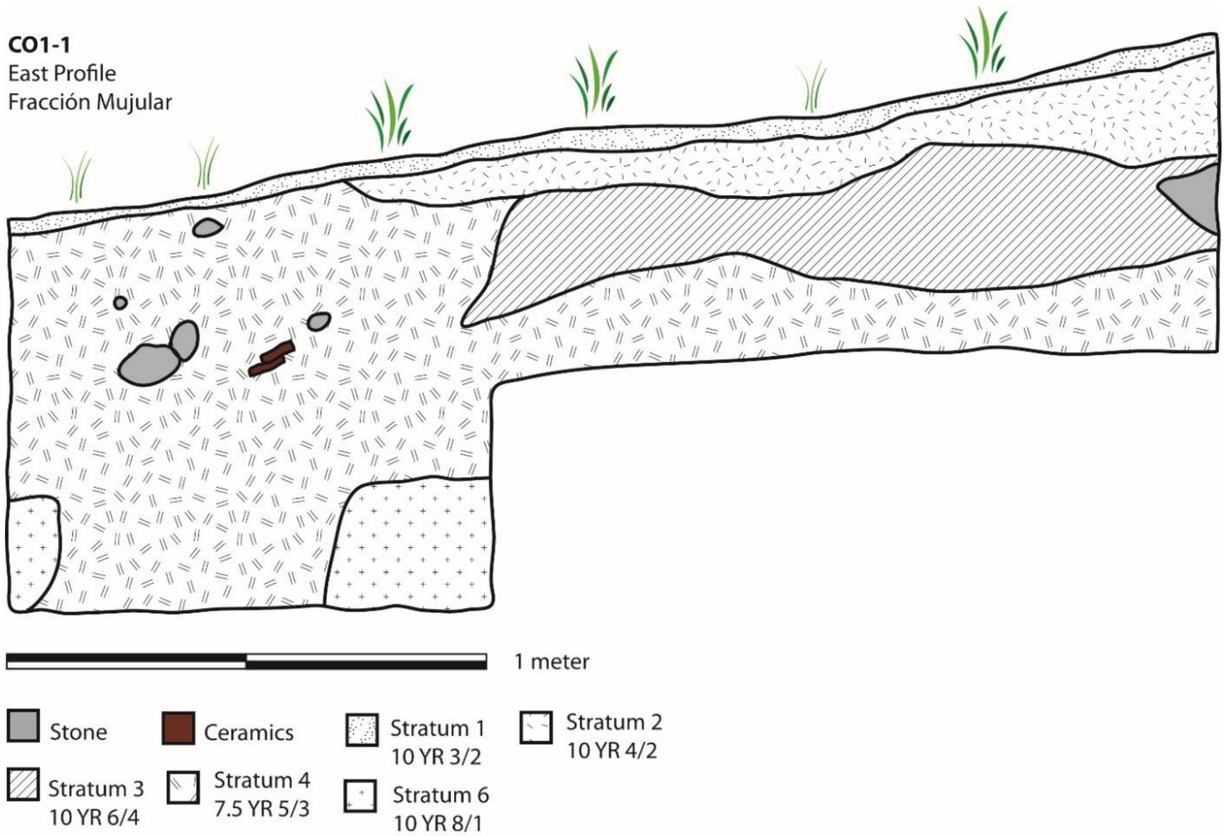


Figure 4.6: Excavation CO1-1 East Wall

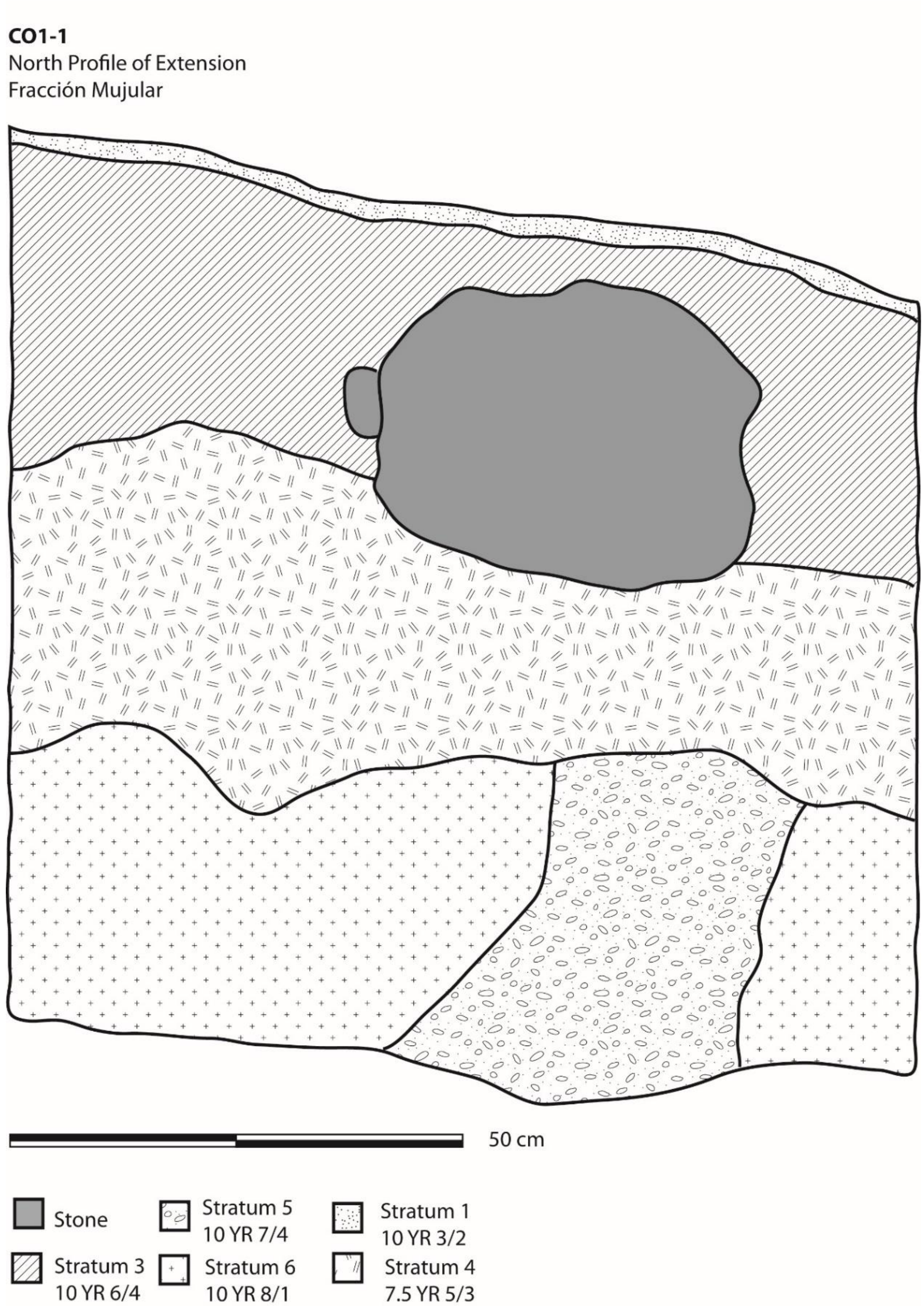


Figure 4.7: Excavation CO1-1 North Wall Extension

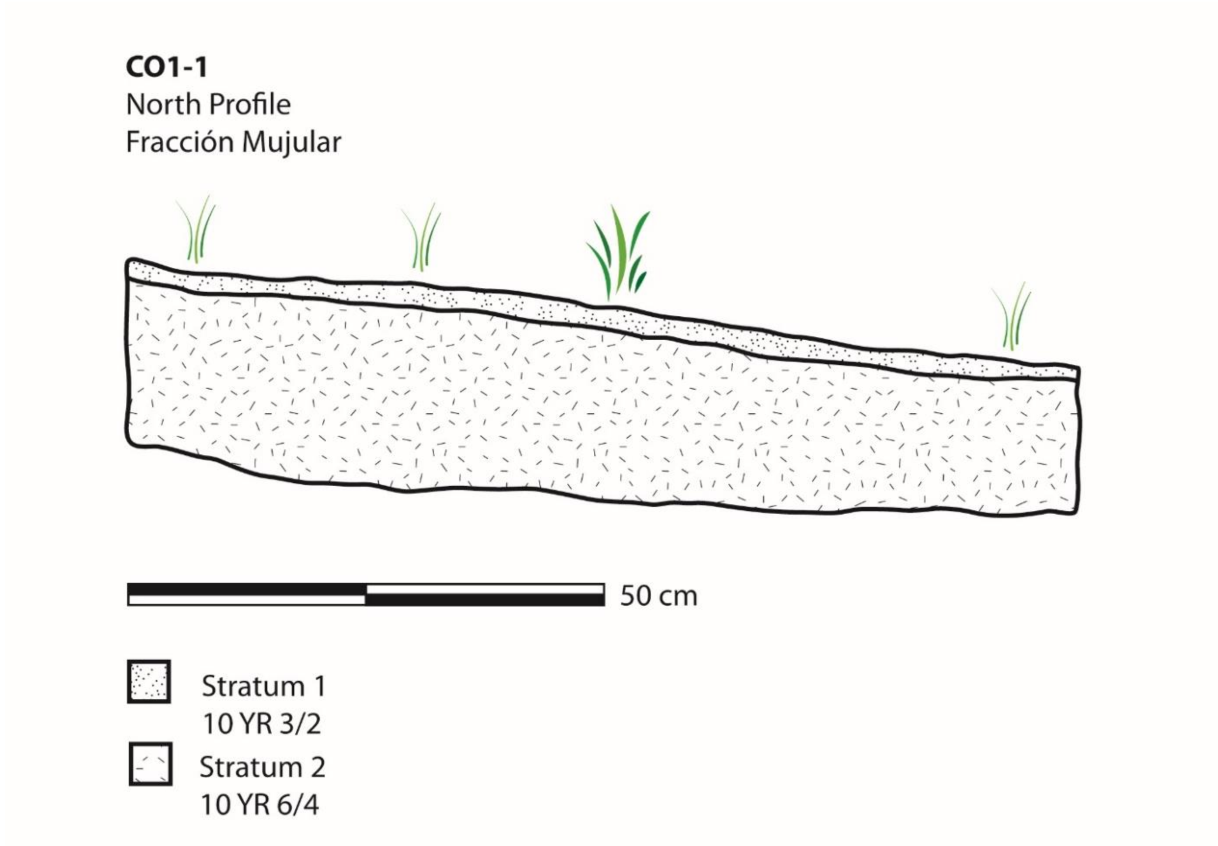


Figure 4.8: Excavation CO1-1 North Wall

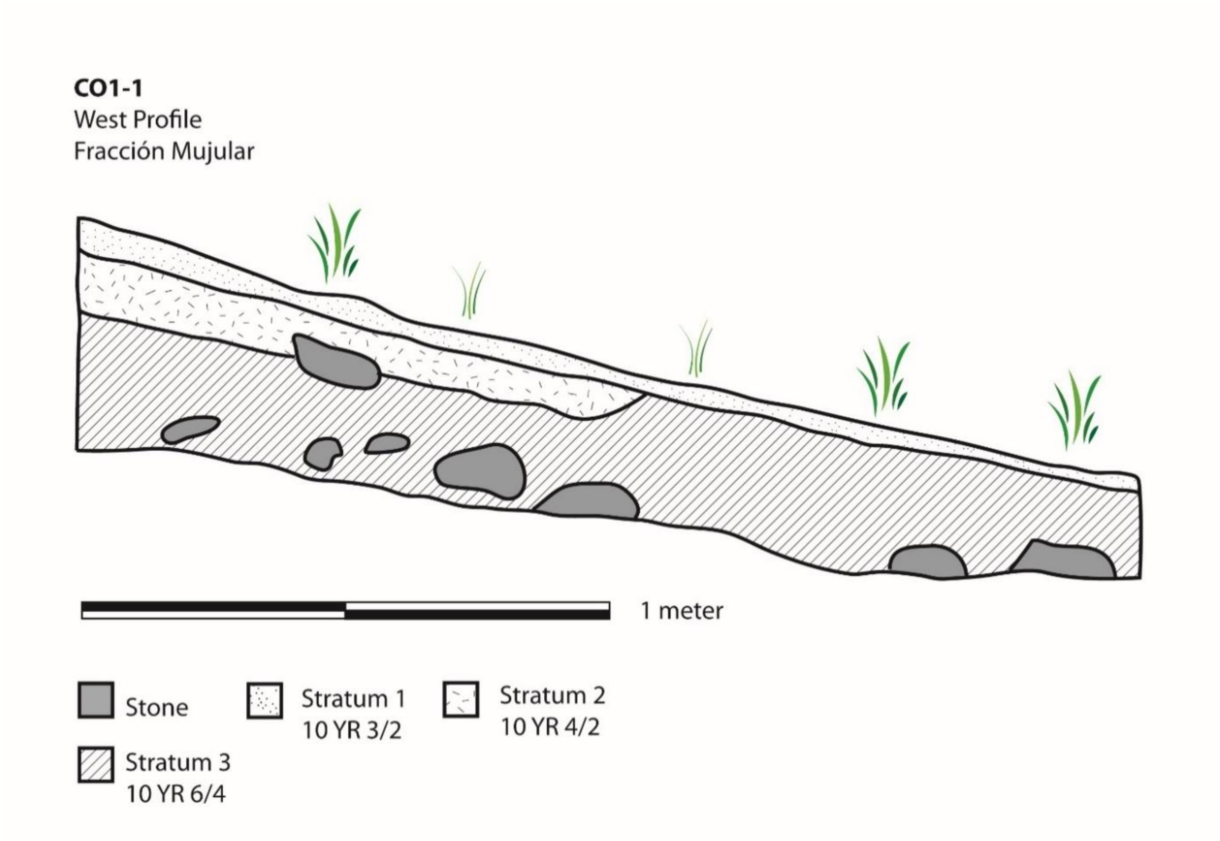


Figure 4.9: Excavation CO1-1 West Wall

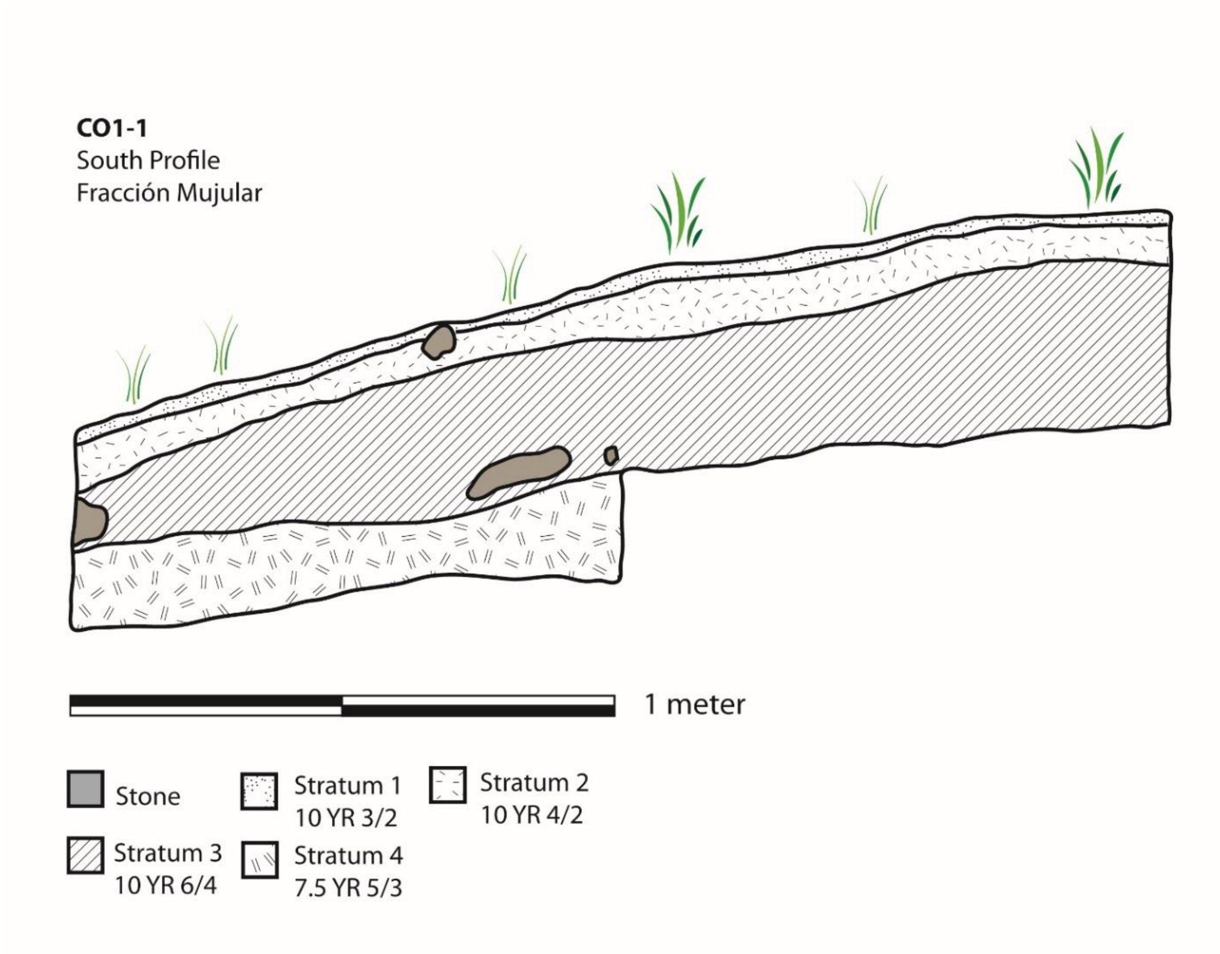


Figure 4.10: Excavation CO1-1 South Wall

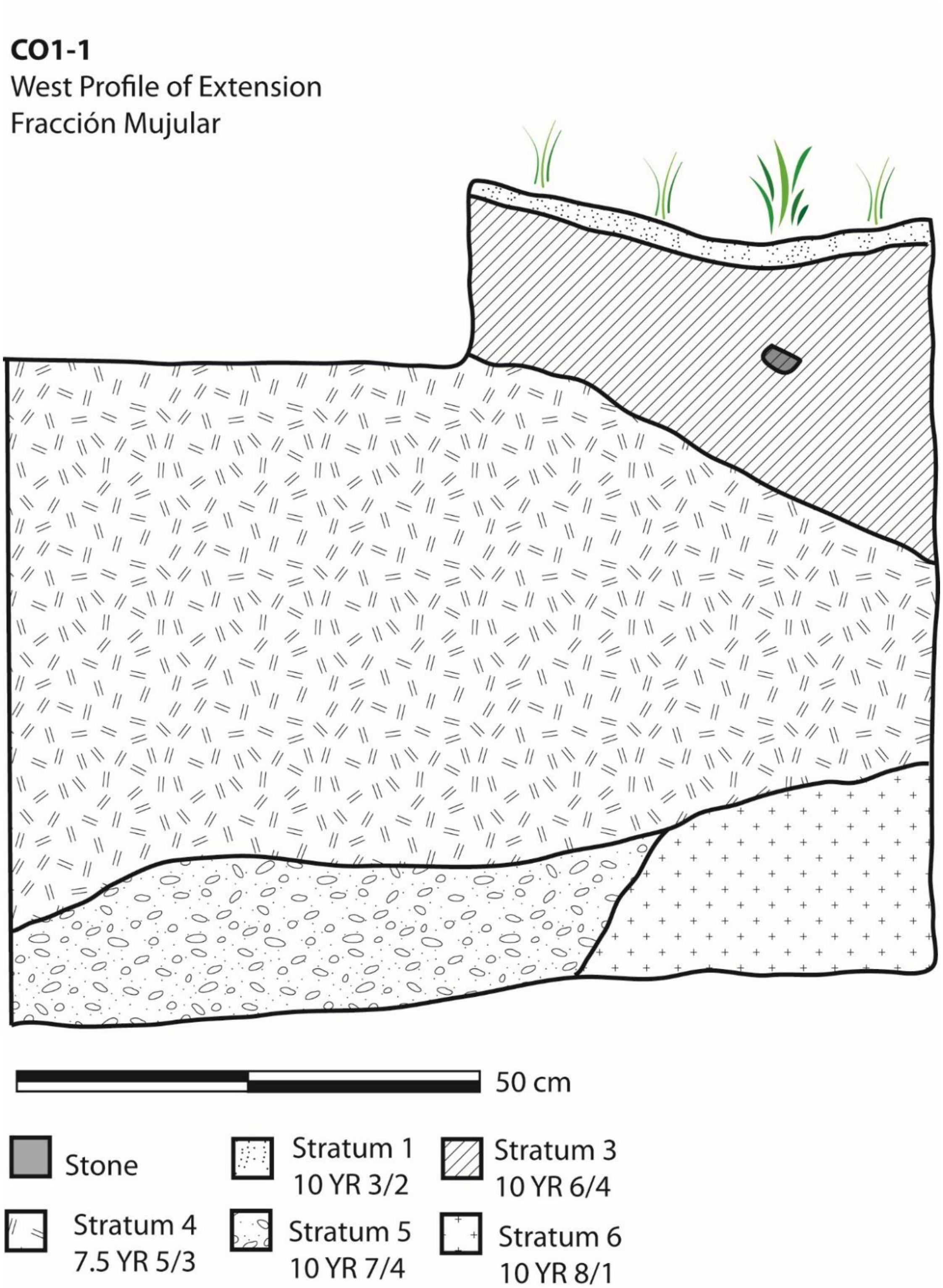


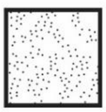
Figure 4.11: Excavation CO1-1 West Wall Extension

Figure 4.12: CO1-1 Before and After Excavation

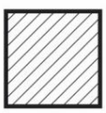
CO1-2

Stratum #1
Chronological Period: Late Classic / Early Classic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: Fine grained and compact soil with high amounts of organic material.
Artifact Description: Mixed ceramics from Early Classic and Late Classic ceramic groups.

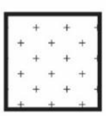
Stratum #2
Chronological Period: Late Classic / Early Classic
Carbon Dates: N/A
Soil Color: 10 YR 7/3
Soil Description: Fine grained and compact soil with high amounts of organic material. Not located on mound leading to slightly different color.
Artifact Description: Mixed ceramics from Early Classic and Late Classic ceramic groups.



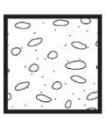
Stratum #3
Chronological Period: Early Classic
Carbon Dates: N/A
Soil Color: 7.5 YR 4/3
Soil Description: Fine grained and compact soil. Moderately sorted. High amount of organic material including roots. Large and small stone inclusions.
Artifact Description: Low artifact density. Most sherds come from the Early Classic Bernal ceramic group.



Stratum #4
Chronological Period: Early Classic.
Carbon Dates: N/A
Soil Color: 7.5 YR 5/3
Soil Description: This is a layer of dry fill corresponding to the main construction episode of Group C West, Mound 1. Loose matrix with large stone inclusions.
Artifact Description: Large number of artifacts are mixed in with the dry fill. Most of these correspond to the Early Classic Bernal Ceramic Group. Large amounts of Pachuca obsidian. A serpentine axe head was found in this stratum.



Stratum #5
Chronological Period: Early Classic
Carbon Dates: N/A
Soil Color: 5 YR 4/4
Soil Description: This is a layer of dry fill, likely part of an expansion of mound 1 following the construction episode corresponding to stratum 4. Loose matrix with large stone inclusions.
Artifact Description: Mostly ceramics from the Bernal ceramic group.



Stratum #6
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 7/4
Soil Description: Fine to Course grain size. Moderately sorted with small stone inclusions.
Artifact Description: This is a natural soil layer.

Figure 4.13: Key for CO1-2

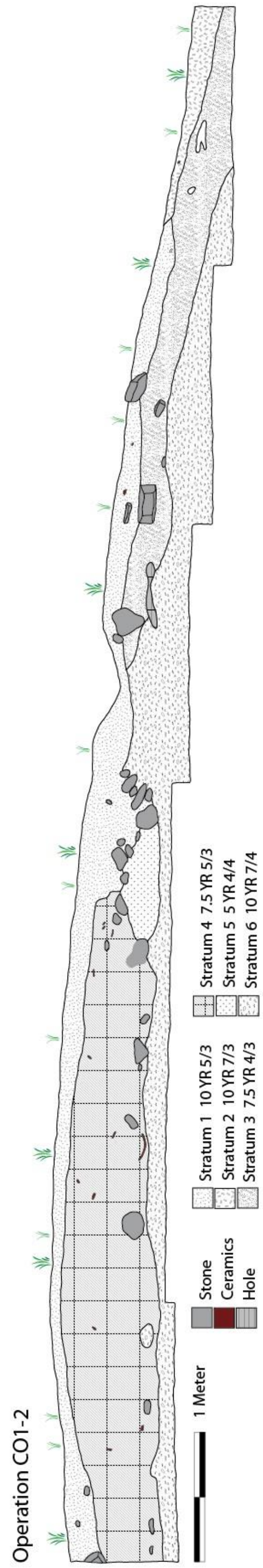


Figure 4.14: Excavation CO1-2 Mound Profile

Figure 4.15: CO1-2 Before and After Excavation

Excavations in Group C East

Group C East consists of seven mounds surrounding a rectangular plaza around 60 meters by 40 meters in size. The largest mound in this group, mound 1, is around 20 meters long and over 2 meters in height, but most mounds are around 10 meters wide and between 1 and 2 meters in height. During survey, we assumed that the ancient inhabitants of Fraccion Mujular had used a naturally flat location on the hillside to build this plaza group. Excavations, however, revealed that the plaza floor was raised by as much as 3 meters in order to create a level area. The rectangular shape and arrangement of these mounds also led us to believe that all were house structures. Excavations at structures 1 and 2 seem to confirm this hypothesis, although the low density of artifacts found in structure 5 suggest it may have played a different role. The domestic nature of this group is also suggested by the presence of no less than 5 metates and 11 mortars.

We excavated a total of five 2 x 2 meter test pits in group C East, targeting 3 out of the 7 mounds in the plaza group. Two test pits targeted mound 1, as this was the largest and most impressive structure at the site. Additionally, two test pits targeted mound 2, in order to get an understanding of the continuation of the plaza adjacent to mound 1. A single test pit targeted mound 5 in order to ascertain whether or not it was a house structure, as well as to search for any cache that may have been buried in front of it. Our excavations near structures 1 and 2 were deep; reaching as much as three meters. Our excavation in front of structure 5, however, was relatively shallow. The different in excavation depths between units suggests that the original topography of the site was very uneven, and that considerable effort was made to raise and level the plaza during the site's initial construction. Overall, excavations around structures

1 and 2 confirmed the domestic nature of the plaza group, with large amounts of serving and cooking vessels and other domestic artifacts recovered.

CE5-1

This unit was placed immediately in from of mound 5, a small low-laying platform on the north end of the group C east plaza. The goals of this excavation were to ascertain the nature of structure 5, and to search for any burials or caches that might have been placed in front of the structure. The unit was excavated in 5 lots, each of which was dug at arbitrary 10 cm levels. The unit was opened as a 2 x 2 meter excavation, but was changed to a 1 x 2 meter unit following a soil change encountered at the bottom of lot 3. The final two lots were dug through sandy and artifact poor soil which we determined to be a natural layer. Compared to other excavations in Group C east this unit returned very few artifacts. This suggests that mound 5 was not a domestic residence, and instead served some other purpose.

CE1-1

This excavation was placed directly in front of mound 1 on the centerline of the structure. There were three primary goals for this excavation. First, we wanted to investigate the purpose and nature of mound 1, and collect artifacts that might have been associated with it. Second, we wanted to understand the construction history of the plaza in front of mound 1. Finally, we hoped to find any caches or burials that might have been associated with the construction of mound 1. No such special finds were identified, although we did recover a jade earspool fragment as well as a nearly intact ceramic bowl from this unit. As with elsewhere at

Group C East, the plaza was found to have been raised considerably during construction using small stone dry fill.

Suboperation CE1-1 was opened as a 2 x 2 meter test pit, and was excavated in 10 cm levels for its first 6 lots. This included excavating through small stone dry fill that was likely associated with plaza construction. In the field, ceramics from this unit were determined to have Late Classic diagnostic elements. Lot 7 was changed to a 1 x 2 meter pit following a soil change and allowing for easier access to the excavation. A nearly complete ceramic vessel was also found in lot 8, causing the lot to be excavated to a depth of 20 cm so the entirety of the vessel could be collected in the same lot. A soil change at the bottom of lot 8 seemed to be natural soil, so lot 9 was switched to a 1 x 1 meter excavation in order to rapidly test if we had found the bottom of the cultural deposit. This was confirmed as no artifacts were found in lot 9, leading to the closure of the unit.

CE1-2

Test pit CE1-2 was initiated in order to collect artifacts from the back side of mound 1 and to compare the exterior of the plaza with the interior. As we had already tested mound 1 with the excavation of CE1-1, this unit was excavated in 20 cm lots. As was the case elsewhere at Fraccion Mujular, we found slightly more materials on the exterior side of the mound as we did on the plaza side. We also found a number of large and small rocks that may have been construction materials that fell down from mound 1. A soil change identified at the end of level 3 turned out to represent natural soil. This excavation was not as deep as that in CE1-1, suggesting that the natural plaza floor was lower than the exterior of the plaza area, necessitating considerable raising as indicated by excavations in CE1-1 and CE2-1. A large quantity of cultural material was recovered from this unit.

CE2-1

This unit was placed on the centerline of mound 2, immediately in front of the plaza side of the structure. It was initiated as a 2 x 2 meter test pit and excavated, with a few exceptions, in 10 cm arbitrary levels. While excavating this unit, a distinct change in ceramic types of was noticed in deeper levels. Lots 1 through 8 contained many thick walled and very hard ceramics of the Chencho type which are similar to Late Classic Piestal ceramics identified at Izapa. Layers with these ceramics were also characterized by very dark soils. This ceramic type is absent in lower levels, which have ceramics that seem to be Early Classic in style. This pattern may suggest two major phases of plaza construction, and are indicative of a fairly long use for this domestic group. The unit was excavated as a 2 x 2 meter pit till lot 9, at which point it was changed to a 2 x 1 meter excavation. The size of the unit was again changed in lot 15, primarily due to safety considerations as the excavation was very deep.

Four fragmented ceramic vessels were recovered from this unit; all located in the bottom levels of our excavations. In lot 15, numerous sherds associated with two vessels –a plate and a jar- were excavated as ceramic clusters 1 and 2, respectively. Lot 16 was the final lot of the cultural deposit, and two vessels were found in situ sitting directly on natural soil. These vessels were identified as a jar and a bowl, one sitting inside the other. All of these vessels were heavily fragmented, and poorly preserved. Their position directly on top of natural soil suggests that the two vessels found in lot 16 were offerings associated with the construction of either the plaza or mound 2, although nothing was found inside of either ceramic vessel. Large numbers of small rocks were found throughout our excavations at CE2-1, suggesting that the plaza was largely constructed with dry fill.

CE2-2

This unit was opened on the opposite side of mound 2 from CE2-1 in order to collect artifacts from outside of the plaza area associated with mound 2. As with similar excavations around mound 1, we found that the natural floor was higher on the exterior of the plaza than the interior, suggesting that the plaza was substantially raised during initial construction. The unit was excavated in 10 cm levels, except where we encountered natural soils. Generally, the artifacts encountered were similar to those found in CE2-1. Some large stones were also found, which may have fallen from mound 2 or could represent some leveling outside of the plaza space. In general, the ceramics found were domestic in nature, confirming that mound 2 was a house structure.

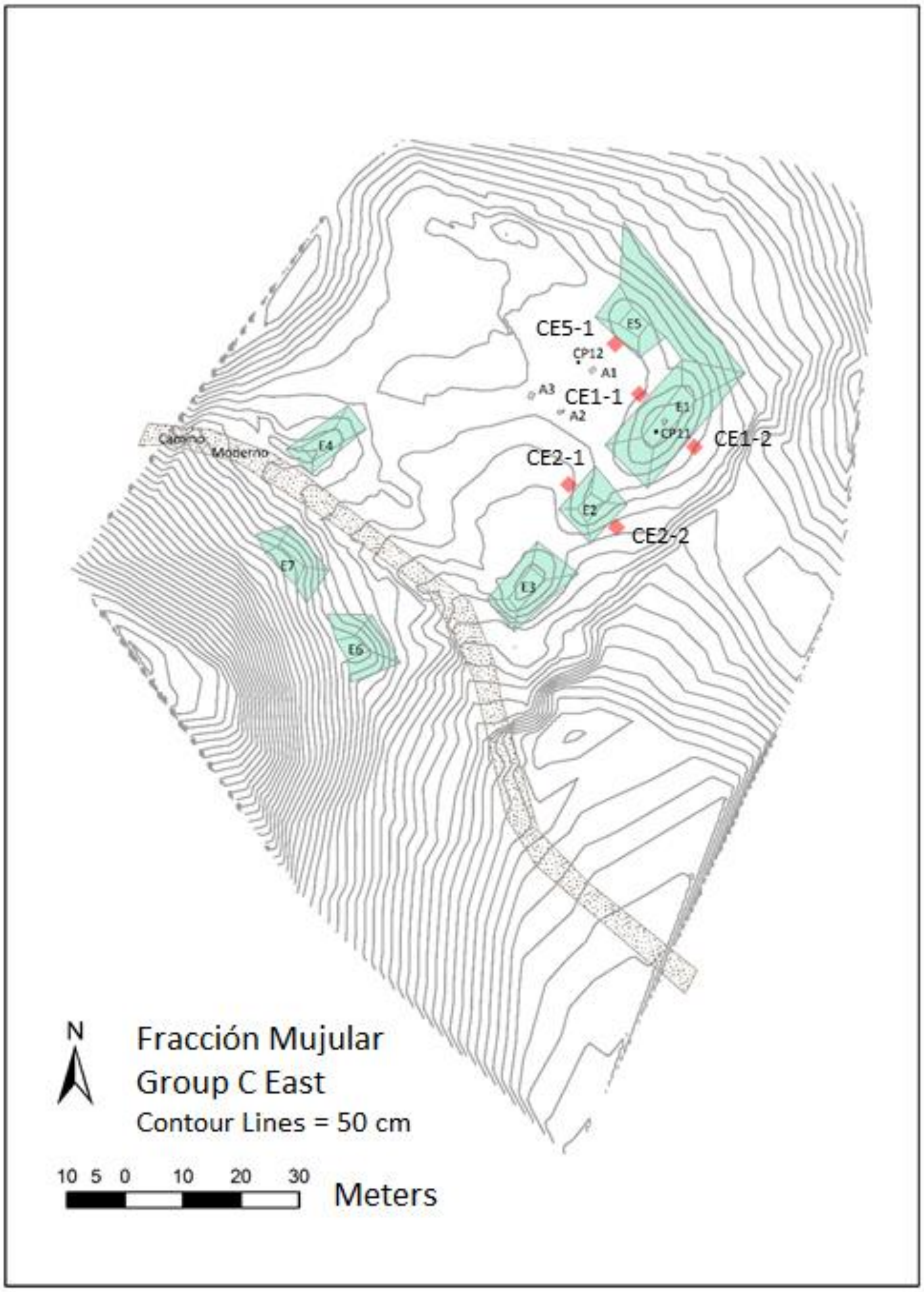
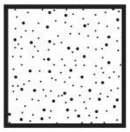
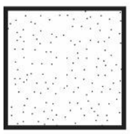


Figure 4.16: Map of Group C East showing excavations

CE5-1



Stratum #1
Chronological Period: Late Classic / Early Classic
Carbon Dates: N/A
Soil Color: 10 YR 3/4
Soil Description: Fine to course grained and compact soil with high amounts of organic material. Poorly sorted. Hard and clay like. Small pebble inclusions.
Artifact Description: Relatively few artifacts. Mixture of ceramics from the Late Classic Chencho Group as well as the Early Classic Bernal Group. Possibly due to mixture of materials used to fill and raise plaza.



Stratum #2
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 7.5 YR 5/4
Soil Description: Fine to course grained soils. Poorly sorted. Small pebble and large stone inclusions.
Artifact Description: This is a natural soil layer without artifacts.

Figure 4.17: Key for CE5-1

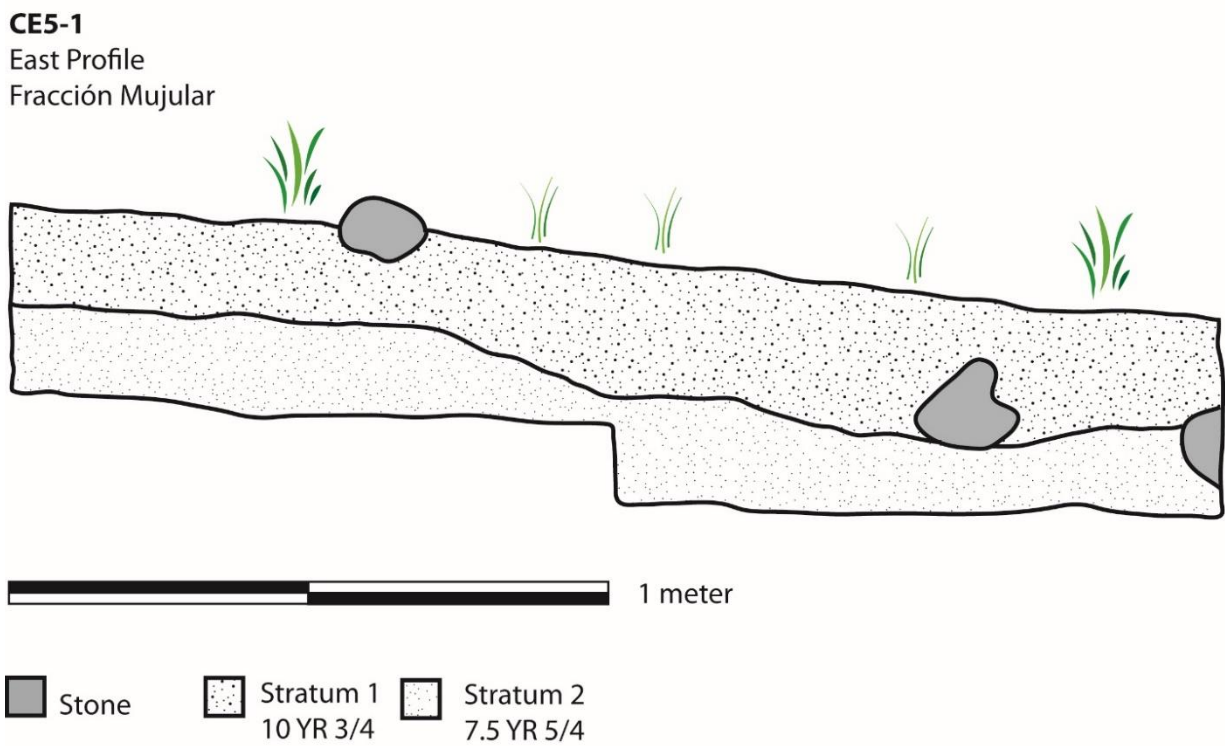


Figure 4.18: CE5-1 East Profile

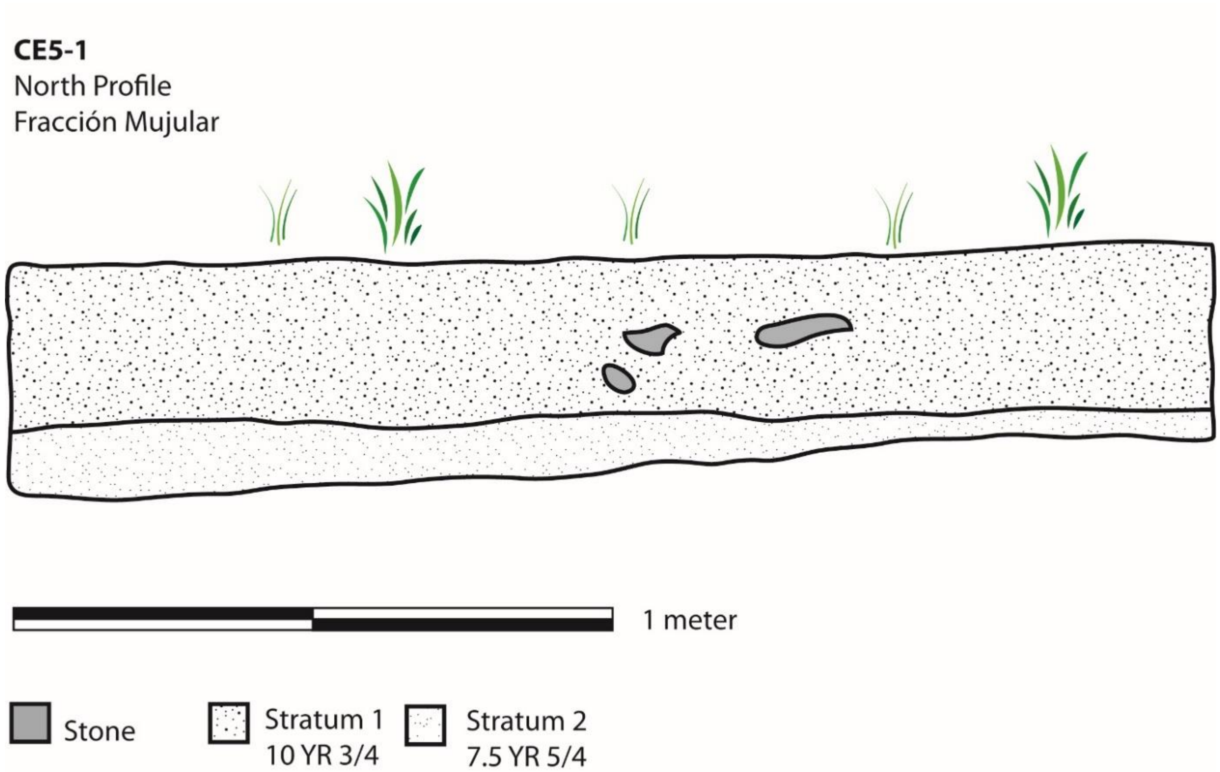


Figure 4.19: CE5-1 North Profile

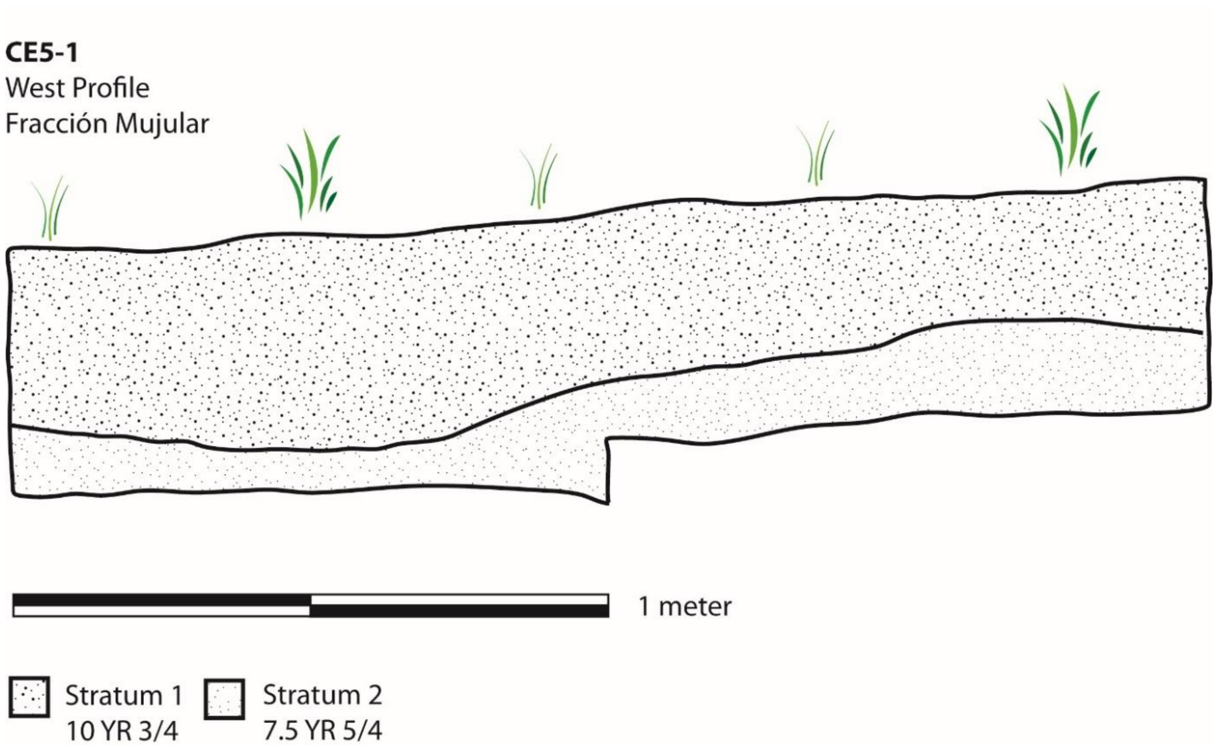


Figure 4.20: CE5-1 West Profile

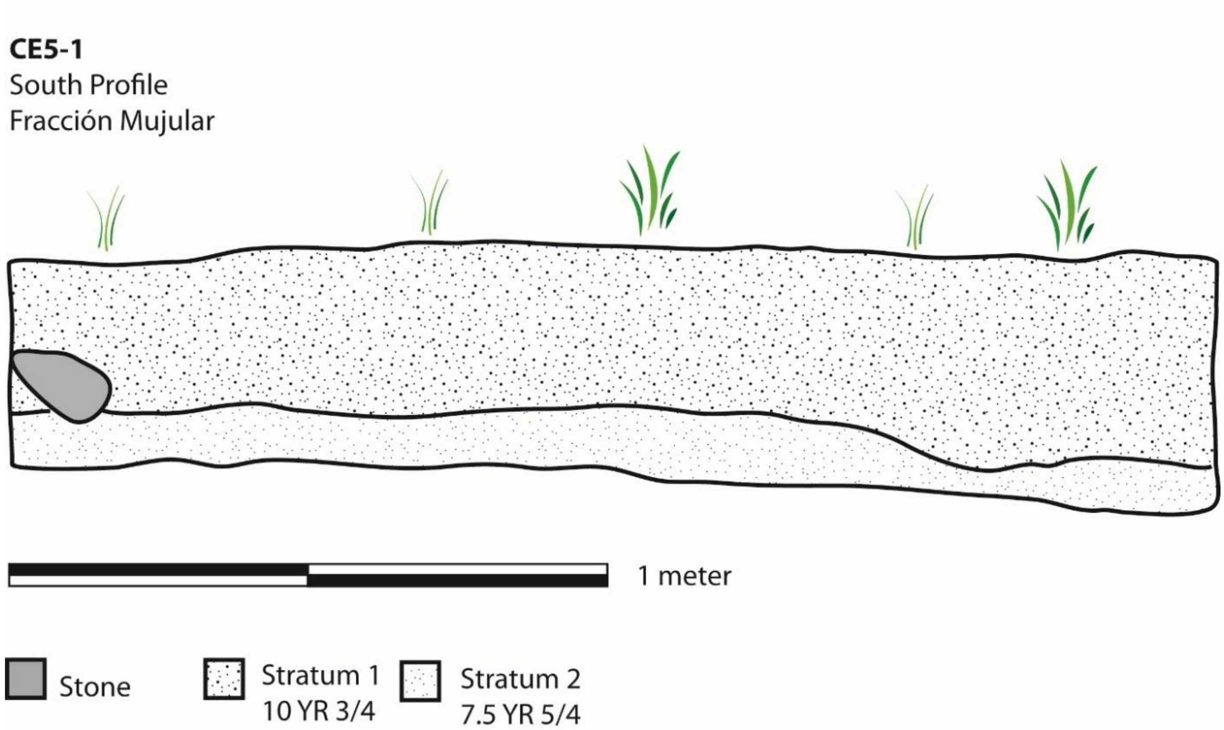
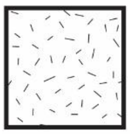


Figure 4.21: CE5-1 South Profile

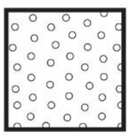
Figure 4.22: Unit CE5-1 Before and After Excavations

CE1-1

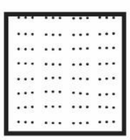
Stratum #1
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 2/2
Soil Description: Fine grained and compact soil with high amounts of organic material.
Artifact Description: Artifact density low, but most ceramics come from Chencho and Vassallo Groups. Most sherds are trampled due to cattle.



Stratum #2
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 4/2
Soil Description: Dark brown compact soil. Very fine to medium granular structure with moderately sorted clusters.
Artifact Description: Jadeite earspool fragment found in this layer. Most ceramics come from the Chencho and Vassallo ceramic groups. Some plumbate.



Stratum #3
Chronological Period: Late Classic / Early Classic
Carbon Dates: UCIAMS# 191461 collected at 80 cm. One sigma range calendar date at CE 691-768
Soil Color: 10 YR 5/3
Soil Description: Lighter colored soil than in previous lots. Medium granular structure. Possible dry fill associated with Plaza construction.
Artifact Description: Most of this lot was comprised of Late Classic ceramics from the Chencho and Vassallo groups. Some Bernal group ceramics also present, possibly from dry fill associated with plaza construction. Large amount of Early Classic, Bernal Group, ceramics excavated in lot 8, which also included sterile soil from stratum #4



Stratum #4
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 5/6
Soil Description: Fine grained and silty soils. Well sorted. Soft and not as compact as previous layers.
Artifact Description: This is a sterile layer. However, many Early Classic ceramics from the Bernal ceramic group were excavated in lot 8, which included soils from stratum 3 but also extended deep into stratum 4.

Figure 4.23: Key for CE1-1

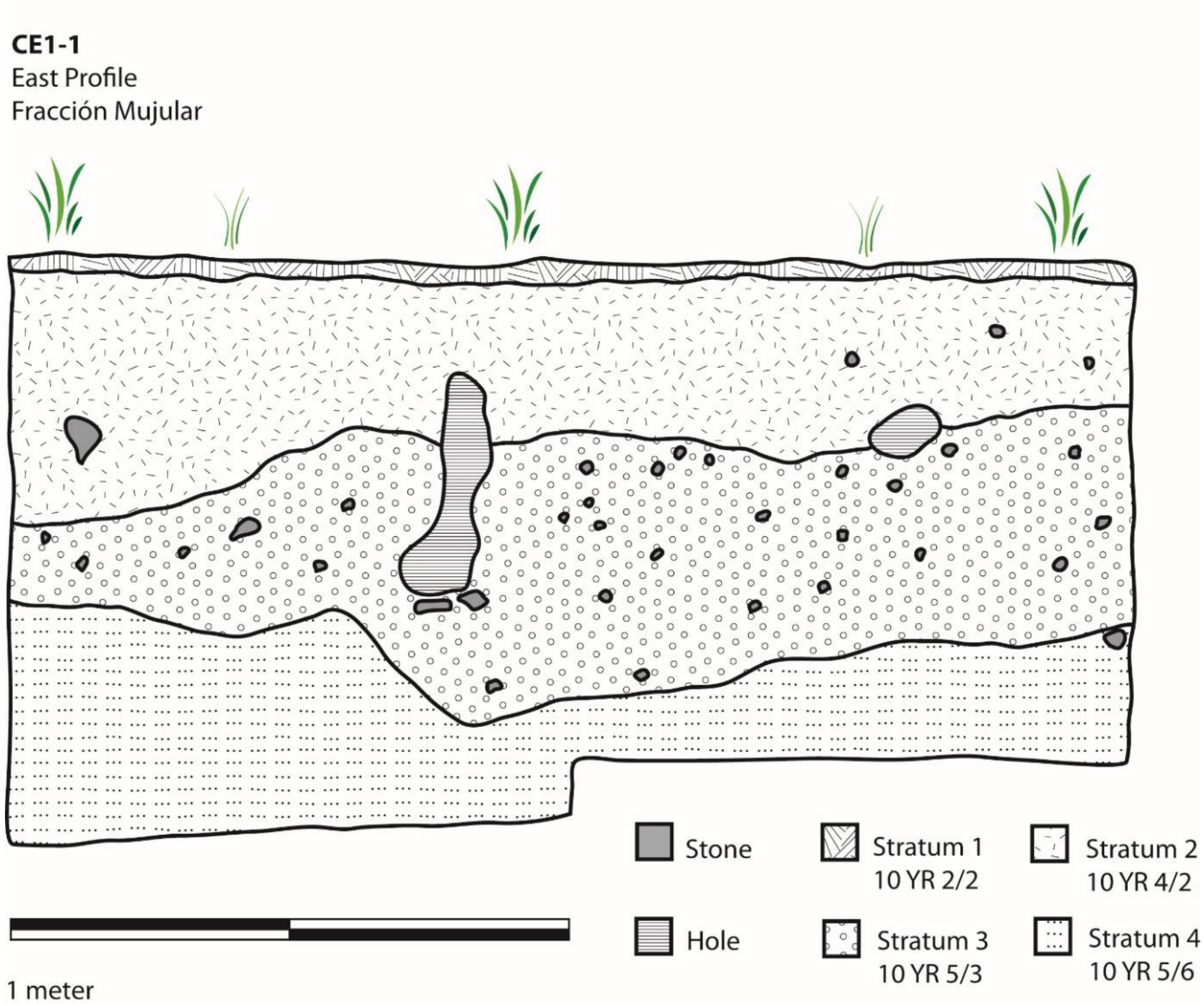


Figure 4.24: CE1-1 East Profile

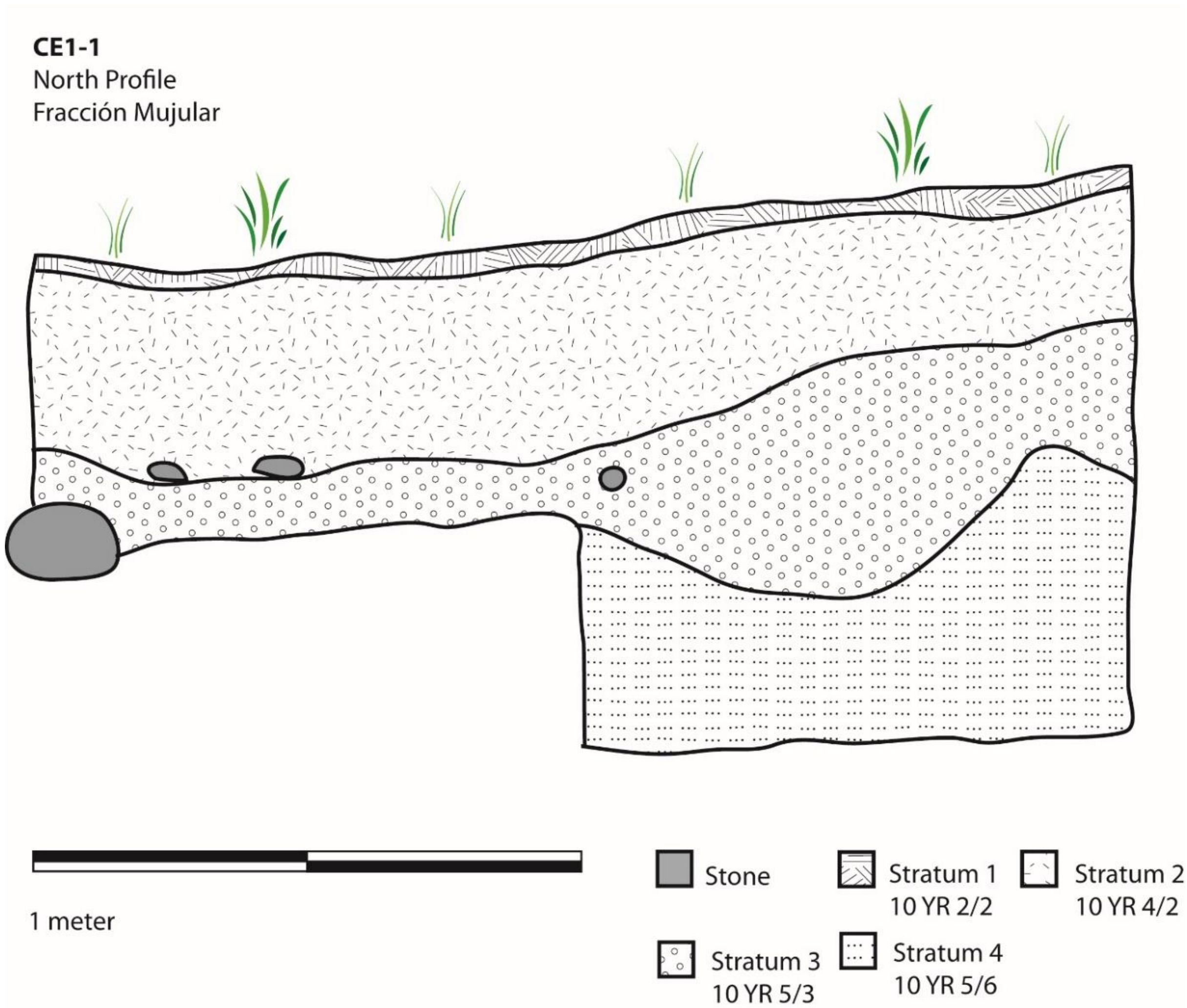


Figure 4.25: CE1-1 North Profile

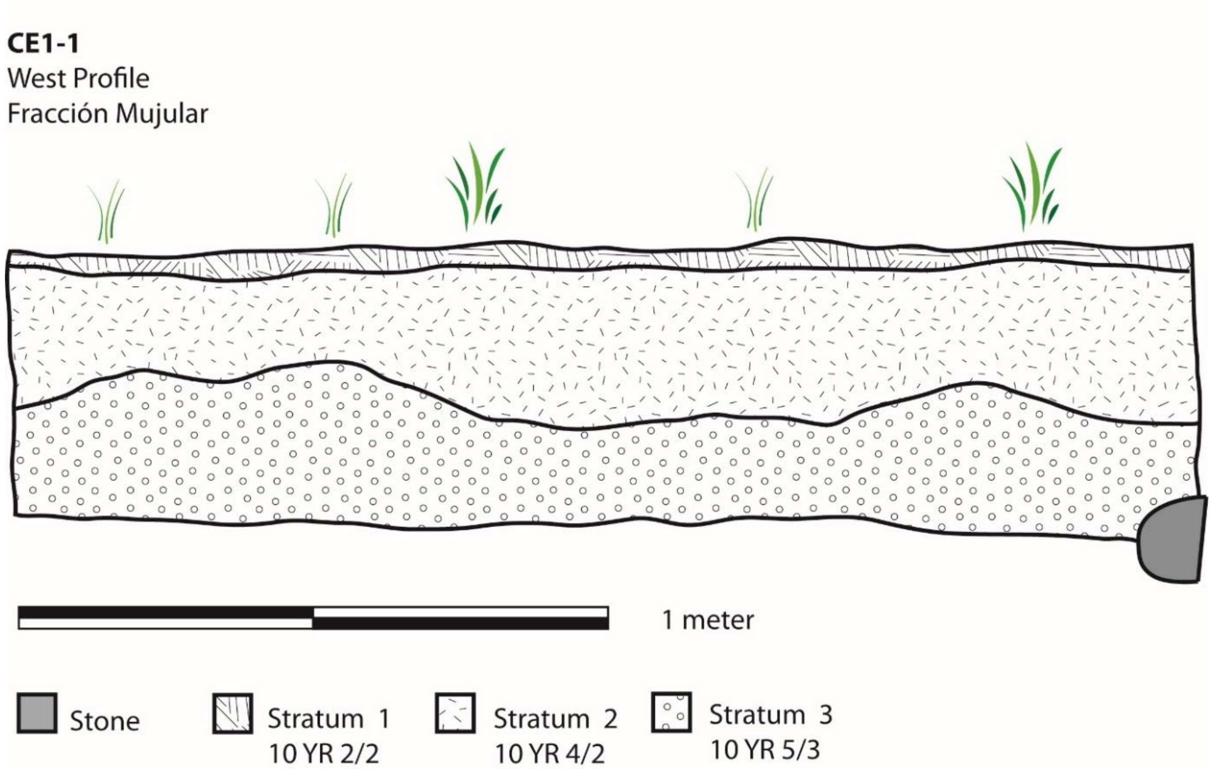


Figure 4.26: CE1-1 West Profile

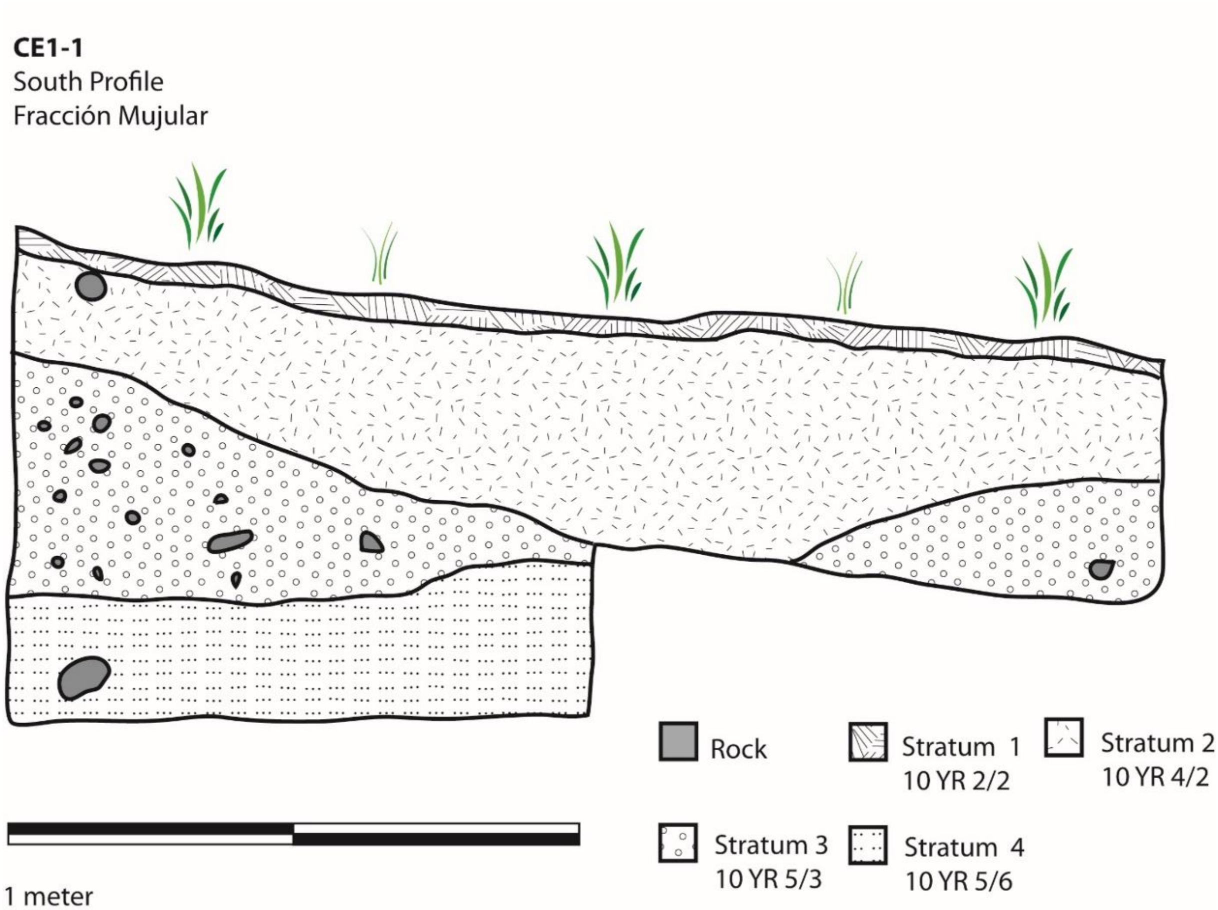
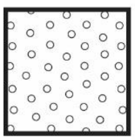


Figure 4.27: CE1-1 South Profile

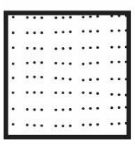
Figure 4.28: CE1-1 Before and After Excavations

CE1-2

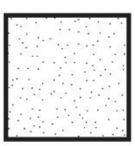
Stratum #1
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 3/2
Soil Description: Fine grained and compact soil with high amounts of organic material.
Artifact Description: Artifact density low, but most ceramics come from Chencho and Vassallo Groups. Most sherds are trampled due to cattle.



Stratum #2
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: Relatively compact soils. Fine to medium granular structure. Small stone inclusions, with some larger stones possibly fallen from mound 1.
Artifact Description: Late Classic ceramics from the Chencho and Vassallo groups. Plumbate also present. Obsidian assemblage dominated by black obsidians from Central Mexico.



Stratum #3
Chronological Period: Late Classic.
Carbon Dates: N/A
Soil Color: 10 YR 5/6
Soil Description: Light colored soil. Medium granular structure. Relatively loose matrix. Lots of large stones. Could be fallen portions of mound 1 or possible dry fill associated with leveling hillside.
Artifact Description: This layer is dominated by Late Classic ceramics from the Chencho and Vassallo groups as well as Central Mexican obsidian.



Stratum #4
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 6/6
Soil Description: Fine grained and silty soils. Well sorted. Small grain size. Fewer stone inclusions than previous levels.
Artifact Description: This is a natural soil layer.

Figure 4.29: Key for CE1-2

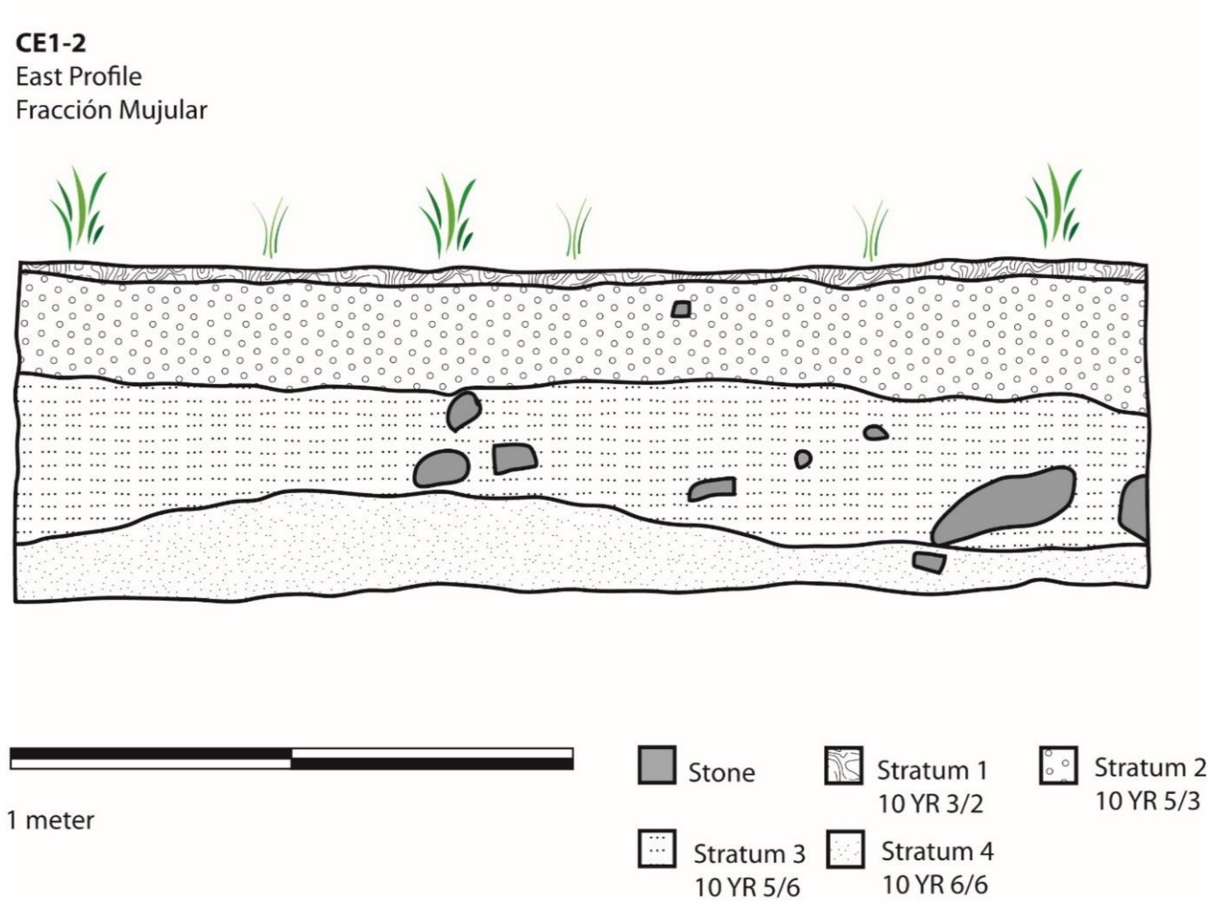


Figure 4.30: CE1-2 East Profile

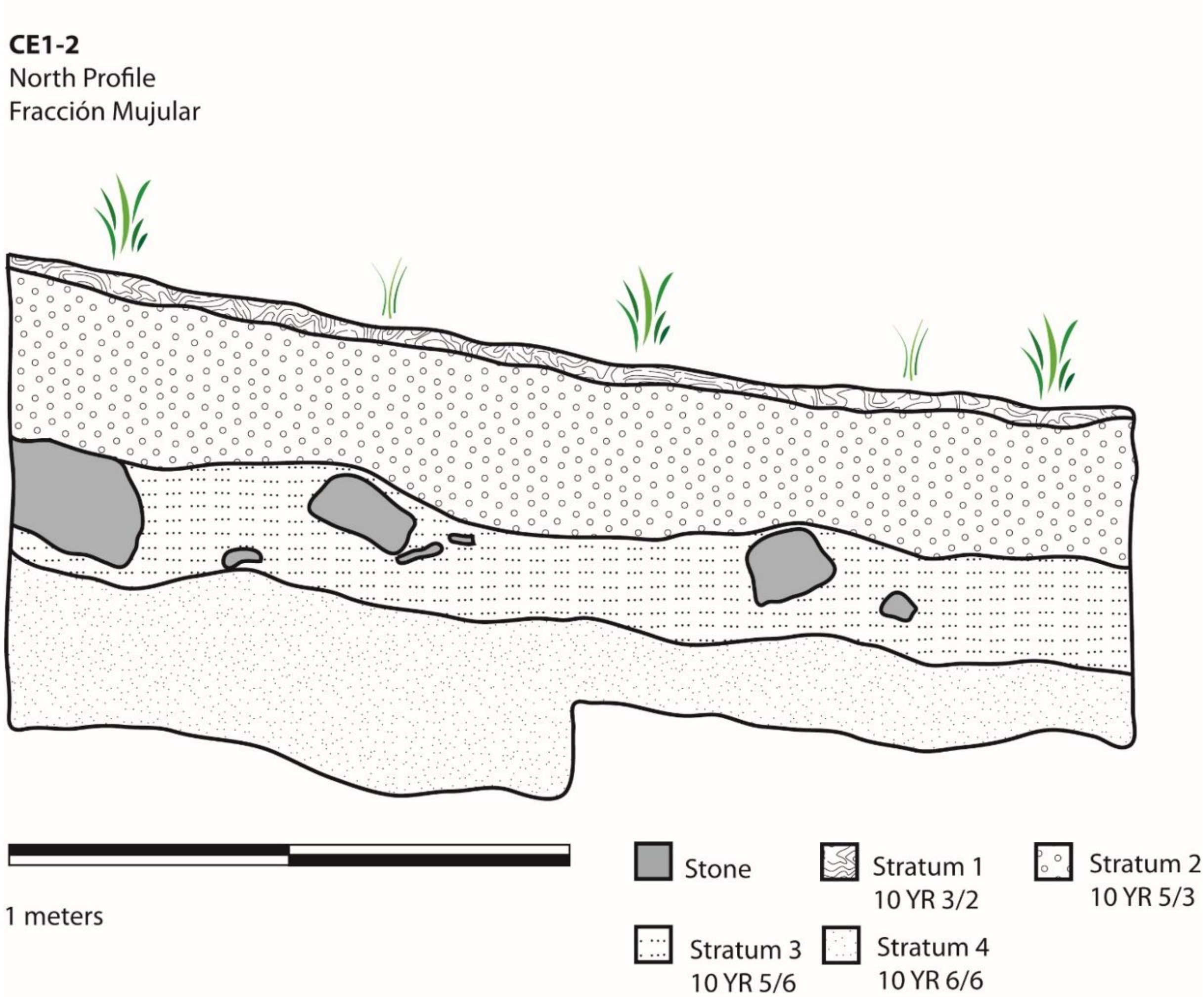


Figure 4.31: CE1-2 North Profile

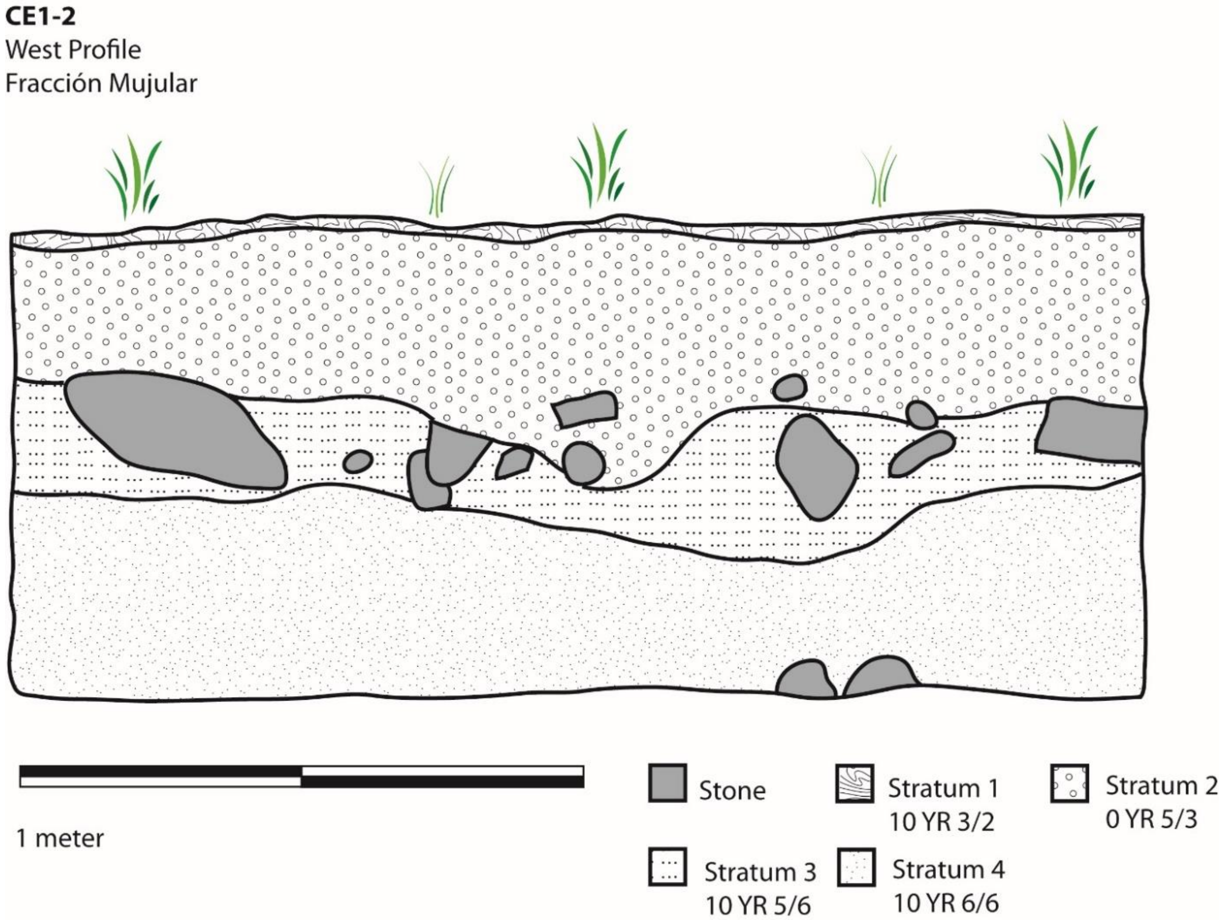


Figure 4.32: CE1-2 West Profile

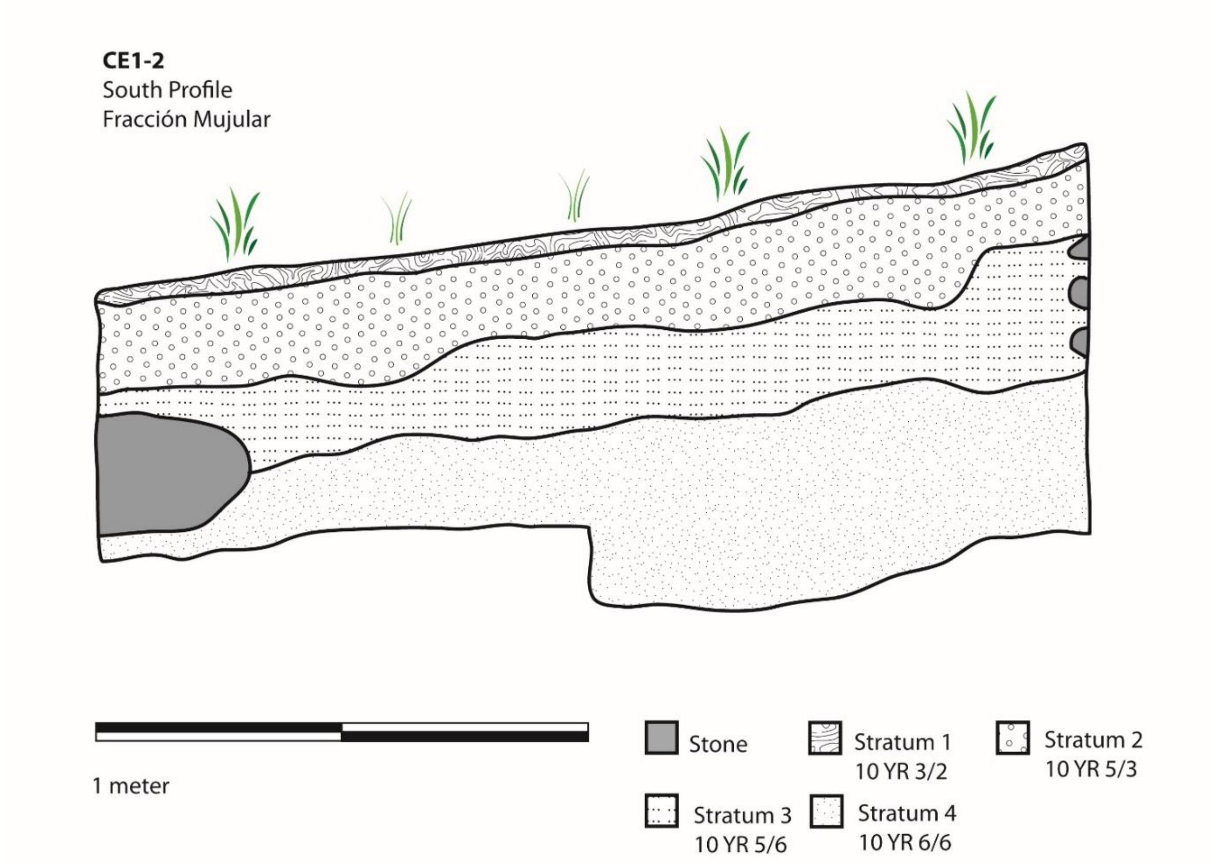
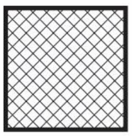


Figure 4.33: CE1-2 South Profile

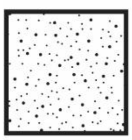
Figure 4.34: Unit CE1-2 Before and After Excavations

CE2-1

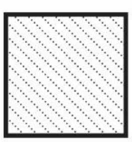
Stratum #1
Chronological Period: Late Classic
Carbon Dates: UCIAMS# 191462 collected at 56 cm depth. One sigma range calendar date at CE 995-1023
Soil Color: 7.5 YR 3/1
Soil Description: Soil is very dark and very hard. Very fine to medium granular structure with moderately sorted clusters. Earthy soil with some small rock inclusions.
Artifact Description: Dominated by Late Classic ceramics from the Chencho Group. Some plumbate. Abundant obsidian, mostly dark blacks from Central Mexico.



Stratum #2
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: Soil has very fine to fine granular structure. It is well to moderately sorted with a few larger stone inclusions. The texture is very fine and the soil sticks to your hands. Almost silty.
Artifact Description: Late Classic ceramics, with more from Vassallo group than in previous layers. Plumbate present. More dark obsidian from Central Mexico.



Stratum #3
Chronological Period: Late Classic / Early Classic
Carbon Dates: UCIAMS# 191463 collected at 170 cm. One sigma range calendar date at CE 613-645
UCIAMS# 191464 collected at 188 cm. One sigma range calendar date atCE 552-692.
Soil Color: 10 YR 3/4
Soil Description: Similar to previous layer but of different color and larger granular structure. Very fine to medium granular structure. Moderately to well sorted.
Artifact Description: Late Classic materials dominated by cermics from the Chencho and Vassallo Groups, mixed in with Early Classic materials with ceramics from the Bernal Group, especially at the bottom of this stratum. A large cluster of Bernal Group ceramics were found immediately above stratum #4.



Stratum #4
Chronological Period: Sterile Soil
Carbon Dates: N/A
Soil Color: 10 YR 5/8
Soil Description: Very fine to course granular structure, poorly sorted soil. Clay-like. Large hard clusters that are difficult to break up. Under pressure crumbles into fine and silty particles.
Artifact Description: This was a sterile layer, although some Early Classic Bernal group ceramics were found immediately at the top of this layer.

Figure 4.35: Key for CE2-1

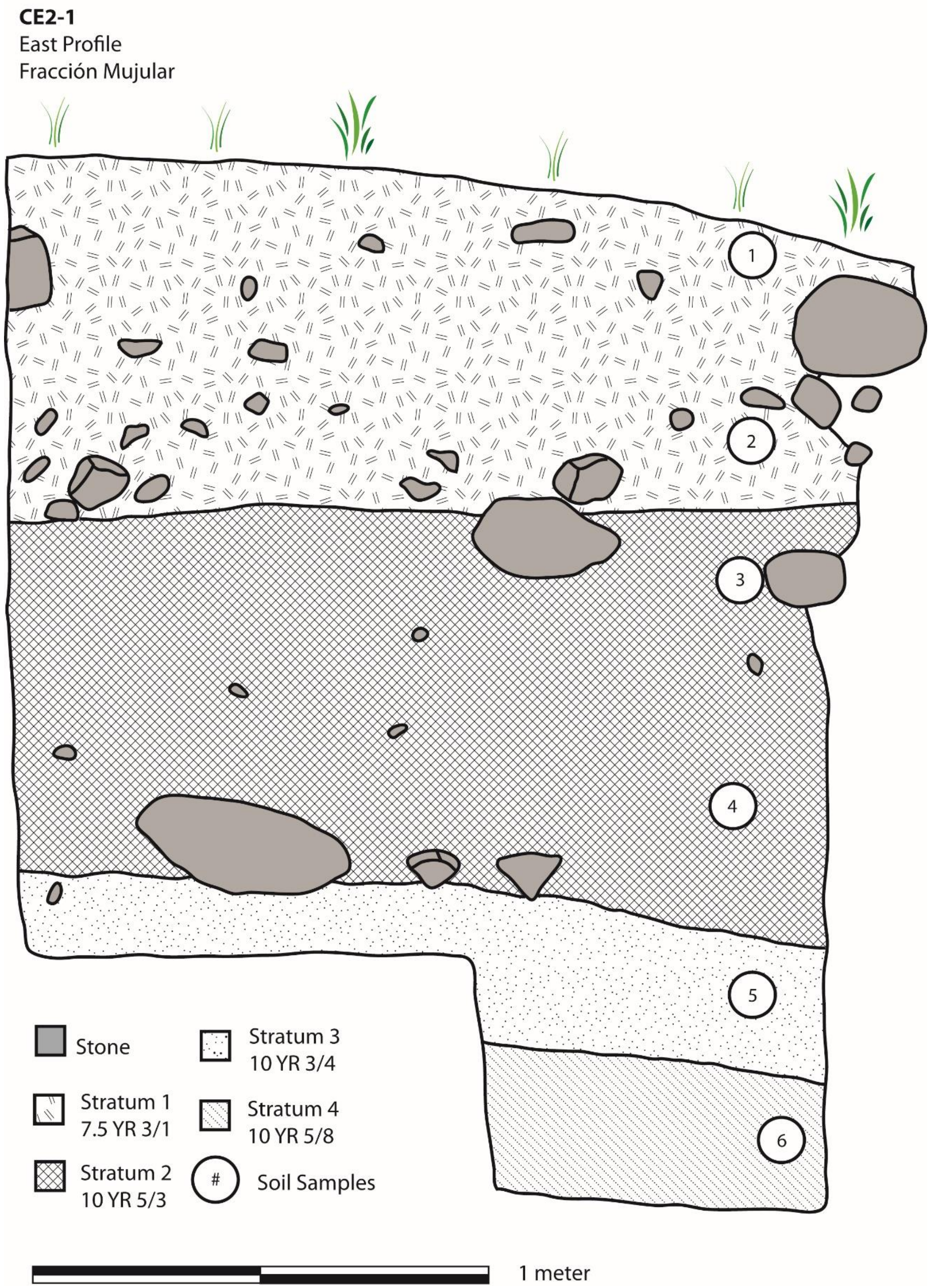


Figure 4.36: CE2-1 East Profile

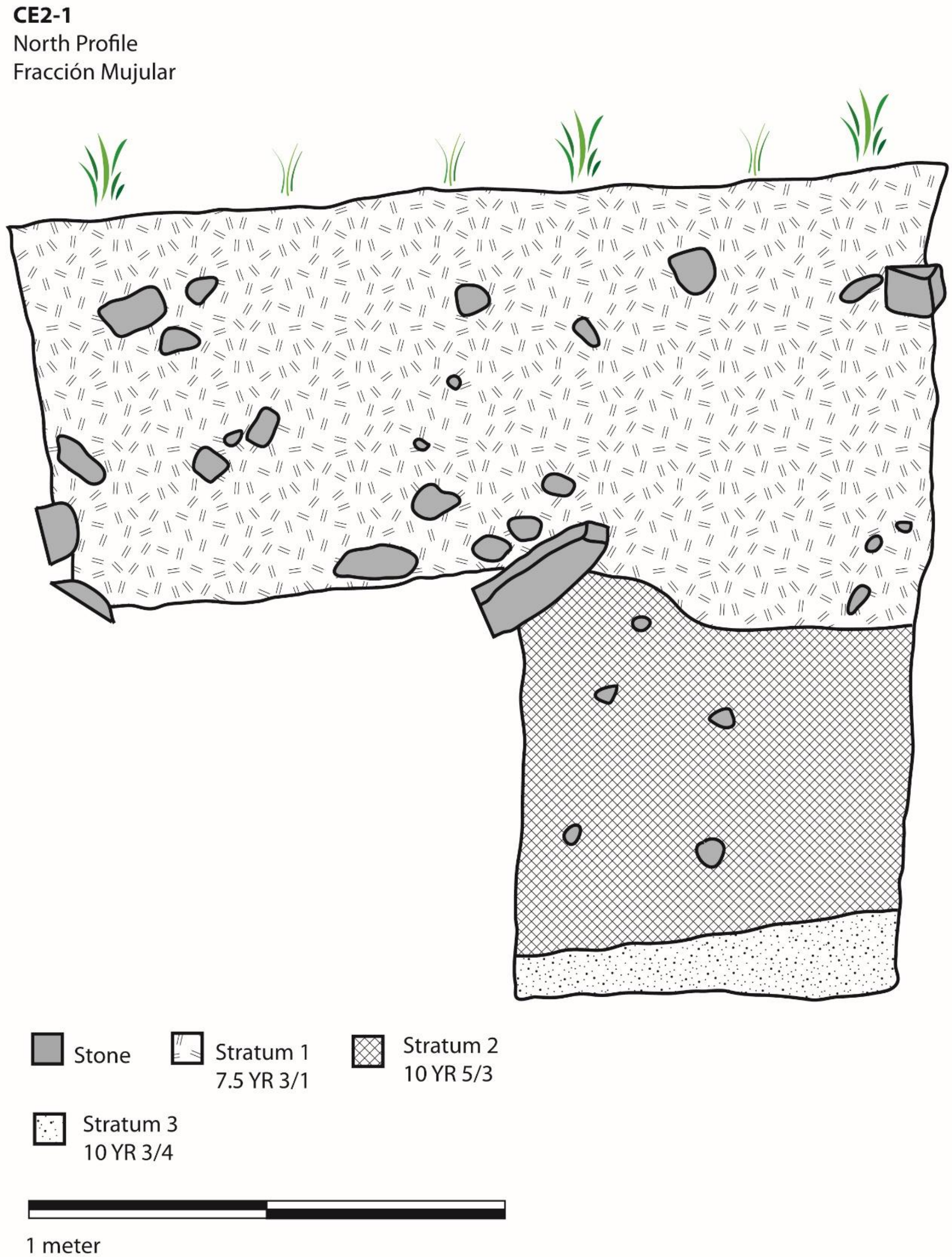


Figure 4.37: CE2-1 North Profile

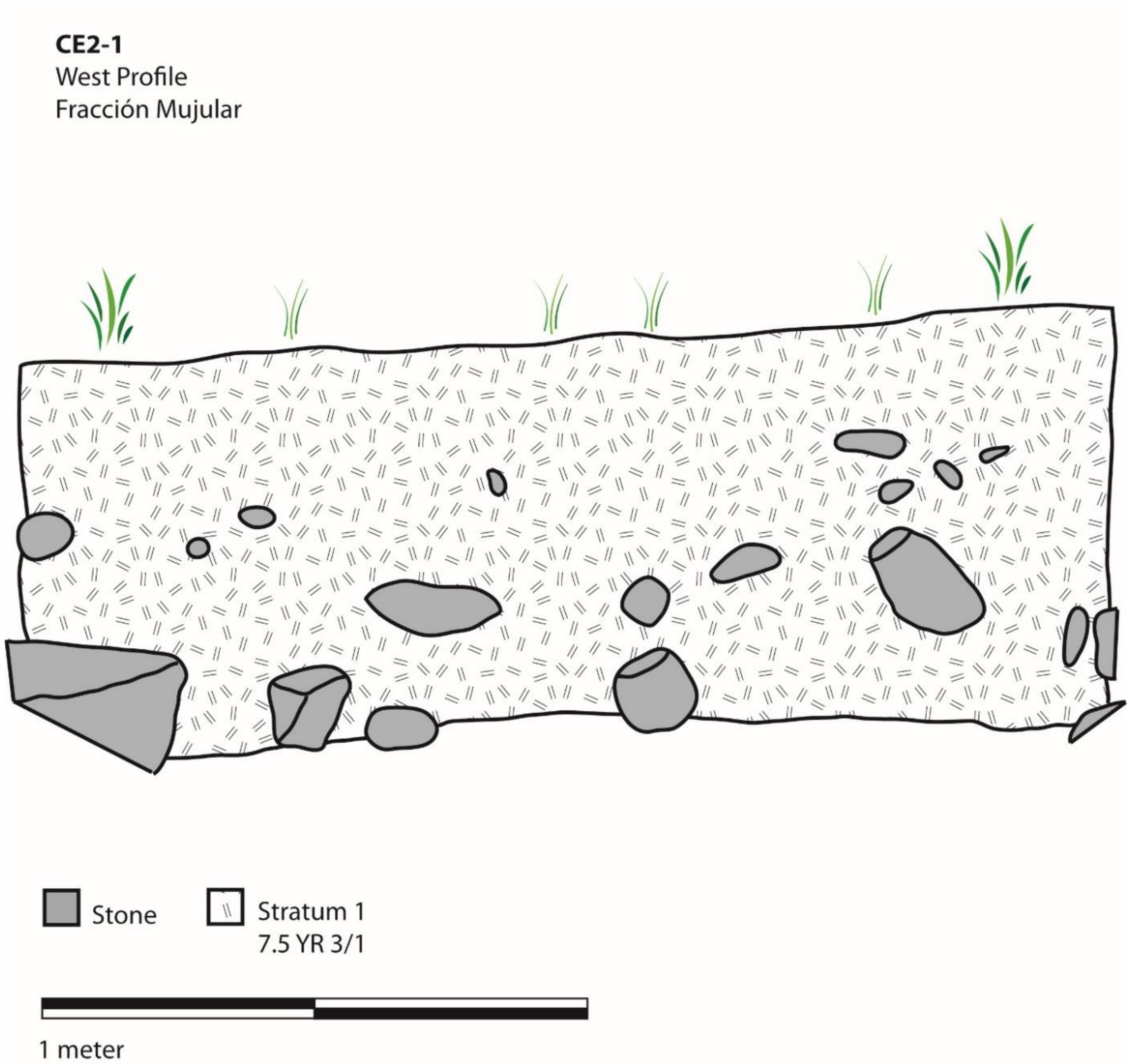


Figure 4.38: CE2-1 West Profile

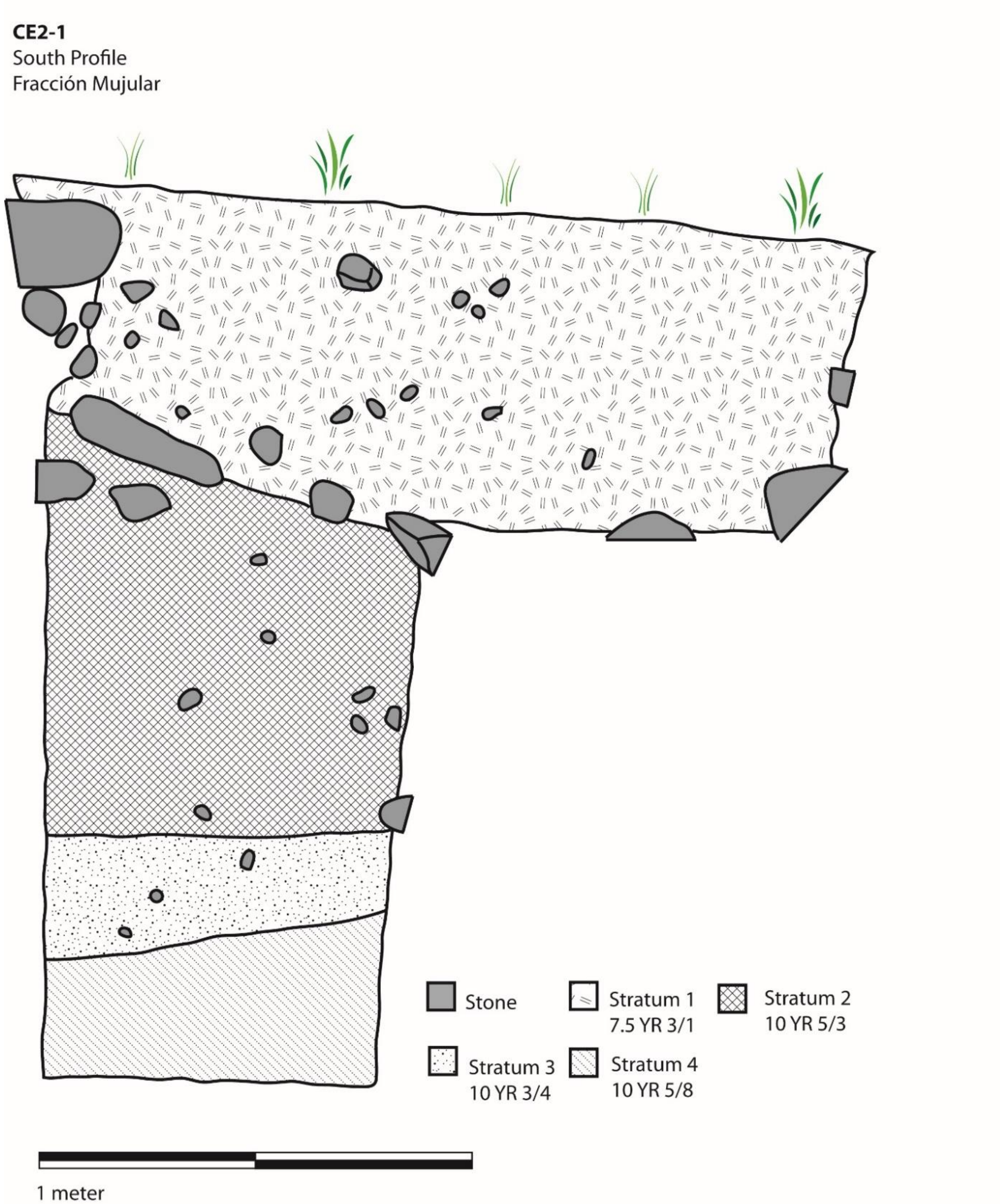
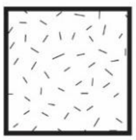


Figure 4.39: CE2-1 South Profile

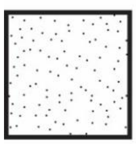
Figure 4.40: Unit CE2-1 Before and After Excavation

CE2-2

Stratum #1
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 7.5 YR 4/2
Soil Description: Soil is very dark and very hard. Very fine to medium granular structure with moderately sorted clusters. Earthy soil with some small rock inclusions.
Artifact Description: Dominated by Late Classic ceramics from the Chencho Group. Some plumbate. Abundant obsidian, mostly dark blacks from Central Mexico.



Stratum #2
Chronological Period: Late Classic
Carbon Dates: N/A
Soil Color: 10 YR 4/2
Soil Description: Soil is hard and compact, but less dark than in previous layers. Very fine to medium granular clusters, moderately sorted soils.
Artifact Description: Dominated by Late Classic ceramics from the Cencho and Vassallo groups.



Stratum #3
Chronological Period: Sterile Soil
Carbon Dates: N/A
Soil Color: 10 YR 6/6
Soil Description: Very fine to course granular structure, poorly sorted soil. Hard, clay like soils.
Artifact Description: This was a sterile layer and no artefacts were found.

Figure 4.41: Key for CE2-2

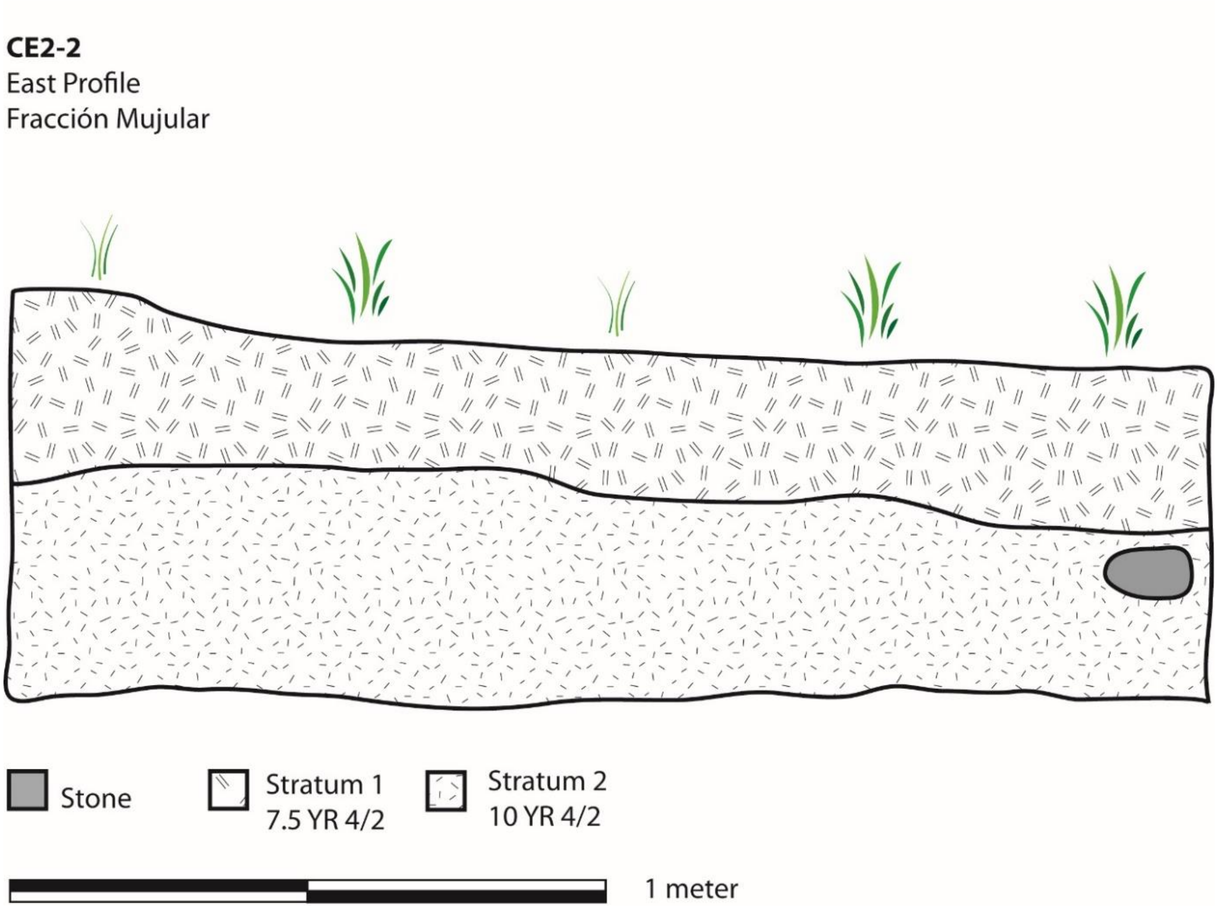


Figure 4.42: CE2-2 East Profile

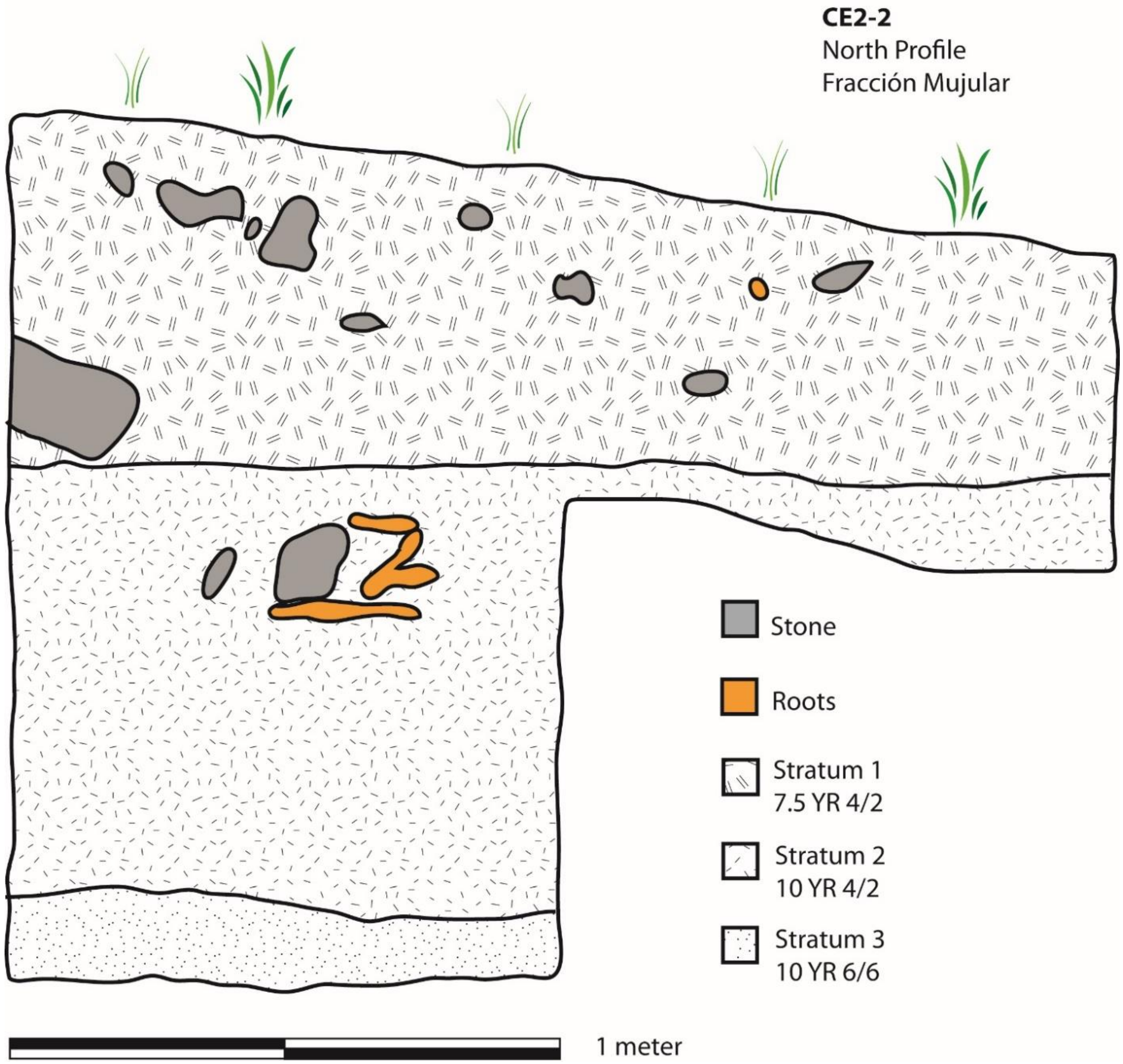


Figure 4.43: CE2-2 North Profile

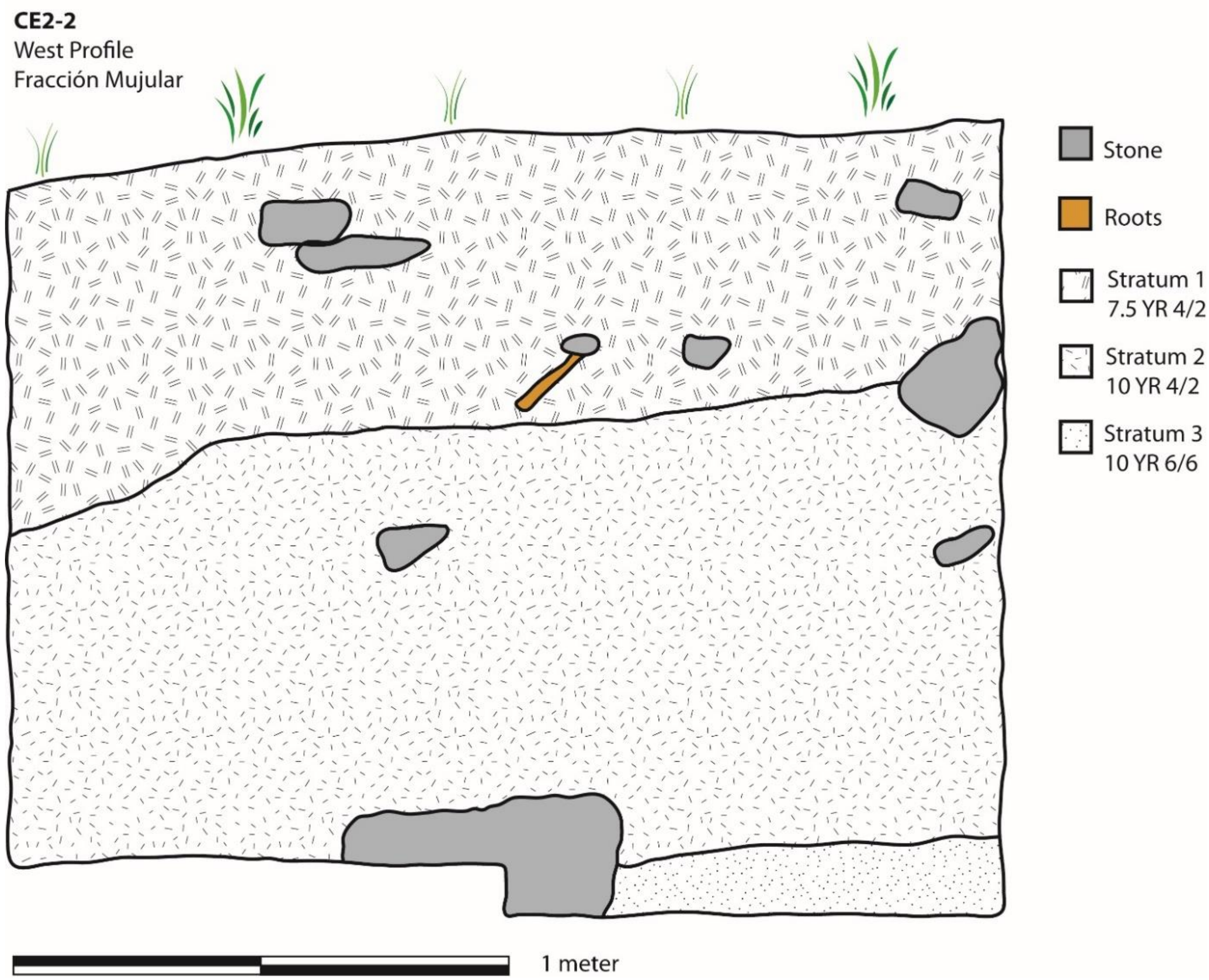


Figure 4.44: CE2-2 West Profile

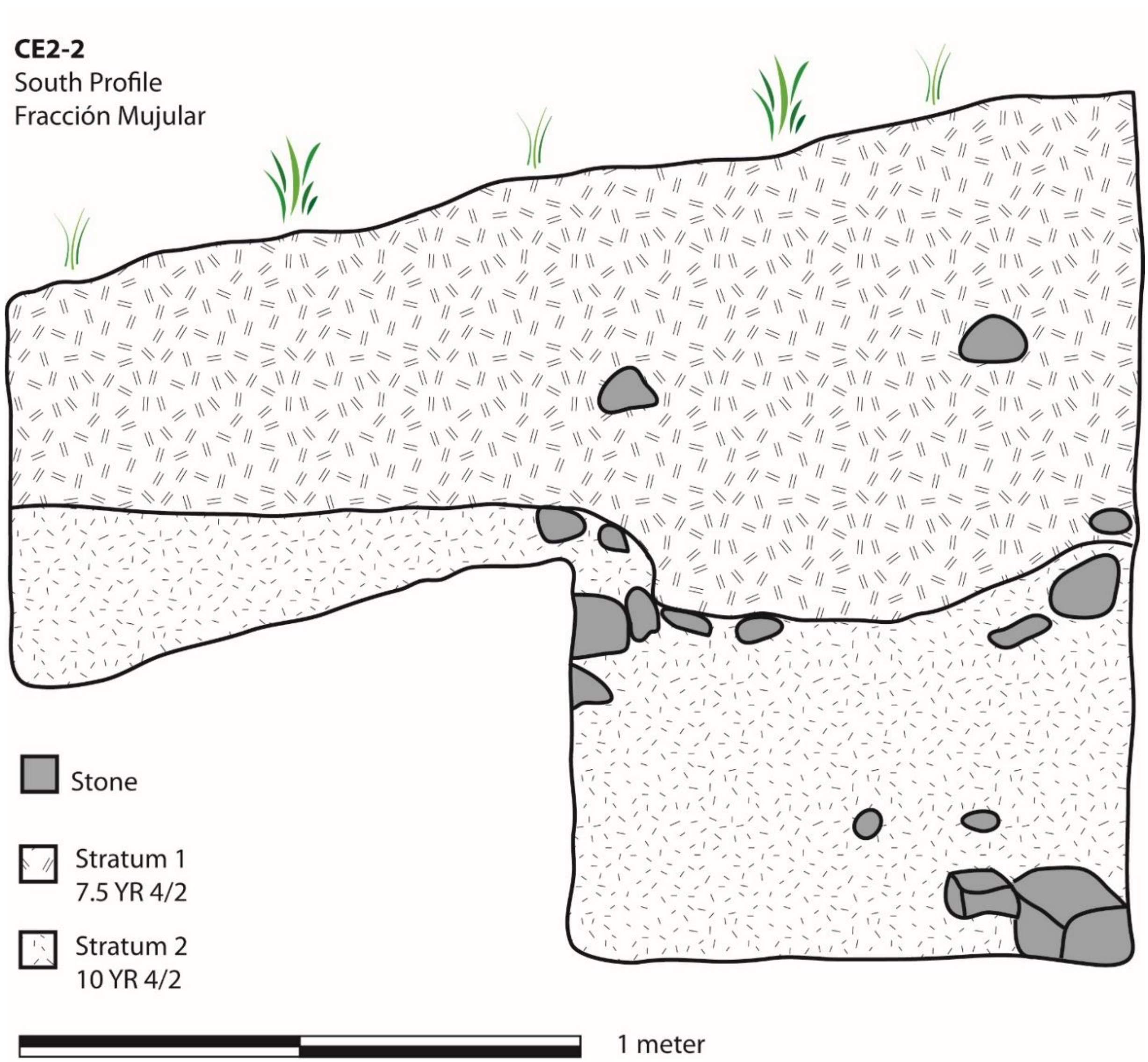


Figure 4.45: CE2-2 South Profile

Figure 4.46: Unit CE2-2 Before and After Excavation

Excavations in Group D

Group D is the largest architectural group at Fracción Mujular, and consists of 8 large mounds surrounding a central plaza with a large altar mound in the center. A large mound on the west side of this plaza was identified during survey as a possible palace, or elite residence, and has a possible carved stone throne on its north side. Unfortunately this structure, as well as several others at Group D, has been heavily damaged by looters pits. The architecture at group D is grander in scale than any other area of Fracción Mujular. Nonetheless, the shape of the site's structures and their arrangement around the plaza are indicative of a primarily residential site. The residential nature of Group D was confirmed during both survey and excavations by the discovery of a large number of domestic artifacts. These finds suggest that group D indeed a domestic space, perhaps slightly more affluent than that at group C, but still modest in size compared to elite areas at sites such as Los Horcones.

Excavations at Group D targeted 4 of the 8 principle mounds surrounding the Group D plaza. We excavated a total of 6 test pits at group D, one each for structures D4 and D5, and two each for structures D6 and D7. All excavations were placed on the centerline of the structure, immediately outside of the slope of the mound. Excavations at mounds D4 and D5 only targeted the interior plaza space, while excavations at mounds D6 and D7 were conducted both inside and outside of the plaza. Our excavations showed that like at group C, the plaza was raised by between one and two meters in order to create a flat and level area. The final construction phase of the plaza seems to have involved depositing a relatively thin floor of large stone cobbles, which could be identified in three of our four plaza excavations. Generally, excavations inside of the plaza returned far fewer artifacts than those outside. This suggests that the plaza area was kept relatively clean, and that wet fill used to construct the plaza was poor in artifacts. Spaces exterior to the plaza, on the other hand, returned abundant deposits of artifacts, likely discarded from adjacent housemounds during domestic activities.

D4-1

This unit was placed directly in front of mound 4 along the centerline of the structure. Mound 4 is a large domestic mound adjacent to the structure identified as an elite residence. We placed this unit in the hope of finding a burial or cache associated with mound 4. Unfortunately, no such features were found. In general, this unit returned very few artifacts, possibly suggesting that the plaza areas in front of the mounds were generally kept clean. The unit was excavated as a 2 x 2 meter test pit in 10 cm levels down to natural soil. Until hitting a natural deposit, soil changes were very difficult to identify in this excavation. One interesting feature in lot 10 was comprised of 4 stones set together with a large amount of carbon in-between them. We tentatively identified this feature as a hearth, although there was no clear floor or soil change immediately below the feature. One interesting artifact that was recovered from this excavation was a figurine head in a clearly Teotihuacano style; the only clearly Central Mexico style figurine thus far recovered from Fraccion Mujular.

D5-1

This excavation targeted the front of mound D5, one of the largest structures flanking the central plaza of group D. The unit was placed on the centerline of the structure, with the hope of finding any cache or offering that might have been associated with its construction. We started the excavation as a 2 x 2 meter unit, excavating in 10 cm lots. In lot 5 we exposed a unique stone feature, which we identified as being a cobble stone floor associated with the Group D plaza. Notably, this floor only covered the southern half of the unit. In order to continue excavating without initially disturbing this feature, we divided the unit in two parts, and continued vertical excavations in the northern half. These excavations continued to a depth of 2 meters before hitting natural soil. It is intriguing that the stone floor did not continue all the way to the base of mound 5. Currently, we have no good explanation for this pattern.

After reaching natural soil in our excavations on the north half of unit D5-1, we expanded the unit southwards one meter to expose a full 2 x 2 meter area of the stone floor feature. After this expansion the overall size of unit D5-1 was 3 x 2 meters. This expansion occurred in lot 21. After cleaning and photographing the floor, the rocks were removed in lot 22. This removal confirmed that the rock feature was only a single course thick. We excavated two 20 cm lots below the rock floor in order to search for any cache or offering, but no such features were found. In general, this excavation was very artifact poor. This suggests that the interior plaza space may have been kept clean, as far more artifacts were found in excavations outside of the plaza area.

D6-1

Unit D6-1 was placed immediately in front of the center of mound D6, on the east side of the Group D plaza. The purpose of this unit was to collect materials associated with mound D6, and to search for any cache or burial that may have been placed on its centerline. In lot 6 we encountered a layer of rocks which may correspond to the plaza floor rock feature found in unit D5-1. If this was the same plaza floor, the feature in D6-1 was not nearly as well preserved as in D5-1. This rock layer was at the same depth as the top of a massive natural boulder, which quickly came to dominate the south side of the excavation. In order to avoid this builder, we changed the size of the excavation to 2 x 1 meters on the north side of the unit.

The presence of this natural boulder raises considerable questions as to the construction history of the Group D plaza. As natural soil was encountered over a meter and a half below the top of the boulder it seems that a massive amount of construction must have occurred to cover the boulder and raise the plaza to its current level. Such a scenario is supported by the fact that a rock floor feature was found at the same level as the top of the boulder. This implies that the original landscape at Group D was extremely rugged and uneven. Why the Late Classic inhabitants of the area would have chosen such a topographically challenging location to build a residential plaza group remains an open question. In general, relatively few artifacts were found in this excavation. This was consistent for all of our excavations inside of the plaza in group D, whereas our excavations on the non-plaza side of structures returned large numbers of artifacts.

D6-2

This unit was placed on the opposite side of mound D6 from unit D6-1. The main goal of this excavation was to compare the backside of mound D6 with our excavations inside of the plaza. The unit was excavated in 8 lots of 20 cm each, starting at a size of 2 x 2 meters and switching to 1 x 2 meters in lot 6 when we suspected we were nearing natural soil. Compared to D6-1, far more cultural material was found in this excavation, strongly suggesting that while plaza spaces were kept clean, some amount of household refuse was swept or discarded immediately exterior to mound D6. Cultural material recovered included a large amount of domestic ceramics, several malacates, a stone axe head, and several figurines. This diverse assemblage is strongly indicative of a domestic function for mound D6, supporting evidence from the shape of the mound, and the presence of a metate in situ on top of the mound. Most cultural material was recovered from the surface down to a depth of about 1 meter. This compares starkly with excavation D6-1, where low amounts of cultural materials were recovered down to more than 2 meters of depth. This suggests two things: 1) the materials collected in D6-2 were associated with the final use of mound D6, after the construction of the plaza, and 2) the plaza space was initially sunken compared to areas outside the plaza, necessitating a large amount of construction to raise and level the Group D plaza. The large amount of ceramics found in excavation D6-2 were very useful for identifying ceramic types and phases for Fracción Mujular.

D7-1

Unit D7-1 was placed immediately in front of the center of mound D7. The purpose of this unit was to collect materials associated with mound D6, and to search for any cache or burial that may have been placed on its centerline. The unit was opened as a 2 x 2 meter excavation, but was reduced in size twice due to safety considerations as the unit got too deep to easily enter. It was reduced to a 2 x 1 meter unit in lot 9, and a 1 x 1 meter unit in lot 14. Excavations here were deep, exceeding 2 meters. Artifact density was low, and it is likely that most of what we were excavating was plaza fill. Unfortunately, there has been a very high amount of bioturbation in this area, evidenced by mixed soils and large numbers of roots. This made the stratigraphy of unit D7-1 very difficult to accurately describe. Although a large number of rocks were removed in excavation, there was no clear plaza floor as was found in units D5-1 and D6-1. Several grey colored and sandy deposits deeper in the unit are likely the result of decomposed stones. Overall, the deep excavations in this lot support a high amount of raising and leveling during plaza construction at Group D.

D7-2

This excavation was placed on the opposite side of mound D7 from unit D7-1. Like unit D6-2, the goal of this excavation was to collect a large amount of domestic refuse associated with the adjacent mound, and compare between the inside and outside of the plaza area. The unit was started as a 2 x 2 meter excavation, and was dug in 20 cm levels. The unit was reduced to a 2 x 1 meter excavation in lot 6, and to a 1 x 1 meter excavation in lot 11, both times due to safety concerns posed by the depth of the unit. Like our excavations at mound D6, we found far more artifacts outside of the plaza area than inside, suggesting that some domestic refuse was being deposited adjacent to the mound. Domestic ceramics, as well as a melacate, suggest that mound D6 was domestic in nature. Although excavations here were deeper than in D6-2, most artifacts were found at about a meter to a meter and a half in depth, which suggests that the interior plaza had been substantially raised prior to the construction and use of mound D6.

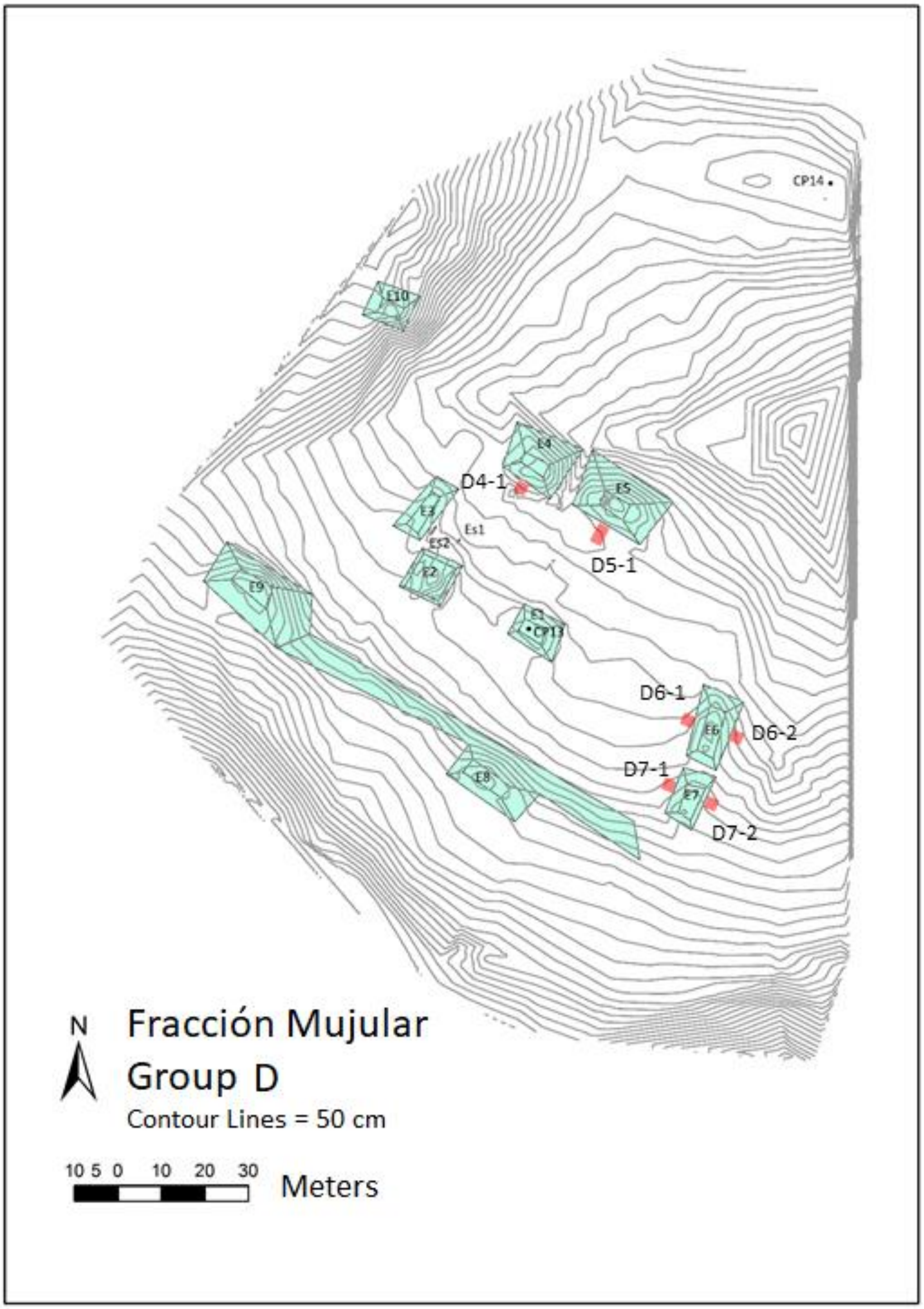
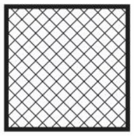


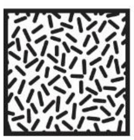
Figure 4.47: Map of Group D showing excavations

D4-1

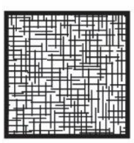


Stratum #1
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: Very fine to medium grain soil. Very earthy. High amounts of organic materials.
Artifact Description: Very few artifacts. Plaza area seems to have been kept clean.

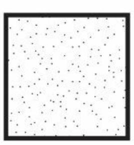
Stratum #2
Chronological Period: Postclassic
Carbon Dates: UCIAMS# 191466 collected at 94 cm depth. One sigma range calendar date at CE 694-770
Soil Color: 10 YR 3/1
Soil Description: Very fine to medium grain soil. Very earthy and not very compact. High amounts of organic materials including large roots.
Artifact Description: Very few artifacts. Could be wet fill associated with mound or plaza construction. A Teotihuacan-style figurine head was found in this layer, but probably comes from fill and is not in its original context. Most ceramics are from the Postclassic Pochota group.



Stratum #3
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 2/2
Soil Description: Very wet and earthy soils. High amounts of roots. Fine to medium grain soils. Moderately compact.
Artifact Description: Very Few artifacts. Most ceramics seem to belong to Postclassic Pochota group, but it is difficult to make an affiliation based on such low ceramic density.



Stratum #4
Chronological Period: Unknown
Carbon Dates: N/A
Soil Color: 5 YR 5/6
Soil Description: This is a small lens of soil that is more earthy and clumpy than the sandy natural soil found beneath.
Artifact Description: Very few artifacts



Stratum #5
Chronological Period: Sterile soil
Carbon Dates: N/A
Soil Color: 10 YR 6/6
Soil Description: Sandy soil. Loose matrix. Fine to course grained.
Artifact Description: This is a natural layer.

Figure 4.48: Key for D4-1

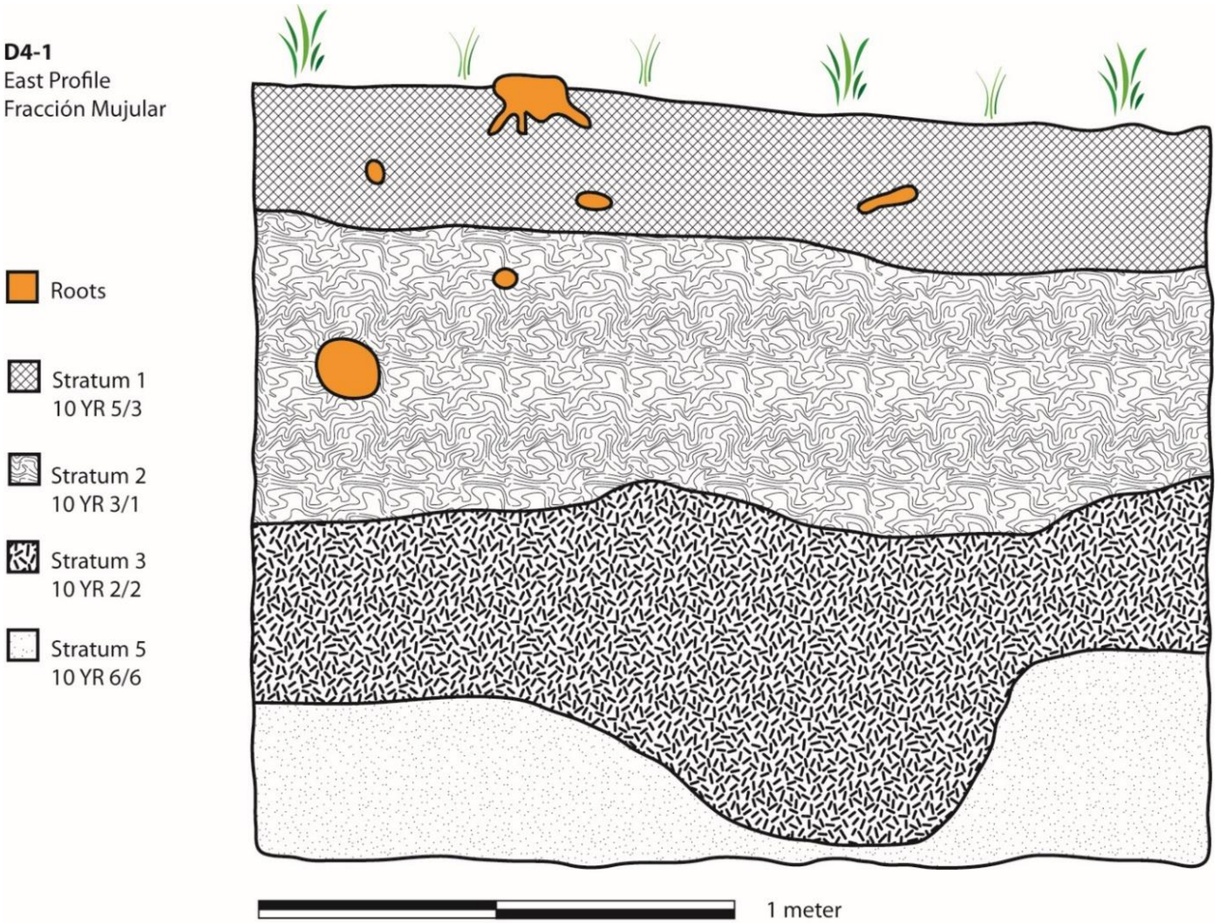


Figure 4.49: D4-1 East Profile

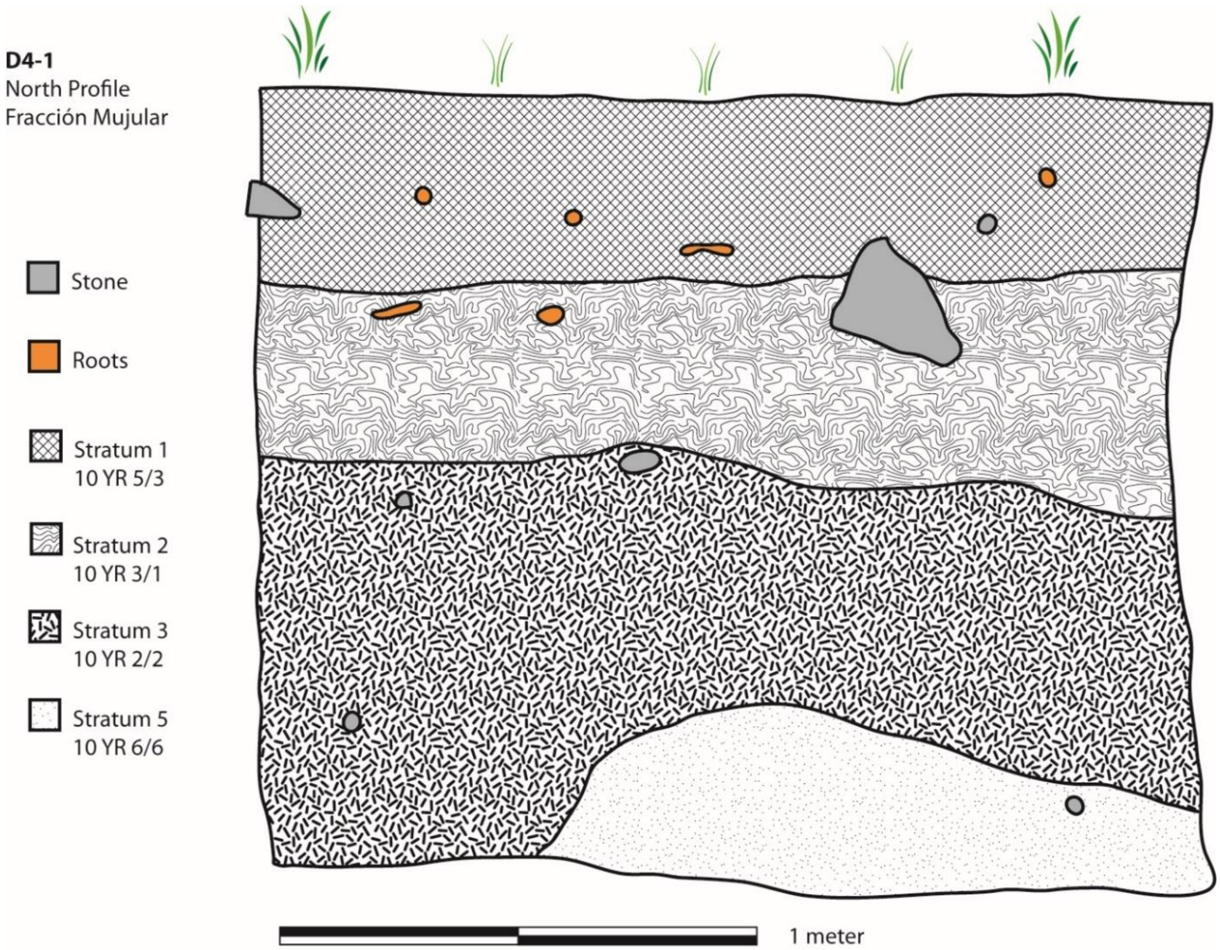


Figure 4.50: D4-1 North Profile

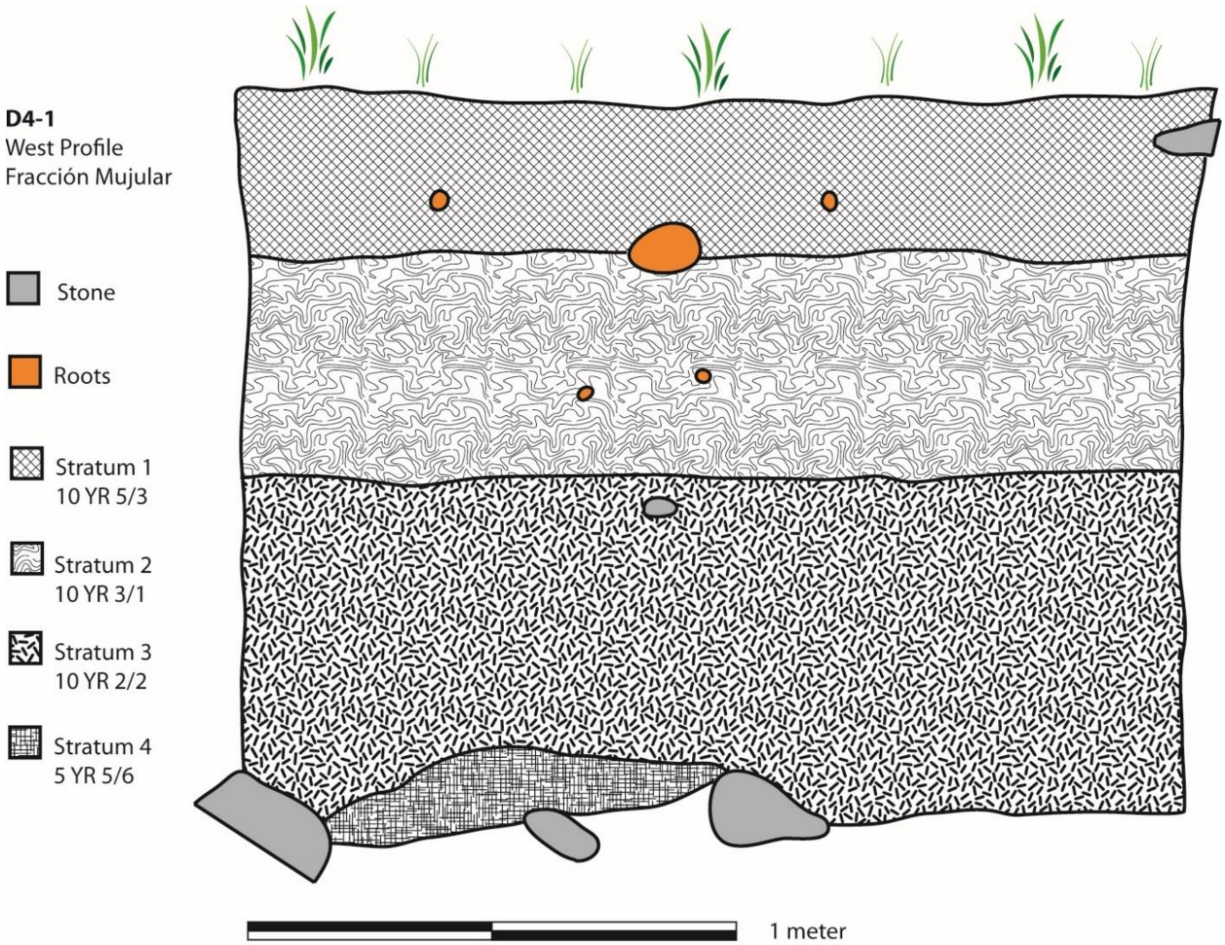


Figure 4.51: D4-1 West Profile

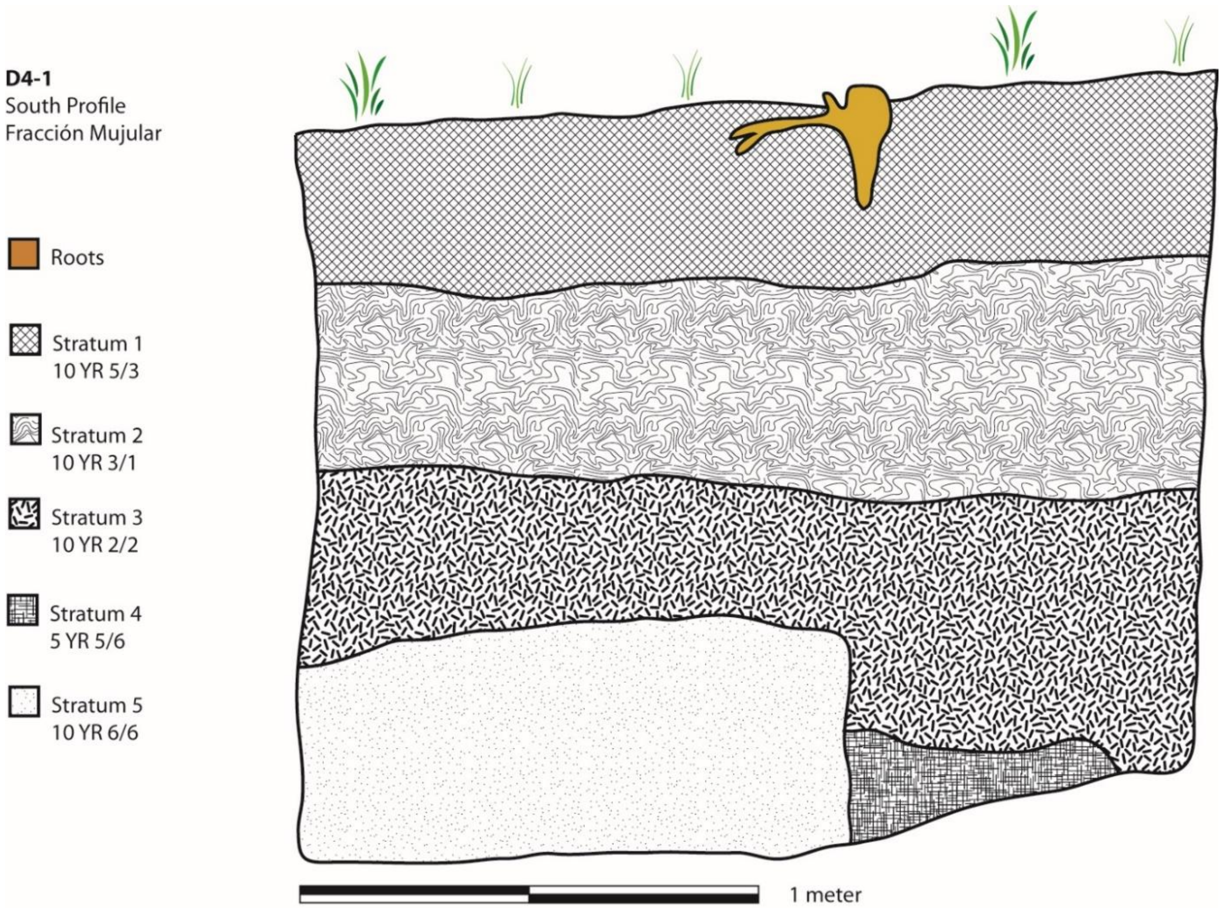
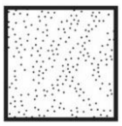


Figure 4.52: D4-1 South Profile

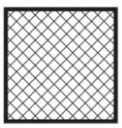
Figure 4.53: D4-1 Before and After Excavation

D5-1

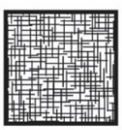
Stratum #1
Chronological Period: Postclassic
Carbon Dates: UCIAMS# 191467 collected at 39 cm depth. One sigma range calendar date at CE 1282-1379
Soil Color: 10 YR 3/1
Soil Description: Very fine to medium grain soil. Well sorted and fairly compact. Very fine grains with silty texture.
Artifact Description: Relatively few artifacts. Most ceramics date to the Late Postclassic Pochota Group.



Stratum #2
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 3/2
Soil Description: This is a natural soil layer found immediately below stone floor associated with the Group D plaza.
Artifact Description: This is a natural soil layer.

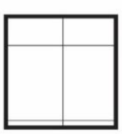


Stratum #3
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: Very fine to course grained soil. Moderately sorted. Clay like in texture. Some pebble inclusions.
Artifact Description: Relatively few artifacts. Most ceramics date to the Late Postclassic Pochota Group.



Stratum #4
Chronological Period: Late Classic / Postclassic
Carbon Dates: UCIAMS# 191468 collected at 106 cm depth. One sigma range calendar date at CE 716-864
Soil Color: 5 YR 5/6
Soil Description: Very fine to course grained soil. Moderately sorted. Silty, with a few small stone inclusions.
Artifact Description: Relatively few artifacts. Most ceramics date to the Pochota Group. Small amounts of plumbate and some painted sherds may also be Late Classic.

Stratum #5
Chronological Period: Late Classic / Postclassic
Carbon Dates: UCIAMS# 191469 collected at 166 cm depth. One sigma range calendar date at BCE 39 - CE 72
Soil Color: 10 YR 5/1
Soil Description: Very fine to medium grained soil. Well sorted. Silty, with a few small stone inclusions.
Artifact Description: Very few artifacts. Some incised sherds seem Classic in nature. Other sherds belong to the Pochota ceramic group.



Stratum #6
Chronological Period: Sterile soil
Carbon Dates: N/A
Soil Color: 10 YR 6/2
Soil Description: Very fine to medium grained soil. Moderately sorted. Lots of small and medium inclusions. Soil is crumbly and almost sand like.
Artifact Description: This is a natural soil layer.

Figure 4.54: Key to D5-1

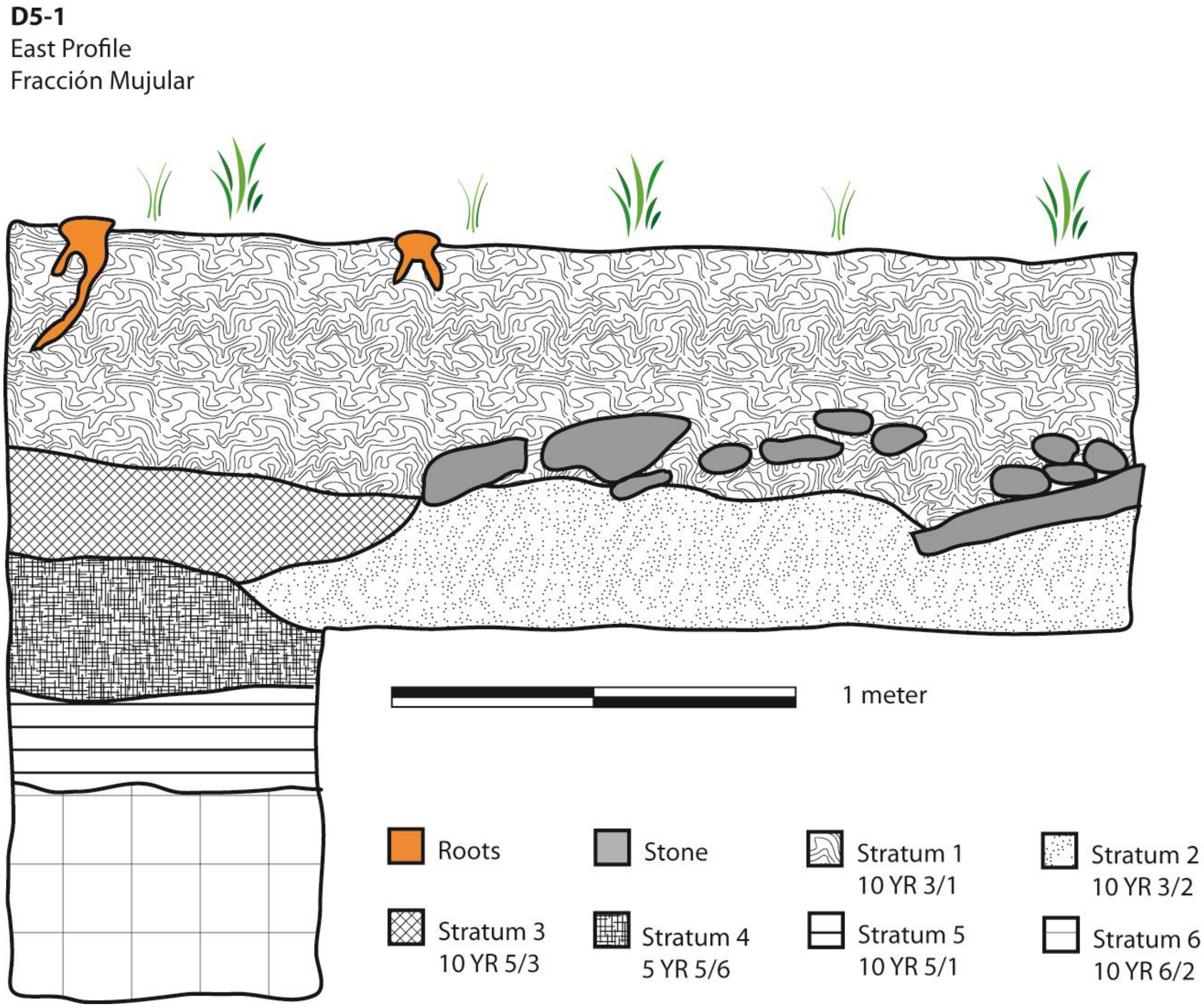


Figure 4.55: D5-1 East Profile

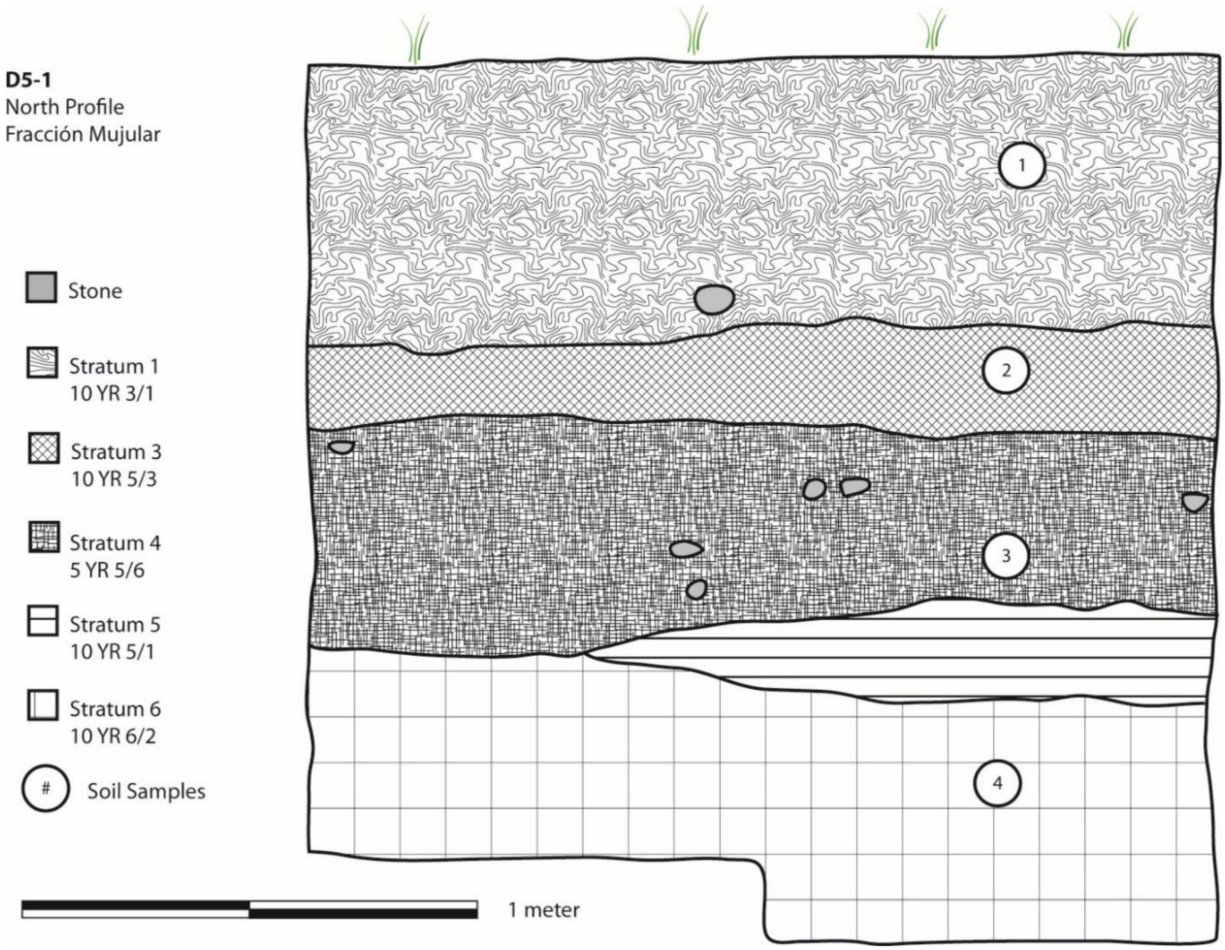


Figure 4.56: D5-1 North Profile

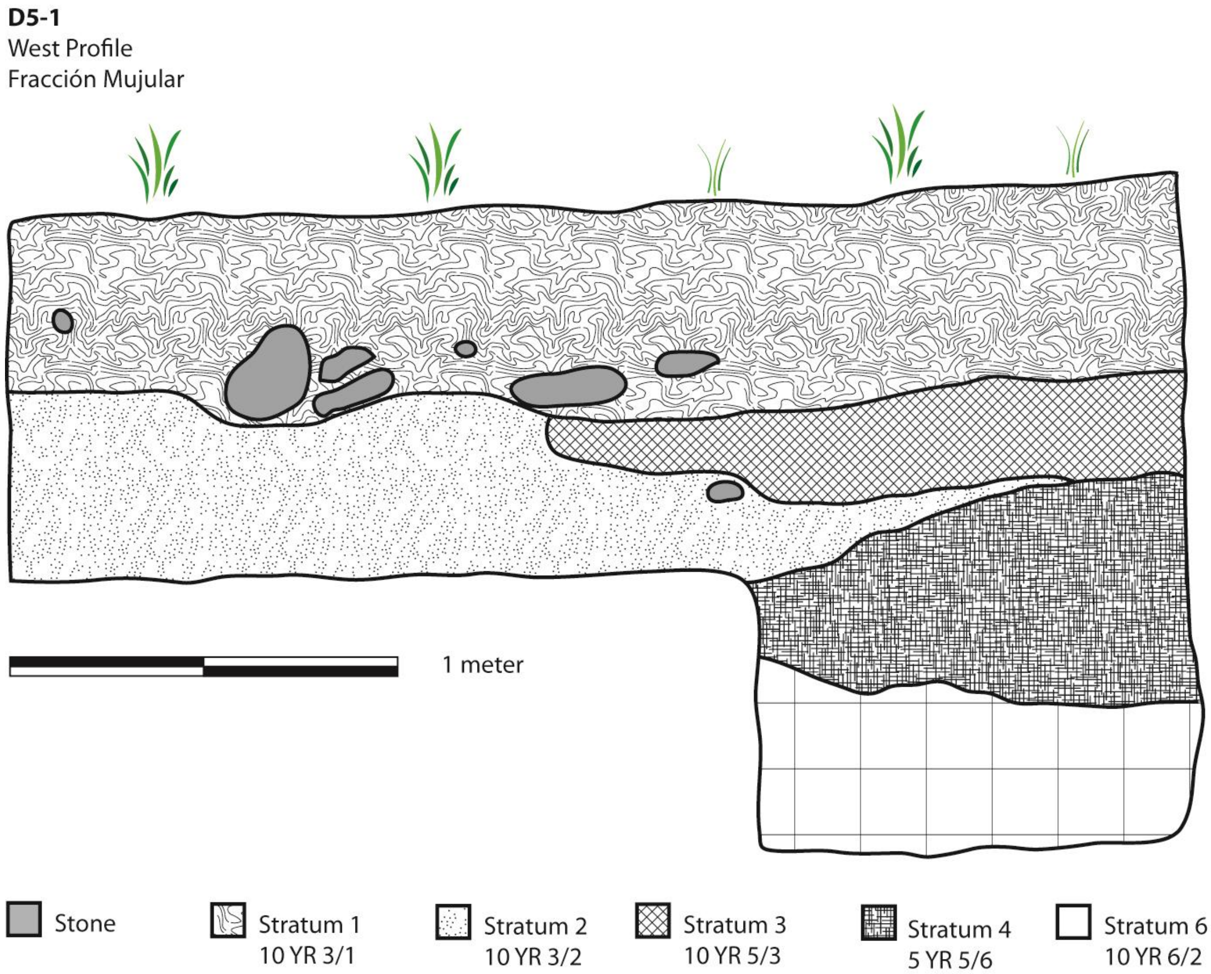


Figure 4.57: D5-1 West Profile

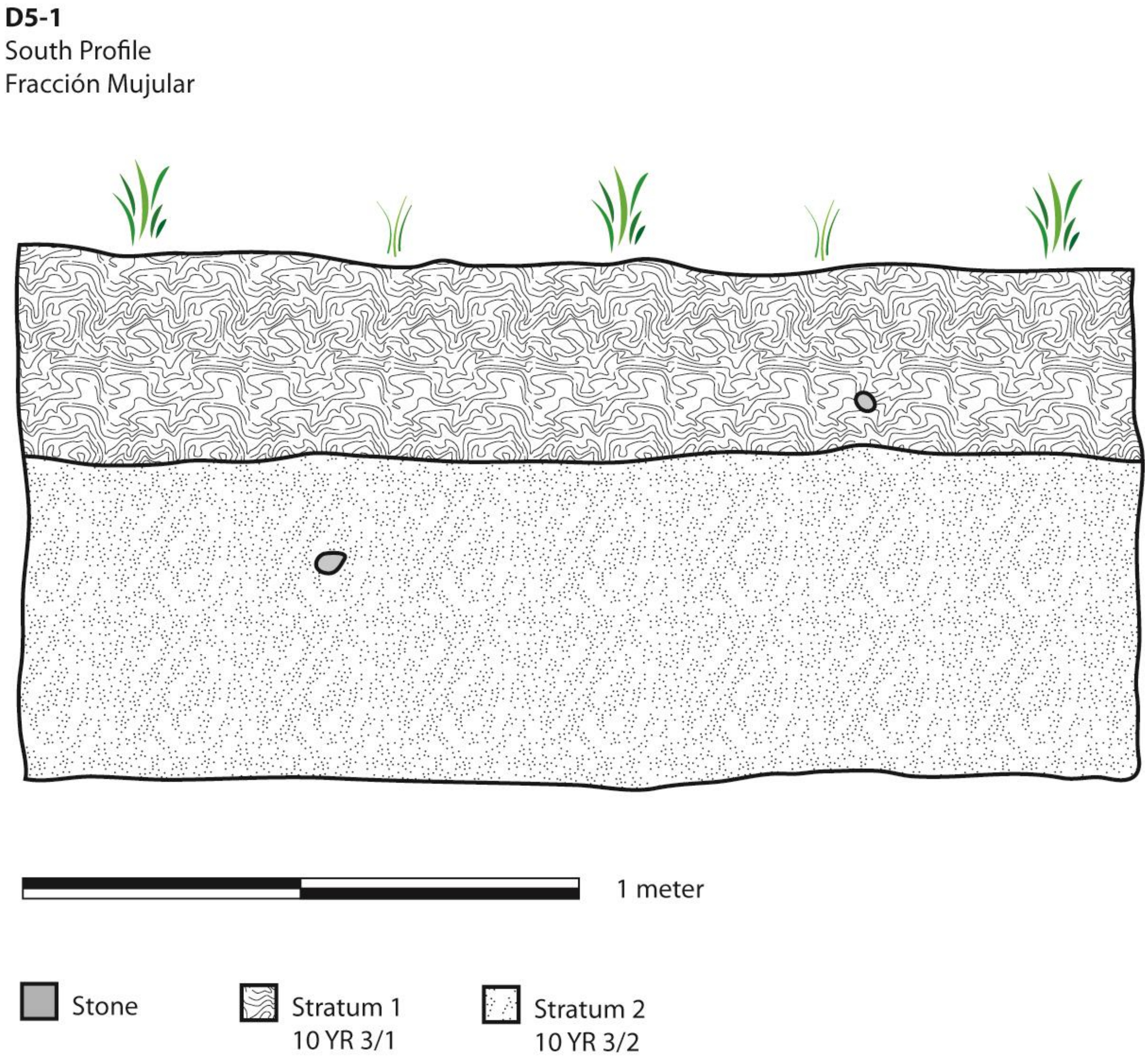


Figure 4.58: D5-1 South Profile

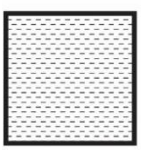
Figure 4.59: D5-1 Before and After Excavation

D6-1

Stratum #1
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 3/2
Soil Description: Very fine to medium grain soil. Relatively compact. This is the plaza floor. At the bottom of this layer there is a stone floor which may correspond to the stone floor found in D5-1.
Artifact Description: Moderate amount of artifacts. Plaza seems to have been kept relatively clean. Most ceramics are from the Pochota ceramic group.

Stratum #2
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 5/3
Soil Description: This is a layer of plaza fill located below the stone floor. Very fine to medium grain soil. Matrix is less compact than previous layer.
Artifact Description: Few artifacts. Most ceramics are from the Pochota ceramic group.

Stratum #3
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 4/4
Soil Description: This may represent wet fill associated wither with plaza construction or the construction of mound 6. Fine to medium grained soil. Few inclusions.
Artifact Description: Dense layer of artifacts. Ceramics are mainly from the Pochota group.



Stratum #4
Chronological Period: Sterile Soil
Carbon Dates: N/A
Soil Color: 7.5 YR 2.5/2
Soil Description: Fine to course grained soil. Moderately sorted. Small stone inclusions.
Artifact Description: This is a natural soil layer.

Figure 4.60: Key to D6-1

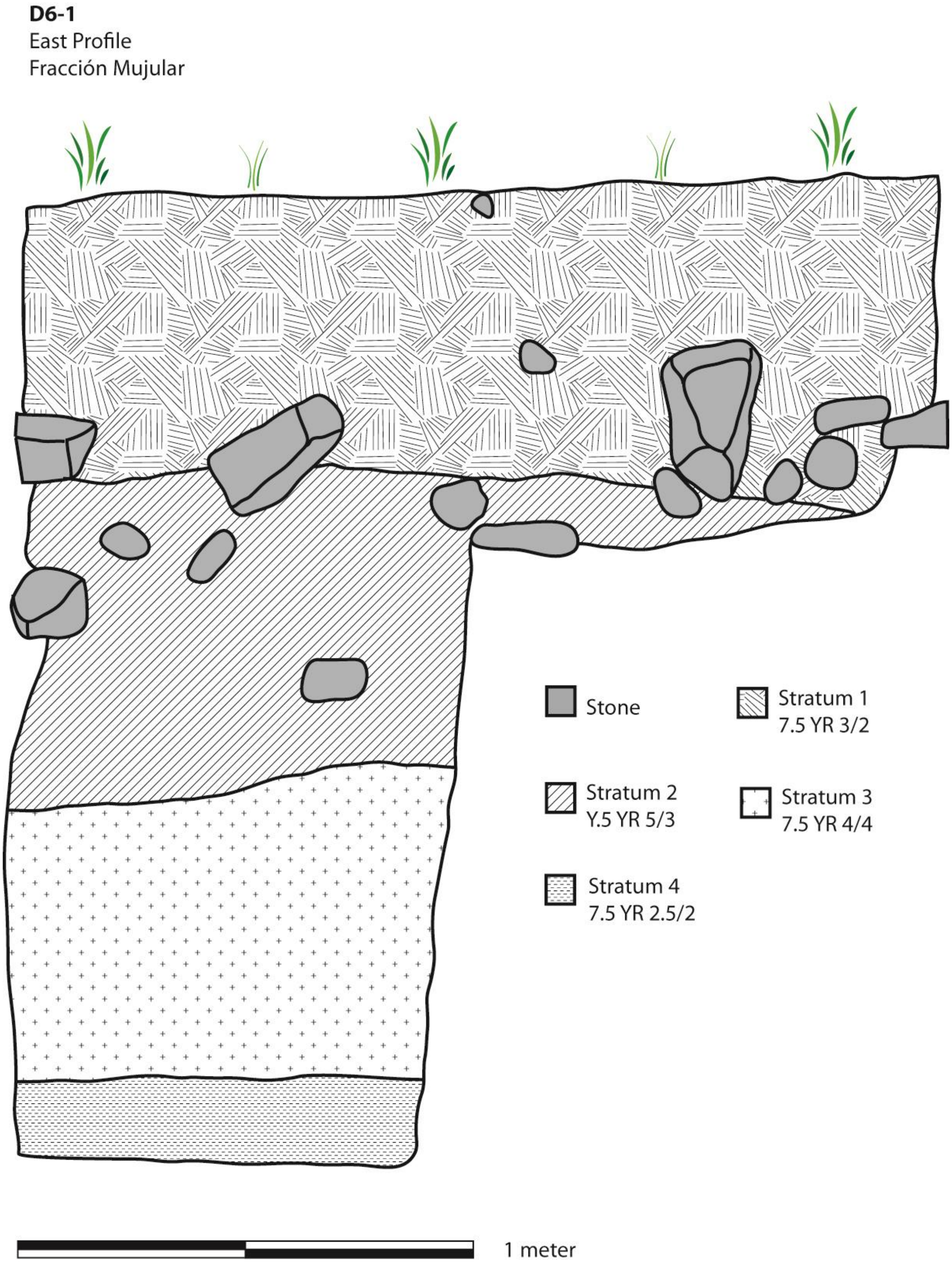


Figure 4.61: D6-1 East Profile

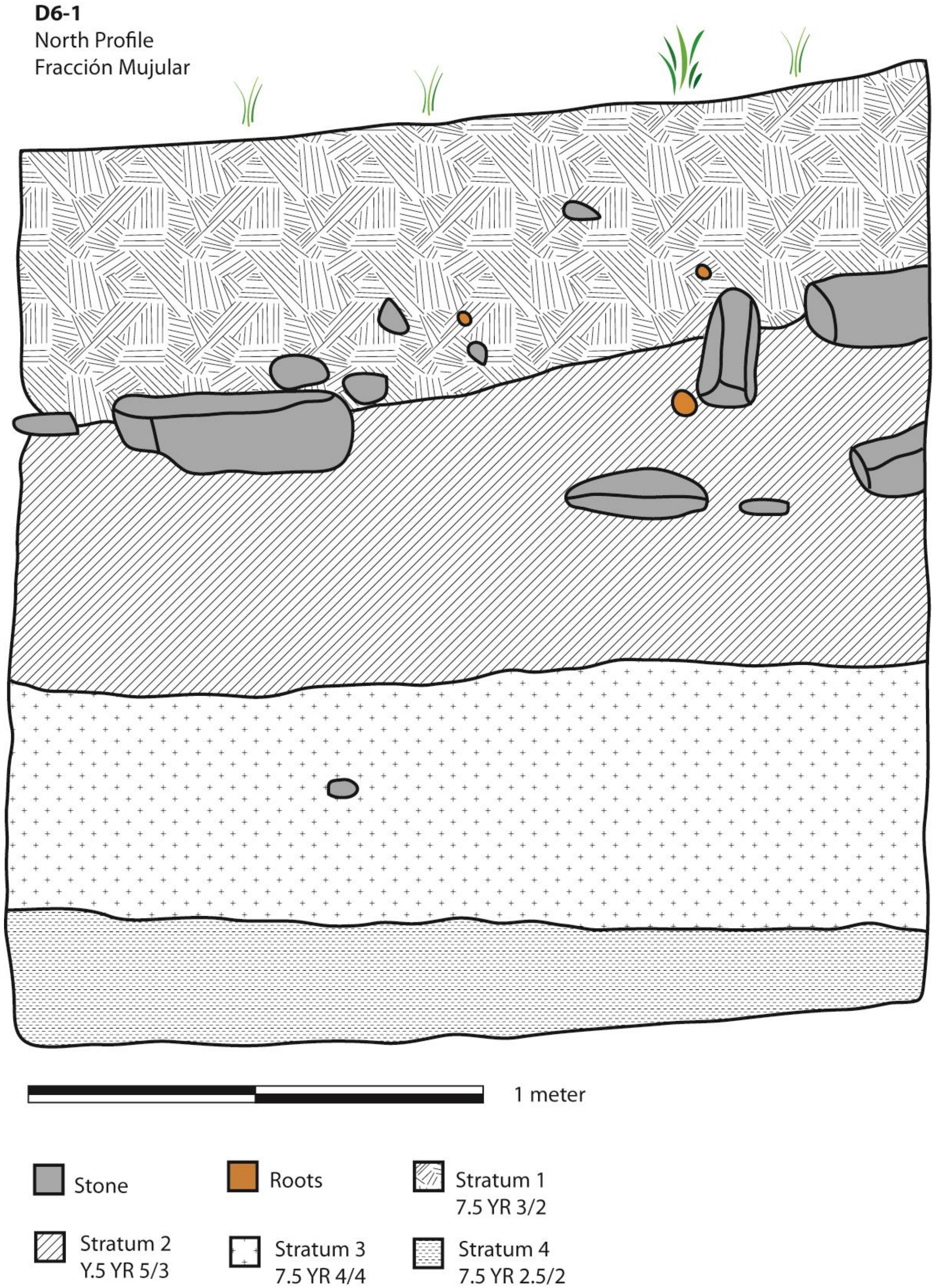


Figure 4.62: D6-1 North Profile

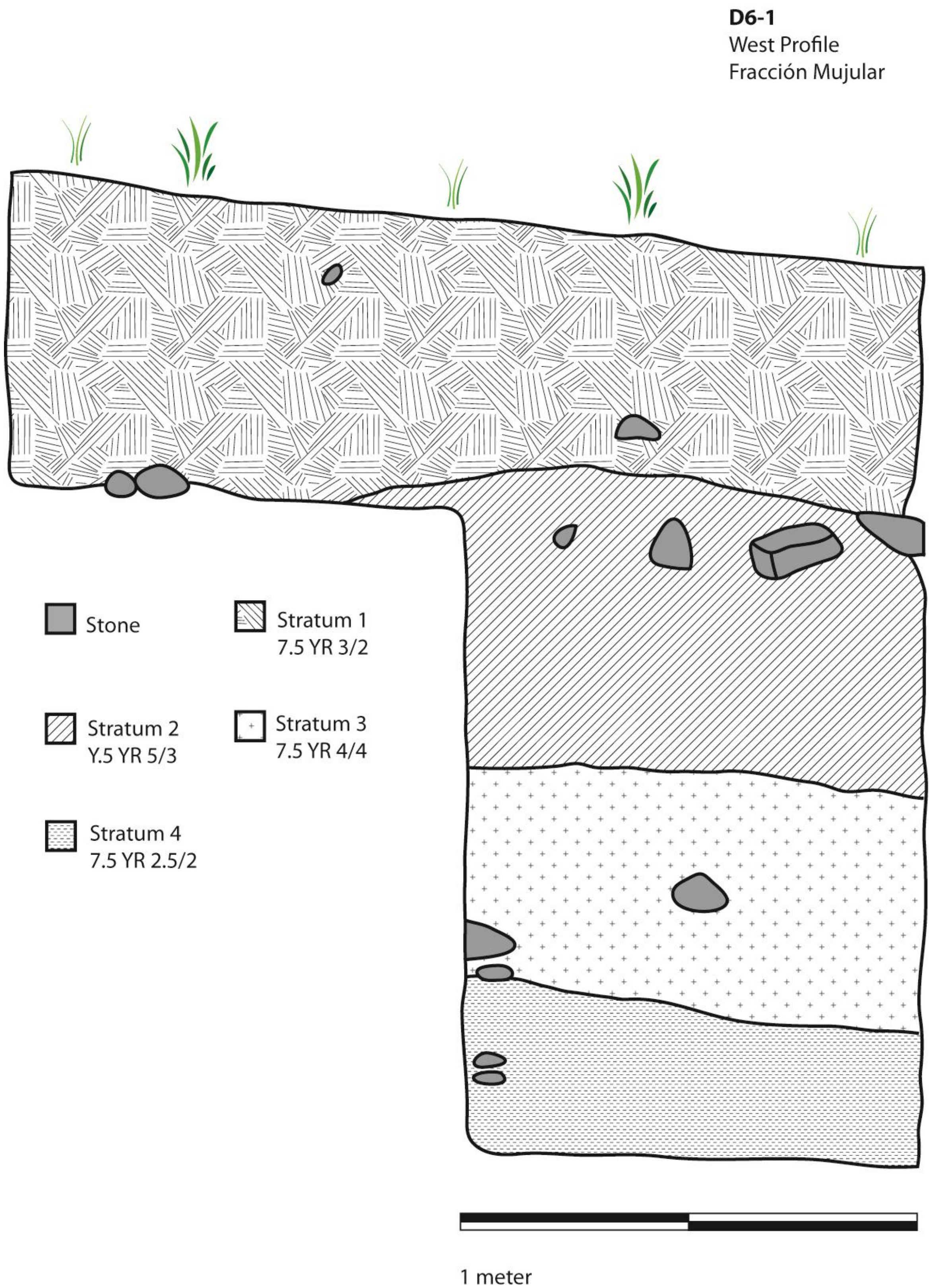


Figure 4.63: D6-1 West Profile

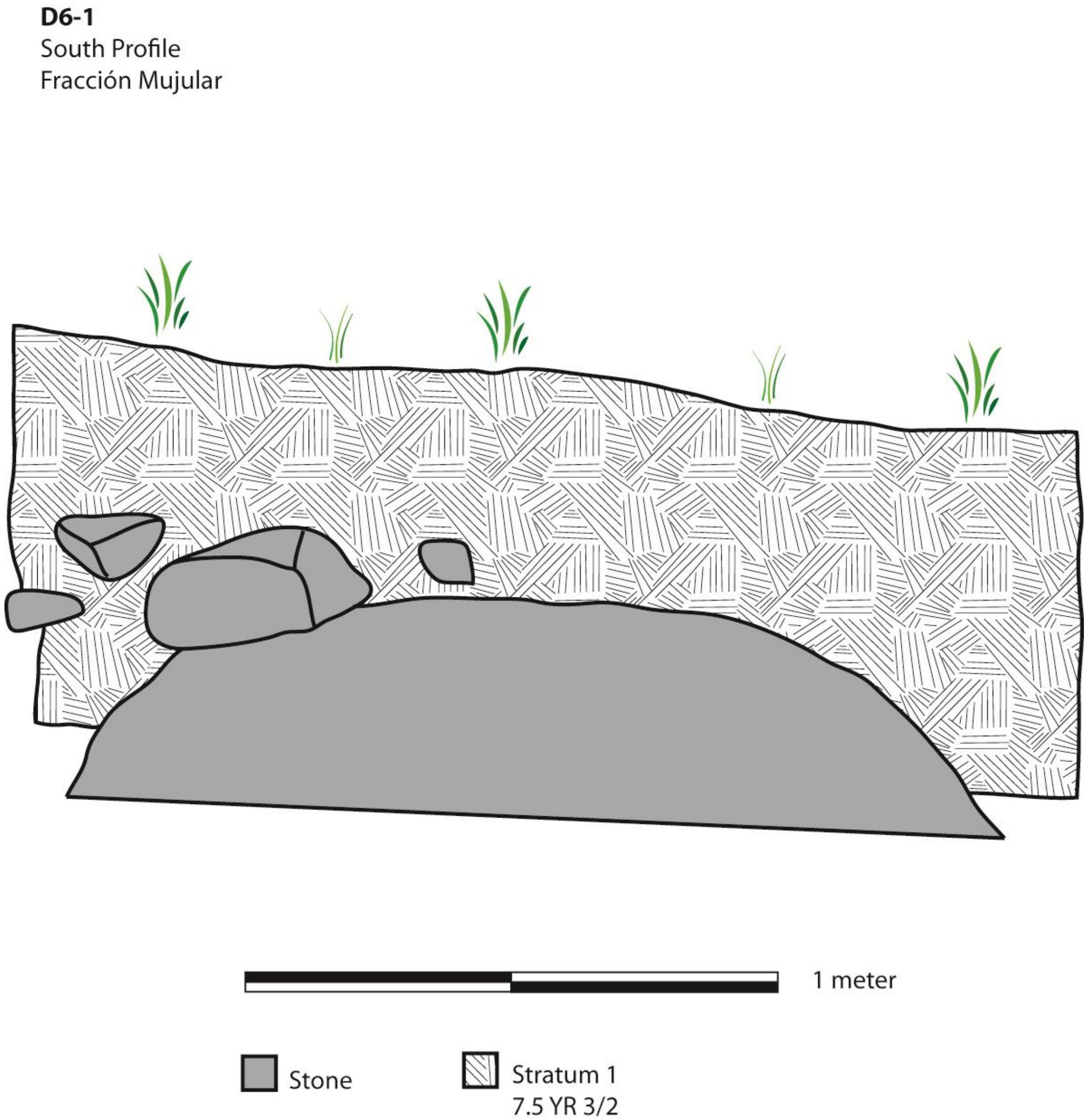
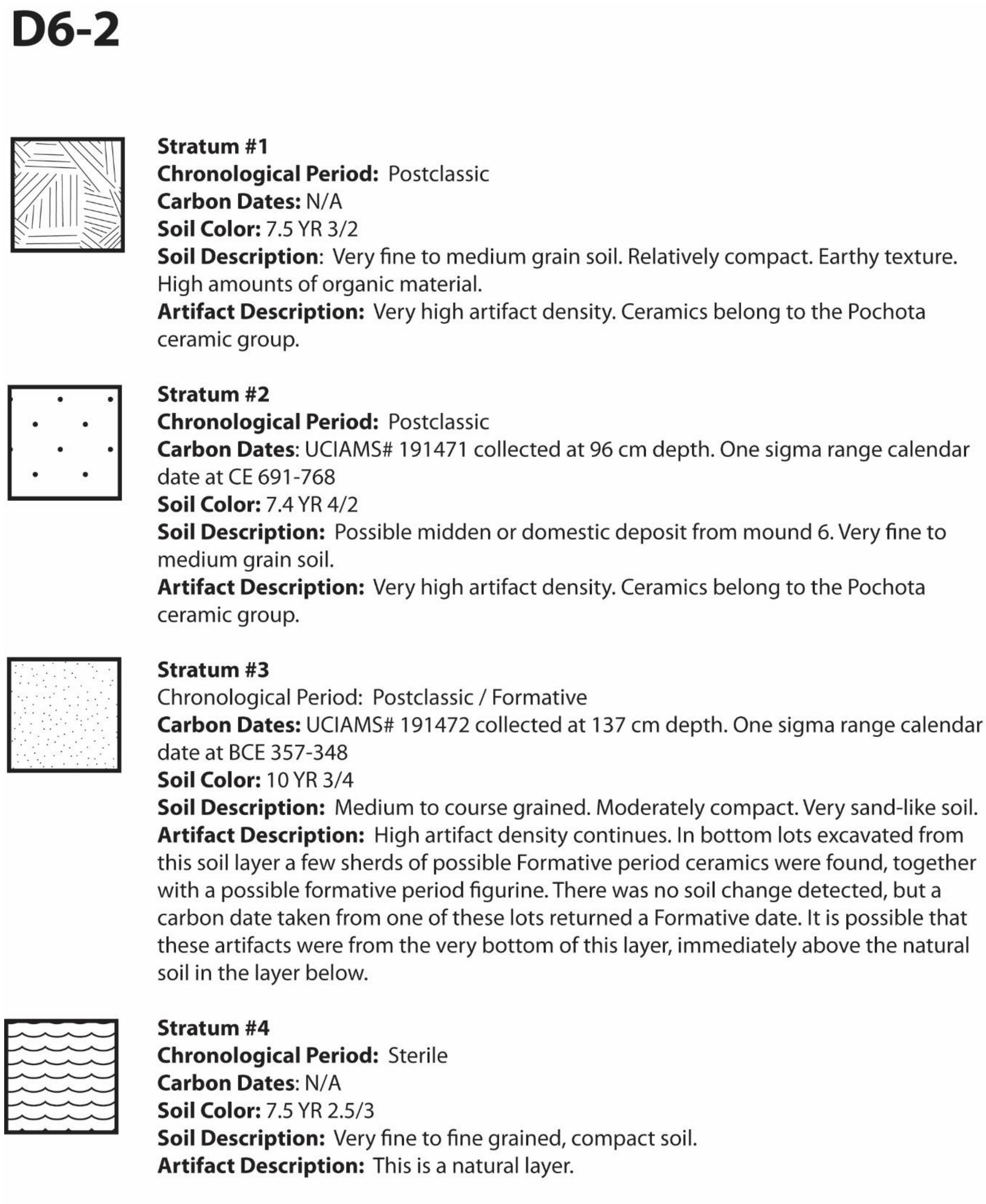


Figure 4.64: D6-1 South Profile

Figure 4.65: D6-1 Before and After Excavation



D6-2

Stratum #1
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 3/2
Soil Description: Very fine to medium grain soil. Relatively compact. Earthy texture. High amounts of organic material.
Artifact Description: Very high artifact density. Ceramics belong to the Pochota ceramic group.

Stratum #2
Chronological Period: Postclassic
Carbon Dates: UCIAMS# 191471 collected at 96 cm depth. One sigma range calendar date at CE 691-768
Soil Color: 7.4 YR 4/2
Soil Description: Possible midden or domestic deposit from mound 6. Very fine to medium grain soil.
Artifact Description: Very high artifact density. Ceramics belong to the Pochota ceramic group.

Stratum #3
Chronological Period: Postclassic / Formative
Carbon Dates: UCIAMS# 191472 collected at 137 cm depth. One sigma range calendar date at BCE 357-348
Soil Color: 10 YR 3/4
Soil Description: Medium to course grained. Moderately compact. Very sand-like soil.
Artifact Description: High artifact density continues. In bottom lots excavated from this soil layer a few sherds of possible Formative period ceramics were found, together with a possible formative period figurine. There was no soil change detected, but a carbon date taken from one of these lots returned a Formative date. It is possible that these artifacts were from the very bottom of this layer, immediately above the natural soil in the layer below.

Stratum #4
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 7.5 YR 2.5/3
Soil Description: Very fine to fine grained, compact soil.
Artifact Description: This is a natural layer.

Figure 4.66: Key for D6-2

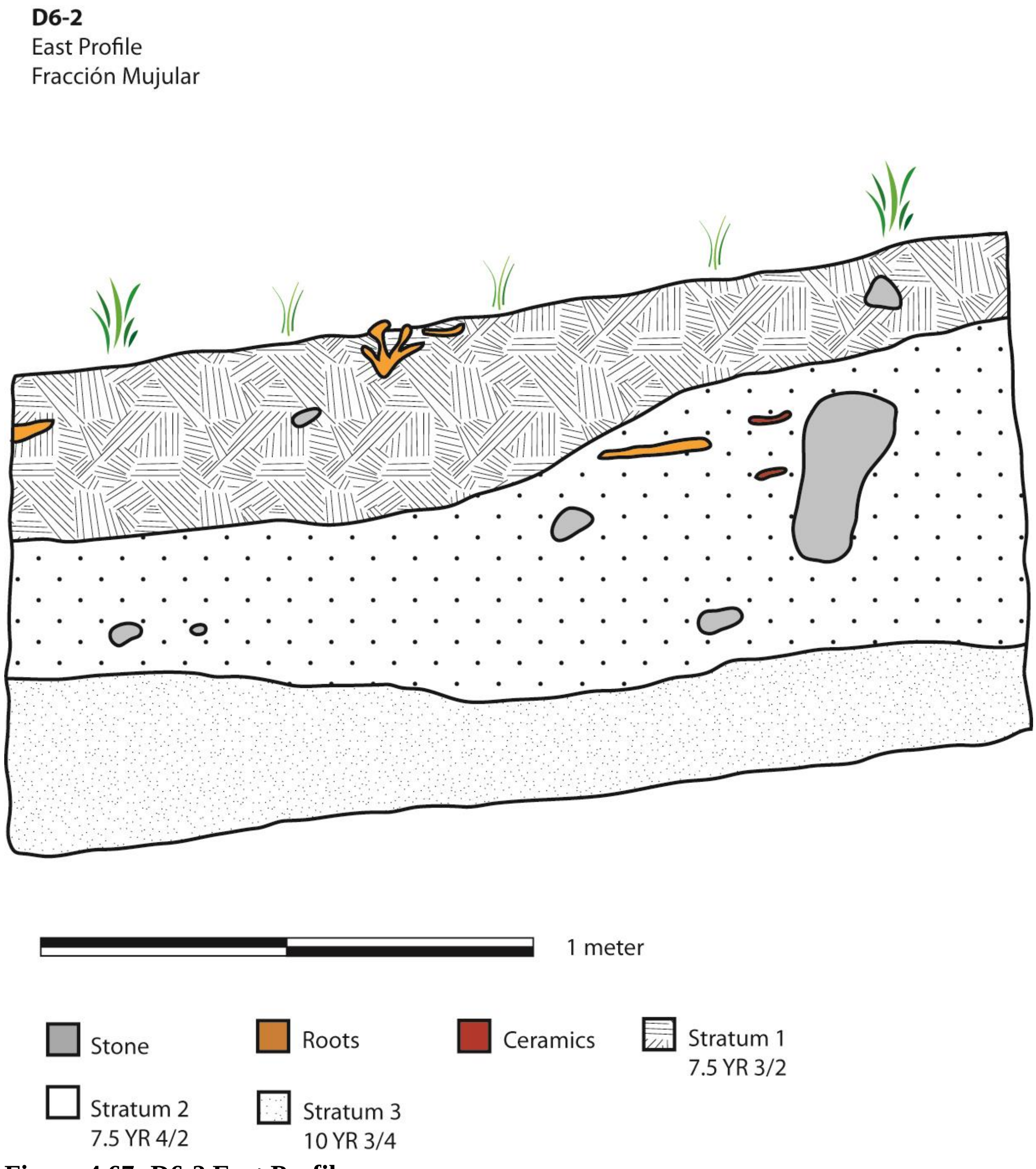


Figure 4.67: D6-2 East Profile

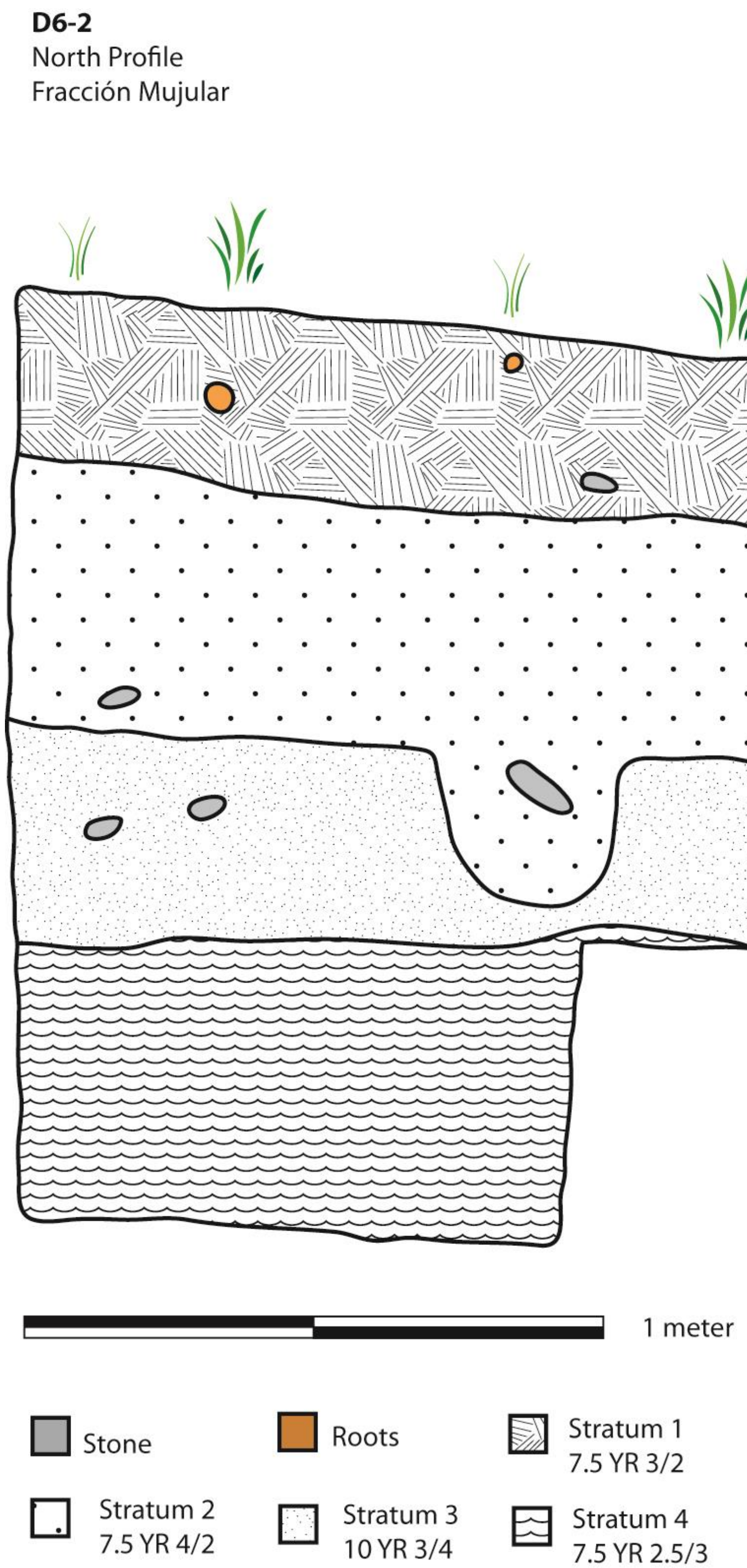


Figure 4.68: D6-2 North Profile

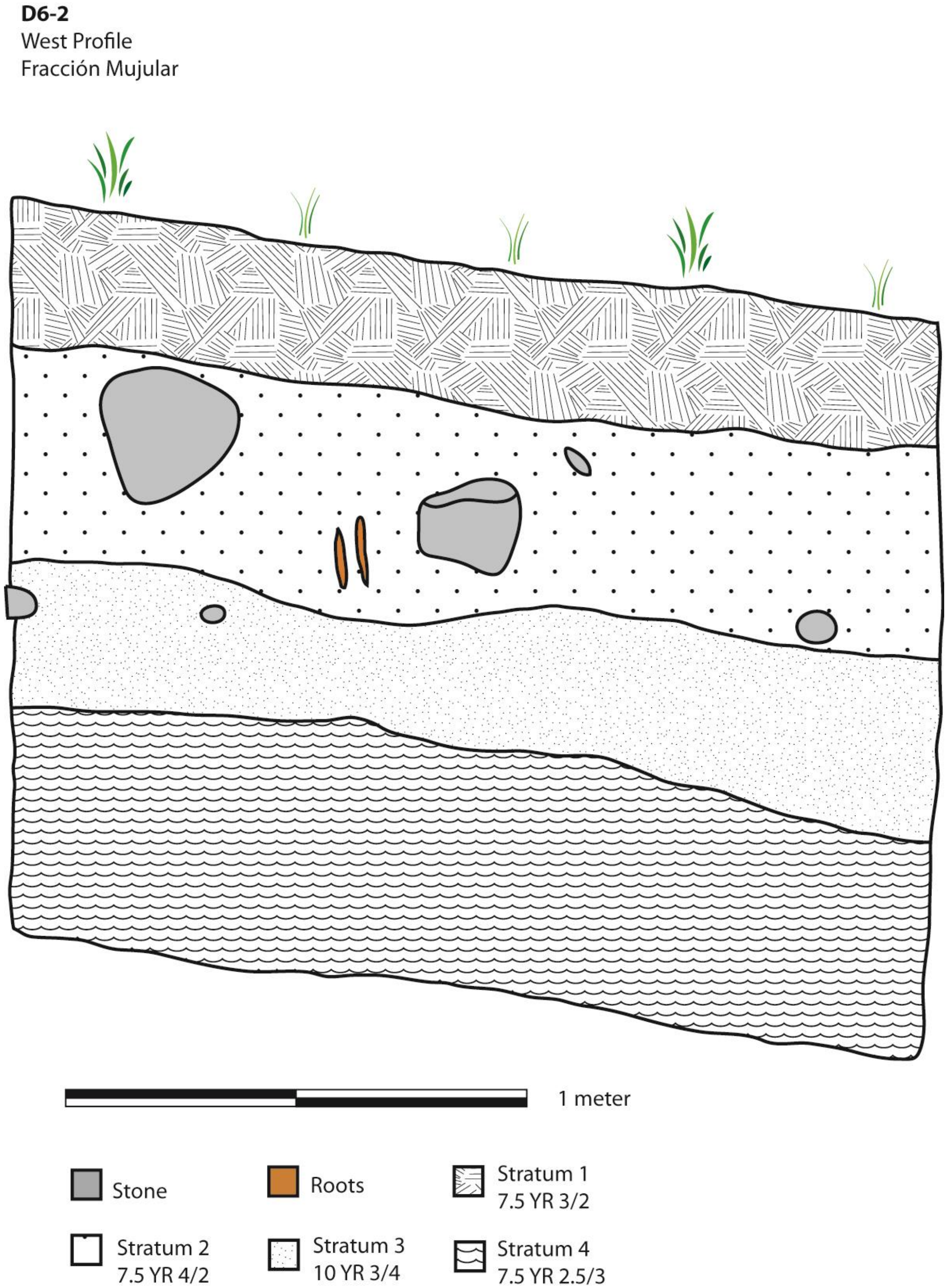


Figure 4.69: D6-2 West Profile

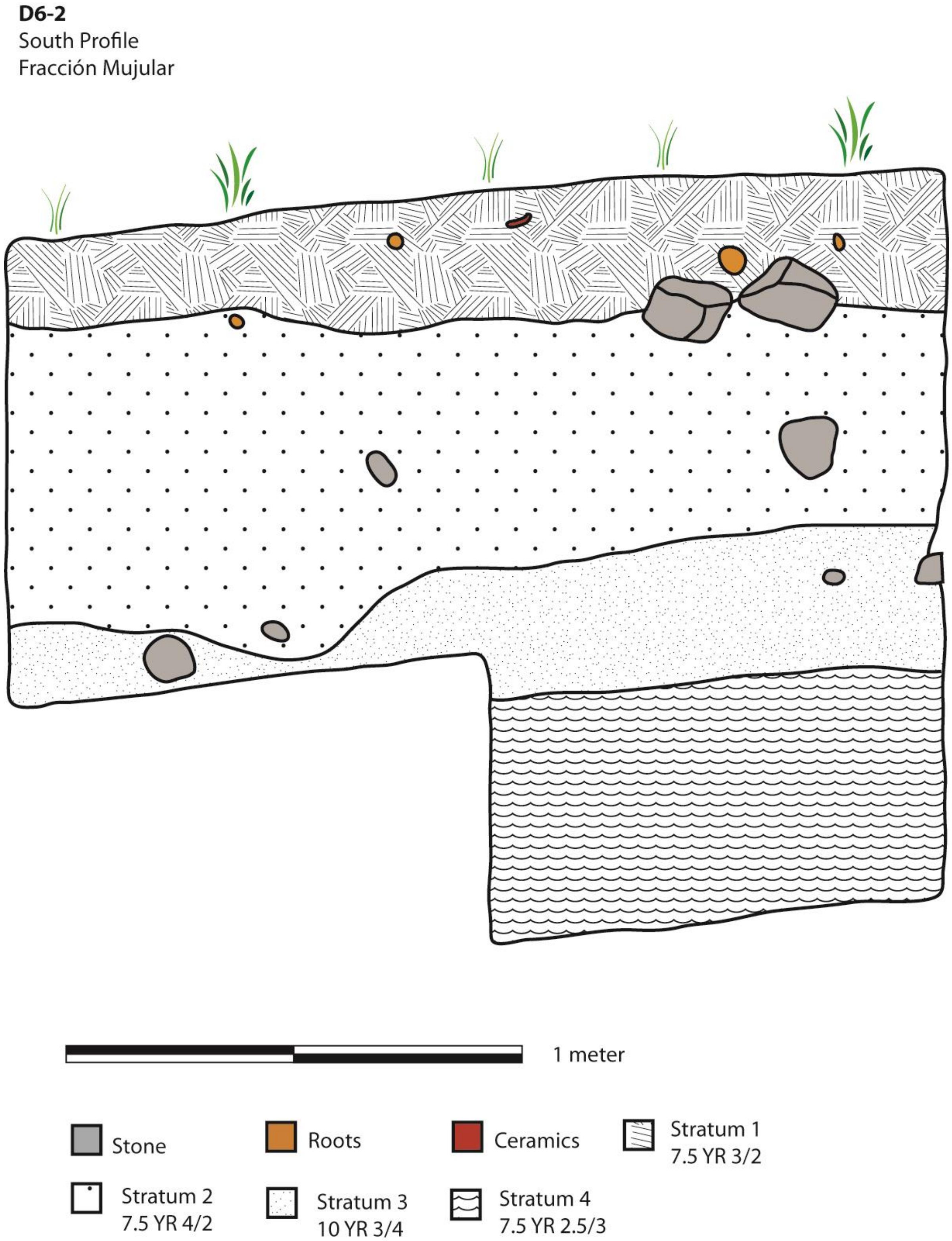
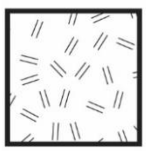


Figure 4.70: D6-2 South Profile

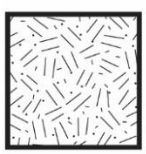
Figure 4.71: D6-2 Before and After Excavations

D7-1

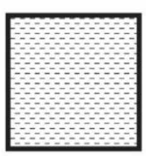
Stratum #1
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 3/2
Soil Description: Very fine to course, moderately well sorted. Very earthy with small rock inclusions. High amount of organic materials.
Artifact Description: Relatively few artifacts. As with elsewhere in Group D, plaza area seems to have been kept clean. Most ceramics are from the Pochota Group.



Stratum #2
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 4/3
Soil Description: Likely a layer of dry fill associated with raising the plaza floor. Large rocks with fine soil in-between. Grain size is very fine to medium. Very well sorted. Very fine, silty soil.
Artifact Description: Moderate amount of artifacts in dry fill. Ceramics are postclassic.



Stratum #3
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 4/3
Soil Description: Grains are very fine to very course. Poorly sorted. Clumpy soil with small stone inclusions.
Artifact Description: Few artifacts. This could be a layer of wet fill associated with plaza construction.



Stratum #4
Chronological Period: Unknown / sterile
Carbon Dates: N/A
Soil Color: 7.5 YR 2.5/2
Soil Description: Very fine to very course grains. Moderately sorted. Small and medium stone inclusions.
Artifact Description: Very few artifacts. This could represent the original natural floor, sitting ontop of decomposed rock layer below. The few artifacts that are found in this layer could be the result of bioturbation.

Stratum #5
Chronological Period: Sterile soil
Carbon Dates: N/A
Soil Color: 7.5 YR 6/1
Soil Description: Very course, sandy soil. Lots of crystalline quartz, possibly crushed rock. It is likely this layer represents decomposed rocks.
Artifact Description: This is a natural soil layer.

Figure 4.72: Key to D7-1

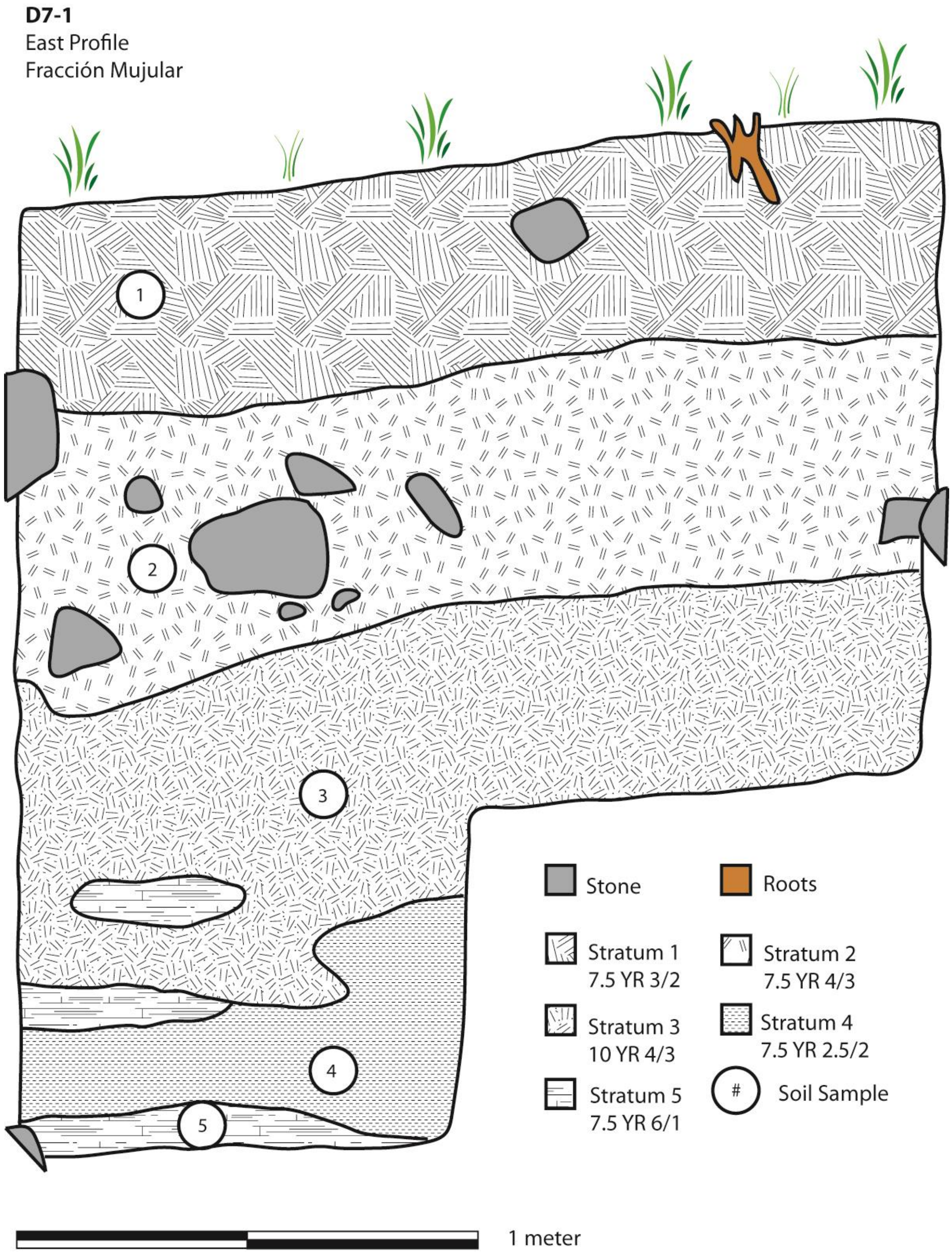


Figure 4.73: D7-1 East Profile

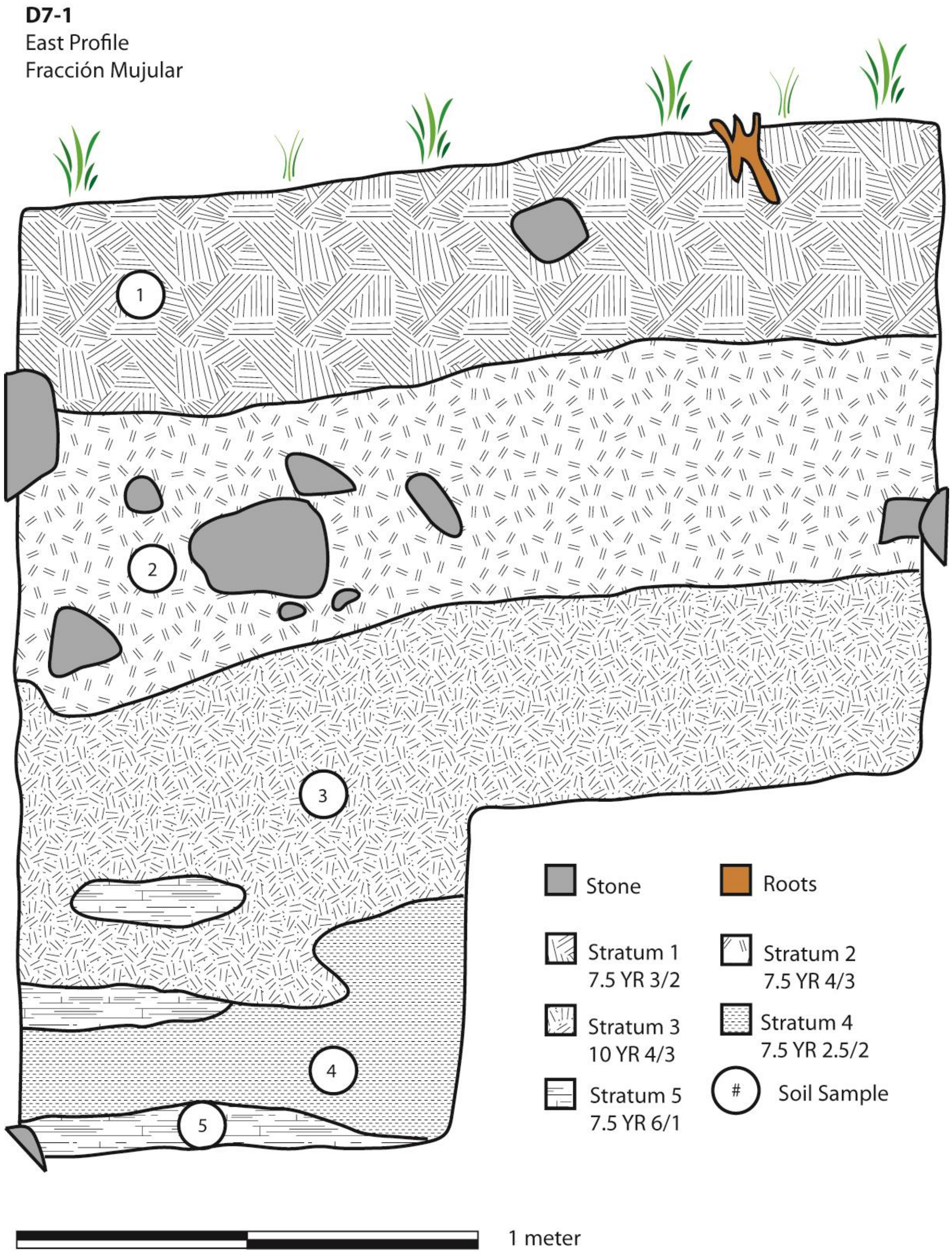


Figure 4.74: D7-1 North Profile

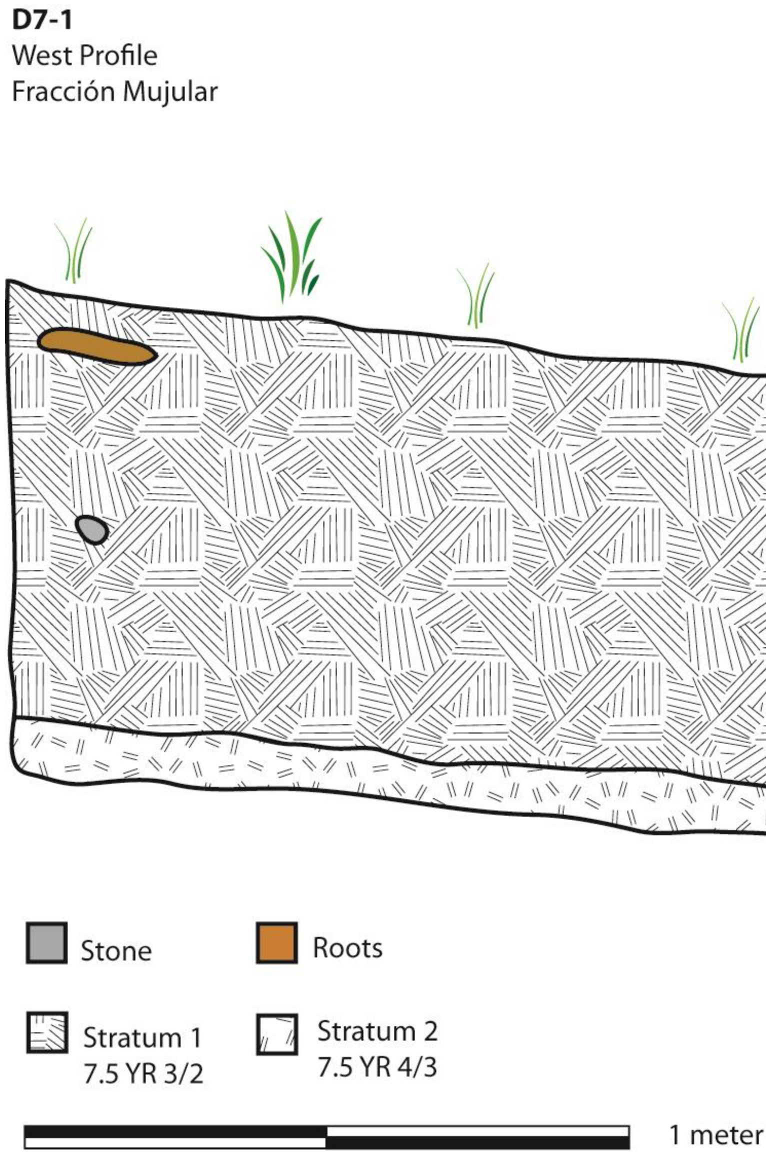


Figure 4.75: D7-1 West Profile

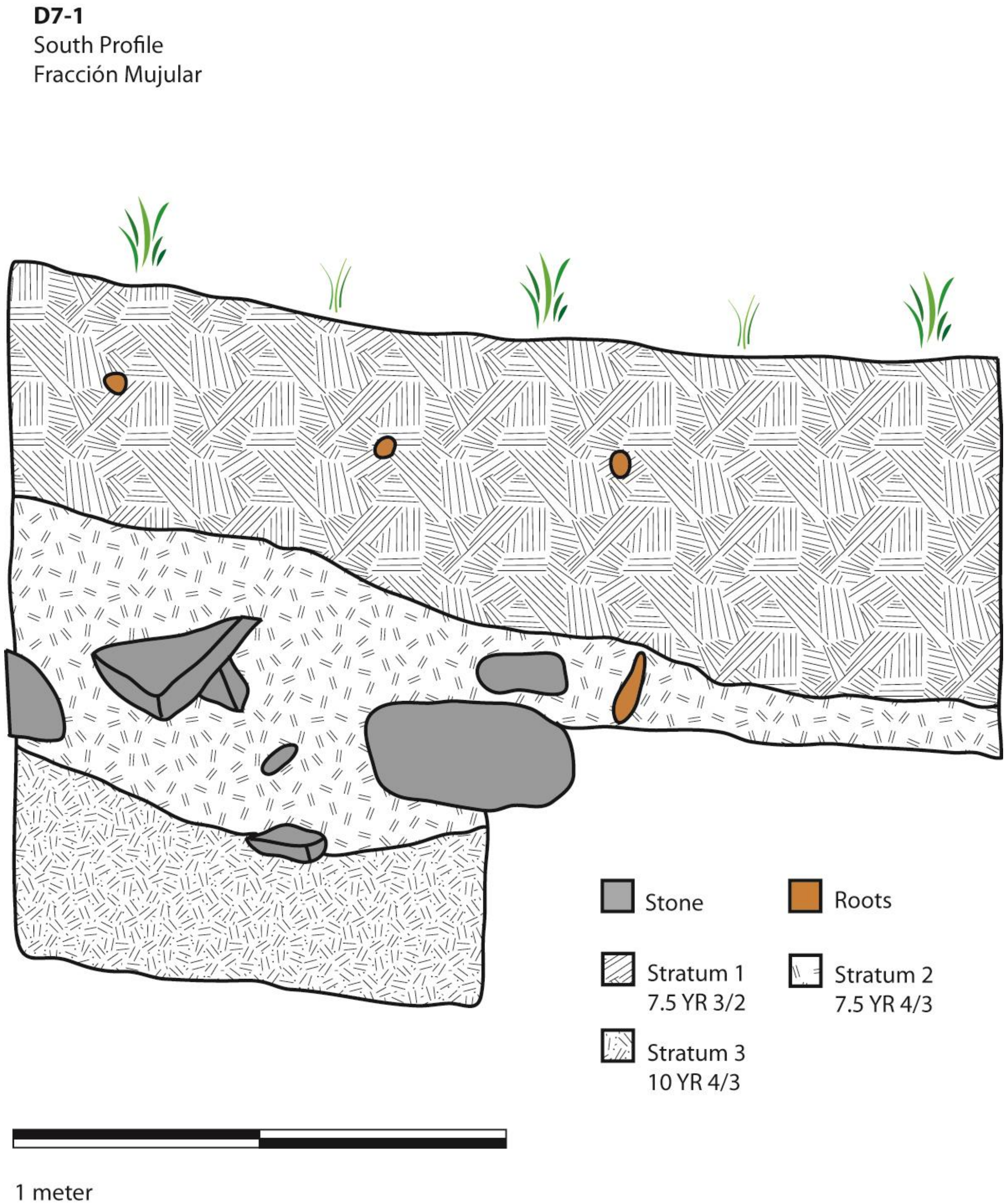
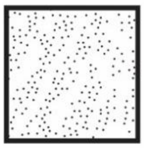


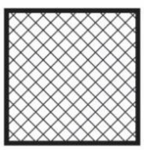
Figure 4.76: D7-1 South Profile

Figure 4.77: D7-1 Before and After Excavations

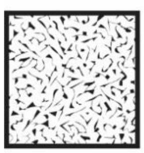
D7-2



Stratum #1
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 3/2
Soil Description: Very fine to medium grain soil. Relatively compact. Earthy texture. Some large stones that may have fallen from mound 7. High amounts of organic material.
Artifact Description: High artifact density. Possible midden or domestic refuse from mound 7. Ceramics date to the postclassic.



Stratum #2
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 10 YR 5/3
Soil Description: : Possible midden or domestic deposit from mound 6. Very fine to medium grain soil. Many large to medium rocks that may have fallen from mound 7.
Artifact Description: High artifact density. Possible midden or domestic refuse from mound 7. Ceramics date to the postclassic.



Stratum #3
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 5/6
Soil Description: Possible midden or domestic deposit from mound 6. Very fine to medium grain soil. Similar to stratum 2 but without rock inclusions.
Artifact Description: High artifact density. Possible midden or domestic refuse from mound 7. Ceramics date to the postclassic.

Stratum #4
Chronological Period: Postclassic
Carbon Dates: N/A
Soil Color: 7.5 YR 4/3
Soil Description: Very fine to medium grain soil with few inclusions. Similar to stratum above but with fewer artifacts and slightly different soil color.
Artifact Description: Fewer artifacts than layers above. Ceramics are mostly from the Postclassic Pochota group.

Stratum #5
Chronological Period: Sterile
Carbon Dates: N/A
Soil Color: 10 YR 2/2
Soil Description: Dark and compact soil. Fine to medium grained with few inclusions.
Artifact Description: This is a natural soil layer

Figure 4.78: Key to D7-2

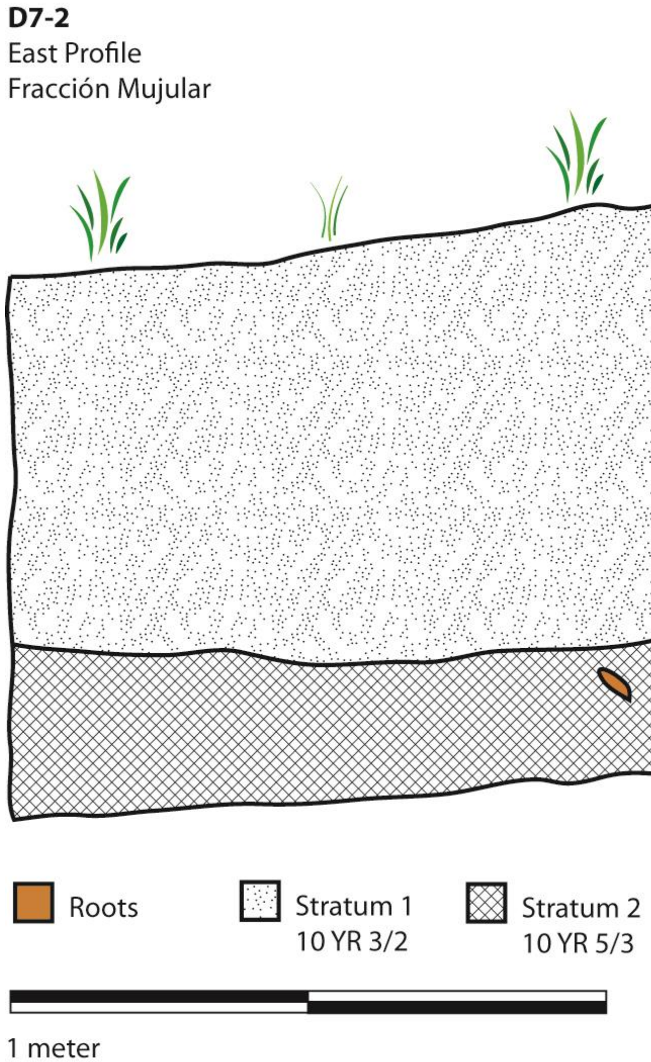


Figure 4.79: D7-2 East Profile

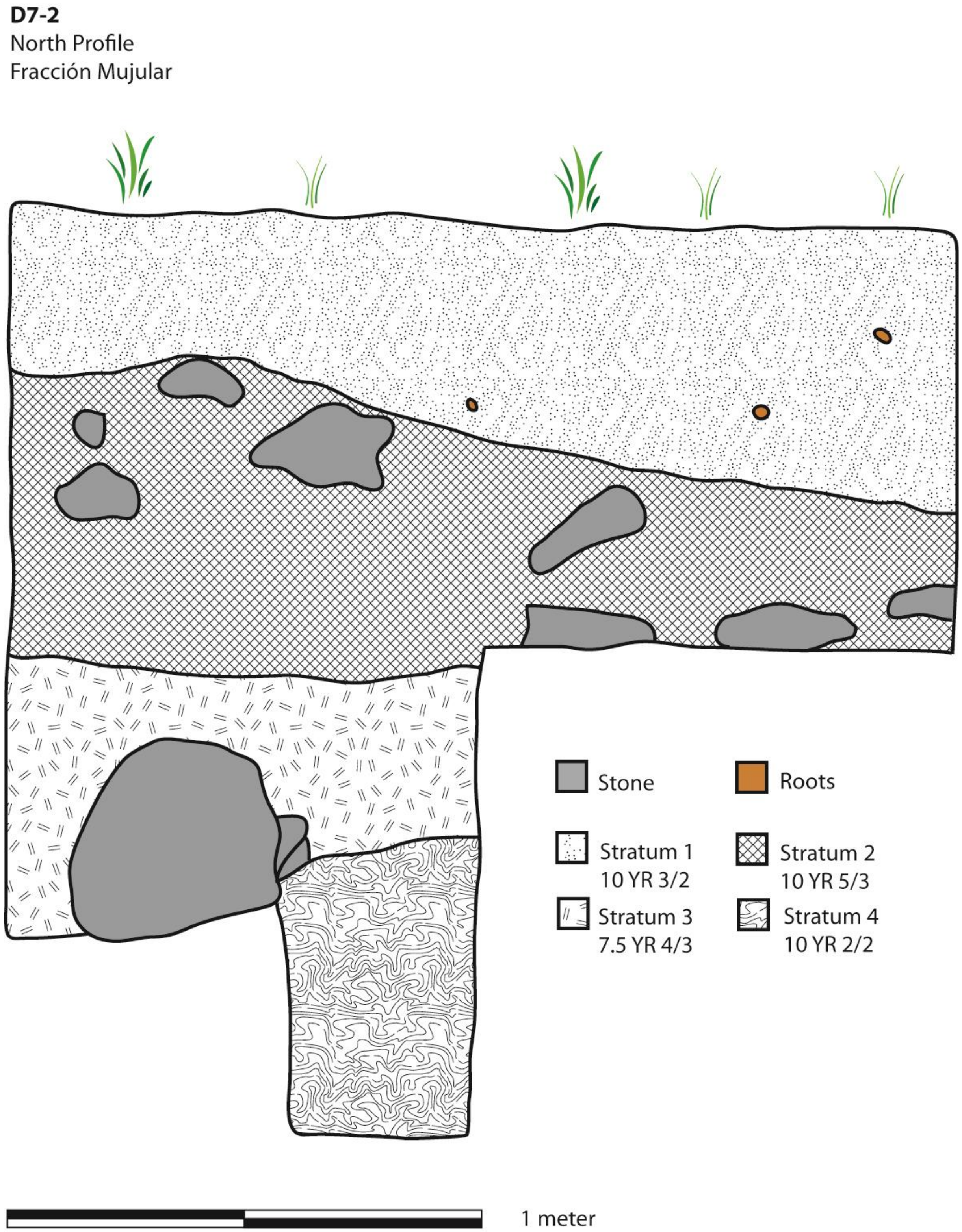


Figure 4.80: D7-2 North Profile

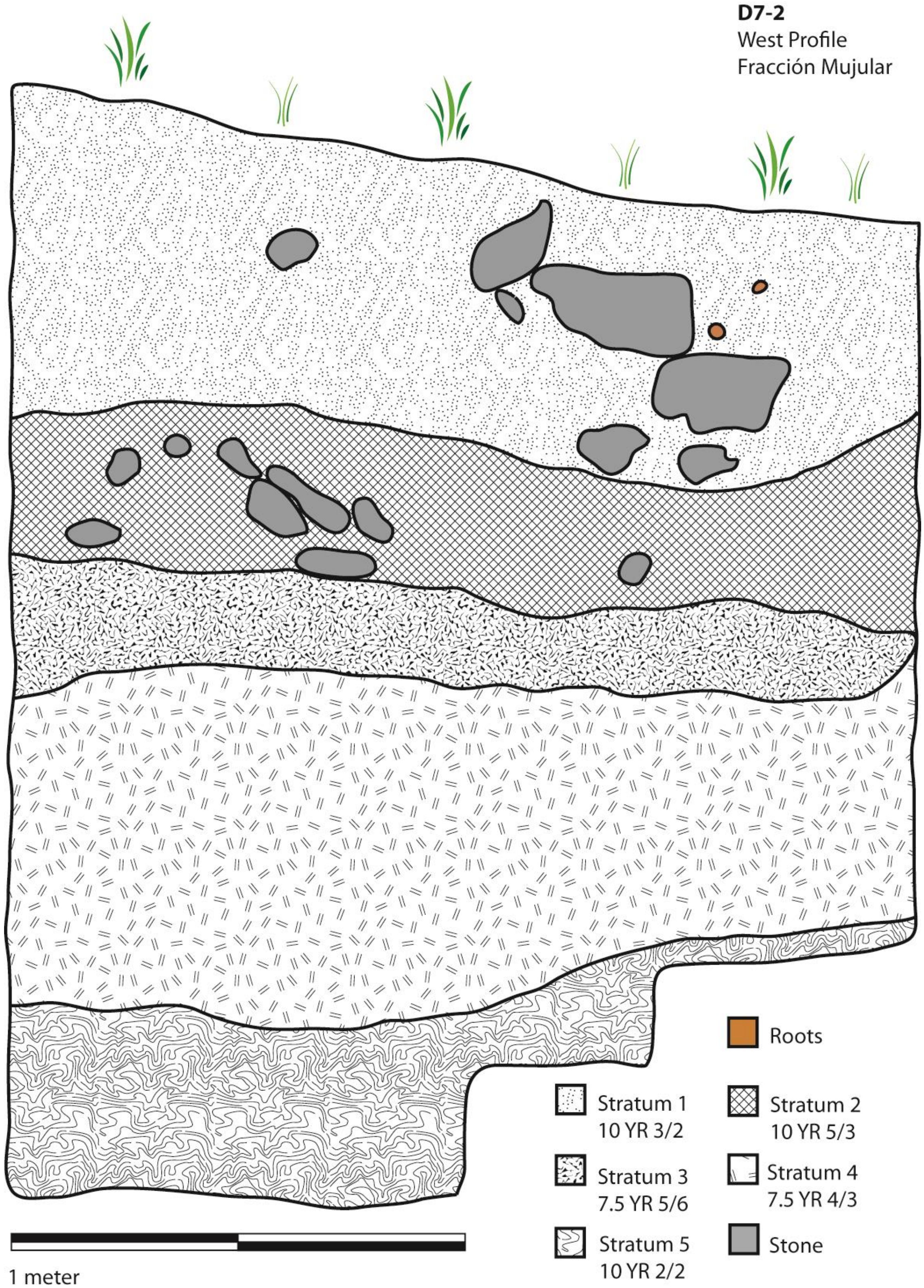


Figure 4.81: D7-2 West Profile

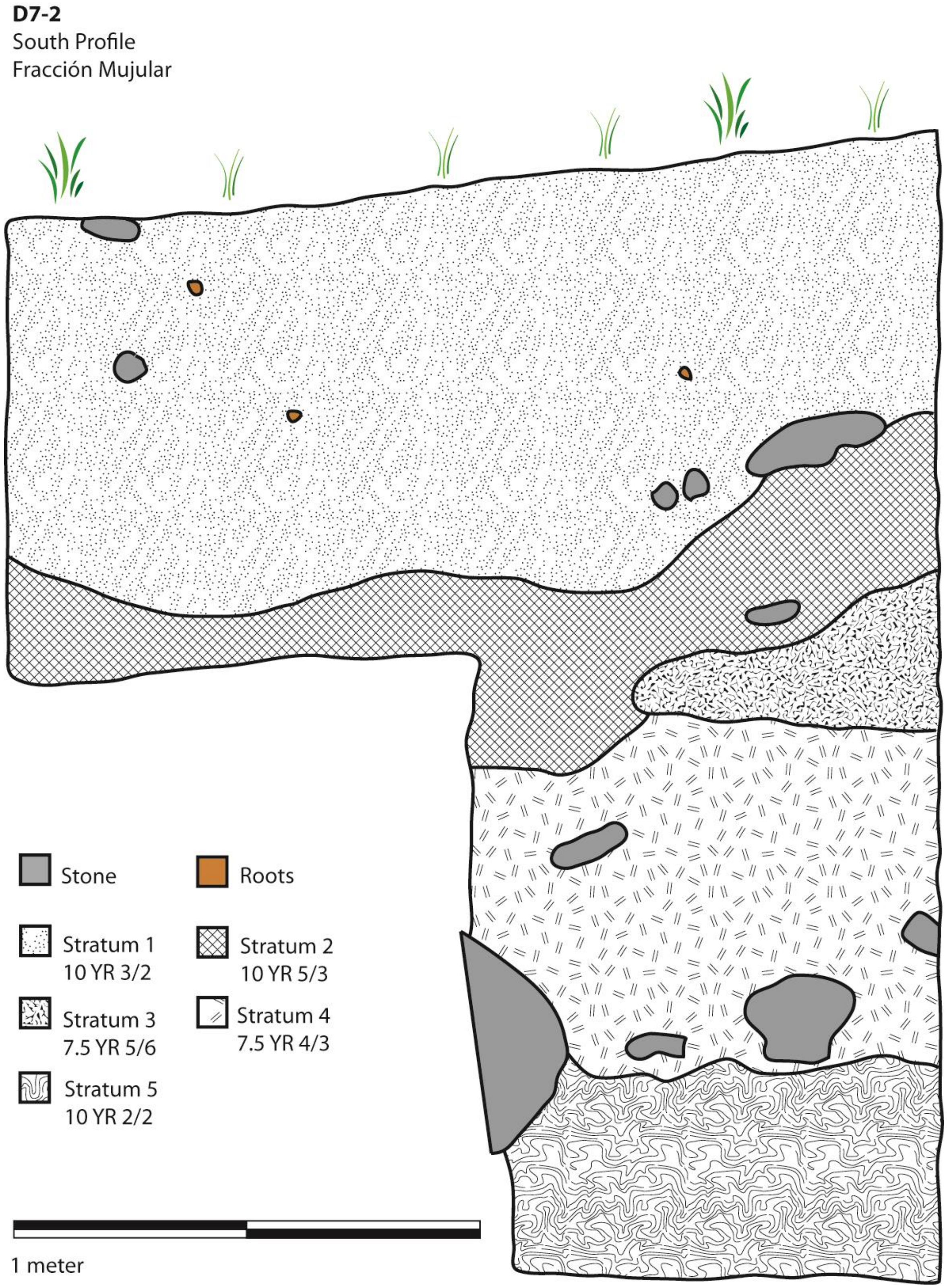


Figure 4.82: D7-2 South Profile

Figure 4.83: D7-2 Before and After Excavations

Conclusions from Excavations

Excavations at Fracción Mujular have greatly expanded our knowledge of the site and its history. With 12 test pits targeting 8 housemounds from across the site's two major occupational areas, we came out of our excavation season with a much better idea of Fracción Mujular's chronology than we did at the end of our survey. We now know that differences in construction size between groups C and D are primarily due to chronological differences rather than variability in status. Furthermore, we know that while initial occupation began during the Early Classic, the primary period of construction across the site occurred during the Late Classic, and persisted in Group D well into the Postclassic. The construction of both groups also involved considerably more construction than we had originally thought, with plaza areas heavily raised and leveled relative to their natural surfaces. The most important contribution of excavations at Fracción Mujular, however, was the collection of a large corpus of artifacts that we can use to further refine the site's chronology, understand its relationships with external trade partners, and explore social differences within the site itself. The analysis of these artifacts will be discussed in the following chapter.

Chapter Five

CONSTRUCTING A CHRONOLOGY: CERAMICS, CARBON, AND CARVED STELAE

The modern boundary of Fracción Mujular is marked by a series of tall stelae lining the entrance to the ranch of the late Don Felix de los Santos. Located just under two kilometers up the mountain road from the large plazas and pyramids of Los Horcones, these stelae remind contemporary visitors of the ubiquitous presence of history and archaeology on Cerro Bernal and provide a dramatic -if somewhat arbitrary- demarcation between the two ancient sites. This is not the original location of the stelae. In fact, only two come from Fracción Mujular while the others come from Los Horcones. All were moved to their present location at some point following their documentation by Carlos Navarette in the 1960s (Navarrete 1986, 1976). Stelae from both sites are carved with circular glyphs arranged in a vertical script, several of which are calendrical markers associated with dates (Taube 2000, 2001, 2011; García-Des Lauriers 2016, 2007, 2012a, 2005). These dates likely mark important individuals, ballgames, calendrical periods, initiations, or other important historical events, and emphasize the importance of recording history for the ancient inhabitants of Cerro Bernal. This chapter focuses on reconstructing a historical chronology for Fracción Mujular, starting with its calendrical inscriptions and incorporating carbon dates and ceramic data collected during excavation. Based only on two seasons of fieldwork, much of this history will be painted with fairly broad strokes. Nonetheless, the story that we can build covers over a thousand years, and shows that despite its small size, Fracción Mujular was deeply connected to and affected by major events and sweeping changes of the broader Mesoamerican world.

Cerro Bernal first entered the archaeological literature following pioneering work by Carlos Navarette, who documented the sites of Los Horcones, Fracción Mujular, and Estacion Mojarras along the slopes of the mountain (Navarrete 1986, 1976). Navarrete noticed strong similarities between artwork and carvings on Cerro Bernal and those of Early Classic Central Mexico, and suggested that the region may have been seen an "occupation" (1986:3) by Teotihuacan during this period. Artistic parallels between stelae on Cerro Bernal and Central Mexican artistic styles were later reemphasized by Karl Taube (2001, 2011, 2000), who used several examples from Cerro Bernal in his analysis of Teotihuacan writing. The connection between Teotihuacan and Cerro Bernal has now been fully confirmed following more than a decade of archaeological fieldwork by Claudia García-Des Lauriers at Los Horcones (García-Des Lauriers 2016, 2012a, 2005, 2007, 2012b, 2008). Although the exact nature of the relationship between Teotihuacan and Los Horcones remains to be determined, a combination of carbon dates, ceramic types, figurine styles, and obsidian analysis all show a strong relationship between Los Horcones and Teotihuacan dating to the Early Classic (García-Des Lauriers 2008, 2007, 2012b, 2016).

Until now, much less was known about the history of Fracción Mujular. The site's proximity to Los Horcones, together with similarity between several carved stelae at the two sites, led most scholars to assume that Fracción Mujular was cotemporaneous with the Early Classic occupation of Los Horcones (Navarrete 1986, 1986; Taube 2000; García-Des Lauriers 2007). This was my assumption as well when I first began work at the site with the original intention of investigating Teotihuacan influences at small and non-elite settlements (Fauvelle 2015). Initial survey, however, identified the presence of plumbate ceramics, suggesting that the site persisted through the Late Classic and possibly early Postclassic periods (Fauvelle

2016). This chapter will use the results of our excavations at Fraccíon Mujular to piece together a chronology for the site. Using a combination of information from carved stelae, carbon dates, and ceramic analysis, I will show that while the site was likely founded under the auspices of Los Horcones during the Early Classic, it persisted far longer than its large neighbor, with sizable occupations dating to both the Late Classic and Postclassic periods.

Art and Architecture

The area around Tonalá has a strong sculptural tradition that spans the history of Mesoamerica and reflects the region's position as crossroads for trade between Central Mexico and the Guatemalan Highlands. Formative sites such as Tzutzuculi and Tiltepec maintained sculptural traditions with clear connections to Olmec styles and conventions. For example, a colossal head with clear similarities to those found in the Gulf Coast Olmec heartland comes from the site of Tzutzuculi, while both Tzutzuculi and Tiltepec contain "pot belly" sculptures associated with Olmec style art from El Salvador to Chiapas (Guernsey 2010). These similarities in artistic styles are paralleled in other art forms such as ceramics and figurines, and suggest that the Pacific Coast and Gulf Lowlands formed an interaction area of mutually known polities with strong cultural ties (Guernsey et al. 2010; Lesure 2004). Writing specifically about the area around Tonalá, García Des Lauriers (2016:63–64) has argued that the use of foreign architectural patterns at both Tzutzuculi and Los Horcones points to a local tradition of elite legitimization through connections with distant places. Although the degree to which distant interactions affected political realities in Tonalá cannot be determined through artistic analysis alone, it is clear from the region's art and architecture that local people were familiar with aspects of Olmec and Teotihuacan Identity, and that references to such identities were actively displayed in public monuments and artistic displays.

The Early Classic center of Iglesia Vieja gives something of a counterpoint to the pattern of foreign artistic influences found at Tzutzuculi, Tiltepec, and Los Horcones. Situated in the mountains above the modern-day city of Tonalá, Iglesia Vieja is characterized by highly distinctive megalithic architecture that lacks a strong reference to foreign styles (García-Des Lauriers 2016; Kaneko 2011, 2009). Nevertheless, there are architectural and artistic characteristics at Iglesia Vieja that show that the site was at least partially influenced by the broader Mesoamerican world. The site's distinctive architecture, for example, is described by Kaneko (2009, 2011) as a "talud con cornisa", or "slope and ledge" style. Although Kaneko avoids using the term, this style is evocative of the talud-tablero style associated with Teotihuacan and popular throughout Mesoamerican during the height of the Central Mexican cities influence during the Early Classic. Talud-tablero did not originate at Teotihuacan (but rather near modern-day Puebla), and its use varied considerably across Mesoamerica (Kowalski 1999). The similar style used at Iglesia Vieja, however, shows that the planners of Iglesia Vieja were familiar with pan-Mesoamerican Early Classic styles, even if they chose not to overtly emphasize any connections with distant centers.

In contrast to the situation at Iglesia Vieja, architectural and artistic connections between Los Horcones and Teotihuacan are unequivocal. Although the talud-tablero style has not yet been found at Los Horcones, artistic parallels to Teotihuacan are clear in the site's organization, planning, and artistic references (García-Des Lauriers 2005, 2016, 2012b, 2007). As discussed by García-Des Lauriers (2007, 2016, 2012b, 2012a), the layout of Los Horcones Group F closely mirrors the organization of the Pyramid of the Moon complex at Teotihuacan.

Parallels include a short processional roadway emptying into the plaza in a way evocative of the Street of the Deads endpoint in the Plaza of the Moon, as well as the structuring and shape of the plaza itself (2007, 2016, 2012b, 2012a). Los Horcones Group F forms the ceremonial center of the site and the group's plaza and causeway had a combined space with room for up to 18,315 spectators, possibly enough for the entire population of the city (García-Des Lauriers 2012b). The fact that the planners of Los Horcones chose to organize the center of their city in a way that so clearly evokes comparison with Teotihuacan strongly suggests that the ties between these two ancient cities were strong, and likely included political and economic ties in addition to shared cultural influences.

Public art at Los Horcones also suggests strong ties to the city of Teotihuacan. Described by García Des-Lauriers (2005:2, 2016:61) as "the Teotihuacán stelae", several of the monuments of Los Horcones are so evocative of Teotihuacan art that several scholars have suggested that they were likely carved either by Teotihuacano artists or under their supervision (García-Des Lauriers 2005, 2007, 2016; Cowgill 2003). Of these monuments, Los Horcones Stela 3 is likely the most impressive, depicting the Central Mexican deity Tlaloc in what Taube (2000:40) describes as "pure Teotihuacan style". Several classic Teotihuacan elements included in this depiction of Tlaloc include large goggle eyes, a lightning bolt held in one hand with water pouring from the other, and a fanged mouth containing a water lily (Taube 2000; Navarrete 1976, 1986; García-Des Lauriers 2005, 2007). Los Horcones Stela 4 has also been described as a "tour de force" (García-Des Lauriers 2005:3) of Teotihuacan iconography. This stela depicts an eagle (described by Navarrete (1986) as an owl) perched on top of a jaguar carved in a style reminiscent of animal murals found at the Tetitla compound at Teotihuacan (García- Des Lauriers 2005). Los Horcones Stela 3 and 4 were located in front of the principal mound in the Group F plaza, cementing the space's association with Teotihuacan. The fact that the site's largest and most prominently placed sculptures so clearly evoke stylistic elements from Teotihuacan further suggests a strong political connection between Los Horcones and Central Mexico during the Early Classic.

In addition to its Teotihuacan style artistic elements, Los Horcones Stela 3 is notable for the presence of nine distinctive "tilled-earth" glyphs located on all sides of the monument. This same glyph appears on Los Horcones Stela 2, as well as Fracción Mujular Stelae 2 and 3 (see below). The ubiquity of this glyph on stelae from Cerro Bernal is highly notable and worthy of discussion. Outside of Chiapas, the same glyph occurs on Stelae 1 and 2 of Xochicalco (Navarrete 1986; Sáenz 1961), Stela 1 from Piedra Labrada in Veracruz (Taube 2000:46), on a ceramic vessel from Teotihuacan (Caso 1967:151, 163; Navarrete 1986:4, Figure 12d), and possibly in Tomb 112 at Monte Alban (Taube 2000:45). Caso (1967:151, 153) associates this sign with several other Mixtec and Zapotec quadripartite turquoise glyphs. Following Caso (1967), Navarrete (1976, 1986) identifies the Cerro Bernal glyphs as a turquoise symbols, which he suggests is most likely associated with water. The association between these glyphs and water is supported by the presence of a "water scroll" boarder surrounding this glyph on both Los Horcones Stela 2 and Fracción Mujular Stela 3 (Taube 2000). Taube (2000:47), interprets this glyph as a "tilled-earth" sign and suggests that the glyph's placement amid a circle of water-scrolls is evocative of the Aztec concept of Anahuatl, emphasizing the Central Mexican artistic stylings of the two stelae. Taube (2000:47) further suggests that the glyph may be a reference to the Teotihuacan association of cultivation with governance, pointing to the fact that Los Horcones Stela 3 depicts Tlaloc as a powerful, cultivating and irrigating deity. García-Des Lauriers (2005, 2007, 2012a, 2012b, 2016) generally agrees with Taube in describing the glyph as a tilled-earth sign, but has also suggested the possibility that it served as a toponym for Cerro Bernal (García-Des Lauriers, personal communication). The fact that the glyph continued to be prominently displayed at Fracción Mujular following the collapse of Los Horcones may lead additional support to this hypothesis.

Both Los Horcones Stelae 2 and 3 contain calendrical glyphs in addition to the tilled-earth sign. On Los Horcones Stela 3, this occurs on the right side of the Tlaloc statue, and reads as 8 Reed (García-Des Lauriers 2005:4; Taube 2000:41). Los Horcones Stela 2 displays two calendar glyphs separated a tilled-earth sign that read 6 Reed and 11 Water (García-Des Lauriers 2005, 2016; Taube 2000). Given that Los Horcones Stela 2 was placed in association with one of the site's six ballcourts, García-Des Lauriers suggests that these glyphs might commemorate significant ballgames or the names of sacrificed ballplayers (García-Des Lauriers 2005:4, 2016:58–59). Although the calendrical glyphs of Los Horcones cannot be directly connected to western calendar dates, they are indicative of the importance of marking time and historical events for the ancient residents of Cerro Bernal.

The carved stelae of Fracción Mujular also contain stylistic elements connected to Central Mexico (Figure 5.1). This is perhaps most evident on Fracción Mujular Stela 1, where the top glyph of a text block is personified with a feathered headdress stylistically similar those found on murals from Teotihuacan (Navarrete 1986). Unfortunately the glyph featuring the headdress has been badly damaged and is difficult to discern. Below the damaged area is another glyph known as an "Ollin" or "movement", sign, together with two bars and a dot denoting the number 11 (Navarrete 1986:17). Fracción Mujular Stela 2 contains a tilled-earth glyph and a flower sign followed by the number 11, while Fracción Mujular Stela 3 also depicts a tilled-earth glyph and a flower glyph, followed by the number 5. On Fracción Mujular Stela 3 the tilled-earth glyph is surrounded by a water scroll in a similar fashion to Los Horcones Stela 2. All three carved stelae from Fracción Mujular are very similar in size and shape, being about 1.4 meters long, between .85 and 1 meter wide, and 10 to 17 centimeters thick (Navarrete 1986). The original length of Fracción Mujular Stela 2 may have been slightly greater as the top part is heavily damaged.

The three carved stelae of Fracción Mujular bear both striking similarities as well as differences to Los Horcones Stela 2. Clear similarities include the presence of the tilled-earth glyph, as well as the circular form of the glyphs and their linear orientation. Los Horcones Stela 2 as well as Fracción Mujular Stelae 1, 2 and 3, are also all calendrical in nature, and likely mark important events in the lives of the ancient inhabitants of Cerro Bernal. The stelae of the two sites differ, however, in their shapes and sizes. Stela 2 from Los Horcones is tall and narrow, with a general profile resembling that of a column. This form makes it similar to Central Mexican stelae such as those from Xochicalco (Case 1967:184-186). The Stelae from Fracción Mujular, on the other hand, are wide and thin, loosely resembling the form of Central American stelae from the Maya region. The general uniformity in size and shape between the three Fracción Mujular stelae suggest an intentionality in their design, indicating that their carvers choose to shape their stelae in a way that was distinct from the earlier stela of Los Horcones. Whether this change was due to decreased influence from Central America, chronological differences in style, or simply a desire to differentiate Fracción Mujular from its larger neighbor is difficult to say. Nonetheless, this pattern does suggest some degree of aesthetic and possibly political distance between the two sites.

The original provenience of Fracción Mujular Stelae 1, 2, and 3 is most likely to be on the south side of Mounds 1 and 2 in Group C East. Currently, Stelae 2 and 3 are located along the road of the entrance to the ranch of the late Don Felix de los Santos, while Stela 3 is on display outside the regional museum in Tuxtla Gutierrez. Navarrete (1986:17) describes finding all three stelae *in situ*, characterizing the surrounding site as follows:

> "a small group of mounds of earth and boulders that were possibly covered with clay. Next to them are ten stelae and altars. Most are completely plain monuments that are locally known as 'mattresses' because of the size and thickness of the stones that are combined to form stela and altar units." (Navarrete 1986:17)

This description most closely matches Fracción Mujular Group C East, which still contains several plain stelae and altars. Don Ausencio Zambarno, a local landowner who worked with Navarrete, has also confirmed Group C East as the original location of the Stelae. There are currently two rectangular altars located within the Group C East plaza that are not currently associated with Stelae. One of these has circular carvings on three sides, indicating that it was likely once associated with a standing Stela. The absence of stelae associated with these altars has led me to speculate they were once placed in front of two of the stelae described by Navarrete (Fauvelle 2016). A photo of Stelae 1 and 2 in situ (Navarrete 1986:19), however, depicts a considerable hill to the left of the stelae which would only make sense if they were situated on south side of the mounds, outside of the group's plaza. Unfortunately, using this photo to confidently identify the providence of the stelae is complicated by the photo's dense vegetation and a lack of clear landmarks. Several lines of data, however, converge on Group C East as the original location of the stelae, strongly suggesting that they come from somewhere in the area of that group.

In addition to the three calendrical stelae, both Fracción Mujular Geroups C and D are characterized by additional stone sculpture. As discussed above, Group C East is characterized by several plain stelae as well as a one-meter square altar carved on three sides with low-relief circles. The Group C East plaza also contains an amphibian sculpture (Figure 5.2). This partially buried, bullet shaped, statue measures approximately 60 cm in length and 25 cm in diameter, and was found in association with a circular altar. Its front side is carved with an amphibian face, continuing the pattern of aquatic references in the artistic corpus of Cerro Bernal. Another notable piece of carved stone was found in Group D, and consists of a throne or raised altar (Figure 5.3). This throne consists of two parts, both of which are carved. The larger piece is a flat stone a little over 2 meters long, a meter wide, and 20 cm thick. This stone platform is carved with a cross-hatched pattern on its front side, possibly referencing reed matts used by rulers and indicating that the stone may have served as a throne. The second stone served as a foot to this altar or throne and is carved with a single square in low relief. The second foot for the throne is missing. This stones matt-like cross hatching, together with its placement in association with a possible palace (structure 3, see Chapter 4) in Group D, suggest that this raise platform served as a throne, and reinforce the elite nature of Group D.

Fracción Mujular Stelae 2 and 3 both feature dates with the twentieth day name, called flower in Central Mexico and Ajaw in the Maya region. As the 20th name day, flower dates always denote period endings in the Long Count calendar. This has led Taube (2000:44) to suggest that the inscriptions on these stelae might correspond to long count period ending dates. Although the dates could theoretically correspond to the ending of a roughly 1-year long Tun, the ending of a 20-year long Katun would have been a momentous occasion more likely to warrant memorialization with a carved stela. The dates 5 Flower and 11 Flower fall on Katun endings every 256 years, with periods of either 59 years or 197 years separating each date (Table 5.1). Assuming that the stelae were carved during the year that they demark, and considering the strong similarities between the two stelae, a shorter gap of 59 years seems more likely. Searching for Early Classic katun ending dates falling on 5 Flower and 11 Flower, Taube (2000:44) suggests 9.5.0.0.0 11 Ajaw 18 Tzec (July 3rd 534 CE) and 9.8.0.0.0 5 Ajaw 4 Ch'en (August 22nd 593 CE) as possible dates depicted on Stelae 2 and 3 respectively. Considering that my excavations have shown a substantial Late Classic occupation at Group C East, the dates of 9.18.0.0.0 11 Ajaw 18 Mak (October 9th 790 CE) and 10.1.0.0.0 5 Ajaw 3 K'ayab (November 28th, 849 CE), should also be seen as possible candidates for dating these stelae. For reasons I will describe below, however, I am currently inclined to agree with Taube's (2000) original assessment, placing the carving of these stelae at the beginning rather than the middle of Fracción Mujular's major period of occupation.

The sculptural assemblage of Cerro Bernal strongly indicates a major occupation during the Early Classic. The artistic corpus from Los Horcones and Fracción Mujular incorporate stylistic elements that suggest strong ties to Early Classic and Central Mexican traditions. The site of Estacion Mojarras, located on the south side of Cerro Bernal, also displays similar artistic connections with a stela depicting clear talud-tablero architecture. Carbon dates and ceramics from Los Horcones support conclusions drawn from the site's art and architecture, suggesting a major occupation on Cerro Bernal during the Early Classic (García-Des Lauriers 2007, 2016, 2012a, 2012b). Notable differences exist, however, between the stelae of Los Horcones and those of Fracción Mujular. The considerable difference in form and size between the stelae of Fracción Mujular and stela 2 from Los Horcones suggests that they might not have been carved at the same time, or at least by the same sponsors or artisans.

Furthermore, even if Taube's (2000) sixth century dates are correct for Fracción Mujular Stelae 2 and 3, this would still place the site near the end of the primary phase of occupation at Los Horcones, which flourished largely between 400 and 600 CE (García-Des Lauriers 2007:98). The stelae of Fracción Mujular, therefore, suggest that the site overlapped with the Early Classic occupation of Los Horcones, but also indicate that it differed significantly from its larger neighbor.

Two possible examples of Formative period art have also been found in association with Fracción Mujular. One is a zoomorphic rock carving rendered in an Olmec-like artistic style found carved on a boulder by the swimming pool next to the house of the late Don Felix de los Santos. Another is a potbelly sculpture, which was photographed at the house of Don Felix in the early 2000s, but which has now been moved to an unknown location (Guernsey 2012:96). As is discussed below, one carbon date, a figurine fragment, and two pot sherds together indicate that there may have been an ephemeral Formative presence near Structure 6 in Group D. These two stone carvings add credence to this possibility, but unfortunately there is little that can currently said about any Formative occupation of the site based on such limited material evidence.

Carbon Dates

In addition to the possible calendar dates on Fracción Mujular Stelae 2 and 3, the only other direct dates for the site come from radiocarbon. A total of 267 carbon samples were collected during excavations at Fracción Mujular during the winter of 2017. All collected carbon samples were point plotted and placed in tinfoil for possible AMS analysis. During excavation, careful notes were taken on the context of each carbon sample, with attention to samples found in association with artifacts, and other contexts that would suggest that samples could accurately date specific strata or features. During the 2017 summer laboratory season, I reviewed these notes in order to select 18 carbon samples for exportation to the W.M. Keck Carbon Cycle laboratory at the University of California Irvine. In addition to prioritizing samples found in association with artifacts, I also sought to select samples from a range of contexts across the site. I selected three samples each from six different excavation units. Of the excavation units selected, three were in Group D, two in Group C East, and one in Group C West. Within each unit, I selected two "deep" samples from the last several collected lots, and one "shallow" sample from an earlier lot. This was done to get a solid understanding of the initial construction history of the site. No samples were selected from the first three lots of any given excavation in order to minimize contamination from surface mixing (see below). All samples were taken from carbonized wood. The results of this analysis, including carbon years before present and calibrated year ranges (Reimer et al. 2013) at one sigma and two sigma, are reported on Table (5.2).

Of the 18 samples that were sent for analysis, one was too small to return an accurate date and four returned modern or historic dates and are not included in Table 5.2. Unfortunately, this large number of modern and historic dates is likely an unintended bi-product of my sampling strategy. By choosing to sample twice as many "deep" samples as "shallow" samples, the resulting set of carbon dates was biased towards older dates. Additionally, although most of the "shallow" samples were collected from a depth of more than 50 cm, this does not seem to have been enough to avoid surface contamination considering the high amount of bioturbation present across the site. Additionally, forest fires caused by lightning strikes and agricultural burning are likely to have deposited carbon in the area during the historic and modern periods. Together, these factors likely account for the four modern and historic carbon dates. Additionally, the sampling bias towards deeper contexts likely over-emphasizes earlier occupations of the site, meaning that Late Classic carbon dates feature more commonly that Postclassic ones, even though much of the material recovered, especially in Group D, seems to have been postclassic in nature.

Pre-Hispanic carbon dates for Fracción Mujular range from BCE 357-348 to CE 1282-1379, amounting to a seventeen-hundred-year range of potential history. As can be seen in figure 5.4, however, a clear majority of carbon dates cluster in the Late to Terminal Classic, suggesting that this was a period of major occupation at Fracción Mujular. Eight out of the thirteen carbon dates cluster into this period (from roughly CE 600 to CE 1000), with a further six clustering even more narrowly into the 8th and 9th centuries. Although carbon dates only tell us the age at which a tree was cut down, not the span during which wood was used, this strong pattern suggests that much of Group C and Group D was likely constructed and occupied during the Late and Terminal Classic. One Early Classic date (falling at the very end of this period), and two Formative dates point to the possibility earlier, likely less extensive, occupations. A single Late Postclassic carbon date likely underemphasizes the extent of occupation during this period, considering the substantial amounts of Late Postclassic ceramics discovered (see below), and the previously discussed sampling bias towards carbon samples in deeper contexts.

Although most dates across Fracción Mujular fall in the Late to Terminal Classic, there is considerable variation in calibrated carbon date age ranges between Groups C and D. From its carbon dates, Group C seems to be a predominantly Classic Period site, with one date falling in the Early Classic, three in the Late Classic, and two in the Terminal Classic to early Postclassic. There seems to have been some initial construction during the Early Classic, with most occupation occurring during the Late Classic and persisting into the early Postclassic. Group D, on the other hand, seems to have a much more complicated occupational history, ranging from the Middle Formative through the Postclassic. Two Formative dates correspond with ephemeral Formative ceramics (Waxy Red and Waxy Biege) found in the bottom lots from several of our Group D excavations (see below). This suggests that there was some occupation at the site during the Formative, the nature of which is difficult to determine given current data. The main occupation at Group D likely overlapped with that at Group C, with a continuation into the Postclassic. The longer period of occupation at Group D may be due to the greater availability of flat land at that Group, as well as the presence of a considerably larger stream from which to draw water.

There are also substantial differences in calibrated carbon date ranges between Los Horcones and Fracción Mujular. Almost all calibrated carbon dates taken at Los Horcones fall into the 5th and 6th centuries, with a single date falling in the 7th century (García-Des Lauriers 2007:123, 135). This is consistent with García Des-Lauriers' (2007:98) interpretation of Los Horcones as a single component Early Classic settlement with a major occupation between 400 and 600 CE. Fracción Mujular, on the other hand, seems to have had ephemeral Formative and Early Classic occupations, with a major period of occupation following the decline of Los Horcones during the Late Classic which persisted into the Postclassic. It is possible that future work will change aspects of this story by uncovering more extensive occupations at either site. It is interesting, however, that the much smaller site of Fracción Mujular currently seems to have a considerably more lengthy occupation. This could indication that the larger center of

Los Horcones had its fate more closely tied to the shifting winds of geopolitical history, and could not survive the fall of Teotihuacan. Another possibility may be that the location of Fracción Mujular, immediately adjacent to the inspiring peak of Cerro Bernal, may have attracted small groups of settlers for ritual purposes throughout the span of Mesoamerica's past.

The sequence of carbon dates for Fracción Mujular fit well with Taube's (2000) proposed calendar dates for Fraccción Mujular Stelae 2 and 3. In fact, one date from Group C East falls at CE 552-592, squarely between the two proposed calendrical dates of CE 534 and CE 593. As mentioned above, the fact that the main occupation of Group C East occurred the Late Classic should cause us to also consider Katun ending dates of CE 790 and CE 849 as possible dates for the stelae. These two different date ranges would imply slightly different conclusions about the meaning behind the carving of these monuments. If they mark 6th century dates, it is likely that they served to commemorate the initiation of major construction at Fracción Mujular during a time when Los Horcones was still a powerful, if possibly declining, center. In such a scenario the stelae may have served to promote the status of the new and expanding settlement and could have marked it as part of the Los Horcones polity. If carved during the 8th and 9th centuries, on the other hand, the stelae may have served to establish Fracción Mujular as the successor of Los Horcones, or to otherwise memorialize the history between the new settlement and its ancient neighbor. Neither possibility can currently be ruled out, however, the fact that Fracción Mujular's major period of occupation begins during the 6th century makes me more inclined to see the stelae as initiation monuments. Furthermore, if Fracción Mujular Stela 3 marks a katun ending in CE 849, it would mean that at least 250 years had passed since similar glyphs could have been carved on Los Horcones Stela 2 during the later site's main occupation in the 7th century, a range of time which seems unlikely considering the similarity between the two monuments.

Ceramics

The ceramics of Fracción Mujular further illuminate our understanding of the site's chronology. During excavations in 2017, a total of 8,651 ceramic sherds were collected, which combine with the 1,580 sherds collected during our 2015 survey season for a total ceramic assemblage of 10,231 artifacts. Ceramics were collected by lots (see chapter 5), associated with either features or excavation levels. In the field, only sherds roughly the size of a 10 peso coin were collected. As with all artifacts collected during excavation, the majority of the Fracción Mujular ceramics come from contexts located immediately outside of domestic housemounds; a designation that is supported by the presence of large numbers of utilitarian cooking and serving forms. Several partially intact vessels were found in situ during excavations and were photographed and bagged together. Even the most intact of these, however, fragmented during collection. The fragility of these ceramics is partially due to the wet and acidic nature of the soils on Cerro Bernal, which are not conducive to ceramic preservation. Because of this, it was not always possible to ascertain surface treatments of sherds. All ceramics were taken to the NWAF laboratory in San Cristobal de las Casas for analysis during the summer of 2017. All sherds were lightly washed in the laboratory using a water bucket and a toothbrush.

The primary goal of my analysis of the Fracción Mujular ceramic assemblage was to construct a working ceramic type system and chronology for the site. This was done by conducting a modal sort in which I assigned similar looking sherds to descriptive categories.

The system employed at Fracción Mujular is loosely inspired by the type-variety method devised in the North American Southwest (Wheat et al. 1958), and popularized in Mesoamerica by many foundational studies of Maya ceramics (Gifford 1960; Smith et al. 1960). As discussed by Rice (Rice 1987:275–285), devised classifications differ from indigenous classifications in that they are descriptive heuristic categories constructed by analysts in order to aid with ceramic categorization. Type-variety typologies use several different classificatory categories including ceramic spheres, complexes, types, and varieties. In the modal system described below (See Table 5.3), I mainly employ the terminology of groups and types to organize my categories. Following Sabloff and Smith (sabloff 1969:279), I treat groups as a collection of closely related types that demonstrate similarity in ware and form, while types designate more specific aesthetic and functional ideals (Gifford 1960:304). Type-variety classification of ceramics has faced considerable criticism for the emphasis placed on surface treatment and decoration over other morphological categories (Chase 1994; Culbert and Rands 2007; Hammond 1972; Smith 1979). Precisely this emphasis, however, makes it a useful starting point for describing the variation within an assemblage of ceramics at a previously unstudied site such as Fracción Mujular. I hasten to add that the modal categories described here are not meant as formal type-variety classifications. Rather, they follow the general approach of lumping large categories of similar forms and pastes into groups, followed by further subdivision into types and varieties focused on surface treatment and decoration.

The 8,651 ceramic sherds collected during excavations were sorted into a total of 26 modal ceramic categories. Full descriptions of each modal category can be found in Appendix A. A summary of the different modal categories broken down by chronological phase, as well as by group and type designation, can be found on Table 5.3. The sherds collected from surface contexts during survey were sorted using a slightly different preliminary system described in my 2015 informe (Fauvelle 2015). When conducting the modal categories I sorted ceramics from the same lots into categories based on paste, decoration, and form. These categories were then compared between lots and adjusted until I was confident in the final groups and types that I had described. Modal groups were then given names based on geographical features, as well as local landowners and community figures. It is important to stress that this represents a preliminary study of the ceramics of Fracción Mujular, and as such these categories emphasize "lumping" rather than "splitting". It is certain that future work will add considerable nuance to our understanding of the site's ceramics.

Formative Period ceramics at Fracción Mujular are extremely rare. Only two clearly Formative sherds have been recovered, together making up the two modal categories described as Waxy Red and Waxy Beige. Although it is difficult to designate any formal type attribution based on such a small sample size, each of these sherds bear clear similarities in form, paste, and decoration to Middle Formative waxy slipped ceramics from the Pacific Coast found in type collections at the NWAF. It is also notable that both of these sherds were collected from immediately below a carbon sample that returned a date of BCE 357-348; two lines of evidence that independently suggest the possibility of an ephemeral Formative occupation at Fracción Mujular. An additional 15 sherds were assigned to the Vibrant Red type, which is currently not designated to a chronological phase but might also date to the Formative Period. Vibrant Red sherds are distinguished by a glossy bright red slip that stands out in comparison with other red slipped ceramics from Fracción Mujular. Vibrant Red sherds were only found in our deepest excavation levels at Group D, suggesting that they might be diagnostic of an earlier occupation than other Group D ceramics, but I was unwilling to formally attribute them to a chronological phase due to the small sample size and a lack of clear similarities to any other known types.

Early Classic ceramics at Fracción Mujular are dominated by the Bernal Group, which is sub divided into Crude, Fine, Red, and Black types. Ceramics from the Bernal Group are mainly found in deeper contexts in Fracción Mujular Group C. This group is comprised largely of utilitarian cooking and storage vessels, generally undecorated but occasionally burnished or slipped. Of all the Fracción Mujular ceramics, sherds from the Bernal Group bear the closest similarity to ceramics from Los Horcones. Bernal Crude is very similar both in form and decoration to sherds from Type 23, identified by Pfeiffer (1983) for the Early Classic at Rio Arriba, and described as one of the most common ceramic types at Los Horcones by García Des Lauriers (2007). In particular, Bernal Crude sherds with pinched appliqué decorations along their rims bear a striking similarity to similar shred from Type 23 at Los Horcones, and clearly represent the same functional and aesthetic ideal. It is noteworthy Bernal Crude sherds with this decoration tend to be found in some of the deepest contexts at Group C, suggesting an overlap with Los Horcones dating to the beginning of occupation at Fracción Mujular. On the other hand, pinched appliqué is a relatively common decoration at Fracción Mujular, appearing also on Late Classic and Postclassic ceramic types that clearly do not correspond with Los Horcones Type 23.

The Late Classic at Fracción Mujular is dominated by ceramics from the Vassallo and Chencho groups. Both groups are characterized by ceramics with very hard and non-friable pastes. The Vassallo group is the more diverse of these two categories, and is dominated by serving forms, although cooking and storage vessels are also present. The Vassallo group contains a bichrome type, Vassallo Painted, which appears to be more common in shallower contexts likely dating to the Terminal Classic. The Chencho group is characterized by extremely hard and dense pasts and contains a range of utilitarian forms. Ceramics from the Vassallo and Chencho groups bear similarities in both form and paste to ceramics from the Late Classic Piestal Phase at Izapa (Lowe et al. 2013). In particular, Chencho Hard sherds are very similar to the unpublished Pita Red (Izapa type 73) type, which dates to the Piestal Phase and can be found in the Izapa ceramic type collections at the NWAF. Similarities in form and paste between Chencho Hard and Pita Red are likely indicative of shared ceramic asthetics along the Pacific Coast during the Late Classic. San Juan Plumbate (Neff 1984, 1995) is another Late Classic diagnostic present at Fracción Mujular and is often found in context with both Chencho and Vassallo group ceramics. The presence of plumbate at the site is also suggestion of some degree of interaction between Fracción Mujular and the southern Soconusco dating to the Late and Terminal Classic.

Postclassic ceramics at Fracción Mujular are dominated by the Pochota Group, found mainly in Group D. These sherds bear a strong resemblance to Acapetahua ceramics described by Voorhies and Gasco (2004) for the Late Postclassic Soconusco. The two largest categories within this group are Pochota Fine and Pochota Buff, which share similarities in paste and form with Acapetahua Fine and Acapetahua Course, respectively. A marked difference between both types and the Acapetahua Group is the lack of *pinchancha* or *comale* forms at Fracción Mujular, both of which are common in Acapetahua ceramics. Similarities to Acapetahua ceramics strongly suggests that the Pochota Group represents a Late Postclassic ceramic tradition. Tohil Plumbate sherds (Neff 1984, 1995) currently represent the only Early Postclassic diagnostic at Fracción Mujular. It is notable that Tohil Plumbate sherds have only been found in surface contexts in Group C, and have not been identified in association with the Pochota Ceramics that dominate Group D.

As discussed by Voorhies and Gasco (2004:11-12), the Early Postclassic is poorly understood on the Pacific Coast of the Soconusco, largely due to a paucity of securely dated Early Postclassic ceramics. This holds true at Fracción Mujular, where the transition between the Terminal Classic and the Late Postclassic is difficult to discern. Fracción Mujular has a robust assemblage of Late Classic ceramics, including San Juan Plumbate and ceramics from the Vassallo and Chencho Groups. Likewise, the Late Postclassic is well represented by ceramics from the Pochota Group. Aside from a small handful of Tohil Plumbate sherds, however, ceramics from the intermediate Early Postclassic are largely absent. One possible explanation proposed by Voorhies and Gasco (2004:12), is that Early Postclassic ceramic traditions in the region conserved many styles and forms from the Late Classic, leading many Early Postclassic sherds to be misdiagnosed. This hypothesis finds some support at Fracción Mujular, where Early Postclassic Tohil Plumbate sherds have so far only been found in contexts with Vassallo and Chencho ceramics designated as Late Classic. It is possible that future work may be able to further subdivide these groups into Late Classic and Early Postclassic components.

Figurines represent another form of ceramic artifact that can shed light on the occupational history of Fracción Mujular. Figurines are surprisingly rare at Fracción Mujular, with only 20 figurine fragments and no whole figurines found in the course of all survey and excavation work conducted at the site. Nonetheless, several notable fragments display chronological markers that can help understand the site’s chronology. One hominoid torso fragment with a prominent belly bears strong resemblance to Formative figurine forms and was found in the same excavation as a carbon samples dated to BCE 357-348 and two Formative Period ceramic sherds, further suggesting that there have been a Formative occupation at Fracción Mujular associated with Group D, structure 6. An anthropomorphic whistle fragment was also recovered from the same unit and may date to the Formative Period but is too fragmentary to securely date based on stylistic features. One of the most striking figurine fragments from Fracción Mujular is a ceramic head that bears strong similarity to Early Classic Teotihuacan figurine styles. Despite its strong stylistic association with the Early Classic, this figurine fragment was found in an excavation layer dominated by Postclassic ceramics and may have been scavenged in antiquity from the ruins of Los Horcones.

Telling the story of Fracción Mujular

Working from different lines of evidence gleaned from Fracción Mujular's carved stelae, ceramics, and carbon dates, we can begin to build a history for Fracción Mujular. The site's first visitors arrived at some point during the Formative Period, a time during which the area around Cerro Bernal was dominated by sites such as La Perseverancia, Tzutzuculi, and Tiltepec. These Formative centers were concentrated in lowland areas along well-traveled interaction routes connecting the Olmec Gulf Coast heartland with their cultural peers along the Pacific coast. The Formative presence at Fracción Mujular was ephemeral, and seems to have been concentrated in Group D, specifically in the vicinity of Mound 6. Based only on two ceramic sherds, two carbon dates, and one figurine fragment, it is impossible to say with any certainty what brought these early visitors to Fracción Mujular. Perhaps a family briefly lived near mound 6, growing crops in what would one day become the Group D plaza. Alternately, visitors may have climbed up the slopes of Cerro Bernal for ritual purposes, traveling from larger settlements on the Pacific plain to explore the sacred landscape of the isolated mountain's shield-shaped peak. In either case, any Formative inhabitants probably made use of the advantageous landscape of Group D, which would have been the flattest and most protected space at Fracción Mujular until the Group C plaza was artificially raised and leveled many centuries later.

Fracción Mujular continued to be sparsely populated for most of the Early Classic. Sometime during the 3^{rd} or 4^{th} Century CE, the site of Los Horcones was founded at the base of the slopes of Cerro Bernal, several kilometers northwest of Fracción Mujular (García Des-Lauriers 2007:98). Quickly growing into a regional center, Los Horcones solidified the area's relationship with Central Mexico and dominated the region surrounding Cerro Bernal during the following 5^{th} and 6^{th} centuries (García-Des Lauriers 2007, 2012a, 2012b, 2016). The presence of Early Classic ceramics resembling those from Los Horcones suggests that Fracción Mujular may have been lightly inhabited during this period. If so, domestic occupation may have been limited to one or two housemounds in Group C. It is possible that some individuals from Los Horcones moved up the mountain to Fracción Mujular to take advantage of the area's excellent viewsheds. Fracción Mujular Group B, which is located near Group C and is dominated by a look-out mound with a near 360 degree view, may have been constructed during this time, although excavations would be needed to confirm this hypothesis.

The main period of occupation at Fracción Mujular began during the 6^{th} century CE. At this time, Fracción Mujular was a secondary settlement within the Los Horcones political polity. Occupation at Fracción Mujular during the 6^{th} century was focused on Group C and was fairly limited in scale, likely comprised of several housemounds forming a small village. It is likely that the initial clearing and raising of the Group C plaza began during this time, although it would not take its final form until several centuries later. Considering the importance of ballcourts within the Los Horcones polity, it is possible that the construction of the Group A ballcourt may also have occurred during the Early Classic, although excavations will be needed to determine its chronological affiliation. Katun endings in CE 534 and CE 593 were likely commemorated with the calendrical inscriptions on Fracción Mujular Stelae 2 and 3, which probably also marked the initiation of major construction projects at the site. The similarity in style between these stelae and Los Horcones Stela 2, as well as the continued use of the tilled-earth glyph, suggest that the carvers of these stelae sought to emphasize connections between Fracción Mujular and Los Horcones, despite the fact that the later center may have already been in decline by CE 593.

In Central Mexico, the great city of Teotihuacan began to decline around CE 550, and had collapsed as a primary geopolitical power by the early 7th century (Cowgill 2015). The decline of Teotihuacan had ramifications for local histories across Mesoamerica. On Cerro Bernal, Los Horcones also seems to have collapsed around this time, as evidenced by the lack of Late Classic ceramics or carbon dates at the site (García Des Lauriers 2007). Fracción Mujular, on the other hand, flourished during this period. Over the course of the Late Classic, Fracción Mujular Group C grew to its largest extent, and generally took the form that is visible today. The Group C plaza was raised by as much as two meters, transforming a rugged and uneven landscape into an open and livable space. Most ceramics at Group C date to the Late Classic, and it is likely that most of the Group's mounds were either expanded or constructed during this period. Towards the end of the Late Classic, construction was initiated at Group D, although this area seems to have remained secondary to Group C until the Late Postclassic.

The fact that a major expansion of Fracción Mujular immediately followed the collapse of Los Horcones is unlikely to have been a coincidence. It is probable that the power vacuum created by the decline of Los Horcones allowed secondary sites previously under its sphere of influence to flourish. Individuals from Los Horcones may also have abandoned the former center and moved up the mountain to Fracción Mujular, contributing to its increasing size during the 7th and 8th centuries. It is notable that whatever processes that lead to the decline of Los Horcones apparently did not negatively affect smaller settlements such as Fracción Mujular. It is possible that Fracción Mujular's more remote location may have insulated it from any potential conflicts focused on Los Horcones. Additionally, if the collapse of Los Horcones was directly related to the decline of Teotihuacan, it may have represented an economic and political crisis that largely involved the site's ruling elite, without much negative effect on outlying settlements. Despite the political changes that occurred in the region at the start of the Early Classic, individuals from Fracción Mujular continued to interact with several distant trading partners, obtaining ceramics from the Soconusco and maintaining a preference for obsidian obtained from Central Mexico (see Chapter 6).

The Early Postclassic at Fracción Mujular remains poorly understood. This is a common problem with site chronologies not only on the Pacific Coast, but in many areas of Mesoamerica (Voorhies and Gasco 2004:11–12; Smith and Berdan 2003:4–6; Voorhies 1989). The only clear Early Postclassic diagnostic at Fracción Mujular is Tohil Plumbate, which is found in small quantities in association with Chencho and Vassallo Group Late Classic pottery. This seems to support Voorhies and Gasco's (2004:12) suggestion that Late Classic ceramic types may have continued to be used in the Early Postclassic in Pacific Chiapas. If so, Early Postclassic occupations at Fracción Mujular likely continued to be concentrated in Group C, although small amounts of plumbate at Group D suggest that area was also in use at this time. At some point towards the end of the Early Postclassic, Group C was abandoned and the center of activity at Fracción Mujular shifted to Group D. Exactly how and why this happened, and whether there was any gap in occupation between the Early and Late Postclassic, is difficult to determine with our current information.

By the Late Postclassic, Fracción Mujular was a small but bustling center focused around Group D. The Group D plaza was leveled and partially paved with stone cobbles, leaving a sunken plaza area towards its northern side. The principal mounds lining the plaza space were also likely constructed during this time, although some construction may also have occurred during the Late Classic and Early Postclassic. The site was primarily residential and may have been characterized by some degree of social stratification, with the moderately sized mounds surrounding the site's plaza dwarfing the size of low platforms found in the surrounding forest. Group D structure 2 is a domestic seeming mound with a highly complicated construction history positioned in a prominent location on the plaza and may have been the home of a ruling family. Large numbers of basin metates found in the forests surrounding Group D suggest that it was a relatively sizable settlement, likely meeting and possibly exceeding the population of the Late Classic occupation that had been focused on Group C.

What Fracción Mujular's position was in the broader political landscape of Late Postclassic coastal Chiapas is a little unclear. Similarities between the ceramics of Fracción Mujular's Pochota Group and Acapetahua pottery from the Soconusco suggests some shared cultural affinity across the Pacific Coast of Chiapas, although the region does not seem to have been politically integrated prior to the Aztec conquest (Voorhies and Gasco 2004). A lack of any recognizable Aztec ceramics is intriguing, as such ceramics have been reported for the nearby coastal sits of El Paredon (Navarrete 1959) and Cabeza del Toro (Voorhies and Gasco 2004:5). It is possible that Aztec influence north of the province of Xoconochco did not extend beyond coastal communities, or that Fracción Mujular's relatively protected location tucked away near the top of Cerro Bernal afforded the site some degree of insulation from Aztec merchants. Alternately, Fracción Mujular may have been abandoned by the end of the Late Classic, either due to the political ramifications of the Aztec intrusion to the south, or other unknown causes.

Whatever the cause of Fracción Mujular's eventual abandonment, a lack of any Colonial era artifacts suggests it did not last long into the post-Spanish period. Perhaps the site was abandoned following Pedro de Alvardo's conquest of the Soconusco in 1523. During this conquest, a major battle is recorded as having occurred near the modern town of Tonalá which resulted in the destruction of an indigenous center named Sacrificadero (Lowe and Mason 1965; Remesal 1966). Voorhies and Gasco (2004:11-12) discuss several possible candidates for the location of Sacrificadero, but do not conclusively suggest a specific site. A lack of evidence for burning or intentional destruction makes Fracción Mujular an unlikely candidate for Sacrificadero. If Fracción Mujular had not already been abandoned by this time, however, it is conceivable that some of its residents may have taken part in the battle, possibly leading to the site's rapid decline and abandonment.

The past several years of work at Fracción Mujular have greatly expanded our knowledge of the history of occupation on Cerro Bernal. Far from the single component Early Classic settlement that it was initially thought to be (Navarrete 1976, 1986), we now know that Fracción Mujular had a long and complicated chronology, ranging from the Middle Formative through the Late Postclassic. Following an ephemeral occupation during the Formative Period, the site was founded under the auspices of Los Horcones at the end of the Late Classic, surviving the collapse of its powerful neighbor to thrive throughout the Late Classic and Early Postclassic. A second major phase of construction occurred during the Late Postclassic before the site was abandoned at some point prior to the Colonial period. Fracción Mujular's lengthy history shows a high degree of resiliency in the face of geopolitical shifts that led to the collapse of its larger neighbors. Throughout its history, the site also maintained trade connections with distant partners, showing a consistent preference for Central Mexican obsidians. Fracción Mujular's position within intra and inter regional trade networks will be the focus of Chapter 6.

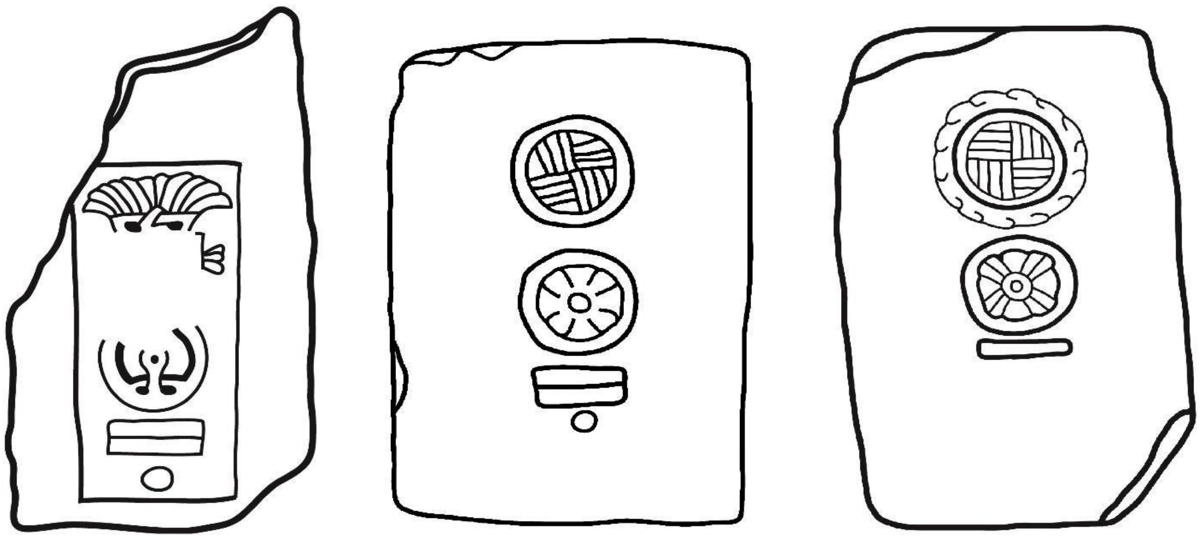


Figure 5.1: The Calendrical Stelae of Fracción Mujular

Fracción Mujular Stelae 1, 2, and 3, in order from left to right. Drawn by Mikael Fauvelle, based on personal photos and publications by Navarrete (1976, 1986).

Figure 5.2: Zoomorphic sculpture in Group C Plaza

Figure 5.3: Raised Altar from Group D

Possible throne or raised altar from Group D. Found adjacent to structure 2, which has been identified as an elite residence or possible palace based on it's highly complex construction history. Note cross-hatched pattern on front side of stone.

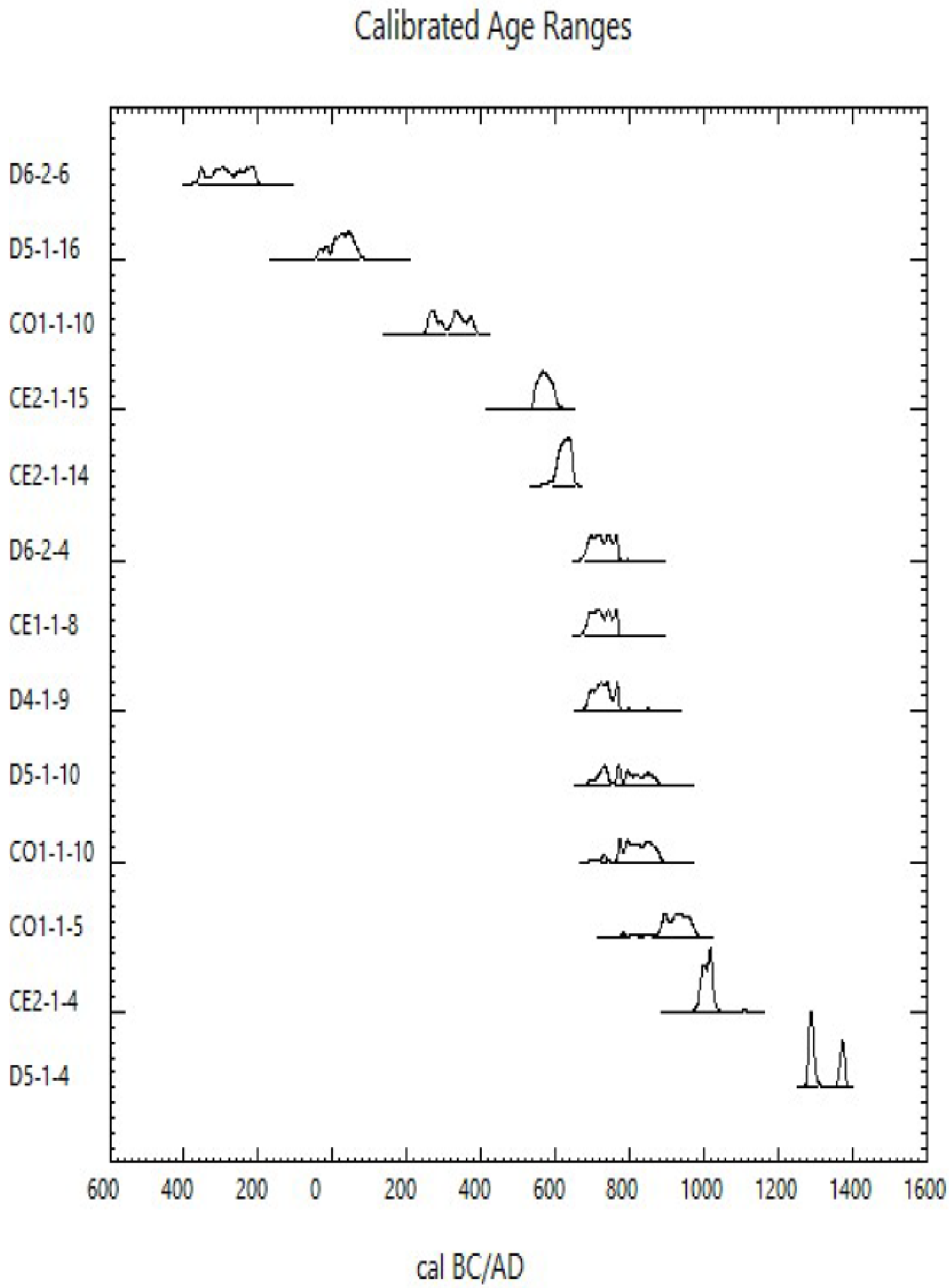


Figure 5.4: Calibrated carbon date probability curves from Fracción Mujular.

Produced using Calib 7.0.4 (Reimer et al 2013).

Table 5.1: Katun ending dates falling on 5 or 11 Ajaw during the 8th through 10th

Gregorian Calendar		Maya Long Count	
Year CE	Day	Long Count	Calendar Day
81	February 7th	8.2.0.0.0	5 Ajaw 8 Sak’
278	March 27th	8.12.0.0.0	11 Ajaw 3 Pax
337	May 17th	8.15.0.0.0	5 Ajaw 3 Pop
534	July 3rd	9.5.0.0.0	11 Ajaw 18 Tzek
593	Aug 22nd	9.8.0.0.0	5 Ajaw 3 Ch’en
790	Oct 9th	9.18.0.0.0	11 Ajaw 18 Mak
849	Nov 28th	10.1.0.0.0	5 Ajaw 3 K’ayab
1047	Jan 15th	10.11.0.0.0	11 Ajaw 13 Sip
1106	Mar 7th	10.14.0.0.0	5 Ajaw 18 Xul

Table 5.2 Pre-Hispanic Carbon Dates from Fracción Mujular

UCIAMS #	Provenience	Depth (cm)	Description	^{14}C age (BP)	±	Calendar Years* One Sigma Range	Calendar Years* Two Sigma Range
191456	CO1-1-5	83.5	collected underneath large sherd	1130	25	CE 889-967	CE 778-987
191457	CO1-1-10	127	in association with ceramic cluster	1720	20	CE 258-380	CE 253-387
191458	CO1-1-10	130	in association with ceramic cluster	1210	20	CE 772-867	CE 726-885
191461	CE1-1-8	80	in association with ceramic cluster	1265	20	CE 691-768	CE 681-771
191462	CE2-1-4	56	taken from matrix in middle of unit	1020	25	CE 995-1023	CE 975-1039
191463	CE2-1-14	170	in association with ceramic cluster	1430	20	CE 613-645	CE 595-653
191464	CE2-1-15	188	in association with ceramic cluster	1500	20	CE 552-592	CE 480-618
191466	D4-1-9	94	in association with with Teotihuacan style figurine head	1255	20	CE 694-770	CE 675-853
191467	D5-1-4	39	in association with stone floor	675	20	CE 1282-1379	CE 1277-1386
191468	D5-1-10	106	in association with ceramics	1230	25	CE 716-864	CE 690-880
191469	D5-1-16	166	from last layer with cultural material	1975	25	CE 2-60	BCE 39 - CE 72
191471	D6-2-4	96	in association with ceramics	1265	20	CE 691-768	CE 681-771
191472	D6-2-6	137	from last layer with cultural material	2210	20	BCE 357-348	BCE 361-204

* Calibrated calendar years using Calib 7.0.4 (Reimer et al 2013). Reported as range of intercepts under calibration curve within each sigma range.

Table 5.3: Ceramic Groups and Types for Fracción Mujular.

Phase	Group	Type	Description
Formative			
	Undesignated	Waxy Red	Waxy red slipped bowls
		Waxy Beige	Waxy beige slipped bowls
Early Classic			
	Bernal	Crude	Unslipped, utilitarian jars, bowls and dishes. Similar to Type 23 at Los Horcones
		Fine	Unslipped, burnished, dishes and jars
		Red	Red slipped utilitarian vessels
		Black	Rare, closed bowls
Late Classic			
	Chencho	Hard	Unslipped with hard and dense paste. Similar to Pita Red at Izapa
		Soft	Course utilitarian jars and bowls
	Vassallo	Fine	Fine bowls and serving dishes
		Crude	Closed, round-bottomed bowls and dishes
		Painted	Red on orange, cream, or buff
	Plumbate	San Juan	Open, round-bottomed bowls, occasional jars
	Undesignated	Oaxaca Grey	Distinctive import, extremely rare
		Ash Tempered Dish	Single flat-bottomed serving dish
		Red Slipped Dish	Single flat-bottomed serving dish
Postclassic			
	Plumbate	Tohil	Effigie Jars, rare at Fracción Mujular
	Pochota	Fine	Fine paste serving vessels and jars. Similar to Acapetahua Fine in the Soconusco.
		Buff	Utilitarian jars and cooking vessels. Similar to Acapetahua Course in the Soconusco.
		Crude	Large storage and cooking vessels with course temper
		Red	Utilitarian bowls and jars
		Painted	Fine paste bichromes and polychromes
	Undesignated	Fine Red on White	White wash with red paint
		Ash Tempered Crude	Soft ash tempered jars and bowls
Unknown			
	Undesignated	Black slipped dishes	Rare bowl forms
		Incised Grey	Rare grey slipped and incised
		Incised White	White slip with rectilinear incisions
		Vibrant Red	Glossy red slipped serving trays, possibly Formative

Chapter Six

THE POLITICAL AND ECONOMIC LANDSCAPE OF FRACCIÓN MUJULAR

Standing at the top of the principal mound of Fracción Mujular Group B, one is surrounded on all sides by lush and breathtaking views. To the south, the shield-shaped peak of Cerro Bernal juts up against the blue sky, forming a striking landmark visible for miles around. Near the base of this spire, tucked away in the ridges and hills that form the mountains rugged landscape, one can make out the top of a massive Pochota (*Ceiba* Sp.) tree which grows from the center of the Group D plaza. Looking to the east, the mounds of Group C are clearly visible, arranged around a partially natural and partially artificial plaza that dramatically protrudes from the side of the mountain. Following the ridgeline to the west, one can see Group A, with two ballcourt mounds restricting access to a narrow plaza terminating in a principal mound. The most stunning view, however, is to the north, where the emerald green mountains of the Sierra Madre de Chiapas stretch east and west as far as the eye can see. At their base, one can make out small cars and trucks moving along the Pacific Highway, forming a thin line that winds through the Coastal plain between Cerro Bernal and the Sierra Madre. As discussed in Chapter 2, traders having been carrying their wares through this chokepoint for millennia, putting the people of Cerro Bernal in connection with people and materials from places both near and far across Mesoamerica. These connections and their implications for the lives of people at Fracción Mujular are the subject of the following chapter.

Small sites such as Fracción Mujular have often been left out of stories of regional interaction. As discussed in chapter 3, “top-down” theoretical approaches such as World-

System Theory tend to focus on state centers and core regions and their peripheries rather than second-tier or intermediary settlements. On the other hand, many "bottom-up" approaches that do emphasize smaller settlements are often more interested in the practice of daily life than long-distance connections or grand historical narratives. Such biases are alive and well in Mesoamerican archaeology, with prominent scholars such as Joyce Marcus (2003:352), suggesting that long distance ties with Teotihuacan mainly centered on ruling families and political centers. Recently, however, there has been a increased understanding that "peripheral" or "marginal" sites, regions, and peoples, were active players in regional interactions, negotiating a range of often beneficial relationships with larger interlocutors (Joyce 2013; Schortman and Urban 2012; Stein 2005; Lightfoot and Martinez 1995; Stoner et al. 2015). Work at Fracción Mujular contributes to this scholarship by showing how a small settlement in a peripheral region interacted with both close and distant trading partners over the course of over a millennia of history.

The quality of being "small" or "peripheral" can actually afford a set of political and economic advantages compared to larger or more traditionally powerful centers. Drawing on the work of anarchy theorists such as Pierre Clastres (2010, 1989) and James Scott (2009, 2017), a growing number of scholars have begun to focus on the complex ways in which non-state and sometimes "marginal" societies organize to assert political and economic autonomy (Angelbeck and Grier 2012; Fowles 2010; Currás and Sastre 2019). Compared to larger, more hierarchical, and more politically integrated centers, small and rural sites often operate with some degree of independence, insulated against political turmoil and economic catastrophe. Such sites, therefore, often display a degree of resilience that is lacking in their larger neighbors (Somerville et al. 2013). It is notable that such a pattern is contrary to the "trickle-down" effect of political influence implied by most processual and neoevolutionary approaches to settlement hierarchy, which would assume a top-down relationship between political and economic causes and effects. This is not to say that small or peripheral sites are not affected by state centers. On the contrary, most anarchy theorists would be quick to point out the ways in which small-scale societies interact with and organize against state polities (e.g. Fowles 2010; Scott 2009). Rather, small sites face a different set of pressures, advantages, and pathways compared to their larger neighbors. Fracción Mujular provides an excellent case study in the resilience of small centers, as it persisted and thrived over the course of several major geopolitical shifts that resulted in the collapse of larger settlements.

This chapter positions Fracción Mujular within a larger landscape of local and distant political and economic interlocutors. Recent approaches to the archaeological study of landscapes have tended to take a phenomenological approach, emphasizing the ways in which past people experienced, understood, and remembered the places where they lived and traveled (Smith 2003; Tilley 2008; Johnson 2012; Knapp and Ashmore 1999). Different types of landscapes can be formed by the natural environment, human construction, artistic performance, or the social imaginary (Knapp and Ashmore 1999). In this chapter I do not take an explicitly phenomenological approach to landscape but do acknowledge how both cultural perceptions of place and environmental constraints shaped the experiences and historical trajectories of people living at Fracción Mujular. Located near the peak of an iconic mountain, Fracción Mujular's rugged landscape would clearly have impacted not just its external relations with visitors, but also its sense of place. Even as an archaeologist one cannot escape a feeling of majesty when working on ridges perched high above the coastal plain. This chapter will take a spatial approach to organizing our discussion of Fracción Mujular's relations, starting with its immediate neighbors and ending with long-distance ties. I will show how Fracción Mujular's connections, both near and far, helped shape its history over the course of its occupation.

Fracción Mujular and Los Horcones

No other site had a greater impact on the history of Fracción Mujular than Los Horcones. Indeed, without the growth of Los Horcones as a major Early Classic center it is impossible to know if Fracción Mujular would ever have formed as a settlement. As the largest site ever to have occupied the slopes of Cerro Bernal, Los Horcones undoubtably impacted the histories and lives of people living near the mountain for generations. As was discussed in chapter 5, this impact can be seen in the carved stelae of Fracción Mujular, which depict a "tilled-earth" glyph also found on Los Horcones Stela 2 and likely associated with Teotihuacan-inspired concepts of rulership and governance (Taube 2000; García-Des Lauriers 2005). Determining the nature of the relationship between Fracción Mujular and Los Horcones was one of the major goals of my dissertation research when I initiated my first survey project at Fracción Mujular in 2015. Although Fracción Mujular and Los Horcones were designated as separate sites by Navarrete (1976, 1986), their location just under 2 kilometers apart raises the question of whether or not they formed part of the same settlement complex.

The chronology presented in Chapter 5 has largely resolved this question. Current information suggests that Los Horcones was a single occupation Early Classic site dating mainly to the 5th and 6th centuries C.E. (García-Des Lauriers 2007:98). Most construction at Fracción Mujular, however, dates to the 7th century and beyond. Seeing as its main periods of occupation during the Late Classic and Postclassic post-dated the collapse of Los Horcones, we can safely say that Fracción Mujular was an independent settlement for most of its history. What exactly the relationship between Fracción Mujular and Los Horcones was during the Early Classic, on the other hand, remains to be established. Considering the difference of size between the two sites, especially during the Early Classic, it is safe to assume that Los Horcones exerted a strong degree of influence of Fracción Mujular during this period. This leaves the question of whether or not it was a separate site or an expended component of Los Horcones during this period.

There are several possible hypotheses for the relationship between Fracción Mujular and Los Horcones during the Early Classic. One possibility is that Fracción Mujular formed an independent community, likely within the Los Horcones settlement hierarchy. As discussed by Yaeger and Canuto (2000), communities in Mesoamerica can be seen as settlement organizations at the supra-household level characterized by a shared sense of identity and place. If Fracción Mujular was a distinct community, we would expect to see considerable difference in artefact assemblages between the two areas, as well as redundancy in administrative and public buildings in addition to private architecture. Alternately, Fracción Mujular could have formed a district or a neighborhood within the greater community of Los Horcones. According to Smith and Novic (Smith 2010; Smith and Novic 2012), districts are subdivisions of cities characterized by distinct administrative and social identities, while neighborhoods are residential subdivisions characterized by their small size and a degree of social cohesion. Identifying districts and neighborhoods from settlement survey data can also be done by looking for administrative centers and decreases in settlement density between areas.

Based on the results of our 2017 excavations (See chapters 4 and 5), the only clear evidence for Early Classic occupations at Fracción Mujular is found in Group C West and to a lesser extent in Group C East. Although Group C East grew to a be a fairly substantial plaza group during the Late Classic, its Early Classic component was substantially smaller and was likely comprised only of one or two modest house mounds. Given this small size and a lack of public architecture, it can be safe to say that Fracción Mujular Group C does not fit Smith and Novic's (2012) definition of an urban district. The uncertain chronology of Fracción Mujular Groups A and B, however, mean that we cannot rule this scenario out completely. Characterized by a large ballcourt, a restricted plaza space, and a large principal pyramid, Fracción Mujular Group A is entirely public in nature and could well date to the Early Classic. If so, it may have been directly associated with Los Horcones due to the popularity of ballcourts at that site and the apparent similarity in construction (using large stone steps that are otherwise rare at Fracción Mujular) between the Fracción Mujular ballcourt and several of those at Los Horcones. Unfortunately, future excavations will be needed to securely characterize and date the development of both of these groups.

Similarities in material culture between Fracción Mujular and Los Horcones can be found in the respective sites' ceramics, obsidian, and carved stelae. As discussed in Chapter 5 (see also Appendix A), Early Classic ceramics from the Bernal Group bear several similarities to the ceramic assemblage of Los Horcones. This is especially true of the Bernal Crude type, which is very similar to Type 23 from Los Horcones (defined by Pfieffer (1983) at Rio Arriba). Type 23 is one of the most common ceramic types at Los Horcones (García-Des Lauriers 2007), while Bernal Crude is likewise one of the most common ceramic types for Early Classic contexts at Fracción Mujular. These types share similarities in form, paste, and surface decoration, with pinched appliqué borer decorations especially common. These parallels suggest similarities in ceramic use and aesthetics pointing to strong cultural and social ties between the two sites, as would be expected considering their proximity. As will also be discussed in more detail below, obsidian frequencies are similar between Early Classic components at Fracción Mujular and Los Horcones, with imported Pachuca obsidian forming either the majority or plurality in assemblages from this period at both sites. This suggests that both Los Horcones and Fracción Mujular took part in the same obsidian exchange system during the Early Classic.

As was discussed in greater detail in Chapter 5, carved stelae of Fracción Mujular and Los Horcones probably show the strongest evidence for the existence of some degree of political connection between the two sites. All three calendrical stelae from Fracción Mujular bear striking similarities to Los Horcones Stela 2. In addition to the presence of the same “tilled-earth” glyph at both sites, all four stelae feature circular glyphs arranged in a vertical pattern. Due to these similarities, it seems likely that the artisans who carved the stelae were attempting to evoke similar cultural themes, if not direct political ties. There are, however, considerable differences between the stelae of each site. All three stelae from Fracción Mujular are markedly similar in shape, each being roughly one by two meters in size, and between 10 and 20 centimeters thick (See Chapter 5). Los Horcones Stela 2, on the other hand, is tall and narrow, bearing a greater resemblance in form to similar stelae from Xochicalco (Navarrete 1986; Sáenz 1961) than to those from Fracción Mujular. The Fracción Mujular stelae, therefore, were apparently intended to be displayed as a set, and bear more resemblance to each other than any one of them does to Los Horcones stela 2. This pattern suggests that while the two sites may have been related, Fracción Mujular was sufficiently independent for artisans at the site to carve stelae in a shared and distinctive artistic style.

Drawing on the presented evidence, we can describe Early Classic Fracción Mujular as a small domestic settlement lacking in public architecture, with strong economic ties to Los Horcones, but with some degree of social cohesion and independence. In other words, Fracción Mujular seems to have been a small second-tier village or possibly even a far outlying neighborhood within the Los Horcones polity. Its independent nature seems to have increased with time, and by the end of the Early Classic it was probably a fully independent site. This interpretation is complicated somewhat by the unknown chronology of Group A. If Group A does date to the Early Classic, its large public monuments and spaces could imply a somewhat greater degree of integration into the Los Horcones polity. Given the lack of corresponding domestic architecture in Group A, an Early Classic date for the group might suggest that it served as an outlying ritual area associated with Los Horcones. Excavations will be needed to more fully determine the chronological position and use of Group A.

Different models for Fracción Mujular's relationship to Los Horcones have different implications for the political economy of the site. It is clear that Fracción Mujular had a close relationship with Los Horcones during the Early classic, either as a second-tier village or an outlying neighborhood within the settlement system of the later center. During this period, therefore, we would expect the economies of the two sites to be relatively connected. Most long-distance trade goods arriving at Fracción Mujular would likely have done so by way of Los Horcones, especially considering the relative remoteness of Fracción Mujular's position further up the slopes of Cerro Bernal. The collapse of Los Horcones at the end of the Early Classic, however, may have afforded the residents of Fracción Mujular with a relatively greater degree of freedom in negotiating their trading relationships. Not only would goods no longer reach Fracción Mujular by way of Los Horcones, but the lack of a major political power in the area may have afforded small sites like Fracción Mujular more freedom in choosing trading partners. As we shall see in the following discussion of the site's imported ceramics and obsidian, this is exactly the pattern we see at the site during the Late Classic and Postclassic periods.

The Highlands and the Coast

The Late Classic components of Fracción Mujular have substantially more foreign imports than contexts dating to the Early Classic. To some degree, this difference is an issue of sampling size bias; early classic components are limited to deeper contexts at Group C that returned considerably less material than those with Late Classic diagnostics. Furthermore, one of the most common Late Classic imports at Fracción Mujular, San Juan Plumbate, is itself a key Late Classic chronological marker. Nonetheless, the appearance of imported ceramics, jade, and copal during the Late Classic does point to an increase in regional trade connections during this period, possibly owing to a relative increase in autonomy at the site following the collapse of Los Horcones as a regional center. Many of these imports come from either the Pacific coastal plain or the southern Highlands, suggesting that Fracción Mujular may have been a waypoint on the route taken by traders moving goods up and down the Pacific corridor during the Late Classic.

After obsidian, plumbate ceramics were the most common trade good imported to Fracción Mujular during any chronological period. Developed during the Late Classic near the modern border between Chiapas and Guatemala, plumbate uses reduction firing and clays high in aluminum and iron in order to produce hard, fine, and distinctive ceramic vessels that were traded throughout Mesoamerica during the Late Classic and early Postclassic (Neff and Bishop 1988; Neff 1995, 2005). Plumbate is generally divided into two types. San Juan plumbate was produced during the Late Classic (600-900 CE), while the more widely traded Tohil plumbate was produced during the Terminal Classic and Early Postclassic (900 CE to 1200 CE) (Neff 1995; Shepard 1948). Although it has a wide distribution in archaeological sites, the production of plumbate was highly localized in the southern Soconusco region near the mouth of the Rio Naranjo (Neff 1984, 1995; Neff and Bishop 1988). The main distinction between the two are the simpler forms of San Juan vessels, compared to the elaborate decorations often found on Tohil ceramics. Most of the Plumbate found at Fraccion Mujular is of the San Juan type, although one fragmented Tohil effigy jar was discovered in a surface collection unit, and some sherds of grey slipped Tohil plumbate were found in excavation in Group C.

The presence of significant amounts of plumbate (3% of the overall ceramic assemblage but over 10% in some Late Classic contexts) at Fracción Mujular suggests that the site was well connected to communities across the wider pacific coast of Chiapas and Guatemala during the Late Classic and early Postclassic. Although Tohil plumbate was widely traded throughout Mesoamerica, San Juan plumbate has a more limited distribution, and is most common in the areas near the Rio Naranja where it was being produced (Neff and Bishop 1988; Neff 1995). The relatively common presence of San Juan plumbate at Fracción Mujular could suggest a strong degree of connection between areas along the Pacific coast of Chiapas during the Late Classic, perhaps facilitated by traders moving goods between Central Mexico and the Guatemalan Highlands. Alternately, the presence of San Juan plumbate might imply some degree of connection to the city of Izapa, which would have been the closest and largest center to San Juan Plumbate producing areas along the Rio Naranja.

It is interesting that despite the substantial Postclassic occupation present at Fracción Mujular, Tohil plumbate is quite rare. In addition to the chronological difference between the two types of plumbate, Tohil plumbate was more likely to have been explicitly produced for export and was carried by traders to destinations throughout Mesoamerica. Its relative scarcity at Fracción Mujular could indicate that the site was a way stop, rather than an endpoint, for trade along the coast. In other words, San Juan plumbate may have been arriving at Fracción Mujular through local, down-the-line (Renfrew 1975), exchange, while traders carrying Tohil wares bypassed the site on their way to more distant locations in Central Mexico. Another possibility is that there was a decrease in trade between Fracción Mujular and the southern Soconusco during the Early Postclassic, possibly correlated to population shifts and declines at Izapa during this time (Rosenswig et al. 2015). Considering that the Postclassic was a major period of increased interaction throughout Mesoamerica, however, this later explanation seems less likely to have been the case.

Five body sherds and one rim sherd that were identified as Oaxacan Grey Ware were found in Late Classic components of Fracción Mujular. Grey Ware ceramics were produced in Oaxaca throughout Mesoamerican history and are the antecedents of the popular black pottery vessels still used in the state today (Feinman et al. 1989). Grey Oaxacan ceramics were popular trade wares, and their appearance even in low amounts at Fracción Mujular indicates some degree of interaction Oaxacan polities to the north. It is notable that no Oaxacan grey ceramics have been found at Los Horcones (García-Des Lauriers 2007:148), and those found at Fracción Mujular seem to come from Late Classic contexts. This might suggest that during the Early Classic, Teotihuacan dominated trade routes avoided areas controlled by Monte Alban, veering north and then west at the Isthmus of Tehuantepec (García Des Lauriers 2007:148). Following the collapse of both Teotihuacan and Los Horcones at the start of the Late Classic, these restrictions may have loosened somewhat, allowing Oaxacan ceramics to reach Fracción Mujular. Despite the relative proximity of Oaxaca to Fracción Mujular, however, the low levels of Oaxacan greywares found at the site could suggest a continued focus on exchange with Central Mexico even after the fall of Teotihuacan; a pattern that is also confirmed by the site's obsidian assemblage (see below).

Copal was also imported to Fracción Mujular, likely from the nearby highlands of Chiapas. Copal is comprised of pine resin and was used as incense in both public and private rituals throughout Mesoamerica (Stacey et al. 2006). It is also known to have been an important trade item, having been listed as a tribute good paid to the Aztec empire in the Codex Mendoza (Berdan and Anawalt 1997). As pine trees do not grow on the Pacific plain of Chiapas, copal at Fracción Mujular would have needed to have been imported from the cooler highlands. Most of the copal found at Fracción Mujular was excavated from a 12 meter long trench along the roadcut of mound 1 in Group C West, meaning that its exact chronological affiliation is difficult to determine. Like the rest of materials found in Group C West, however, they are likely to date to either the Early or Late Classic. In total, 7 copal nodules were found, making it a relatively uncommon import at the site as a whole, but fairly common at Group C West mound 1. It is possible that this copal would have been used in domestic rituals at this small house mound. X-ray spectroscopy conducted on the Fracción Mujular copal nodules during labwork in San Cristobal in 2017 revealed that the samples match two distinct spectrum patterns, possibly indicating that copal was traded to Fracción Mujular from two different highland sources.

A single jade earspool fragment was found during excavations at Group C East mound 1. Items made from jade were valued throughout Mesoamerican history for their unique green color and were often used as markers of status and wealth (Taube et al. 2004). The Fracción Mujular earspool was identified as jadeite due to its density and translucence compared to other known stone types. All jade used in Mesoamerica was collected from the Motagua River Valley in Guatemala (Foshag and Leslie 1955; Hammond et al. 1977), meaning that this earspool would have necessarily been an imported item. What route jade would have taken to reach Fracción Mujular is impossible to determine, although the most direct route to the Motagua River Valley would follow the Pacific Coast before crossing the Guatemalan Highlands. It is significant that the earspool was found in Group C East mound 1, which is the largest structure in Group C, and likely served as an elite residence during the Late Classic. Access to jade may be indicative of increased wealth at the site during the time of heightened construction and interaction in the Late Classic. It is also notable that neither jade nor copal has been found in excavations at Los Horcones (García-Des Lauriers 2007). This could indicate that there was an increased diversity of trade options available to the Late Classic residents of Cerro Bernal following the collapse of Teotihuacan-focused trade at Los Horcones. An alternate possibility could simply be that excavations at Fracción Mujular focused on residential spaces and thus recovered more items associated with personal adornment and domestic ritual than did excavations in public areas and plazas conducted at Los Horcones (García-Des Lauriers 2007).

Fracción Mujular and Central Mexico

In addition to the site's corpus of stone monuments, the strongest evidence for robust interaction between Fracción Mujular and Central Mexico comes from the site's assemblage of obsidian artifacts. Obsidian was one of the principal toolstones used in ancient Mesoamerica and held important ritual and symbolic significance in addition to its widespread utilitarian function (Taube 1991; Saunders 2001; Carballo and Levine 2014). Obsidian was also one of the most widely traded goods in ancient Mesoamerica, and the movement of obsidian across the landscape has been used by archaeologists to model ancient economic and political interactions across different regions of Mexico and Central America (Santley 1983; Santley and Arnold 2005; Hirth 2008; Braswell 2003; Braswell and Glascock 2002; Zeitlin 1982; Golitko et al. 2012; Golitko and Feinman 2015; Clark et al. 1989). Many of ancient Mexico's most powerful states, from Teotihuacan to the Triple Alliance, carefully exploited obsidian exchange as part of strategies for regional domination, and geopolitical shifts had profound affects on the local availabilities of different kinds of obsidian (Braswell 2003; Golitko and Feinman 2015). As will be discussed in the following paragraphs, the majority of obsidian used at Fracción Mujular came from Central Mexico, despite the closer proximity of several important Guatemalan sources. This suggests a long-standing tradition of close economic ties with Central Mexico

A total of 502 obsidian artifacts have been collected from Fracción Mujular. Of these, 59 (12%) were found during surface collections, while 443 (88%) were collected during excavations. The vast majority of these artifacts are either blades or blade fragments, comprising over 88% of the total assemblage (n = 444). In addition to blades, 8 biface fragments were recovered, as well as 31 flakes. Only one core fragment was recovered, with the remainder of the assemblage (n = 19) comprised of debitage. Of the blades in the assemblage, 64 (14%) were proximal fragments from which attributes of the blade core platform could be ascertained. Of these proximal blade fragments, 10 (16%) have ground and pecked platforms. The grinding and pecking of prismatic blade core platforms occurred either in the preparation of the core or during core rejuvenation and became a popular technique in the Late Classic and especially during the Postclassic (Hruby et al. 2014:126). It is notable that no blade fragements from Los Horcones display ground and pecked platforms (García Des Lauriers 2007:165), further reinforcing the longer chronology of Fracción Mujular compared to its larger neighbor. A full list and description of the obsidian artifacts collected from Fracción Mujular can be found in appendix C.

The morphological characteristics of the Fracción Mujular obsidian assemblage is consistent with the domestic nature of Fracción Mujular Groups C and D. Obsidian blades would have been used for many daily utilitarian tasks such as the preparation of food and the cutting of cloth and other goods. The relative scarcity of cores suggests that most obsidian was produced in finished form, although the presence of 31 flakes suggests some lithic reduction, or possible repair, was occurring at the site. It is notable that of the 8 biface fragments recovered, one was made from the retouching of a prismatic blade into an arrowhead. Considering the relative abundance of obsidian at Fracción Mujular, it seems likely that it was a fairly common material accessible across social strata. Access to obsidian was probably facilitated by the site's proximity to high-throughput trade routes along the Pacific Coast. Traveling merchants may have carried prepared cores into the region, producing a number of blades for local exchange, before moving on along the coast and taking their cores with them (Clark and Bryant 1997; Hirth 2008).

One of the most notable characteristics of the Fracción Mujular obsidian assemblage is the high diversity of different sources represented. The sourcing of the Fracción Mujular obsidian collection was conducted using a Bruker Tracer IV portable X-Ray spectrometer (PRXF) at the New World Archaeological Foundation laboratory during the summer of 2017. Each sample was subjected to a 180 second assay conducted by Rafaella Lisboa from the California Polytechnic University at Pomona. Unfortunately, variable voltage outputs between runs caused by the high elevation at which we were using the XRF (San Cristobal sits at 2,200 meters) meant that photon counts were not consistent between assays. Voltage remained constant within each run, however, allowing for the accurate source determination of each sample using element ratios. While I used element ratios by necessity rather than choice, it is notable that Kaiser et al. (2016) have argued that using ratios to identify obsidian sources is more accurate than using key element photon counts. In addition to eliminating differences in voltage, ratio analysis also reduces error introduced by variable artifact thickness and the presence of any cortex or surface contamination (Kaiser et al. 2016).

The source identification of the obsidian assemblage from Fracción Mujular employed a combination of several types of analysis. Element ratios of rubidium, strontium, yttrium, and niobium to zirconium recorded by the Bruker PXRF were used to make two 3-variate cluster plots using the statistical software JMP. These results were compared to a 4-way dendritic cluster analysis, also focusing on rubidium, strontium, yttrium, and niobium to zirconium ratios. A scatterplot showing a multivariate analysis of rubidium, strontium, yttrium to zirconium can be found in Figure 6.1, which clearly shows at least 9 clusters representing different obsidian sources from Mexico and Guatemala . The results of these multivariate cluster analyses were also compared to the notes taken on each obsidian artifact in the laboratory. In a very small number of cases, data points that were difficult to identify using multivariate analysis were designated based on these laboratory notes. For example, two pieces of obsidian that were visually similar to Tajumulco obsidian were difficult to definitively place using cluster analysis and kept the designation given to them during laboratory visual sourcing. Other isolates and outliers with less certain laboratory designations were labeled as unknown (less than 1 % of the overall sample).

Obsidian sourcing identified obsidian from at least 9 and likely as many as 11 different sources at Fracción Mujular; a remarkably high number for such a small site. The overall percentage of obsidian from each source can be found in Figure 6.2. All together, obsidian from the Zaragoza/Oyameles source is the most common, coming in at 32% of the overall assemblage. Pachuca is the second most common at 28%, followed by El Chayal at 19%, San Martin Jilotepeque (SMJ) at 9%, Ixtepeque at 4%, Otumba and Pico de Orizaba at 2%, and 1% or less from Guadalupe Victoria, Paredon, Tajulmulco, and Zinapecuaro. This diverse assemblage of obsidian from sources across Mesoamerica emphasizes the degree to which Fracción Mujular was plugged in to inter-regional and long-distance trade systems. It is especially noteworthy that only 32% of the obsidian imported to Fracción Mujular came from sources in Guatemala (represented at Fracción Mujular by El Chayal, SJM, and Ixtepeque), despite the fact that those sources were up to 50% close than those in Central Mexico. This pattern is contrary to what one would expect for a random distribution of traded goods and emphasizes the political nature of economic connections in ancient Mesoamerica. It is possible that the long-distance connections with Central Mexico that were started at Los Horcones were maintained at Fracción Mujular through the continued favoring of obsidian importation from Mexican sources.

The obsidian source pattern at Fracción Mujular becomes even more interesting when broken down by chronological period. Obsidian source frequencies for the Early Classic, Late Classic, and Post Classic can be found in Figures 6.3 through 6.5. These figures only include excavated obsidian, and chronological attributions were made based on the ceramic types found in each excavation lot. Through time, we see a strong pattern of decreased use of Pachuca obsidian, and increased use of obsidian from the Zaragoza source. During the Early Classic, for example, a striking 60% of the site's obsidian was imported from Pachuca; a proportion that decreases to 25% in the Late Classic and just 11% in the Postclassic. Conversely, only 5% of the obsidian at Fracción Mujular during the Early Classic came from Zaragoza, with a jump to 34% in the Late Classic and 45% during the Postclassic. It is notable that the relative proportion of Central Mexican versus Guatemalan obsidian stayed fairly constant throughout the site's occupation, with roughly two thirds of obsidian coming from Central Mexico compared to around one third from Guatemala across all chronological periods.

Why did the inhabitants of Fracción Mujular rapidly shift away from preferring Pachuca obsidian at the start of the Late Classic? It is almost certain that the answer lies in the collapse of Los Horcones as a regional power and the decline of Teotihuacan influence on the Pacific Coast. During the Early Classic, the special relationship between Teotihuacan and Los Horcones meant that the later site functioned as a regional hub for the distribution of Pachuca obsidian imported from Teotihuacan-controlled trade networks (García-Des Lauriers 2008, 2007). As discussed by García-Des Lauriers (2007:173), Pachuca at sites further south in the Soconusco likely arrived in those areas by way of Los Horcones. Following the decline of Teotihuacan, however, trade in Pachuca obsidian seems to have rapidly collapsed. This close connection between geopolitical events and the availability of Pachuca obsidian should serve to emphasize the relationship between politics and economics that seems to have been at play on the Pacific Coast during the Early Classic.

It is worth reemphasizing that during the Early Classic at Fracción Mujular, the proportion of obsidian that was imported from Pachuca (60%, n = 61/101), was even higher than at Los Horcones (40.7%) (García Des Lauriers 2007:168). It should be noted that more excavations were focused on household contexts at Fracción Mujular than at Los Horcones, and these ratios may change as more household data is gathered from Los Horcones. As discussed in Chapter 5, Fracción Mujular during the Early Classic was a distant outlier to Los Horcones characterized by only one or two modest housemounds. The fact that so much Pachuca obsidian was being used at Fracción Mujular clearly indicates that green obsidian was readily available across all social strata on Cerro Bernal and was not restricted to elite residents of the Los Horcones site core. If anything, residents of Los Horcones may have had access to a wider array of obsidian than those at Fracción Mujular, as the larger site would have been more proximate to merchants traveling along Pacific trade routes. The ubiquity of Pachuca obsidian at Early Classic Los Horcones indicates that it was very much a utilitarian item, which suggests that Teotihuacan controlled trade to the coast went beyond the exchange of preciosities or prestige goods to include items of basic daily activity.

Why did Zaragoza replace Pachuca as the dominate obsidian source at Fraccíon Mujular in the Late Classic? Zaragoza is rare at other sites on the Pacific Coast of Chiapas, which are dominated by Guatemalan obsidians through the Early Postclassic (Clark et al. 1989). Indeed, if Zaragoza was arriving to the region from the north, Cerro Bernal may have been the endpoint for trade in this obsidian as there is little to none reported at major centers to the south such as Izapa (Mendelsohn 2018; Clark et al. 1989; Mendelsohn, personal communication). The rapid increase in the presence of Zaragoza obsidian at the site, together with its relative absence at nearby centers, suggests that this pattern was the result of a powerful political and economic actor. The city of Cantona, located only 10 kilometers from the Zaragoza source (Knight et al. 2017), rose to prominence in the Late Classic following the collapse of Teotihuacan and may be a prime suspect for controlling the distribution of Zaragoza obsidian to the Pacific Coast. Another possible interlocutor may be the Gulf Coast center of El Tajin, which Zeitlin (1982:268–269) suggests as a likely distributor of Zaragoza obsidian during the Late Classic. Either of these two cities may have been tempted to exploit the decline of Teotihuacan by seizing control of the latter city's obsidian trade routes to the coast. An alternate possibility may be that Zaragoza obsidian arrived at Cerro Bernal as the result of down-the-line trade from the Isthmus/Gulf Coast interaction sphere. Several macro-regional studies of obsidian exchange patterns in Mesoamerica (e.g. Zeitlin 1982; Braswell 2003) have identified Zaragoza as one of the major sources for obsidian exchanged in these regions during the Late Classic. It is possible that following the decline of Teotihuacan, Cerro Bernal began receiving obsidian through Isthmus/Gulf Coast interaction networks more often than through trade with other coastal Chiapas communities to the south. Future work will be needed to determine which of these possibilities is the most likely.

Another important question regards who was supplying Cerro Bernal with Zaragoza obsidian in the Late Postclassic. Other Late Postclassic sites on the Pacific Coast of Chiapas tend to have high proportions of Central Mexican, reflecting the economic and political influence of the Aztec Empire on the region. Pachuca and Pico de Orizaba are overwhelmingly the most common Mexican sources represented, however, with Zaragoza almost completely absent (Voorhies and Gasco 2004; Clark et al. 1989). The regional center of Acapetahua, for example, received 27.3% of its obsidian from Pico de Orizaba and 18.2% from Pachuca, with only 1.1% from Zaragoza (Clark et al. 1989:271). Compare this with Postclassic Fracción Mujular, where only 2% comes from Pico de Orizaba, 11% from Pachuca, and a massive 47% from Zaragoza. One possible explanation for this pattern could be that Fracción Mujular was abandoned before the Aztec intrusion into the Soconusco in 1486, although the strong similarities between some ceramic types at Fracción Mujular and Acapetahua suggest that they were likely contemporaneous sites. Another possibility may be that clear Aztec influence on the area stopped south of Cerro Bernal, keeping Fracción Mujular out of Aztec controlled obsidian exchange networks. Either way, we are still left with the question of who was trading so much Zaragoza obsidian to Fracción Mujular. In the Early Postclassic, El Tajin remains as a possible candidate for controlling the distribution of Zaragoza obsidian in the Isthmus and Gulf Coast regions. Another possibility could be the great city of Cholula, which seems to have used large amounts of Zaragoza obsidian (Zeitlin 1982; Hester et al. 1972) in the Late Classic and persisted as a major center well into the Postclassic.

A History of Interaction and Resilience

The story of Fracción Mujular is in many ways one of continuity in the face of considerable regional change. Founded under the auspices of Los Horcones, Fracción Mujular was originally closely linked with its larger neighbor, likely receiving most imports such as obsidian and ceramics by way of the regional center. The decline of Teotihuacan at the end of the Early Classic, however, had drastic affects on political and economic life on Cerro Bernal. Los Horcones soon collapsed, but Fracción Mujular entered a period of rapid growth. It is during this time that the residents of Fracción Mujular maintained the largest number of external connections, importing ceramics from the Soconusco and Oaxaca, jade and copal from the Highlands of Guatemala, and obsidian from at least 9 different sources. It is notable that although Fracción Mujular seems to have expanded its external trade connections following the collapse of Teotihuacan, it maintained a special relationship with Central Mexico, continuing to import roughly two thirds of its obsidian from sources in that region. The Postclassic continued to be a time of robust regional exchange at Fracción Mujular, with the continued importation of ceramics and obsidian from throughout Mesoamerica.

One important remaining question concerns what Fracción Mujular's trading partners received in exchange for the obsidian, ceramics, and other imported items that we have found at the site. Given the lack of any clear evidence for specialized production at the site, it seems likely that Fracción Mujular's trade contributions were "invisible exports" (Crawford 1973) that do not easily preserve in the archaeological record. Cacao is a possible candidate, as coastal Chiapas is well known to have a major supplier of cacao to Central Mexico throughout Mesoamerican history (McNeil 2009; Gasco 1996). Although ceramic sherds with cacao motifs were found at Fracción Mujular, no clear examples of cacao processing vessels have been collected, making this difficult hypothesis to establish at present. Another likely candidate may be bird feathers, which are known to have been an important tribute item sent from the Soconusco to Tenochtitlan (Gasco and Voorhies 1989). The possible role of the landscape itself should also not be discounted. Merchants traveling through the natural coastal chokepoint at the base of Cerro Bernal may have paid for services or goods as they passed through the region. Some may also have traveled up the slopes of the mountain to visit Fracción Mujular, drawn by its unique location at the base of the iconic mountain's shield-shaped peak.

Several trade goods are also notable by their absence from the site's assemblage. Thin Orange ceramics, manufactured in modern day Puebla and widely traded in Teotihuacan-influenced areas of Mesoamerica during the Early Classic (Rattray 1990), are absent from the Fracción Mujular assemblage, although this might be explained by the relatively modest size of the site's Early Classic occupation. More notably absent are Silho Fine Orange ceramics, which were manufactured in the Gulf Coast lowlands and traded throughout Mesoamerica in the Late Classic and Early Postclassic (Rands et al. 1982; Diehl 1993:270–271). If Fracción Mujular was receiving large amounts of Zaragoza obsidian through Gulf Coast interaction networks, one might expect Fine Orange ceramics from southern Veracruz to have also been traded to the site. One explanation for its absence might be that fine orange ceramics tended to be used elites and may have been primarily circulating in prestige exchange systems. Obsidian, being a more utilitarian item, may thus have had a very different distribution network. Also absent from Fracción Mujular are any clear examples of Aztec ceramics. Together with the relatively low proportion of Pachuca obsidian, this absence gives further indication that Late Postclassic Fracción Mujular was in a different political and economic sphere than Aztec tributary polities located further south on the coast of Chiapas.

These absences aside, the material record of Fracción Mujular shows that the site was well connected to wide-ranging trade networks throughout its long history. Much like their larger neighbors, small sites such as Fracción Mujular can be seen as active participants in long-distance exchange systems. The residents of Fracción Mujular used items that were imported from across Mesoamerica and were likely aware of events and traditions ranging far beyond the Pacific Coast of Chiapas. Small sites, however, can often be characterized by a high degree of resilience relative to their larger neighbors. Whereas Los Horcones declined rapidly following the collapse of Teotihuacan, Fracción Mujular thrived, importing goods from a wide range of sources during the Late Classic. It is likely that the power vacuum created by the collapse of Los Horcones gave the residents of Fracción Mujular more freedom to navigate trading relations with areas that had previously been part of competing economic spheres. Fracción Mujular's history is thus one of resilience and connectivity, maintaining and expanding trade both local and distant trade connections over the course of its millennia long occupation.

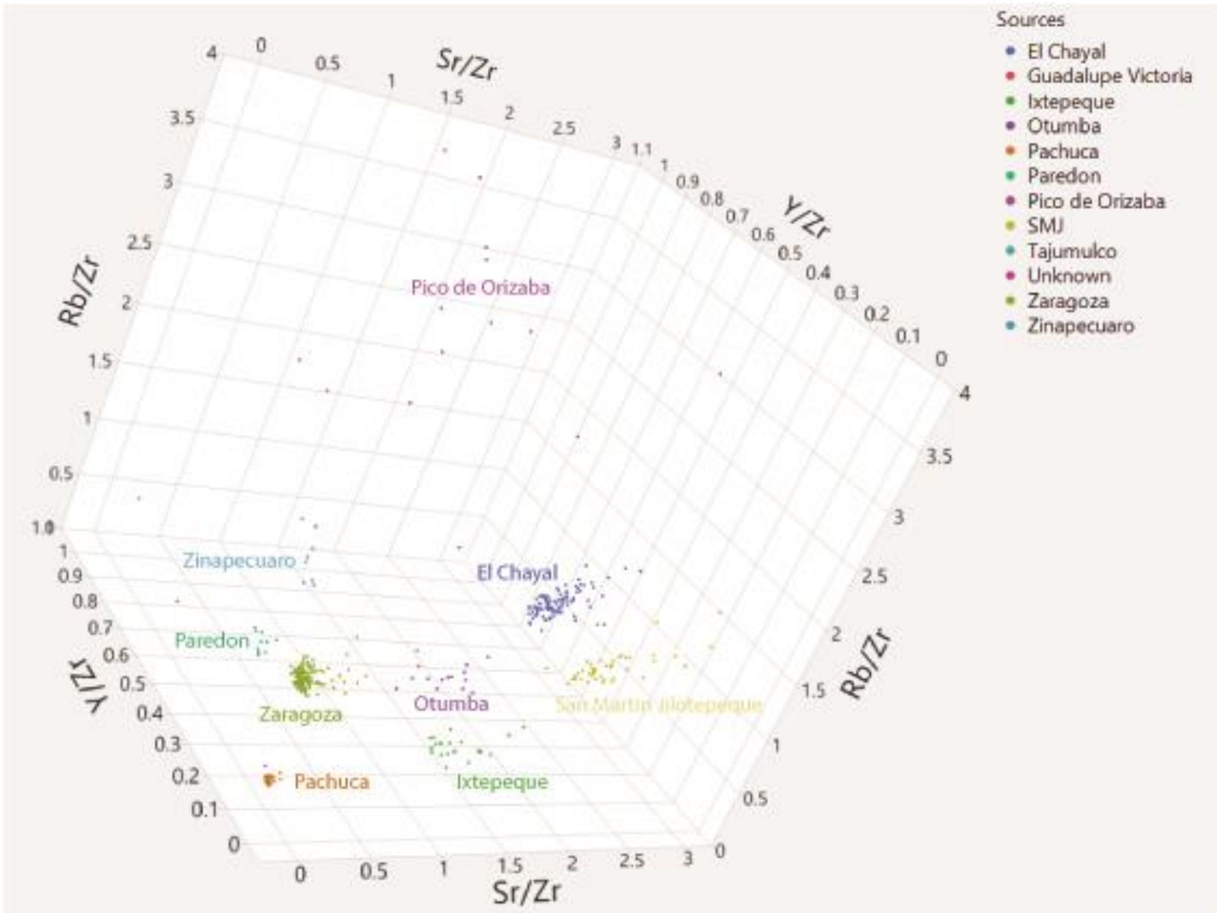


Figure 6.1: Multivariate cluster plot of rubidium, strontium, yttrium to zirconium ratios.

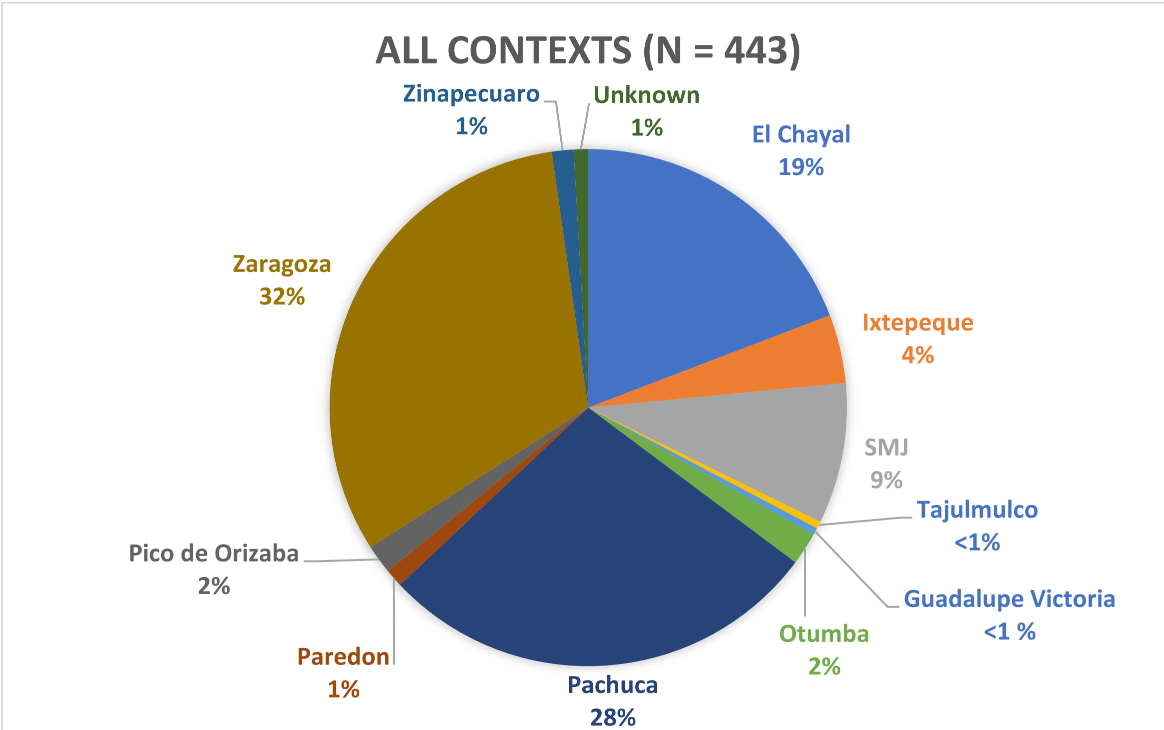


Figure 6.2: Obsidian sources from all excavated contexts at Fracción Mujular

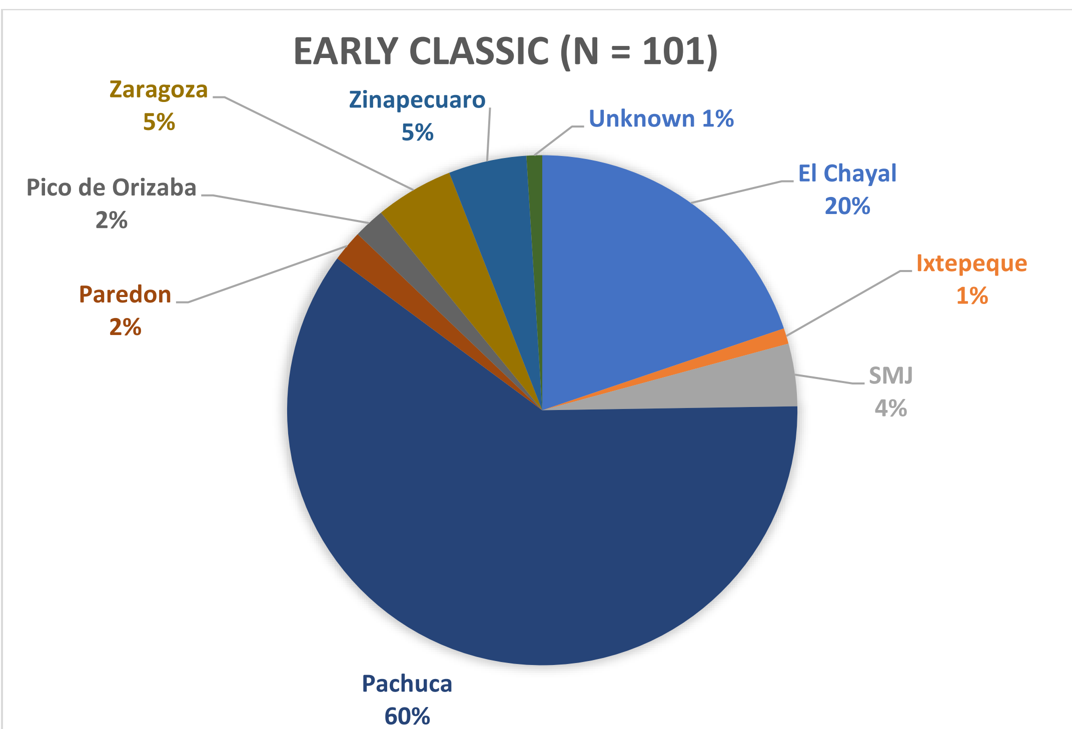


Figure 6.3: Obsidian Sources from Early Classic contexts

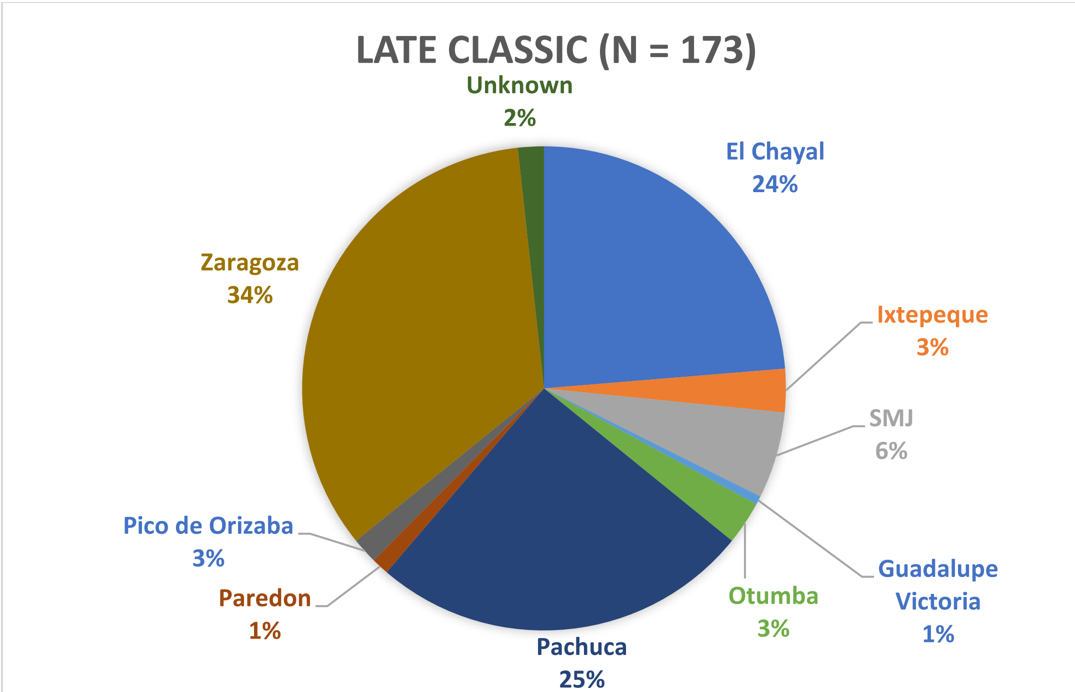


Figure 6.4: Obsidian Sources from Late Classic Contexts

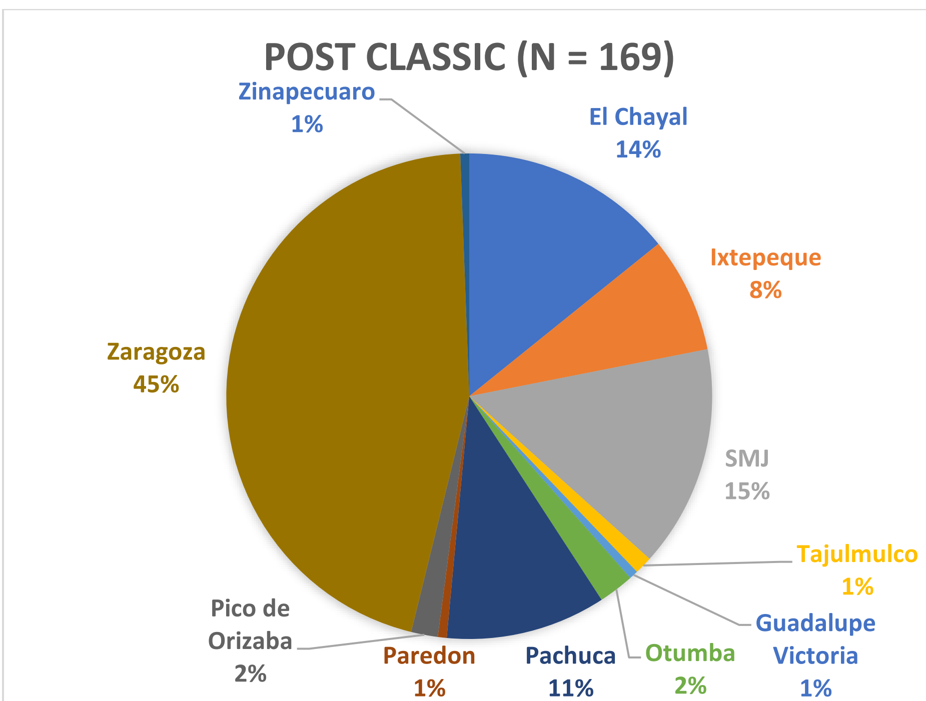


Figure 6.5: Obsidian Sources from Post Classic Contexts

Figure 6.6: Map of Obsidian Sources Represented in Fracción Mujular Assemblage

Chapter Seven

CONCLUSIONS AND FUTURE WORK

When I first visited Fracción Mujular during the summer of 2014, I envisioned a project focused on understanding how Teotihuacan influences on the Pacific Coast of Chiapas affected the lives of commoners living at a small-scale settlement. Fracción Mujular had been known in the archaeological literature since Carlos Navarette published drawings and photographs of the site's carved stelae, arguing that they were stylistically associated with Teotihuacan (Navarrete 1976, 1986). More recent investigations at Los Horcones, directed by Claudia García-Des Lauriers in 2005 and 2006, had firmly established that there had been a strong Teotihuacan presence on Cerro Bernal in the Early Classic (García-Des Lauriers 2016, 2012a, 2005, 2007, 2012b, 2008). Located just two kilometers up the slopes of Cerro Bernal from Los Horcones, the un-excavated and much smaller site of Fracción Mujular promised to be an excellent location to examine how non-elite households were affected by the area's long-distance ties to Central Mexico. I began work at Fracción Mujular in 2015 with two primary goals; 1) to determine the nature of the relationship between Fracción Mujular and Los Horcones, and 2) to excavate a range of households across Fraccion Mujular to examine how long-distance interactions with Central Mexico variously affected the lives of ancient inhabitants at the site.

Over the course of my dissertation research I completed four seasons of fieldwork at Fracción Mujular. Mapping and survey was conducted during the summer of 2015, which produced a detailed map of the site and gave us a basic understanding of the site's material culture. Excavations followed in the winter of 2017, that targeted domestic groups identified during survey. During the 2017 excavation season, a total of 12 2x2 meter test pits and one 1x12 meter trench were excavated across both residential areas of the site. A laboratory season during the summer of 2017 catalogued all the artifacts collected during excavation, while a short field visit during the summer of 2018 focused on documenting the site's stelae using structure from motion photography. As my research represented the first systemic archaeological investigations at the site, much of this work by necessity focused on culture history. I quickly determined that the site had a much longer occupational history than I had originally thought, and that many of the architectural differences between areas of the site corresponded to differences in chronology, rather than differences in status. As was discussed in chapters 5 and 6, lines of evidence from the site's stelae, ceramics, carbon dating, and obsidian sourcing were used to piece together its long history of construction and interaction with distant places.

We now know that Fracción Mujular was occupied over a span of around one thousand years. Although there seems to have been a fleeting and still poorly understood formative presence at the site, the first long term settlement began in the Early Classic, when at least one house mound was constructed in Group C. At this time, Fracción Mujular was most likely an outlying settlement of Los Horcones, likely comprised of only one or two families living on the slopes of Cerro Bernal. The decline of Los Horcones at the end of the Early Classic drastically changed the history of Fracción Mujular. Whether due to migration from the collapsing center, or the loosening of political control, Fracción Mujular experienced a construction boom over the course of the Late Classic, with Group C reaching its current size and early construction beginning at Group D. It was during this time that the site was connected through trade to the greatest number of distant locations, importing ceramics from the Soconusco and Oaxaca, Jade from Guatemala, and Obsidian from across Mesoamerica. Occupation persisted at Fracción Mujular into the Postclassic, with a possible second florescence during the Late Postclassic centered on Group D.

Our new knowledge of the chronology of Fracción Mujular has illuminated our understanding of the relationship between the site and Los Horcones. Although occupation at the site started during the Early Classic, Fracción Mujular remained very small for the majority of the history of Los Horcones. At this point, Fracción Mujular was an outlying village within the Los Horcones settlement system. As Los Horcones was declining, however, its satellite at Fracción Mujular began to rapidly expand. Construction likely began in earnest at the end of the 6th century, with the calendrical stelae of Fracción Mujular possibly marking the beginning of construction projects at the site. Even at this time, however, the artisans who produced these stelae were careful to distinguish them from those at Los Horcones, maintaining a flatter and wider profile than the column like stelae at their larger neighbor. Fracción Mujular, therefore may have maintained an independent character even when it was within the Los Horcones economic and political system. Following the collapse of Los Hrocones, Fracción Mujular continued as a fully independent center, with major periods of occupation on both the Late Classic and Late Postclassic periods.

Fracción Mujular was never a major center. Even if many inhabitants lived in non-mound structures, the site's population is unlikely to have exceeded a few hundred. Nonetheless, Fracción Mujular was connected through trade to distant areas across Mesoamerica. As was discussed in Chapter 3, evidence for long-distance connectivity at small-scale and commoner settlements is often underemphasized in many models for macro-regional interactions. World-systems approaches have tended to center on interactions between metropolitan cores and their peripheries, rarely discussing smaller intermediate sites (Chase-Dunn and Hall 1993; Gills and Frank 1991; Kardulias 1999; Frank and Gills 2000; Wallerstein 1974). More recent approaches including the emerging "ancient globalizations" school also tend to emphasize the importance of major cities or "islands of complexity" (Rosenswig 2017) in spurring periods of increased cosmopolitan integration (Jennings 2011; Hodos 2017). Work at Fracción Mujular adds to the literature on ancient connectivity by showing how small and non-elite sites were also involved in periods of ancient globalization. Despite its size, excavations at Fracción Mujular returned a diverse array of goods from throughout the Mesoamerican world. Major political shifts occurring in distant regions and clear affects on the economy of the site, as evidenced by the transition from use of Pachuca to Zaragoza obsidian following the decline of Teotihuacan at the end of the Early Classic. Patterns such as these emphasize the fact that small and commoner sites, much like their larger neighbors, were also part of the geopolitical history of Mesoamerica's past.

Fracción Mujular's history, however, differed significantly from that of many major centers. Over the course of its long occupation, it outlived many much larger and more famous Mesoamerican cities. Indeed, the site thrived following the collapse of Los Horcones, entering a period of florescence following the abandonment of its neighbor. The story of Fracción Mujular is thus also one of regeneration in the face of collapse. This makes the Fracción Mujular case study fit closely with recent literature one the resilience of small scale and peripheral societies (Schwartz and Nichols 2010; Somerville et al. 2013; Fowles 2010; Currás and Sastre 2019; Scott 2009). Fracción Mujular's small size seems to have insulated it against the disruption caused in the region around Cerro Bernal by the collapse of Teotihuacan. Rather than retreating from the trade connections forged by Los Horcones, Fracción Mujular doubleddown on interactions with Central Mexico, expanding its trade connections in the absence of control from a powerful regional center. Work at Fracción Mujular emphasizes the importance of commoner sites in cases of resurgence following collapse (e.g. Schwartz 2006; Van Buren 2000), and shows how small-scale societies forge their own way in complex and inter-connected landscapes.

Research at Fracción Mujular has expanded our knowledge of the Late Classic and Postclassic Periods on the Pacific Coast of Chiapas. Although the Pacific Coast of Chiapas is well represented in archaeological literature on the Formative (Clark and Blake 1994; Neff et al. 2006; Rosenswig 2010, 2007; Voorhies 2004; Love 2007) and Early Classic (García-Des Lauriers 2016, 2012a, 2005, 2007, 2012b, 2008; Kaneko 2011, 2009), little work has been done on Late Classic or Postclassic north of the Soconousco area near the Guatemalan border (Neff 1995, 1984; Voorhies and Gasco 2004; Gasco and Voorhies 1989; Voorhies 1989). Excavations at Fracción Mujular add the site to the short list of Postclassic settlements (also including El Paredon and Cabeza del Toro) in the Tonala region. As the site seems to have been continuously occupied from the Early Classic through Late Postclassic, future work refining the site's ceramic sequence also has the possibility of adding to our knowledge of the Early Postclassic, which is currently poorly understood across the Pacific Coast (Voorhies and Gasco 2004:11–12). Following the past four years of investigations at Fracción Mujular we now know that Cerro Bernal maintained a vibrant community following the decline of Los Horcones, which continued interacting with traders carrying wares from Central Mexico and other parts of Mesoamerica from the Early Classic through Late Postclassic periods.

Future Work

My dissertation research at Fracción Mujular has expanded the chronology of occupation on Cerro Bernal by at least one thousand years and has added to our understanding of regional and inter-regional interactions in small-scale settlements on Mesoamerica's Pacific coast. Much work, however, remains to be done. Excavations during the winter months of 2017 targeted the two domestic plaza groups at Fracción Mujular with test pits flanking the sides of house mounds in each area. From these excavations, as well as from surface collections conducted in 2015, a total of 11,125 artifacts were collected. All of these artifacts are currently curated in the New World Archaeological Foundation (NWAF) laboratory in San Cristobal de las Casas. Although all of these artefacts were analyzed and catalogued during the 2017 summer laboratory season, there is considerable work that can still be carried out. The ceramic type descriptions presented in appendix A are meant as a preliminary study, and further refinement of the ceramic chronology is likely possible. This is especially true of the ceramics from Group D, where it may be possible to separate Early and Late Postclassic ceramic traditions. The chronology of Group D could also be refined by additional C14 dating of some of the 267 carbon samples collected during excavation.

One promising avenue for future laboratory studies would be to source some of the ceramics of Fracción Mujular using Instrumental Neutron Activation Analysis (INAA). INAA has been used to source foreign imports at Los Horcones by Claudia García-Des Lauriers, who also collected and analyzed local clays from 7 different sources that can be used to identify locally made ceramics (García-Des Lauriers 2007). At Fracción Mujular, it would be extremely useful to source a sample of ceramics attributed to the Late Classic, as this was a period of increased interaction when identified ceramic imports seem to have been arriving at the site from Oaxaca and the southern Soconusco. Notably, my stylistic analysis of the site's ceramics did not identify any imports from Veracruz, despite the possibility that Zaragoza obsidian may have been imported through Gulf Lowland exchange systems (see chapter 6). Sampling a subset of the Late Classic ceramics from Fracción Mujular would greatly help expand our understanding of regional trade systems during the Late Classic. During the course of ceramic analysis, a total of 41 sherds was set aside for possible INAA analysis due to unusual stylistic characteristics that may have indicated foreign manufacture. Analyzing these sherds, together with a random sample of additional ceramics, is high on the priority list for future projects.

There is also much remaining research that can be done at Fracción Mujular itself. Of the four occupation groups identified during our survey of the site, excavations only targeted the domestic areas in Groups C and D, leaving Groups A and B relatively unexamined. Group A is especially interesting, as it contains monumental public architecture, including a large ballcourt with carved stone steps. Ball courts are common architectural features at Los Horcones, where a total of six have been identified during survey and mapping (García-Des Lauriers 2016, 2012a, 2012b). The ballcourt at Fracción Mujular brings the total for Cerro Bernal to seven. It is notable that Group A is the closest part of Fracción Mujular to the site of Los Horcones, and the presence of the ballcourt suggests the possibility that the area could date to the Early Classic. Excavations at Group A would thus greatly expand our understanding of both the chronology of Fracción Mujular, as well as its relationship to Los Horcones.

Excavations within structures at Fracción Mujular would also be extremely useful for further understanding the site's chronology as well as the daily lives of the site's inhabitants. All excavations conducted during my dissertation fieldwork were located outside of architectural structures. Excavations were targeted on the flanks of structures in order to identify midden deposits associated with house mounds and to expedite the excavation permitting process. Excavations inside structures, however, would be much more likely to identify securely bounded construction layers which would allow much greater chronological control during artifact analysis. This is especially important has the high degree of bioturbation present at the site made it hard to identify stratigraphic layers in many of our test pits. Excavations within structures would also have a much higher chance of finding burials or caches, which would also greatly add to our understanding of the lives and practices and connections of the people who lived at Fracción Mujular.

Another possible avenue for future investigations would be to open additional test pits in the vicinity of Group D, structure 6. Out of all of our excavations, unit 2 on the non-plaza side of this structure is the only one that returned evidence of Formative Period occupations, including several pot sherds, a figurine fragment, and a carbon date from the 4th century BCE. The fact that three types of evidence point to a Formative occupation in this area is highly significant, but there is little that can be concretely said based on so little data. Additional excavations near mound 6 could be very useful in determining the nature and extent of any Formative occupations. Additionally, as the upper layers of mound 6 date to the Postclassic, excavations at this structure have the potential of exposing layers ranging from across Mesoamerican history. Additional work near mound 6 could therefore be helpful for understanding key chronological transitions from different periods of Fracción Mujular's history.

There are several other sites in the vicinity of Cerro Bernal that would also be highly attractive areas for future work. One site, known locally as Ciudad Perdida, is located several kilometers southeast of Fracción Mujular, even further up the slopes of Cerro Bernal and very close to the mountain's spire. I have not visited Ciudad Perdida, but it has been described to me by Ricardo Lopez Vassallo, who has visited the site and has shown me photos he took while he was there. The architecture at Ciudad Perdida is megalithic and bears a striking resemblance to that of Iglesia Vieja. It is notable that another parallel to Iglesia Vieja from Cerro Bernal can be found in Sculpture 1 from Fracción Mujular, which bears a resemblance to zoomorphic altars at Iglesia Vieja. Investigations at Cuidada Perdida, therefore, would not only expand our understanding of the settlement history and patterns of Cerro Bernal, but could also prove highly illuminative for understanding the Classic Period political geography of the broader region surrounding modern Tonalá.

One of the most surprising results of my excavations at Fracción Mujular was the extent of the Late Postclassic occupation at Group D. Previously there had been no known Postclassic sites on Cerro Bernal, and work on the Postclassic along the coast of Chiapas was largely concentrated in the southern part of the Soconusco (Voorhies and Gasco 2004). There are only two other named Postclassic sites known to be in the vicinity of Tonalá; the heavily looted site of Cabeza del Toro, located near modern Puerto Arista; and El Paredón, located on the estuary south of Tonalá. Navarrete (1959:6) and McDonald (1983:57) also reported Postclassic ceramics at the site of Tzutzuculi, although excavations conducted by McDonald revealed almost all of that site's construction to date to the Middle Preclassic (McDonald 1983). In addition to further excavations at Fracción Mujular Group D, El Paredón might be an attractive location for comparative work on Postclassic occupations in the Northern Soconusco. Reconnaissance of the site by the Proyecto Soconusco identified abundant Aztec style ceramics, as well as copper bells and axe money (Goorhies and Gasco 2004; Gasco, personal communication 2017). This is very different from the pattern at Fracción Mujular, which has

Late Classic ceramics similar to those of Acapetahua, but no clear Aztec or metal imports. Excavations at El Paredón could thus prove highly useful for understanding regional and interregional interactions in the Tonalá region during the Late Postclassic.

Another promising future project involves documenting Fracción Mujular's artefacts and carved stelae using structure from motion photography. It is especially important to document the site's stelae, as many of them have been moved from their original provenience and are thus at increased risk to damage. During the 2017 Chiapas earthquake, for example, both Fracción Mujular Stelae 1 and 2 fell from their pedestals and were re-positioned using copious amounts of concrete. During a short visit to Fracción Mujular during 2018, Omar Molina and I photographed Fracción Mujular Stelae 1 and 2 and submitted the images to UCSD's Cultural Heritage Engineering Initiative, where Eric Lo created several preliminary models. I plan on collecting more models of the site's sculptures, altars, and artefacts using structure from motion photography, and hope to share them with the people of Tonalá through an interactive web portal.

It is clear that much work remains to be done before we can begin to understand the Late Classic and Postclassic history of the northwestern coast of Chiapas. This dissertation project represents a small step towards toward this goal, having expanded the known chronology of Cerro Bernal by nearly a thousand hears and having conducted the first Late Classic and Postclassic excavations to date in the municipality of Tonalá. Fracción Mujular is now known to have far outlasted its origins as an outlying hamlet of Los Horcones, flourishing during both the Late Classic and Postclassic periods. Rather than experiencing a contraction following the fall of its neighbor, the small settlement redoubled its foreign connections, importing goods from across Mesoamerica. Despite its small size, Fracción Mujular has its own story to tell regarding the history of Mesoamerica, and work at the site emphasizes the importance of understanding the role of small, marginal, and intermediary sites when constructing narratives of ancient globalizations and geopolitical change.

REFERENCES

Abu-Lughod, Janet L.
1991 *Before European hegemony: the world system AD 1250-1350*. Oxford University Press, Oxford.

Acosta Ochoa, Guillermo
2008 La cueva de Santa Marta y los cazadores-recolectores del Pleistoceno final-Holoceno temprano en las regiones tropicales de México. *Unpublished Ph. D. dissertation, Department of Anthropology, Universidad Nacional Autónoma de México, Mexico City*.

2011 El poblamiento de las regiones tropicales de México hace 12 500 años. In *Anales de Antropología*, 45:pp. 227. Universidad Nacional Autonoma de Mexico.

2012 Ice Age Hunter-Gatherers and the Colonization of Mesoamerica. *The Oxford Handbook of Mesoamerican Archaeology*:129.

Agrinier, Pierre
1970 Mound 20, Mirador, Chiapas, Mexico. In *Papers of the New World Archaeological Foundation, No. 28*. New World Archaeological Foundation, Bringham Young University, Provo.

1975 Mounds 9 and 10 at Mirador, Chiapas, Mexico. In *Papers of the New World Archaeological Foundation, No. 39*. New World Archaeological Foundation, Bringham Young University, Provo.

1984 The Early Olmec Horizon at Mirador, Chiapas, Mexico. . In *Papers of the New World Archaeological Foundation*, No. 48. New World Archaeological Foundation, Brigham Young University, Provo.

Algaze, Guillermo
1989 The Uruk Expansion: Cross-cultural Exchange in Early Mesopotamian Civilization. *Current Anthropology* 30(5):571–608.

2005 *The Uruk world system*. University of Chicago Press, Chicago.

Alt, S. M.
2010 *Ancient complexities: new perspectives in Precolumbian North America*. University of Utah Press, Salt Lake City.

Anderson, Benedict

1991 *Imagined communities: Reflections on the origin and spread of nationalism*. Verso Books, London.

Anderson, D. G.
1994 *The Savannah River chiefdoms: political change in the late prehistoric Southeast*. University Alabama Press, Tuscaloosa.

Angelbeck, Bill, and Colin Grier
2012 Anarchism and the Archaeology of Anarchic Societies. *Current Anthropology* 53(5):547–587.

Arnauld, M. Charlotte, Linda R. Manzanilla, and Michael E. Smith
2012 *The neighborhood as a social and spatial unit in mesoamerican cities*. University of Arizona Press, Tucson.

Bausch, Ilona R.
2017 Prehistoric networks across the Korea Strait (5000–1000 BCE). *The Routledge Handbook of Archaeology and Globalization*:413–437.

Bell, Ellen E., Marcello A. Canuto, and Robert J. Sharer
2004 *Understanding Early Classic Copan*. University of Pennslavania Museum of Archaeology, Philidelphia.

Bender, Donald R.
1967 A Refinement of the Concept of Household: Families, Co-residence, and Domestic Functions. *American Anthropologist* 69(5):493–504.

Berdan, Frances F., and Patricia Rieff Anawalt
1997 *The essential codex Mendoza*. University of California Press Berkeley.

Bettinger, Robert L., and Jelmer Eerkens
1999 Point typologies, cultural transmission, and the spread of bow-and-arrow technology in the prehistoric Great Basin. *American Antiquity* 64(2):231–242.

Bintliff, John
1991 *The Annales School and Archaeology*. Leicester University Press, London.

Blake, Michael, Brian S. Chisholm, John E. Clark, Barbara Voorhies, and Michael W. Love
1992 Prehistoric subsistence in the Soconusco region. *Current Anthropology*:83–94.

Blake, Michael, and John E. Clark
1999 The emergence of hereditary inequality: The case of Pacific coastal Chiapas, Mexico. *Pacific Latin America in prehistory: the evolution of archaic and formative cultures*:55–73.

Blake, Michael, and Hector Neff
2011 Evidence for the diversity of Late Archaic and Early Formative plant use in the Soconusco region of Mexico and Guatemala. In *Early Mesoamerican Social Transformations: Archaic and Formative Lifeways in the Soconusco Region*. Ed Richard Lesure, Pp: 47-66, University of California Press, Berkeley.

Blanton, R. E., G. M. Feinman, S. A. Kowalewski, and P. N. Peregrine
1996 A dual-processual theory for the evolution of Mesoamerican civilization. *Current Anthropology* 37(1):1–14.

Blanton, Richard, and Gary Feinman
1984 The Mesoamerican world system. *American Anthropologist* 86(3):673–682.

Blomster, J. P., H. Neff, and M. D. Glascock
2005 Olmec pottery production and export in ancient Mexico determined through elemental analysis. *Science* 307(5712):1068–72. DOI:10.1126/science.1107599.

Blomster, Jeffrey P., and David Cheetham
2017 *The Early Olmec and Mesoamerica: the material record*. Cambridge University Press.

Boas, Franz
1911 *The mind of primitive man*. MacMillan, New York.

Bove, Frederick J.
1989 Formative Settlement Patterns on the Pacific Coast of Guatemala: A Spatial Analysis of Complex Societal Evolution. Oxford: British Archaeological Reports.

2000 Teotihuacan y la Costa del Pacifico de Guatemala: La ideología de estructura política. In *XIII Simposio de Investigaciones Arqueológicas en Guatemala*, *1999*, edited by J. P. Laporte, H. Escobedo, B. Arroyo, and A. C. de Suasnávar, pp. 117–131. Museo Nacional de Arqueología y Etnolgía, Guatemala.

Bove, Frederick J., and Sonia Medrano
2003 Teotihuacan, militarism, and Pacific Guatemala. In *The Maya and Teotihuacan: Reinterpreting Early Classic Interaction*, edited by Geoffrey Braswell, pp. 45–79. University of Texas Press, Austin.

Bowser, Brenda J., and John Q. Patton
2004 Domestic spaces as public places: An ethnoarchaeological case study of houses, gender, and politics in the Ecuadorian Amazon. *Journal of Archaeological Method and Theory* 11(2):157–181.

Bradtmöller, Marcel, Sonja Grimm, and Julien Riel-Salvatore
2017 Resilience theory in archaeological practice–An annotated review. *Quaternary International* 446:3–16.

Brambilia, Rosa, and Margarita Velasco
1988 Materiales de la Negrete y la expansión de Teotihuacan al Norte. In *Primera Reunión sobre las Sociedades Prehispánicas en el Centro Occidente de México,* pp. 1987–198. INAH, México D.F.

Braswell, Geoffrey
2003a Understanding Early Classic interaction between Kaminaljuyú and central Mexico. In *The Maya and Teotihuacan: Reinterpreting Early Classic Interaction*, edited by Geoffrey Braswell, pp. 105–142. University of Texas Press, Austin.

Braswell, Geoffrey E.
2003b Obsidian exchange spheres. *The Postclassic Mesoamerican World*:131–158.

Braswell, Geoffrey E., and Michael D. Glascock
2002 The emergence of market economies in the ancient Maya world: Obsidian exchange in Terminal Classic Yucatan, Mexico. *Geochemical evidence for long-distance exchange*:33–52.

Braudel, F.
1972 *The Mediterranean and the Mediterranean world in the Age of Philip II*. Harper and Collins, New York.

Campbell, Lyle
1988 *The linguistics of southeast Chiapas, Mexico*. Papers of the the New World Archaeological Foundation. Brigham Young University, Provo.

Canuto, Marcello A., and Jason Yaeger
2000 *The archaeology of communities: A new world perspective*. Routledge, London.

Carballo, David
2011 Advances in the Household Archaeology of Highland Mesoamerica. *Journal of archaeological research* 12:133–189.

Carballo, David M., and Marc Levine
2014 *Obsidian reflections: symbolic dimensions of obsidian in Mesoamerica*. University Press of Colorado.

Carmack, R. M.
1981 *The Quiché Mayas of Utatlán: The evolution of a highland Guatemala kingdom*. University of Oklahoma Press, Norman.

Caso, Alfonso
1967 *Los Calendarios Prehispanicos*. Instituto de Investigaciones Históricos, Universidad Nacional Utónoma de México, Mexico City.

Chapman, Anne
1957 Port of trade enclaves in Aztec and Maya civilizations. In *Trade and market in the early empires*, edited by Karl Polanyi, Conrad M. Arensberg, and Harry W. Pearson, pp. 114–153. The Free Press, New York.

Chase, A. F.
1994 A contextual approach to the ceramics of Caracol, Belize. In *Studies in the Archaeology of Caracol, Belize*, pp. 157–182.

Chase-Dunn, Christopher, and Thomas D. Hall
1993 Comparing world-systems: concepts and working hypotheses. *Social Forces* 71(4):851–886.

Chase-Dunn, Christopher K., and Thomas D. Hall
1991 *Core/periphery relations in precapitalist worlds*. Westview Press, Boulder.

Cheetham, David

2007 *Cantón Corralito: Objects From a Possible Gulf Olmec Colony*. Report submitted to the Foundation for the Advancement of Mesoamerican Studies.

2010a America's First Colony: Olmec Materiality and Ethnicity at Canton Corralito. Arizona State University, Tempe.

2010b Cultural imperatives in clay: early Olmec carved pottery from San Lorenzo and Cantón Corralito. *Ancient Mesoamerica* 21(1):165–185.

Cheetham, David, and Michael D. Coe
2017 Ceramic Vessel Form Similarities Between San Lorenzo, Veracruz, and Canton Corralito, Chiapas. In *The Early Olmec and Mesoamerica*, edited by Jeffrey Blomster and David Cheetham, pp. 223–263. Cambridge University Press, Cambridge.

Childe, V. Gordon
1925 *The dawn of European civilization*. Kegan Paul, London.

Chinchilla, Oswaldo, Ronald L. Bishop, M. James Blackman, Erin L. Sears, José Vicente Genovez, and Regina Moraga
2005 Intercambio de cerámica a larga distancia en Cotzumalguapa: resultados del análisis por activación de neutrones. In , pp. 1027–1035.

Chinchilla, Oswaldo, Carl Lipo, Hector Neff, Erika Gómez, Beatriz Cosenza, Erick Reyes, Ileana Bradford, Kristin N. Safi, and Bret Plaskey
2006 Nuevas investigaciones geofísicas y arqueológicas en Cotzumalguapa. In , pp. 842–853.

Christian, David
2011 *Maps of time: An introduction to big history*. Vol. 2. Univ of California Press.

Clark and Blake
1989 El origen de la civilización en Mesoamérica: Los olmecas y mokaya del Soconusco de Chiapas, México. In *El Preclásico o Formativo: Avances y Perspectivas. Seminario de Arqueologıa*. Ed. Román Pina Chan Pp: 385-404. UNAM, Mexico.

Clark, J. E., and M. Blake
1994 The Power of Prestige: Competitive Generosity and the Emergence of Rank Societies in Lowland Mesoamerica. In *Factional Competition and Political Development in the New World*, edited by E. M. Brumfiel and J. W. Fox, pp. 17–30. Cambridge University Press, Cambridge.

Clark, John E.

1997 The arts of government in early Mesoamerica. *Annual Review of Anthropology* 26(1):211–234.

2004 *Mesoamerica goes public: Early ceremonial centers, leaders, and communities*. In *Mesoamerican archaeology*, ed. J. A. Hendon and R. A. Joyce, 43-72. Oxford: Blackwell.

Clark, John E., and Douglas Donne Bryant
1997 A technological typology of prismatic blades and debitage from Ojo de Agua, Chiapas, Mexico. *Ancient Mesoamerica* 8(1):111–136.

Clark, John E., and Dennis Gosser
1995 Reinventing Mesoamerica's first pottery. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by W. Barnett and J. Hoopes, pp. 209–221. Smithsonian Institution Press, Washington, DC.

Clark, John E., Thomas A. Lee Jr, and Tamara Salcedo
1989 12. The Distribution of Obsidian. *Ancient trade and tribute: Economies of the Soconusco region of Mesoamerica*:268.

Clark, John E., and Thomas A. Lee
2018 A Touch of Teotihuacan at Izapa: The contents of Two Burials from Group F. *Ancient Mesoamerica* 29(2):265–288.

Clark, John E., and Mary E. Pye
2000a The Pacific coast and the Olmec question. *Studies in the History of Art* 58:216–251.

2000b *Olmec art and archaeology in Mesoamerica*. National Gallery of Art, Washington DC.

Clastres, Pierre
1989 *Society Against the State*. Translated by Robert Hurley and Abe Stein. Zone Books, New York.

2010 *Archeology of violence*. MIT Press, Boston.

Clendinnen, I.
1987 *Ambivalent Conquests: Maya and Spaniard in Yucatan, 1517-1570*. Cambridge Univ Press, Cambridge.

Coe, Michael D.

1966 The Olmec Style and Its Distributions. In *Hardbook of Middle American Indians*, edited by Robert Wauchope, 3:pp. 739–75. University of Austin Press, Austin.

Coe, Michael D., and Richard A. Diehl
1980 *In the Land of the Olmec*. Vol. 1. University of Texas Press.

Cooper, Lisa
2006 The demise and regeneration of Bronze Age urban centers in the Euphrates Valley of Syria. *After Collapse: The Regeneration of Complex Societies*:18–37.

Cowgill, George L.
2003 Teotihuacan and Early Classic interaction: A perspective from outside the Maya region. In *The Maya and Teotihuacán: Reinterpreting Early Classic Interaction*, edited by G. Braswell, pp. 315–335. University of Texas Press, Austin.

2015 *Ancient Teotihuacan*. Cambridge University Press.

Crawford, Harriet EW
1973 Mesopotamia's invisible exports in the third millennium BC. *World Archaeology* 5(2):232–241.

Culbert, T. P., and R. L. Rands
2007 Multiple Classifications: An Alternative Approach to the Investigation of Maya Ceramics. *Latin American Antiquity*:181–190.

Currás, Brais X., and Inés Sastre
2019 Egalitarianism and resistance: A theoretical proposal for Iron Age Northwestern Iberian archaeology. *Anthropological Theory*:146349961881468. DOI:10.1177/1463499618814685.

Demarest, Arthur
2004 *Ancient Maya: the rise and fall of a rainforest civilization*. Vol. 3. Cambridge University Press.

Diehl, Richard A.
1993 The Toltec horizon in Mesoamerica: New perspectives on an old issue. *Latin American Horizons, edited by DS Rice*:263–294.

Diehl, Richard A., and Michael D. Coe
1995 Olmec archaeology. *The Olmec world: Ritual and rulership*:10–25.

Dillehay, Tom D., Carlos Ramirez, Mario Pino, Michael B. Collins, Jack Rossen, and J. D. Pino-Navarro
2008 Monte Verde: seaweed, food, medicine, and the peopling of South America. *Science* 320(5877):784–786.

Ekholm Miller, Susanna
1969 *Mound 30a and the early preclassic ceramic sequence of Izapa, Chiapas México*.

Erlandson, Jon M., Michael H. Graham, Bruce J. Bourque, Debra Corbett, James A. Estes, and Robert S. Steneck
2007 The Kelp Highway Hypothesis: Marine Ecology, the Coastal Migration Theory, and the Peopling of the Americas. *The Journal of Island and Coastal Archaeology* 2(2):161–174. DOI:10.1080/15564890701628612.

Estrada Belli, Francisco
2002 Putting Santa Rosa on the map: New insights on the cultural development of the Pacific Coast of southeastern Guatemala. *Incidents of Archaeology in Central America and Yucatan: Studies in Honor of Edwin M. Shook, University Press of America, Lanham, MD*:103–128.

Fash, William, and Barbara Fash
2000 Teotihuacan and the Maya: A Classic Heritage. In *Mesoamerica's Classic Heritage: From Teotihuacan to the Aztecs*, edited by David Carrasco, Lindsay Jones, and Scott Sessions, pp. 433–463. University Press of Colorado, Boulder.

Fauvelle, M.
2016 Proyecto Arqueológico Fracción Mujular: Informe de la Primera Temporada de Campo, 2015. Report accepted by the Consejo de Arqueología, Mexico, D.F. March 2016.

Fauvelle, Mikael
2015 Proyecto Arqueológico Fracción Mujular: Interacciones Regionales y Organización Social de un Sitio Residencial en la Costa Pacífica de Chiapas. Permit Proposal Submited to the Consejo Nacional de Arqueología.

Feinman, Gary M., Sherman Banker, Reid F. Cooper, Glen B. Cook, and Linda M. Nicholas
1989 A Technological Perspective on Changes in the Ancient Oaxacan Grayware Ceramic Tradition: Preliminary Results. *Journal of Field Archaeology* 16(3):331–344.
Filini, Agapi

2004 *The presence of Teotihuacan in the Cuitzeo Basin, Michoacán, Mexico: a world-system perspective*. Vol. 1279. British Archaeological Reports Ltd.

Flannery, K.
2000 Formative Mexican Chiefdoms and the Myth of the "Mother Culture." *Journal of Anthropological Archaeology* 19(1):1–37. DOI:10.1006/jaar.1999.0359.

Flannery, K. V., A. K. Balkansky, G. M. Feinman, D. C. Grove, J. Marcus, E. M. Redmond, R. G. Reynolds, R. J. Sharer, C. S. Spencer, and J. Yaeger
2005 Implications of new petrographic analysis for the Olmec "mother culture" model. *Proceedings of the National Academy of Sciences of the United States of America* 102(32):11219–23. DOI:10.1073/pnas.0505116102.

Flannery, Kent V.
1976 *The Early Mesoamerican Village*. Academic Press, New York.

Flint, Richard, and Shirley Cushing Flint
2012 *Documents of the Coronado Expedition, 1539-1542*. University of New Mexico Press, Albuquerque.

Folan, William J., Lynda M. Florey Folan, and Antonio Ruiz Pérez
1987 *Cerrito de la Campana: una avanzada en la ruta teotihuacana al noroeste de la Gran Mesoamérica*. Universidad Autónoma del Sudeste, Campeche.

Foshag, William F., and Robert Leslie
1955 Jadeite from Manzanal, Guatemala. *American Antiquity* 21(1):81–83.

Fowles, S.
2010 A People's History of the American Southwest. In *Ancient complexities: new perspectives in Precolumbian North America*, edited by S. M. Alt, pp. 183. University of Utah Press, Salt Lake City.

Frank, Andre Gunder
1966 The development of underdevelopment. *Monthly Review* 18:17–31.

1993 Bronze Age world system cycles [and comments and reply]. *Current Anthropology* 34(4):383–429.

1998 *ReOrient: Global economy in the Asian age*. University of California Press, Berkeley.

Frank, Andre Gunder, and Barry K. Gills

2000 The five thousand year world system in theory and praxis. In *World System History: The social science of long-term change*, edited by R. A. Denemark, Jonathan Friedman, Barry K. Gills, and George Modelski, pp. 3–23. Routledge, London and New York.

Fried, M.

1960 On the Evolution of Social Stratificiation and the State. In *Culture in History*, edited by Stanly Diamond. Columbia University Press, New York.

1967 *The Evolution of Political Society*. Random House, New York.

de la Fuente, Beatriz

1975 *Las Cabezas Colosales Olmecas*. Fondo De Cultura Economica, Mexico, D.F.

García-Des Lauriers, Claudia

2005 La iconografía y simbolismo de la escultural de Cerro Bernal, Chiapas. *Utz'ib Serie Reportes* 1(5):1–16.

2007 Proyecto arqueológico Los Horcones: investigating the Teotihuacan presence on the Pacific coast of Chiapas, Mexico. University of California, Riverside.

2008 *The Early Classic Obsidian Trade at Los Horcones, Chiapas, Mexico*. Foundation for the Advancement of Mesoamerican Studies.

2012a Juegos de Pelota, Escenificación e Identidad en Los Horcones, Chiapas, México. In *Arqueología Reciente de Chiapas: Contribuciones del Encuentro Celebrado en el 60º Aniversario de la Fundación Arqueológica Nuevo Mundo*, edited by Lynneth Lowe and Mary Pye, 72:. New World Archaeological Foundation, Provo.

2012b Public Performance and Teotihuacán Identity at Los Horcones, Chiapas, Mexico. In *Power and Identity in Archaeological Theory and Practice: Case Studies from Ancient Mesoamerica*, edited by Eleanor Harrison-Buck, pp. 63–81. University of Utah Press, Salt Lake City.

2016 Architecture and Identity at Los Horcones. In *Archaeology and Identity on the Pacific Coast and Southern Highlands of Mesoamerica*, pp. 51–70. University of Utah Press.

2019 A Multi-Scalar View of Los Horcones, Chiapas: Intermediate Regions and Networks of Interaction During the Early Classic. In *Teotihuacan and Early Classic Mesoamerica: Multi-Scalar Perspectives on Power, Identity, and Interregional Relations*, edited by Claudia García-Des Lauriers and Tatsuya Murakami. Under Review at the University of Colorado Press.

Gasco, Janine

1996a Cacao and economic inequality in colonial Soconusco, Chiapas, Mexico. *Journal of Anthropological Research* 52(4):385–409.

1996b Cacao and economic inequality in colonial Soconusco, Chiapas, Mexico. *Journal of Anthropological Research* 52(4):385–409.

1997 Survey and excavation of invisible sites in the Mesoamerican lowlands. *Approaches to the Historical Archaeology of Mexico, Central and South America, Monograph* 38:41–48.

2006 Soconusco cacao farmers past and present: continuity and change in an ancient way of life. *Chocolate in Mesoamerica: A Cultural History of Cacao, ed ed, University Press of Florida, Gainesville*:1–28.

2016 Linguistic Patterns, Material Culture, and Identity in Late Postclassic to Postcolonial Soconusco. In *Archaeology and Identity on the Pacific Coast and Southern Highlands of Mesoamerica*, edited by Claudia García-Des Lauriers and Michael Love, pp. 126–141. University of Utah Press, Salt Lake City.

2017 Cacao and Commerce in Late Postclassic Xoconochco. In *Rethinking the Aztec Economy*, edited by Deboarh L. Nichols, Frances Berdan, and Michael E. Smith, pp. 221–247. University of Arizona Press, Tucson.

Gasco, Janine L.

2005 *Spanish colonialism and processes of social change in Mesoamerica*. In The Archaeology of Colonial Encounters: Comparative Perspectives, ed. Gil J. Stein, School of American Research Advanced Seminar Series, Santa Fe.

Gasco, Janine, and Barbara Voorhies

1989 The ultimate tribute: The role of the Soconusco as an Aztec tributary. *Ancient Trade and Tribute: Economies of the Soconusco Region of Mesoamerica*:48–95.

Gifford, J. C.

1960 The type-variety method of ceramic classification as an indicator of cultural phenomena. *American Antiquity*:341–347.

Gills, Barry K., and Andre Gunder Frank

1990 The cumulation of accumulation: Theses and research agenda for 5000 years of world system history. *Dialectical Anthropology* 15(1):19–42.

1991 5000 years of world system history: the cumulation of accumulation. In *Core/Periphery Relations in Precapitalist Worlds,* edited by Christopher Chase-Dunn and Thomas D. Hall, pp. 67–112. Westview Press, Boulder.

Golitko, Mark, and Gary M. Feinman
2015 Procurement and distribution of pre-Hispanic Mesoamerican obsidian 900 BC–AD 1520: A social network analysis. *Journal of Archaeological Method and Theory* 22(1):206–247.

Golitko, Mark, James Meierhoff, Gary M. Feinman, and Patrick Ryan Williams
2012 Complexities of collapse: the evidence of Maya obsidian as revealed by social network graphical analysis. *Antiquity* 86(332):507–523.

Graham, J. A., Robert F. Heizer, and Edwin M. Shook
1978 Abaj Takalik 1976: Exploratory investigations. In *Studies in Ancient Mesoamerica III, Contributions No. 36*, edited by J. A. Graham, pp. 85–113. University of California Archaeological Research Facility, Los Angeles.

Guernsey, Julia
2010 A Consideration of Sculptural Forms and Themes from the Preclassic Pacific Coast and Piedmont of Mesoamerica. *The Place of Stone Monuments: Context, Use, and Meaning in Mesoamerica's Preclassic Transition*:207.

Guernsey, Julia, John E. Clark, and Barbara Arroyo
2010 *The place of stone monuments: context, use, and meaning in Mesoamerica's Preclassic transition*. Harvard University Press.

Hall, Thomas D., P. Nick Kardulias, and Christopher K. Chase-Dunn
2011 World-Systems Analysis and Archaeology: Continuing the Dialogue. *Journal of archaeological research* 19:233–279.

Hammel, Eugene A.
1984 On the*** of studying household form and function. In *Households: Comparative and historical studies of the domestic group*, edited by Robert Netting, Richard R. Wilk, and Eric J. Arnould, pp. 29–43. University of California Press, Berkeley.

Hammond, N.
1972 A minor criticism of the type-variety system of ceramic analysis. *American Antiquity* 37(3):450–452.

Hammond, Norman
1988 Cultura hermana: reappraising the Olmec. *Quarterly Review of Archaeology* 9(4):1–4.

Hammond, Norman, Arnold Aspinall, Stuart Feather, John Hazelden, Trevor Gazard, and Stuart Agrell
1977 Maya jade: source location and analysis. In *Exchange systems in prehistory*, pp. 35–67. Elsevier.

Hayden, B., and A. Cannon
1984 *The structure of material systems: ethnoarchaeology in the Maya Highlands*. Society for American Archaeology, Washington.

Hegmon, M.
2003 Setting theoretical egos aside: Issues and theory in North American archaeology. *American Antiquity* 68(2):213–243.

Helms, M. W.
1979 *Ancient Panama: Chiefs in Search of Power*. University of Texas Press, Austin.
1993 *Craft and the kingly ideal: art, trade, and power*. University of Texas Press, Austin.
1998 *Access to origins: affines, ancestors, and aristocrats*. University of Texas Press, Austin.

Hendon, Julia A.
1996 Archaeological approaches to the organization of domestic labor: household practice and domestic relations. *Annual Review of Anthropology* 25(1):45–61.

Hester, Thomas R., Robert N. Jack, and Robert F. Heizer
1972 Trace element analysis of obsidian from the site of Cholula, Mexico. *Contributions of the Univ. Of Calf. Archaeological Research Facility*(14):105–110.

Hill, Warren D., and John E. Clark
2001 Sports, gambling, and government: America's first social compact? *American Anthropologist* 103(2):331–345.

Hirth, Kenneth G.
2008 The economy of supply: modeling obsidian procurement and craft provisioning at a Central Mexican urban center. *Latin American Antiquity* 19(4):435–457.

Hodder, I.
1991 *Archaeological theory in Europe: the last three decades*. Routledge, London.

Hodos, Tamar
2017 *The Routledge handbook of archaeology and globalization*. Taylor & Francis.

Hruby, Zachary X., Geoffrey E. Braswell, and Oswaldo Chinchilla Mazariegos
2014 Political Economy and Beyond in Maya Lithic Studies. In *The Technology of Maya Civilization*, pp. 179–184. Routledge, London.

Iglesias Ponce de León, María Josefa
2003 Problematical Deposits and the Problem of Interaction: The Material Culture of Tikal during the Early Classic Period. In *The Maya and Teotihuacan: Reinterpreting Early Classic Interaction*, edited by Geoffrey Braswell, pp. 167–198. University of Texas Press, Austin.

Inomata, Takeshi, and Lucia Henderson
2016 Time tested: re-thinking chronology and sculptural traditions in Preclassic southern Mesoamerica. *Antiquity* 90(350):456–471.

Jennings, Justin
2011 *Globalizations and the ancient world*. Cambridge University Press, Cambridge.

Johnson, A. W., and T. K. Earle
1987 *The evolution of human societies: from foraging group to agrarian state*. Stanford University Press, Stanford.

Johnson, Matthew H.
2012 Phenomenological approaches in landscape archaeology. *Annual Review of Anthropology* 41:269–284.

Jones, T. L., and K. A. Klar
2005 Diffusionism Reconsidered: Linguistic and Archaeological Evidence for Prehistoric Polynesian Contact with Southern California. *American Antiquity* 70(3):457–484.

Joyce, Arthur A.
2003 Imperialism in Pre-Aztec Mesoamerica: Monte Albán, Teotihuacan, and the Lower Río Verde Valley. In *Ancient Mesoamerica Warfare*, edited by Katheryn Brown and Travis Stanton, pp. 49–72. Altamira Press, Walnut Creek.

2013 *Polity and Ecology in Formative Period Coastal Oaxaca*. University Press of Colorado, Boulder.

Kaiser, Bruce, Jennifer DeGraffenried, and Nathan Nelson
2016 A Novel Method to Accurately Source Obsidian and Basalt Artifacts presented at the Society for American Archaeology Annual Meeting, Orlando, Florida.

Kaneko, Akira
2009 Investigación arqueológica en la región Tonalá de la Costa del Pacífico de Chiapas. In *XXII Simposio de Investigaciones Arqueológicas en Guatemala, 2008*, edited by J. P. Laporte, B. Arroyo, and H. Mejía, pp. 562–579. Museo Nacional de Arqueología y Etnología, Guatemala.

2011 Iglesia Vieja: Un sitio megalítico del Clásico Temprano en la costa del Pacífico de Chiapas. In *XXIV Simposio de Investigaciones arqueológicas en Guatemala. Museo Nacional de Arqueología y Etnología, Guatemala*, edited by Juan Pedro Laporte, Barbara Arroyo, and Hector L. Escobedo, pp. 663–680.

Kardulias, P. Nick
1999 Multiple levels in the Aegean Bronze Age world-system. In *World-Systems Theory in Practice: Leadership, Production, and Exchange, Rowman and Littlefield, Lanham, MD,* pp. 179–201.

Kehoe, Alice B.
2010 Consensus and the Fringe in American Archaeology. *Journal of the World Archaeological Congress* 6(2):197–214.

Kehoe, Alice Beck
2002 *America before the European invasions*. Longman, London.

Kennett, Douglas J., Patricia M. Lambert, John R. Johnson, and Brendan J. Culleton
2013 Sociopolitical effects of bow and arrow technology in prehistoric coastal California. *Evolutionary Anthropology: Issues, News, and Reviews* 22(3):124–132.

Kidder, Alfred Vincent, Jesse David Jennings, and Edwin M. Shook
1946 *Excavations at Kaminaljuyú, Guatemala*. Pennsylavania State University Press, University Park.

Knapp, A. B.
1992 *Archaeology, Annales, and ethnohistory*. Cambridge University Press, Cambridge.

Knapp, A. Bernard, and Wendy Ashmore
1999 Archaeological landscapes: constructed, conceptualized, ideational. *Archaeologies of landscape: contemporary perspectives*:1–30.

Knight, Charles L. F., Heng Hu, Michael D. Glascock, and Stephen A. Nelson
2017 Obsidian Sub-Sources at the Zaragoza-Oyameles Quarry in Puebla, Mexico: Similarities with Altotonga and their Distribution Throughout Mesoamerica. *Latin American Antiquity* 28(1):46–65. DOI:10.1017/laq.2016.2.

Kohl, P.
1987a The ancient economy, transferable technologies and the Bronze Age world system: a view from the northeastern frontier of the ancient Near East. In *Center and Periphery in the Ancient World*, edited by M. Rowlands, M. Larson, and K. Kristiansen. Cambridge University Press, Cambridge.

Kohl, Philip L.
1987b The use and abuse of world systems theory: The case of the pristine West Asian state. In *Advances in Archaeological Method and Theory, Volume 11*, pp. 1–35. Elsevier.

Kowalski, Jeff Karl
1999 Natural order, social order, political legitimacy and the sacred city: the architecture of Teotihuacan. *Mesoamerican Architecture as a Culture Symbol, Oxford University Press, New York*:76–109.

Kristiansen, Kristian
1998 The emergence of the European world system in the Bronze Age: Divergence, convergence and social evolution during the first and second millennia BC in Europe. In *Social Transformations in Archaeology: Global and Local Perspectives*, edited by Kristian Kristiansen and Michael J. Rowlands. Routledge, London.

Kristiansen, Kristian, and Thomas B. Larsson
2005 *The rise of Bronze Age society: travels, transmissions and transformations*. Cambridge University Press.

Lekson, S. H., and P. N. Peregrine
2004 A continental perspective for North American archaeology. *SAA Archaeological Record* 4(1):15–19.

Leone, Mark P.
1996 Interpreting Ideology in Historical Archaeology: Using the Rules of Perspective in the. *Images of the recent past: Readings in historical archaeology*:371.

Lesure, Richard G.
2004 *Shared art styles and long-distance contact in early Mesoamerica*. na.

2011a Early Social Transformations in the Soconusco: Introduction. In *Early Mesoamerican Social Transformations: Archaic and Formative Lifeways in the Soconusco Region*. Ed Richard Lesure, Pp: 1-26, University of California Press, Berkeley.

2011b Paso de la Amada as a Ceremonial Center. In *Early Mesoamerican Social Transformations: Archaic and Formative Lifeways in the Soconusco Region*. Ed Richard Lesure, Pp: 119-145, University of California Press, Berkeley.

Lesure, Richard G., and Michael Blake
2002 Interpretive challenges in the study of early complexity: Economy, ritual, and architecture at Paso de la Amada, Mexico. *Journal of Anthropological Archaeology* 21(1):1–24.

Lesure, Richard G., and Thomas A. Wake
2011 Archaic to formative in the Soconusco: the adaptive and organizational transformation. In *Early Mesoamerican Social Transformations: Archaic and Formative Lifeways in the Soconusco Region*. Ed Richard Lesure, Pp: 67-97, University of California Press, Berkeley.

Levy, T.
2006 Grand narratives, technological revolutions and the past: deep-time studies of metallurgy and social evolution in the eastern Mediterranean. In *Connectivity in Antiquity–Globalization as a Long-term Historical Process*, edited by Oystein S. LaBianca and Arnold Scham, pp. 10–25. Equinox, London.

Levy, Thomas E., David Alon, Yorke Rowan, Edwin CM van den Brink, Caroline Grigson, Augustin Holl, Patricia Smith, Paul Goldberg, Alan J. Witten, and Eric Kansa
1997 Egyptian-Canaanite Interaction at Nahal Tillah, Israel (ca. 4500-3000 BCE): An Interim Report on the 1994-1995 Excavations. *Bulletin of the American Schools of Oriental Research*:1–51.

Lightfoot, Kent G., and Antoinette Martinez
1995 Frontiers and boundaries in archaeological perspective. *Annual Review of Anthropology* 24(1):471–492.

Love, Michael
2002 *Early complex society in Pacific Guatemala: settlements and chronology of the Rio Naranjo, Guatemala*. 66. New World Archaeological Foundation, Brigham Young University.

2007 Recent Research in the Southern Highlands and Pacific Coast of Mesoamerica. *Journal of archaeological research* 15(4):275–328.

Love, Michael, and Julia Guernsey
2007 Monument 3 from La Blanca, Guatemala: a Middle Preclassic earthen sculpture and its ritual associations. *Antiquity* 81(314):920–932.

Love, Michael W.
1998 Economia e ideología en El Ujuxte, Retalhuleu. In *XI Simposio de Investigaciones Arqueologicas en Guatemala*, edited by J. P. Laporte and H. Escobedo, pp. 309–318. Instituto de Antropología e Historia, Guatemala City.

Lowe, Gareth W., Susanna M. Ekholm, John E. Clark, and Thomas A. Lee
2013 *Middle and late preclassic Izapa: ceramic complexes and history*. New World Archaeological Foundation, Brigham Young University.

Lowe, Gareth W., Thomas A. Lee Jr, and E. Martınez Espinoza
1982 Izapa: An Introduction to the Ruins and Monuments, Papers No. 31. *New World Archaeological Foundation, Brigham Young University, Provo, UT*.

Lowe, Gareth W., and J. Alden Mason
1965 Archaeological survey of the Chiapas coast, highlands, and upper Grijalva Basin. *Handbook of Middle American Indians* 2(Part 1):195–236.

Lyons, Diane E.
2007 Building power in rural hinterlands: An ethnoarchaeological study of vernacular architecture in Tigray, Ethiopia. *Journal of Archaeological Method and Theory* 14(2):179–207.

MacEachern, Scott
2017 Globalization: contact between West Africa, North Africa and Europe during the European medieval period. In *The Routledge Handbook of Archaeology and Globalization*, edited by Tamar Hodos, pp. 114–127. Routledge.

Marcus, Joyce

1989 From centralized systems to city-states: Possible models for the Epiclassic. *Mesoamerica after the Decline of Teotihuacan, AD*:700–900.

1998 The Peaks and Valleys of Ancient States: An Extension of the Dynamic Model. In *Archaic States*, edited by Gary M. Feinman and Joyce Marcus, pp. 59–94. School of American Research Press, Santa Fe.

2003 The Maya and Teotihuacan. In *The Maya and Teotihuacán: Reinterpreting Early Classic Interaction*, edited by G. Braswell, pp. 337–356. University of Texas Press, Austin.

Marcus, Joyce, and Kent V. Flannery
1996 *Zapotec civilization: How urban society evolved in Mexico's Oaxaca Valley*. Thames and Hudson, London.

Marx, Karl
1852 *The 18th Brumaire of Louis Bonaparte*. New York: International Publishers Co.

Matsuoka, Yoshihiro, Yves Vigouroux, Major M. Goodman, Jesus Sanchez, Edward Buckler, and John Doebley
2002 A single domestication for maize shown by multilocus microsatellite genotyping. *Proceedings of the National Academy of Sciences* 99(9):6080–6084.

McDonald, Andrew
1983 Tzutzuculi: a Middle-Preclassic site Pacific Coast of Chiapas, Mexico. Provo.

McNeil, Cameron L.
2009 *Chocolate in Mesoamerica: a cultural history of cacao*. University Press of Florida.

Mendelsohn, Rebecca R.
2018a The Formative to Classic Period Transition at Izapa: Updates from the Izapa Household Archaeology Project. *Ancient Mesoamerica* 29(2):309–331.

2018b Obsidian sourcing and dynamic trade patterns at Izapa, Chiapas, Mexico: 100 BCE–400 CE. *Journal of Archaeological Science: Reports* 20:634–646.

2018c The Chronology of the Formative to Classic Period Transition at Izapa: A Reevaluation. *Latin American Antiquity* 29(2):239–259.

Navarrete, Carlos
1959 *A brief reconnaissance in the region of Tonala, Chiapas, Mexico*. New World Archaeological Foundation.

1976 El Complejo Escultórico del Cerro Bernal, en la Costa de Chiapas, México. *Anales de Antropología* 14:23–45.

1978 The Pre-Hispanic system of communications between Chiapas and Tabasco. *Mesoamerican Communication Routes and Cultural Contacts*:75–106.

1986 The Sculptural Complex at Cerro Bernal on the Coast of Chiapas. In *Notes of the New World Archaeological Foundation, No. 1*, pp. 1–28. New World Archaeological Foundation, Bringham Young University, Provo.

Navarro Castillo, Marx
2014 *Household Economies: The Production and Consumption of Plumbate at Miguel Alemán, the Conquista Campesina Complex and the Piñuela Complex*. State University of New York at Albany.

2015 Plumbate y su consumo como marcador social en el Soconusco. *Mexicon* 37(4):91–100.

Neff, H.
2005 Orígenes y evolución de las tradiciones cerámicas del periodo Clásico en la costa del Pacífico de Guatemala. *Iconografía y escritura teotihuacana en la costa sur de Guatemala y Chiapas, Utz'ib Serie Reportes* 1(5):17–34.

Neff, H., D. M. Pearsall, J. G. Jones, B. Arroyo, S. K. Collins, and D. E. Freidel
2006 Early Maya adaptive patterns: mid-late Holocene paleoenvironmental evidence from Pacific Guatemala. *Latin American Antiquity* 17(3):287–315.

Neff, Hector
1984 The Developmental history of the Plumbate pottery industry in the eastern Soconusco region, AD 600 through AD 1250. Unpublished PhD Thesis, University of California, Santa Barbara.

1995 The development of plumbate ceramic ware in Southern Mesoanmerica. *JOM* 47(3):52–56.

2011 Evolution of the Mesoamerican Mother Culture. *Ancient Mesoamerica* 22(1):107–122.

Neff, Hector, and Ronald L. Bishop
1988 Plumbate origins and development. *American Antiquity* 53(3):505–522.

Neff, Hector, Jeffrey Blomster, Michael D. Glascock, Ronald L. Bishop, M. James Blackman, Michael D. Coe, George L. Cowgill, Ann Cyphers, Richard A. Diehl, and Stephen Houston

2006a Smokescreens in the provenance investigation of Early Formative Mesoamerican ceramics. *Latin American Antiquity* 17(1):104–118.

Neff, Hector, Jeffrey Blomster, Michael D. Glascock, Ronald L. Bishop, M. James Blackman, Michael D. Coe, George L. Cowgill, Richard A. Diehl, Stephen Houston, and Arthur A. Joyce
2006b Methodological issues in the provenance investigation of Early Formative Mesoamerican ceramics. *Latin American Antiquity* 17(1):54–76.

Neff, Hector, Deborah M. Pearsall, John G. Jones, Barbara Arroyo de Pieters, and Dorothy E. Freidel
2006 Climate change and population history in the Pacific lowlands of southern Mesoamerica. *Quaternary Research* 65(3):390–400.

Nelson, Fred W., and Barbara Voorhies
1980 Trace element analysis of obsidian artifacts from three shell midden sites in the littoral zone, Chiapas, Mexico. *American Antiquity* 45(3):540–550.

Netting, R. M. C., R. R. Wilk, and E. J. Arnould
1984 *Households: Comparative and historical studies of the domestic group*. University of California Press, Berkeley.

Orellana, Sandra
1994 *Ethnohistory of the Pacific Coast*. Labyrinthos, Lancaster.

Parker, Bradley J., and Lars Rodseth
2005 *Untaming the Frontier in Anthropology, Archaeology, and History*. University of Arizona Press.

Parsons, Lee A., and Barbara J. Price
1971 Mesoamerican trade and its role in the emergence of civilization. *Contributions of the University of California Archaeological Research Facility* 11:169–195.

Pauketat, T. R.
2007 *Chiefdoms and other archaeological delusions*. Altamira Press, Lanham.

Peregrine, Peter N., and Stephen H. Lekson
2012 The North American Oikoumene. In *The Oxford Handbook of North American Archaeology*, edited by T. R. Pauketat, pp. 64–72. Oxford University Press, Oxford.

Peregrine, Peter Neal, Gary M. Feinman, and Christopher K. Chase-Dunn
1996 *Pre-Columbian world systems*. Monographs in World Archaeology No. 26. Prehistory Press, Madison.

Pfeiffer, inda
1983 Pottery Production and Extralocal Relations at Rio Arriba, Chiapas, Mexico. Unpublished Unpublished Ph.D. Dissertation, University of California, Santa Barbara, Department of Anthropology.

Pfeiffer, Linda
1989 10. Changing Patterns of Pottery Imports at Rio Arriba. *Ancient Trade and Tribute: Economies of the Soconusco Region of Mesoamerica*:231.

Pool, Christopher
2007 *Olmec archaeology and early Mesoamerica*. Cambridge University Press.

Pool, Christopher A., Michael L. Loughlin, and Ponciano Ortiz Ceballos
2018 TRANSISTHMIAN TIES: EPI-OLMEC AND IZAPAN INTERACTION. *Ancient Mesoamerica* 29(2):413–437. DOI:10.1017/S0956536118000123.

Powis, Terry G., W. Jeffrey Hurst, M. del C. Rodríguez, C. Ponciano Ortiz, Michael Blake, David Cheetham, Michael D. Coe, and John G. Hodgson
2007 Oldest chocolate in the New World. *Antiquity* 81(314):302–305.

Pye, Mary
1995 Settlement, Specialization, and Adaption in the Rio Jesus Drainage, Retalhuleu, Gautemala. Unpublished Ph.D. Dissertation, Department of Anthropology, Vanderbilt, Nashville.

Pye, Mary E., and Gerardo Gutiérrez
2007 The Pacific Coast trade route of Mesoamerica: iconographic connections between Guatemala and Guerrero. *Archaeology, Art, and Ethnogenesis in Mesoamerican Prehistory: Papers in Honor of Gareth W. Lowe, Papers* 68:229–246.

Rands, Robert L., Ronald L. Bishop, and Jeremy A. Sabloff
1982 Maya fine paste ceramics: an archaeological perspective. In *Excavations at Seibal Memoirs*, 2:pp. 315–338. 15.

Rapoport, Amos
1969 *House form and culture*. Prentice-Hall, Eaglewood Cliffs.

Rattray, Evelyn Childs
1990 New Findings on the Origins of Thin Orange Ceramics. *Ancient Mesoamerica* 1(02):181–195. DOI:10.1017/S0956536100000201.

Recinos, Adrián
1984 *Crónicas indígenas de Guatemala*. 29. Academia de Geografía e Historia de Guatemala.

Redman, C. L., and A. P. Kinzig
2003 Resilience of past landscapes: resilience theory, society, and the longue durée. *Conservation ecology* 7(1):14.

Redman, Charles L.
2005 Resilience theory in archaeology. *American Anthropologist* 107(1):70–77.

Reimer, Paula J., Edouard Bard, Alex Bayliss, J. Warren Beck, Paul G. Blackwell, Christopher Bronk Ramsey, Caitlin E. Buck, Hai Cheng, R. Lawrence Edwards, and Michael Friedrich
2013 IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. *Radiocarbon* 55(4):1869–1887.

Remesal, Antonio de
1966 *Historia general de las Indias Occidentales y particular de la gobernación de Chiapa y Guatemala*. Guatemala: Editorial José de Pineda Ibarra.

Renfrew, Colin
1975 Trade as action at a distance: questions of integration and communication. In *Ancient civilization and trade*, edited by J. A. Sabloff and C. C. Lamberg-Karlovsky, 3:pp. 3–59. University of New Mexico Press, Albuquerque.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

Robb, John, and Timothy R. Pauketat
2013 From moments to millennia: theorizing scale and change in human history. *Big histories, human lives: tackling problems of scale in archaeology*:3–33.

Robin, Cynthia
2003 New directions in Classic Maya household archaeology. *Journal of archaeological research* 11(4):307–356.

Rosenswig, R.
2007 Beyond identifying elites: Feasting as a means to understand early Middle Formative society on the Pacific Coast of Mexico. *Journal of Anthropological Archaeology* 26(1):1–27. DOI:10.1016/j.jaa.2006.02.002.

Rosenswig, Robert
2012 The Southern Pacific Coastal Region of Mesoamerica: A Corridor of Interaction from Olmec to Aztec Times. In *The Oxford Handbook of Mesoamerican Archaeology*, edited by Deborah Nichols and Christopher A. Pool, pp. 419–433. Oxford University Press, Oxford.

2017 Olmec Globalization: A Mesoaermican Archipelago of Complexity. In *The Routledge Handbook of Archaeology and Globalization*, edited by Tamar Hodos, pp. 177–193. Routledge, London.

Rosenswig, Robert M.
2008 Prehispanic settlement in the Cuauhtémoc region of the Soconusco, Chiapas, Mexico. *Journal of Field Archaeology* 33(4):389–411.

2010 *The beginnings of Mesoamerican civilization: inter-regional interaction and the Olmec*. Cambridge University Press.

Rosenswig, Robert M., Brendan J. Culleton, Douglas J. Kennett, Rosemary Lieske, Rebecca R. Mendelsohn, and Yahaira Núñez-Cortés
2018 The Early Izapa Kingdom: Recent Excavations, New Dating and Middle Formative Ceramic Analysis. *Ancient Mesoamerica* 29(2):373–393.

Rosenswig, Robert M., and Julia Guernsey
2018 INTRODUCING IZAPA. *Ancient Mesoamerica* 29(2):255–264. DOI:10.1017/S0956536118000494.

Rosenswig, Robert M., Ricardo López-Torrijos, and Caroline E. Antonelli
2015 Lidar data and the Izapa polity: new results and methodological issues from tropical Mesoamerica. *Archaeological and Anthropological Sciences* 7(4):487–504.

Rosenswig, Robert M., and Rebecca R. Mendelsohn

2016 Izapa and the Soconusco region, Mexico, in the first millennium AD. *Latin American Antiquity* 27(3):357–377.

Rowlands, Michael J., Mogens Larsen, and Kristian Kristiansen
1987 *Centre and periphery in the ancient world*. Cambridge University Press.

Sabloff, J. A., and R. E. Smith
1969 The importance of both analytic and taxonomic classification in the type-variety system. *American Antiquity*:278–285.

Sáenz, César A.
1961 *Tres estelas en Xochicalco*. Revista Mexicana de Estudios Antropológicos 17:39–65

Sanders, William T., and Joseph W. Michels
1977 *Teotihuacan and Kaminaljuyu: a study in prehistoric culture contact*. Pennsylvania State University Press, University Park.

Santley, Robert S.
1983 Obsidian trade and Teotihuacan influence in Mesoamerica. In *Highland-lowland interaction in Mesoamerica: Interdisciplinary approaches*, edited by Arthur G. Miller, pp. 69–124. Dumbarton Oaks, Washington D.C.

Santley, Robert S., and Philip J. Arnold
2005 The obsidian trade to the Tuxtlas region and its implications for the prehistory of southern Veracruz, Mexico. *Ancient Mesoamerica* 16(02):179–194.

Santley, Robert S., and Kenneth G. Hirth
1993 *Prehispanic domestic units in western Mesoamerica: studies of the household, compound, and residence*. CRC Press, Boca Raton.

Sassaman, K. E., and D. H. Jr Holly
2011 *Hunter-Gatherer Archaeology as Historical Process*. University of Arizona Press, Tucson.

Saunders, Nicholas J.
2001 A dark light: reflections on obsidian in Mesoamerica. *World Archaeology* 33(2):220–236.

Scarborough, Vernon L., and Robin A. Robertson
1986 Civic and residential settlement at a Late Preclassic Maya Center. *Journal of Field Archaeology* 13(2):155–175.

Schieber de Lavarreda, Christa, and Miguel Orrego Corzo
2010 Preclassic Olmec and Maya monuments and architecture at Takalik Abaj. *The place of stone monuments: context, use, and meaning in Mesoamerica's Preclassic tradition*:177–205.

Schneider, Jane
1977 Was there a pre-capitalist world system. *Peasant Studies* 6(1):20–29.

Schortman, Edward M., and Patricia A. Urban
1992 *Resources, Power, and Interregional Interaction*. Springer.

1994 Living on the edge: Core/periphery relations in ancient southeastern Mesoamerica. *Current Anthropology* 35(4):401–430.

Schortman, Edward, and Patricia Urban
2012 Networks, Cores, and Peripheries: New Frontiers in Interaction Studies. In *The Oxford Handbook of Mesoamerican Archaeology*, edited by Deboarh L. Nichols and Christopher A. Pool, pp. 471–481. Oxford University Press, Oxford.

Schwartz, Glenn M.
2006 From collapse to regeneration. *After collapse. The regeneration of complex societies*:2–17.

Schwartz, Glenn M., and John J. Nichols
2010 *After collapse: the regeneration of complex societies*. University of Arizona press.

Scott, James C.
2009 *The art of not being governed: An anarchist history of upland Southeast Asia*. Yale University Press, New Haven.

2017 *Against the Grain: A Deep History of the Earliest States*. Yale University Press.

Service, E.
1962 *Primitive social organization*. Random House, New York.

Shanks, M., and C. Tilley
1987 *Re-Constructing Archaeology*. Cambridge University Press, Cambridge.

Sharer, Robert J.
2003 Founding events and Teotihuacan connections at Copan, Honduras. In *The Maya and Teotihuacán: Reinterpreting Early Classic Interaction*, edited by Geoffrey Braswell, pp. 143–66. University of Texas Press, Austin.

Shepard, Anna Osler
1948 *Plumbate, a Mesoamerican trade ware*. 573. Carnegie Institution of Washington.

Smith, A. T.
2003 *The political landscape: Constellations of authority in early complex polities*. University of California Press.

Smith, Adam
1778 *An Inquiry Into the Nature and Causes of the Wealth of Nations*. Vol. 1. W. Strahan, and T. Cadell, in the Strand, London.

Smith, Erin, and M. Fauvelle
2015 Regional Interactions Between California and The Southwest: The Western Edge of the North American Continental System. *American Anthropologist* 17(4):710–721.

Smith, M. E.
1979 A further criticism of the type-variety system: the data can't be used. *American Antiquity*:822–826.

Smith, Michael E.
2010 The archaeological study of neighborhoods and districts in ancient cities. *Journal of Anthropological Archaeology* 29(2):137–154.

Smith, Michael E., and Frances F. Berdan
2003a Spatial Structure of the Mesoamerican World System. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 21–31. University of Utah Press, Salt Lake City.

2003b Postclassic Mesoamerica. *The Postclassic Mesoamerican World*:3–13.

Smith, Michael E., and Juliana Novic
2012 Neighborhoods and Districts in Ancient Mesoamerica. In *The Neighborhood as a Social and Spatial Unit in Mesoamerican Cities,* edited by M. Charlotte Arnauld, Linda Manzanilla, and Michael E. Smith, pp. 1–26. The University of Arizona Press, Tucson.

Smith, R. E., G. R. Willey, and J. C. Gifford
1960 The type-variety concept as a basis for the analysis of Maya pottery. *American Antiquity*:330–340.

Somerville, A. D., M. Fauvelle, and A. W. Froehle
2013 Applying new approaches to modeling diet and status: Isotopic evidence for commoner resiliency and elite variability in the Classic Maya lowlands. *Journal of Archaeological Science* 40(3):1539–1553.

Spier, Fred
2015 *Big history and the future of humanity*. John Wiley & Sons.

Stacey, R. J., C. R. Cartwright, and C. McEwan
2006 Chemical characterization of ancient mesoamerican ‘copal’resins: preliminary results. *Archaeometry* 48(2):323–340.

Stein, G.
1999 *Rethinking world-systems: Diasporas, colonies, and interaction in Uruk Mesopotamia*. University of Arizona Press, Tucson.

Stein, Gil
2005a Introduction: The Comparative Archaeology of Colonial Encounters. In *The Archaeology of Colonial Encounters*, edited by Gil Stein, pp. 1–22. School of American Reserach Press, Santa Fe.

2005b *The archaeology of colonial encounters: Comparative perspectives*. School of American Research Press, Santa Fe.

Stein, Gil J.
2002 From passive periphery to active agents: emerging perspectives in the archaeology of interregional interaction. *American Anthropologist* 104(3):903–916.

Stoltman, J. B., J. Marcus, K. V. Flannery, J. H. Burton, and R. G. Moyle

2005 Petrographic evidence shows that pottery exchange between the Olmec and their neighbors was two-way. *Proceedings of the National Academy of Sciences of the United States of America* 102(32):11213–8. DOI:10.1073/pnas.0505117102.

Stoner, Wesley D.
2013 Interpolity Pottery Exchange in the Tuxtla Mountains, Southern Veracruz, Mexico. *Latin American Antiquity* 24(3):262–288.

Stoner, Wesley D., Christopher A. Pool, Philip J. Arnold III, Amber M. VanDerwarker, Lourdes Budar, Geoffrey E. Braswell, Roderick B. Campbell, David M. Carballo, George L. Cowgill, and Justin Jennings
2015 The archaeology of disjuncture: Classic period disruption and cultural divergence in the Tuxtla Mountains of Mexico. *Current Anthropology* 56(3):404–405.

Stoner, Wesley Durrell
2011 Disjuncture among Classic period cultural landscapes in the Tuxtla Mountains, southern Veracruz, Mexico. University of Kentucky.

Stuart, D.
2000 The arrival of strangers: Teotihuacan and Tollan in Classic Maya history. In *Mesoamerica's Classic Heritage: From Teotihuacan to the Aztecs*, edited by David Carrasco, Lindsay Jones, and Scott Sessions, pp. 465–513. University Press of Colorado, Boulder.

Symonds, Stacey, Ann Cyphers, and Roberto Lunagómez
2002 *Asentamiento prehispánico en San Lorenzo Tenochtitlán*. Vol. 2. UNAM.

Taube, Karl
2000 The Writing System of Ancient Teotihuacan. In *Ancient America*. Center for Ancient American Studies, Barnardsville and Washington, D.C.

2001 La escritura teotihuacana. *Revista de Arqueología Mexicana* 8(48):58–63.

Taube, Karl A.
1991 Obsidian polyhedral cores and prismatic blades in the writing and art of ancient Mexico. *Ancient Mesoamerica* 2(1):61–70.

2011 Teotihuacan and the development of writing in Early Classic central Mexico. *Their Way of Writing: Scripts, Signs, and Pictographies in Pre-Columbian America*:77–109.

Taube, Karl A., Virginia B. Sisson, Russell Seitz, and George E. Harlow

2004 The sourcing of Mesoamerican jade: Expanded geological reconnaissance in the Motagua Region, Guatemala. *Olmec Art and Dumbarton Oaks. Pre-Columbian Art at Dumbarton Oaks, Dumbarton Oaks* 2:203–228.

Tilley, Christopher
2008 Phenomenological approaches to landscape archaeology. *Handbook of landscape archaeology*:271–276.

Van Buren, Mary
2000 Political fragmentation and ideological continuity in the Andean highlands. *Order, Legitimacy, and Wealth in Ancient States. Janet Richards and Mary Van Buren, eds*:77–87.

Voorhies, Barbara
1989a *Ancient Trade and Tribute: Economies of the Soconusco Region of Mesoamerica*. University of Utah Press, Salt Lake City.

1989b An introduction to the Soconusco and its prehistory. *Ancient Trade and Tribute: Economies of the Soconusco Region of Mesoamerica*:1–18.

1989c A Model of the Pre-Aztec Political System of the Soconusco. *Ancient Trade and Tribute: Economies of the Soconusco Region of Mesoamerica*:95–129.

1989d Settlement patterns in the western Soconusco: methods of site recovery and dating results. *New Frontiers in the Archaeology of the Pacific Coast of Mesoamerica. Arizona Research Papers* 39:329e369.

2004 *Coastal Collectors in the Holocene: The Chantuto People of Southwest Mexico*. University Press of Florida, Gainesville.

Voorhies, Barbara, and J. L. Gasco
2004 Postclassic Soconusco Society, Monograph 14. *Institute for Mesoamerican Studies, University at Albany, Albany, NY*.

Wallerstein, I.
1974 *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. Vol. 1. Academic Press, San Diego.

Wallerstein, Immanuel
1991 World system versus world-systems: a critique. *Critique of Anthropology* 11(2):292–296.

Wheat, J. B., J. C. Gifford, and W. W. Wasley
1958 Ceramic variety, type cluster, and ceramic system in Southwestern pottery analysis. *American Antiquity* 24(1):34–47.

White, Leslie A.
1943 Energy and the evolution of culture. *American anthropologist* 45(3):335–356.

Wilk, R. R., and W. Ashmore
1988 *Household and community in the mesoamerican past*. University of New Mexico Press, Albuquerque.

Wilk, Richard R., and William L. Rathje
1982 Household archaeology. *American behavioral scientist* 25(6):617–39.

Yaeger, Jason, and Marcello A. Canuto
2000 Introducing an archaeology of communities. In *The archaeology of communities: a new world perspective*, edited by Marcello A. Canuto and Jason Yaeger, pp. 1–15. Routeldge, New York.

Zeitlin, Robert N.
1982 Toward a more comprehensive model of interregional commodity distribution: political variables and prehistoric obsidian procurement in Mesoamerica. *American Antiquity* 47(2):260–275.

APPENDIX A: CERAMIC DESCRIPTIONS

Note: All vessels sizes listed as radiuses

Formative Types

Waxy Red

This type is defined by a waxy red slip. A single example of this type was found at bottom of excavations in Group D structure 6, sub-operation 2. The two sherds found in this lot are strikingly different from the Late Postclassic complex found above. This sherd represents a slightly closed, round bottomed bowl with a rounded rim. There is a shallow groove incision approximately one cm below the rim. This vessel has a rim diameter of 18 cm. The paste is fine and well sorted, with inclusions of less than .1 cm. It is difficult to define the type based on a single sherd, however it is evocative of late Formative glossy reds. Another possible similarity might be the Last Classic Peistal phase.

Inclusion size: < .1 cm

Wall thickness: .8 cm

Paste Color: Red (2.5 YR 4/6)

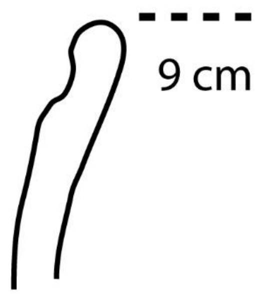
Surface treatment: Waxy Red Slip (10 YR 4/6)

Form: closed bowl

Decoration: Groove Incised

Variants: None

Waxy Red Slip



Waxy Red Slip

Waxy Beige

This type is defined by a waxy beige/orange slip. A single example of this type was found at bottom of excavations in Group D structure 6, suboperation 2. The two sherds found in this lot are strikingly different from the Late Postclassic complex found above. Since there is only one body sherd from this type, it is impossible to say what the vessel form was. The past is relatively fine, with few inclusions. It is difficult to define the type based on a single sherd, however it is evocative of Middle and Late Formative glossy types. Another possible similarity might be the Last Classic Peistal phase.

Inclusion size: < .1 cm

Wall thickness: .45 cm

Paste Color: Very pale brown 10 YR 7/3

Surface treatment: Waxy light brown slip 7.5 YR 6/4

Form: Unknown

Decoration: none

Variants: none

Waxy Beige

Early Classic Types

Bernal Crude

This is a large category of unslipped utilitarian jars, bowls, and dishes, characterized by a course and friable paste. Inclusions can be quite large, nearing 1 cm in diameter, although most are smaller, between .1 and .3 cm. The paste of Bernal Crude is relatively soft and friable. Decorations are rare, and tend to be simple applied and pinched appliqué patterns. The most common decoration is a pinched appliqué pattern running along the rim of out leaning jars and bowls. Jars and outleaning bowls are the most common forms represented. Due to its nondescript and utilitarian nature, type is likely to have been used for daily cooking and storage purposes. This is a Classic period type, likely dating to end of the Early Classic or the beginning of the Late Classic. The form and decoration on many sherds is very similar to that found in type 23, identified by Pfieffer (1983) for the Early Classic. Type 23 is also very common at Los Horcones, and it is very possible that Bernal Crude corresponds to the same type. It is noteworthy that rim sherds with forms and decorations most similar to type 23 appear in deeper contexts at Fraccon Mujular. This signature, together with the fact that some Bernal Crude sherds are found in more shallow stratigraphic contexts with plumbate sherds, suggests that it might be possible to split Bernal Crude into Early Classic and early Late Classic components. Two fragmented vessels from this type were collected in situ. One is a very large (diameter of 60 cm) outleaning flat bottomed great bowl, with straight sides and a slightly everted rim. The other is a very large closed jar with a short neck.

Inclusion size: .1 to .9 (few exceed .3)

Wall thickness: Thick: .6 to 1.7 (most around 1)

Paste Color: Reddish Yellow (7.5 YR 7/6), Light brown (7.5 YR 6/4), Red (2.5 YR 5/8)

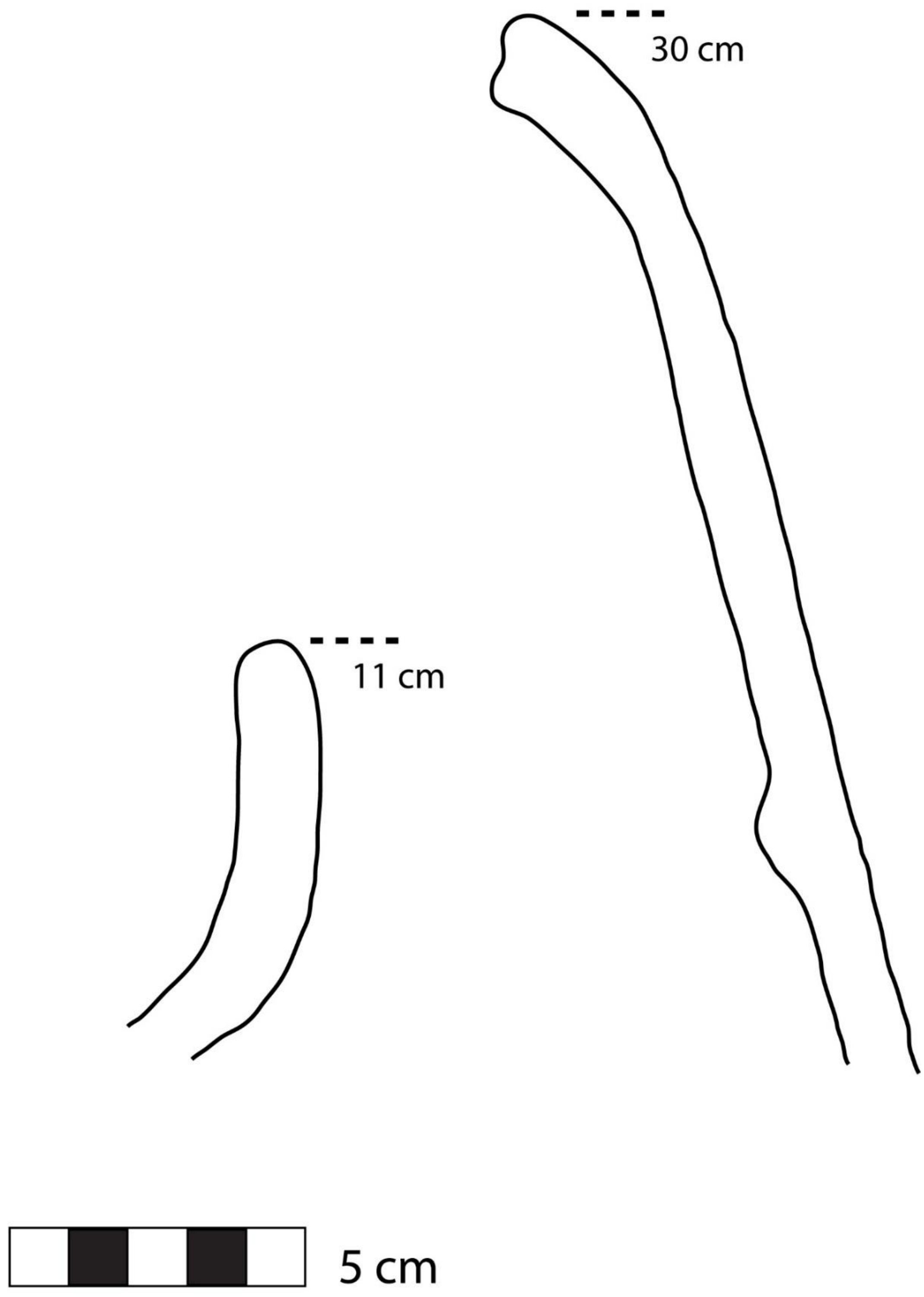
Surface treatment: Rough

Form: Flat bottomed out leanding dishes, closed bowls, Jars

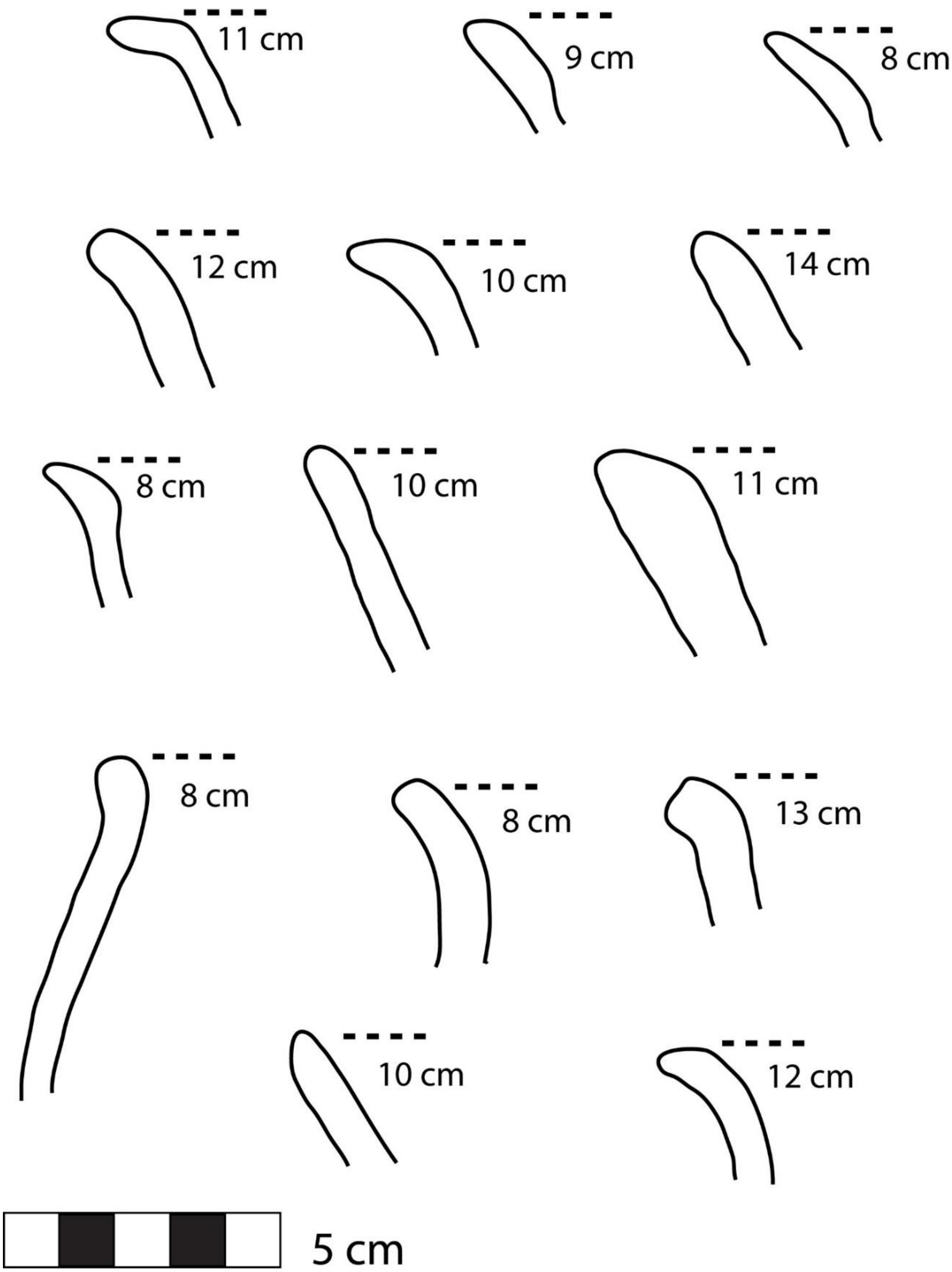
Decoration: Rare, occasional pinched appliqué

Variants: None

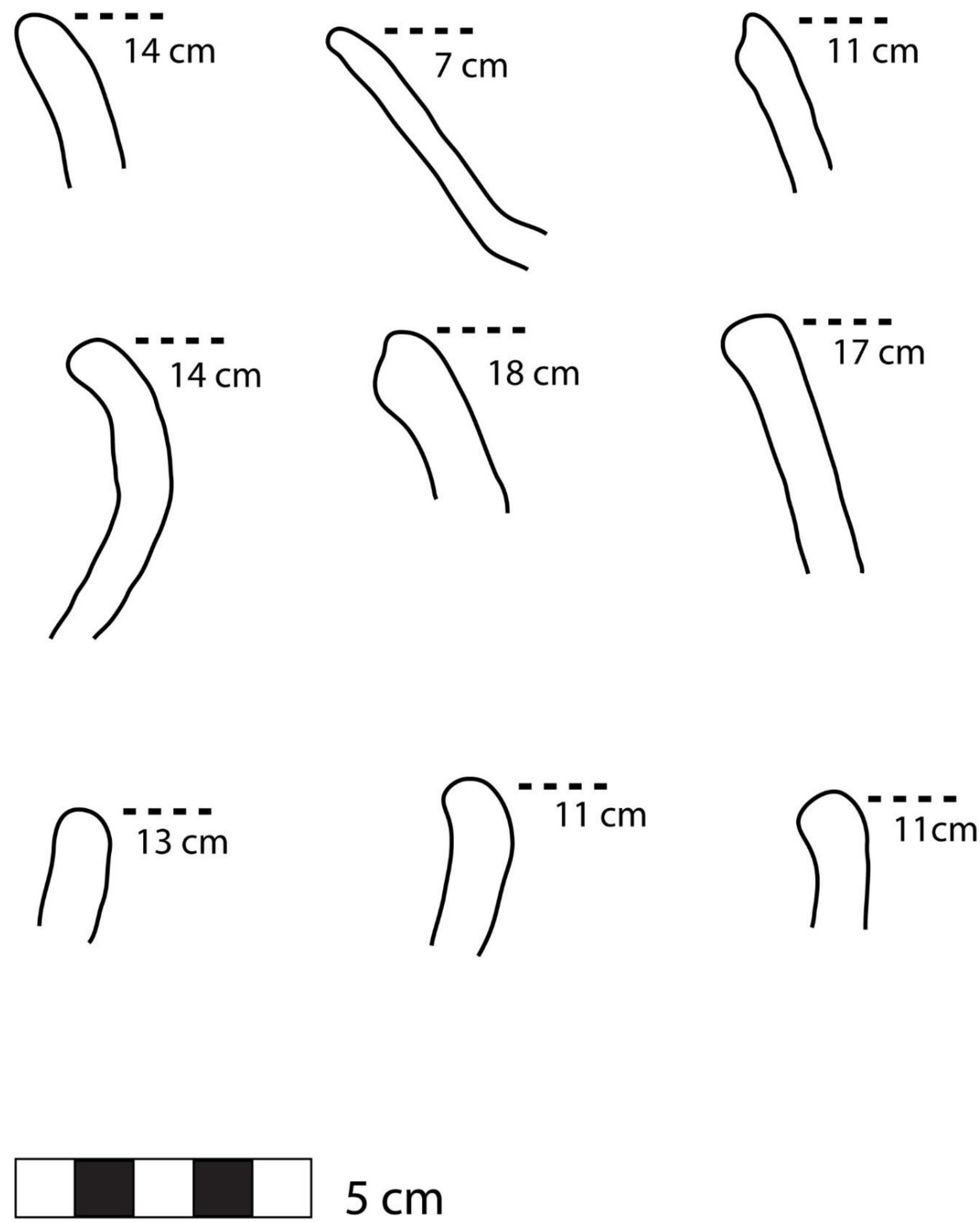
Bernal Crude



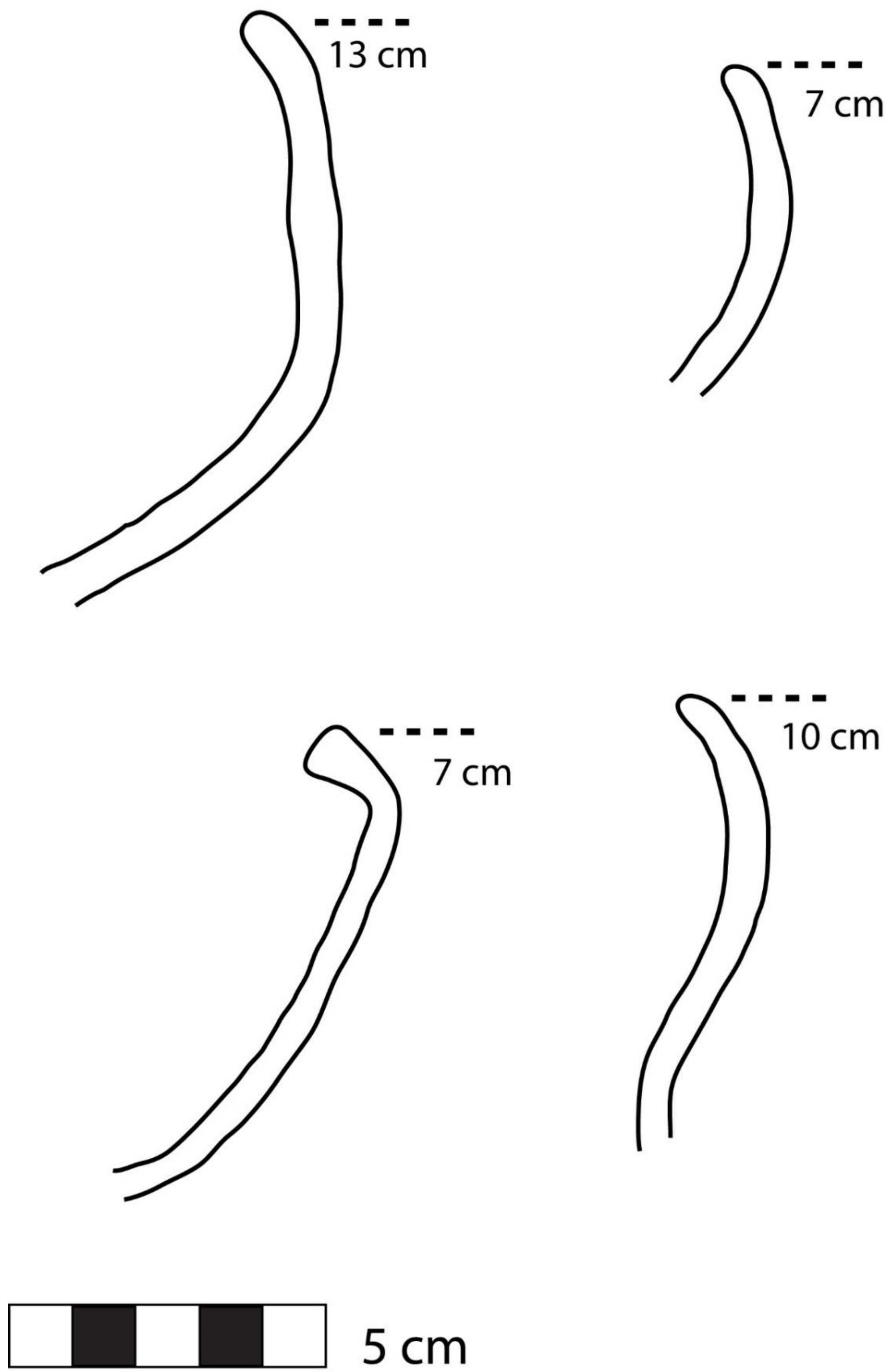
Bernal Crude



Bernal Crude



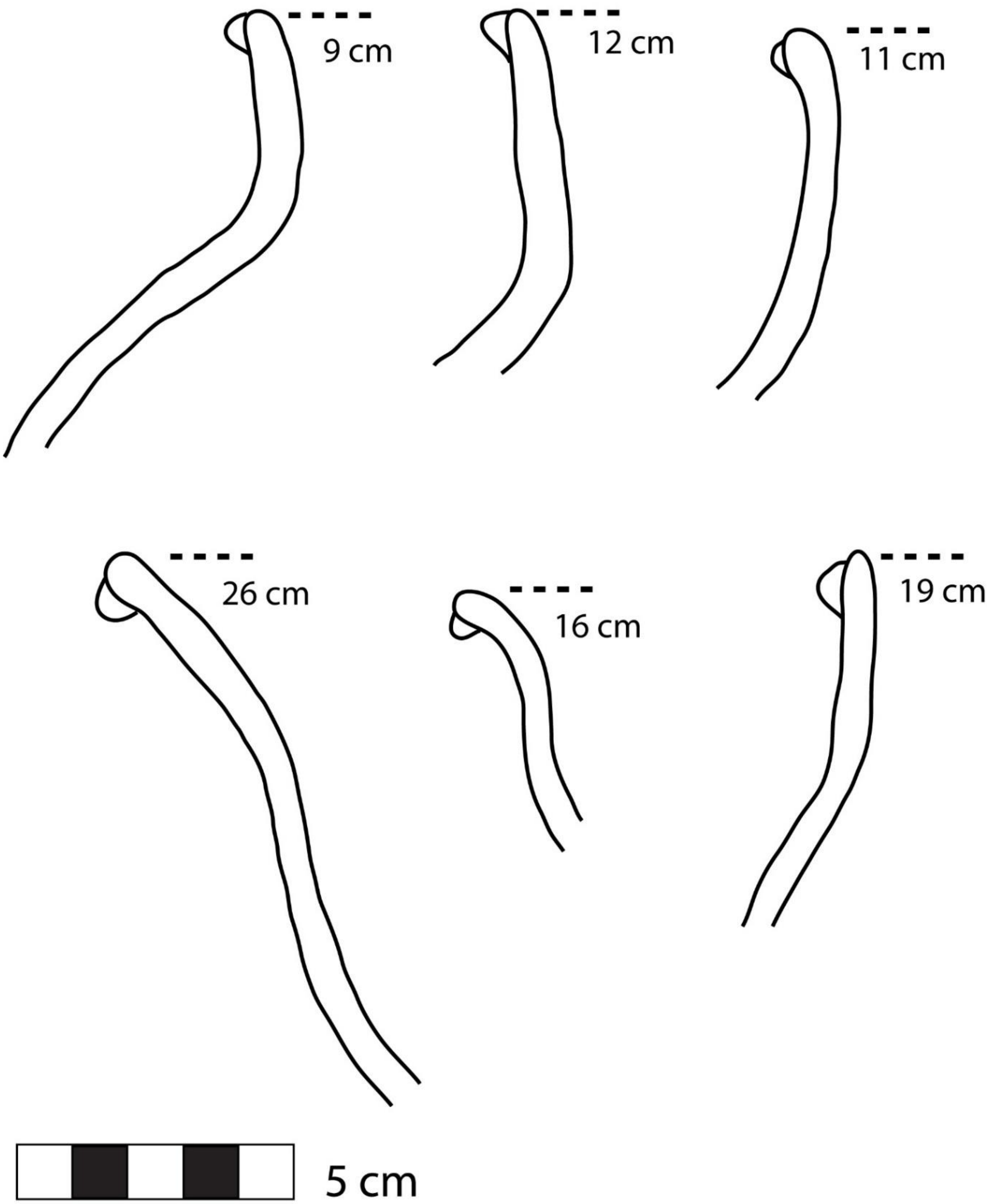
Bernal Crude



Bernal Crude

Pinched Appliqué

Similar to Los Horcones Type 23



Bernal Crude

Bernal Red

This is a red slipped variety of utilitarian vessels, similar to Bernal Crude but distinguished due to their slip and slightly finer nature. This type likely dates to the end of the Early Classic or the beginning of the Late Classic. This is a rare type at Fraccion mujular, as most Classic Period slipped sherds belong to the Vassallo group. They are distinguished from the Vassallo group by their courser and darker colored pastes, and the thickness and more utilitarian nature of their form.

Inclusion size: .1 to .3

Wall thickness: Medium: .6 to .9 cm

Paste Color: Reddish Yellow (7.5 YR 7/6) or Light brown (7.5 YR 6/4)

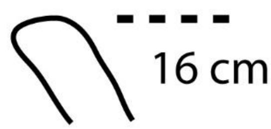
Surface treatment: Slipped Red (2.5 YR 4/6)

Form: Flat bottomed out leanding dishes, closed bowls, Jars

Decoration: Rare, occasional pinched appliqué

Variants: None

Bernal Red



Bernal Red

Bernal Black

Black slipped sherds are rare at Fraccion Mujular, but do appear with some frequency in Group C west locus. This suggests that they may be an Early Classic diagnostic at Fraccion Mujular, possibly similar to common Early Classic black Zoque wares. Bernal black sherds are distinguished by a glossy burnished black slip, usually occurring on both sides, but occasionally found on just one side. On one rim sherd, slip wraps from exterior over the rim and about 1 into the interior, in a similar fashion to some Early Classic Zoque vessels displayed at the regional archaeology museum in Tuxtla Gutierrez. Vessels seem to be primarily bowl forms, and likely were used as serving vessels.

Inclusion size: <.1

Wall thickness: Thin: .4 to .6 cm

Paste Color: light yellowish brown (10 YR 4/6)

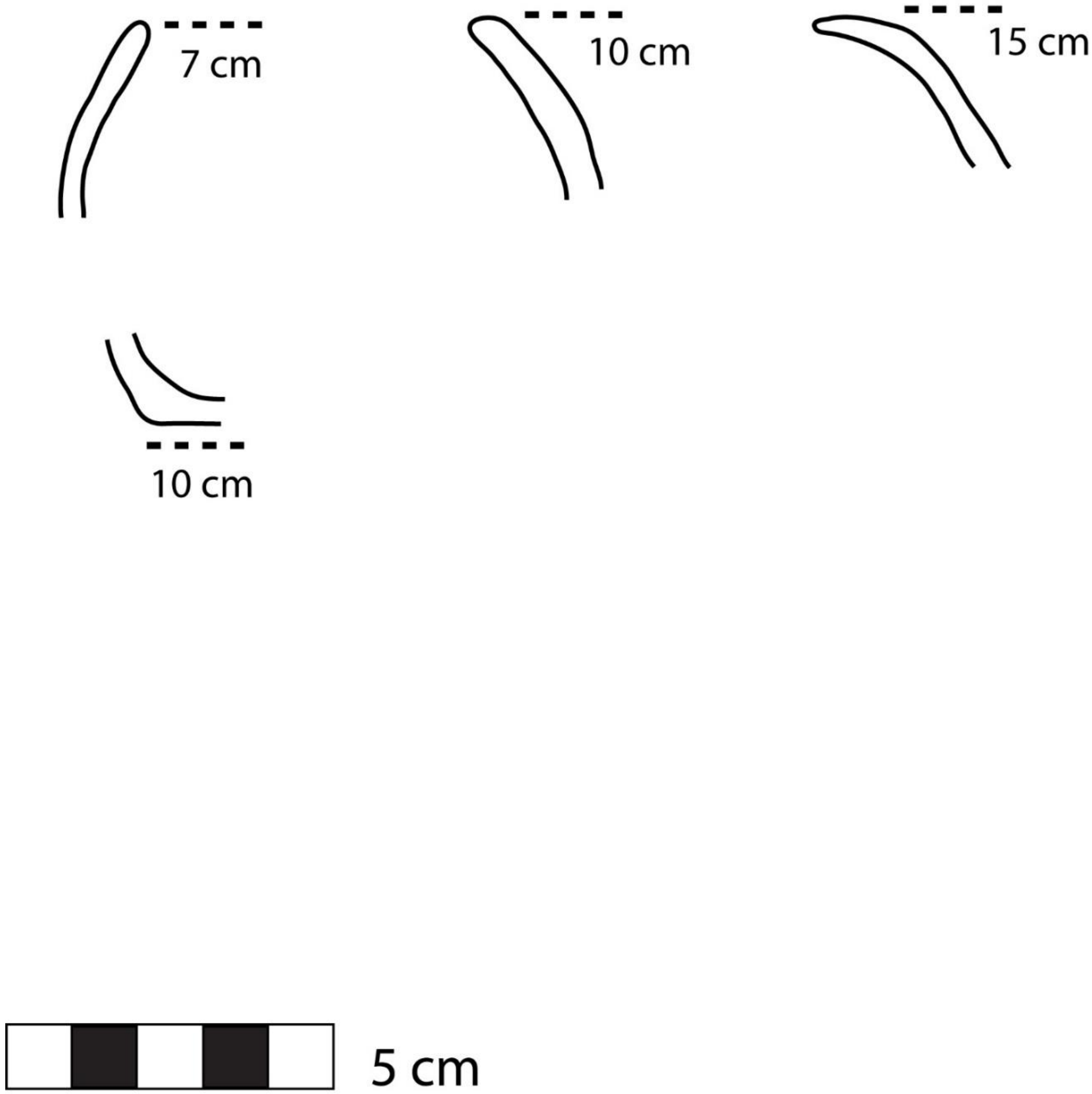
Surface treatment: black slip, (10 YR 2/1 to 10 YR 3/1)

Form: mainly closed bowls

Decoration: burnished black slip, on one or two sides, sometimes incised

Variants: incised decorated

Bernal Black



Bernal Black

Bernal Fine

This is a small category of unslipped burnished sherds with a grey to brown color. Their fine make yet still relatively dull and utilitarian nature does not fit them nicely in any other class. Chronologically they likely fit in the Early Classic to early Late Classic. They are most similar to Bernal Crude, and likely represent a “nicer” version of this utilitarian ceramic type. They are most easily distinguished from Bernal Crude do their thin walls, well smoothed or burnished finishes, and grey to brown exterior color, likely achieved through light burnishing.

Inclusion size: <.1

Wall thickness: Thin: .4 to .6 cm

Paste Color: light brownish grey to pale brown (10 YR 6/2) to (10 YR 6/3)

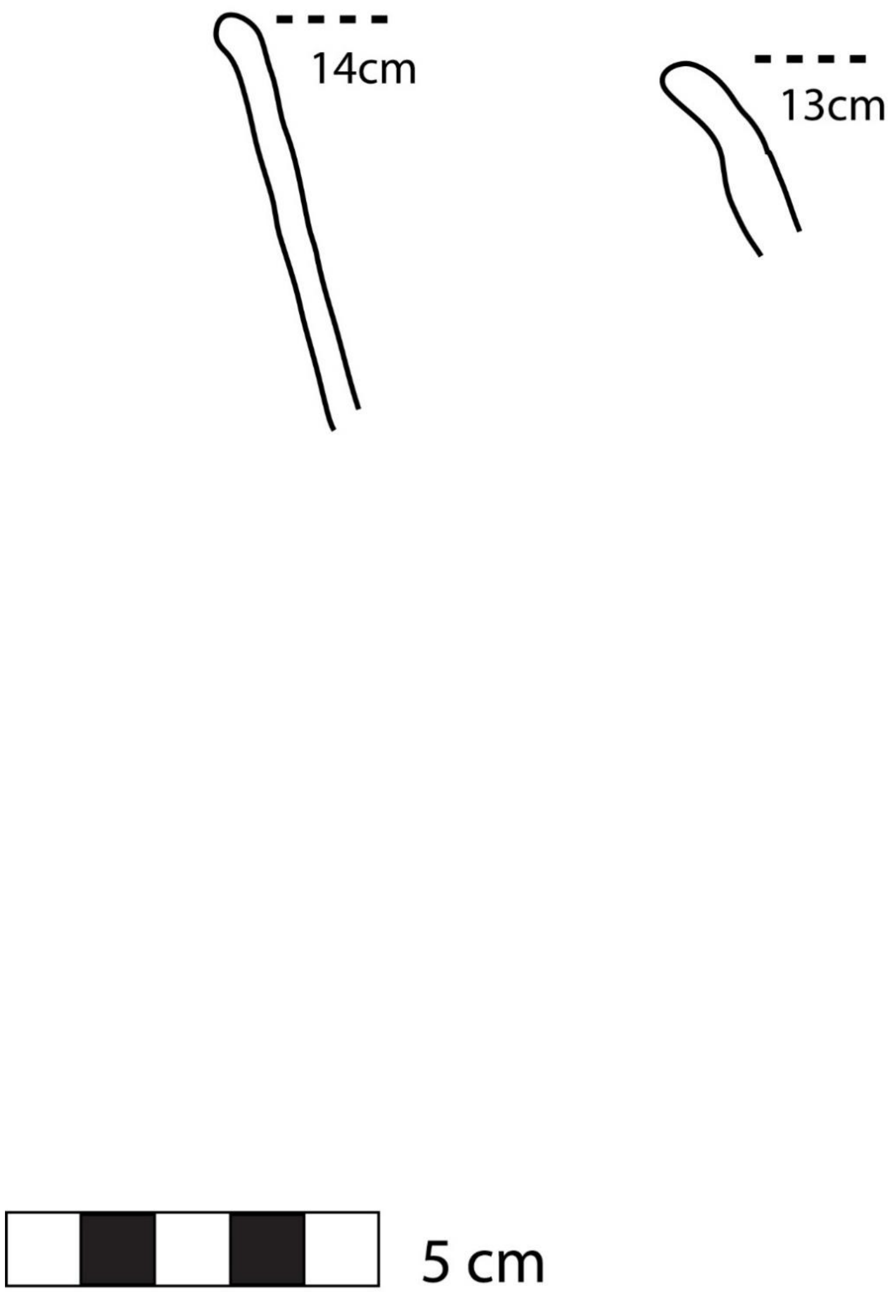
Surface treatment: smoothed or burnished (brownish grey to grayish brown: 10 YR 6/2 to 10 YR 5/2)

Form: out leaning dishes, jars

Decoration: none

Variants: none

Bernal Fine



Bernal Fine

Late Classic Types

Chencho Hard

Chencho Hard is a very distinctive ceramic type characterized unslipped sherds with extremely hard and dense pastes. Despite the presence of some large inclusions, Chencho Hard sherds are non-friable, fairly smooth, and cold to the touch. Chencho hard sherds are sufficiently heavy and dense that they were occasionally mistaken for rocks during excavation, especially when covered with dirt. Forms are also distinctive, with large flat bottomed out-leaning dishes, round bottom jars, and round bottom closed bowls being the primary forms represented. Walls tend to be thick, with diameters often exceeding 1 cm. These were likely large utilitarian cooking and storage vessels. Chronologically, they likely date to the Late Classic (circa 600 to 900 CE), and are mainly found in association with San Juan Plumbate. They are similar to some of the more course types from the Piestal Phase at Izapa, especially the unpublished Pita Red (Izapa type 73) type, which can be found in the Izapa collections at the New World Archaeological Foundation.

Inclusion size: .1 to .2 cm

Wall thickness: Thick .5 to 1.7 (most around 1)

Paste Color: Reddish Yellow (5 YR 6/8), Light Brown (7.5 YR 6/3), Brown (7.5 YR 5/2)

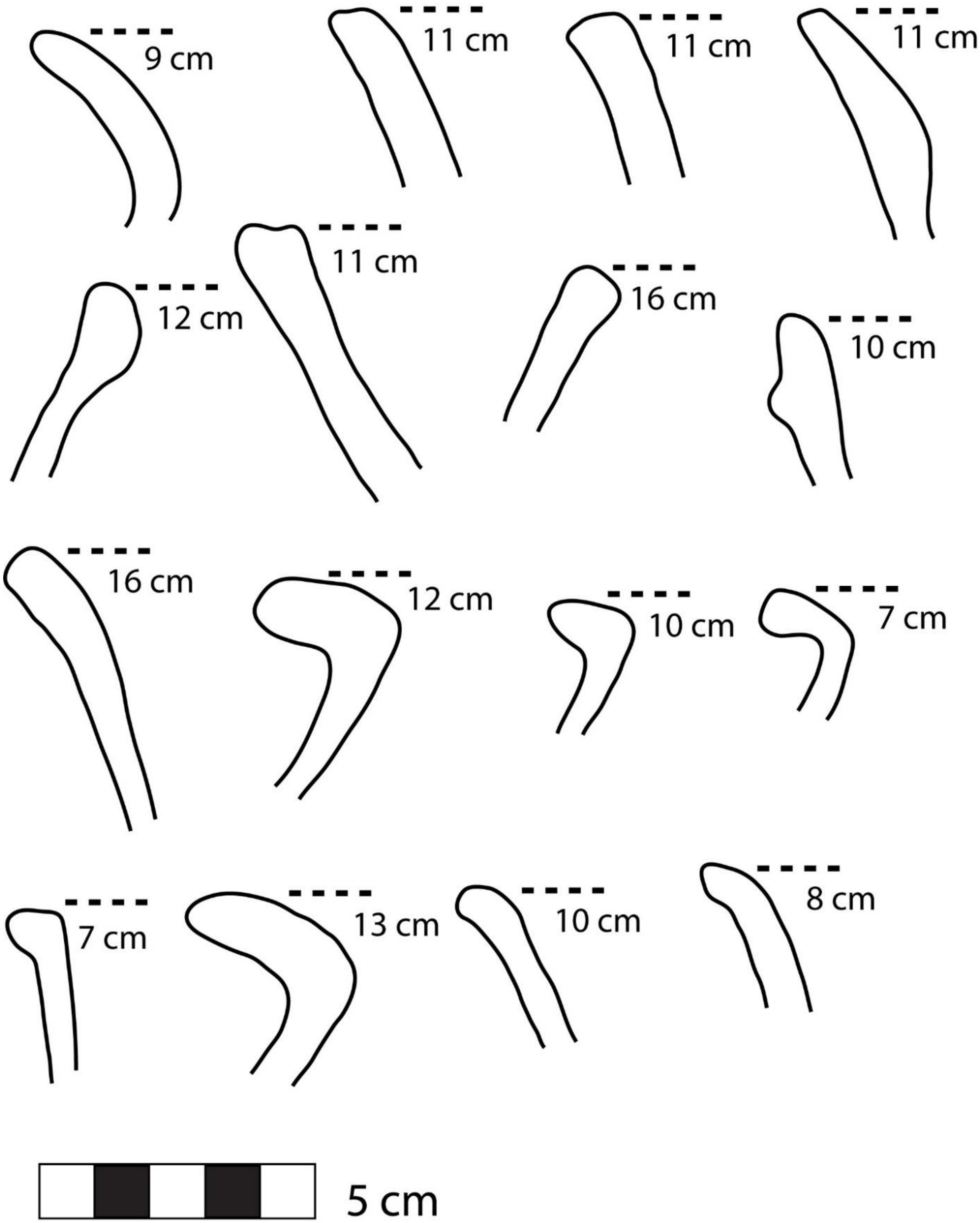
Surface treatment: Smoothed or course

Form: Flat bottomed out-leaning dishes, round bottomed jars with everted rims, round bottomed closed bowls

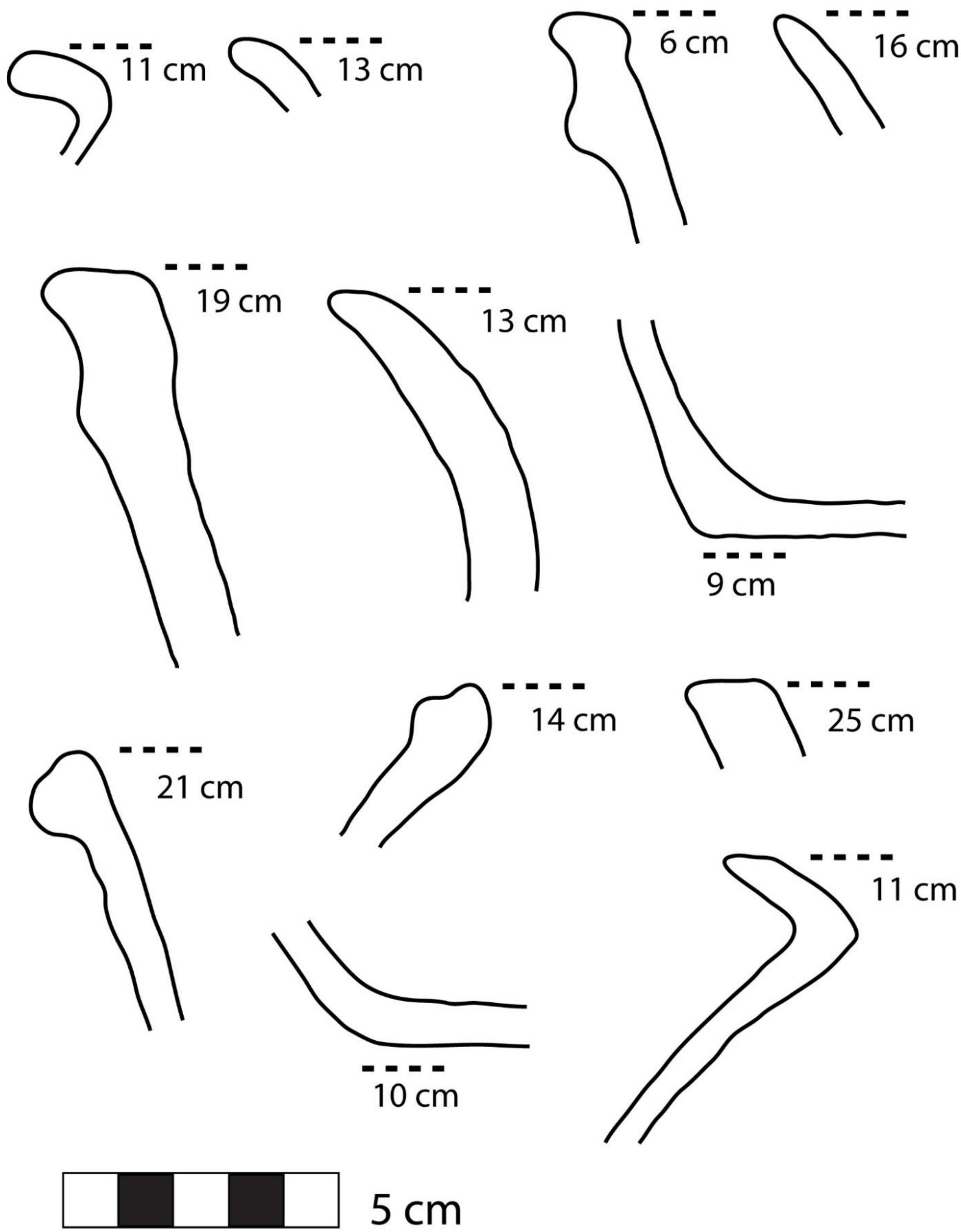
Decoration: Pinched appliqué. Other decoration rare

Variants: None

Chencho Hard



Chencho Hard



Chencho Hard

Chencho Soft

This is a relatively uncommon type comprised of utilitarian jars an bowls with a soft and course paste. Chencho soft is generally found in association with Chencho Hard, but is much less common than its more durable cousin. Unlike Chencho Hard, the past of Chencho soft sherds is friable to the touch. Sherds are also lighter in weight and much less durable. Vessel forms are similar, although Chencho soft vessels were likely smaller in size. Like Chencho Hard, Chencho Soft is usually found in association with plumbate and likely dates to the Late Classic (600 to 900 CE).

Inclusion size: small, around .1 cm

Wall thickness: .6 to 1.2 cm

Paste Color: Reddish Yellow (7.5 YR 6/6)

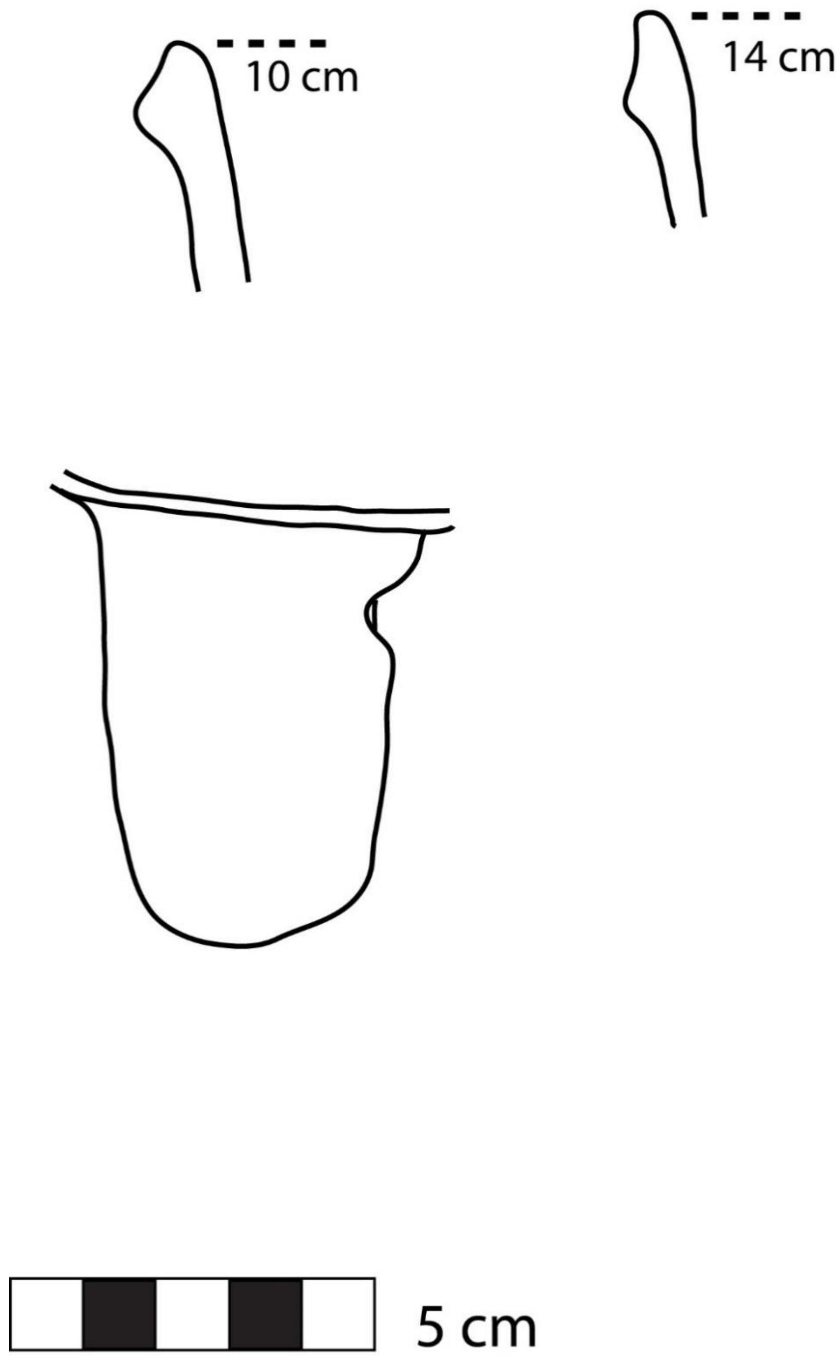
Surface treatment: Smoothed or course

Form: open bowls and dishes

Decoration: pinched appliqué

Variants: None

Chencho Soft



Chencho Soft

Vassallo Fine

Vassallo Fine is a category of high fired serving vessels characterized by thin and hard light reddish yellow (7.5 YR 7/4 to 7.5 YR 7/6) pastes. Vassallo fine sherds are very hard, and often seem similar to San Juan Plumbate sherds, but are distinguished by slightly softer pastes and a very distinctive paste color. Vassallo type ceramics are also chronologically distinct, occurring in levels below those with San Juan Plumbate and Chencho type ceramics. The similarity between Vassallo type ceramics and those in later phases, however, suggests that the type date to the end of the Early Classic or the beginning of the Late Classic. Vessel forms for Vassallo Fine are fairly distinct, comprising primarily of out leaning bowls and serving dishes. Jar forms are rare. Round bottoms with mammary form feet seem to be common.

Inclusion size: <.1 cm

Wall thickness: Thin, .4 to .6 cm

Paste Color: Pink (7.5 YR 7/4) to Reddish Yellow (7.5 YR 7/6)

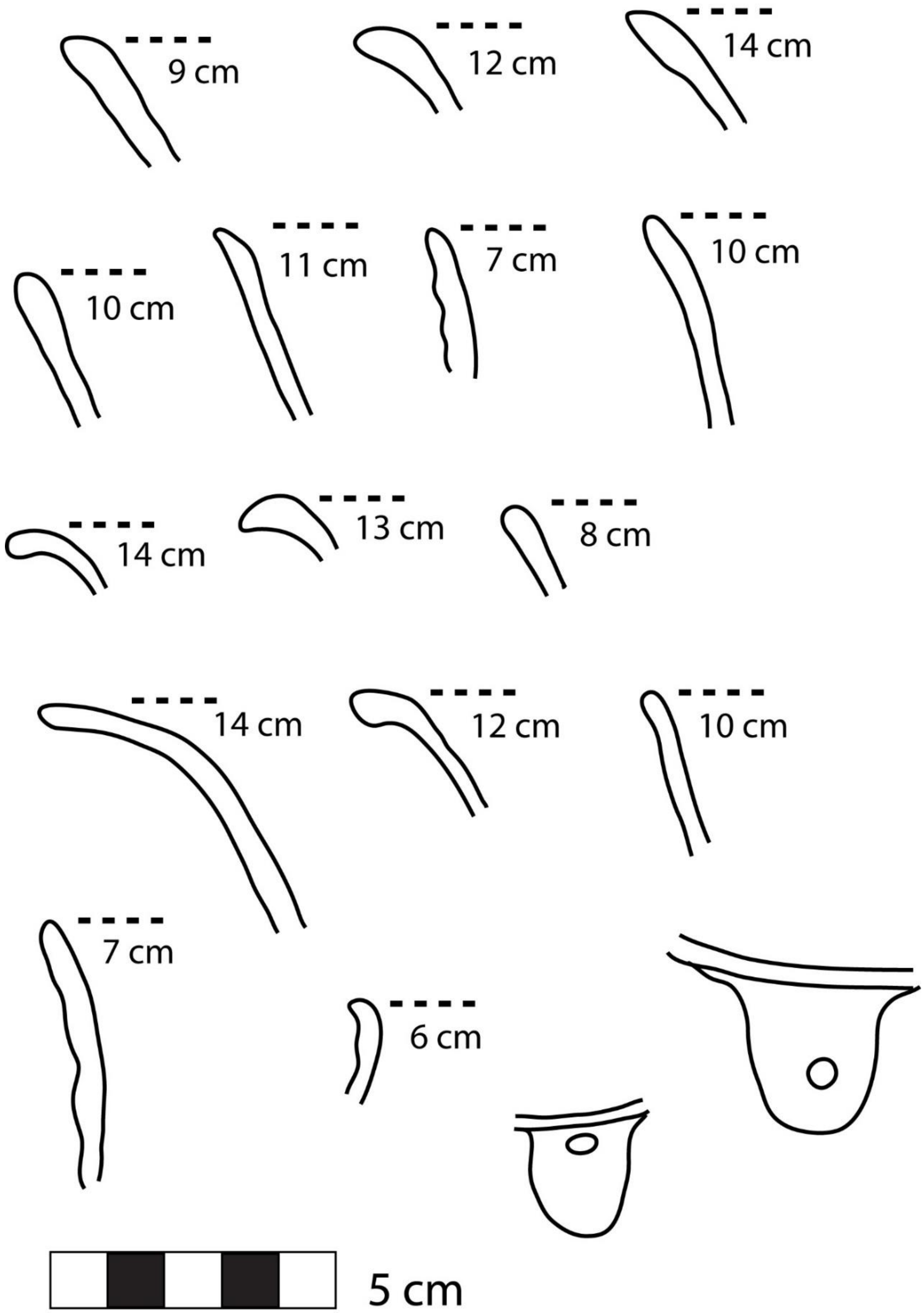
Surface treatment: Smoothed or Slipped

Form: Outleaning round bottomed bowls and dishes. Mammary feet.

Decoration: Red Slip (2.5 YR 4/6), White Slip (10 YR 8/4), Incised Decorated

Variants: Red Slip, White Slip, Incised Decorated

Vassallo Fine



Vassallo Fine

Vassallo Crude

Vassallo Crude constitutes a category of large closed bowls and dishes with hard orange pastes (5 YR 6/3). This type is not common, and likely represents large serving vessels. Some sherds have a cream slip (10 YR 8/3), although most are unslipped. As with Vassallo Fine, pastes are hard and non-friable. Vessel froms include closed bowls with round bottoms, and flat bottomed out-leaning dishes. Most sherds seem to come from relatively large vessels, possibly indicating the presentation of large amounts of food. As with Vassallo Fine, this type bears some similarities to the Piestal phase ceramics from Izapa, and likely dates to either the end of the Early Classic, or the beginning of the Late Classic periods at Fraccion Mujular.

Inclusion size: small, circa .1 cm

Wall thickness: medium, .6 to .8

Paste Color: Reddish Yellow (5 YR 6/3)

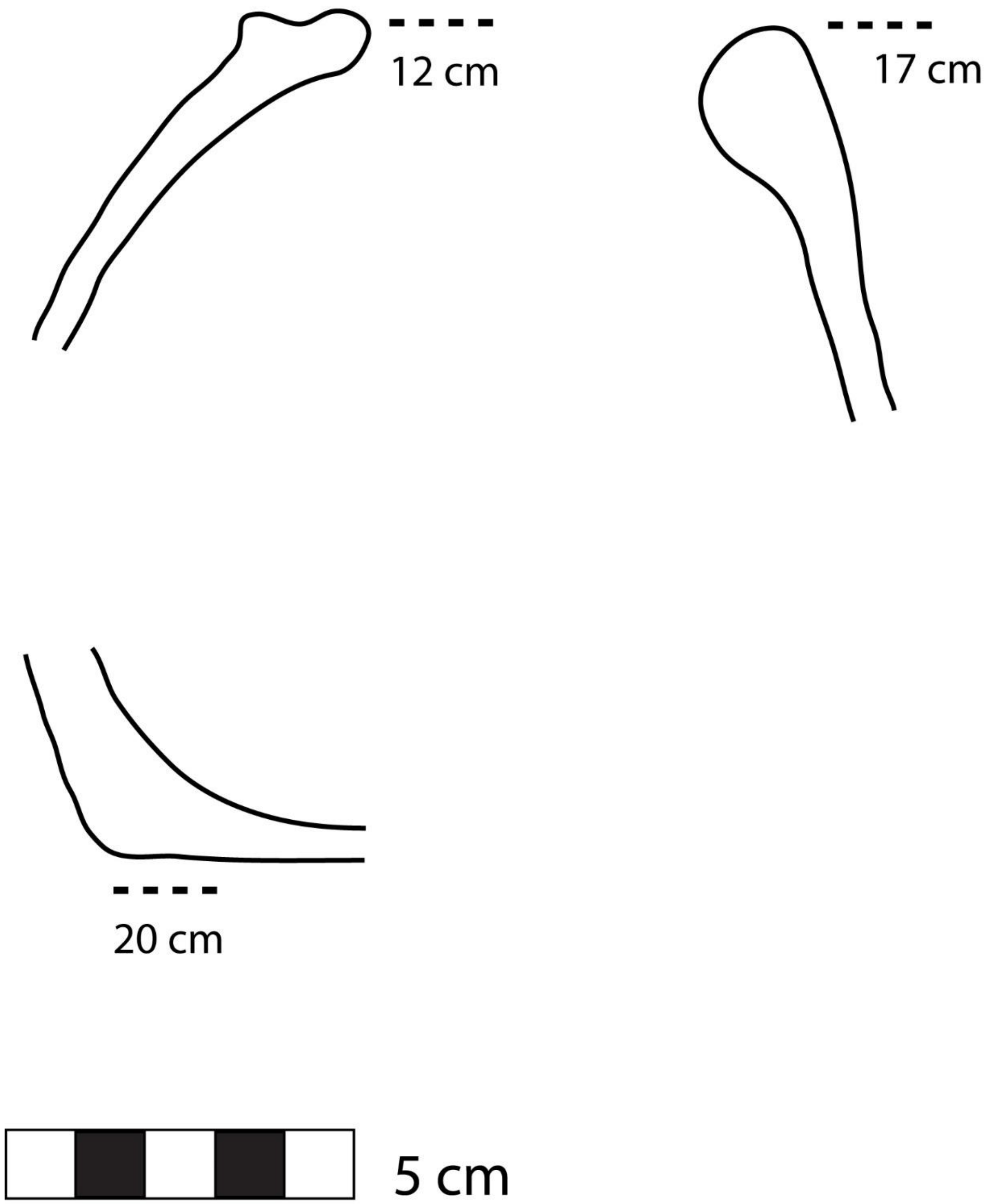
Surface treatment: Smoothed or Slipped

Form: Closed bowls or flat bottomed dishes

Decoration: appliqué, cream slip (10 YR 8/3)

Variants: Cream Slip

Vassallo Crude



Vassallo Crude

Vassallo Painted

Painted sherds are relatively rare at Fraccion Mujular. This category of painted sherds is characterized by thin and hard light reddish yellow (7.5 YR 7/4 to 7.5 YR 7/6) pastes, similar to those found in Vassallo Fine. Walls are thin, and almost all sherds seem to come from serving bowls. Many painted sherds are also incised decorated. All Vassallo Painted sherds are bichromes, generally with red paint being applied to an orange, cream, or buff background. This category represents a Terminal Classic painted ceramic tradition at Fraccion Mujular.

Inclusion size: < .1 cm

Wall thickness: Thin, .3 to .5 cm

Paste Color: reddish yellow (7.5 YR 7/4 to 7.5 YR 7/6)

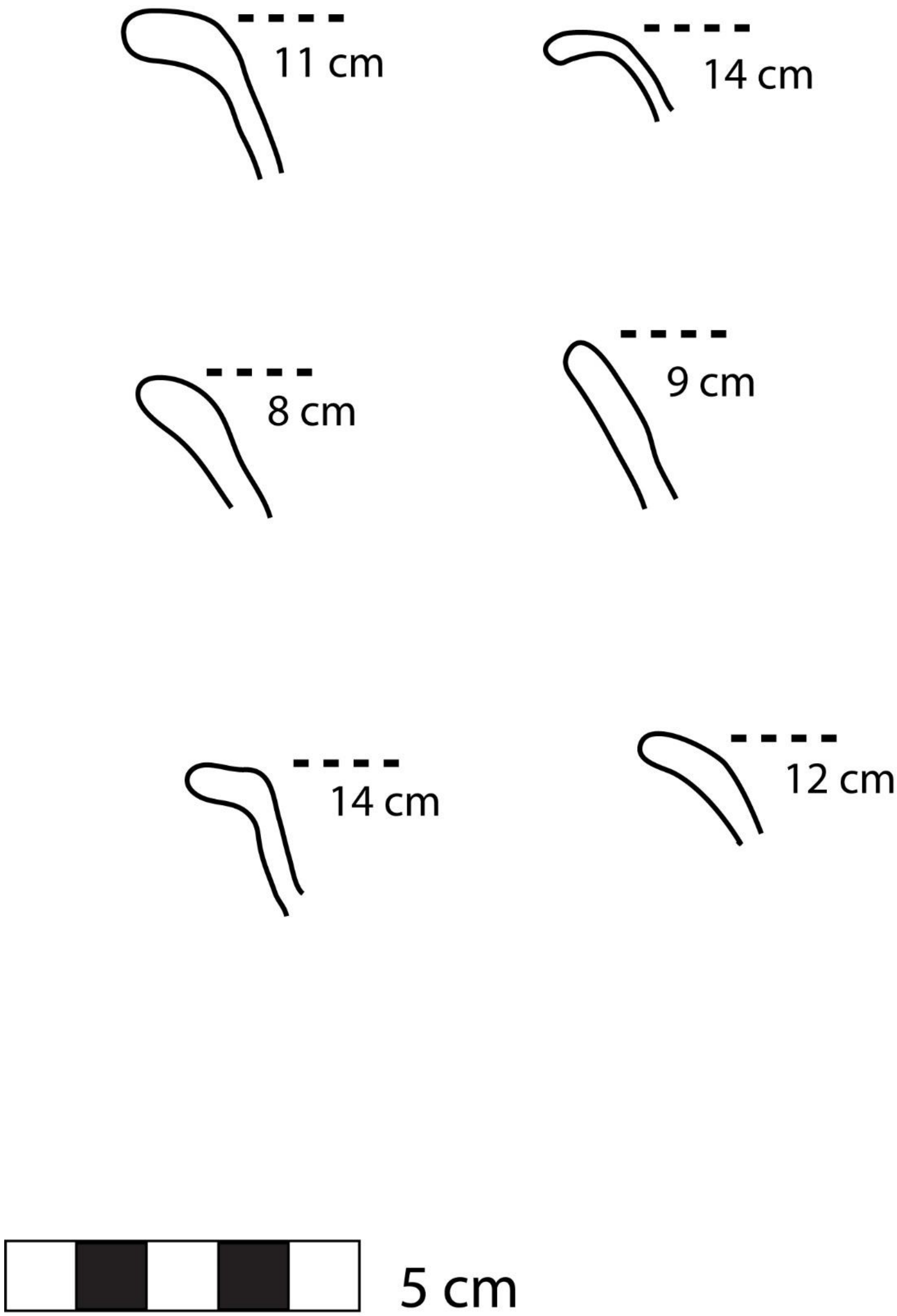
Surface treatment: Slipped, Painted

Form: Out leaning bowls

Decoration: Painted, Incised Decorated

Variants: Red on Cream, Red on Orange, Red on Buff

Vassallo Painted



Vassallo Painted Red on Orange

Oaxaca Grey

Greyware sherds are distinctive but very rare at Fraccion Mujular. They are hard and high-fired and are identified by their grey (10 YR 5/1 to 10 YR 4/1) paste. Inclusions are very rare and small if present. Unfortunately, due to a small sample size it is difficult to say much about vessel form, although one flat bottomed out-leaning basal sherd with a distinctive basal ridge was discovered. Sherds lack a slip or any other distinctive decoration. These sherds likely represent imports from Oaxaca (Possibly the Ventosa Grey tradeware type) or local imitations. Chronologically, these sherds seem to correspond to the Late Classic at Fraccion Mujular. It is notable that Oaxaca Greyware sherds are completely absent at Los Horcones. This might represent differing relations between Oaxaca and coastal Chiapas between the Early and Late Classic Periods.

Inclusion size: <.1 cm

Wall thickness: .5 to .6 cm

Paste Color: Grey (10 YR 5/1) to Dark Grey (10 YR 4/1)

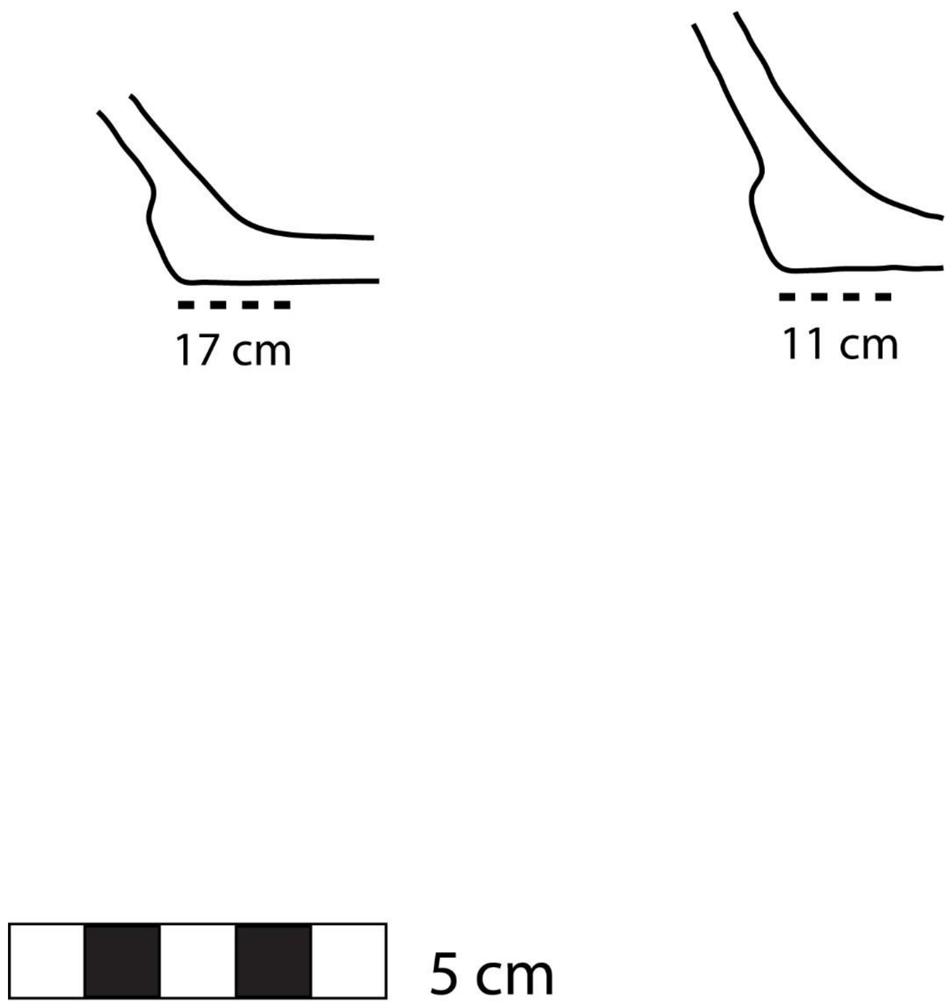
Surface treatment: Smoothed

Form: Unknown, but possibly flat bottomed bowls

Decoration: None

Variants: None

Oaxaca Grey



Oaxaca Grey

Plumbate

Plumbate is distinctive due to its fine appearance and hardness. Developed during the Late Classic on the coast of southern Chiapas and Guatemala, plumbate used reduction firing and clays high in aluminum and iron in order to produce hard, fine, and distinctive ceramic vessels that were traded throughout Mesoamerica. Plumbate is generally divided into two types. San Juan plumbate was produced during the Late Classic (600-900 CE), while the more widely traded Tohil plumbate was produced during the Terminal Classic and Early Postclassic (900 CE to 1200 CE). The main distinction between the two are the simpler forms of San Juan vessels, compared to the elaborate decorations often found on Tohil ceramics. Most of the Plumbate found at Fraccion Mujular is of the San Juan type, although one fragmented Tohil effigy jar was discovered in a surface collection unit, and some sherds of grey slipped Tohil plumbate were found in excavation in Group C east locus. Vessel forms are dominated by open, round-bottomed bowls, although some jar forms are also present. Wall thickness and vessel sizes seems fairly standardized. Most walls are about .5 to .6 cm in diameter, while most vessel diameters center around 20 cm. Some sherds are slipped, but not all. Plumbate sherds from Fraccion Mujular are most similar to those from the Piestal phase at Izapa, and were compared to Piestal phase collections at the New World Archaeological Foundation.

Inclusion size: Small <.1 cm

Wall thickness: Thin: .5 to .6 cm

Paste Color: Brown (7.5 YR 5/2), Reddish Yellow (7.5 YR 6/6), Very Pale Brown (10 YR 8/2)

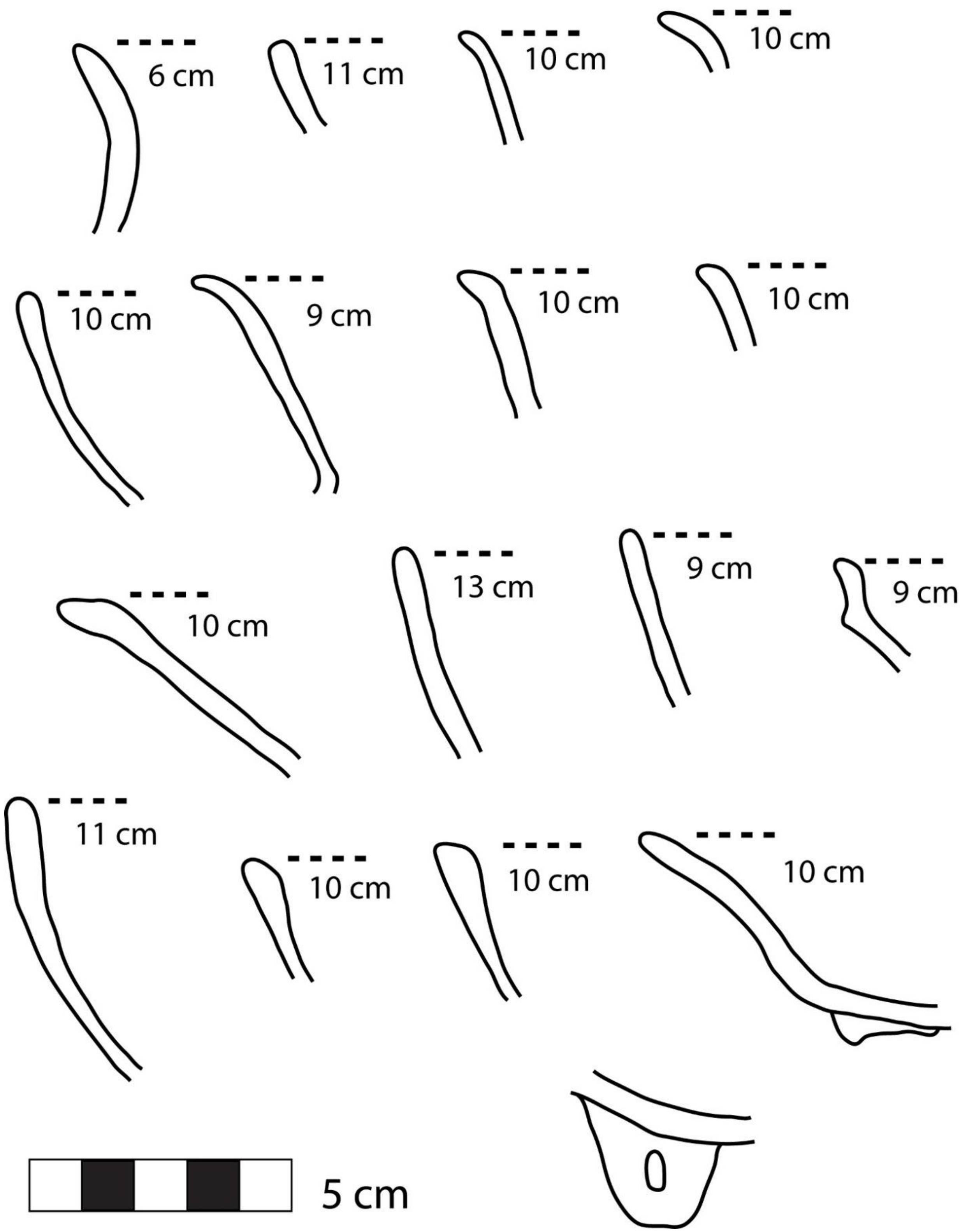
Surface treatment: Smoothed or slipped

Form: mainly open bowls, some jars

Decoration: Slipped: reddish yellow 5 YR 5/8 (San Juan) or dark grey 2.5 Y 4/1 (Tohil), incised decorated

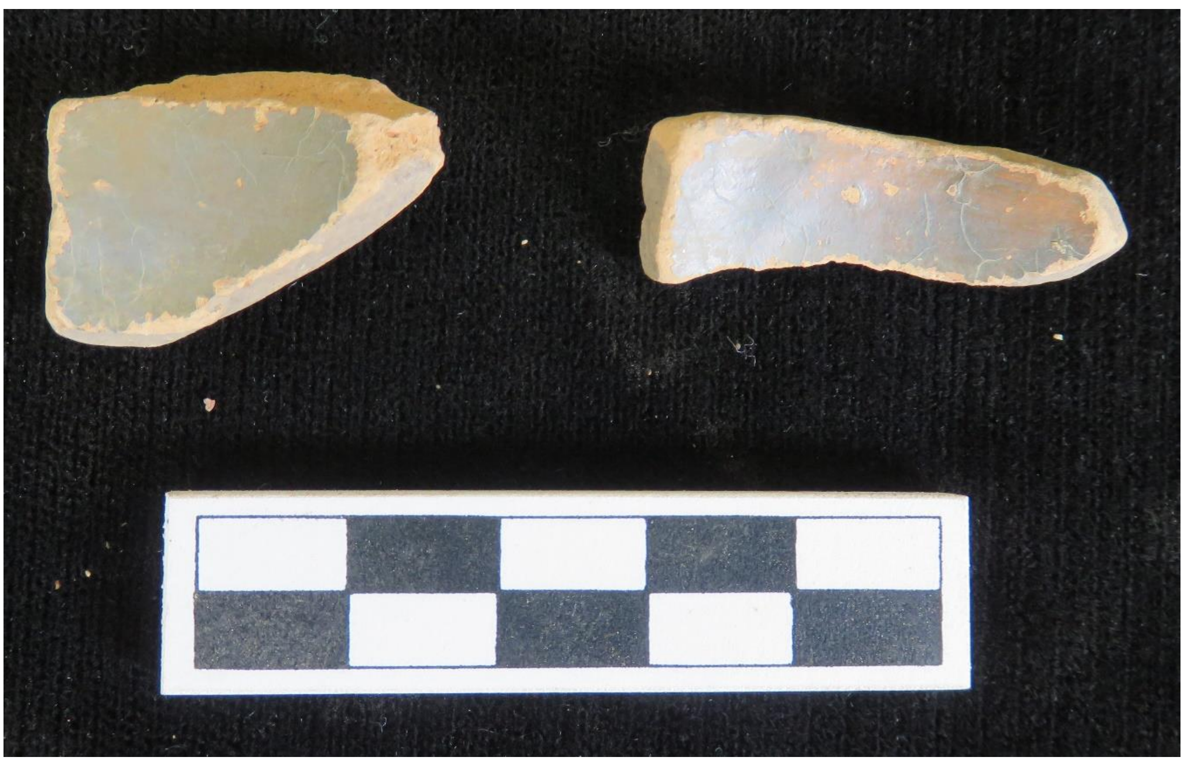
Variants: San Juan, Tohil, Red Slipped

Plumbate



6 cm
11 cm
10 cm
10 cm
10 cm
9 cm
10 cm
10 cm
10 cm
13 cm
9 cm
9 cm
11 cm
10 cm
10 cm
10 cm
5 cm

San Juan Plumbate



Tohil Plumbate

Ash Tempered Dish

Several large portions of a flat bottomed out-leaning serving dish was discovered in situ during excavations in lot 15 of Group C East, Structure 1, unit 1. This dish is distinctive due to its soft ash tempered paste. Past color is reddish yellow (7.5 YR 7/6), and there is evidence of a red (5 YR 5/8) slip, although due to the soft and friable nature of the paste this slip is in very poor condition. This vessel is also distinctive due to its form, with a large intact mammary form foot, 4.8 cm long and 5 to 6 cm in diameter. There were 11 fragments found from this vessel, of which 2 groups of 2 refit. The vessel was 30 cm in diameter.

Inclusion size: <.1 cm

Wall thickness: .5 to .6 cm

Paste Color: reddish yellow (7.5 YR 7/6)

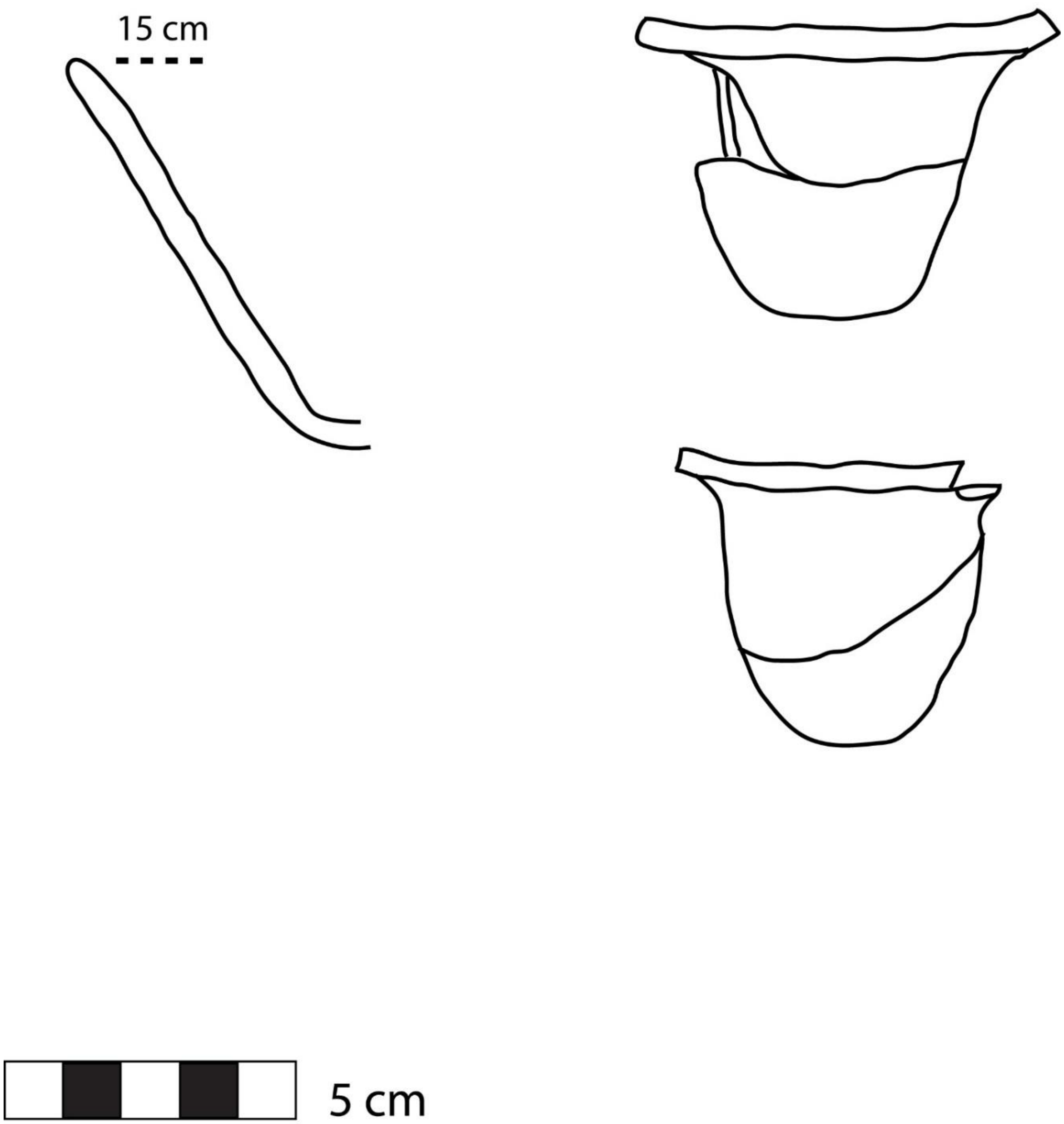
Surface treatment: Slipped red (5 YR 5/8)

Form: Flat bottomed outleaning dish with mammary feet

Decoration: None

Variants: None

Ash Tempered Dish



Ash Tempered Dish

Red Slipped Dish

A total of 48 fragments from a flat bottomed outleaning dish with small mammary feet were collected in situ during excavations in lot 15 of Group C East, Structure 1, unit 1. This vessel seems to have been fired at a low temperature, and has distinct banding on the exterior, middle, and interior sections of sherds due to differential temperatures. The exteriors of sherds are reddish yellow (5 YR 6/6), while the interiors are light brown (7.5 YR 6/4). Paste in the middle of sherd cross-sections is black to dark grey. Unfortunatly, despite the fact that 48 fragments were collected, these all come from the base of the vessel. Only a small section of the vessel wall (attached to a base sherd) is intact, which show the vessel was slipped red (2.5 YR 5/6) and incised on the exterior wall. The vessel likely represents a flat bottomed, outleaing serving dish. Feet are mammary form and lightly bulbous (3.2 cm diameter near attachment to vessel, 3.5 cm further down). Feet were likely around 3.5 to 4 cm long, although non were recovered completely intact.

Inclusion size: <.1

Wall thickness: Thin: .3 to .6 cm (most around .3 or .4)

Paste Color: reddish yellow (5 YR 6/6) to light brown (7.5 YR 6/4)

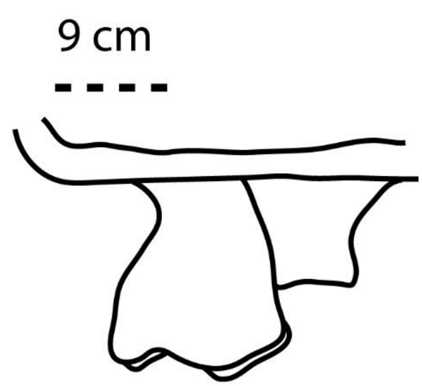
Surface treatment: bottom is smoothed, sides slipped and incised

Form: Flat bottomed dish with mammary feet

Decoration: Slipped red (2.5 YR 5/6), and incised

Variants: none

Red Slipped Dish



Red Slipped Dish

Postclassic Types

Pochota Fine

This is a category of fine ceramic vessels distinguished by their light colored white to orange pastes and thin walls. They are relatively hard and were fired at a high temperature. Paste is fine and well sorted, with few inclusions. Most of these sherds come from open or closed serving bowls, although some plate and jar forms are also present. Vessel diameters range from 44 cm (open bowl forms) to 10 cm (jar forms). Some bowls and dishes exhibit small appliqué feet. Sherds exhibit a range of different decorations. Most common is a pinched appliqué pattern below the rim of the vessel, similar to that found on many other ceramic vessels at Fraccion Mujular and on Cerro Bernal. Some sherds have a red slip, although unslipped sherds are more common. Another rare form of decoration is a white wash. A few sherds are also incised, wither with thin lines below the rim, or with cross-hatched patterns, although the later is rare. Some sherds are blackened on the interior, possibly due to differential firing or use for cooking. Pochota Fine is most similar to the Acapetahua Fine type, defined by Voorhies and Gasco (2004:151-155) for the Post Classic Soconusco. A marked difference between Acapetahua Fine and Pochota Fine is the distinct lack of *pinchanchas* or *comales* in the later group, both of which are common forms for Acapetahua Fine. This type seems to date to the Late Postclassic.

Inclusion size: Fine < .1 cm

Wall thickness: Thin: .4 to .8 cm

Paste Color: Very Pale Brown 10 YR 8/2 to Reddish Yellow 5 YR 6/6

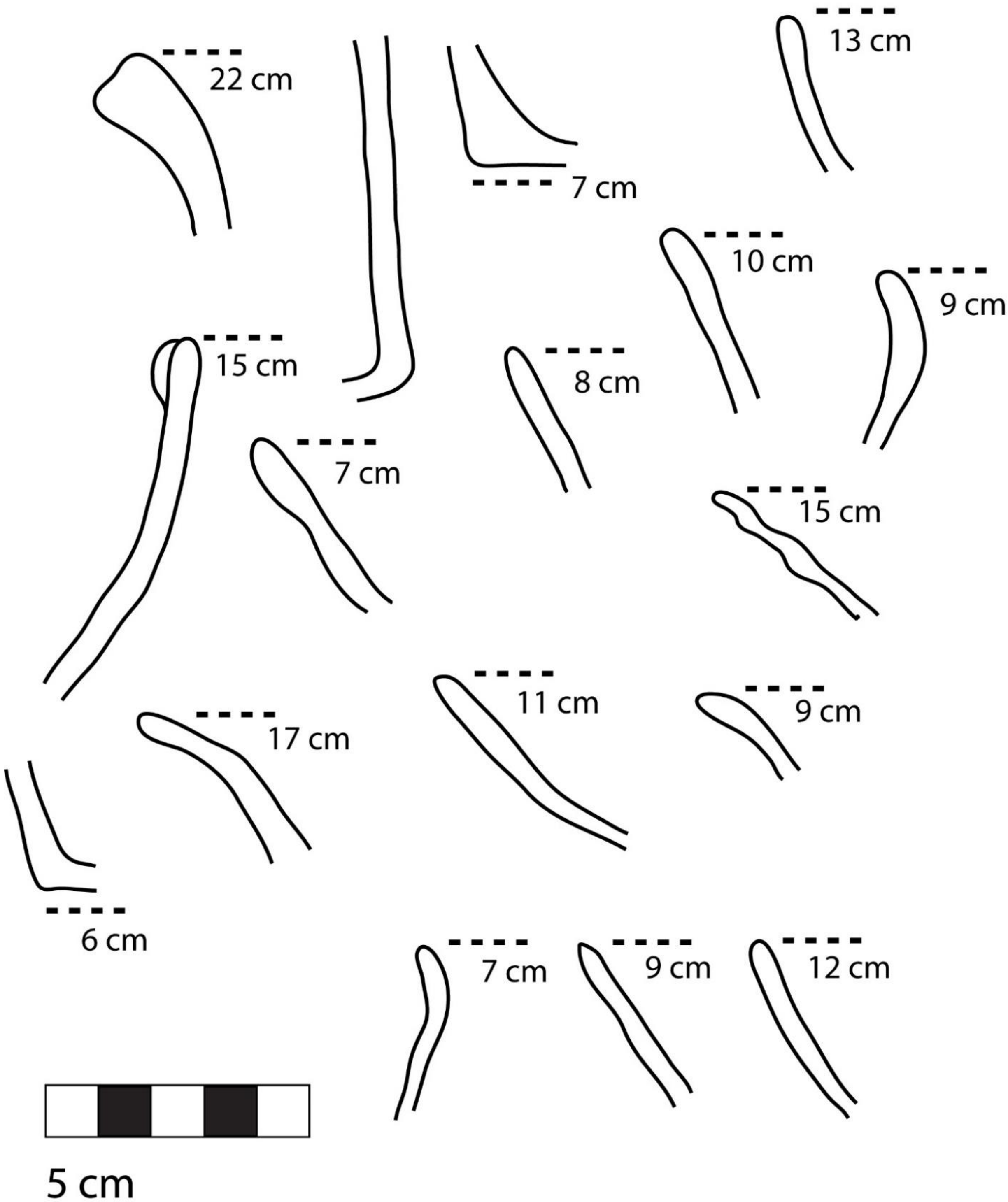
Surface treatment: Smoothed, Red Slip (Dark Red 2.5 YR 3/6 to Light Red 2.5 YR 6/8), White Slip 10 YR 8/3

Form: Open and Closed Bowls, Necked Jars, Open Plates

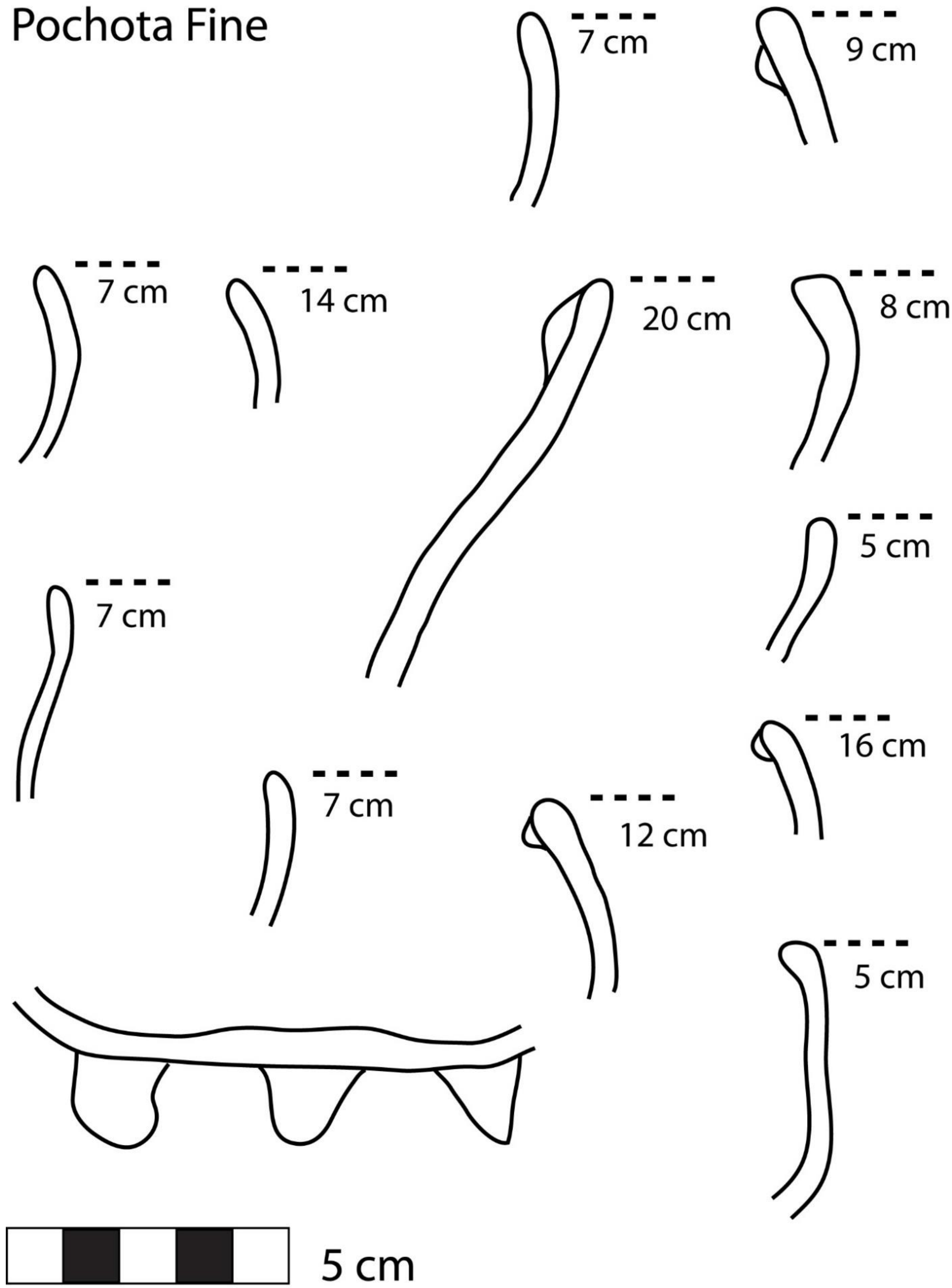
Decoration: Appliqué, Incised

Variants: Incised, Red Slip, White Wash

Pochota Fine



Pochota Fine



Pochota Fine

Pochota Buff

This is a large category of utilitarian ceramics likely dating to the Post Classic. They are distinguished by coarse and sometimes poorly sorted temper and the lack of a slip. Unlike the similar Pochota Crude type, Pochota Buff vessels generally have smoothed surfaces and, although large inclusions are present, they tend to be rare. Some sherds are burnished. Compared to Pochota Fine, temper, wall, and vessel sizes are much larger. Furthermore, paste tends to be softer that that found in Pochota Fine, indicating a lower firing temperature. This is a utilitarian type, and vessel forms are dominated by storage jars, cooking pots, and large serving vessels. Vessel diameters range from 8 cm to 44 cm. By a considerable margin, Pochota Buff is the most common ceramic type found in Group D at Fraccion Mujular. The type is most similar to Acapetahua Course, defined by Voorhies and Gasco (2004:145-151) for the Late Postclassic Soconusco. As with the Pochota Fine type, a major difference between the Acapetahua and Pochota ceramics is the distinct lack of *comales* or *pinchanchas* in the latter category. Another difference between Acapetahua Crude and Pochota Buff is the rarity of straight sided long-necked jars in the latter type; such vessels at Fraccion Mujular seem to primarily fall into the Pochota Fine category. A large number of non-slipped incised decorated sherds are included in this category as a variety. Some of these incise decorated sherds could probably constitute separate types, but are lumped here due to the lack of a slip and similarities in paste.

Inclusion size: .1 to .3 cm, most closer to .1

Wall thickness: .5 to 1.2 cm

Paste Color: Reddish Yellow 5 YR 5/6, Light yellowish brown 10 YR 6/4, light brownish grey 10 YR 6/2

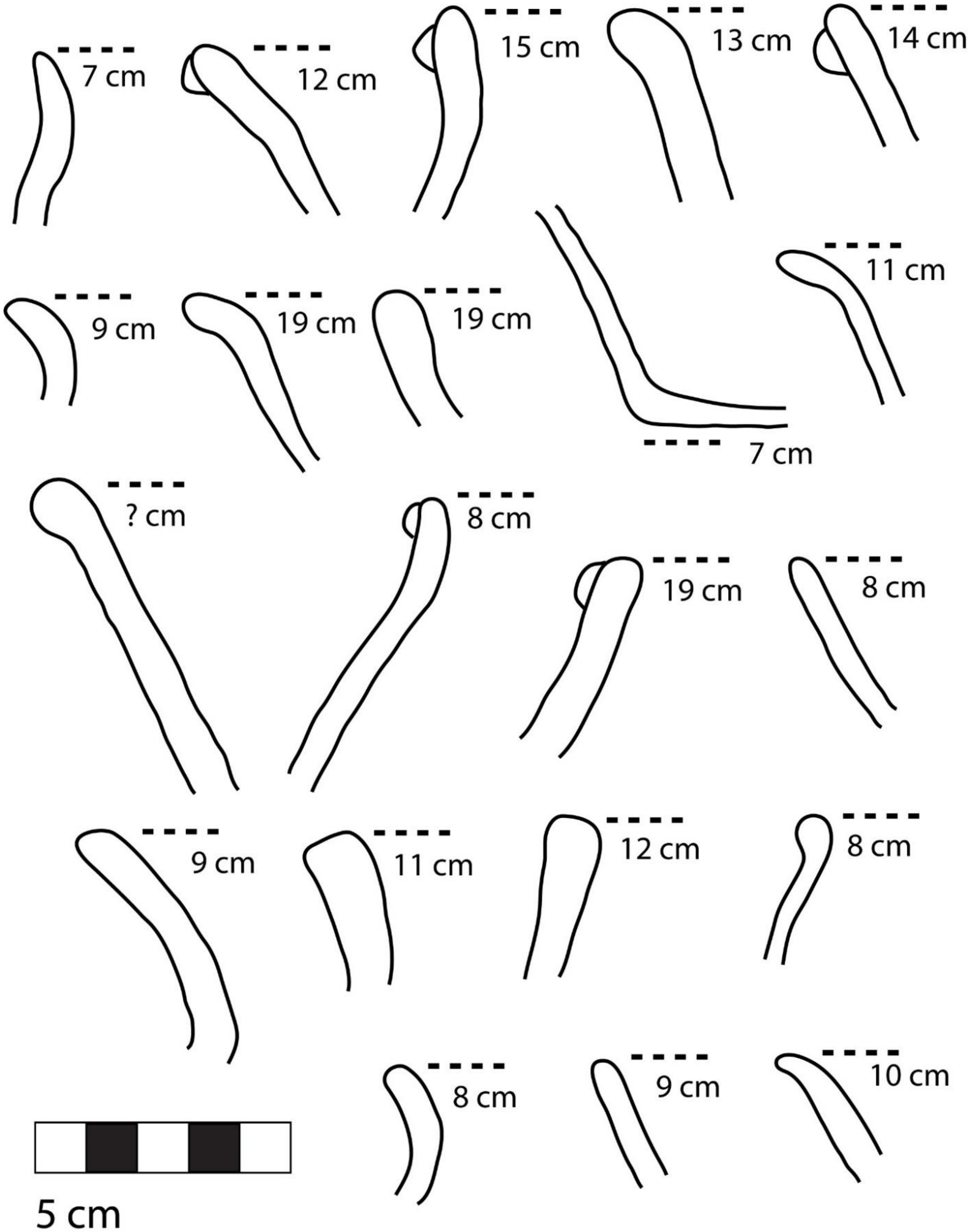
Surface treatment: Smoothed or burnished, sometimes one side left rough

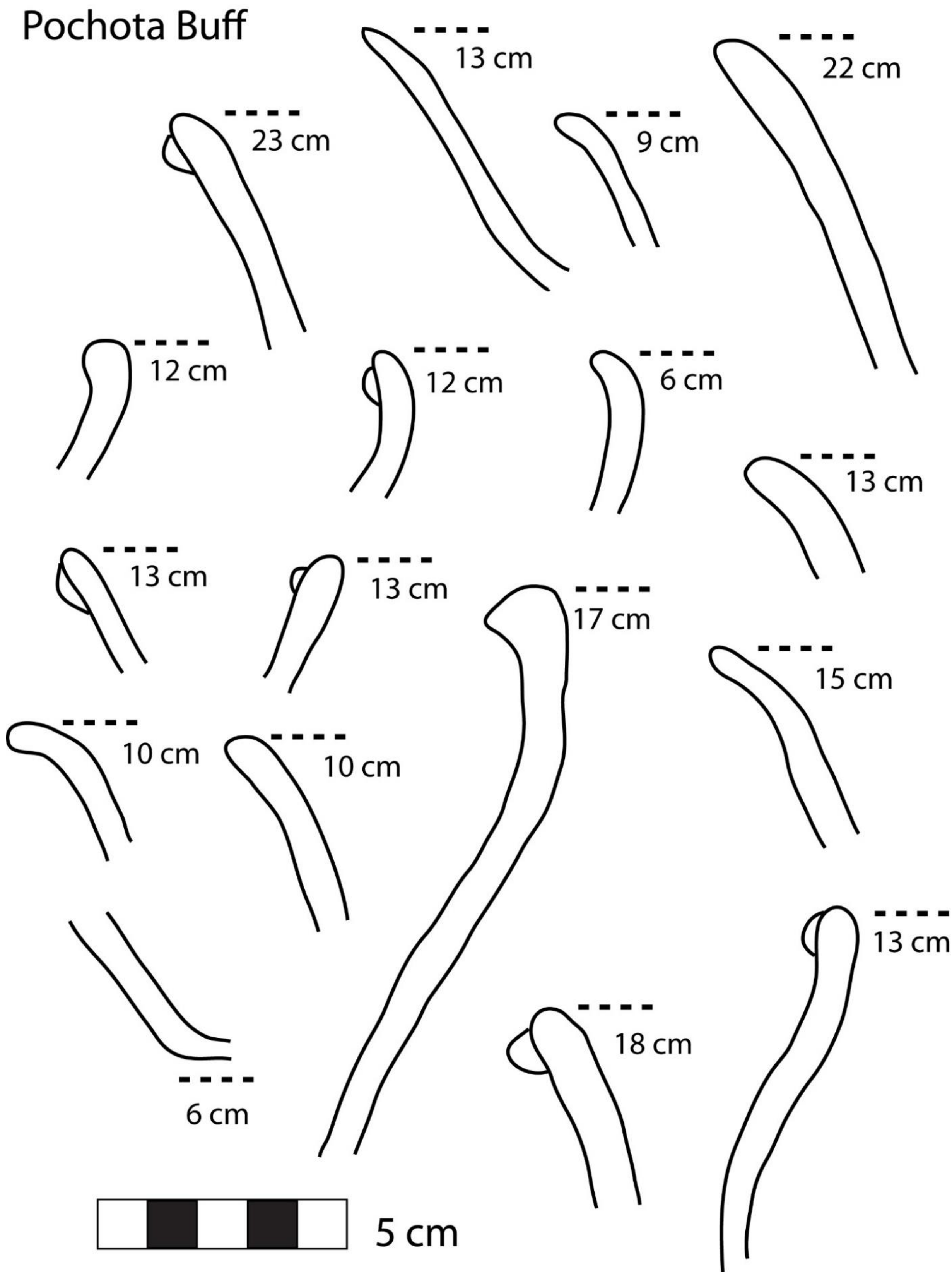
Form: Open and closed bowls, Serving plates, Jars

Decoration: Incised, Appliqué

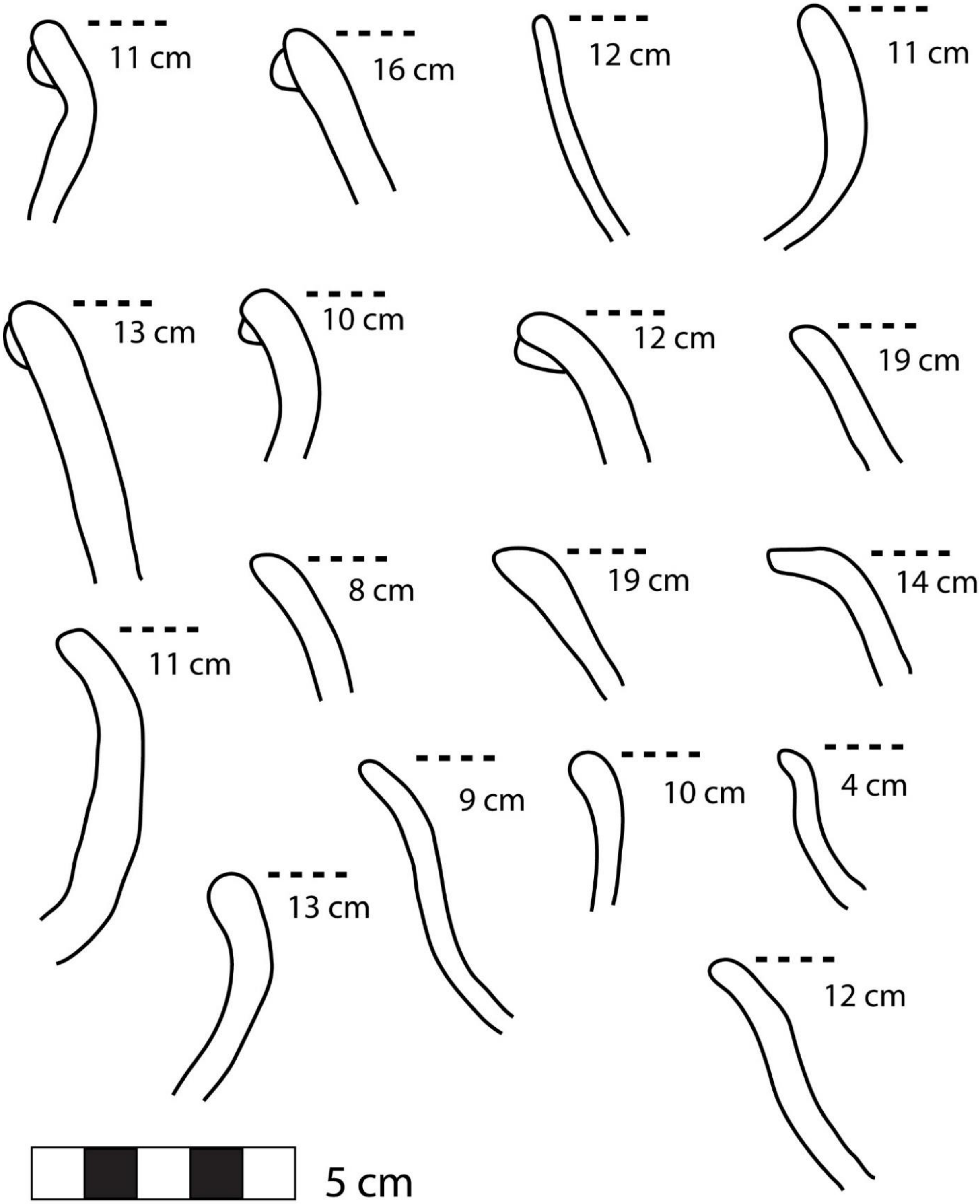
Variants: plain, Incise decorated

Pochota Buff




Pochota Buff
13 cm
22 cm
23 cm
9 cm
12 cm
12 cm
6 cm
13 cm
13 cm
13 cm
17 cm
15 cm
10 cm
10 cm
13 cm
18 cm
6 cm
5 cm

Pochota Buff



Pochota Buff

Pochota Painted

This is a category of bichrome and painted sherds found at Group D at Fraccion Mujular. The paste and ware of the ceramics corresponds closely to the Pochota Fine category. Pastes are light colored white to orange, are hard and high-fired, with few inclusions of a small size. There is a lot of variation within this group with respect to decoration, and additional splitting is likely warranted. Unfortunately, due to a small sample size of bichrome and painted sherds, they were lumped together into this modal category. Painted patterns are generally broad and circular geometric designs, generally using dull red or beige pigments. Red paint on an orange to beige background, or on buff, is most common. Other examples exhibit beige on black, or black on buff. One common decoration is for a line of red, or more rarely black, paint to be applied either on or below the rim of a vessel. Vessel diameters range from 12 cm to 32 cm.

Inclusion size: Fine < .1 cm

Wall thickness: .5 to .8 cm

Paste Color: white 7.5 YR 8/1 to pink 7.5 YR 8/4

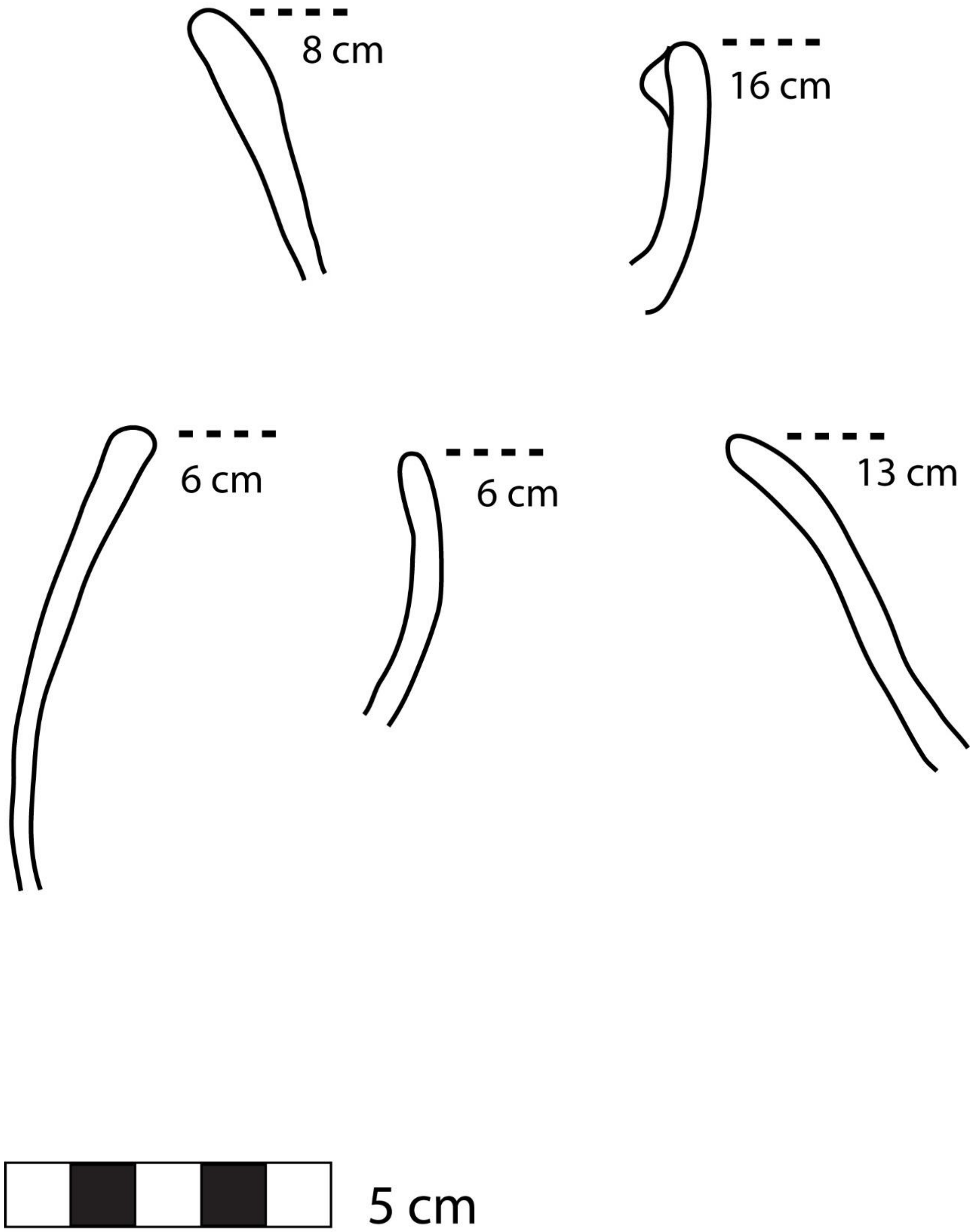
Surface treatment: Orange slip (7.5 YR 6/8), Black paint (5 YR 2.5/1), Red paint (5 YR 4/6)

Form: Open and closed Jars, necked bowls

Decoration: Painted, Incised

Variants: Red on Buff, Black on Orange, Black on Buff

Pochota Painted



Pochota Painted Black on Orange

Pochota Painted Black on Buff

Pochota Painted Red on Orange

Pochota Red

This type is defined by utilitarian bowls and jars decorated with a dull red slip. Temper is relatively course and poorly sorted. Occasional large inclusions are present, but rare. This type is very similar to Pochota crude, and is distinguished from the former type primarily due to the presence of a slip. In some cases the past seems to be finer than average for Pochota crude, although this falls within the range of variation found in the later type. Pochota Red is not a common type at Fraccion Mujular, although its rarity may be due to the fact that slips seem to be poorly preserved. It is noteworthy that in Voorhies and Gasco's typeology (2004) this type would likely fall into the group of Acapetahua Course, which includes both slipped and unslipped sherds. Most slips are a dull red color, although a red specular hematite slip is also included in this category. Some sherds are slipped on both sides, while others are slipped only on the interior.

Inclusion size: .1 to .2 cm

Wall thickness: .5 to 1.2 cm

Paste Color: Reddish Yellow 5 YR 5/6, Light yellowish brown 10 YR 6/4, light brownish grey 10 YR 6/2

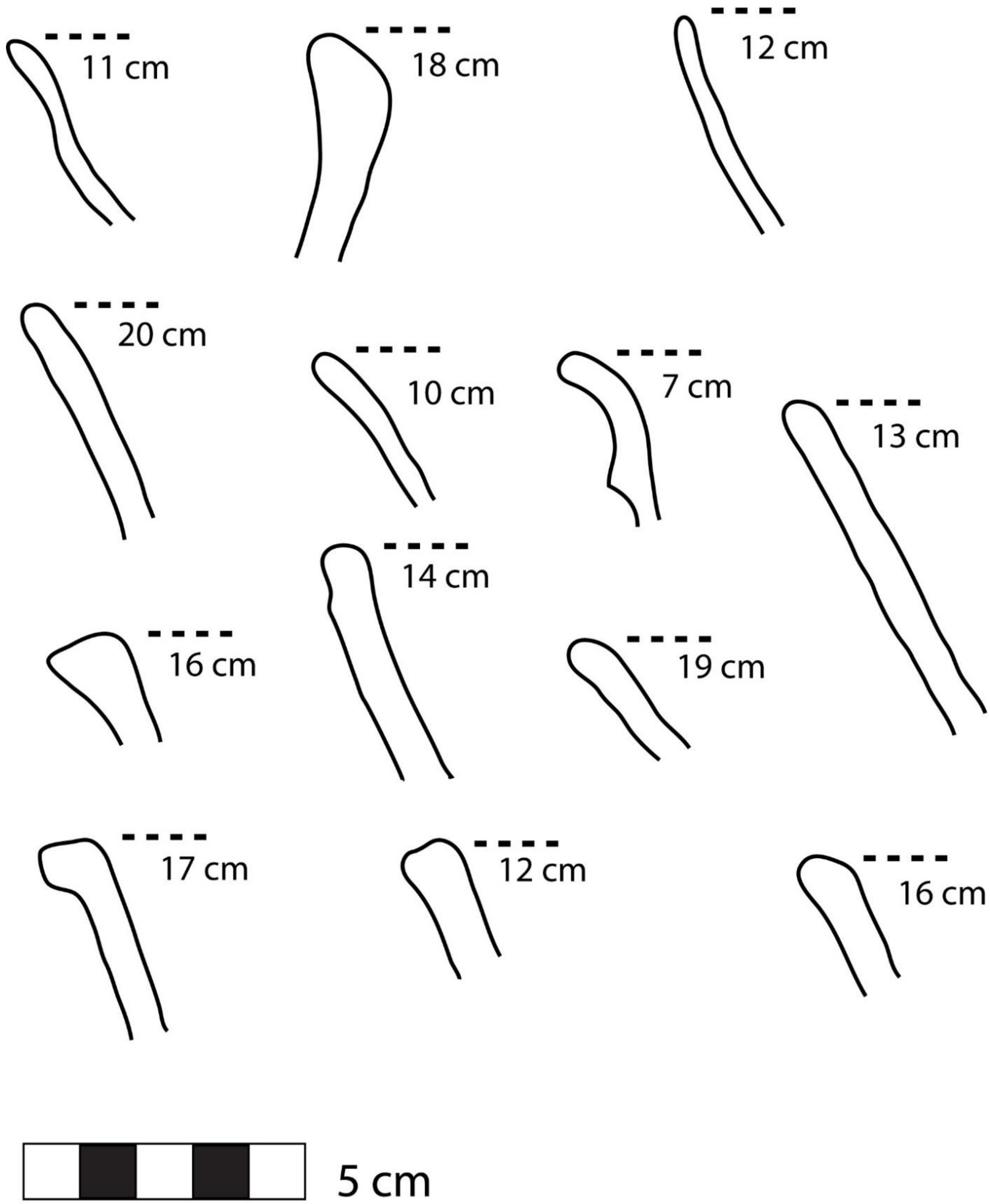
Surface treatment: Slipped

Form: Jars and Bowls

Decoration: Red Slip, incised

Variants: Dull Red, Hematite

Pochota Red


11 cm
18 cm
12 cm
20 cm
10 cm
7 cm
13 cm
14 cm
16 cm
19 cm
17 cm
12 cm
16 cm
5 cm

Pochota Red

Pochota Crude

This is a utilitarian type characterized by crudely made jars and bowls with large inclusions and un-smoothed surfaces. This type is similar to Pochota Buff, but is distinguished by a lack of smoothed surfaces, larger sized temper, and a more friable texture that is often gritty to touch. Paste is also redder in color compared to Pochota Buff, although there is some overlap. Temper is poorly sorted and often large in size, up to and including small gravel. Vessels are generally large, with diameters ranging from 20 to 30 cm. It is likely that these vessels were used for utilitarian storage and possibly cooking purposes. This type may be similar to Acapetahua Gritty, defined by Voorhies and Gasco (2004:156) for the Late Postclassic Soconusco. That type was predominantly defined by a single vessel, however, so comparison may be difficult. Like other ceramics types defined from Group D materials, Pochota Crude is a Late Postclassic ceramic type.

Inclusion size: Large, .1 to .5 cm

Wall thickness: .8 to 2.6 cm (most around 1 cm)

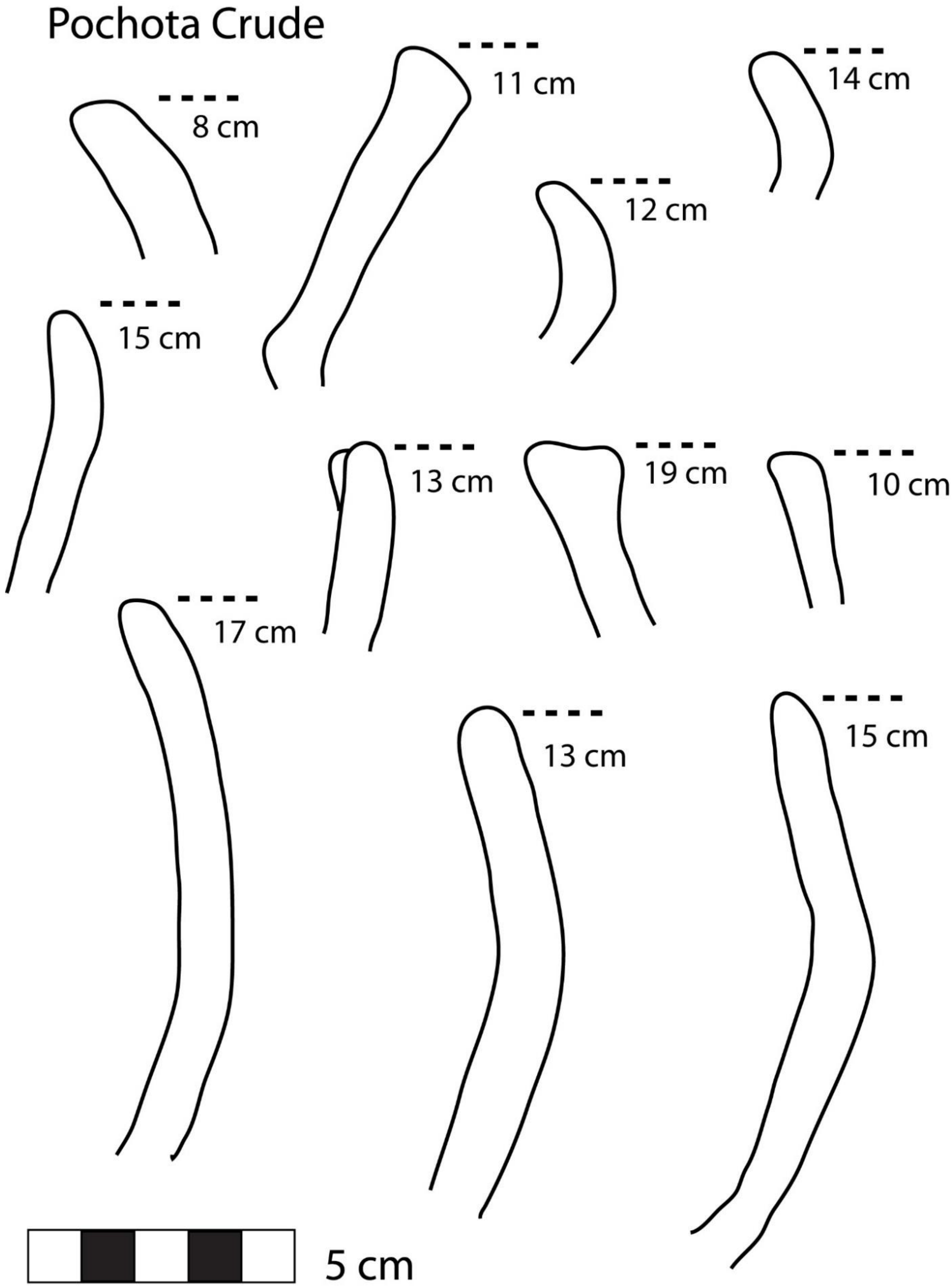
Paste Color: Reddish Yellow 5 YR 6/6, Red 2.5 YR 5/6, Reddish Brown 5 YR 5/4

Surface treatment: Rough and unsmoothed

Form: Jars, outleaning bowls

Decoration: Appliqué

Variants: none


Pochota Crude
8 cm
11 cm
14 cm
12 cm
15 cm
13 cm
19 cm
10 cm
17 cm
13 cm
15 cm
5 cm


Pochota Crude

Fine Red on White

This is a rare category of sherds from Group D at Fraccion Mujular that are characterized by a white wash covered with red paint. Although only defined by two sherds, neither of which comes from a rim, this type seemed distinctive enough from Pochota Painted to separate it as a separate type. The paste is fine and seems high-fired, similar to that found in Pochota Fine. The main defining character is the white wash, which is lacking in Pochota Painted. A single rim sherd comes from an outleaning bowll. This type may be similar to the Red-Brown on Cream category defined by Voorhies and Gasco (2004:168-169), which is also very rare in their materials.

Inclusion size: Fine < .1 cm

Wall thickness: .5 cm

Paste Color: Reddish Yellow 7.5 YR 6/6

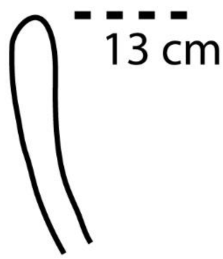
Surface treatment: Slipped and painted

Form: Bowls

Decoration: Slip and paint

Variants: None

Fine Red on White



Fine Red on White

Ash Tempered Crude

This is a rare category of highly friable sherds with a soft, ash tempered paste. Their soft paste and yellowish paste color are their primary distinguishing characteristics. They seem most similar to Pochota Crude, although a small sample size limits comparisons. Paste is firable to the touch. Some inclusions are present, although they are poorly sorted. Some sherds exhibit appliqué decoration. Unfortunatly, due to the small sample size and poor preservation it is difficult to further distinguish this group.

Inclusion size: .1 to .2 cm, but rare

Wall thickness: .5 to .8 cm

Paste Color: Reddish Yellow 5 YR 6/8 to 7.5 YR 7/6

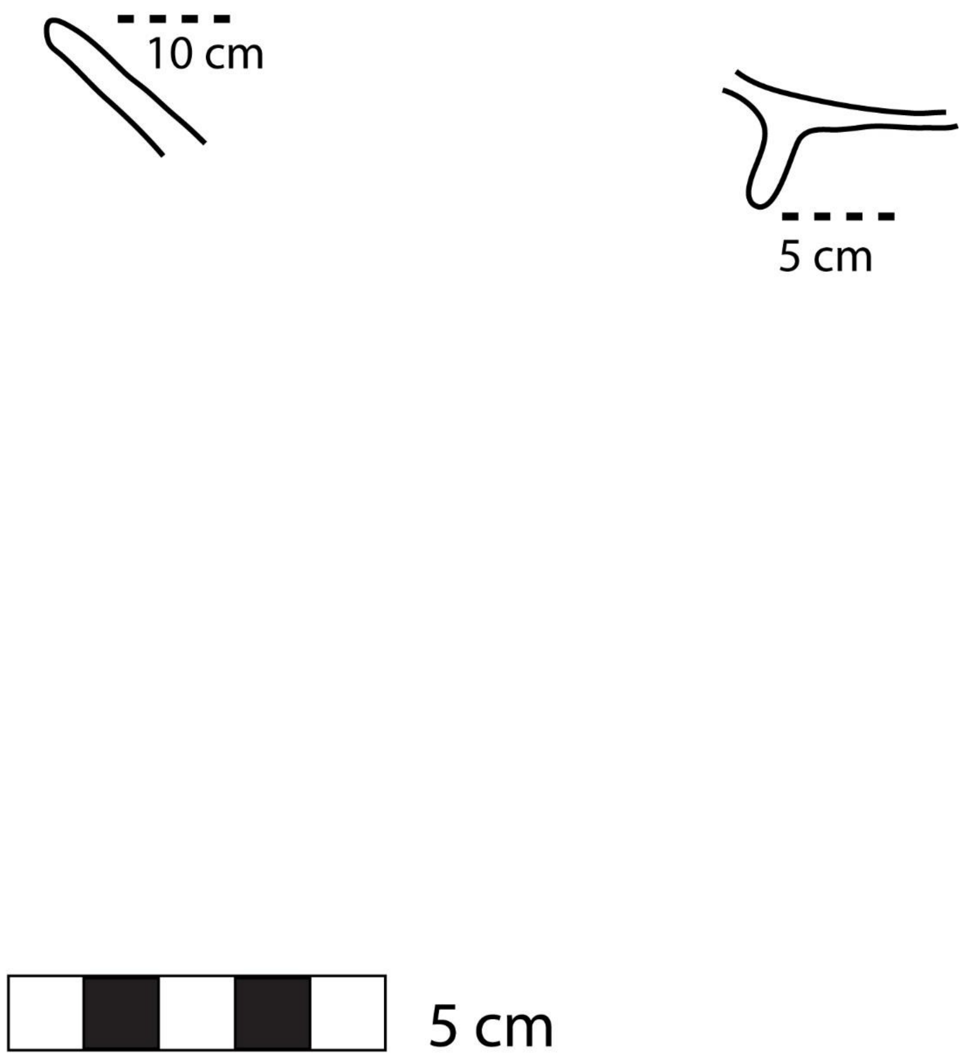
Surface treatment: Smoothed, Rough

Form: Jars and Bowls

Decoration: Appliqué

Variants: None

Crude Ash



Ash Tempered Crude

Chronologically Undesignated Types

Vibrant Red

These sherds are distinguished by their glossy bright red or bright red-orange slips. Although very rare, the bright color of their slips sufficiently distinguishes them from other dull-red slipped vessels to warrant a separate type designation. Slips are glossy to the touch, and seem to be thickly applied. Pastes are also very fine, with few inclusions, and seem to be well fired. Walls are generally thin. Vessel forms tend to be either out leaning bowls or plates. Most sherds are slipped on both sides, usually with the same color but sometimes with a lighter red/orange on the interior. This type is most similar to Pochota Fine, especially the red sliped variety of that type. All sherds seem to come from serving dishes, mainly from flat bottomed serving trays, although some bowl forms may also be present. Vibrant Red seems to constitute a category of serving vessels. Although most material from Group D dates to the postclassic, it is notworthy that Vibrant Red is much more common in deeper excavation levels than it is on the surface.

Inclusion size: <.1 cm

Wall thickness: thin, .3 to .7 cm

Paste Color: Yellowish Red 5 YR 5/6

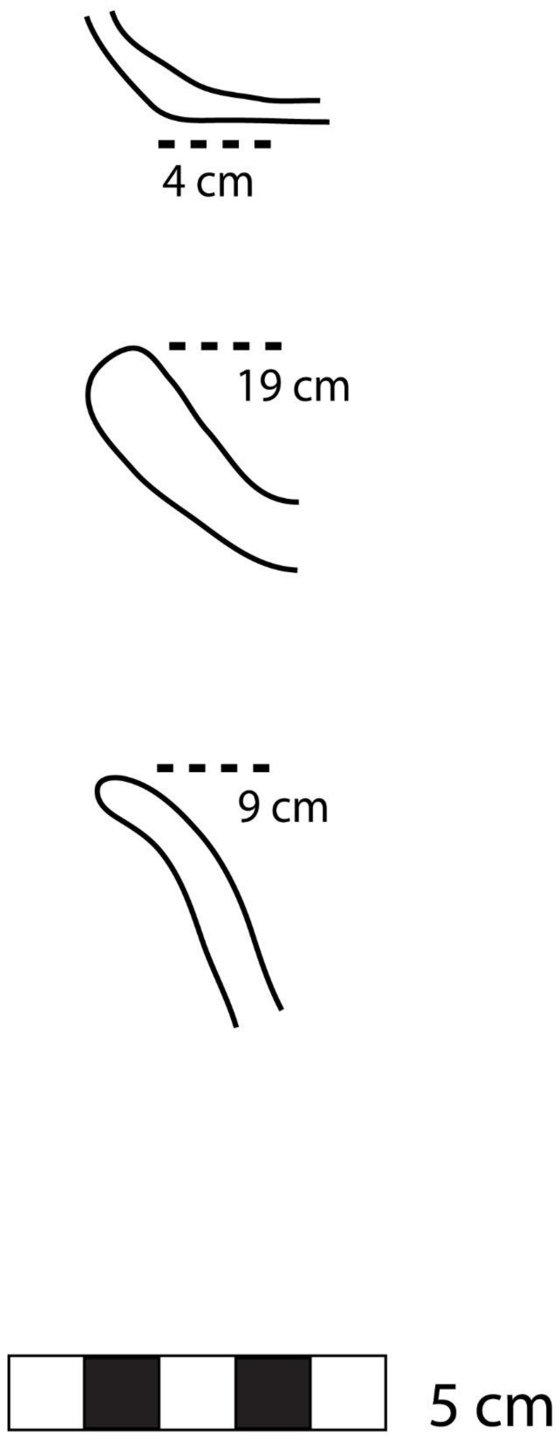
Surface Treatment: Glossy slip: Red 2.5 YR 5/8, 2.5 YR 4/8, 2.5 YR 4/6

Form: Bowl or dishes

Decoration: None

Variants: None

Vibrant Red



Vibrant Red

Black Slipped Vessels

Black slips are extremely rare in the assemblage from Los Horcones. The black slips that do occur are burnished and seem to occur on vessels with fine paste. Inclusions are rare and well sorted. Unfortunately, no black slipped rim sherds have been found, so it is difficult to describe vessel form. One black slipped body sherd that was found is decorated with two wide ribs and seems to come from an inleaning bowl.

Inclusion size: <.1 cm

Wall thickness: .35 to . 5 (on ribs)

Paste Color: Brown 7.5 YR 5/3

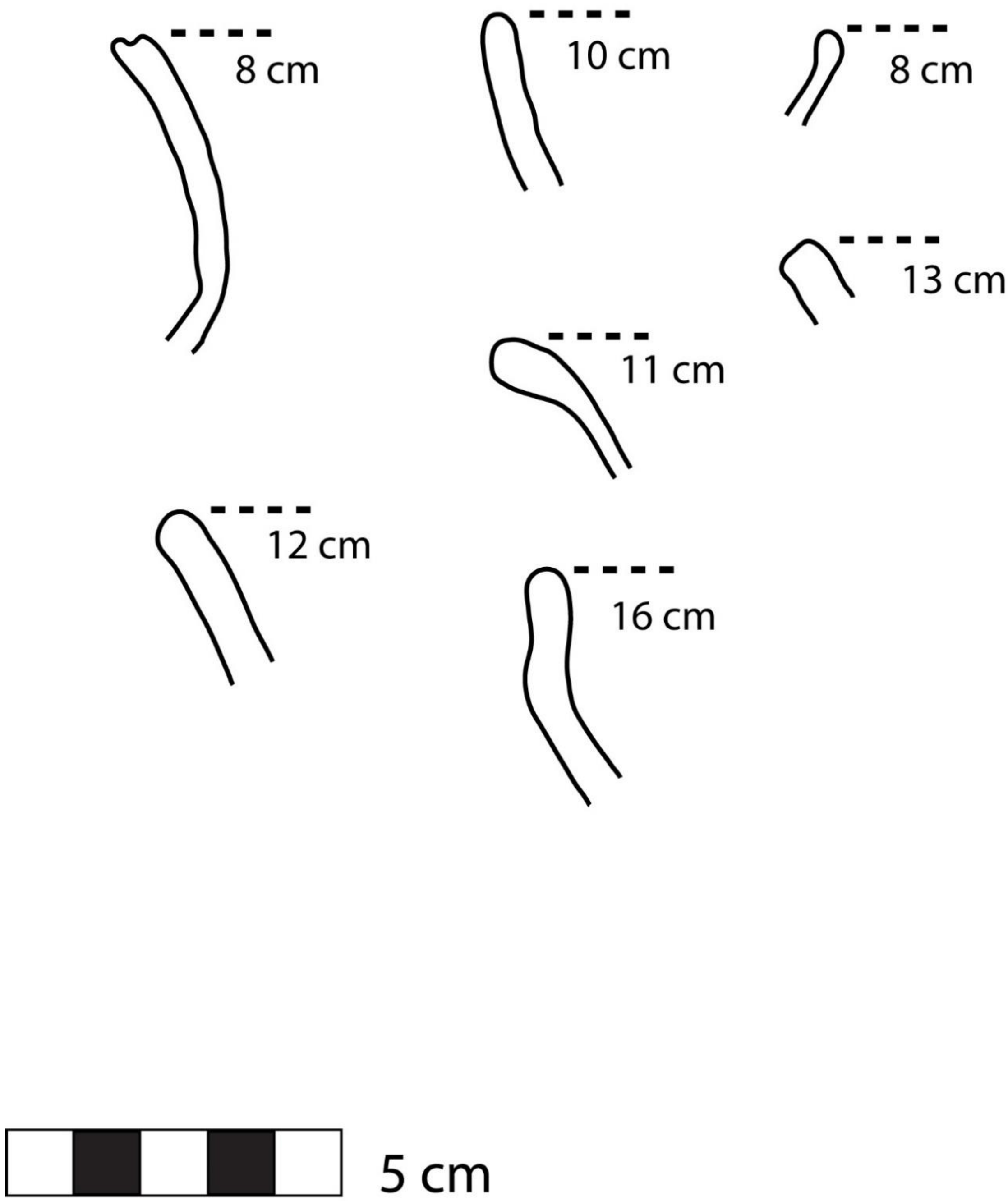
Surface Treatment: Black Slip 7.5 YR 2.5/1

Form: Bowl

Decoration: Ribbed

Variants: None

Black Slip



Black Slipped Sherd

Grey Slipped Incised

Two very distinctive sherds were uncovered from lot 13 of Group D structure 5, unit 1. These sherds are very likely to have come from the same vessel. Both sherds are characterized by a light grey slip (10 YR 7/2) on the exterior, and light darkening on the interior. The larger of the two sherds has very distinctive incision carving on the exterior. As these sherds did not fit into any other defined category, they were given a separate modal description.

Inclusion size: <.1 cm

Wall thickness: thin, .3 cm

Paste Color: Reddish Yellow 7.5 YR 6/6

Surface Treatment: Light Grey Slip 10 YR 7/2 on exterior, darkened on interior

Form: Unknown

Decoration: Incised with circular and rectilinear patterns

Variants: None

Grey Slipped Incised

White Slipped Incised

Five very distinctive sherds were uncovered from lot 13 of Group D structure 5, unit 1. These sherds are very likely to have come from the same vessel. They are characterized by a white slip on the exterior (10 YR 8/2), and a burnished red interior color. The exterior is incised with a distinctive rectilinear pattern. One basal sherd was found, which indicates that these sherds came from a flat bottomed vessel with slightly out leaning sides and a base radius of 6 cm. As these sherds did not fit into any other defined category, they were given a separate modal description.

Inclusion size: <.1 cm

Wall thickness: thin, .4 cm

Paste Color: Red 2.5 YR 5/6

Surface Treatment: Exterior is slipped with a cream white 10 YR 8/2. Interior is burnished red

Form: Unknown

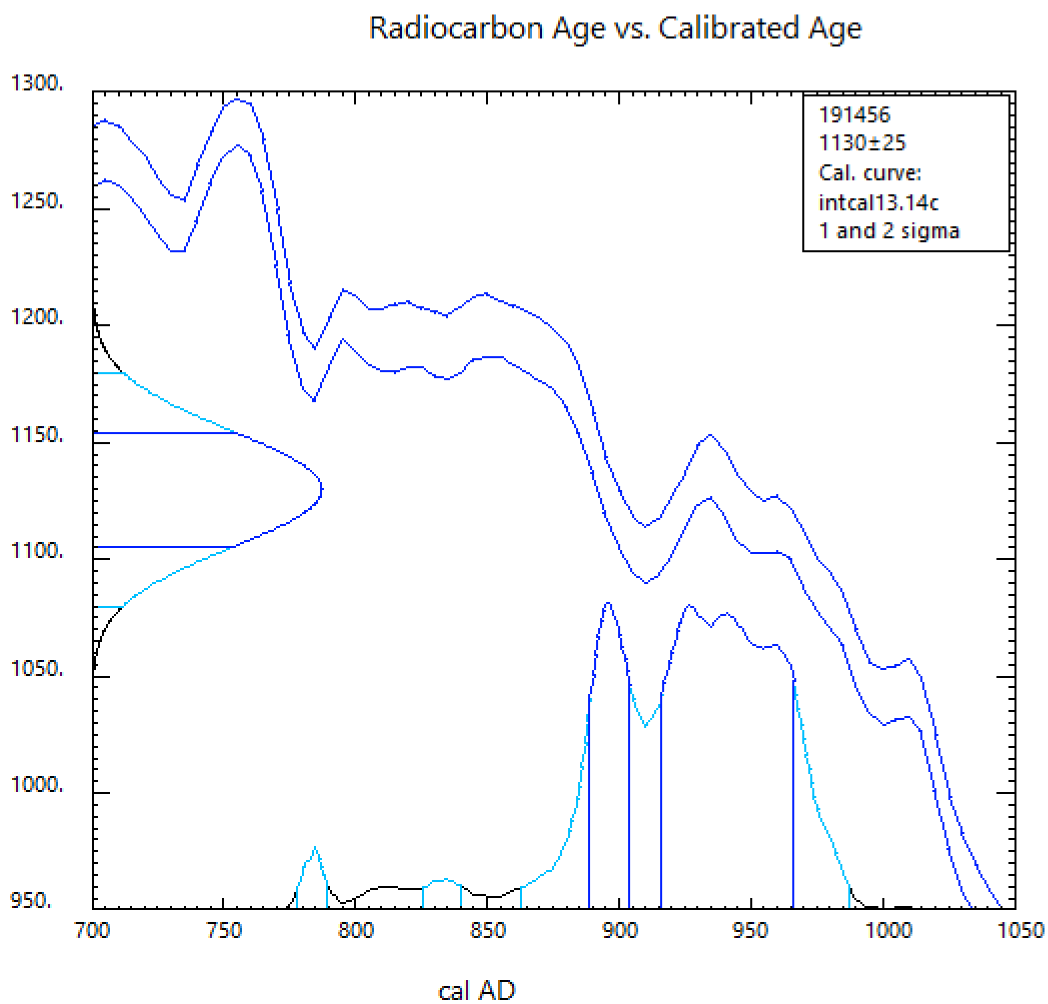
Decoration: Incised with rectilinear patterns

Variants: None

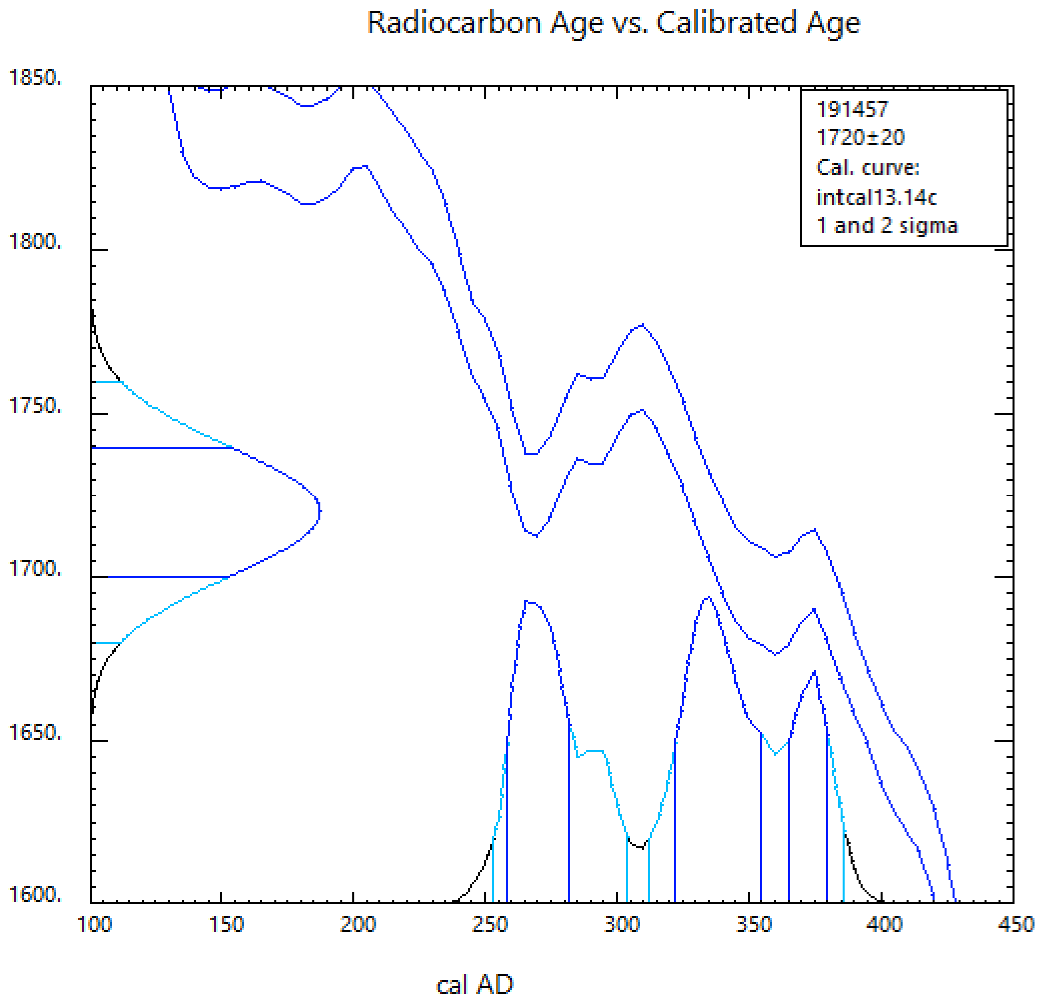
White Slipped Incised

Appendix B – Carbon Calibration Curves

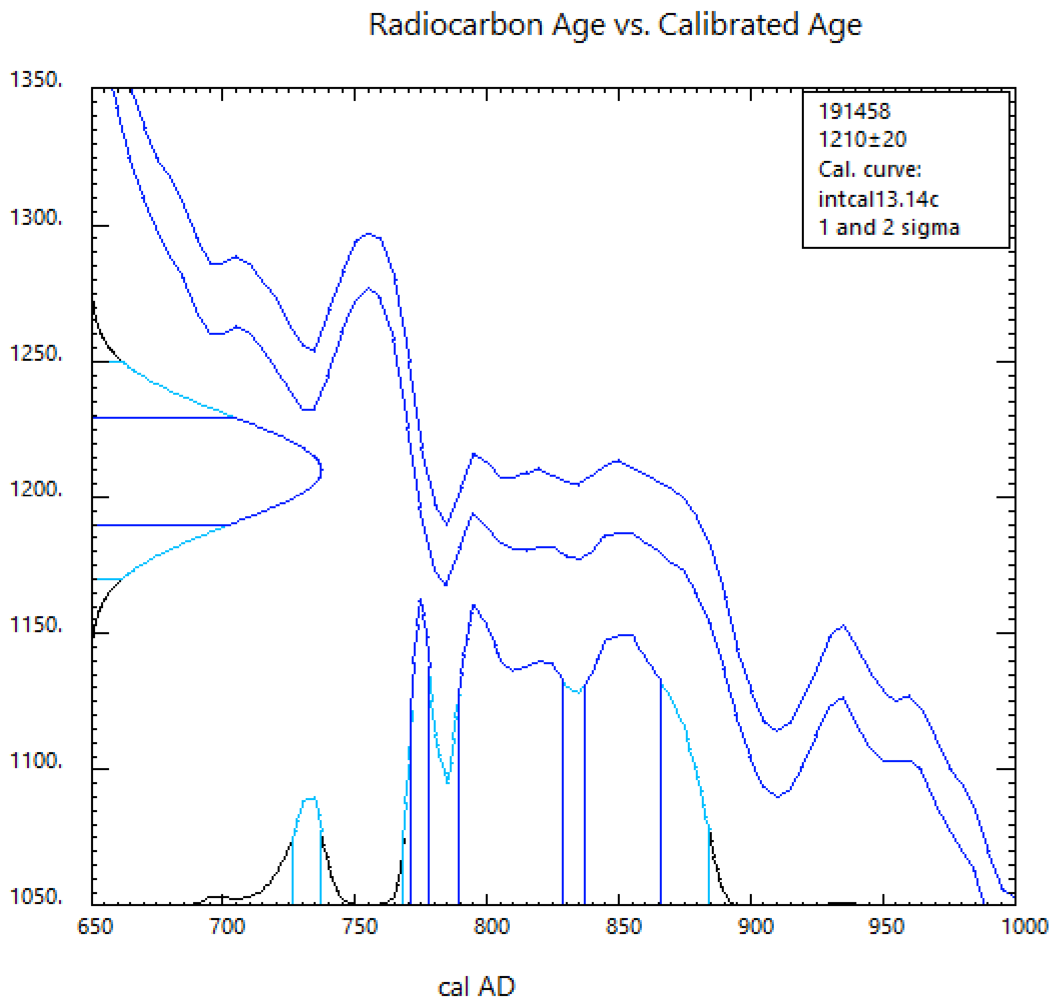
All calibration curves made using Calib 7.0.4 (Reimer et al 2013)



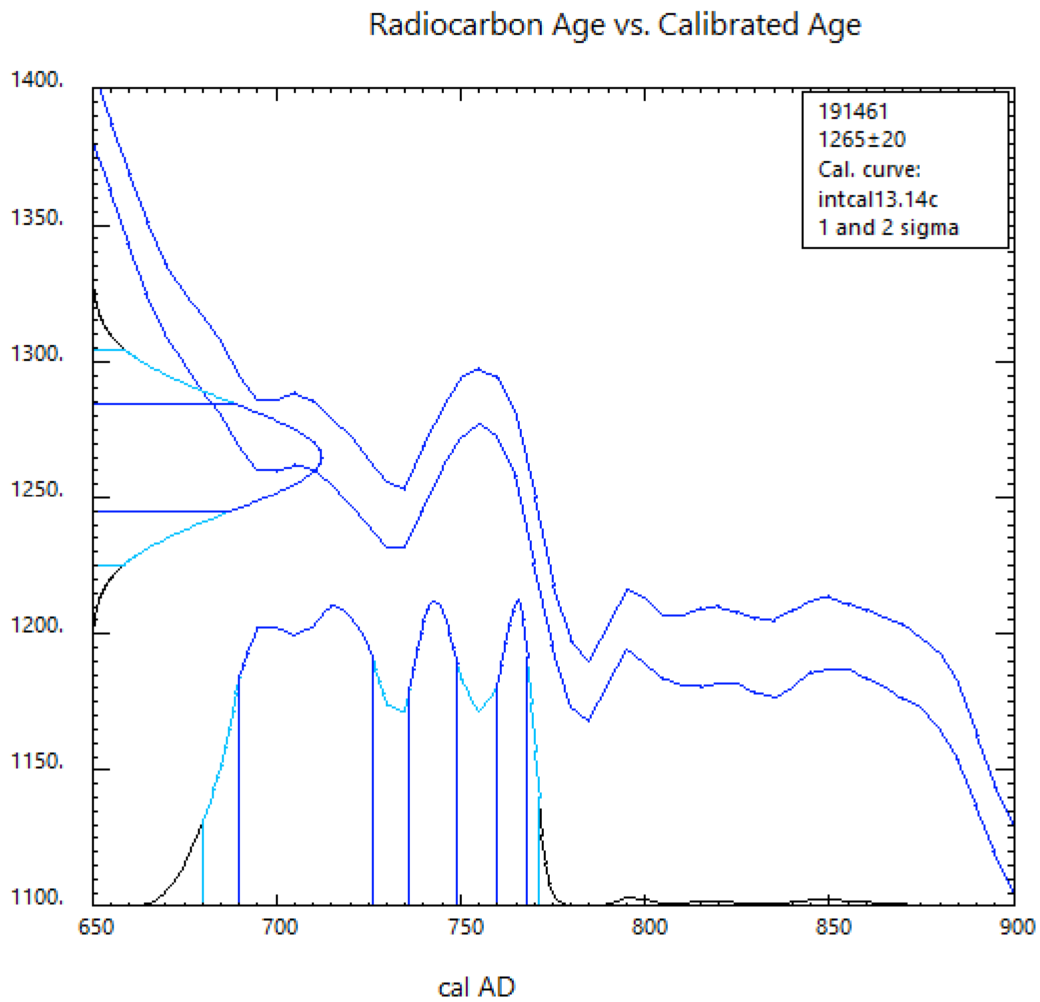
UCIAMS – 191456 CO1-1-5



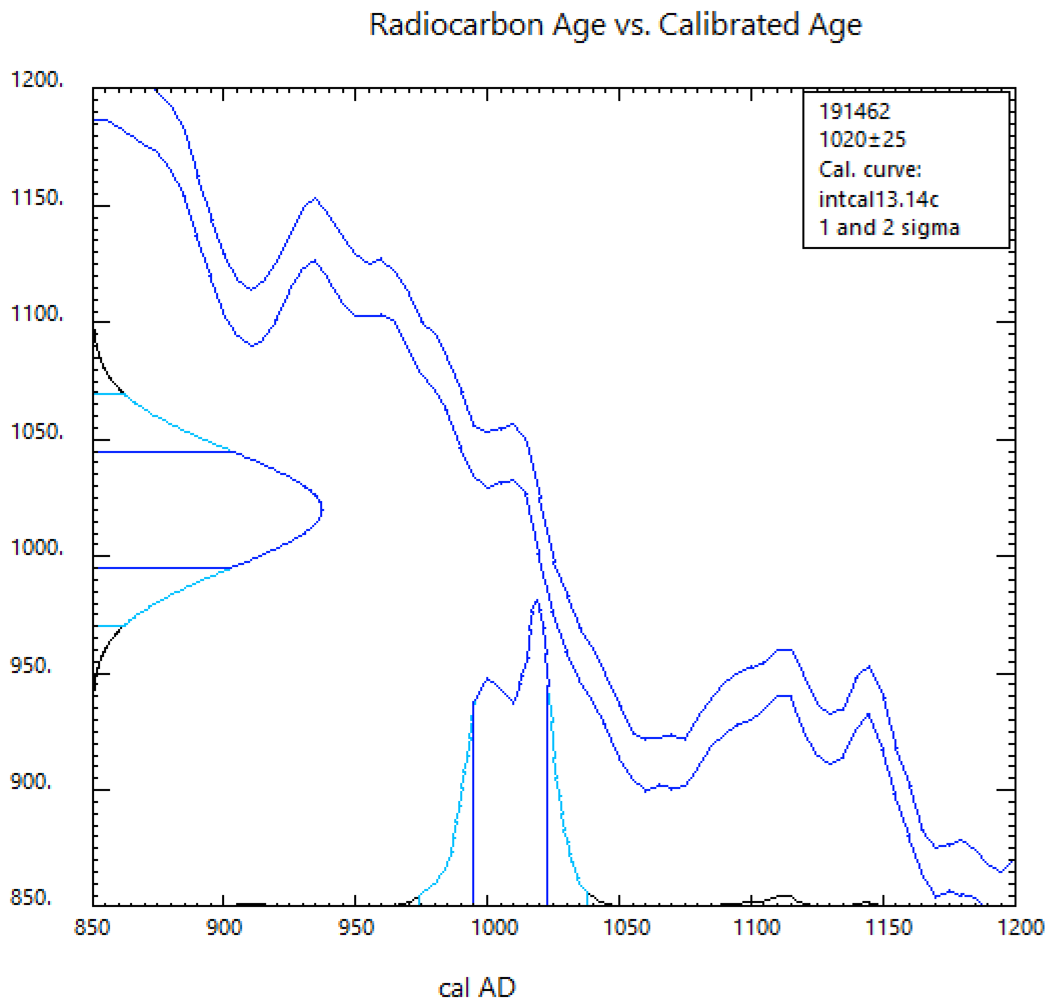
UCIAMS – 191457 CO1-1-10



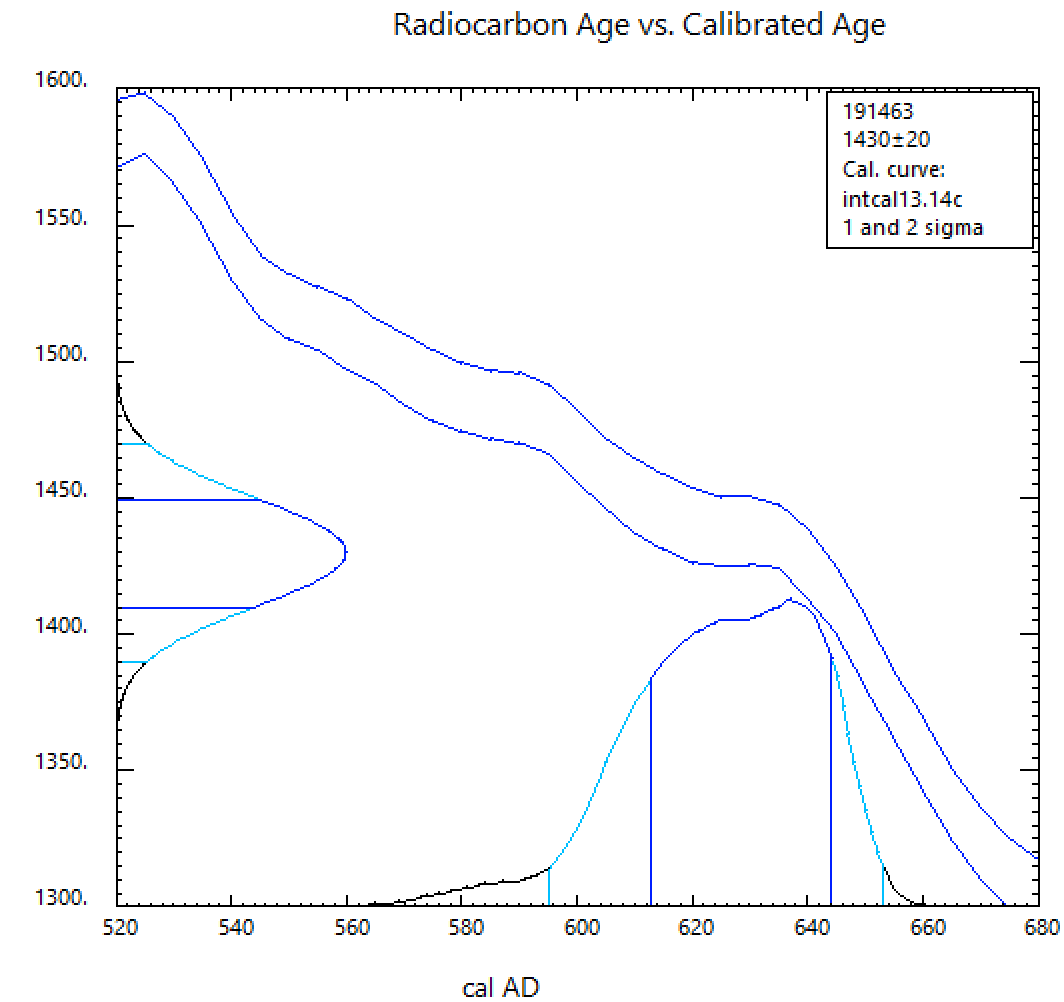
UCIAMS – 191458 CO1-1-10



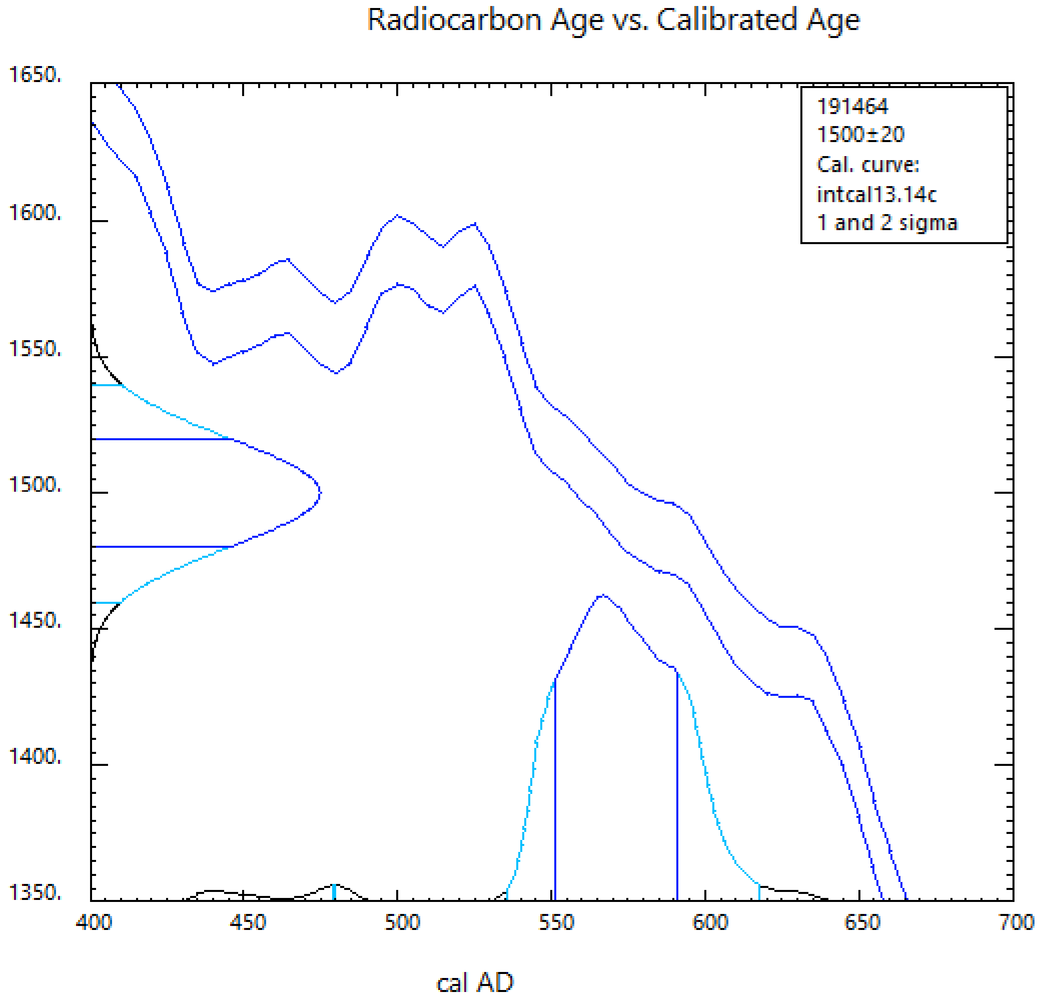
UCIAMS – 191461 CE1-1-8



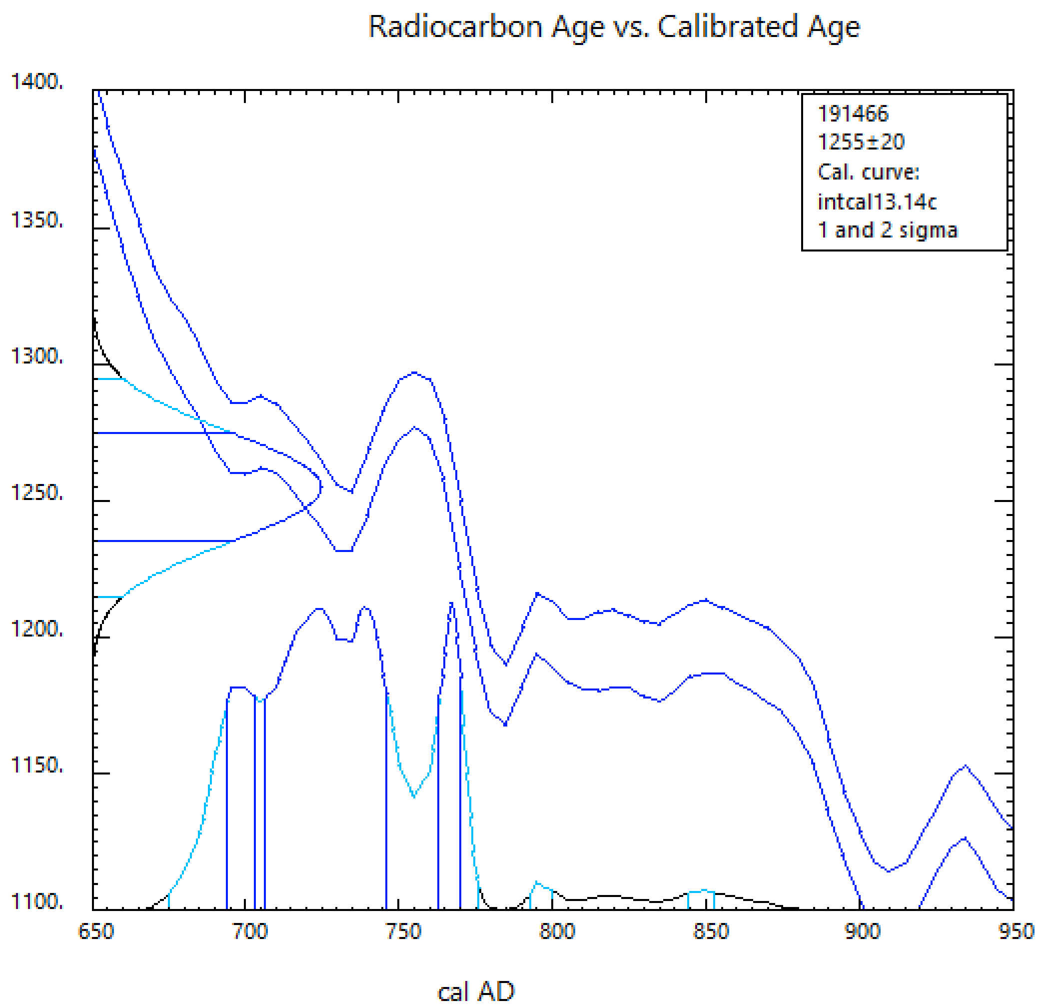
UCIAMS – 191462 CE2-1-4



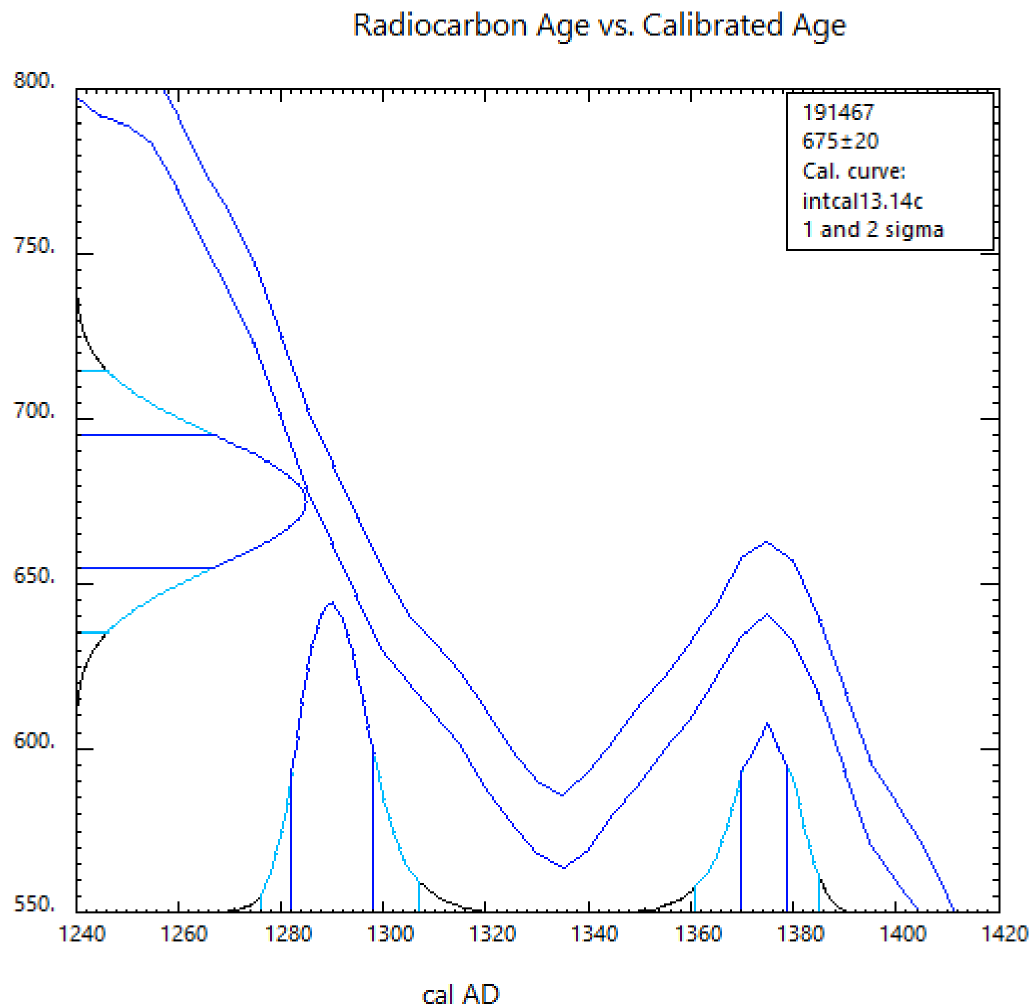
UCIAMS – 191463 CE2-1-14



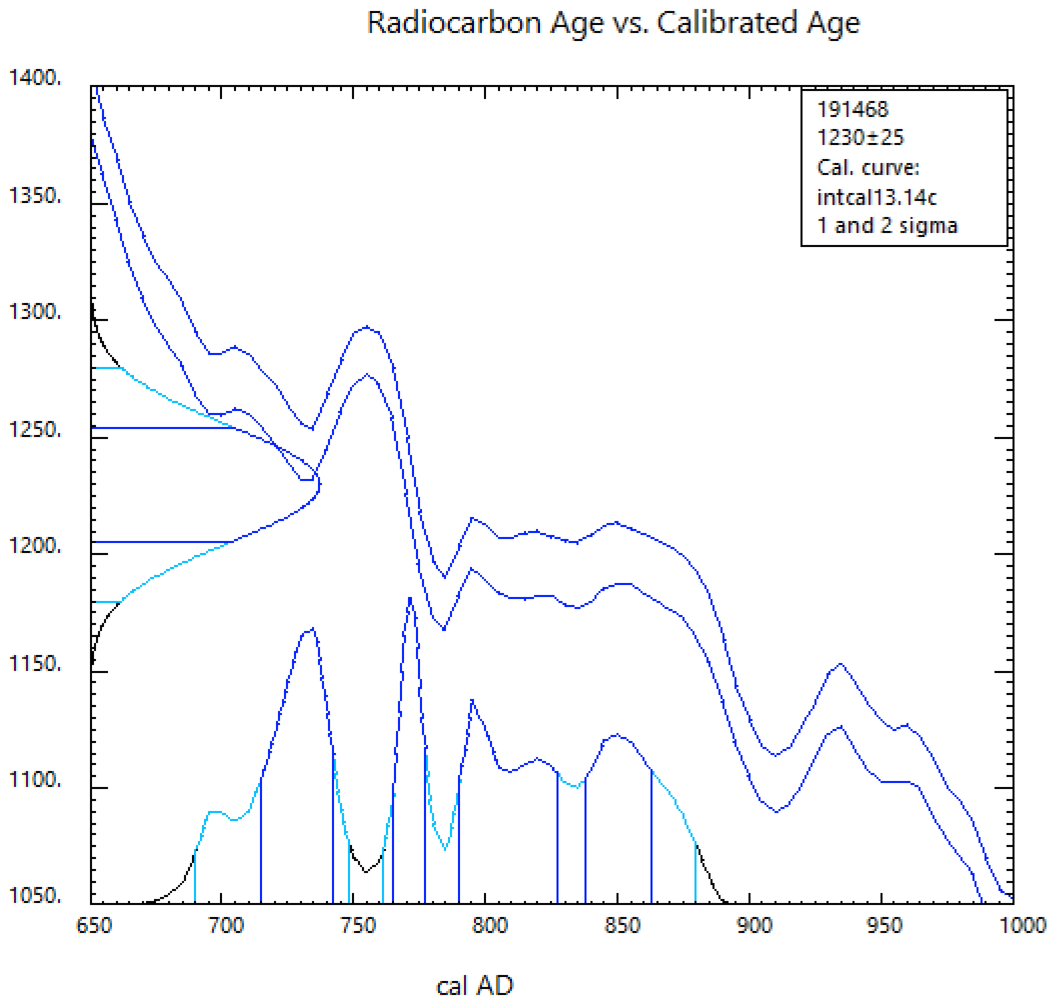
UCIAMS – 191464 CE2-1-15



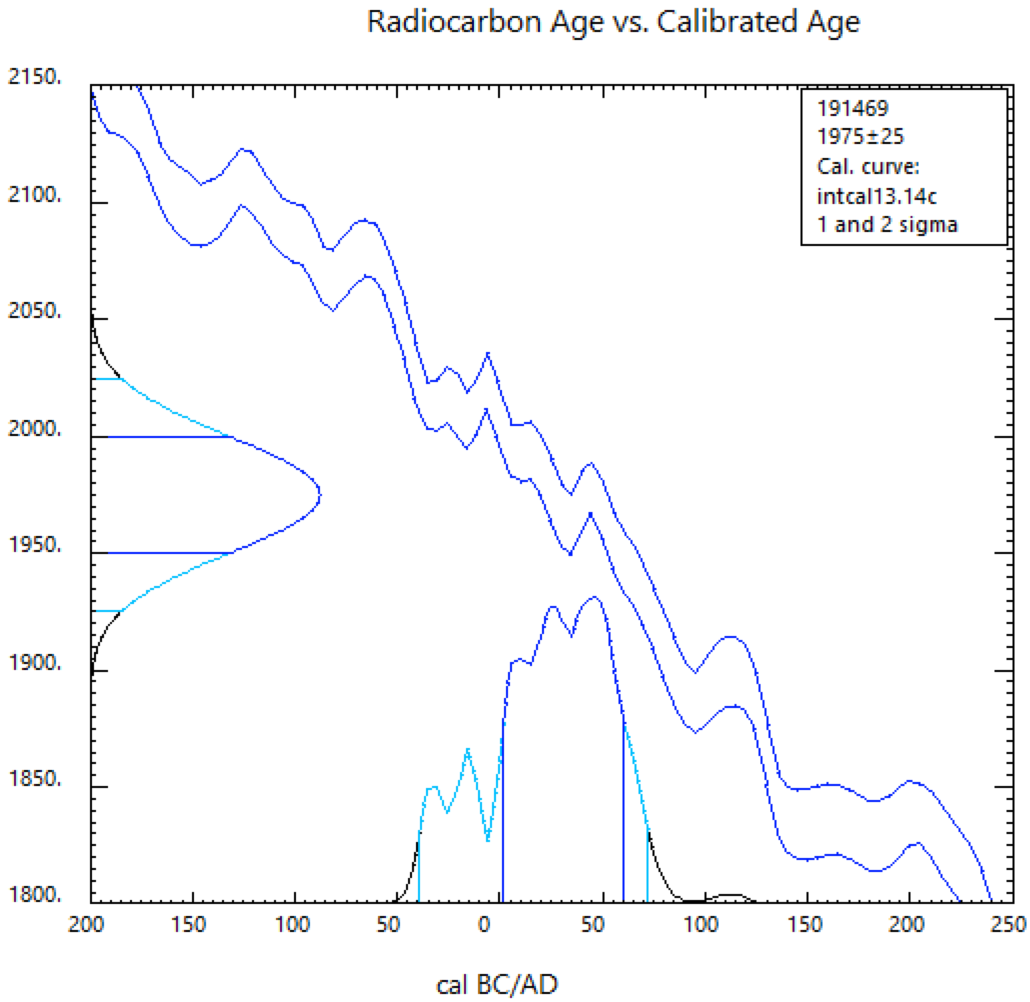
UCIAMS – 191466   D4-1-9



UCIAMS – 191467   D5-1-4



UCIAMS – 191468 D5-1-10



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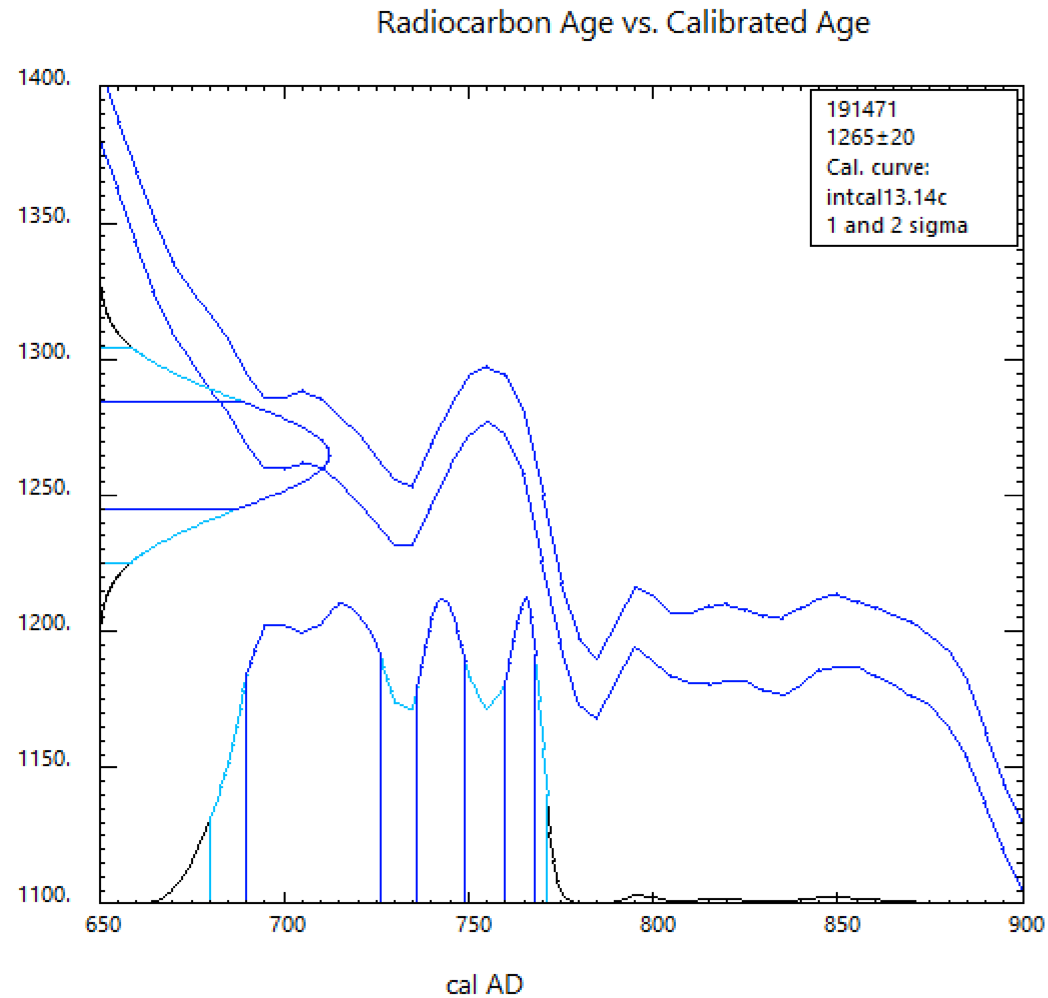
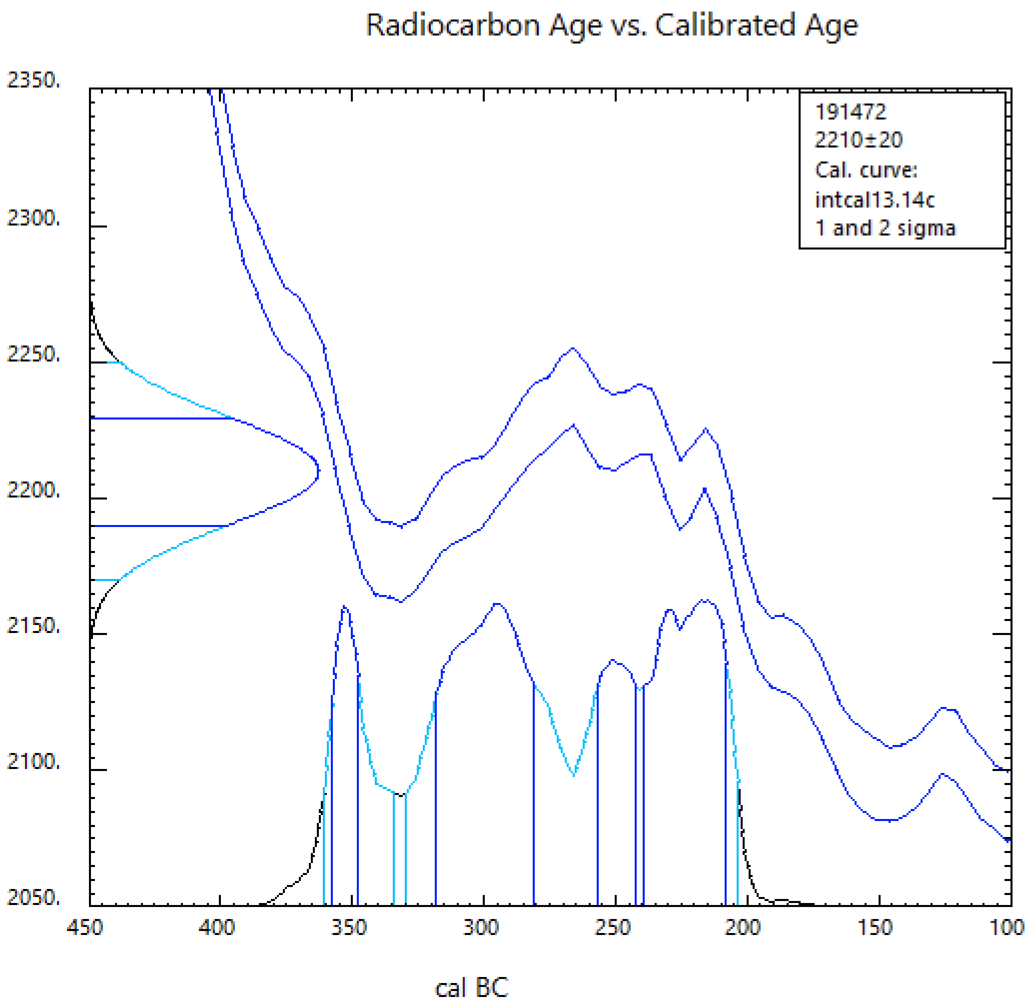


UCIAMS – 191471 D6-2-4



UCIAMS – 191472 D6-2-6

Appendix C: Obsidian Metrics from Fracción Mujular

Key: Proximal = P; Mid Section = MS; Distal = D; Blade Fragment = B; Flake = F; Core Fragment = CF; Debitage = Deb; Biface Fragment = BF

PFM #	Op	SubOp	Lot	L (mm)	W (mm)	T (mm)	Weight (g)	Type	Platform
1	CO1	1	10	39.34	13.25	4.91	4.2	P	Normal
2	CO1	1	10	29.05	10.27	2.36	0.8	MS	None
3	CO1	1	10	19.10	10.91	2.27	0.6	MS	None
4	CO1	1	1	15.41	13.74	2.29	0.5	MS	None
5	CO1	1	1	15.02	6.47	2.09	0.1	MS	None
6	CO1	1	1	18.82	13.14	3.06	0.7	D	None
7	CO1	1	1	17.20	7.42	2.42	0.3	MS	None
8	CO1	1	1	15.49	9.72	2.22	0.4	MS	None
9	CO1	1	1	15.84	7.87	1.61	0.3	MS	None
10	CO1	1	1	12.05	7.01	1.58	0.3	MS	None
11	CO1	1	1	6.72	7.92	1.92	0.1	MS	None
12	CO1	1	1	9.95	6.96	1.78	0.1	F	None
13	CO1	1	1	3.26	3.09	2.70	< 0.1	Deb	None
14	CO1	1	1	7.29	5.53	2.54	< 0.1	B	None
15	CO1	1	1	3.71	5.36	1.63	< 0.1	B	None
16	CO1	1	1	7.26	4.24	1.61	< 0.1	B	None
17	CO1	1	5	9.37	11.23	1.75	0.3	MS	None
18	CO1	1	5	12.84	7.39	1.82	0.2	MS	None
19	CO1	1	6	28.37	8.63	1.81	0.7	P	Normal
20	CO1	1	6	19.39	7.36	1.59	0.2	D	None
21	CO1	1	6	12.08	11.31	2.87	0.4	MS	None
22	CO1	1	6	15.75	7.76	2.14	0.3	MS	None
23	CO1	1	6	12.28	10.29	2.24	0.4	MS	None
24	CO1	1	6	15.97	7.75	1.85	0.3	MS	None
25	CO1	1	6	12.81	7.30	1.47	0.2	MS	None
26	CO1	1	6	24.38	10.26	3.71	0.9	B	None
27	CO1	1	6	14.95	7.11	3.79	0.3	B	None
28	CO1	1	9	15.48	8.19	2.49	0.4	MS	None
29	CO1	1	9	22.87	7.84	1.61	0.3	MS	None
30	CO1	1	7	33.82	12.43	3.17	1.8	MS	None
31	CO1	1	7	21.15	7.78	2.21	0.4	MS	None
32	CO1	1	7	28.86	8.21	2.02	0.6	MS	None
33	CO1	1	8	18.99	7.58	1.88	0.4	MS	None

34	CO1	1	11	13.52	10.77	1.56	0.3	MS	None
35	CO1	1	2	21.48	7.92	2.07	0.4	P	Normal
36	CO1	1	2	31.30	11.09	2.79	1.2	P	Normal
37	CO1	1	2	14.63	9.31	1.73	0.2	D	None
38	CO1	1	2	17.91	9.89	2.22	0.6	MS	None
39	CO1	1	2	11.07	7.66	2.34	0.3	MS	None
40	CO1	1	2	11.12	9.55	2.32	0.3	MS	None
41	CO1	1	2	26.27	10.73	2.43	0.9	P	Normal
42	CO1	1	2	15.43	9.15	1.32	0.3	MS	None
43	CO1	1	2	8.58	7.88	2.27	0.1	MS	None
44	CO1	1	2	13.85	7.96	1.54	0.2	MS	None
45	CO1	1	2	18.63	6.43	1.80	0.3	MS	None
46	CO1	1	2	13.38	9.68	1.79	0.3	MS	None
47	CO1	1	2	18.27	13.35	2.25	0.6	MS	None
48	CO1	1	2	12.95	7.97	2.09	0.2	MS	None
49	CO1	1	2	5.93	10.66	2.41	0.2	MS	None
50	CO1	1	2	7.89	8.04	1.93	0.2	MS	None
51	CO1	1	2	11.75	8.46	1.79	0.1	B	None
52	CO1	1	2	10.41	4.51	1.76	< 0.1	B	None
53	CO1	1	4	11.79	8.64	1.60	0.2	MS	None
54	CO1	1	4	6.74	9.67	2.24	0.2	MS	None
55	CO1	1	4	16.37	9.79	1.72	0.4	MS	None
56	CO1	1	4	21.44	9.51	1.81	0.4	MS	None
57	CO1	1	4	20.17	11.21	1.97	0.6	MS	None
58	CO1	1	4	20.94	7.89	3.27	0.7	MS	None
59	CO1	1	4	17.27	8.57	1.91	0.3	P	Normal
60	CO1	1	4	29.87	9.61	2.46	0.8	P	Normal
61	CO1	1	4	48.64	9.88	2.34	1.3	P	Normal
62	CO1	1	4	10.26	7.22	3.19	0.2	B	None
63	CO1	1	4	12.16	6.59	2.16	0.1	B	None
64	CO1	1	4	9.53	6.33	2.69	0.2	B	None
65	CO1	1	4	5.71	5.67	1.22	< 0.1	F	None
66	CO1	1	12	23.06	10.13	2.51	0.7	P	Normal
67	CO1	1	12	20.15	7.76	1.74	0.4	MS	None
68	CO1	2	1	13.02	8.49	1.90	0.3	MS	None
69	CO1	2	2	21.18	7.62	1.90	0.4	MS	None
70	CO1	2	2	23.63	10.45	2.31	0.7	MS	None
71	CO1	2	2	10.21	11.95	2.93	0.4	MS	None
72	CO1	2	2	18.60	10.99	2.86	0.7	MS	None
73	CO1	2	3	23.25	14.28	3.22	1.4	P	Ground/ Packed

74	CO1	2	4	19.15	7.72	2.59	0.5	MS	None
75	CO1	2	4	20.98	9.26	2.63	0.6	MS	None
76	CO1	2	4	21.87	13.57	2.06	0.6	MS	None
77	CO1	2	5	20.96	9.98	2.15	0.7	MS	None
78	CO1	2	5	14.73	8.92	2.52	0.4	MS	None
79	CO1	2	5	9.78	10.41	2.20	0.3	MS	None
80	CO1	2	5	13.60	12.85	3.95	0.6	B	None
81	CO1	2	5	30.62	24.68	6.74	6.0	BF	None
82	CO1	2	5	19.11	15.35	3.48	1.2	B	None
83	CO1	2	6	12.97	8.41	1.97	0.2	MS	None
84	CO1	2	6	17.81	10.03	2.64	0.6	MS	None
85	CO1	2	6	18.29	10.43	2.27	0.5	MS	None
86	CO1	2	6	14.59	11.20	2.29	0.5	P	Normal
87	CO1	2	6	12.60	9.69	2.49	0.4	MS	None
88	CO1	2	6	13.34	8.41	2.09	0.2	MS	None
89	CO1	2	6	16.66	7.12	2.58	0.3	B	None
90	CO1	2	6	15.52	3.81	2.30	0.1	B	None
91	CO1	2	6	9.46	7.86	6.99	0.5	Deb	None
92	CO1	2	6	11.52	7.06	1.79	0.1	F	None
93	RS	CO2017	1	28.23	32.16	7.81	6.1	BF	None
94	RS	CO2017	2	20.04	12.63	3.29	0.9	P	Normal
95	RS	CO2017	2	53.70	34.79	16.69	27.8	CF	None
96	CE1	1	2	15.31	8.24	2.30	0.4	MS	None
97	CE1	1	2	13.88	6.14	1.03	0.2	MS	None
98	CE1	1	2	8.96	10.32	1.91	0.2	MS	None
99	CE1	1	2	15.65	11.75	4.35	0.7	F	None
100	CE1	1	2	13.63	7.87	3.97	0.4	F	None
101	CE1	1	2	14.30	11.65	2.32	0.3	F	None
102	CE1	1	3	34.16	10.64	2.52	1.3	P	Normal
103	CE1	1	4	23.24	13.55	2.38	1.0	MS	None
104	CE1	1	4	18.51	10.30	2.54	0.6	B	None
105	CE1	1	4	8.22	13.03	2.39	0.3	MS	None
106	CE1	1	5	19.47	9.86	2.74	0.7	MS	None
107	CE1	1	5	19.34	10.98	2.72	0.7	MS	None
108	CE1	1	5	8.18	7.56	2.36	0.2	B	None
109	CE1	1	5	9.83	8.64	3.10	0.2	B	None
110	CE1	1	5	6.73	9.60	2.16	0.1	B	None
111	CE1	1	5	13.70	12.38	2.16	0.4	D	None
112	CE1	1	6	15.25	11.14	2.44	0.6	MS	None
113	CE1	1	6	12.93	9.37	2.99	0.5	MS	None

114	CE1	1	6	9.69	8.62	2.10	0.2	MS	None
115	CE1	1	6	9.93	8.82	1.74	0.2	MS	None
116	CE1	1	7	16.21	12.38	3.32	0.8	MS	None
117	CE1	1	7	13.07	8.95	3.11	0.5	MS	None
118	CE1	1	8	19.64	7.03	1.32	0.3	MS	None
119	CE1	1	8	13.06	6.54	2.17	0.2	MS	None
120	CE1	1	8	14.46	11.73	2.54	0.6	MS	None
121	CE1	1	8	13.27	7.96	1.16	0.1	F	None
122	CE1	1	8	8.91	7.79	2.13	0.2	P	Normal
123	CE1	2	1	8.56	8.66	2.57	0.3	MS	None
124	CE1	2	1	13.87	8.89	2.25	0.4	MS	None
125	CE1	2	1	11.17	10.47	2.18	0.3	MS	None
126	CE1	2	1	24.25	9.96	2.06	0.7	MS	None
127	CE1	2	1	12.73	8.91	2.38	0.3	MS	None
128	CE1	2	1	22.03	9.11	2.08	0.6	MS	None
129	CE1	2	1	15.32	9.33	2.18	0.4	MS	None
130	CE1	2	1	9.23	8.90	1.66	0.2	MS	None
131	CE1	2	1	9.26	7.57	0.91	< 0.1	MS	None
132	CE1	2	1	5.57	8.56	1.70	< 0.1	MS	None
133	CE1	2	1	10.42	8.72	2.57	0.2	B	None
134	CE1	2	1	9.25	5.30	1.75	0.1	B	None
135	CE1	2	1	14.26	11.09	4.38	0.5	F	None
136	CE1	2	2	28.44	9.92	2.77	0.8	P	Normal
137	CE1	2	2	9.54	8.63	2.26	0.2	MS	None
138	CE1	2	2	4.84	7.58	2.29	0.1	MS	None
139	CE1	2	2	19.27	11.32	2.94	0.7	MS	None
140	CE1	2	2	20.40	9.65	1.58	0.5	MS	None
141	CE1	2	2	18.58	10.68	2.60	0.7	MS	None
142	CE1	2	2	13.40	10.78	2.39	0.5	MS	None
143	CE1	2	2	10.69	10.52	2.41	0.3	MS	None
144	CE1	2	2	8.96	8.16	2.46	0.2	MS	None
145	CE1	2	2	11.91	8.62	1.40	0.2	MS	None
146	CE1	2	3	20.89	11.01	2.70	0.9	MS	None
147	CE1	2	3	27.83	8.53	2.10	0.6	MS	None
148	CE1	2	3	21.65	9.73	2.43	0.8	MS	None
149	CE1	2	3	22.91	9.53	1.85	0.6	MS	None
150	CE1	2	3	21.34	8.82	2.15	0.5	MS	None
151	CE1	2	3	18.02	9.18	2.38	0.5	MS	None
152	CE1	2	3	10.65	8.50	2.46	0.4	MS	None
153	CE1	2	3	28.71	12.42	2.79	1.3	P	Ground/ Packed

154	CE1	2	3	15.02	8.46	1.90	0.2	D	None
155	CE1	2	3	12.83	11.45	2.41	0.2	F	None
156	CE1	2	3	11.85	11.49	1.71	0.2	F	None
157	CE1	2	3	13.98	15.59	5.17	1.1	Deb	None
158	CE1	2	3	10.17	8.01	4.22	0.3	Deb	None
159	CE1	2	4	17.59	7.75	2.30	0.4	MS	None
160	CE1	2	4	10.21	11.34	2.41	0.3	P	Normal
161	CE1	2	4	6.82	8.06	2.17	0.1	MS	None
162	CE1	2	4	21.41	20.27	6.82	2.8	BF	None
163	CE2	1	2	18.07	11.56	3.79	0.7	B	None
164	CE2	1	3	22.51	8.98	2.49	0.6	D	None
165	CE2	1	3	18.77	10.44	2.15	0.6	MS	None
166	CE2	1	5	15.93	12.71	3.70	0.6	P	Ground/ Packed
167	CE2	1	5	25.22	15.39	2.53	1.2	P	Ground/ Packed
168	CE2	1	5	12.27	8.87	1.94	0.3	B	None
169	CE2	1	8	17.81	10.53	2.48	0.7	MS	None
170	CE2	1	8	17.81	9.88	1.91	0.4	MS	None
171	CE2	1	8	13.06	8.56	2.88	0.3	P	Normal
172	CE2	1	9	9.23	11.38	2.03	0.3	MS	None
173	CE2	1	9	17.30	8.41	2.38	0.3	B	None
174	CE2	1	10	16.93	12.89	3.15	0.7	P	Normal
175	CE2	1	10	13.39	5.75	3.09	0.3	B	None
176	CE2	1	10	22.76	7.98	2.05	0.4	MS	None
177	CE2	1	10	23.41	8.63	1.91	0.5	MS	None
178	CE2	1	10	14.99	10.36	2.81	0.4	MS	None
179	CE2	1	11	22.57	10.27	1.95	0.6	MS	None
180	CE2	1	11	15.52	8.02	1.91	0.3	MS	None
181	CE2	1	11	10.47	8.86	1.91	0.2	MS	None
182	CE2	1	11	12.86	8.05	1.80	0.2	MS	None
183	CE2	1	11	15.28	8.53	2.06	0.3	MS	None
184	CE2	1	11	14.03	9.72	2.13	0.3	MS	None
185	CE2	1	11	14.21	5.84	2.38	0.2	MS	None
186	CE2	1	11	16.05	10.44	2.14	0.4	P	Normal
187	CE2	1	12	26.87	9.81	2.58	0.9	MS	None
188	CE2	1	12	9.39	6.98	2.03	0.1	B	None
189	CE2	1	12	12.59	9.98	1.81	0.3	MS	None
190	CE2	1	12	9.26	5.09	2.08	< 0.1	B	None
191	CE2	1	12	8.09	6.16	1.65	< 0.1	B	None
192	CE2	1	13	22.97	9.79	2.53	0.7	MS	None

193	CE2	1	13	23.38	14.89	2.23	1.1	MS	None
194	CE2	1	13	17.24	8.59	1.97	0.4	MS	None
195	CE2	1	13	10.58	10.73	4.62	0.7	Deb	None
196	CE2	1	14	12.08	7.67	1.51	0.2	MS	None
197	CE2	1	14	15.03	8.79	1.88	0.2	MS	None
198	CE2	1	14	9.81	10.42	2.43	0.3	MS	None
199	CE2	1	14	14.83	9.78	2.25	0.3	F	None
200	CE2	1	14	15.09	10.71	1.89	0.2	F	None
201	CE2	1	14	10.09	8.39	1.17	< 0.1	F	None
202	CE2	1	14	11.65	6.52	2.28	0.1	F	None
203	CE2	1	15	27.67	9.96	2.96	1.2	MS	None
204	CE2	1	15	18.43	10.29	3.18	0.8	MS	None
205	CE2	1	15	16.72	8.26	1.89	0.4	MS	None
206	CE2	1	15	15.24	9.21	1.67	0.4	MS	None
207	CE2	2	1	12.92	13.67	3.01	0.7	MS	None
208	CE2	2	2	13.61	9.82	2.27	0.4	MS	None
209	CE2	2	2	13.09	5.86	2.07	0.1	D	None
210	CE2	2	2	14.56	7.54	1.94	0.2	P	Normal
211	CE2	2	3	19.89	7.76	2.02	0.4	MS	None
212	CE2	2	3	10.14	8.52	2.45	0.3	MS	None
213	CE2	2	3	11.43	7.51	2.64	0.2	D	None
214	CE2	2	3	7.69	9.82	2.13	0.1	B	None
215	CE2	2	4	27.43	8.95	2.69	0.5	P	Normal
216	CE2	2	4	16.92	6.91	2.07	0.3	MS	None
217	CE2	2	5	15.31	9.35	1.94	0.4	MS	None
218	CE2	2	5	9.12	6.01	1.26	< 0.1	F	None
219	CE2	2	5	20.69	9.58	2.28	0.4	MS	None
220	CE2	2	6	25.67	12.74	3.04	1.3	MS	None
221	CE2	2	6	28.64	8.56	2.08	0.5	MS	None
222	CE2	2	6	11.52	11.30	3.82	0.4	MS	None
223	CE2	2	6	11.46	8.78	2.47	0.3	MS	None
224	CE2	2	6	13.28	8.71	1.91	0.3	MS	None
225	CE2	2	6	7.17	8.78	2.07	0.1	B	None
226	CE2	2	7	17.08	8.82	1.78	0.3	MS	None
227	CE2	2	7	11.44	8.41	2.02	0.2	MS	None
228	CE2	2	7	12.63	9.65	1.49	0.2	MS	None
229	CE2	2	7	13.36	10.98	2.07	0.3	MS	None
230	CE2	2	7	14.18	8.47	2.21	0.3	P	Normal
231	CE2	2	7	12.89	7.66	1.84	0.2	MS	None
232	CE2	2	7	11.87	8.32	3.32	0.4	Deb	None

233	CE2	2	7	23.29	11.73	2.93	0.8	F	None
234	CE2	2	7	10.33	7.83	1.86	0.1	B	None
235	CE2	2	7	10.58	4.07	1.85	< 0.1	B	None
236	CE2	2	8	8.34	9.27	2.71	0.2	B	None
237	CE2	2	8	8.76	2.85	2.45	< 0.1	F	None
238	CE2	2	8	8.81	8.11	0.87	< 0.1	F	None
239	CE2	2	8	17.20	11.31	2.72	0.7	MS	None
240	CE2	2	8	16.14	7.16	1.91	0.3	MS	None
241	CE2	2	9	11.51	8.08	1.73	0.2	MS	None
242	CE2	2	9	23.43	11.82	2.74	1.1	MS	None
243	CE2	2	9	37.42	13.01	2.39	1.4	MS	None
244	CE2	2	9	17.47	6.67	2.13	0.3	P	Normal
245	CE2	2	9	17.78	9.67	1.76	0.4	P	Normal
246	CE2	2	10	12.46	9.51	1.92	0.3	MS	None
247	CE2	2	10	12.72	6.89	2.43	0.2	MS	None
248	CE2	2	10	19.12	11.63	2.24	0.7	MS	None
249	CE2	2	10	30.22	12.26	2.42	1.1	MS	None
250	CE2	2	10	15.73	8.97	2.56	0.5	MS	None
251	CE2	2	10	20.47	10.38	2.98	0.7	MS	None
252	CE2	2	10	7.79	10.25	2.48	0.2	MS	None
253	CE2	2	10	8.52	8.21	1.84	0.1	MS	None
254	CE2	2	10	11.49	8.71	2.42	0.2	D	None
255	CE2	2	10	10.46	11.05	2.65	0.3	P	Normal
256	CE2	2	10	15.40	10.05	3.40	0.5	Deb	None
257	CE2	2	10	12.35	8.09	1.82	0.2	P	Normal
258	CE2	2	10	9.05	5.06	1.79	< 0.1	F	None
259	CE2	2	10	7.13	5.07	1.10	< 0.1	F	None
260	CE2	2	10	37.51	17.56	9.02	4.9	BF	None
261	CE2	2	11	11.64	7.41	1.95	0.2	D	None
262	CE2	2	11	23.91	10.64	2.31	0.8	MS	None
263	CE2	2	11	30.89	10.80	2.41	1.0	MS	None
264	CE2	2	11	17.27	9.08	2.71	0.6	MS	None
265	CE2	2	11	14.85	9.07	2.84	0.6	MS	None
266	CE2	2	11	14.31	9.46	2.17	0.4	MS	None
267	CE2	2	11	8.56	8.41	2.34	0.2	MS	None
268	CE2	2	11	10.43	5.85	1.56	0.1	MS	None
269	CE5	1	1	22.28	8.18	2.59	0.6	MS	None
270	CE5	1	1	17.78	9.81	2.76	0.5	MS	None
271	CE5	1	1	15.63	10.59	2.33	0.5	MS	None
272	CE5	1	1	5.46	6.47	1.98	< 0.1	B	None

273	CE5	1	2	16.09	11.05	2.35	0.5	MS	None
274	CE5	1	2	5.61	7.58	1.82	< 0.1	MS	None
275	CE5	1	3	11.16	10.81	2.56	0.4	MS	None
276	CE5	1	4	18.62	14.30	4.04	0.7	Deb	None
277	CE5	1	4	16.61	8.84	1.86	0.4	MS	None
278	D4	1	1	9.96	10.43	2.01	0.1	F	None
279	D4	1	1	13.57	8.59	2.14	0.3	MS	None
280	D4	1	7	33.13	11.79	2.22	1.2	MS	None
281	D4	1	7	5.19	11.91	2.44	0.6	P	Normal
282	D4	1	8	12.25	7.93	1.27	0.2	D	None
283	D5	1	1	8.11	7.17	1.58	0.1	MS	None
284	D5	1	2	18.04	7.92	1.86	0.4	MS	None
285	D5	1	4	9.41	5.46	5.35	0.3	Deb	None
286	D5	1	7	9.69	12.62	3.26	0.5	MS	None
287	D5	1	7	7.04	8.57	1.93	0.3	MS	None
288	D5	1	8	8.41	7.68	2.09	0.2	MS	None
289	D5	1	8	16.45	9.64	2.23	0.5	MS	None
290	D5	1	8	13.68	8.33	1.91	0.2	MS	None
291	D5	1	9	7.09	12.30	1.85	0.2	MS	None
292	D5	1	9	8.64	7.07	2.99	0.2	Deb	None
293	D5	1	9	11.74	9.14	2.14	0.2	MS	None
294	D5	1	10	12.48	8.20	2.06	0.2	B	None
295	D5	1	10	10.24	9.04	3.22	0.3	P	Normal
296	D5	1	10	18.29	9.32	2.29	0.3	B	None
297	D5	1	11	20.73	9.76	2.36	0.6	MS	None
298	D5	1	11	11.26	9.79	1.90	0.3	MS	None
299	D5	1	11	9.36	4.70	1.89	< 0.1	B	None
300	D5	1	11	9.28	3.37	1.75	< 0.1	B	None
301	D5	1	11	8.54	3.79	1.09	< 0.1	B	None
302	D5	1	12	10.43	10.19	1.73	0.3	MS	None
303	D5	1	12	10.17	6.81	2.90	0.3	B	None
304	D5	1	12	7.96	4.53	1.22	< 0.1	F	None
305	D5	1	13	6.38	9.11	3.26	0.2	MS	None
306	D5	1	13	8.98	7.46	3.01	0.2	B	None
307	D5	1	13	9.95	8.28	2.18	0.2	B	None
308	D5	1	16	6.50	4.61	1.08	< 0.1	F	None
309	D5	1	21	22.53	8.44	2.23	0.5	P	Normal
310	D5	1	21	6.34	7.74	1.53	0.1	D	None
311	D5	1	21	20.97	9.27	2.12	0.6	MS	None
312	D5	1	21	17.79	8.81	2.25	0.5	MS	None

313	D5	1	21	5.29	8.06	1.62	< 0.1	MS	None
314	D5	1	21	5.78	2.87	1.41	< 0.1	B	None
315	D5	1	21	11.08	10.05	1.28	0.1	B	None
316	D5	1	21	6.83	4.34	1.36	< 0.1	B	None
317	D5	1	22	9.93	7.82	2.02	0.2	MS	None
318	D5	1	22	10.16	10.51	2.94	0.3	P	Normal
319	D5	1	23	17.55	6.87	2.07	0.3	P	Normal
320	D5	1	23	26.78	10.72	2.80	1.1	MS	None
321	D5	1	23	26.69	10.88	1.73	0.7	MS	None
322	D5	1	23	13.84	7.57	2.06	0.3	MS	None
323	D5	1	23	15.37	10.48	2.83	0.5	MS	None
324	D5	1	24	19.63	11.41	1.90	0.6	D	None
325	D5	1	24	10.67	9.26	1.90	0.2	D	None
326	D5	1	24	12.37	11.48	3.03	0.5	MS	None
327	D5	1	24	11.63	12.06	2.61	0.3	B	None
328	D5	1	24	31.21	10.94	2.44	1.2	P	Normal
329	D5	1	24	9.62	8.78	1.46	< 0.1	F	None
330	D6	1	1	26.44	8.41	1.77	0.6	MS	None
331	D6	1	1	17.14	10.05	2.10	0.5	MS	None
332	D6	1	2	13.92	8.22	1.32	0.1	D	None
333	D6	1	2	12.64	8.92	1.94	0.3	MS	None
334	D6	1	2	14.68	8.56	3.29	0.4	B	None
335	D6	1	4	10.94	6.93	3.60	0.2	P	Normal
336	D6	1	4	9.18	7.06	2.51	0.2	B	None
337	D6	1	5	5.52	8.22	1.43	< 0.1	MS	None
338	D6	1	5	18.41	9.81	2.91	0.6	MS	None
339	D6	1	7	9.34	8.31	2.33	0.2	MS	None
340	D6	1	8	16.35	4.46	1.98	0.1	B	None
341	D6	1	9	29.93	11.51	2.61	1.3	MS	None
342	D6	1	10	8.98	9.53	2.37	0.2	P	Normal
343	D6	1	10	13.06	7.69	2.12	0.2	MS	None
344	D6	1	10	7.30	8.31	1.78	0.1	MS	None
345	D6	1	11	13.90	7.28	1.58	0.2	MS	None
346	D6	1	12	23.89	11.13	2.72	0.7	P	Normal
347	D6	1	13	18.75	5.86	2.44	0.3	B	None
348	D6	1	14	15.01	9.83	2.48	0.2	B	None
349	D6	1	14	25.93	7.07	2.10	0.5	B	None
350	D6	2	1	11.97	11.74	2.79	0.4	MS	None
351	D6	2	1	8.93	8.42	2.57	0.2	D	None
352	D6	2	1	14.09	9.13	2.41	0.4	MS	None

353	D6	2	1	13.46	10.21	2.18	0.3	MS	None
354	D6	2	1	27.08	11.42	3.08	0.9	MS	None
355	D6	2	1	27.34	8.17	2.60	0.7	MS	None
356	D6	2	1	16.46	7.12	2.46	0.2	MS	None
357	D6	2	1	17.52	5.72	1.54	0.2	MS	None
358	D6	2	1	13.65	8.79	1.63	0.2	MS	None
359	D6	2	1	11.51	6.26	1.88	0.1	B	None
360	D6	2	2	13.59	9.57	2.17	0.3	MS	None
361	D6	2	2	15.77	10.88	1.79	0.4	MS	None
362	D6	2	2	21.07	12.05	2.79	1.0	MS	None
363	D6	2	2	13.78	8.61	5.60	0.6	Deb	None
364	D6	2	2	12.17	6.19	3.37	0.2	B	None
365	D6	2	2	11.84	11.26	2.79	0.3	B	None
366	D6	2	3	14.78	10.46	2.12	0.4	P	Normal
367	D6	2	3	18.31	9.42	2.19	0.5	MS	None
368	D6	2	3	19.31	8.71	2.29	0.5	MS	None
369	D6	2	3	15.11	11.46	2.81	0.6	MS	None
370	D6	2	3	18.38	13.08	2.48	0.6	MS	None
371	D6	2	3	8.29	7.85	1.33	0.1	MS	None
372	D6	2	3	8.36	7.79	1.94	0.1	D	None
373	D6	2	3	10.90	10.69	2.24	0.2	B	None
374	D6	2	3	10.84	10.19	6.20	0.5	Deb	None
375	D6	2	4	11.28	6.84	1.95	0.2	MS	None
376	D6	2	4	16.80	9.14	1.72	0.4	MS	None
377	D6	2	4	22.20	8.54	1.56	0.5	MS	None
378	D6	2	4	23.94	9.39	2.79	0.8	MS	None
379	D6	2	4	17.37	11.31	2.12	0.5	MS	None
380	D6	2	4	14.48	8.91	1.91	0.4	MS	None
381	D6	2	4	16.81	10.57	2.32	0.6	MS	None
382	D6	2	4	14.31	11.8	3.07	0.6	MS	None
383	D6	2	4	15.94	8.64	2.46	0.4	P	Normal
384	D6	2	4	9.91	11.38	2.86	0.3	MS	None
385	D6	2	4	9.73	11.59	2.22	0.2	P	Normal
386	D6	2	4	19.63	8.64	2.18	0.3	F	None
387	D6	2	4	13.82	8.58	3.05	0.4	F	None
388	D6	2	4	20.19	12.14	3.87	1.0	B	None
389	D6	2	4	8.86	8.73	1.72	0.1	B	None
390	D6	2	5	19.96	10.41	2.53	0.8	MS	None
391	D6	2	5	12.92	13.52	2.06	0.4	MS	None
392	D6	2	5	18.13	9.55	2.56	0.6	MS	None

393	D6	2	5	14.06	9.70	2.74	0.4	P	Normal
394	D6	2	5	21.15	9.09	1.67	0.4	P	Normal
395	D6	2	5	23.16	10.25	2.04	0.6	P	Normal
396	D6	2	5	13.49	12.59	1.45	0.3	P	Normal
397	D6	2	6	19.51	12.24	2.24	0.7	MS	None
398	D7	1	1	8.47	8.77	2.14	0.2	MS	None
399	D7	1	1	9.54	6.01	1.62	< 0.1	B	None
400	D7	1	1	9.21	9.70	1.81	0.1	P	Normal
401	D7	1	2	17.13	8.20	1.88	0.3	MS	None
402	D7	1	2	13.70	8.39	1.22	0.1	P	Normal
403	D7	1	4	20.14	8.19	2.16	0.5	MS	None
404	D7	1	5	10.11	10.42	2.29	0.2	P	Normal
405	D7	1	5	11.19	8.72	2.13	0.2	F	None
406	D7	1	6	25.30	21.44	6.81	3.8	BF	None
407	D7	1	6	12.70	7.64	1.41	0.2	MS	None
408	D7	1	7	7.87	10.65	2.29	0.2	D	None
409	D7	1	8	13.27	6.93	2.28	0.2	P	Normal
410	D7	1	8	9.81	8.27	1.66	0.1	B	None
411	D7	1	8	13.03	6.76	6.28	0.5	Deb	None
412	D7	1	9	30.35	12.23	3.67	1.5	P	Normal
413	D7	2	1	18.72	8.59	2.05	0.5	MS	None
414	D7	2	1	24.19	10.07	2.51	0.7	MS	None
415	D7	2	1	15.41	6.35	1.76	0.2	MS	None
416	D7	2	1	8.89	8.11	1.84	< 0.1	B	None
417	D7	2	1	8.26	7.82	6.36	0.4	Deb	None
418	D7	2	1	13.76	10.85	5.18	0.5	Deb	None
419	D7	2	2	17.74	9.35	1.92	0.3	MS	None
420	D7	2	2	18.18	7.85	2.04	0.3	D	None
421	D7	2	2	18.85	8.07	2.74	0.4	B	None
422	D7	2	2	11.60	5.66	0.60	< 0.1	B	None
423	D7	2	3	14.91	8.81	1.81	0.2	MS	None
424	D7	2	3	10.15	10.14	3.41	0.2	Deb	None
425	D7	2	4	23.51	9.04	2.63	0.6	MS	None
426	D7	2	4	7.78	12.14	2.37	0.3	MS	None
427	D7	2	4	27.88	11.87	2.52	1.2	MS	None
428	D7	2	4	29.92	7.47	2.75	0.7	P	Normal
429	D7	2	4	20.69	8.26	3.46	0.7	P	Normal
430	D7	2	4	16.15	11.66	3.75	0.4	F	None
431	D7	2	4	12.59	9.39	1.90	0.2	B	None
432	D7	2	5	21.88	8.04	2.09	0.5	MS	None

433	D7	2	5	27.67	10.86	2.12	0.8	MS	None
434	D7	2	6	20.87	7.56	3.01	0.7	MS	None
435	D7	2	6	16.26	11.98	2.04	0.4	MS	None
436	D7	2	6	18.74	8.12	1.56	0.3	MS	None
437	D7	2	6	9.48	8.05	2.12	0.2	B	None
438	D7	2	6	13.66	8.61	2.54	0.3	P	Normal
439	D7	2	6	12.13	10.17	4.11	0.4	Deb	None
440	D7	2	6	9.89	10.08	5.57	0.6	Deb	None
441	D7	2	7	10.71	10.17	3.35	0.5	MS	None
442	D7	2	7	13.07	7.45	3.13	0.3	B	None
443	D7	2	7	7.72	9.44	1.60	0.1	B	None
444	D7	2	7	14.43	11.61	2.96	0.4	Deb	None
445	D7	2	8	10.21	6.75	1.73	0.1	B	None
446	D7	2	9	11.24	8.05	1.79	0.2	MS	None
447	RS	CO0	1	8.40	9.38	2.67	0.2	MS	None
448	RS	CO0	1	17.56	7.44	1.76	0.3	MS	None
449	RS	CO0	1	3.78	7.49	1.86	< 0.1	MS	None
450	RS	CO0	1	7.33	10.59	3.07	0.3	P	Ground/ Packed
451	RS	CO0	1	15.12	11.72	3.03	0.5	MS	None
452	RS	CO0	1	7.78	12.19	2.58	0.3	MS	None
453	RS	CO0	1	14.59	15.56	4.11	0.5	P	Ground/ Packed
454	RS	CO0	1	15.54	12.86	2.47	0.7	P	Ground/ Packed
455	RS	CO0	1	12.63	15.43	2.62	0.5	P	Ground/ Packed
456	RS	CO0	1	8.56	12.73	2.22	0.4	MS	None
457	RS	CO0	1	18.20	7.07	2.79	0.4	B	None
458	RS	CO0	3	10.17	12.29	3.63	0.6	MS	None
459	RS	CO0	3	12.84	11.97	2.63	0.5	MS	None
460	RS	D0	4	24.72	9.67	2.23	0.7	P	Normal
461	RS	D0	4	26.73	8.90	2.86	0.6	MS	None
462	RS	CO1	3	10.52	9.21	2.62	0.3	MS	None
463	RS	CO1	5	9.76	5.38	1.51	0.1	B	None
464	RS	CO1	5	9.47	9.92	2.36	0.2	P	Normal
465	RS	CO1	9	34.91	8.45	2.83	1.0	MS	None
466	RS	CO1	12	15.20	8.39	2.15	0.4	MS	None
467	RS	CO1	14	21.53	11.27	1.96	0.6	MS	None
468	RS	CO1	14	5.48	8.61	1.97	0.1	MS	None
469	RS	CE2015	N0436373/E1760488	15.93	11.37	9.17	1.7	BF	None

470	RS	D0	4	25.45	21.25	6.04	2.7	BF	None
471	RS	CE0	3	20.35	12.06	2.15	0.7	MS	None
472	RS	CE0	3	16.07	7.73	1.76	0.3	B	None
473	RS	CO2015	N0436320/E1760625	10.36	9.77	2.33	0.2	MS	None
474	RS	CE2015	N0436423/E1760476	25.35	18.64	6.34	2.2	F	None
475	RS	A0	9	15.04	14.19	3.28	0.5	F	None
476	RS	CE0	2	20.45	15.63	4.85	1.4	P	Normal
477	RS	CE0	2	12.86	12.56	2.90	0.5	MS	None
478	RS	CE0	2	10.30	7.62	2.16	0.1	B	None
479	RS	CO0	1	13.45	8.30	2.02	0.3	MS	None
480	RS	CO0	1	14.49	8.20	1.89	0.3	MS	None
481	RS	CO0	1	17.39	10.12	2.52	0.7	P	Ground/ Packed
482	RS	CO0	1	20.68	19.96	6.78	2.2	BF	None
483	RS	CO0	1	8.84	4.19	1.51	< 0.1	B	None
484	RS	CO0	1	7.29	6.18	3.00	0.2	B	None
485	RS	CO0	1	10.99	6.28	1.77	0.1	B	None
486	RS	CO0	1	7.24	5.80	1.05	<0.1	B	None
487	RS	CO2015	N0436330/E1760664	10.35	13.71	2.32	0.5	MS	None
488	RS	CE0	1	13.68	13.89	2.76	0.5	P	Normal
489	RS	CO1	2	13.60	10.85	3.07	0.4	B	None
490	RS	CE4	1	15.40	12.06	2.27	0.6	P	Ground/ Packed
491	RS	CO02015	N0436333/E1760622	20.55	14.91	3.54	1.1	MS	None
492	RS	D2015	N0435561/E1760780	32.34	10.35	3.27	1.5	MS	None
493	RS	CE0	4	29.53	9.81	1.96	0.8	MS	None
494	RS	CE0	4	12.76	11.80	2.59	0.3	B	None
495	RS	CE2015	N0436405/E1760503	8.71	7.02	2.29	0.1	F	None
496	RS	CO02015	N0436326/E1760616	14.31	10.67	1.86	0.4	MS	None
497	RS	CO0	2	25.48	11.43	2.89	1.3	MS	None
498	RS	CO0	2	14.82	10.87	1.75	0.3	B	None
499	RS	CO02015	N0436326/E1760627	12.93	10.40	3.31	0.5	MS	None
500	RS	CO2015	N0436310/E1760681	11.61	10.44	2.26	0.4	MS	None
501	RS	CO0	3	62.11	11.14	2.35	2.6	P	Normal
502	RS	CO0	3	18.70	9.51	2.46	.06	MS	None